



Installation

This chapter describes pre-installation tasks and the Cisco 12000 Manager (C12kM) installation procedure in the following sections:

- [Installation Workflow](#)
- [System Requirements](#)
- [Manager and Client Installations](#)
- [Installing C12kM from a Remote CD-ROM Drive](#)
- [Installing C12kM from a Local CD-ROM Drive](#)
- [Uninstalling C12kM](#)
- [Upgrading to CEMF 3.2 and C12kM 2.2](#)

Installation Workflow



Note

A fully licensed version of the Cisco Element Management Framework (Cisco EMF) version 3.2 must be installed and started (that is, the Cisco EMF should be running in the background) before you attempt to install the Cisco 12000 Manager (C12kM) application. Refer to the *Cisco Element Management Framework Installation and Administration Guide Release 3.2 (78-12536-01)* for details on installing and starting Cisco EMF.

The process of installing C12kM involves the following steps:

1. System requirements—Review the [“System Requirements” section on page 2-2](#) to confirm correct pre-installation procedures.
2. Cisco EMF—Verify that you have Cisco EMF version 3.2 installed and started before proceeding. Refer [“CEMF Requirements” section on page 2-4](#) for further details on the CEMF requirements.
3. Installation—Install the C12kM application, as follows:
 - a. Refer to the [“Manager and Client Installations” section on page 2-4](#) to determine the type of deployment.
 - b. Perform the procedure in one of the following sections:
[“Installing C12kM from a Remote CD-ROM Drive” section on page 2-5](#)
or
[“Installing C12kM from a Local CD-ROM Drive” section on page 2-6.](#)

4. C12kM Set Up—
 - a. Perform configuration tasks on the Cisco 12000 series router. For details, refer to the [“Router Configuration”](#) section on page 3-1.
 - b. Enable trap notifications on the Cisco 12000 series internet router. For details, refer to the [“Enabling Traps”](#) section on page 3-3.
 - c. Configure a workstation to allow backup/restore capability. For details, refer to the [“Setting Up a Workstation as a TFTP Server”](#) section on page 3-3.
5. C12kM Session—To begin working in C12kM, refer to the [“Starting a User Session”](#) section on page 3-5.

System Requirements

C12kM can be deployed in a number of different configurations, from a single hardware system to a multisite distributed management system.

All Cisco EMF-based solutions run on Sun Solaris/SPARC hardware running the Solaris operating environment, release 2.6.

Use C12kM version 2.2 with Cisco 12000 series internet routers using one of the following Cisco IOS releases: 12.0(10)S, 12.0(11)ST, 12.0(12)ST, 12.0(13)ST, 12.0(14)ST, 12.0(15)S, 12.0(16)S, 12.0(11)ST, 12.0(18)S, 12.0(18)ST1, 12.0(19)S, 12.0(21)S1 and 12.0(21)ST1.

System requirements are presented in the following sections:

- [License Requirements](#)
- [Small Deployment Manager Requirements](#)
- [Large Deployment Manager Requirements](#)
- [Client Requirements](#)
- [CEMF Requirements](#)
- [Manager Installation](#)
- [Client Installation](#)
- [The manager installation includes all files that run a C12kM user session on the manager system. The C12kM system can therefore be installed on a single system with manager and client functionality, and can be enhanced by adding separate client machines later as necessary.](#)

License Requirements

C12kM uses the Cisco EMF framework, which requires a license key to operate. For information about how to obtain a license key, refer to the *Cisco Element Management Framework Installation and Administration Guide Release 3.2 (78-12536-01)*, or contact Cisco TAC for assistance.

Small Deployment Manager Requirements

Use Sun Ultra 60, configured as follows:

- 17-inch color monitor
- 2 x 9 GB internal disks

- 1 x 9 GB 10,000 rpm external disk
- 2 GB memory (minimum) this might need to increase to 3 GB depending on performance benchmarking
- 2 x 440 MHz processors
- 2 GB swap

Large Deployment Manager Requirements

Use Sun Enterprise 450, configured as follows:

- 17-inch color monitor
- 6 x 9 GB 10,000-rpm disks on 3 Ultra SCSI controllers
- 4 GB memory
- 4 x 440 MHz processors
- 2 GB swap

**Note**

For large scale deployments, fault tolerant options are available (for example, Sun Netra FT1800).

