



Cisco Configuration Professional Express Feature Guide

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Overview

The Cisco Configuration Professional Express (Cisco CP Express) is an embedded, device-management tool that provides the ability to configure bootstrap and provision an Integrated Services Router (ISR). The Cisco CP Express helps you set up a network with complete WAN and LAN configuration, along with wireless access.

This guide contains these sections:

- [Accessing the Cisco CP Express Video, page 2](#)
- [Setting Up Ethernet Primary WAN Uplink, page 2](#)
- [Setting Up Ethernet Primary WAN Uplink with 3G/4G as Backup, page 3](#)
- [Setting Up xDSL WAN Uplink for Wired/Wireless Internet Access in IPv4 Network, page 4](#)
- [Setting Up xDSL Primary WAN Uplink in IPv6 Network, page 6](#)
- [Setting Up xDSL Primary WAN Uplink, page 7](#)
- [Setting Up 3G/4G WAN Primary Uplink, page 8](#)
- [Setting Up Primary xDSL with Backup 3G/4G WAN Uplink, page 11](#)
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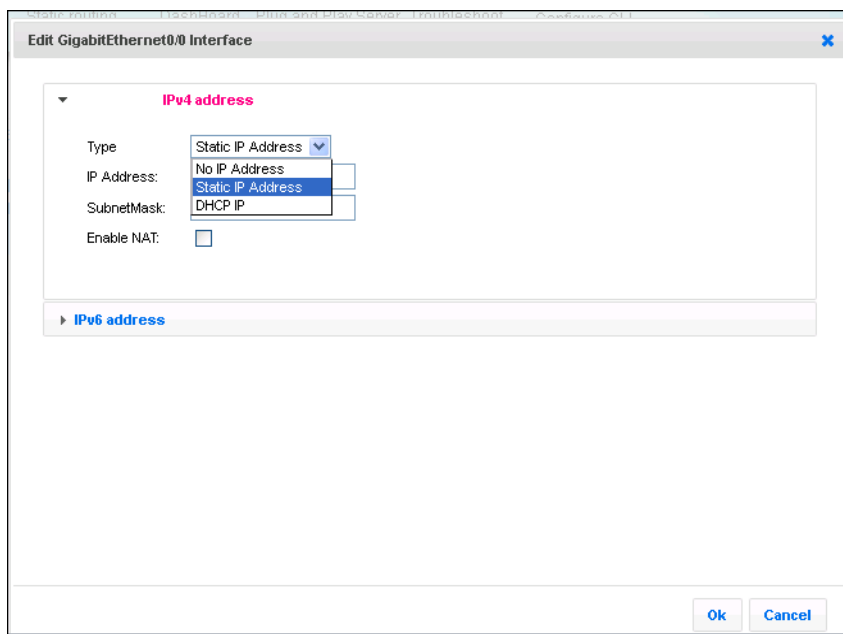
Accessing the Cisco CP Express Video

The Cisco CP Express video explains the features and functionality in the Cisco CP Express 2.7 release. You can access the Cisco CP Express video at http://www.cisco.com/en/US/docs/net_mgmt/cisco_configuration_professional_express/v2_7/guides/dminguide/CCPEXpress.html.

Setting Up Ethernet Primary WAN Uplink

This section explains how to set up an ethernet primary WAN uplink and enable wired or wireless Internet access for clients in an IPv4 or IPv6 networks. To set up an ethernet primary WAN uplink and enable wired or wireless Internet access, perform these steps:

- Step 1** Click **Interfaces** to open the Interfaces page.
- Step 2** From the list of interfaces, select the interface to which your WAN is connected, and click **Edit**. The Edit Interface page is displayed.
- Step 3** From the Edit Interface page, specify details for the IP address depending on whether the IP address is dynamically or statically assigned.



- Step 4** Check the Enable NAT checkbox to ensure that DHCP client IP addresses are translated before being sent to the WAN uplink.
- Step 5** (Optional) Configure your wired or wireless LAN by executing Steps 2 to 14 of the section [Setting Up xDSL WAN Uplink for Wired/Wireless Internet Access in IPv4 Network, page 4](#).

