

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	<i>serverfarm-name</i>	Character string used to identify the server farm; the character string is limited to 15 characters.
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Defaults	This command has no default settings.
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Command Modes	Module CSM configuration submode
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Command History	Release	Modification
	CSM release 1.1(1)	This command was introduced.
	CSM-S release 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.
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Examples	This example shows how to identify a server farm named PUBLIC and change the CLI to server farm configuration mode:
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```
Cat6k-2 (config-module-csm) # serverfarm PUBLIC
```

Related Commands	script task serverfarm (policy submode) show module csm serverfarm
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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	<i>bind-id</i>	(Optional) Identification number for each binding; the range is from 0 to 65533.
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Defaults	The default is 0.
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Command Modes	SLB serverfarm configuration submode
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Command History	Release	Modification
	CSM release 1.1(1)	This command was introduced.
CSM-S release 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.
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Examples	This example shows how to bind a server to multiple virtual servers:
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```
Cat6k-2(config-slb-sfarm)# bindid 7
```

Related Commands	<p>dfp</p> <p>script task</p> <p>show module csm serverfarm</p>
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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	Specifies 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
CSM release 3.2(1)	This command was introduced.
CSM-S release 1.1(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.
<i>count</i>	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.
<i>seconds</i>	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
CSM release 2.2(1)	This command was introduced.
CSM-S release 1.1(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

<i>client-pool-name</i>	Client pool name.
static	Enables static NAT.

Defaults

This command has no default settings.

Command Modes

SLB serverfarm configuration submode

Command History

Release	Modification
CSM release 1.1(1)	This command was introduced.
CSM release 3.2(1)	This command was modified to include the static option.
CSM-S release 1.1(1)	This command was introduced.

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 wishers
```

Related Commands

[natpool \(module CSM submode\)](#)
[nat server \(serverfarm submode\)](#)
[predictor \(serverfarm submode\)](#)
[script task](#)
[show module csm serverfarm](#)
[static](#)

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]

no nat server

Syntax Description

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

Defaults

Server NAT is enabled by default.

Command Modes

SLB server farm configuration submode

Command History

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

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 encryption.

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.
	<i>ip-netmask</i>	(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
	CSM release 1.1(1)	This command was introduced.
	CSM release 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.
	CSM-S release 1.1(1)	This command was introduced.

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 `pl_nat`, using the least-connections (**leastconns**) algorithm.

```
Router(config-module-csm)# serverfarm pl_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

<i>probe-name</i>	Probe name associated with the server farm.
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Defaults

This command has no default settings.

Command Modes

SLB serverfarm configuration submode

Command History

Release	Modification
CSM release 1.1(1)	This command was introduced.
CSM-S release 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	<i>retcodemap_name</i>	Return code map name associated with the server farm.
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Defaults	This command has no default settings.
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Command Modes	SLB serverfarm configuration submode
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Command History	Release	Modification
	CSM release 2.2(1)	This command was introduced.
	CSM-S release 1.1(1)	This command was introduced.

