Interface Configuration Mode Commands

Use the interface configuration mode for setting, viewing, and testing the configuration of WAAS software features on a specific interface. To enter this mode, enter the `interface` command from the global configuration mode. The following example demonstrates how to enter interface configuration mode:

```
WAE# configure
WAE(config)# interface ?
    FibreChannel   Select a fibre channel interface to configure
    GigabitEthernetSelect a gigabit ethernet interface to configure
    PortChannel    Ethernet Channel of interfaces
    Standby Standby groups
WAE(config)# interface gigabitethernet ?
    <1-2>/ GigabitEthernet slot/port
WAE(config)# interface gigabitethernet 1/0
WAE(config-if)#
```

To exit interface configuration mode, enter `exit` to return to global configuration mode:

```
WAE(config-if)# exit
WAE(config)#
```
(config-if) bandwidth

To configure the link speed on a network interface, use the `bandwidth` interface configuration command. To restore default values, use the `no` form of this command.

```
bandwidth {10 | 100 | 1000}
```

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Sets the link speed to 10 megabits per second (Mbps).</td>
</tr>
<tr>
<td>100</td>
<td>Sets the link speed to 100 Mbps.</td>
</tr>
<tr>
<td>1000</td>
<td>Sets the link speed to 1000 Mbps. This option is not available on all ports and is the same as autosense.</td>
</tr>
</tbody>
</table>

**Defaults**

No default behaviors or values

**Command Modes**

interface configuration

**Device Modes**

application-accelerator

central-manager

**Usage Guidelines**

To configure the link speed of a network interface on a WAAS device, use the `bandwidth` interface configuration command. The speed is specified in megabits per second (Mbps). The WAAS software automatically enables autosense if the speed is set to 1000 Mbps.

You can configure the Gigabit Ethernet interface settings (autosense, link speed, and duplex settings) if the Gigabit over copper interface is up or down. If the interface is up, it applies the specific interface settings. If the interface is down, the specified settings are stored and then applied when the interface is brought up. For example, you can specify any of the following commands for a Gigabit over copper interface, which is currently down, and have these settings automatically applied when the interface is brought up.

```
WAE(config-if)# bandwidth 10
WAE(config-if)# bandwidth 100
WAE(config-if)# bandwidth 1000
WAE(config-if)# autosense
WAE(config-if)# half-duplex
WAE(config-if)# full-duplex
```

**Examples**

The following example shows how to set an interface bandwidth to 1000 Mbps:

```
WAE(config-if)# bandwidth 1000
```

The following example shows how to restore default bandwidth values on an interface:

```
WAE(config-if)# no bandwidth
```

**Related Commands**

```
(config) autosense
(config) interface
```
To enable the Cisco Discovery Protocol (CDP) on a particular interface on a WAAS device, rather than on all interfaces, use the `cdp` command in interface configuration mode.

```
cdp enable
```

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enable</td>
<td>Enables CDP on an interface.</td>
</tr>
</tbody>
</table>

**Defaults**

No default behavior or values

**Command Modes**

interface configuration

**Device Modes**

application-accelerator
central-manager

**Usage Guidelines**

Using the `cdp enable` command in global configuration mode enables CDP globally on all the interfaces of the WAAS device. If you want to control CDP behavior per interface, then use the `cdp enable` command in interface configuration mode.

**Note**

Enabling CDP at the interface level overrides the global control. However, you must enable CDP globally on the WAAS device before you enable CDP on an interface. Otherwise, the following message is displayed in the command output:

```
WAE(config-if)# cdp enable
Cannot enable CDP on this interface, CDP Global is disabled
```

**Examples**

The following example enables CDP on Gigabit Ethernet interface (slot 1/port 0) of the WAAS device:

```
WAE# configure
WAE(config)# cdp enable
WAE(config)# enable interface GigabitEthernet 1/0
WAE(config-if)# cdp enable
```

**Related Commands**

- `(config) cdp`
- `show cdp`
- `show interface`
- `show running-config`
- `show startup-config`
(config-if) exit

To terminate interface configuration mode and return to the global configuration mode, use the exit command.

exit

Syntax Description
This command has no arguments or keywords.