Setting Up Ethernet Primary WAN Uplink with 3G/4G as Backup

This section explains how to set up an ethernet primary WAN uplink with 3G or 4G as a backup. To set up an ethernet primary WAN uplink with 3G or 4G as a backup, perform these steps:

- Step 1** Click **Interfaces** to open the Interfaces page.
- Step 2** From the list of interfaces, select the interface to which your WAN is connected, and click **Edit**. The Edit Interface page is displayed.
- Step 3** From the Edit Interface page, specify the details for the IP address depending on whether the IP address is dynamically or statically assigned.

- Step 4** Check the Enable NAT checkbox to ensure that DHCP client IP addresses are translated before being sent to the WAN uplink.
- Step 5** (Optional) Configure your wired or wireless LAN by executing Steps 2 to 14 of the section [Setting Up xDSL WAN Uplink for Wired/Wireless Internet Access in IPv4 Network](#), page 4.
- Step 6** Click **Interfaces** to open the Interfaces page.
- Step 7** From the Interfaces page, select the 3G Interface and click **Edit** to edit the configuration.
- Step 8** Based on your 3G modem account, specify the modem account or modem activation information. For more information, see sections [Setting Up 3G CDMA WAN Primary Uplink](#), page 8 and [Setting Up 3G GSM WAN Primary Uplink](#), page 9 sections.
- Step 9** From the WAN interface, select Backup WAN Interface and select your primary WAN interface. This is the ethernet interface you configured in [Step 2](#).
- Step 10** Specify the IP address of a reliable network on which the connectivity can be verified.

- Step 11** If you want to establish a persistent connection to your service provider, from the Dialer interface, select YES.
By default, this is set to NO to disable persistent connection.
- Step 12** Click **OK** to set up an ethernet primary WAN uplink with 3G or 4G as backup.
-

Setting Up xDSL WAN Uplink for Wired/Wireless Internet Access in IPv4 Network

This section explains how to set up an xDSL WAN uplink and enable Wired/Wireless Internet access for clients in an IPv4 network. To set up a WAN uplink and enable Wired/Wireless Internet access, perform these steps:

- Step 1** After you complete configuring your xDSL as described in [Setting Up xDSL Primary WAN Uplink, page 7](#), create a new DHCP pool.
- Step 2** Click **DHCP/DNS/Hostname** to open the DHCP/DNS/Hostname page.
- Step 3** From the DHCP interface, click **Add** to create a new DHCP pool by specifying:
- **Pool Name:** the name of the DHCP pool
 - **Pool Network:** the IP address of the subnet that represents all IP addresses allocated to the wired or wireless clients
 - **Import all DHCP options in to the DHCP server database:** Check this check box to import all DHCP options into the DHCP server database. This ensures that the DNS is read from your service provider and is propagated to all DHCP clients.
 - **Enable Trunk on wlan-gigabitEthernet0:** Uncheck this check box if you want to allow only VLAN1 for wired or wireless access. By default, this check box is enabled, and allows multiple VLANs (including VLAN1) to access wired or wireless internet.
- Step 4** Click **OK** to create the DHCP pool.

Step 5 Click **Interfaces** to open the Interfaces page (Figure 1).

Figure 1 The Interfaces page

Interface	IPv4 Address	IPv6 Address	Admin Status	Operational Status	Description
GigabitEthernet0/0	10.104.105.110		+	up	
GigabitEthernet0/1	12.23.24.25		+	down	
BR1/0	unassigned		+	down	
BR1/1	unassigned		+	down	
BR1/2	unassigned		+	down	
BR1/3	unassigned		+	down	
BR1/0.1	unassigned		+	down	
BR1/0.2	unassigned		+	down	
BR1/1.1	unassigned		+	down	

