CHAPTER 6

Configuring Devices

Cisco E-DI supports configuration of devices, through the CLI, the GUI, and the XML programmatic interface (PI), covering a range of platform/OS combinations. Cisco E-DI uses a knowledge base which emulates each device to provide you with a virtual experience of configuring the actual device.

The knowledge base for the various platforms is learnt through the **FastTrack** command learning engine. Through FastTrack, Cisco E-DI is capable of providing comprehensive coverage for a given NE/OS release combination within a short period of time.

As more features are added into releases of Cisco IOS, Cisco E-DI incrementally builds upon the existing knowledge base through incremental device updates (IDU) that are available for download.The IDU feature allows Cisco E-DI to be updated with new device packages on the running system.

Cisco E-DI users can configure a group of devices using **network virtualization**. Cisco E-DI groups the knowledge base data applicable to all the devices in the group, and provides the common set of configuration commands to the user. In this way, the user can configure the network as if they are configuring a single device. See Network Virtualization, page 1-8 for details.

This chapter includes the following information:

Using the CLI

All network related configurations through the CLI are performed in the server configuration setup command mode. This mode contains commands for entering into configuration mode for selected devices or combinations of devices to save, commit, schedule or discard configuration changes.

To configure a device or devices:

Step 1 Select the device using the **network <device>** or **network <group>** commands, or by changing into the device directory using the **cd** command.

Enter the config-setup mode, enter **config s**.

Note The behavior of this command changes when session based device authentication is enabled. See Using Session Based Device Authentication, page 2-7 for a full explanation of the command behavior.

Step 2 Enter **config t** to start editing the configuration.

Step 3 When you have finished editing the configuration, exit the config mode.

Step 4 You enter the config-setup mode where you can commit, discard or schedule the configuration change you have just made.

This chapter includes the following information:

- Configuring a Device Using the CLI
- Managing Configuration Files Using the CLI

Configuring a Device Using the CLI

Cisco E-DI provides several ways to change the configuration of a device:

- Interactive configuration
- Changing the configuration through **copy** command

Note The behavior of this command changes when session based device authentication is enabled. See Using Session Based Device Authentication, page 2-7 for a full explanation of the command behavior.

Table 6-1 gives the commands available to enter the network configuration mode and configure the devices.

Table 6-1 Commands to Configure Devices

Action	Command
To enter network configuration setup mode. The behavior of this command changes when session based device authentication is enabled. See Using Session Based Device Authentication, page 2-7 for a full explanation of the command behavior.	[NET:/network]# **configure setup**
To enter network configuration mode.	[NET:/network](config-setup)# **conf t**
To enter the device configuration mode.	[NET:/network](config-setup)# **configure** [device | terminal] ip-address
To exit from the current configuration view and move to the parent view.	[NET:/network](configure)# **exit**
To exit out of the configuration mode. You can also use Ctrl-Z.	[NET:/network](configure)# **end**

Table 6-1 Commands to Configure Devices (continued)

Action	Command
To configure an interface when only one device is selected.	`[NET:/network](configure)# interface FastEthernet0/1`
To configure an interface when multiple devices are selected.	`[NET:/network](configure)# interface ip-address/name`
To configure an interface using an interface macro to select multiple interfaces. Enter **interface ?** to see list of all macros available. Devices can be grouped as interface macros. For example all-fast ethernet or all-VLANs. This allows you to apply the configuration to all interfaces of the device, and also on all the devices in the selected group.	`[NET:/network](configure)# interface all-dot11`
To show the list of devices selected for configuration, or to preview the configurations that will be made on the selected device.	`[NET:/network](config-setup)# show [devices | preview]`
To: • Discard the configuration. • Save the configuration as text and script to a file. The script will be saved in the /server/scripts/config-jobs directory. • Schedule the configuration commit to a later date. The script will be saved in the /server/scripts/config-jobs directory. • Commit the configurations to the devices immediately. Maintains a transaction log in /server/logs/config-commit.log and in user log file if user specifies.	`[NET:/network](config-setup)# discard | save | schedule-job | commit [logfile FILENAME]`
To run the script.	`[NET:/network]# run file Script_path`

In network configuration mode, Cisco E-DI provides a common set of commands that apply to all selected devices and their software versions.

