CHAPTER 5

IP Commands

This chapter documents the following commands:

Note The 6-port Ethernet gateway does not support half duplex transmission or 10 Mbps speed.

arp ethernet

To statically map an IP address to the physical machine address of an Ethernet host on the local network, enter the **arp ethernet** command in Global Configuration mode. To clear a static IP address, use the **no** form of this command.

arp ethernet *ip-address mac-address slot#/port#*

no arp ethernet *ip-address mac-address*

Syntax Description

ip-address	IP address of the host.
mac-address	MAC address of the host.
slot#	Slot on the Server Switch that holds the Ethernet gateway that connects to the host.
port#	Ethernet gateway port that connects to the host.

Defaults

This command has no default settings.

Command Modes

Global Configuration (config) mode.

Usage Guidelines

Platform Availability:

Cisco SFS 3001, Cisco SFS 3012

Privilege Level:

Ethernet read-write user.

The Server Switch supports dynamic ARP so that any IP host that connects to an Ethernet gateway port may see or detect all the other connected IP and IPoIB hosts.

An ARP table contains the available ARP records in the gateway. An ARP record may be dynamically learned or statically created. In most cases, you can rely upon dynamic ARP addressing. Dynamic ARP records may be deleted from the table after a period of time, or updated, if a host address-change occurs.

Examples

```
SFS-7000P(config)# arp ethernet 10.2.0.50 00:30:48:23:A9:0A 4/1
```

Related Commands

show arp ethernet

bridge-group

To create and configure bridge groups, enter the **bridge-group** command in Global Configuration mode or Ethernet Interface Configuration submode. To remove bridge groups or attributes of bridge groups, use the **no** form of this command.

bridge-group *bridgegroupID* {**broadcast-forwarding** | **eth-next-hop** *ip-address* [**dest** *dest-addr dest-mask*] | **ib-next-hop** *ip-address* [**dest** *dest-addr dest-mask*] | **name** "*name-string*"| **subnet-prefix** *prefix length* | **loop-protection** {**one** | **two**} | **multicast** | **fail-over-priority** *priority* | **redundancy-group** *group*}

bridge-group *bridgegroupID* [**pkey** *partition-key*]

no bridge-group *bridgegroupID* [**broadcast-forwarding** | **eth-next-hop** | **ib-next-hop** | **loop-protection {one** | **two**} | **multicast** | **redundancy-group** *group*]

no bridge-group *bridgegroupID* [**pkey** | **subnet-prefix** *prefix length*]

Syntax Description

bridgegroupID	Bridge group to create or reconfigure.
broadcast-forwarding	(Optional) Enables broadcast forwarding for the bridge group.
eth-next-hop	(Optional) Identifies the next-hop IP address connected to the ethernet gateway.
ip-address	(Optional) Next-hop IP address
ib-next-hop	(Optional) Identifies the next-hop IP address connected to the IB switch.
loop-protection	(Optional) Specifies the type of loop protection for the bridge-group.
one	Specifies type one loop protection (ARP packet painting enabled).
two	Specifies type two loop protection (ARP packet painting disabled).
multicast	(Optional) Enables IP-V4 multicast forwarding for the bridge group.
name	Assigns an ASCII text string identifier to the bridge group.
name-string	ASCII text string identifier for the bridge group.
subnet-prefix	(Optional) Assigns a subnet to the bridge-group.
prefix	(Optional) Subnet to assign to the bridge group.
length	(Optional) Length, in bits, of the subnet mask to assign to the bridge group.
fail-over-priority	Specifies the failover priority of the bridge group.
priority	Integer value (1 - 255), where the lower the integer the higher the priority.
redundancy-group	(Optional) Assigns the bridge group to a redundancy group.
group	(Optional) Redundancy group to which you want the bridge group to belong.
pkey	(Optional) Specifies a partition key to assign to the bridge group.
partition-key	Partition key to assign to the bridge group.
dest	(Optional) Specifies the destination subnet.
dest-addr	(Optional) Address of the destination subnet.
dest-mask	(Optional) Mask of the destination subnet.

Defaults

This command has no default settings.

Command Modes

Global Configuration (config) mode, Ethernet Interface Configuration (config-if-ether) submode, Gateway Interface Configuration (config-if-gw) mode.

Usage Guidelines

Platform Availability:

Cisco SFS 3001, Cisco SFS 3012

Privilege Level:

Ethernet read-write user.

Create bridge-groups to associate specific Ethernet gateway ports with Ethernet switch ports. Bridge Groups are used to associate the InfiniBand fabric with an Ethernet subnet.