- Step 6** Click **Add VLAN** to open the Add VLAN dialog box and specify a unique ID for the VLAN being created.
- Step 7** From the IPv4 address tab, choose **Select from DHCP**, and then select the DHCP pool (created in Step 3) from the drop-down list.
This enables you to assign the IP addresses from the DHCP pool that is created.
- Step 8** Click **OK**.
- Step 9** Click **Wi-Fi** to open the Wireless page.
- Step 10** Specify an SSID that will be used to uniquely identify your wireless device.
The SSID can contain up to 32 alphanumeric characters.
- Step 11** To broadcast the SSID in the access point beacon, check the **Broadcast SSID in Beacon** checkbox.
When you broadcast the SSID, devices that do not specify an SSID can associate with the access point. This is a useful option for an SSID used by guests or by client devices in a public space. If you do not broadcast the SSID, client devices cannot associate to the access point unless their SSID matches this SSID. Only one SSID can be included in the access point beacon.
- Step 12** Select the **Enable VLAN ID** and specify the ID of the VLAN created in Step 6.
This will enable the clients that connect to the SSID (specified in Step 10) to use the IP addresses from the DHCP pool associated with this VLAN.
- Step 13** Select the security setting for the SSID.
- **Static WEP Key:** choose the WEP key index and key size, and enter the static WEP encryption key. The key index can be between 1 and 4. The key size can be either 40 bits or 128 bits.
 - **WPA2:** specify the WPA2 encryption key and select the key type. The Key type can be either ASCII or Hexadecimal.
- Step 14** Click **Apply**.
The SSID appears in the SSID table on the bottom of the page.


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Setting Up xDSL Primary WAN Uplink in IPv6 Network

You can use Cisco CP Express to configure both DHCPv6 (Dynamic Host Configuration Protocol for IPv6) server and client. Cisco CP Express supports only the Prefix Delegation method for configuring IPv6 addresses. For more information, refer

http://www.cisco.com/en/US/tech/tk872/technologies_configuration_example09186a0080b8a116.shtml.

To set up an xDSL primary WAN uplink in an IPv6 network using Prefix Delegation method, perform these steps:

-
- Step 1** Click **Interfaces** to open the Interfaces page.
- Step 2** Select the DSL sub-interface (either ATM0 or Ethernet0) and click **Edit** to edit the interface configuration.
-  **Note** Based on your DSL uplink, select the appropriate layer 2 interface. For an ADSL uplink, select ATM0 as your layer 2 interface, and for a VDSL uplink, select Ethernet0 as your layer 2 interface.
-
- Step 3** From the Connection tab, enable PPOE, provide a description, the VPI, and the VCI values for your connection.
- Step 4** From the IPv4 Address tab, select No IP Address.
- Step 5** From the IPv6 Address tab, select Autoconfig and check the Act as an IPv6 DHCP Client checkbox.
- Step 6** From the Authentication tab, select the authentication method and specify the username and password provided by your service provider for authentication.
- Step 7** Click **OK** to complete the configuration.
You must now edit your VLAN to configure it for IPv6 support.
- Step 8** From the Interfaces page, select a VLAN interface and click **Edit** to edit the configuration.
- Step 9** Specify the VLAN ID and associate the ports to the VLAN.
- Step 10** From the IPv4 Address tab, select No IP Address.
- Step 11** From the IPv6 Address tab, select Use Prefix from Provider as the type, and specify the prefix and the prefix mask.
- Step 12** Click **OK**.
-

Setting Up xDSL Primary WAN Uplink

To set up an xDSL primary WAN uplink, perform these steps:

Step 1 Click **Interfaces** to open the Interfaces page.

Step 2 Select the DSL sub-interface (either ATM0 or Ethernet0) and click **Edit** to edit the interface configuration.



Note Based on your DSL uplink, select the appropriate layer 2 interface. For an ADSL uplink, select ATM0 as your layer 2 interface, and for a VDSL uplink, select Ethernet0 as your layer 2 interface.

Step 3 From the **Connection** tab, enable PPoE, provide a description, the VPI, and the VCI values for your connection.

Step 4 Based on whether you are configuring an IPv4 or IPv6 address, select the appropriate tab.

- For configuring an IPv4 address:
 - Select the IPv4 address type.
This can be either Easy IP (IP Negotiated), Static IP Address, or No IP Address. By default, the IPv4 address is IP negotiated.
 - Check the Enable NAT checkbox to ensure that DHCP client IP addresses are translated before being sent to the WAN uplink.
- For configuring an IPv6 address:
 - Select the IPv6 address type.
The IPv6 address can be either AutoConfig, Use Prefix from Provider, Static IP Address, or No IP Address.



Note Cisco CP Express supports only the Prefix from Provider approach for IPv6 address configuration.

Step 5 From the Authentication tab, select the authentication method (PAP or CHAP) and specify the username and password provided by your service provider.

