



Configuring Network Interfaces

This chapter describes the steps for configuring additional network interfaces to support network traffic. During initial setup you chose an initial interface and either configured it for DHCP or gave it a static IP address. (See the [“About Selecting Static IP Addresses or Using Interface-Level DHCP”](#) section on [page 2-11](#).) This chapter describes how to configure additional interfaces using options for redundancy, load balancing, performance optimization, and so forth.

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Configuring Multiple Network Interfaces and Standby Interfaces

You can configure multiple network interfaces as either active-active interfaces or as active-standby interfaces. You can configure multiple interfaces as active-active by using the **interface** global configuration command and by assigning an IP address to each interface. When multiple interfaces are configured, they are active simultaneously. This configuration is used to achieve better performance.

```
ContentEngine# configure
ContentEngine(config)# interface FastEthernet 0/0
ContentEngine(config-if)# ip address 10.10.10.10 255.0.0.0
```

In an active-standby configuration, the interfaces are configured by using the **standby** command, and they remain inactive unless an active interface fails. When an active network interface fails (because of cable trouble, Layer 2 switch failure, high error count, or other failure), and that interface is part of a standby group, a standby interface can become active and take the load off the failed interface. With active-standby interface configuration, only one interface is active at a given time. Active-standby is used mainly for fault tolerance purposes.

```
ContentEngine# configure
```

```

ContentEngine(config)# interface FastEthernet 0/1
ContentEngine(config-if)# standby ?
    <1-4> Standby group number
ContentEngine(config-if)# standby 3 ?
    errors    Set the maximum number of errors allowed on this interface
    ip        Set the IP address of a standby group
    priority  Set the priority of an interface for the standby group
ContentEngine(config-if)# standby 3 errors ?
    <0-4294967295> Max. no. of errors allowed on this interface for the standby
                    group
ContentEngine(config-if)# standby 3 ip ?
    A.B.C.D   IP address of the standby group
ContentEngine(config-if)# standby 3 priority ?
    <0-4294967295> Priority of this interface for the standby group

```

To configure standby interfaces, you must assign each physical interface to a standby group. The following rules define standby group relationships:

- A standby group comprises two or more physical interfaces.
- The maximum number of standby groups on a Content Engine is four.
- Each interface is assigned a unique IP address, and each standby group is assigned a unique standby IP address, shared by all members of the group.
- Configuring the duplex and speed settings of the standby group member interfaces provides better reliability.
- IP ACLs can be configured on physical interfaces that are members of a standby group.
- 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.
- If the active interface fails, the operational interface in its standby group that is assigned the next highest priority becomes active.
- If all the members of a standby group fail and then one recovers, the ACNS software brings up the standby group on the operational interface.
- The priority of an interface in a standby group can be changed at runtime. The 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.

**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 Content Engine IP address to serve as the standby group IP address in a different subnet to satisfy this requirement.

**Note**

Make sure to configure the default gateway by using the **ip default-gateway** global configuration command instead of the **ip route** global configuration command.

Example

This example configures three interfaces to be part of the same standby group, with interface 3/0 as the active interface.

```

Console(config)# interface fastEthernet 3/0 standby 1 ip 172.16.10.10 255.255.254.0

```

```
Console(config)# interface fastEthernet 3/1 standby 1 ip 172.16.10.10 255.255.254.0
Console(config)# interface fastEthernet 3/2 standby 1 ip 172.16.10.10 255.255.254.0

Console(config)# interface fastEthernet 3/0 standby 1 priority 300

Console(config)# interface fastEthernet 3/1 standby 1 priority 200

Console(config)# interface fastEthernet 3/2 standby 1 priority 100

Console(config)# interface fastEthernet 3/0 standby 1 errors 10000

Console(config)# interface fastEthernet 3/1 standby 1 errors 10000

Console(config)# interface fastEthernet 3/2 standby 1 errors 10000
```

