serverfarm

To identify a server farm, and then enter the serverfarm configuration submode, use the **serverfarm** command. To remove the server farm from the configuration, use the **no** form of this command.

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

Command History

Release	Modification
1.1(1)	This command was introduced.

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.

Examples

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

```
Cat6k-2(config-module-csm)#    serverfarm PUBLIC
```

Related Commands

script task
serverfarm (policy submode)
show module csm serverfarm

bindid (serverfarm 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 **bindid** command in the SLB serverfarm configuration submode. To disable the bind identification, use the **no** form of this command.

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

Command History

Release	Modification
1.1(1)	This command was introduced.

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.

Examples

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

```
Cat6k-2(config-slb-sfarm)# bindid 7
```

Related Commands

dfp
script task
show module csm serverfarm

failaction (serverfarm submode)

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

failaction {**purge** | **reassign**}

no failaction {**purge** | **reassign**}

Syntax Description

purge	Specifies that the connection is removed.
reassign	Specfies that the connection is reassigned to another real server.

Defaults

The default is that no action is taken.

Command Modes

SLB serverfarm configuration submode

Command History

Release	Modification
3.2(1)	This command was introduced.

Usage Guidelines

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

Examples

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

```
Cat6k-2(config-slb-sfarm)# failaction purge
```

Related Commands

backup real (real server submode)
dfp
inservice (real server submode)
script task
show module csm serverfarm

health (serverfarm submode)

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

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

no health

Syntax Description

retries	Specifies 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	Specifies 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:

```
Cat6k-2(config-slb-sfarm)# health retries 20 failed 200
```

Related Commands

dfp
script task
show module csm serverfarm

nat client (serverfarm 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 **nat client** command in SLB serverfarm configuration submode. To remove the NAT pool from the configuration, use the **no** form of this command.

nat client {*client-pool-name* **static**}

no nat client

Syntax Description

client-pool-name	Client pool name.
static	Enables static NAT.

Defaults

This command has no default settings.

Command Modes

SLB serverfarm configuration submode

Command History

Release	Modification
1.1(1)	This command was introduced.
3.2(1)	This command was modified to include the **static** option.

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.

Examples

This example shows how to specify NAT on the client:

```
Cat6k-2(config-slb-sfarm)# nat client whishers
```

Related Commands

natpool (module CSM submode)
nat server (serverfarm submode)
predictor (serverfarm submode)
script task
show module csm serverfarm

nat server (serverfarm submode)

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

nat server [*source-mac*] **static**

no nat server

Syntax Description

source-mac	(Optional) Specifies that the request is forwarded back to the source MAC address.
static	Enables static NAT.

Defaults

Server NAT is enabled by default.

Command Modes

SLB server farm configuration submode

Command History

Release	Modification
1.1(1)	This command was introduced.
4.1(1)	The *source-mac* value is added.

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.

The *source-mac* value encrypts traffic for the SSL service and is specific to SSL devices. The *source-mac* value sends the request back to the SSL device for encryption, the CSM load balances to the server through the SSL encryption. This value supports back end encruption.

Examples

This example shows how to specify NAT on the server:

```
Cat6k-2(config-slb-sfarm)# nat server
```

Related Commands

nat client (serverfarm submode)
predictor (serverfarm submode)
script task
show module csm serverfarm

predictor (serverfarm submode)

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

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

no predictor

Syntax Description

roundrobin	Selects the next servers in the list of real servers.
leastconns	Selects the server with the least number of connections.
hash url	Selects the server using a hash value based on the URL.
hash address	Selects the server using a hash value based on the source and destination IP addresses.
source	(Optional) Selects the server using a hash value based on the source IP address.
destination	(Optional) Selects 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	(Optional) Tells 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

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.
4.1(2)	The REAL_SLOW_START_ENABLE variable was included to control the rate at which a real server ramps up and is put into service.

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 **url-hash** command.