Step 6 Click **OK** to create the DSL uplink.

Setting Up 3G/4G WAN Primary Uplink

This section explains how to set up a 3G WAN primary uplink (for CDMA and GSM) with Wired or Wireless LAN access.

- [Setting Up 3G CDMA WAN Primary Uplink, page 8](#)
- [Setting Up 3G GSM WAN Primary Uplink, page 9](#)
- [Setting Up 4G WAN Primary Uplink, page 11](#)

Setting Up 3G CDMA WAN Primary Uplink

Prerequisite

Based on the type of 3G modem, the activation method can either be OMA-DM, OTASP, or Manual (Fallback). You must collect this account information from your service provider:

- If your 3G interface uses Manual (Fallback) as the activation method, obtain the Mobile Directory Number (MDN), Mobile Subscriber Identification Number (MSID), and the Mobile Subscriber Lock (MSL) No. from your service provider and specify these in the Account Information tab.
- If your 3G interface uses OTASP as the activation method, obtain the Phone No. for activation from your service provider and specify it in the Account Information tab.

To set up a 3G CDMA WAN primary uplink, perform these steps:

-
- Step 1** Click **Interfaces** to open the Interfaces page.
 - Step 2** Select the 3G Interface you want to configure and click **Edit**. The Edit Cellular Configuration page is displayed ([Figure 4](#)).

Figure 2 The Edit Cellular Configuration page

- Step 3** From the Modem Activation tab, check the **Activate Modem** checkbox to activate your modem, select the activation method and provide the necessary information. The modem activation method can either be OMA-DM, OTASP, or Manual (Fallback).
- Step 4** From the WAN tab, select Primary WAN Interface.
- Step 5** If you want to establish a persistent connection to your service provider, from the Dialer interface, select YES. By default, this is set to NO to disable persistent connection.



Note A persistent connection is an always “ON” connection. It sends keep alive packets to keep the connection live. A non-persistent connection is an on-demand connection, in which the modem dials out only when the data tries to go in or out of that interface. If no data ID is flown for 60 seconds, the connection is dropped and the modem dials out again when the data tries to go in or out.

- Step 6** Click **OK**.

Setting Up 3G GSM WAN Primary Uplink

Prerequisite

Before you begin setting up your 3G GSM WAN primary uplink, make sure you obtain the Access Point Name (APN), the PDP type, authentication method, and the username and password from your service provider.

To set up a 3G GSM WAN primary uplink, perform these steps:

- Step 1** Click **Interfaces** to open the Interfaces page.
- Step 2** Select the 3G Interface you want to configure and click **Edit**.
The Edit Cellular Configuration page is displayed (Figure 3).

Figure 3 Editing Modem Account Details on the Edit Cellular Configuration page

The screenshot shows the 'Edit Cellular0/1/0 Configuration' window. The 'Modem Account' section is expanded, showing the following fields and options:

- Access Point Name(APN):
- PDP Type: IPv4 PPP
- Username and Password is provided by service provider
- Authentication: PAP CHAP
- Username:
- Password:

Below the Modem Account section are two expandable sections: 'WAN' and 'Dialer'. At the bottom right of the window are 'Ok' and 'Cancel' buttons. A vertical ID number '303296' is visible on the right edge of the window.

- Step 3** From the **Modem Account** tab, specify the APN for your modem account.



Note

If your service provider has not provided the PDP type, username, and password for your modem account, make sure you uncheck the "Username and Password is provided by service provider" checkbox and proceed to [Step 7](#).


- Step 4** Select the Packet Data Protocol (PDP) type.
This can either be IPv4 or PPP. By default, this is IPv4.
- Step 5** Check the Username and Password is provided by service provider checkbox and specify the username and password for your modem account.
- Step 6** Select the Authentication method.
This can either be PAP or CHAP.
- Step 7** From the WAN tab, select Primary WAN Interface as your 3G uplink.
- Step 8** If you want to establish a persistent connection to your service provider, from the Dialer interface, select YES.
By default, this is set to NO to disable persistent connection.
- Step 9** Click **OK**.