Defaults
No default behavior or values

Command Modes
All modes

Device Modes
application-accelerator
central-manager

Examples
The following example terminates interface configuration mode and returns to global configuration mode:

WAE(config-if)# exit
WAE(config)#
**full-duplex**

To configure an interface for full-duplex operation on a WAAS device, use the `full-duplex` interface configuration command. To disable this function, use the `no` form of this command.

```
full-duplex
```

**Syntax Description**

This command has no arguments or keywords.

**Defaults**

No default behavior or values

**Command Modes**

interface configuration

**Device Modes**

application-accelerator
central-manager

**Usage Guidelines**

Use this EXEC command to configure an interface for full-duplex operation. Full duplex allows data to travel in both directions at the same time through an interface or a cable. A half-duplex setting ensures that data only travels in one direction at any given time. Although full duplex is faster, the interfaces sometimes cannot operate effectively in this mode. If you encounter excessive collisions or network errors, configure the interface for half duplex rather than full duplex.

**Examples**

The following example configures full-duplex operation on a Gigabit Ethernet interface in slot 1/port 0:

```
WAE# configure
WAE(config)# interface GigabitEthernet 1/0
WAE(config-if)# full-duplex
```

The following example disables full-duplex operation:

```
WAE(config-if)# no full-duplex
```

**Related Commands**

- `half-duplex`
- `interface`
- `show interface`
- `show running-config`
- `show startup-config`
(config-if) half-duplex

To configure an interface for half-duplex operation on a WAAS device, use the `half-duplex` interface configuration command. To disable this function, use the `no` form of this command.

```
half-duplex
```

**Syntax Description**
This command has no arguments or keywords.

**Defaults**
No default behavior or values

**Command Modes**
interface configuration

**Device Modes**
application-accelerator
central-manager

**Usage Guidelines**
Use this EXEC command to configure an interface for half-duplex operation. Full duplex allows data to travel in both directions at the same time through an interface or a cable. A half-duplex setting ensures that data only travels in one direction at any given time. Although full duplex is faster, the interfaces sometimes cannot operate effectively in this mode. If you encounter excessive collisions or network errors, configure the interface for half duplex rather than full duplex.

**Examples**
The following example configures half-duplex operation on the Gigabit Ethernet interface in slot 1/port 0:

```
WAE# configure
WAE(config)# interface GigabitEthernet 1/0
WAE(config-if)# half-duplex
```

The following example disables half-duplex operation:

```
WAE(config-if)# no half-duplex
```

**Related Commands**
```
(config-if) full-duplex
(config) interface
show interface
show running-config
show startup-config
```
(config-if) ip

To configure the IP address or subnet mask, or to negotiate an IP address from DHCP on the interface of the WAAS device, use the ip interface configuration command. To disable this function, use the no form of this command.

```
  ip address {ip-address ip-subnet [secondary] | dhcp [client-id id [hostname name] | hostname name [client-id id]]}
```

Syntax Description

- **address**: Sets the IP address of an interface.
- **ip-address**: IP address.
- **ip-subnet**: IP subnet mask.
- **secondary**: (Optional) Makes this IP address a secondary address.
- **dhcp**: Sets the IP address negotiated over DHCP.
- **client-id**: (Optional) Specifies client identifier.
- **id**: Client identifier.
- **hostname**: (Optional) Specifies the hostname.
- **name**: Hostname.

Defaults

No default behavior or values

Command Modes

- interface configuration

Device Modes

- application-accelerator
- central-manager

Usage Guidelines

Use this command to set or change the IP address, subnet mask, or DHCP IP address negotiation of the network interfaces of the WAAS device. The change in the IP address takes place immediately.

The **ip address** interface configuration command allows configuration of secondary IP addresses for a specified interface as follows.

```
  WAE{config-if}# ip address ip_address netmask [secondary]
```

Up to four secondary IP addresses can be specified for each interface. The same IP address cannot be assigned to more than one interface. The secondary IP address becomes active only after a primary IP address is configured. The following command configures the primary IP address.

```
  WAE{config-if}# ip address ip_address netmask
```

The secondary IP addresses are disabled when the interface is shut down, and are enabled when the interface is brought up.

Use the **no** form of the command to disable a specific IP address.

```
  WAE{config-if}# no ip address ip_address netmask
```
Note

No two interfaces can have IP addresses in the same subnet.

Use the `ip-address dhcp` command to negotiate a reusable IP address from DHCP.