**Note**

If a number of graphically intensive applications are run on a workstation, it is helpful to use a 24-bit Sun color card. A typical manager installation requires 500 MB of free disk space in a file system. An appropriate amount of free disk space for database files is also required.

Client Requirements

Use Sun Ultra 5, configured as follows:

- 17-inch color monitor
- 9 GB internal disks
- 256-MB memory (minimum)
- 333 MHz processors
- 2 GB swap

CEMF Requirements

The C12kM Release 2.2 runs on CEMF 3.2 Build 136. The following patches must be installed before installing C12kM.

**Note**

Ensure that the patches are installed in the same order as they are listed below.

The required patches are:

- CEMF_3.2_PATCH_170001-19
(On CCO, the filename corresponding to this patch is CEMF3.2P1.tar.Z)
- CEMF_3.2_PATCH_190101-10
(On CCO, the filename corresponding to this patch is CEMF3.2P1.1.tar.Z)
- CEMF_3.2_PATCH_190105-09
(On CCO, the filename corresponding to this patch is CEMF3.2P1.5.tar.Z)

Manager and Client Installations

C12kM can be deployed in a distributed manner to utilize the power of multiple machines. Two types of deployment are available: manager and client. Note that both manager and client installations cannot be run on the same machine. You can either install a manager or client on one machine, but not both.

Manager Installation

Every C12kM deployment must have a manager installed. Processes on the manager keep track of the current state of the network model, user access, and events.

Client Installation

A C12kM deployment can have client installations on separate workstations. These client installations run C12kM applications that access objects on the manager. A client installation contains only those parts of C12kM that are necessary to run a C12kM user session. This user session communicates with the manager when required to retrieve management information. In this case, all window updates are processed locally on the client machine, freeing more resources on the manager to process network information.

The client installation copies the client application onto the local machine; therefore, there is no need to mount files across the network. The only network traffic occurs when the client requires more data from the manager.

**Note**

The manager installation includes all files that run a C12kM user session on the manager system. The C12kM system can therefore be installed on a single system with manager and client functionality, and can be enhanced by adding separate client machines later as necessary.

Manager and client installations are presented in the following sections:

- [Installing C12kM from a Remote CD-ROM Drive](#)
- [Installing C12kM from a Local CD-ROM Drive](#)

Installing C12kM from a Remote CD-ROM Drive

To install the C12kM application onto a system that does not have its own CD-ROM drive, proceed as follows:

**Caution**

Cisco EMF (version 3.2) must be running before you can install the C12kM application.

- Step 1** Insert the C12kM CD-ROM into the CD-ROM drive on the remote host.
- Step 2** Log in as a user with superuser rights on the remote host.
- Step 3** Check to see if the Volume Manager is running by entering the following:
- ```
/usr/bin/ps -ef | grep vold
```
- Step 4** If the Volume Manager is running, a message similar to this one is displayed:

```
root 591 1 0 Feb 26 ? 0 :01 /usr/sbin/vold
```

or

If the Volume Manager is *not* running, start the Volume Manager by entering the following:

```
/etc/rc2.d/S92volmgt start
```

**Step 5** Export the CD-ROM device onto the remote host:

  - If the NFS related daemons are *not* already running, start them by entering the following:

```
/usr/lib/nfs/nfsd 8
```

```
/usr/lib/nfs/mountd
```
  - Share the mount point from the remote host by entering the following:

```
share -F nfs -o ro /cdrom/cdrom0
```
  - Verify that this host has made the CD-ROM drive accessible by entering the following:

```
share
```

The listing displayed includes the /cdrom mount point.

**Step 6** Mount the remote CD-ROM on the local host (from where the installation is to take place):

  - Create a mount point if none exists already by entering the following:

```
mkdir /mnt/cdfiles
```
  - Mount the remote directory, by entering the following:

```
mount -r remote-host:/cdrom/cdrom0 /mnt/cdfiles
```

**Note**

Replace `remote-host` with the host name of the remote device.