Setting Up 4G WAN Primary Uplink

To set up a 4G WAN primary uplink, perform these steps:

-
- Step 1** Click **Interfaces** to open the Interfaces page.
 - Step 2** Select the 4G Interface you want to configure and click **Edit**.
The Edit Cellular Configuration page is displayed.
 - Step 3** From the WAN tab, select Primary WAN Interface as your 4G uplink.
 - Step 4** If you want to establish a persistent connection to your service provider, from the Dialer interface, select YES.
By default, this is set to NO to disable persistent connection.
 - Step 5** Click **OK**.

Setting Up Primary xDSL with Backup 3G/4G WAN Uplink

-
- Step 1** Click **Interfaces** to open the Interfaces page.
 - Step 2** Select the sub-interface (either ATM0 or Ethernet0) and click **Edit** to edit the interface configuration.
-  **Note** Based on your DSL uplink, select the layer 2 interface. For an ADSL uplink, select ATM0 as your layer 2 interface, and for a VDSL uplink, select Ethernet0 as your layer 2 interface.
-
- Step 3** From the Connection tab, enable PPOE, provide a description, the VPI, and the VCI values for your connection.
 - Step 4** From the IPv4 Address tab, select Easy IP (IP Negotiated) and check the Enable NAT checkbox.
 - Step 5** From the Authentication tab, select the authentication method and specify the username and password for authentication.
 - Step 6** Click **OK** to create the DSL uplink.
 - Step 7** After you create the DSL uplink, select the sub-interface created in [Step 6](#), and then click **Edit**.
 - Step 8** Navigate to the IPv4 Address tab to find the dialer associated with this sub-interface.
The 3G backup link uses this dialer information to find its primary uplink when the DSL is down.
 - Step 9** From the Interfaces page, select the 3G Interface and click **Edit** to edit the configuration.
 - Step 10** Based on your 3G modem account, specify the modem account or modem activation information.
For more information, refer the [Setting Up 3G CDMA WAN Primary Uplink, page 8](#) and [Setting Up 3G GSM WAN Primary Uplink, page 9](#) sections.
 - Step 11** From the WAN interface, select Backup WAN Interface and select your primary WAN interface (this is the dialer created in [Step 8](#)).
 - Step 12** Specify the IP address of a reliable network to which the connectivity can be verified.
 - Step 13** If you want to establish a persistent connection to your service provider, from the Dialer interface, select YES.
By default, this is set to NO to disable persistent connection.

Step 14 Click **OK**.

Setting Up a Plug-and-Play Server

This feature allows you to configure a Plug-and-Play server for all your router configurations. Using the Plug-and-Play server, the router can automatically obtain its configuration and the IOS image updates.


Note

In this release of the Cisco CP Express, only non-secure HTTP based option is supported.

To configure a Plug-and-Play server, perform these steps:

- Step 1** Click **Plug and Play Server** to open the Plug-and-Play Server configuration page.

Figure 4 Plug and Play Server Configuration page

- Step 2** Specify the fully qualified hostname of the Plug-and-Play Gateway server.
- Step 3** (Optional) Specify the IPv4 address of the Plug-and-Play Gateway server. If the IP address of the server is not specified, ensure that the fully-qualified hostname and the hostname that you provided in [Step 2](#) can be resolved in DNS.
- Step 4** Check the **Enable Image Update Service** checkbox if you want to also receive automatic IOS image updates.
- Step 5** Click **Apply** to configure the Plug-and-Play server.
- Step 6** Click **Remove Configuration** to stop receiving configuration information and image updates from the Plug-and-Play server.

Basic Diagnostic and Troubleshooting

This section explains how to perform basic diagnostic and troubleshooting for your router.

This section discusses:

- [“Ping and Traceroute” section on page 14](#)
- [“Configure CLI” section on page 15](#)
- [“Dashboard” section on page 17](#)

Ping and Traceroute

The Ping and Traceroute utility allows you to do a basic troubleshooting of the network and device connectivity.

To troubleshoot the device connectivity, perform these steps:

- Step 1** Click **Troubleshoot** to open the Ping and Traceroute page.

Figure 5 Ping and Traceroute page

- Step 2** Specify the source IP address (IPv4 or IPv6 address) or hostname.
- Step 3** Specify the destination IP address (IPv4 or IPv6 address) or hostname.
- Step 4** Click **Ping** to verify whether the destination IP address is reachable.
- Step 5** Click **Traceroute** to view the list of routes traversed between the source and destination IP addresses.