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

Cache servers perform better using URL hash. However, the hash methods do not recognize weight for the real servers. The weight assigned to the real servers is used in the round-robin and least connection predictor methods. To create different weights for real servers, you can list multiple IP addresses of the cache server in the server farm. You can also use the same IP address with a different port number.

Note The only time the sequence of servers starts over at the beginning (with the first server) is when there is a configuration or server state change (either a probe or DFP agent).

When the least connection predictor is configured, a slow-start mechanism is implemented to avoid sending a high rate of new connections to the servers that have just been put in service. The real server with the fewest number of active connections will get the next connection request for the server farm with the leastconns predictor. A new environment variable, REAL_SLOW_START_ENABLE controls the rate at which a real server ramps up when it put into service. The slow start ramping up is only for a serverfarm configured with the “least-conns” method.

The configurable range for this variable is 0 to 10. The setting of 0 disables the slowstart feature. The value from 1 to 10 specifies how fast the newly activated server should ramp up. The value of 1 is the slowest ramp up rate. The value of 10 specifies that the CSM would assign more requests to the newly activated server. The value of 3 is the default value.

If the configuration value is N, the CSM assigns 2 ^ N (2 raised to the N power) new requests to the newly active server from the start (assuming no connections were terminated at that time). As this server finishes or terminates more connections, a faster ramping occurs. The ramp up stops when the newly activated server has the same number of current opened connections as the other servers in a serverfarm.

Examples

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

```
Cat6k-2(config-module-csm)# serverfarm PUBLIC
Cat6k-2(config-slb-sfarm)# predictor leastconns
```

This example shows how to configure a server farm, named p1_nat, using the least-connections (**leastconns**) algorithm.

```
Router(config-module-csm)# serverfarm p1_nat
Router(config-slb-sfarm)# predictor leastconns
Router(config-slb-sfarm)# real 10.1.0.105
Router(config-slb-real)# inservice
Router(config-slb-sfarm)# real 10.1.0.106
Router(config-slb-real)# inservice
```

Related Commands

maxconns (owner submode)
minconns (real server submode)
nat client (serverfarm submode)
nat server (serverfarm submode)
script task
serverfarm (virtual server submode)
show module csm serverfarm

probe (serverfarm submode)

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

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

Command History

Release	Modification
1.1(1)	This command was introduced.

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.

Examples

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

```
Cat6k-2(config-slb-sfarm)# probe general
```

Related Commands

probe
script task
show module csm probe
show module csm serverfarm

retcode-map (serverfarm submode)

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

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:

```
Cat6k-2(config-slb-sfarm)# retcode-map return_stats
```

Related Commands

map retcode
script task
show module csm serverfarm

show module csm

To display information about the CSM module, use the **show module csm** command.

show module csm *slot* [*group-id*]

Syntax Description

slot	Slot where the CSM resides.
group-id	(Optional) Group ID to which the CSM belongs.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
3.2(1)	This command was introduced as **show ip slb**.

Examples

This example shows how to display static data:

```
Cat6k-2# show module csm 4 7
```

Related Commands

module csm
real (static NAT submode)
static

show module csm arp

To display the CSM ARP cache, use the **show module csm arp** command.

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:

```
Cat6k-2# 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)
```

Related Commands

arp
module csm

capp udp
module csm

show module csm conns

To display active connections, use the **show module csm conns** command.

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

Syntax Description

slot	Slot where the CSM resides.
conns	Specifies the connections.
vserver	(Optional) Specifies the connections associated with a particular virtual server.
virtserver-name	(Optional) Name of the virtual server to be monitored.
client	(Optional) Specifies the connections associated with a particular client IP address.
ip-address	(Optional) IP address of the client to be monitored.
detail	(Optional) Specifies 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)*.

Usage Guidelines

The following connection state definitions are displayed in the output of this command.