Examples

The following example shows how to configure the port channel interface with an IP address of 10.10.10.10 and a netmask of 255.0.0.0:

```
WAE# configure
WAE(config)# interface PortChannel 2
WAE(config-if)# ip address 10.10.10.10 255.0.0.0
```

The following example deletes the IP address configured on the interface:

```
WAE(config-if)# no ip address
```

The following example enables an interface for DHCP:

```
WAE(config-if)# ip address dhcp
```

The following example configures a client identifier and hostname on the WAAS device to be sent to the DHCP server:

```
WAE(config-if)# ip address dhcp client-id myclient hostname myhost
```

Related Commands

- `(config) interface`
- `show interface`
- `show running-config`
- `show startup-config`
To control connections on a specific interface of a WAAS device by applying a predefined access list, use the `ip access-group` interface configuration command. To disable an access list, use the `no` form of the command.

```
ip access-group {acl-name | acl-num} {in | out}
```

### Syntax Description

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>acl-name</td>
<td>Alphanumeric identifier of up to 30 characters, beginning with a letter that identifies the ACL to apply to the current interface.</td>
</tr>
<tr>
<td>acl-num</td>
<td>Numeric identifier that identifies the access list to apply to the current interface. For standard access lists, the valid range is 1 to 99; for extended access lists, the valid range is 100 to 199.</td>
</tr>
<tr>
<td>in</td>
<td>Applies the specified access list to inbound packets on the current interface.</td>
</tr>
<tr>
<td>out</td>
<td>Applies the specified access list to outbound packets on the current interface.</td>
</tr>
</tbody>
</table>

### Defaults
No default behavior or values

### Command Modes
- interface configuration

### Device Modes
- application-accelerator
- central-manager

### Usage Guidelines
Use the `ip access-group` interface configuration command to activate an access list on a particular interface. You can use one outbound access list and one inbound access list on each interface.

Before entering the `ip access-group` command, enter interface configuration mode for the interface to which you want to apply the access list. Define the access list to apply using the `ip access-list` command.

### Examples
The following commands apply the access list named `acl-out` to outbound traffic on the interface Gigabit Ethernet 1/2:

```
WAE(config)# interface GigabitEthernet 1/2
WAE(config-if)# ip access-group acl-out out
```

### Related Commands
- `clear`
- `(config) ip access-list`
- `show ip access-list`
(config-if) mode

To change the Fibre Channel interface operating mode, use the `mode` interface configuration command. To undo the change, use the `no` form of this command.

```
mode [autosense | direct-attached | switched]
```

### Syntax Description

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>autosense</td>
<td>Sets the operation mode of the WAAS device to autosense, which allows the mode to be automatically set based on whether it is connected to a switch or a Storage Array.</td>
</tr>
<tr>
<td>direct-attached</td>
<td>Sets the operation mode when the WAAS device is directly connected to a Storage Array.</td>
</tr>
<tr>
<td>switched</td>
<td>Sets the operation mode when the WAAS device is connected to a switch.</td>
</tr>
</tbody>
</table>

### Defaults

The default mode is autosense.

### Command Modes

- interface configuration

### Device Modes

- application-accelerator
- central-manager

### Usage Guidelines

To support WAAS devices in a storage area network (SAN) environment, the Fibre Channel interface interconnects storage devices and WAAS devices in a SAN. In a SAN, the storage device does not need to be directly attached to the server, and data transfer occurs at the block level rather than at the file level over a high-throughput, high-availability network. SCSI is still the storage access technology in a SAN, and the SCSI 3 standards have been designed to accommodate SANs.

In a Fibre Channel-based SAN, the SCSI commands and data are encapsulated in a Fibre Channel frame and then transported across the Fibre Channel network to the desired device. At the end device, the encapsulation is removed and the data is retrieved. Fibre Channel is capable of operating at approximately 2 Gbps.

The WAAS software supports a Fibre Channel SAN that uses one of two topologies: direct-attached storage and fabric-based Fibre Channel.

In the direct attached storage (DAS) topology, the WAAS device is directly attached to the storage device over Fibre Channel media. Both the WAAS device and the storage device have Fibre Channel interfaces and an available bandwidth of 2 Gbps for data transfer. Use the `mode direct-attached` command when the WAAS device is directly connected to a Storage Array. The disadvantage of this method is that although high-bandwidth connectivity exists between the WAE and the storage device, the storage device is tied to a single WAAS device or server.