Use the **show standby EXEC** command to view your standby interface configuration.

```
Console# show standby
Standby Group:1
IP address: 172.16.10.10, netmask: 255.255.254.0
Maximum errors allowed on the active interface: 10000
  Member interfaces:
    FastEthernet 3/0      priority: 300
    FastEthernet 3/1      priority: 200
    FastEthernet 3/2      priority: 100
Active interface: FastEthernet 3/0
```

Configuring a Standby Interface Using the Content Distribution Manager GUI

In this procedure, you are configuring a logical interface called a standby interface. After you set up the parameters for this logical interface, you must associate physical interfaces with the standby interface to create the standby group. (A standby group consists of two or more physical interfaces.) In the Content Distribution Manager GUI, you create the standby group by assigning a standby group priority to the physical interface. (See the next section, “[Configuring the Interface Priority Setting](#).”)

To configure a standby interface using the Content Distribution Manager GUI, follow these steps:

- Step 1** Choose **Devices > Devices**. The Devices window appears.
- Step 2** Click the **Edit** icon next to the name of the device for which you want to configure a standby interface. The Device Home window appears.
- Step 3** To display the entire table of contents, click the **Show All** button above the Contents pane.
- Step 4** In the Contents pane, choose **General Settings > Network > Network Interfaces**. The Network Interfaces window for the device appears.
- Step 5** In the taskbar, click the **Create New Interface** icon. The Creating New Network Interface window appears. [Table 14-1](#) describes the fields in this window and provides the corresponding CLI global configuration commands.
- Step 6** From the Port Type drop-down list, choose **Standby**. The window refreshes with fields for configuring the standby group settings.
- Step 7** From the Standby Group Number drop-down list, choose a group number (1–4).
- Step 8** In the Address field, specify the IP address of the standby group.
- Step 9** In the Netmask field, specify the netmask of the standby group.

- Step 10** In the Standby Group Number of Errors field, enter the maximum number of errors allowed on this interface. The range is 0 to 4294967295.
- Step 11** In the Gateway field enter the default gateway IP address. If an interface is configured for DHCP, then this field is read only.
- Step 12** To save the settings, click **Submit**.

Table 14-1 Standby Interface Settings

GUI Parameter	Function	CLI Command
Port Type	Makes settings available for configuring logical interfaces (PortChannel or Standby).	interface { FastEthernet GigbitEthernet } <i>slot/port</i> standby
Standby Group Number	Group number (1–4) for the standby interface.	interface { FastEthernet GigbitEthernet } <i>slot/port</i> standby <i>groupnum</i>
Address	IP address of the standby group.	interface { FastEthernet GigbitEthernet } <i>slot/port</i> standby <i>groupnum</i> ip <i>ipaddress</i>
Netmask	Netmask of the standby group.	interface { FastEthernet GigbitEthernet } <i>slot/port</i> standby <i>groupnum</i> ip <i>ipaddress</i> <i>netmask</i>
Standby Group Number of Errors	Maximum number of errors allowed on this interface.	interface { FastEthernet GigbitEthernet } <i>slot/port</i> standby <i>groupnum</i> errors <i>number</i>
Gateway	Default gateway IP address.	ip default-gateway <i>ipaddress</i>

Configuring the Interface Priority Setting

Once you have configured a logical standby interface by using the Content Distribution manager GUI, you then configure the standby group by setting a priority for each physical interface that you want to be associated with that standby group. The interface priority setting defines the active interface in a particular standby group and the order in which other interfaces in the standby group will become active if the active interface fails. The operational interface with the highest priority in a standby group is the active interface. Only the active interface uses the standby group IP address. You must have a standby interface configured before you can enter the priority settings in the Content Distribution Manager GUI. (See the previous section, “[Configuring a Standby Interface Using the Content Distribution Manager GUI](#).”)

To configure the priority of the interface and associate it with a particular standby group, follow these steps:

- Step 1** Choose **Devices > Devices**. The Devices window appears.
- Step 2** Click the **Edit** icon next to the name of the device for which you want to configure a standby interface. The Device Home window appears.
- Step 3** In the Contents pane, choose **General Settings > Network > Network Interfaces**. The Network Interfaces window for the device appears.
- Step 4** Click the **Edit** icon next to the name of a physical interface (FastEthernet or GigabitEthernet) to which you want to assign a standby priority. The Modifying Network Interface window appears. (See [Figure 14-1](#).)