Configure CLI

The Configure CLI feature allows you to configure or run any IOS CLI commands that can be directly executed from the router's command prompt.

To configure a CLI, perform these steps:

- Step 1** Click **Configure CLI** to open the Any CLI configuration page.
- Step 2** From the Configure CLI tab, select the mode in which you want to execute the CLI. You can select either the **Exec** or **Configure** mode.

Figure 6 An example of a command executed in Exec mode

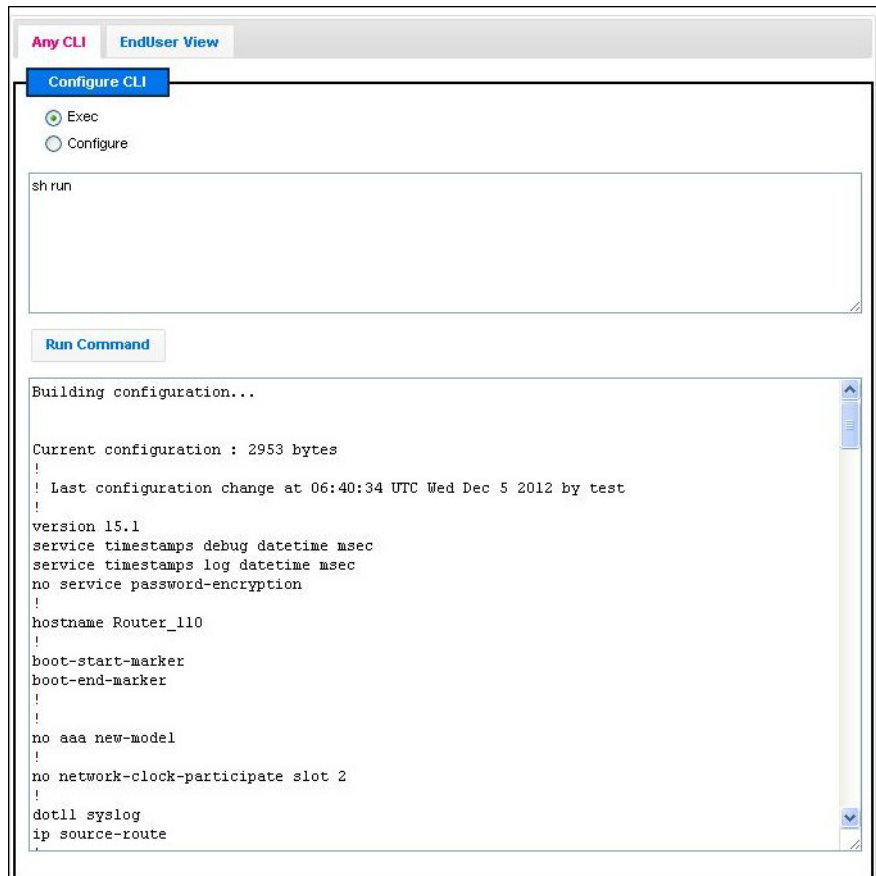
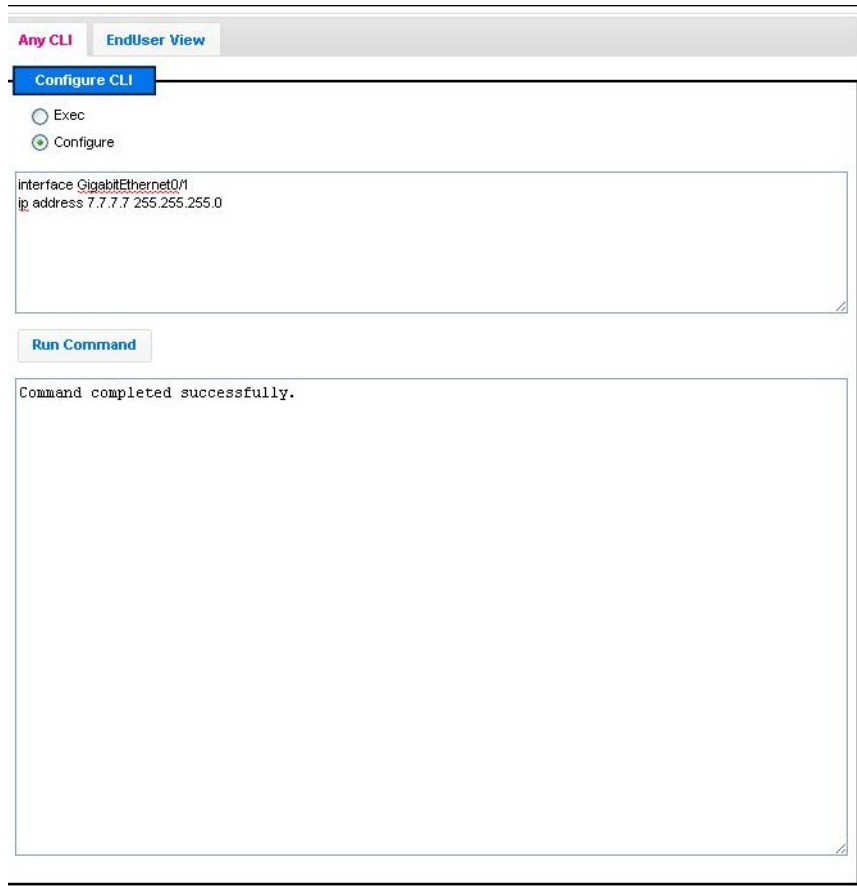


