Configuration

Cisco MGM automatically discovers network elements and displays them on the Map Viewer screen. From this screen you can view operational status and navigate to screens that support Cisco MGX 8000 Series CVG configuration and software upgrades.

Cisco MGM Site Organization

Cisco MGM organizes MGX 8000 Series CVGs by site. A site contains all gateways that have the same value for the standard SNMP sysLocation object. If a gateway does not have a value set for sysLocation, Cisco MGM includes the gateway under CMGM_Site_default. If a gateway does have a value set for sysLocation, Cisco MGM includes the gateway under the site titled CMGM_Site_<sysLocation value>.

Note A Cisco MGM site remains in the system even if you delete all its gateways. Use Deployment > Delete Objects to remove an empty site.

To change the system location of a selected object, follow these steps:

Step 1 Log on to Cisco EMF. The Cisco Element Manager Framework Launchpad screen opens.

Step 2 Click the **Viewer** button. The MapViewer screen opens.

Step 3 Click the tree of objects to display the list of sites and nodes.

Step 4 Right-click the desired site or node and select **Open Object Configuration**. The Object Configuration window opens. (See Figure 4-1.)

Figure 4-1   Object Configuration
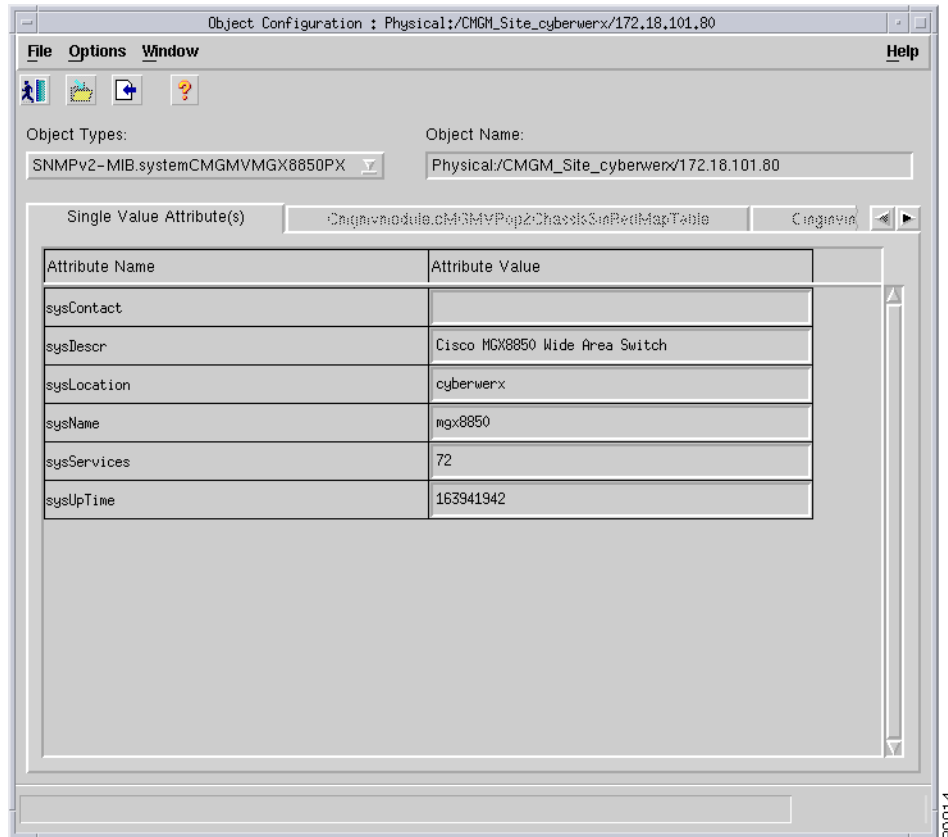
Step 5 Select the desired object from the **Object Types** list. The associated object parameters display in the **Single Value Attributes** tab.

Step 6 Enter the new system location in the **sysLocation** field, then choose **File > Save**. The system updates the location for the selected object.