Note Do not choose a logical interface (standby or portchannel) in this step. You cannot assign a standby priority to a logical interface.

Figure 14-1 Modifying Network Interface Window—Standby Group Priority Settings

The screenshot shows the 'Modifying Network Interface' window for 'FastEthernet 0/0' on a 'CONTENTENGINE'. The interface includes a 'Contents' pane on the left with 'Network Interfaces' selected. The main configuration area contains the following fields:

- AutoSense:
- Speed: 10 (dropdown)
- Mode: half-duplex (dropdown)
- MTU: 1500 bytes
- Address: 10.1.1.21
- Netmask: 255.255.255.0
- Secondary Address 1-4: (empty)
- Secondary Netmask 1-4: (empty)
- Use DHCP:
- Gateway: 10.1.1.50
- Hostname: (empty)
- Client Id: (empty)
- Join Standby Group 1-4: (checkboxes) Priority: (empty)
- Inbound ACL: Do Not Set (dropdown)
- Outbound ACL: Do Not Set (dropdown)

Note: * - Required Field

- Step 5** In the Standby Group Priority fields, specify a priority level number (0–4294967295) to set the priority of the interface for the standby group (1–4) with which the interface is to be associated.

A Standby Group Priority field only becomes available when you have previously configured that standby group. You can configure up to four standby groups for each Content Engine.

**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 FE 0/0 and FE 0/1 are both in standby group 1 and in standby group 2. If you configure FE 0/0 with the highest priority in standby group 1 and configure FE 0/1 with the highest priority in standby group 2, standby group 1 will use FE 0/0 as the active interface, while standby group 2 will use FE 0/1 as the active interface. This configuration allows each interface to back up the other one, if one of them fails.

Step 6 To save the settings, click **Submit**.

To configure the priority of the interface for a particular standby group from the CLI, use the following global configuration command:

```
interface {FastEthernet | GigabitEthernet} slot/port standby groupnum priority priority
```

Configuring Multiple IP Addresses on a Single Interface

You can configure more than one IP address on the same interface by using the **interface secondary** interface configuration command. You can configure up to four secondary IP addresses on a single interface. This configuration allows the device to be present in more than one subnet and can be used to optimize response time, because it allows the content to go directly from the Content Engine to the client that is requesting the information without being redirected through a router. The Content Engine becomes visible to the client because both are configured on the same subnet, as shown in this example:

```
ContentEngine# configure
ContentEngine(config)# interface FastEthernet 0/0
ContentEngine(config-if)# ip address 10.10.10.10 255.0.0.0 secondary
```