State	Explanation
INIT	No TCP state available, but session received
CLOSING	Received both client and server FINs, waiting for ACK of last FIN
ESTAB	Client and server side connections established, balance decision made Non-TCP flows immediately transition to this state
SYNCLINET	Client sent SYN, the CSM has sent SYN_ACK, waiting for ACK
SYNBOTH	Client side connection established, sent SYN to server
FINCLIENT	Received a FIN from client, waiting for server FIN
FINSERVER	Received a FIN from server, waiting for client FIN

State	Explanation
SYN_SRV	On a persistent Layer 7 connection (where the CSM parses each GET and eventually remaps the connection in the backend), if the load balancing decision has selected a different server, the CSM has sent its SYN to the new server and is waiting on a server SYN_ACK from the new server
REQ_WAIT	On a persistent Layer 7 connection, the CSM has already load balanced at least one request, and is now waiting for the next request.

Examples

This example shows how to display active connection data:

```
Cat6k-2# 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

Cat6k-2# 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
```

Related Commands

module csm

show module csm dfp

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

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) Specifies information about a DFP agent.
detail	(Optional) Specifies all data available.
ip_address	(Optional) Agent IP address.
port	(Optional) Agent port number.
manager	(Optional) Specifies 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) Specifies all data available.
weights	(Optional) Specifies 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:

```
Cat6k-2# show module csm 4 dfp detail
```

This example shows information about weights:

```
Cat6k-2# show module csm 4 dfp weights
```

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

```
Cat6k-2# show module csm 4 dfp
```

Related Commands

agent (DFP submode)
dfp
manager (DFP submode)
module csm

show module csm ft

To display statistics and counters for the CSM fault-tolerant pair, use the **show module csm ft** command.

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

Syntax Description

slot	Slot where the CSM resides.
detail	(Optional) Displays 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* **ft** *(for* **ip slb mode rp** *only)*.

Examples

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

```
Cat6k-2# 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
module csm

show module csm map

To display information about URL maps, use the **show module csm map** command.

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

Syntax Description

slot	Slot where the CSM resides.
url	(Optional) Specifies only the URL map configuration.
cookie	(Optional) Specifies only the cookie map configuration.
header	(Optional) Specifies only the header map configuration.
retcode	(Optional) Specifies only the return code map configuration.
name	(Optional) Specifies the named map.
map-name	(Optional) Map name to display.
detail	(Optional) Specifies 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* **map** *(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:

```
Cat6k-2# 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:

```
Cat6k-2# 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
module csm

show module csm memory

To display information about memory use, use the **show module csm memory** command.

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

Syntax Description

slot	Slot where the CSM resides.
vserver	(Optional) Specifies the virtual server configuration.
vserver-name	(Optional) Option to restrict output to the named virtual server.
detail	(Optional) Displays virtual server memory information in detail.

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* **memory** *(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:

```
Cat6k-2# 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

module csm
parse-length (virtual server submode)

show module csm natpool

To display NAT configurations, use the **show module csm natpool** command.

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

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Displays a specific NAT pool.
pool-name	(Optional) NAT pool name string to display.
detail	(Optional) Lists 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* **natpool** *(for* **ip slb mode rp** *only)*.

Examples

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

```
Cat6k-2# 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:

```
Cat6k-2# 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

module csm
natpool (module CSM submode)

show module csm owner

To display the current connections count for the specified owner objects, use the **show module csm** *slot* **owner** command.

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

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Displays a specific owner object.
owner-name	(Optional) Owner object name string to display.
detail	(Optional) Lists the virtual servers in an owner group with the virtual server'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:

```
Cat6k-2# show module csm 4 owner
```

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

```
Cat6k-2# show module csm 4 owner detail
```

Related Commands

module csm
owner (virtual server submode)

show module csm policy

To display a policy configuration, use the **show module csm policy** command.

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

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Displays 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* **policy** *(for* **ip slb mode rp** *only).*

Examples

This example shows how to display a policy configuration:

```
Cat6k-2# 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
Cat6k-2#
```

Related Commands

module csm
policy

show module csm probe

To display HTTP or ping probe data, use the **show module csm probe** command.