In a switched fabric Fibre Channel SAN, each Fibre Channel device is connected to the switch with a dedicated connection to the network. Use the `mode switched` command when the WAAS device is connected to a switch. Most switches are nonblocking; any device can potentially have full-bandwidth connectivity to any other device connected to the switch.
Examples

The following example sets the mode of operation of the Fibre Channel slot 0/port 0 interface on a WAAS device that is directly connected to a Storage Array:

```
interface WAE(config)# interface FibreChannel 0/0
WAE(config-if)# mode direct-attached
```

The following example sets the mode of operation of the Fibre Channel slot 0/port 0 interface on a WAAS device that is connected to a switch:

```
WAE(config)# interface FibreChannel 0/0
WAE(config-if)# mode switched
```

Related Commands

- show interface
- show running-config
- show startup-config
(config-if) mtu

To set the interface Maximum Transmission Unit (MTU) packet size, use the `mtu` interface configuration command. Use the `no` form of this command to reset the MTU packet size.

```
mtu mtusize
```

Syntax Description

| mtusize             | MTU packet size in bytes (68–1500). |

Defaults

No default behavior or values

Command Modes

interface configuration

Device Modes

application-accelerator

central-manager

Usage Guidelines

The MTU is the largest size of IP datagram that can be transferred using a specific data link connection. Use the `mtu` command to set the maximum packet size in bytes.

Examples

The following example sets the MTU to 1500 bytes, and then removes that setting:

```
WAE(config-if)# mtu 1500
WAE(config-if)# no mtu 1500
```

Related Commands

- `show interface`
- `show running-config`
- `show startup-config`
(config-if) no

To negate a Fibre Channel interface configuration command or set its defaults, use the following no commands from the FibreChannel interface configuration mode.

no [description text] [mode {autosense | direct-attached | switched}] [speed {1 | 2 | autosense}]

To negate a Gigabit Ethernet interface configuration command or set its defaults, use the following no command from GigabitEthernet interface configuration mode.

no [autosense | bandwidth {10 | 100 | 1000}] [cdp enable] [channel-group {1 | 2}] [description text] [full-duplex | half-duplex] [ip {access-group {acl-num | acl_name} [in | out]} | address {ip_address netmask [secondary]} | dhcp [client-id id hostname name | hostname name client-id id]}] [mtu mtusize | shutdown | standby grpnumber [priority priority]]

To negate a Port Channel interface configuration command or set its defaults, use the following no commands from the Port Channel interface configuration mode.

no [description text] [ip {access-group {acl-num | acl_name} [in | out]} | address ip-address netmask] [shutdown]

Syntax Description

As the preceding command syntaxes indicate, the command options for the no interface configuration command vary depending on the current interface configuration mode. For example, if you are in Gigabit interface configuration mode, there are 11 options for the no command.

WAE(config)# interface GigabitEthernet 2/0
WAE(config-if)# no ?
 autosense Interface autosense
 bandwidth Interface bandwidth
 cdp Cisco Discovery Protocol Interface Config commands
 channel-group Configure EtherChannel group
 description Interface specific description
 full-duplex Interface fullduplex
 half-duplex Interface halfduplex
 ip Interface Internet Protocol Config commands
 mtu Set the interface Maximum Transmission Unit (MTU)
 shutdown Shutdown the specific interface
 standby Standby interface config commands
WAE(config-if)# no

However, if you are in Standby interface configuration mode, there are only 4 options for the no command.

WAE(config)# interface standby 4
WAE(config-if)# no ?
 description Standby interface description
 errors Set the maximum number of errors allowed on this interface
 ip Set the IP address of a standby group
 shutdown Shutdown this interface
WAE(config-if)# no

For more information on the syntax description, see the “(config) interface” command.

Defaults

No default behavior or values
(config-if) no

Command Modes

- interface configuration

Device Modes

- application-accelerator
- central-manager

Examples

The following example configures the Gigabit Ethernet interface in slot 2, port 0 not to autosense the interface bandwidth:

```
WAE(config)# interface GigabitEthernet 2/0
WAE(config-if)# no autosense
```

Related Commands

- (config) interface
- show interface
- show running-config
- show startup-config
(config-if) ntpdate

To set the software clock (time and date) on a WAAS device using a NTP server, use the `ntpdate` EXEC command.

```
ntpdate {hostname | ip-address}
```

**Syntax Description**

<table>
<thead>
<tr>
<th>hostname</th>
<th>NTP hostname.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ip-address</td>
<td>NTP server IP address.</td>
</tr>
</tbody>
</table>

**Defaults**

No default behavior or values

**Command Modes**

EXEC

**Device Modes**

application-accelerator

central-manager

**Usage Guidelines**

Use NTP to find the current time of day and set the current time on the WAAS device to match. The time must be saved to the hardware clock using the `clock save` command if it is to be restored after a reload.