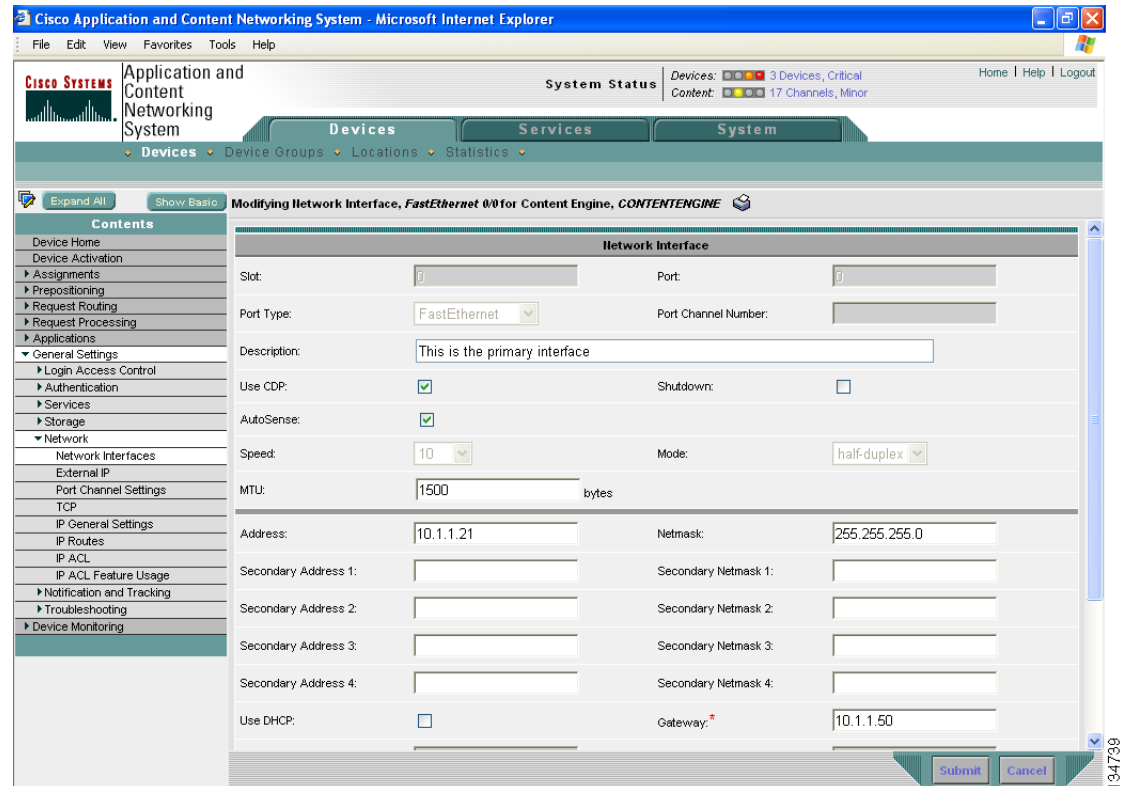
To configure multiple IP addresses on a single interface using the Content Distribution Manager GUI, follow these steps:

- Step 1** Choose **Devices > Devices**. The Devices window appears.
- Step 2** Click the **Edit** icon next to the name of the device for which you want to configure interface settings. The Device Home window appears.
- Step 3** In the Contents pane, choose **General Settings > Network > Network Interfaces**. The Network Interfaces listing window appears.
- Step 4** Click the **Edit** icon for the physical interface (FastEthernet or GigabitEthernet) that you want to modify. The Modifying Network Interface window appears. (See [Figure 14-2](#).)

**Note**

Do not choose a logical interface (standby or portchannel) in this step. You cannot configure multiple interfaces on a logical interface.

Figure 14-2 Modifying Network Interface Window



- Step 5** In the Secondary Address and Secondary Netmask fields 1 through 4, you can enter up to four different IP addresses and secondary netmasks for the interface.
- Step 6** To save the settings, click **Submit**.

Modifying Fast Ethernet or Gigabit Ethernet Interface Settings



Note

Fast Ethernet, Gigabit Ethernet, and Fibre Channel interfaces can only be modified using the Content Distribution Manager GUI.

To modify the settings of an existing Fast Ethernet or Gigabit Ethernet interface for the Content Engine, follow these steps:

- Step 1** Choose **Devices > Devices**. The Devices window appears, listing all the device types configured in the ACNS network.
- Step 2** Click the **Edit** icon next to the Content Engine for which you want to modify the Fast Ethernet or Gigabit Ethernet interface settings. The Device Home for Content Engine window appears with the Contents pane on the left.

- Step 3** In the Contents pane, choose **General Settings > Network > Network Interfaces**. The Network Interfaces for Content Engine window appears, listing the network interfaces configured on particular slots and ports.
- Step 4** Click the **Edit Network Interface** icon next to the Fast Ethernet or Gigabit Ethernet interface that you want to modify. The Modifying Network Interface for Content Engine window appears, displaying the interface configurations on a particular slot and port. [Table 14-2](#) describes the configurable fields in this window and provides the corresponding CLI interface configuration commands.