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) Displays information about the HTTP configuration.
icmp	(Optional) Displays information about the ICMP configuration.
telnet	(Optional) Displays information about the Telnet configuration.
tcp	(Optional) Displays information about the TCP configuration.
ftp	(Optional) Displays information about the FTP configuration.
smtp	(Optional) Displays information about the SMTP configuration.
dns	(Optional) Displays information about the DNS configuration.
name	(Optional) Displays information about the specific probe named.
probe_name	(Optional) Probe name to display.
detail	(Optional) Displays 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* **probe** *(for* **ip slb mode rp** *only)*.

Examples

This example shows how to display probe data:

```
Cat6k-2# 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

module csm
probe (serverfarm submode)

show module csm probe script

To display probe script data, use the **show module csm probe script** command.

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

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Displays information about the specific probe named.
probe-name	(Optional) Probe name to display.
detail	(Optional) Displays 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:

```
Cat6k-2# show module csm 4 probe script detail
```

Related Commands

module csm
probe (serverfarm submode)
script (probe submode)

show module csm real

To display information about real servers, use the **show module csm real** command.

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

Syntax Description

slot	Slot where the CSM resides.
sfarm	(Optional) Displays real servers for only a single serverfarm.
sfarm-name	(Optional) Name of the server farm to restrict output.
detail	(Optional) Displays 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* **real** *(for* **ip slb mode rp** *only)*.

Examples

This example shows Cisco IOS SLB real server data:

```
Cat6k-2# 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

Cat6k-2# 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 2-1 describes the fields in the display.

Table 2-1 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.

module csm
real (static NAT submode)

show module csm real retcode

To display information about the return code configuration, use the **show module csm real retcode** command.

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

Syntax Description

slot	Slot where the CSM resides.
sfarm	(Optional) Displays real servers for only a single server farm.
sfarm-name	(Optional) Name of the server farm to restrict output.
detail	(Optional) Displays 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:

```
Cat6k-2# 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

module csm
real (static NAT submode)

show module csm script

To display the contents of all loaded scripts, use the **show module csm script** command.

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

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Displays information about a particular script.
full_file_URL	(Optional) Name of the script.
code	(Optional) Displays 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:

```
Cat6k-2# show module csm 3 script name probe1 xxx
```

Related Commands

module csm
script file

show module csm script task

To display all loaded scripts, use the **show module csm script task** command.

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

Syntax Description

slot	Slot where the CSM resides.
index	(Optional) Displays information about a particular script.
script-index	(Optional) Specifies the script index.
detail	(Optional) Displays 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:

```
Cat6k-2# show module csm 3 script
```

Related Commands

module csm
script file
script task
show module csm script

show module csm serverfarm

To display information about a server farm, use the **show module csm serverfarm** command.

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

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Displays information about a particular server farm.
serverfarm-name	(Optional) Name of the server farm.
detail	(Optional) Displays 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* **serverfarm** *(for* **ip slb mode rp** *only)*.

Examples

This example shows how to display server farm data:

```
Cat6k-2# 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 2-2 describes the fields in the display.

Table 2-2 show module csm serverfarm 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 2-2 show module csm serverfarm 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:

```
Cat6k-2# 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

module csm
serverfarm (virtual server submode)

show module csm static

To display information about server NAT configurations, use the **show module csm static** command.

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

Syntax Description

slot	Slot where the CSM resides.
drop	(Optional) Displays information about real servers configured to drop connections.
nat	(Optional) Displays information about real servers configured to NAT.
ip-address	(Optional) IP address to which to NAT.
virtual	(Optional) Displays 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* **static** *(for* **ip slb mode rp** *only)*.

Examples

This example shows how to display static data:

```
Cat6k-2# show module csm 4 static nat
```

Related Commands

module csm
real (static NAT submode)
static

show module csm static server

To display information about actual servers that are having NAT performed, use the **show module csm static server** command.

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) Displays information about real servers configured to drop connections.
nat	(Optional) Displays information about real servers configured to NAT.
ip-address	(Optional) IP address to NAT.
virtual	(Optional) Displays information about servers configured to NAT virtual server addresses.
pass-through	(Optional) Displays 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* **static server** *(for* **ip slb mode rp** *only)*.

Examples

This example shows how to display static server data:

```
Cat6k-2# 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

module csm
real (static NAT submode)
static

show module csm stats

To display SLB statistics, use the **show module csm stats** command.