After exiting from network configuration mode, you must select an option from the Configuration menu as follows:

Validating Commands

Once the devices are selected for configuration, a summary table shows which devices have been selected and which versions of the knowledge base are being used to perform CLI operations.

In the network-config mode, enter CTRL-G to display the devices selected, knowledge base applied and the applicability of the command to the selected device. For example:

```
[NET:/network](configure)# ip name-server [CTRL-G]
Device            IDU Name    IDU Version   Version       Command Status
172.168.3.22      Cat3550     1.2           12.3(6a)      INCOMPLETE
172.168.3.21      Cisco7200   1.1           12.3(6a)      INCOMPLETE
```

Managing Configuration Files Using the CLI

Cisco E-DI archives start-up and running-config files for all devices and the server whenever there is a configuration change.

You can use the archived files later to restore the configuration of the network or server to the desired state. All the network and server configuration archives are stored in the /server/config-archive directory.

Table 6-2 gives the commands to manage the configuration files.

Table 6-2 Commands to Manage Configuration Files

Action	Command
To list all archives of running configuration. A running configuration can be saved to the startup configuration. The archived configuration files can also be viewed in the device directory, enter: **cd /network/device/<ip address>/[running-config | startup-config]**	[SVR:/server]# **show running-config** [archive | device | diff-with | list-archives]
To list all archives of startup configuration	[SVR:/server]# **show startup-config** [archive | device | diff-with | list-archives]
To load the latest archived configuration into the running configuration, or load the filename that points to the startup configuration. The filename is the name of the startup configuration file to be loaded.	[SVR:/server]# **load-config** [*filename*]
To clear the configuration archive files from the server. See Table A-1 for details of the options available with this command.	[SVR:/server]# **clear config-archive** [all | device |running-config| startup-config]
To clear the configuration archive files from the network. This command is applied to all the devices in the current context; **all** clears the startup and running configurations, **running** clears the running configurations, **startup** clears the startup configurations	[NET:/network]# **clear config-archive** {all | startup | running}
To clear the configuration archive files for a particular device.	[NET:/network]# **clear config-archive** device ip-address {all | startup | running}
To clear the configuration archive older than a specific period.	[NET:/network]# **clear config-archive** {**all** | **running** | **startup** | **device** {**ip-address**} ...} **older-than** {**days** | **time**}

Table 6-2 Commands to Manage Configuration Files (continued)

Action	Command
To restore a server or a device or a group of devices to a state represented by a specified time or a configuration file or a labeled archive file. `file` is the name of the configuration archive file that will be used for restoration. `time` restores the configuration file that has a timestamp that is less than or equal to the given time. **Note** The device will be restarted after a configuration restore.	`[SVR:/server|NET:/network]# restore {file file_name | time YYYY MM DD HH:MM:SS | label label_name}`
To create a label for server configuration. Startup configuration archive files can be labeled using the time stamp or filename. Labels created in one context, for example server, are not displayed in the other context, that is network mode. The label command accepts the name of the label and applies the label based on whether the command is implemented in the server or network context.	`[SVR:/server]# label {label_name} [descr | file | time]`
To create a label for device configuration. `descr` provides an option to specify a description while labeling the configuration `file` applies the label to the given file name. `time` creates and applies a label based on the timestamp of the configuration archive file.	`[SVR:/server]# network [ip-address | group {group-name} ]` `[NET:/network]# label {label_name} [descr | file | time]`
To display the label and its details including the associated file, and description.	`[SVR:/server|NET:/network]# show labels [detail label_name]`
To delete a label.	`[SVR:/server]# clear label server_conf | network_conf {time YYYY MM DD HH:MM:SS descr "Server configuration as of <date> | file_name descr "name"}`

Configuring Devices Using the GUI

The Cisco E-DI provides Device Configuration Manager (DCM), an Eclipse-based GUI application to view and edit a configuration before applying the changes to the device. DCM includes Command Editor.

DCM can be used to edit the contents of the startup configuration file and the running configuration file, and apply the configuration to the device.