Node Discovery

Automatic discovery occurs in two phases:

1. Automatic discovery of Cisco MGX 8000 Series CVGs and associated media gateway controllers in a subnet.

2. Subchassis synchronization of MGX 8000 Series subcomponents.

You initiate automatic discovery from the Cisco MGM GUI by specifying the desired IP address range. Cisco MGM automatically discovers MGX 8000 Series CVGs and media gateway controllers with IP addresses that fall within this range. For more information, see the "Cisco MGM Community String and Security Configuration" section on page 7-2.

Invoking Automatic Discovery

When you initiate automatic discovery, Cisco EMF pings each IP address in the given range. If a response is received, Cisco EMF initiates an SNMP GET request for the enterprise object id (OID). If the OID matches any of the predefined Cisco EMF class mappings, an object of that class is created and displayed. If no match is found, the process creates a generic SNMP device under the physical level of the hierarchy. You can't manage these generic devices.

To discover network elements, follow these steps:

Step 1   Start Cisco EMF.

```
<CEMFROOT>/cemf/bin/cemf session
```

Step 2   Log on to Cisco EMF. The Launchpad screen opens.

Step 3   Click the **Discovery** button. The Discover Network Devices screen opens. (See Figure 4-2.)

Figure 4-2   Discover Network Devices

Step 4   Configure the discovery parameters:

Parameter	Description
Device Name	Fixed as LaunchPad.
Device Address	The IP address from which to start the discovery process, expressed in standard dot notation.
Discovery Method	The method of discovery, IP, SNMP, or IP and SNMP. Specify SNMP to discover all components.
Hop Count	The number of routing hops to allow. Default: 0.
Ping Retries	The number of times to ping each address in the range. Default: 1.
SNMP Retries	The number of SNMP retries to allow. Default: 1.
SNMP Timeout	The timeout of SNMP tries. Default: 10.
New Community	Add or remove SNMP communities.
Physical Location	The physical path in the Cisco EMF hierarchy. Click Use Physical Path to use an existing path.
Interface Attributes	The subnet and range of IP addresses to search. Double click to specify or change the range.

Step 5   Click **Start**.

Step 6   At the end of the discovery process, click **Close**.

Inventory Discovery

Subchassis synchronization searches for entities within a Cisco MGX 8000 Series CVG and displays them on the Cisco MGM user interface. The subchassis synchronization process is automatically invoked after auto discovery. The subchassis synchronization process inspects SNMP MIBs for the following configurable objects:

- Chassis and Status

- Card Configuration and Status, including PXM1, PXM1-E, PXM45, VISM, VISM-PR, RPM-PR, RPM-XF, SRM, SRM-E, AXSM, and AXSM-E cards and lines

- Line Configuration and Status, including DS1, DS3, and SONET.

Cisco MGM uses the read-write community string for subchassis synchronization. You can change the default read-write community string in the cmgmvCtrlUserData.ini file. For more information about the cmgmvCtlrUserData.ini file, refer to Appendix A, "Cisco MGM Server Configuration Files."

When the subchassis synchronization process is complete, Cisco MGM adds the subchassis components to the site hierarchy display. You can expand the hierarchy to display cards and profiles by clicking the + sign next to the Cisco MGX 8000 Series icons. Similarly, you can expand the hierarchy to display lines by clicking the + sign next to each card. A number next to the object indicates the number of contained cards or lines.

Manual Initiation of Subchassis Synchronization

You can manually invoke the subchassis synchronization process from the Cisco EMF menu bar. The subchassis discovery process retrieves subchassis component information from each Cisco MGX 8000 Series CVG and displays corresponding objects on the Cisco MGM user interface.

To synchronize subchassis components, follow these steps:

Step 1   Log on to Cisco EMF. The Cisco Element Manager Framework Launchpad screen opens.

Step 2   Click the **Viewer** button. The MapViewer screen opens.

Step 3   Click the tree of objects to display the list of sites and nodes.

Step 4   Right-click the desired site or node and select **SubChassis Sync Up**. The Subchassis Sync Up window opens. (See Figure 4-3.)

Figure 4-3   Subchassis Sync Up

Step 5   Select the desired nodes from the list.

Step 6   Click **Start**.

The system synchronizes the user display with subchassis components.

Periodic Subchassis Synchronization

Periodic subchassis synchronization discovers the subchassis components of each node without user intervention. This background task runs on a fixed interval, once every 24 hours, rather than at a fixed time. Therefore, the time of day when this task runs depends on the last time the Cisco MGM controller was initialized.