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* **stats** *(for* **ip slb mode rp** *only).*

Usage Guidelines

The statistics counters are 32-bit.

Examples

This example shows how to display SLB statistics:

```
Cat6k-2# show module csm 4 stats
Connections Created:       180
Connections Destroyed:     180
Connections Current:       0
Connections Timed-Out:     0
Connections Failed:        0
Server initiated Connections:
      Created:0, Current:0, 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 2-3 describes the fields in the display.

Table 2-3 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.

Related Commands module csm

show module csm status

To display if the CSM is online, use the **show module csm status** command. 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* **status** *(for* **ip slb mode rp** *only).*

Examples

This example shows how to display CSM status:

```
Cat6k-2# show module csm 4 status
SLB Module is online in slot 4.
Configuration Download state:COMPLETE, SUCCESS
```

Related Commands

module csm

show module csm sticky

To display the sticky database, use the **show module csm sticky** command.

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

Syntax Description

slot	Slot where the CSM resides.
groups	(Optional) Displays all of the sticky group configurations.
client	(Optional) Displays 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* **sticky** *(for* **ip slb mode rp** *only.*

Usage Guidelines

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

Examples

This example shows how to display the sticky database:

```
Cat6k-2# show module csm 4 sticky groups
Group  Timeout  Type
------------------------------------------------------------
20     100      netmask 255.255.255.255
30     100      cookie foo
```

This example shows how to display the sticky configuration:

```
Cat6k-2# show module csm 4 sticky configuration
Group  CurrConns Timeout  Type
------------------------------------------------------------
7      12        2        ssl
```

Table 2-4 describes the fields in the display.

Table 2-4 show module csm stats Command Field Information

Field	Description
Group	Specifies the sticky group.
CurrConns	Number of sticky entries that are currently active.
Timeout	Specifies the timeout
Type	Specifies the connection identification.

Related Commands

module csm
sticky
sticky (virtual server submode)

show module csm tech-script

To display the status of a script, use the **show module csm tech-script** command.

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:

```
Cat6k-2# show module csm 4 tech-script
```

Related Commands

module csm

show module csm tech-support

To display technical support information for the CSM, use the **show module csm tech-support** command.

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) Displays all of the available statistics.
processor	(Optional) Displays the IXP statistics for the IXP identified by the *num* value.
num	(Optional) IXP number.
redirect	(Optional) Displays all of the HTTP redirect statistics.
slowpath	(Optional) Displays all of the slowpath statistics.
probe	(Optional) Displays all of the probe statistics.
fpga	(Optional) Displays all of the field programmable gate array (FPGA) statistics.
core_dump	(Optional) Displays 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* **tech-support** *(for* **ip slb mode rp** *only)*.

Examples

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

```
Cat6k-2# 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

Cat6k-2# 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
```

Related Commands

module csm

show module csm variable

To display the environmental variables in the configuration, use the **show module csm variable** command.

show module csm *slot* **variable** [**name** *name*] [**detail**]

Syntax Description

name *name*	(Optional) Displays the named variable information.
detail	(Optional) Displays the variable details.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

For a list of the CSM environmental variables, refer to the **variable (module CSM submode)** command description.

Examples

You can display the current set of CSM environmental variables by using the **show module csm** *slot* **variable** command:

```
Cat6k-2# show module csm 5 variable

variable                        value
------------------------------------------------------------------
ARP_INTERVAL                    300
ARP_LEARNED_INTERVAL            14400
ARP_GRATUITOUS_INTERVAL         15
ARP_RATE                        10
ARP_RETRIES                     3
ARP_LEARN_MODE                  1
ADVERTIZE_RHI_FREQ              10
DEST_UNREACHABLE_MASK           0xffff
HTTP_CASE_SENSITIVE_MATCHING    1
MAX_PARSE_LEN_MULTIPLIER        1
NAT_CLIENT_HASH_SOURCE_PORT     0

variable                        value
------------------------------------------------------------------
ROUTE_UNKNOWN_FLOW_PKTS         0
VSERVER_ICMP_ALWAYS_RESPOND     false
Cat6k-2#
```

You can display the details of a current set of CSM environmental variables by using the **show module csm** *slot* **variable detail** command:

```
Cat6k-2# show module csm 5 variable detail
Name: ARP_INTERVAL  Rights: RW
Value: 300
Default: 300
Valid values: Integer (15 to 31536000)
Description:
Time (in seconds) between ARPs for configured hosts
Name: ARP_LEARNED_INTERVAL  Rights: RW
Value: 14400
Default: 14400
Valid values: Integer (60 to 31536000)
Description:
Time (in seconds) between ARPs for learned hosts

Name: ARP_GRATUITOUS_INTERVAL  Rights: RW
Value: 15
Default: 15
Valid values: Integer (10 to 31536000)
Description:
Time (in seconds) between gratuitous ARPs

Name: ARP_RATE  Rights: RW
Value: 10
Default: 10
Valid values: Integer (1 to 60)
Description:
Seconds between ARP retries

Name: ARP_RETRIES  Rights: RW
Value: 3
Default: 3
Valid values: Integer (2 to 15)
Description:
Count of ARP attempts before flagging a host as down
!
```

show module csm vlan

To display the list of VLANs, use the **show module csm vlan** command.

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

Syntax Description

slot	Slot where the CSM resides.
client	(Optional) Displays only the client VLAN configuration.
server	(Optional) Displays only the server VLAN configuration.
ft	(Optional) Displays only the fault-tolerant configuration.
id	(Optional) Displays the VLAN.
vlan-id	(Optional) Displays the specified VLAN.
detail	(Optional) Displays 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* **vlan** *(for* **ip slb mode rp** *only)*.

Examples

This example shows how to display the VLAN configurations:

```
Cat6k-2# 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
Cat6k-2#
Cat6k-2#
Cat6k-2# show module 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 (virtual server submode)

show module csm vserver redirect

To display the list of virtual servers, use the **show module csm vserver redirect** command.

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* **vserver redirect** *(for* **ip slb mode rp** *only)*.

Examples

This example shows how to display the CSM virtual servers:

```
Cat6k-2# 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
Cat6k-2#
Cat6k-2#
Cat6k-2# show module 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

module csm

show module csm xml stats

To display a list of extensible markup language XML statistics, use the **show module csm xml stats** command.

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:

```
Cat6k-2# 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
```

Related Commands

xml-config

snmp enable traps slb ft

To enable or disable fault-tolerant traps, use the **snmp enable traps slb ft** command. To disable fault-tolerant traps, use the **no** form of this command.

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 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:

```
Cat6k-2(config-module-csm)# snmp enable traps slb ft
```

static

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

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

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

Syntax Description

drop	Drops connections from servers specified in static submode.
nat	Uses the server's virtual IP (VIP) to translate its source IP address.
virtual	Specifies that the configuration is for NAT.
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:

```
Cat6k-2(config-module-csm)# static nat virtual
```

Related Commands

module csm
show module csm static

real (static NAT submode)

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

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:

```
Cat6k-2(config-slb-static)# real 10.0.0.0 255.0.0.0
```

Related Commands

static
show module csm static

sticky

To ensure that connections from the same client that match the same SLB policy use the same real server on subsequent connections and enter the sticky submode, use the **sticky** command. To remove a sticky group, use the **no** form of this command.

sticky *sticky-group-id* {**netmask** *netmask* | **cookie** *name* [**insert**] | **ssl**} [**address** [**source** | **destination** | **both**]] [**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 *netmask*	Specifies the network mask for IP stickiness.
cookie *name*	Specifies name of the cookie attached to the *sticky-group-id* value.
insert	(Optional) Specifies the cookie insert.
ssl	Specifies SSL stickiness.
address | source | destination both	Specifies the real server IP address for the source, or the destination, or both.
timeout *sticky-time*	(Optional) Specifies the 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.
4.1(1)	The insert keyword was added.

Usage Guidelines

Specifying a net mask 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 the *sticky-time* value 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.

The cookie insert feature allows the CSM to insert a cookie in the Set-Cookie header in the HTTP response.

Examples

This example shows how to create an IP sticky group:

```
Cat6k-2(config-module-csm)# sticky 5 netmask 255.255.255.255 timeout 20
Cat6k-2(config-slb-sticky-ip)#
```

Related Commands

cookie offset (sticky submode)
cookie secondary (sticky submode)
sticky (virtual server submode)
sticky-group (policy submode)
show module csm sticky

cookie offset (sticky submode)

To maintain a connections persistence by specifying a portion of the cookie to use to "stick" the connection, use the **cookie offset** command in the sticky configuration submode. To remove the offset, use the **no** form of this command.

cookie offset *offset* [**length** *length*]

no cookie offset

Syntax Description

offset *offset*	Specifies the byte offset count. Range is from 0 to 3999.
length *length*	(Optional) Specifies the length of the portion of the cookie you are using. Range is from 1 to 4000.

Defaults

This command has not default settings.

Command Modes

Sticky configuration submode

Command History

Release	Modification
4.1(1)	This command was introduced.

Usage Guidelines

Specify the offset in bytes counting from the first byte of the cookie value. The length (in bytes) is the portion of the cookie you are using to maintain the sticky connection. These values are stored in the sticky tables.

Examples

This example shows how to specify a cookie offset and length:

```
Cat6k-2(config-slb-sticky-cookie)# cookie offset 20 length 66
```

Related Commands

cookie secondary (sticky submode)
sticky
sticky (virtual server submode)
sticky-group (policy submode)
show module csm sticky

cookie secondary (sticky submode)

To stick a connection based on an alternate cookie name appearing in the URL string, and add a secondary sticky entry, use the **cookie secondary** command in the name configuration submode. To remove a secondary sticky, use the **no** form of this command.

cookie secondary *name*

no cookie secondary

Syntax Description

name	Specifies a cookie name.

Defaults

This command has not default settings.

Command Modes

Sticky configuration submode

Command History

Release	Modification
4.1(1)	This command was introduced.

Usage Guidelines

This command is used for the URL-cookie-learn feature. The secondary name may be the same as the primary name.

Examples

This example shows how to specify a secondary sticky entry:

```
Cat6k-2(config-slb-sticky-cookie)# cookie secondary ident2
```

Related Commands

sticky
sticky (virtual server submode)
sticky-group (policy submode)
show module csm sticky

static (sticky submode)

To add a static sticky entry, use the **static** command. To remove a sticky group, use the **no** form of this command.

static client source *ip-address* [**destination** *ip-address*] **real** *ip-address*

static cookie *value* **real** *ip-address*

static ssl *id* **real** *ip-address*

no static

Syntax Description

client *source ip-address*	Identifies the client source for thte sticky entry.
destination *ip-address*	(Optional) Specifies the destination IP address.
real *ip-address*	Identifies the real server.
cookie *value*	Identifies the cookie.
ssl *id*	Identifies SSL.

Defaults

This command has not default settings.

Command Modes

Sticky configuration submode

Command History

Release	Modification
3.2(1)	This command was introduced.

Examples

This example shows how to create an IP sticky group:

```
Cat6k-2(config-module-csm)# sticky 5 netmask 255.255.255.255 timeout 20
Cat6k-2(config-slb-sticky-ip)#
```

Related Commands

sticky
sticky (virtual server submode)
sticky-group (policy submode)
show module csm sticky

vserver

To identify a virtual server, and then enter the virtual server configuration submode, use the **vserver** command. To remove a virtual server from the configuration, use the **no** form of this command.

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:

```
Cat6k-2(config-module-csm)#    vserver PUBLIC_HTTP
```

Related Commands

redirect-vserver
show module csm vserver redirect