DCM is packaged with Cisco E-DI, and will be available after you have installed Cisco E-DI. To install Cisco E-DI, see:

- *Installation Guide and Setup Guide for Enhanced Device Interface, 2.2 on Windows*
- *Installation Guide and Setup Guide for Enhanced Device Interface, 2.2 on Linux*

See these topics:

- Graphical User Interface (GUI) to know more about DCM features.
- Launching Device Configuration Manager (DCM) to launch DCM.
- Editing a Configuration File Using the DCM GUI for the procedure on editing a configuration file.
- Using the DCM Command Editor to Enter Commands and Check Command Syntax to check your command syntax using DCM.

Launching Device Configuration Manager (DCM)

Before you launch Device Configuration Manager, from the command prompt, navigate to your Eclipse folder (where eclipse.exe resides). Run the command **`eclipse -clean`**

This ensures that the cache is cleaned.

After you have installed Cisco E-DI, follow these steps to launch DCM.

Note Before you start DCM, ensure that the EDI Service is running. To start this service, go to **Start > Programs > Cisco E-DI > E-DI Service > Start**.

After you have installed Cisco E-DI, follow these steps to launch DCM. DCM is a client application that can be used to connect to any E-DI server. It is recommended that you use Windows client with a Linux server.

Before you start DCM, ensure that the EDI Service is running.
To start this service, On Windows, go to **Start > Programs > Cisco E-DI > E-DI Service > Start**.
On Linux, navigate to *E-DI Install Location* /Cisco-EDI/bin and enter **`./start`** at the command prompt.

Step 1 On Windows:

- Choose **Start > Programs > Cisco E-DI > E-DI Service > Device Configuration Manager**. The Device Configuration Manager perspective opens.

or

- Navigate to the directory *E-DI Install Location*\Cisco EDI\edi\dist\ui_products\configmanager and double-click on **launcher .exe**.

On Linux:

- Navigate to *E-DI Install Location*/Cisco EDI/edi/dist/ui_products/configmanager and enter **`./launcher`**

Step 2 E-DI prompts you to log in to the E-DI server.

By default, DCM connects to the port 2323 on the server.

If the server Telnet port is not 2323, you should change this value in the **eclipse.ini** file. This file is located in the following location:

On Windows:

E-DI Install Location\edi\dist\ui_products\configmanager.

On Linux:

E-DI Install Location/edi/dist/ui_products/configmanager

Step 3 After you log in, Device Configuration Manager opens. This has three perspectives (which appear as buttons):

- Config Manager (this is the default perspective, and is highlighted.)
- Macro Command Manager
- Command Translator

For a description of the DCM views, see Understanding the DCM UI.

Right-click on a device. The context menu that appears displays the options Edit Running Config, Edit Startup Config etc.

For the complete procedure on editing configuration files using DCM, see Editing a Configuration File Using the DCM GUI.

Understanding the DCM UI

The DCM perspective is divided into these main sections:

- Tree View

  Displays the network folder (Device Drawer). After you log into the E-DI server, you can expand the Network folder to view all your managed devices in this pane.

  You can right-click on the Device Drawer and select Refresh Network from the context menu to view any newly managed devices in the Device Drawer.

- Device Inventory View

  When you first open Device Configuration Manager, expand the device drawer and select a device, the device inventory details appear in the Editor area.

  These details include IP Address, Name, Vendor name, OS Name, OS version, Managed Status, Online Status, Device Type, Device Family, System Description, and System OID.

- Editor Area

  Displays the startup and running config files that you have opened, and also the Command Editor. The tabs in this view allow you to navigate between the various open files and the Command Editor.

DCM allows you to save the editing contents to a file on a user local file system for viewing later. When you open a file from the user local file system, it opens in the Editor area of DCM.

The tab header displays a text icon and *devicename*_running or *devicename*_startup. You can open multiple files and they appear in the Editor area with appropriate tab headers.

For the complete details about editing configuration files, see Editing a Configuration File Using the DCM GUI.

The Command Editor (**Tools > Command Editor**) can be used to edit the contents of running configuration file. The changes are saved to a file. The changes cannot be applied directly to the device from the Command Editor.

You can also change device type and IOS version for checking command syntax. The command syntax check will be done based on the device knowledge base.

Editing a Configuration File Using the DCM GUI

You can use Device Configuration Manager (DCM) to edit a running configuration file or a startup configuration file.

To use DCM for edits:

Step 1 Launch DCM (see Launching Device Configuration Manager (DCM)).

Step 2 From the Device Drawer in the Tree View, select a device.