Examples	This example shows how to associate a probe with a server farm:
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```
Cat6k-2 (config-slb-sfarm) # retcode-map return_stats
```

Related Commands	map retcode script task show module csm serverfarm
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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
	CSM release 3.2(1)	This command was introduced as show ip slb .
	CSM-S release 1.1(1)	This command was introduced.

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	<i>slot</i>	Slot where the CSM resides.
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Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	CSM release 1.1(1)	This command was introduced as show ip slb arp .
	CSM release 2.1(1)	This command was changed to show module csm slot (for ip slb mode rp only) .
	CSM-S release 1.1(1)	This command was introduced.

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

<i>slot</i>	Slot where the CSM resides.
conns	Specifies the connections.
vserver	(Optional) Specifies the connections associated with a particular virtual server.
<i>virtserver-name</i>	(Optional) Name of the virtual server to be monitored.
client	(Optional) Specifies the connections associated with a particular client IP address.
<i>ip-address</i>	(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
CSM release 1.1(1)	This command was introduced as show ip slb conns .
CSM release 2.1(1)	This command was changed to show module csm slot (for ip slb mode rp only) .
CSM-S release 1.1(1)	This command was introduced.

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

<i>slot</i>	Slot where the CSM resides.
agent	(Optional) Specifies information about a DFP agent.
detail	(Optional) Specifies all data available.
<i>ip_address</i>	(Optional) Agent IP address.
<i>port</i>	(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.
<i>ip_addr</i>	(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
CSM release 1.1(1)	This command was introduced as show ip slb dfp .
CSM release 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) .
CSM-S release 1.1(1)	This command was introduced.

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	
<i>slot</i>	Slot where the CSM resides.
detail	(Optional) Displays more detailed information.

Defaults No values are displayed.

Command Modes Privileged EXEC

Command History	Release	Modification
	CSM release 1.1(1)	This command was introduced as show ip slb ft .
	CSM release 2.1(1)	This command was changed to show module csm slot ft (<i>for ip slb mode rp only</i>).
	CSM-S release 1.1(1)	This command was introduced.

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.
<i>map-name</i>		(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
CSM release 1.1(1)	This command was introduced as show ip slb map .
CSM release 2.1(1)	This command was changed to show module csm slot map (<i>for ip slb mode rp only</i>). The header option is added for displaying only header maps.
CSM release 2.2(1)	This command was changed to include the retcode option.
CSM-S release 1.1(1)	This command was introduced.

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:*asdgjaskgkjsdkgjsasdgsg*

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

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.
	<i>vserver-name</i>	(Optional) Option to restrict output to the named virtual server.
	detail	(Optional) Displays the memory information in detail.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	CSM release 1.1(1)	This command was introduced as show ip slb memory .
	CSM release 2.1(1)	This command was changed to show module csm slot memory (<i>for ip slb mode rp only</i>). The detail keyword no longer has an effect and is hidden or deprecated.
	CSM-S release 1.1(1)	This command was introduced.

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	
<i>slot</i>	Slot where the CSM resides.
name	(Optional) Displays a specific NAT pool.
<i>pool-name</i>	(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
	CSM release 1.1(1)	This command was introduced as show ip slb natpool .
	CSM release 2.1(1)	This command was changed to show module csm slot natpool (for ip slb mode rp only).
	CSM-S release 1.1(1)	This command was introduced.

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	
<i>slot</i>	Slot where the CSM resides.
name	(Optional) Displays a specific owner object.
<i>owner-name</i>	(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
	CSM release 3.1(1)	This command was introduced.
	CSM-S release 1.1(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
<i>slot</i>	Slot where the CSM resides.
name	(Optional) Displays a specific policy.
<i>policy-name</i>	(Optional) Policy name string to display.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	CSM release 1.1(1)	This command was introduced as show ip slb policy .
	CSM release 2.1(1)	This command was changed to show module csm slot policy (<i>for ip slb mode rp only</i>).
	CSM-S release 1.1(1)	This command was introduced.

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

<i>slot</i>	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.
<i>probe_name</i>	(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
CSM release 1.1(1)	This command was introduced as show ip slb probe .
CSM release 2.1(1)	This command was changed to show module csm slot probe (<i>for ip slb mode rp only</i>).
CSM-S release 1.1(1)	This command was introduced.

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        0     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
```

■ show module csm probe

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		
<i>slot</i>		Slot where the CSM resides.
name		(Optional) Displays information about the specific probe named.
<i>probe-name</i>		(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
	CSM release 3.1(1)	This command was introduced.
	CSM-S release 1.1(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	
<i>slot</i>	Slot where the CSM resides.
sfarm	(Optional) Displays real servers for only a single serverfarm.
<i>sfarm-name</i>	(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
	CSM release 1.1(1)	This command was introduced as show ip slb real .
	CSM release 2.1(1)	This command was changed to show module csm slot real (<i>for ip slb mode rp only</i>).
	CSM-S release 1.1(1)	This command was introduced.

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 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: <ul style="list-style-type: none"> • OUTFSERVICE—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.