Examples

The following example creates a bridge group and uses auto-detect to discover all available subnets:

```
SFS-7000P(config)# bridge-group 61
```

The following example assigns a subnet prefix to a bridge group:

```
SFS-7000P(config)# bridge-group 61 subnet-prefix 61.0.0.0 16
```

The following example disables multicast forwarding for a bridge-group:

```
SFS-7000P(config)# no bridge-group 61 multicast
```

The following example assigns bridge group 62 to the Ethernet interface slot 6, port 2:

```
SFS-7000P(config-if-ether-6/2)# bridge-group 62
```

The following example assigns bridge group 62 to the internal gateway interface slot 6, ports 1 and 2:

```
SFS-7000P(config-if-gw-6)# bridge-group 62
```

The following example assigns a bridge group to a redundancy group and configures the failover priority of the bridge group:

```
SFS-7000P(config)# bridge-group 11 redundancy-group 11 fail-over-priority 10
```

Related Commands

config TACACS-server host
redundancy-group
show bridge-group

distribution-type

To configure the type of load distribution that your Ethernet gateway uses to communicate with a Link Aggregation-aware switch, enter the **distribution-type** command in Trunk Interface Configuration submode.

distribution-type {**dist-ip** | **dst-mac** | **src-dst-ip** | **src-dst-mac** | **src-ip** | **src-mac** | **round-robin**}

Syntax Description

dst-ip	Bases the load distribution on the destination IP address of the incoming packet. Packets to the same destination travel on the same port, but packets to different destinations travel on different ports in the channel.
dst-mac	Bases the load distribution on the destination host MAC address of the incoming packet. Packets to the same destination travel on the same port, but packets to different destinations travel on different ports in the channel.
src-dst-ip	Bases load distribution on the IP address of the source logic gate (XOR) destination.
src-dst-mac	Bases load distribution on the MAC address of the source logic gate (XOR) destination.
src-ip	Bases the load distribution on the source IP address. Packets from the same source travel on the same port, but packets from different sources travel on different ports in the channel.
src-mac	Bases load distribution on the source MAC address of the incoming packet.Packets from different hosts use different ports in the channel, but packets from the same host use the same port in the channel.
round-robin	Bases the load distribution on a circular pattern to create an evenly distributed load.

Defaults

The distribution-type defaults to src-mac.

Command Modes

Trunk Interface Configuration (config-if-trunk) submode.

Usage Guidelines

Platform Availability:

Cisco SFS 3001, Cisco SFS 3012

Privilege Level:

Ethernet read-write user.

You must configure a distribution type to bridge to a load aggregation-aware Ethernet switch. Contact your administrator to discover if a switch is load aggregation-aware.

Examples

The following example configures src-mac distribution for the trunk interface:

```
SFS-7000P# interface trunk 1
SFS-7000P(config-if-trunk)# distribution-type src-mac
```

Related Commands

show trunk

half-duplex

To configure an Ethernet connection in half duplex mode, enter the **half-duplex** command in Ethernet Interface Configuration submode. To undo this configuration, use the **no** form of this command.

half-duplex

no half-duplex

Syntax Description

This command has no arguments or keywords.

Defaults

Your Server Switch runs in full duplex mode by default.

Command Modes

Ethernet Interface Configuration (config-if-ether) submode.

Usage Guidelines

Platform Availability:

Cisco SFS 3001, Cisco SFS 3012

Privilege Level:

Ethernet read-write user.

If you disable auto-negotiation, set speed and duplex mode with the **half-duplex** command and **speed** command.

You cannot manually configure half duplex mode while auto-negotiation runs on your Server Switch or while the connection speed exceeds 1000 Mbps.

Note The 6-port Ethernet gateway does not support half duplex transmission or 10 Mbps speed.

Examples

The example below configures half duplex mode for ports 1 - 4 on slot 4:

```
SFS-7000P(config-if-ether-4/1-4/4)# half-duplex
```

Related Commands

auto-negotiate
show interface ethernet
speed

ip

To assign an IP address or backup address and subnet mask to an Ethernet port, enter the **ip** command in Ethernet Interface Configuration submode. To clear this configuration, use the **no** form of this command.

To assign an IP address to the Ethernet Management Interface port, enter the **ip** command in Ethernet Management Interface submode. To clear this configuration, use the **no** form of this command.

To assign an IP address to the InfiniBand Management Interface port, enter the **ip** command in InfiniBand Management Interface submode. To clear this configuration, use the **no** form of this command.

To configure IP networking attributes on your Server Switch, enter the **ip** command in Global Configuration mode. To clear this configuration, use the **no** form of this command.