An asterisk (*) indicates that the device is not supported in Cisco E-DI. The Device Inventory view displays the device properties of the selected device.

Note Access to edit a device configuration is only available to a user with full control access including permission to change that device configuration.

Step 3 Edit the configuration file as required.

The editing options are:

- To edit a running configuration, right-click on the device in the Device Drawer, and select **Edit Running Config** from the context menu that appears.

  A copy of the running configuration appears in the Editor area (right central view). You can edit this copy. A tab identifies the running configuration.

- To edit a startup configuration, right-click on the device and select **Edit Startup Config** from the context menu that appears.

  A copy of the startup configuration appears in the Editor area (right central view). You can edit this copy. A tab identifies the startup configuration.

From the Edit option on Eclipse Menu Bar, or from context-menu that appears when you right-click in the Editor, you can use Cut, Copy, Paste, Undo, Redo, and other Edit options to make your edits.

You can lock the file so that other users cannot make changes to the device.

To lock or unlock a device:

- Select the device and then select **Tools > Lock Device** from the Eclipse Menu Bar.
- Select **Tools > Unlock Device** from the Eclipse Menu Bar to unlock the file. You can also select a device and right-click. A context menu appears. You can use the Lock Device/Unlock Device Options from here.

You can search for a word or phrase, using **Edit > Find/Replace** from the Main Menu Bar.

The Editor includes the option to check the command syntax based on the knowledge base for that device. The CLI syntax is checked automatically as you make your edits to the running or startup config.

The content text in the Editor area is color coded to give visual feedback as follows:

Table 6-3 Syntax Colors

Command Text	Color	Font Type	Example
Known command keywords	Dark Blue	Bold	**interface**
Incomplete command keywords	Black	Italic	*interf*
Valid parameter words	Green	Normal	FastEthernet0/0
Unknown command keywords	Red	Normal	itnerface
Comments	Grey	Normal	! comments

The CLI syntax is also checked automatically within your open file when you choose a different Device Family and Version. The comments will be shown in a different syntax color and font as syntax checking feedback.

This is a tool for checking whether one configuration file can be applied to another device family. It can also be used as a training or learning aid, or to compare commands.

The device details and version are shown in the Status bar. A different color is used to distinguish submode blocks, for example **username** cisco **password 0** cisco.

If you enter **Ctrl <Space>**, E-DI displays hints on the commands and parameters. These will help you in entering the commands correctly.

Step 4 From the Eclipse Menu Bar, click **Apply To > Running Config** to apply the changes to the running configuration file. If you try to make further changes to the file before the device is synchronized with the updated file, you will see an error message.

To close the Editor, choose the cross sign on the tab. If you had made any changes, you will be asked to save your changes.

Using the DCM Command Editor to Enter Commands and Check Command Syntax

You can use the DCM Command Editor to create command sets and check any command syntax against a device family and OS version:

Step 1 Launch DCM. See Launching Device Configuration Manager (DCM) for details.

Step 2 From within the DCM perspective, select a device from within the Network folder.

Step 3 From the Main Menu Bar, select **Tools > Command Editor**.

The Command Editor opens.

Step 4 Enter the command, and choose the device family and OS version from the drop down lists in the top view.

As you enter commands, the DCM syntax checker checks for your syntax. The color codes provide you with visual feedback.

Step 5 Save the command to a file.

This file can be reopened in the Command Editor to check against the required the device family and OS version (selected from the top right view).

You can modify the content and verify the syntax.

You can open the running configuration file for the device using the Device Configuration Manager.You can copy commands from the Command Editor to the Device Configuration Manager to apply the translated commands to the device configuration.

Viewing Device Interfaces

You can view the details of all the interfaces on a particular device.

Step 1 Right-click on a device in the Device Drawer.

Step 2 Select **Show Interface** from the context menu that appears.

The Interface List appears.

The Interface List pop-up appears, displaying the following information:

Fields	Description
Device IP	IP address of the device
Interface Name	Name of the interface. For example, FastEthernet0/1
Interface Type	Type of the interface. For example, Loopback.
Physical Address	MAC address.
IP Address	Interface IP Address.
Network Mask	Network mask of the interface.
Admin Status	Administrative Status (up or down).
Oper. Status	Operational Status (up or down).