Related Commands

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

<i>slot</i>	Slot where the CSM resides.
sfarm	(Optional) Displays real servers for only a single server farm.
<i>sfarm-name</i>	(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
CSM release 2.2.1	This command was introduced.
CSM-S release 1.1(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 \(static NAT submodule\)](#)

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	
<i>slot</i>	Slot where the CSM resides.
name	(Optional) Displays information about a particular script.
<i>full_file_URL</i>	(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
	CSM release 3.1(1)	This command was introduced.
	CSM-S release 1.1(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		
<i>slot</i>		Slot where the CSM resides.
index		(Optional) Displays information about a particular script.
<i>script-index</i>		(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
	CSM release 3.1(1)	This command was introduced.
	CSM-S release 1.1(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	
<i>slot</i>	Slot where the CSM resides.
name	(Optional) Displays information about a particular server farm.
<i>serverfarm-name</i>	(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
	CSM release 1.1(1)	This command was introduced as show ip slb serverfarm .
	CSM release 2.1(1)	This command was changed to show module csm slot serverfarm (for ip slb mode rp only).
	CSM-S release 1.1(1)	This command was introduced.

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		
<i>slot</i>		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.
<i>ip-address</i>		(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
CSM release 1.1(1)	This command was introduced as show ip slb static .
CSM release 2.1(1)	This command was changed to show module csm slot static (<i>for ip slb mode rp only</i>).
CSM-S release 1.1(1)	This command was introduced.

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		
<i>slot</i>		Slot where the CSM resides.
<i>ip-address</i>		(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.
<i>ip-address</i>		(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
	CSM release 1.1(1)	This command was introduced as show ip slb static server .
	CSM release 2.1(1)	This command was changed to show module csm slot static server (for ip slb mode rp only).
	CSM-S release 1.1(1)	This command was introduced.

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	<i>slot</i>	Slot where the CSM resides.
---------------------------	-------------	-----------------------------

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command HistoryC	Release	Modification
	CSM release 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 (<i>for ip slb mode rp only</i>).
	CSM-S release 1.1(1)	This command was introduced.

SM release

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	<i>slot</i>	Slot where the CSM resides.
---------------------------	-------------	-----------------------------

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	CSM release 1.1(1)	This command was introduced as show ip slb status .
	CSM release 2.1(1)	This command was changed to show module csm slot status (<i>for ip slb mode rp only</i>).
	CSM-S release 1.1(1)	This command was introduced.

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		
<i>slot</i>		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.
<i>ip_address</i>		(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
	CSM release 1.1(1)	This command was introduced as show ip slb sticky .
	CSM release 2.1(1)	This command was changed to show module csm slot sticky (<i>for ip slb mode rp only</i>).
	CSM-S release 1.1(1)	This command was introduced.

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	<i>slot</i>	Slot where the CSM resides.
---------------------------	-------------	-----------------------------

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

Command Modes	Privileged EXEC	
----------------------	-----------------	--

Command History	Release	Modification
	CSM release 3.1(1)	This command was introduced.
CSM-S release 1.1(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

<i>slot</i>	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 <i>num</i> value.
<i>num</i>	(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
CSM release 1.1(1)	This command was introduced as show ip slb tech-support .
CSM release 2.1(1)	This command was changed to show module csm <i>slot</i> tech-support (for ip slb mode rp only).
CSM-S release 1.1(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-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 decisions                0            0
L4 Analysis Request Sent                    180          0
L4 Successful LB decisions                  180          0
L4 Unsuccessful LB decisions                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

```

show module csm tech-support

```

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 <i>name</i>	(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
	CSM release 3.1(1)	This command was introduced.
	CSM-S release 1.1(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
ADVERTISE_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	
<i>slot</i>	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.
<i>vlan-id</i>	(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
	CSM release 1.1(1)	This command was introduced as show ip slb vlan .
	CSM release 2.1(1)	This command was changed to show module csm slot vlan (for ip slb mode rp only) .
	CSM-S release 1.1(1)	This command was introduced.