Note Some of the fields in the window are not available. Interface configurations for slot, port, and port type are set for physical interfaces during initial startup or by using the **interface** configuration command on the Content Engine. The port channel number can be configured for a port channel interface when you create this type of logical interface in the Content Distribution Manager GUI; however, this field is not available when you are modifying a physical interface. (See [Configuring Port Channel Settings Using the Content Distribution Manager GUI](#), page 14-11.)

- Step 5** To enable Cisco Discovery Protocol (CDP) on an interface, check the **Use CDP** check box. When enabled, CDP obtains protocol addresses of neighboring devices and discovers the platform of those devices. It also shows information about the interfaces used by your router.

Using the **cdp enable** command or configuring CDP from the CDP Settings window enables CDP globally on all the interfaces. If you want to control CDP behavior per interface, then use the interface-level **cdp enable** command or enable CDP from the Modifying Network Interface window. Note that the interface-level control overrides the global control.

- Step 6** To shut down the hardware interface, check the **Shutdown** check box.

- Step 7** To set the interface to autonegotiate the speed and mode, check the **AutoSense** check box. Checking this check box disables the manual Speed and Mode drop-down list settings.



Note Cisco router Ethernet interfaces do not negotiate duplex settings. If the Content Engine is connected to a router directly with a crossover cable, the Content Engine interface must be manually set to match the router interface settings. Disable autosense before configuring an Ethernet interface. When autosense is on, manual configurations are overridden. You must reboot the Content Engine to start autosensing.

- Step 8** To manually configure the interface transmission speed and mode settings, follow these steps:

- a. Uncheck the **AutoSense** check box.
- b. From the Speed drop-down list, choose a transmission speed (**10**, **100**, or **1000** Mbps).
- c. From the Mode drop-down list, choose a transmission mode (**full-duplex** or **half-duplex**).

Full duplex transmission 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.

- Step 9** To set the interface Maximum Transmission Unit (MTU) size, specify a value (in bytes) in the MTU field. The range is 68–1500 bytes. The MTU is the largest size of IP datagram that can be transferred using a specific data link connection.

- Step 10** To change the interface IP address, enter a new IP address in the Address field.

- Step 11** To change the interface netmask, enter a new netmask in the Netmask field.
- Step 12** To save any network interface configuration changes, click **Submit**.

Table 14-2 Network Interface Settings

GUI Parameter	Function	CLI Command
Use CDP	Enables CDP on the individual interface.	interface { FastEthernet GigabitEthernet } slot/port cdp enable
Shutdown	Shuts down the hardware interface.	interface { FastEthernet GigabitEthernet } slot/port shutdown
Autosense	Enables autonegotiation of transmission speed and mode.	interface { FastEthernet GigabitEthernet } slot/port autosense
Speed	Manually configures the interface transmission speed when autosense is disabled.	interface { FastEthernet GigabitEthernet } slot/port bandwidth { 10 100 1000 }
Mode	Manually configures the interface transmission mode when autosense is disabled.	interface { FastEthernet GigabitEthernet } slot/port [full-duplex half-duplex]
MTU	Largest size of IP datagram that can be transferred using a specific data link connection.	interface { FastEthernet GigabitEthernet } slot/port mtu size
Address	IP address of the interface.	interface { FastEthernet GigabitEthernet } slot/port ip address ipaddress netmask
Netmask	Netmask of the interface.	
Gateway	Default gateway IP address.	ip default-gateway ipaddress

Configuring the Fibre Channel Interface

ACNS 5.x software supports Fibre Channel interfaces. Fibre Channel is the chosen technology for interconnecting storage devices and servers in a storage area network (SAN). In a SAN, the storage need not be directly attached to the server, and data transfer happens over a high-throughput, high-availability network. Fibre Channel is capable of operating at speeds of 1 gigabit per second (Gbps) and 2 Gbps.

To detect the presence of Fibre Channel storage, the Fibre Channel array must be configured to assign storage space for the Content Engine, and the Content Engine must be reloaded before it can detect the storage assignment. To confirm whether or not the Content Engine has detected the storage assignment, use the **show disks** and the **show disks details** commands.