Object Configuration

Object configuration data for Cisco MGM supported objects are available through the Cisco EMF Object Configuration window. By selecting an object and launching the Object Configuration window, data specific to the selected object is available. Choose the appropriate option from the Object Type list to view the applicable data in the lower portion of the window. Because each type of object is modeled differently in the software, data is available through different object type selections for each type of object. For example, the available object type selections for a VISM card differ from those supporting a AXSM card.

Although the data presented in the Object Configuration window is modifiable, it is not recommended to save changes.

For further information on launching and using the Object Configuration window, see the *Cisco Element Management Framework User Guide*.

Downloading and Activating Software Images

The software download feature facilitates the downloading of runtime and backup boot image files from a Cisco MGM workstation to a device. Depending upon the device type, the image is downloaded either via TFTP (PXM1-based card) or FTP (PXM1-E or PXM45-based cards.) The system reports whether the download was a success or failure; in the case of a failure, detailed information is provided about the failed TFTP or FTP commands. Downloading a software image does not automatically activate it; the selected gateway continues to operate on current software until you perform the upgrade procedure.

> **Note** Runtime software image files are saved using the extension ".fw" and boot images are saved using the extension ".bt".

Downloading Software Images

To download software image files, follow these steps:

Step 1 Log on to Cisco EMF. The Launchpad screen opens.

Step 2 Click the **Viewer** button. The Map Viewer screen opens.

Step 3 Click the tree of objects to display the list of sites and nodes.

Step 4 Right-click the icon for the desired site or chassis and select **Image Download**. The Image Download screen opens. (See Figure 4-4.)

Figure 4-4   Image Download
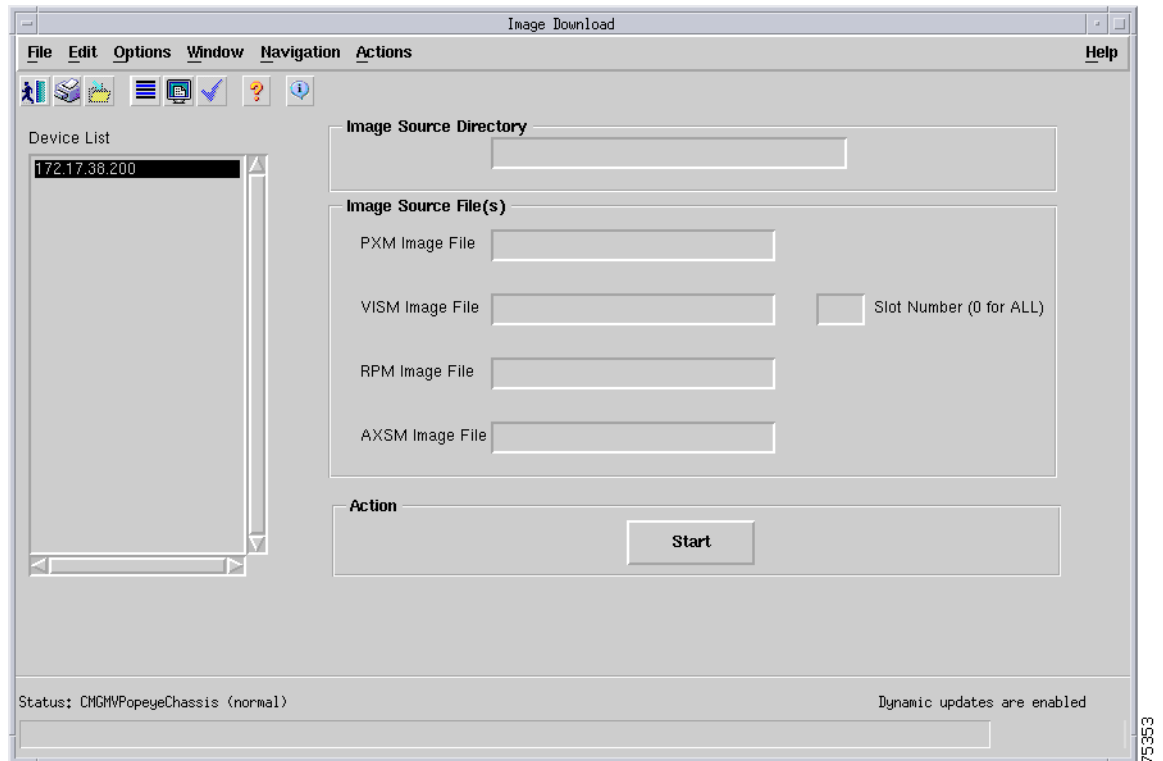
Step 5   Enter the file information shown in Table 4-1.