**Examples**

The following example sets the software clock on the WAAS device using a NTP server:

```
WAES# ntpdate 10.11.23.40
```

**Related Commands**

`clock`

`(config) clock`

`show clock`

`show ntp`
(config-if) shutdown

To shut down a specific hardware interface on a WAAS device, use the shutdown interface configuration command. To restore an interface to operation, use the no form of this command.

```
shutdown
```

**Syntax Description**
This command has no arguments or keywords.

**Defaults**
No default behavior or values

**Command Modes**
interface configuration

**Device Modes**
application-accelerator
central-manager

**Usage Guidelines**
See the “(config) interface” command for alternative syntax.

**Examples**
The following example shuts down a Gigabit Ethernet interface on the WAAS device:

```
WAE# configure
WAE(config)# interface GigabitEthernet 2/0
WAE(config-if)# shutdown
```

**Related Commands**
```
(config) interface
show interface
show running-config
show startup-config
```
(config-if) speed

To set the Fibre Channel interface speed on a WAAS device, use the `speed` interface configuration command. To reset the interface speed, use the `no` form of this command.

```
speed {1 | 2 | autosense}
```

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sets the Fibre Channel interface speed to 1 Gbps.</td>
</tr>
<tr>
<td>2</td>
<td>Sets the Fibre Channel interface speed to 2 Gbps.</td>
</tr>
<tr>
<td>autosense</td>
<td>Sets the Fibre Channel to automatically sense the interface speed.</td>
</tr>
</tbody>
</table>

**Defaults**

No default behavior or values

**Command Modes**

interface configuration

**Device Modes**

application-accelerator
central-manager

**Examples**

The following example shows how to configure the speed of the Fibre Channel interface to 1 Gbps:

```
WAE(config)# interface FibreChannel 0/0
WAE(config-if)# speed 1
```

The following example shows how to configure the speed of the Fibre Channel interface to autosense:

```
WAE(config)# interface FibreChannel 0/0
WAE(config-if)# speed autosense
```

**Related Commands**

- `(config) interface`
- `show interface`
- `show running-config`
- `show startup-config`
(config-if) standby

To configure an interface on a WAAS device to be a backup for another interface, use the standby command in interface configuration mode. Use the no form of the command to restore the default configuration of the interface.

```
standby group_number {description text | errors max-errors | ip ip-address netmask | priority priority_level | shutdown}
```

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>group_number</td>
<td>Standby group number (1–4).</td>
</tr>
<tr>
<td>description</td>
<td>(Optional) Sets the description for the specified interface.</td>
</tr>
<tr>
<td>text</td>
<td>Description for the specified interface. The maximum length of the description text is 240 characters.</td>
</tr>
<tr>
<td>errors</td>
<td>Sets the maximum number of errors allowed on the active interface before the interface is shut down and the standby interface is brought up. This option is disabled by default.</td>
</tr>
<tr>
<td>max-errors</td>
<td>Maximum number of errors (0–4294967295).</td>
</tr>
<tr>
<td>ip</td>
<td>Sets the IP address for the specified standby group (Standby Group 1, 2, 3, or 4).</td>
</tr>
<tr>
<td>ip-address</td>
<td>IP address of the specified standby group (Standby Group 1, 2, 3, or 4). The group IP address and netmask of a standby group must be configured on all of the member interfaces.</td>
</tr>
<tr>
<td>netmask</td>
<td>Netmask of the specified standby group (Standby Group 1, 2, 3, or 4).</td>
</tr>
<tr>
<td>priority</td>
<td>Sets the priority of the member interface within a standby group. The priority of a member interface can be changed at runtime. The member interface that has the highest priority after this change becomes the new active interface (the default action is to preempt the currently active interface if an interface with higher priority exists).</td>
</tr>
<tr>
<td>priority_level</td>
<td>Each member interface is assigned a priority number. The member interface with the highest priority number is the active interface for that standby group. Only the active interface uses the group IP address. If the priority option is specified without a priority number, the default value of 100 is used.</td>
</tr>
<tr>
<td>shutdown</td>
<td>(Optional) Shuts down the specified standby group (Standby Group 1, 2, 3, or 4). You can shut down a standby group even if you have not configured a group IP address for the standby group.</td>
</tr>
</tbody>
</table>