To configure the Fibre Channel interface on the Content Engine, use the **interface FibreChannel slot/port** command in interface configuration mode, as shown in this example:

```
DeviceName# configure
DeviceName(config)# interface FibreChannel 0/0
DeviceName(config-if)#?
```

```

exit      Exit from this submode
mode     Change the fibre channel interface operating mode
no       Negate a command or set its defaults
speed    Change the fibre channel interface speed
DeviceName(config-if)# mode ?
  autosense      Use this mode to have the CE autosense
  direct-attached Use this mode when the CE is directly connected to storage array
  switched       Use this mode when the CE is connected to a switch
DeviceName(config-if)# speed ?
  1              1Gbps
  2              2Gbps
  autosense     autosense

```

For a complete description of the **interface FibreChannel** command syntax and usage, refer to the *Cisco ACNS Software Command Reference, Release 5.4* publication.

For information regarding which Fibre Channel storage arrays are supported by Cisco Systems, refer to the *Release Notes for Cisco ACNS Software, Release 5.4*.

Modifying Fibre Channel Interface Settings for the Content Engine



Note

Logical interfaces, such as standby and Port Channel interfaces, can be created, removed, and modified by using the Content Distribution Manager GUI. Physical interfaces, such as Fast Ethernet, Gigabit Ethernet, and Fibre Channel interfaces, can only be modified.

To modify the settings of an existing Fibre Channel interface for the Content Engine, follow these steps:

- Step 1** Choose **Devices > Devices**. The Devices window appears, listing all the device types configured in the ACNS network.
- Step 2** Click the **Edit** icon next to the Content Engine for which you want to modify the Fibre Channel interface settings. The Device Home for Content Engine window appears with the Contents pane on the left.
- Step 3** In the Contents pane, choose **General Settings > Network > Network Interfaces**. The Network Interfaces for Content Engine window appears, listing the network interfaces configured on particular ports and slots.
- Step 4** Click the **Edit Network Interface** icon next to the Fibre Channel interface that you want to modify. The Modifying Network Interface for Content Engine window appears, displaying the interface configurations on a particular port and slot.

The fields in the window that are *not* available are the interface configurations set by using the **interface** configuration command on the Content Engine. [Table 14-3](#) describes these fields.

Table 14-3 Unavailable Fields

GUI Parameter	Function
Slot	Slot number for the selected interface
Port	Port number for the selected interface
Port Type	Type of port <i>Fibre Channel</i> configured on the Content Engine

- Step 5** From the Speed drop-down list, choose the speed of the specified interface. [Table 14-4](#) describes the speed options.

Table 14-4 Interface Speed Options

Speed	Description
autosense	Sets the Fibre Channel interface to automatically sense the interface speed.
1	Sets the Fibre Channel interface speed to 1 Gbps.
2	Sets the Fibre Channel interface speed to 2 Gbps.

- Step 6** From the Mode drop-down list, choose the mode of operation of the interface. [Table 14-5](#) describes the mode options:

Table 14-5 Interface Mode of Operation Options

Mode	Description
autosense	Sets the operation mode of the Content Engine to autosense.
direct-attached	Sets the operation mode when the Content Engine is directly connected to a storage array.
switched	Sets the operation mode when the Content Engine is connected to a switch.

- Step 7** To save your settings, click **Submit**.

Configuring EtherChannel

EtherChannel for ACNS 5.x software supports the grouping of up to four same-speed network interfaces into one virtual interface. This grouping capability allows the setting or removing of a virtual interface that consists of two, three, or four Fast Ethernet interfaces or two Gigabit Ethernet interfaces. EtherChannel also provides interoperability with Cisco routers, switches, and other networking devices or hosts supporting EtherChannel; load balancing; and automatic failure detection and recovery based on each interface's current link status. To configure an EtherChannel, you use the **PortChannel** interface configuration command, so the EtherChannel is also referred to as a port channel.