Note Layer 3 only; available to 4-port Ethernet gateways but not 6-port.

ip {**address** *ip-address subnet-mask* **[priority** *address-priority***]} no ip** {**address** *ip-address subnet-mask***}** //configures Ethernet ports

ip address *ip-address subnet-mask* //configures the Ethernet Management port

no ip

ip address *ip-address subnet-mask* //configures the InfiniBand Management port

no ip

ip {**domain-name** *name-string* | **name-server-one** *server* | **name-server-two** *server* | **route** *dest-address dest-subnet-mask next-hop*} //configures a Server Switch

no ip {**domain-name** | **name-server-one** | **name-server-two** | **route** *dest-address subnet-mask next-hop*}

Syntax Description

address	Assigns a primary IP address to a port.
ip-address	IP address to assign
subnet-mask	Subnet mask to assign.
priority	Assigns a priority to the backup address that determines the order in which the backup address adopts the traffic of the primary address. Your Server Switch does not currently support this feature.
address-priority	Priority to assign. The higher the integer value, the higher the priority.
domain-name	Assigns a DNS name to your Server Switch.
name-string	Domain name to assign.
name-server-one	Specifies a primary domain name server (DNS).
name-server-two	Specifies a secondary DNS.
server	Domain name server for your Server Switch to use.
route	Defines static routes to remote hosts or networks to forward IP packets.
dest-address	IP address of the host or network that you want to reach.

dest-subnet-mask	Netmask used to resolve host and network addressing. The netmask may be an IP network address, a host route (for example, 255.255.255.255), or the default route (0.0.0.0).
next hop	IP address of the next hop (out of your Server Switch) on the way to the destination.

Defaults

This command has no default settings.

Command Modes

Ethernet Interface Configuration (config-if-ether) submode, Ethernet Management Interface Configuration (config-if-mgmt-ethernet) submode, InfiniBand Management Interface (config-if-mgmt-ib) submode, Global Configuration (config) mode.

Usage Guidelines

Platform Availability:

Cisco SFS 3001, Cisco SFS 3012

Privilege Level:

Ethernet read-write user.

- You can only assign an IP address to one port at a time.
- Assign a DNS name and servers to support network name resolution.
- The maximum transmission unit dictates payload size. TCP uses the MTU to determine the maximum payload allowed for every transmission. Too great a value can overwhelm routers and result in data retransmission. Too small a value results in degraded performance because there are more headers and acknowledgements required to transmit the same amount of data.
- ConfigureIP routes to hosts that reside one or more hops away from your Server Switch.

Examples

The following example assigns the IP address 10.3.0.24 and the subnet mask 255.255.255.0 to ethernet card 4 port 1:

```
SFS-7000P(config-if-ether-4/1)# ip address 10.3.0.24 255.255.255.0
```

The following example assigns the domain name **shasta** to the Server Switch:

```
SFS-7000P(config)# ip domain-name "shasta"
```

The following example configures your Server Switch to use a primary DNS:

```
SFS-7000P(config)# ip name-server-one 10.3.103.22
```

The following example configures your Server Switch to use a secondary DNS:

```
SFS-7000P(config)# ip name-server-two 10.3.103.23
```

The following example configures a static route on which to forward IP packets:

```
SFS-7000P(config)# ip route 192.168.3.0 255.255.255.0 10.10.1.0
```

Related Commands

hostname
ip
ping

redundancy-group

To create or configure a redundancy group, enter the **redundancy-group** command in Global Configuration mode. To disable an attribute of a redundancy group or to delete a redundancy group, use the **no** form of this command.

redundancy-group *rg-number* [**broadcast-forwarding** | **load-balancing** | **multicast** | **new-member-force-reelection** | **name** *name*]

no redundancy-group *rg-number* [**broadcast-forwarding** | **load-balancing** | **multicast** | **new-member-force-reelection**]

Syntax Description

rg-number	Number of the redundancy group.
broadcast-forwarding	(Optional) Enables broadcast forwarding for all members of the redundancy group
load-balancing	(Optional) Enables load balancing among all members of the group.
multicast	(Optional) Enables multicast forwarding for all members of the redundancy group
new-member-force-reelection	(Optional) Configures the redundancy group to force reelection when a new member joins.
name	(Optional) Configures a name for the redundancy group
name	Name to assign to the redundancy group.

Defaults

By default, load balancing does not run on redundancy groups.

Command Modes

Global Configuration (config) mode.

Usage Guidelines

Platform Availability:

Cisco SFS 3001, Cisco SFS 3012

Privilege Level:

Ethernet read-write user.

Create and configure redundancy groups with this command.

Examples

The following example creates a redundancy group:

```
SFS-7000P(config)# redundancy-group 11
```

Related Commands

show redundancy-group
bridge-group

trunk-group

To assign a trunk group to one or more Ethernet interfaces, enter the **trunk-group** command in Ethernet Interface Configuration submode. To remove a trunk group from the configuration, enter the **no** form of this command.

trunk-group *id*

no trunk-group *id*

Syntax Description

id	Integer that identifies the trunk-group.

Defaults

By default, trunk groups do not apply to interfaces.

Command Modes

Ethernet Interface Configuration (config-if-ether) submode.

Usage Guidelines

Platform Availability:

Cisco SFS 3001, Cisco SFS 3012

Privilege Level:

Ethernet read-write user.

The **trunk-group** command assigns an already-configured trunk group to the Ethernet interface.

Examples

The following example assigns a trunk group to the Ethernet interface (slot 2, ports 1 - 4):

```
SFS-7000P(config-if-ether-2/1-2/4)# trunk-group 2
```

Related Commands

config TACACS-server host
show trunk
show interface ethernet