**Note**
When a standby group is shut down, all of the alarms previously raised by this standby group are cleared.

**Defaults**
There are no standby interfaces by default. The errors option is disabled by default.

**Command Modes**
interface configuration
Device Modes

application-accelerator
central-manager

Usage Guidelines

You can configure one or more interfaces to act as a backup interface (a standby interface) for another interface on a WAAS device. This feature is called “standby interface support.” Standby groups, which are logical groups of interfaces, are used to implement this feature. When an active network interface fails (because of cable trouble, Layer 2 switch failure, high error count, or other failures) and that interface is part of a standby group, a standby interface can become active and take the load off the failed interface.

There must be at least two interfaces in a standby group. Interfaces that are part of a standby group are called “member interfaces.” After you create a standby group, you define which interfaces should be assigned to this logical group. As part of defining the member interfaces, you specify the priority of each member interface in a standby group. The member interface with the highest assigned priority is the active interface for that particular standby group. If the active interface fails, the operational member interface with the next highest priority in the standby group comes up, and so forth. If all member interfaces of a particular standby group are down and then one of the member interfaces comes up, the WAAS software detects this situation and brings up the standby group on the member interface that just came up.

The failure or failover of member interfaces within a standby group triggers alarms and traps (if alarms and traps are enabled on the WAAS device). Alarms are sent out when failover occurs between member interfaces in a standby group. Specifically, minor alarms are sent out when member interfaces fail, and these alarms are cleared automatically when the interface failover has been successfully completed. Major alarms are sent out if the standby group goes down (that is, no member interface in a standby group can be brought up.)

Note

A physical interface can belong to more than one standby group. Consequently, a single interface can act as a standby interface for more than one standby group.

To configure standby interfaces, interfaces are logically assigned to standby groups. The following rules define the standby group relationships:

- Each standby group is assigned a unique standby IP address, shared by all member interfaces of the standby group. The IP address of the standby group is shared among the member interfaces; however, only the active interface of the standby group uses this shared IP address at any one time. This shared IP address is configured as an alias on the active interface.
- Configure the duplex and speed settings of the member interfaces for better reliability.
- If all the member interfaces of a standby group fail and then one recovers, the WAAS software brings up the standby group on the operational member interface.
- If a physical interface is a member of a port channel group, it cannot join a standby group. Likewise, if a physical interface is a member of a standby group, it cannot join a port channel group.
- A standby group comprises two or more interfaces.
- The maximum number of standby groups on a WAAS device is four.
Note

Interface IP addresses and standby group IP addresses must be on different subnets to ensure reliable operation. You can use dummy IP addresses in the private address space to serve as interface primary IP addresses, and use the real WAAS device’s IP address to serve as the standby group IP address in a different subnet to satisfy this requirement. When dummy IP addresses are used, these interface IP addresses serve only as substitutes to bring up the interface. For example, the WAAS device’s interface requires an IP address on an interface for initialization. Make sure to configure the interface default gateway using the ip default-gateway global configuration command instead of the ip route command.

- Each interface in a standby group is assigned a priority. The operational interface with the highest priority in a standby group is the active interface. Only the active interface uses the group IP address.
- The priority of an interface in a standby group can be changed at runtime. The member interface that has the highest priority after this change becomes the new active interface (the default action is to preempt the currently active interface if an interface with higher priority exists).
- The maximum number of errors allowed on the active interface before the interface is shut down and the standby is brought up is configured with the errors option, which is disabled by default.

Tip

If an interface belongs to more than one standby group, you can configure the interface with a different priority in each standby group for better load-balancing. For example, interfaces Gigabit Ethernet 1/0 and Gigabit Ethernet 2/0 are both in standby group 1 and in standby group 2. If you configure Gigabit Ethernet 1/0 with the highest priority in standby group 1 and configure Gigabit Ethernet 2/0 with the highest priority in standby group 2, standby group 1 uses Gigabit Ethernet 1/0 as the active interface, while standby group 2 uses Gigabit Ethernet 2/0 as the active interface. This configuration allows each interface to back up the other one, if one of them fails.