Configuring Port Channel Settings Using the Content Distribution Manager GUI

To configure port channel settings using the Content Distribution Manager GUI, follow these steps:

- Step 1** From the Content Distribution Manager GUI choose **Devices > Devices**. The Devices window appears.
- Step 2** Click the **Edit** icon next to the name of the device for which you want to configure interfaces. The Device Home window appears.
- Step 3** In the Contents Pane, choose **General Settings > Network > Network Interfaces**. The Network Interfaces window appears, listing all the interfaces for the chosen device.
- Step 4** In the taskbar, click the **Create New Interface** icon. The Creating New Network Interface window appears.

- Step 5** From the Port Type drop-down list, choose **Port Channel**. The window refreshes and provides fields for configuring the network interface settings.
- Step 6** In the Port Channel Number field, enter either **1** or **2** for the port channel interface number.
- Step 7** To shut down this interface, check the **Shutdown** check box.
- Step 8** In the Gateway field, enter the default gateway IP address.
- Step 9** In the Address field, specify the IP address of the interface.
- Step 10** In the Netmask field, specify the netmask of the interface.
- Step 11** If you wish, from the Inbound ACL drop-down list, choose an IP ACL to apply to inbound packets. The drop-down list contains all the IP ACLs that you configured in the system.
- Step 12** If you wish, from the Outbound ACL drop-down list, choose an IP ACL to apply to outbound packets.
- Step 13** To apply the interface settings, click **Submit**.

To create an EtherChannel from the CLI, use the **interface PortChannel** *number* command in interface configuration mode, as shown in this example:

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

To remove a PortChannel, use the **no** form of the command:

```
CE(config)# interface PortChannel 2
CE(config-if)# no ip address 10.10.10.10 255.0.0.0
CE(config-if)# exit
CE(config)# no interface portchannel 2
```

To add or remove ports from an EtherChannel, use the commands in the following examples. These commands add a physical Fast Ethernet port to a previously created Fast EtherChannel. The channel number is the same as the channel number specified in the **interface PortChannel** command. You can use either the Fast Ethernet or the Gigabit Ethernet ports to form an EtherChannel; however, an EtherChannel cannot contain both Fast Ethernet and Gigabit Ethernet interfaces. Note that a physical interface can be added to a EtherChannel subject to the device configuration.

Add an interface to an EtherChannel, as shown in this example:

```
CE# configure
CE(config)# interface FastEthernet 1/1
CE(config-if)# channel-group 2
CE(config-if)# exit
```

Remove an interface from an EtherChannel, as shown in this example:

```
CE(config)# interface FastEthernet 1/1
CE(config-if)# no channel-group 2
CE(config-if)# exit
```

Configuring a Load-Balancing Method for Interfaces within a Channel Group Using the Content Distribution Manager GUI

To configure load balancing using the Content Distribution Manager GUI, follow these steps:

-
- Step 1** Choose **Devices > Devices**. The Devices window appears.
- Step 2** Click the **Edit** icon next to the name of the device with the port channel that you want to configure for load balancing.
- Step 3** In the Contents Pane, choose **General Settings > Network > Port Channel Settings**.
- Step 4** From the Load Balancing Method drop-down list, choose a load-balancing method:
- `dst-ip`—Destination IP address
 - `dst-mac`—Destination MAC address
 - `round robin`—Each interface in the channel group
- Round robin allows traffic to be distributed evenly among all interfaces in the channel group. The other balancing options give you the flexibility to choose specific interfaces (by IP address or MAC address) when sending an Ethernet frame.
- Step 5** To save the settings, click **Submit**.
-

To configure load balancing using the CLI, use the `port-channel load-balance` global configuration command.

```
CE(config)# port-channel load-balance
```

The `load-balance` command is effective globally. If two channel groups are configured, they must use the same load-balancing option.

Configuring Interfaces for DHCP



Note

Autoregistration must be disabled before you can manually configure an interface for DHCP.