⚠️

Caution   Cisco MGM does not check for a match between the device and the image file entered. If you select an incorrect type of image for the device, the device does not function properly. Before installing images on your managed devices, check their compatibility by contacting the Cisco Technical Assistance Center.

Table 4-1   Software Image Download

Field	Description	Usage
Device	List of devices	Select the device objects for software download.
Image Source Directory	Text field for entering the directory from which the image files are to be downloaded	Enter the source directory for the image file(s).
Image Source File(s)	Boot or runtime image files for PXM, VISM, RPM, and AXSM cards	Enter the full boot or runtime image filename(s) for the corresponding card types to download to the device. The detailed description of each text field in the Image Source File(s) frame is listed below:
	PXM Image File	Enter the PXM image file name. **Note** PXM1, PXM1-E, and PXM45 images can be entered in this field.
	VISM Image File	Enter the VISM image file name. **Note** VISM and VISM-PR images can be entered in this field.

Table 4-1   Software Image Download (continued)

Field	Description	Usage
	RPM Image File	Enter the RPM image file name.
		Note RPM, RPM-PR, and RPM-XF images can be entered in this field.
	AXSM Image File	Enter the AXSM image file name.
		Note AXSM and AXSM-E images can be entered in this field.
Slot Number	Integer field to enter slot number for VISM image file	Specify the card slot number of the VISM image file you want to download. If you enter 0 in the Slot Number field or the Slot Number field is empty, the image is downloaded to all cards on the device.

Step 6   Click **Start.** An action result dialog appears with status of the image download action for the selected devices. If successful, the software image files are sent via either TFTP or FTP (depending upon the device type) to the appropriate device directory.

Note   Upon successful download of a PXM image file, another supporting file named ComMat.dat is automatically downloaded to the device as well.

Step 7   Repeat steps 5 to 6 for other card images.

Step 8   Click **Close** when finished downloading the desired software images to close the Image Download window.

Activating Software Images

Once the desired software image files have been downloaded, you must telnet to the device and execute the necessary commands to fully activate the image. For more information on how to activate software image files that have been downloaded to the system, refer to the following documents:

- *Cisco MGX 8850 and MGX 8950 Switch Software Configuration Guide*
- *Cisco MGX 8850 (PXM1E) and MGX 8830 Switch Software Configuration Guide*
- *Cisco MGX 8850 (PXM45) and MGX 8950 Switch Software Configuration Guide*

Configuration Save and Restore

You can back up and restore network card and chassis configurations using the Cisco MGM configuration save and restore feature. Files are saved one level above your <CEMFROOT> directory with the following file naming convention:

<CEMFROOT>/../ConfigData/<IPADDRESS>_<BACKUPID>/<NODENAME>.ZIP

Note   You can change the default directory by editing the CMGMVConfigSaveDir setting in <CEMFROOT>/config/init/cmgmCtlrUserData.ini.
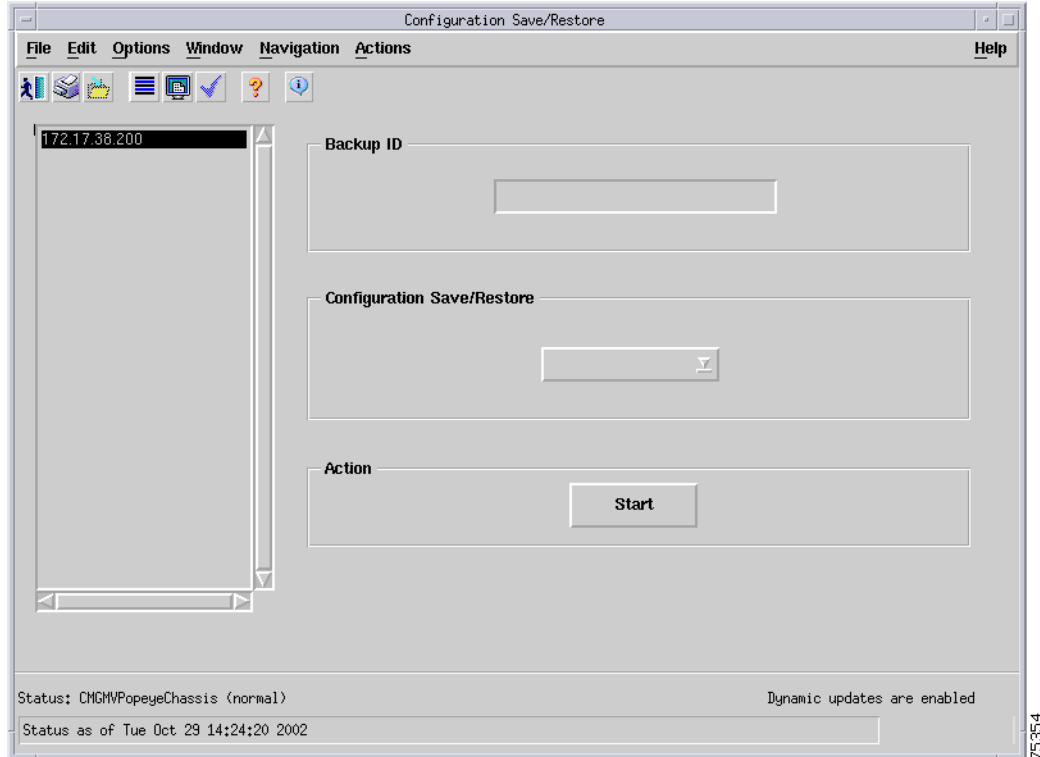
Configuration Save

The Cisco MGM configuration save function logs on to the selected device, invokes a **saveallcnf** command to generate the configuration file, and sends a **tftp get** command to transfer the device configuration file to your Cisco MGM workstation.

To save a device configuration file, follow these steps:

Step 1   Log on to Cisco EMF. The Launchpad screen opens.

Step 2   Click the **Viewer** button. The Map Viewer screen opens.

Step 3   Click the tree of objects to display the list of sites and nodes.

Step 4   Right-click the icon for the desired site and click **Configuration Save/Restore**. The Configuration Save/Restore Dialog window opens. (See Figure 4-5.)

Figure 4-5   Configuration Save/Restore Dialog

Step 5   Enter the required information. (See Table 4-2.)

✎ **Note**   The default pull-down menus are blank. You must click on each pull-down menu to reveal the available options.

Table 4-2   Configuration Save/Restore Information

Field	Description	Usage
Device List	List of devices	Select the device objects you want to save/restore. You can select multiple devices at the same time.
Backup ID	Alphanumeric text field to enter the backup ID.	You can save multiple versions of the configuration files in different directories if a different backup ID is used each time.
Configuration Save/Restore	Drop down menu to select the save or restore action.	—

Step 6   Click **Start.**

Step 7   An Action Result Dialog appears with the status of the Configuration Save/Restore action on the selected devices.

Configuration Restore

✎
Note   The Configuration Restore action transfers only the configuration file from the Cisco MGM workstation to the device hard disk. To restore all the configuration files, telnet to the device and use the CLI **restoreallcnf** command.

The Cisco MGM configuration restore function logs on to the selected device, and sends a **tftp put** command to transfer the configuration file from your Cisco MGM workstation to the selected device.

To restore a device configuration file, follow these steps:

Step 1   Log on to Cisco EMF. The Launchpad screen opens.

Step 2   Click the **Viewer** button. The Map Viewer screen opens.

Step 3   Click the tree of objects to display the list of sites and nodes.

Step 4   Right-click the icon for the desired site and click **Configuration Save/Restore**. The Configuration Save/Restore window opens. (See Figure 4-5.)

Step 5   Enter the required information. (See Table 4-2.)

✎
Note   The default pull-down menus are blank. You must click on each pull-down menu to reveal the available options.

Step 6   Click **Start.**

Step 7   An Action Result Dialog appears with the status of the Configuration Save/Restore action on the selected devices.