Note

Unlike port channels, standby groups do not support IP ACLs at a group level. However, you can configure a member interface of a standby group to support an IP ACL at the interface level. For example, you can individually configure the two member interfaces of Standby Group 1 (the Gigabit Ethernet slot 1/port 0 interface and the Gigabit Ethernet slot 2/port 0 interface) to support an IP ACL named ACL1, but you cannot configure the Standby Group 1 to support ACL1.

Examples

The following example configures two Gigabit Ethernet interfaces to be part of the same standby group, with interface 1/0 as the active interface:

```
WAE(config-if)# interface gigabitEthernet 1/0 standby 1 ip 10.16.10.10 255.255.254.0
WAE(config-if)# interface gigabitEthernet 2/0 standby 1 ip 10.16.10.10 255.255.254.0
WAE(config-if)# interface gigabitEthernet 1/0 standby 1 priority 300
WAE(config-if)# interface gigabitEthernet 2/0 standby 1 priority 200
WAE(config-if)# interface gigabitEthernet 1/0 standby 1 errors 10000
WAE(config-if)# interface gigabitEthernet 2/0 standby 1 errors 10000
```
The following example displays information about the standby group configuration by entering the `show standby` EXEC command. In the following sample command output, one standby group (Standby Group 1) is configured on this WAAS device. The command output also shows which member interface is the active interface. In this case, the active interface is the Gigabit Ethernet slot 1/port 0 interface.

```
WAE# show standby
Standby Group: 1
  Description: This a backup for Gigabit Ethernet 2/0.
  IP address: 10.16.10.10, netmask: 255.0.0.0
  Member interfaces: none
  Active interface: Gigabit Ethernet 1/0
  Maximum errors allowed on the active interface: 500
```

**Note**  To display information about a specific standby group configuration, enter the `show interface standby group_number` EXEC command.

The following example creates a standby group, Standby Group 1:

```
WAE# configure
WAE(config)# interface standby 1
WAE(config-if)#
```

The following example assigns a group IP address of 10.10.10.10 and a netmask of 255.0.0.0 to Standby Group 1. You can configure a group IP address regardless of whether the standby group is shut down or not.

```
WAE(config-if)# ip address 10.10.10.10 255.0.0.0
WAE(config-if)# errors 500
```

The following example shows how to add two Gigabit Ethernet interfaces to Standby Group 1 and then assign each of these member interfaces a priority within the group:

**a.**  First a Gigabit Ethernet interface (slot 1/port 0) is added to Standby Group 1 and assigned a priority of 150.

```
WAE(config)# interface gigabitEthernet 1/0
WAE(config-if)# standby 1 priority 150
```

**b.**  Next, a second Gigabit Ethernet interface (slot 2/port 0) is added to Standby Group 1 and assigned a priority of 100 (the default value).

```
WAE(config)# interface gigabitEthernet 2/0
WAE(config-if)# standby 1
WAE(config-if)# exit
WAE(config)#
```

Because GigabitEthernet 0/0 is assigned the highest priority (a priority number of 150) of all the member interfaces in the group, it is chosen as the active interface for the group if it can be brought up.

The following example removes the GigabitEthernet slot 1/port 0 interface from Standby Group 1 using the `no` form of the `standby` command:

```
WAE(config)# interface gigabitEthernet 1/0
WAE(config-if)# no standby 1
WAE(config-if)# exit
WAE(config)#
```
The following example shows how to shut down Standby Group 1. When a standby group is shut down, all of the alarms previously raised by this standby group are cleared:

WAE(config)# interface standby 1
WAE(config-if)# exit
WAE(config)# exit

The following example shows how to tear down Standby Group 1:

WAE(config)# interface standby 1
WAE(config-if)# no ip address 10.10.10.10 255.0.0.0
Please remove member interface(s) from this standby group first.
WAE(config)# interface GigabitEthernet 2/0
WAE(config-if)# no standby 1
WAE(config-if)# exit
WAE(config)# interface standby 1
WAE(config-if)# no ip address 10.10.10.10 255.0.0.0
WAE(config-if)# exit
WAE(config)# no interface standby 1
WAE(config)# exit

### Related Commands

- (config) interface
- show interface
- show running-config
- show standby
- show startup-config