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
```

■ show module csm vlan

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	<i>slot</i> Slot where the CSM resides.								
Defaults	If no options are specified, the command displays information about all clients.								
Command Modes	Privileged EXEC								
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>CSM release 1.1(1)</td> <td>This command was introduced as show ip slb vserver redirect.</td> </tr> <tr> <td>CSM release 2.1(1)</td> <td>This command was changed to show module csm <i>slot</i> vserver redirect (<i>for ip slb mode rp only</i>).</td> </tr> <tr> <td>CSM-S release 1.1(1)</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	CSM release 1.1(1)	This command was introduced as show ip slb vserver redirect .	CSM release 2.1(1)	This command was changed to show module csm <i>slot</i> vserver redirect (<i>for ip slb mode rp only</i>).	CSM-S release 1.1(1)	This command was introduced.
Release	Modification								
CSM release 1.1(1)	This command was introduced as show ip slb vserver redirect .								
CSM release 2.1(1)	This command was changed to show module csm <i>slot</i> vserver redirect (<i>for ip slb mode rp only</i>).								
CSM-S release 1.1(1)	This command was introduced.								

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   OUTFERVICE 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 = OUTFERVICE, 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
-----
  (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
-----
  (default)          140         672         404
```

■ show module csm vserver redirect

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
CSM release 3.1(1)	This command was introduced.
CSM-S release 1.1(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
CSM release 3.1(1)	This command was introduced.
CSM-S release 1.1(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.
<i>ip-address</i>	IP address to be used for NAT.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode

Command History

Release	Modification
CSM release 1.1(1)	This command was introduced.
CSM-S release 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](#)
[nat client \(serverfarm submode\)](#)
[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

<i>real-ip-address</i>	Real server IP address performing NAT.
<i>real-netmask</i>	(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
CSM release 1.1(1)	This command was introduced.
CSM-S release 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

[show module csm static 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 sticky-group-id
```

Syntax Description		
<i>sticky-group-id</i>	ID to identify the sticky group instance; the range is from 1 to 255.	
netmask <i>netmask</i>	Specifies the network mask for IP stickiness.	
cookie <i>name</i>	Specifies name of the cookie attached to the <i>sticky-group-id</i> value.	
insert	(Optional) Specifies the cookie insert.	
ssl	Specifies SSL stickiness.	
address source destination both	(Optional) Specifies the real server IP address for the source, or the destination, or both.	
timeout <i>sticky-time</i>	(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
CSM release 1.1(1)	This command was introduced.
CSM release 2.1(1)	Changed the default timeout from 0 to 1440.
CSM release 4.1(1)	The insert keyword was added.
CSM-S release 1.1(1)	This command was introduced.

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 \(sticky submode\)](#)
- [show module csm sticky](#)
- [sticky \(virtual server submode\)](#)
- [sticky-group \(policy submode\)](#)

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 <i>offset</i>		Specifies the byte offset count. Range is from 0 to 3999.
length <i>length</i>		(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
	CSM release 4.1(1)	This command was introduced.
	CSM-S release 1.1(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 \(sticky submode\)](#)
- [show module csm sticky](#)
- [sticky](#)
- [sticky \(virtual server submode\)](#)
- [sticky-group \(policy submode\)](#)

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

<i>name</i>	Specifies a cookie name.
-------------	--------------------------

Defaults

This command has not default settings.

Command Modes

Sticky configuration submode

Command History

Release	Modification
CSM release 4.1(1)	This command was introduced.
CSM-S release 1.1(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

[show module csm sticky](#)
[sticky](#)
[sticky \(virtual server submode\)](#)
[sticky-group \(policy submode\)](#)

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

Defaults This command has no default settings.

Command Modes Sticky configuration submode

Command History	Release	Modification
	CSM release 3.2(1)	This command was introduced.
	CSM-S release 1.1(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

- [show module csm sticky](#)
- [sticky](#)
- [sticky \(virtual server submode\)](#)
- [sticky-group \(policy submode\)](#)

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

<i>virtserver-name</i>	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
CSM release 1.1(1)	This command was introduced.
CSM-S release 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](#)

vserver