Figure 7 An example of a command executed in Configure mode



Step 3 In the textbox, type the CLI you want to execute.

Step 4 Click **Run Command** to execute the CLI.
The CLI's output is displayed.



Note

Using the Configure CLI feature, you cannot configure interactive commands and service module related commands.

Dashboard

The Dashboard view allows you to view vital health statistics of your router along with the flash memory and CPU utilization statistics.

To view the router diagnostics using the dashboard view, perform these steps:

- Step 1** Click **Dashboard** to open the Router Diagnostics dashboard view.

Figure 8 The Dashboard page



The dashboard displays the router details such as the hostname, the device type, and the IOS version being used. It also displays a graphical representation of the flash memory, processor memory, and CPU utilization. Interfaces used by the router are also listed.

- Step 2** From the table listing the flash memory and processor memory utilization, click the rows: “Used” and “Free” to view additional details.

User Management

The User Management feature allows you to create, edit, and delete users that are local to the router. You can also specify privilege levels and the password hashing algorithm that is used by the users.

This section contains:

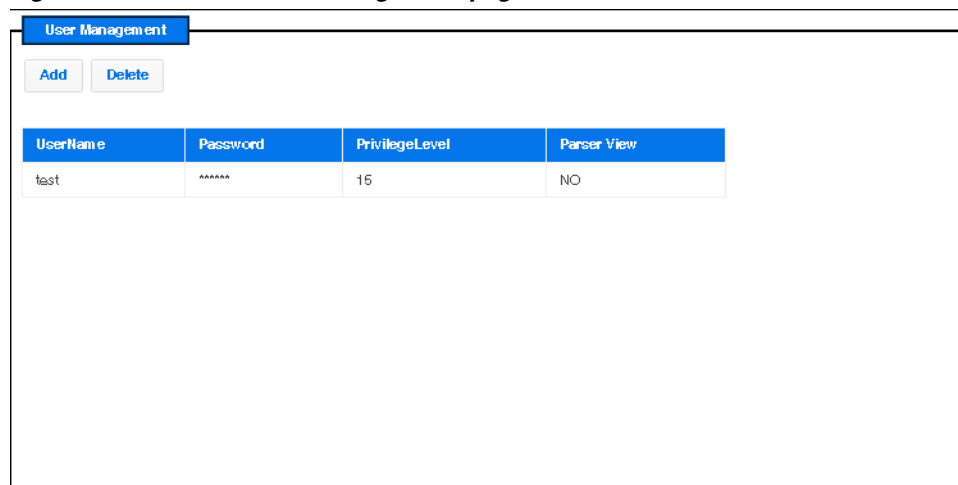
- [Creating a User, page 18](#)
- [Editing a User, page 19](#)
- [Deleting a User, page 19](#)

Creating a User

To create a user, perform these steps:

- Step 1** Click **User Management** to open the User Management page.