An interface can be enabled for DHCP by using the `ip address dhcp [client_id | hostname]` interface configuration command. The client identifier is an ASCII value.

```
ContentEngine# configure
ContentEngine(config)# interface FastEthernet 0/0
ContentEngine(config-if)#
ContentEngine(config-if)# ip address ?
  A.B.C.D  IP address of the interface
  dhcp    IP address negotiated via DHCP
ContentEngine(config-if)# ip address dhcp ?
  client-id Specify client-id to use
  hostname  Specify value for hostname option
<cr>
```

The Content Engine sends its configured client identifier and host name to the DHCP server when requesting network information. DHCP servers can be configured to identify the client identifier information and the host name information that the Content Engine is sending and then send back the specific network settings that are assigned to the Content Engine.

To enable an interface for DHCP using the Content Distribution Manager GUI, follow these steps:

-
- Step 1** Choose **Devices > Devices**. The Devices window appears.
 - Step 2** Click the **Edit** icon next to the name of the device for which you want to configure interface settings. The Device Home window appears.
 - Step 3** In the Contents pane, choose **General Settings > Network > Network Interfaces**. The Network Interfaces listing window appears.
 - Step 4** Click the **Edit** icon for the physical interface (FastEthernet or GigabitEthernet) that you want to modify. The Modifying Network Interface window appears. (See [Figure 14-1](#).)



Note Do not choose a logical interface (standby or portchannel) in this step. You cannot configure DHCP on a logical interface.

- Step 5** Check the **Use DHCP** check box. When checked, the secondary IP address and netmask fields are disabled.
 - Step 6** In the Hostname field, specify the hostname for the Content Engine or other device.
 - Step 7** In the Client Id field, specify the configured client identifier for the device. The DHCP server will use that identifier when the Content Engine requests the network information for the device.
 - Step 8** To save the settings, click **Submit**.
-

Configuring IP Addresses for Network Address Translation

ACNS software allows you to configure up to eight Network Address Translation (NAT) IP addresses to allow the router to translate up to eight internal addresses to registered unique addresses and translate external registered addresses to addresses that are unique to the private network.

To configure NAT IP addresses using the Content Distribution Manager (available as of the ACNS 5.3 software release), follow these steps:

-
- Step 1** From the Content Distribution Manager GUI, choose **Device > Devices** (or **Devices > Device Groups**).
 - Step 2** Click the **Edit** icon next to the device or device group for which you want to configure external IP addresses.
 - Step 3** In the Contents pane, choose **General Settings > Network > External IP**. The External IP Settings window appears.
 - Step 4** To enable the window for configuration, check the **Enable** check box.
 - Step 5** In the External IP Address fields (1–8), enter up to eight IP addresses.
 - Step 6** To save the settings, click **Submit**.
-

To configure NAT IP addresses in the CLI, use the **external-ip** global configuration command. For example:

```
ContentEngine(config)# external-ip 192.168.43.1 192.168.43.2 192.168.43.3 192.168.43.4
```

Configuring Static IP Routes

ACNS software allows you to configure a static route for a network or host. Any IP packet designated for the specified destination uses the configured route.

To configure a static IP route, follow these steps:

-
- Step 1** From the Content Distribution Manager GUI, choose **Devices > Devices**. (Alternatively, choose **Devices > Device Groups**.)
 - Step 2** Click the **Edit** icon next to the device (or device group) that you want to configure.
 - Step 3** In the Contents pane, choose **General Settings > Network > IP Routes**. The IP Route Entries window appears.
 - Step 4** In the taskbar, click the **Create New IP Route Entry** icon. The Creating New IP Route window appears.
 - Step 5** In the Destination Network Address field, enter the destination network IP address.
 - Step 6** In the Netmask field, enter the destination host netmask.
 - Step 7** In the Gateway's IP Address field, enter the IP address of the gateway interface.
The gateway interface IP address should be in the same network as that of one of the device's network interface.
 - Step 8** To save the settings, click **Submit**.
-

To configure static IP routing from the CLI, use the **ip route** global configuration command. To remove the route, use the **no** form of this command.

**Note**

Do not use the **ip route** command to configure the default gateway; use the **ip default-gateway** command instead.