Figure 9 The User Management page



- Step 2** Click **Add** to open the Add User dialog box and specify the following:
- **Username:** the username for the user to be created
 - **Password/Confirm Password:** the password for the user to be created
 - **Privilege Level:** a privilege level between 0 to 15. A privilege level 15 is used to set the administrator role.
 - **Encrypt password using MD5 hash algorithm:** user password encryption using MD5 hashing technique.
- Step 3** Click **OK**.
The user is now created on your router.

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Editing a User

You cannot edit an existing user using Cisco CP. In order to edit the details of an existing user, you must first delete the user, and then create a new user on your router.

Deleting a User

To delete an existing user, perform these steps:

-
- Step 1** Click **User Management** to open the User Management page.
- Step 2** From the list of users displayed, select the username that you want to delete, and click **Delete**. The user is now deleted from the router.
-

Static Routing

The Static Routing feature allows you to add, edit, and delete IP routes to a destination interface, or IP address from your IPv4 or IPv6 subnets.

This section contains:

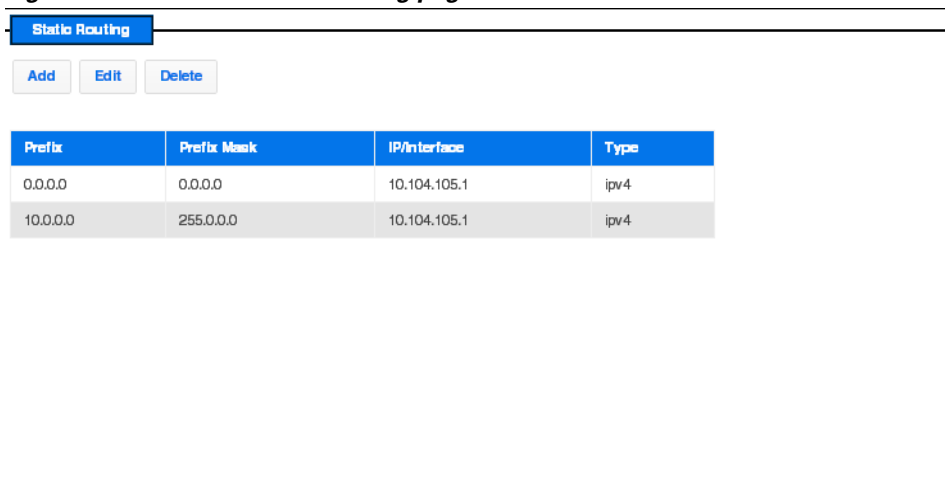
- [Creating a Static Route, page 20](#)
- [Editing a Static Route, page 20](#)
- [Deleting a Static Route, page 21](#)

Creating a Static Route

To create a static route, perform these steps:

- Step 1** Click **Static Routing** to open the Static Routing page.

Figure 10 The Static Routing page



- Step 2** Click **Add** to open the Add Static Routing dialog box with options to specify an IPv4 or IPv6 static route.
- Step 3** Based on whether the IP address is an IPv4 or IPv6 address, select the IPv4 or IPv6 tab, and specify the following:
- **Destination address:** specify the prefix and prefix mask for your IPv4 or IPv6 address
 - **Next Hop IP:**
If you select Interface as the next hop IP, select the forwarding interface from the drop-down list.
If you select IP as the next hop IP, specify the Next Hop IP that must be used.
- Step 4** Click **OK** to add the static route.

Editing a Static Route

To edit an existing static route, perform these steps:

- Step 1** Click **Static Routing** to open the Static Routing page.
- Step 2** From the list of static routes, select the static route you want to edit, and click **Edit**. The Edit Static Routing page is displayed.

- Step 3** Specify these fields for your static route:
- Destination address: specify the prefix and prefix mask for your IPv4 or IPv6 address
 - **Next Hop IP:**
If you select Interface as the next hop IP, select the forwarding interface from the drop-down list.
If you select IP as the next hop IP, specify the Next Hop IP that must be used.
- Step 4** Click **OK** to edit the static route.
-

Deleting a Static Route

To delete a static route, perform these steps:

- Step 1** Click **Static Routing** to open the Static Routing page.
- Step 2** From the list of static routes, select the static route you want to delete and click **Delete**.
-

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