The contents of the CD-ROM should now be visible under the `/mnt/cdfiles` mount point.

- Step 7** To continue installation, proceed to step 2 in the [“Installing C12kM from a Local CD-ROM Drive” section on page 2-6](#).

## Installing C12kM from a Local CD-ROM Drive



### Note

This section assumes that you are installing C12kM release 2.2 for the first time on a clean system. Refer to the [“Upgrading to CEMF 3.2 and C12kM 2.2” section on page 2-9](#) if you are upgrading from C12kM release 2.1 or 2.1.1.

After you install the Cisco EMF manager, acquire a valid license and start up Cisco EMF. You can install C12kM using `cemfinstall` as follows:

- Step 1** Log in as a user with superuser rights.



### Caution

Cisco EMF (version 3.2) *must* be running before you can install the C12kM application.

- Step 2** Insert the C12kM CD-ROM. Change the working directory into the CD-ROM area by entering the following:

```
cd /cdrom/cdrom0
```



### Note

A File Manager application window may appear to allow you to install the C12kM application. You may wish to use this interface installation instead of the command line.

- Step 3** Change to the C12kM directory area by entering the following:

```
cd c12km_2.2
```

- Step 4** Run the install script by entering the following:

```
./cemfinstall
```

A terminal window appears listing the various C12kM installation options.

- Step 5** Type the number of the installation you require and press the return key.



### Note

If you installed the Cisco EMF Manager, select the C12kM Manager installation option. If you installed the Cisco EMF client, select the C12kM Client installation option or you can install Acrobat Reader if necessary to view the PDF documentation files. The default is q for quit. If you enter no value, you will quit the process. If you enter a question mark (?), the available installation options appear.

C12kM automatically detects what kind of Cisco EMF installation exists, manager or client, and directs you towards the correct C12kM install with the onscreen message, “incompatible type clm.” If the Cisco EMF manager is installed, the C12kM client install will be incompatible, and vice-versa.

The utility performs the appropriate installation. As each part of the installation takes place, messages are displayed on screen.

**Step 6** When the installation is complete, exit the CD-ROM area by entering the following:

```
cd /
```

**Step 7** Remove the CD-ROM by entering the following:

```
eject cdrom
```

**Step 8** Check that all of the Cisco EMF and C12kM packages have installed correctly. Type:

```
CEMF_ROOT/bin/cemfinstall -show
```

For example, if you have installed C12kM as a Manager installation you will see the following package name: C12kM\_Manager. Within the C12kM\_Manager package you will see the following component package names: COMTechm, COMPlatm, COMModm, COMIntm, COMAOSOm, COMAODS3m, COMATMCnm, COMIOSm, COMEtherm, COMPOSm, DPTCOMm, COMIPm, COMVLANm, COMCEm, and C12kMPkm.

**Step 9** Proceed to [Chapter 3, “C12kM Set Up,”](#) for details on setup, configuration and starting procedures.

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# Uninstalling C12kM

To uninstall C12kM, proceed as follows:

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**Step 1** Log on to the machine where C12kM is installed as a user with superuser rights.

**Step 2** Make sure that Cisco EMF is running by entering the following:

```
CEMF_ROOT/bin/cemf query
```




---

**Note** Replace CEMF\_ROOT with the directory where Cisco EMF is installed.

---

A message indicates whether or not Cisco EMF is running. If Cisco EMF is not running, start it now before proceeding.

**Step 3** Uninstall C12kM. Type:

```
CEMF_ROOT/bin/cemf install -remove
```

A list of C12kM uninstallation options appear.




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**Note** All C12kM processes are automatically stopped and uninstalled when the `cemfinstall` script is run with the `-remove` option.

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**Step 4** Enter the option you require. The default option is indicated (Def : 3), as well as the option to enter ? for help or q for quit.




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**Note** Dependant applications (C12kM, in this case) must be removed before primary applications (Cisco EMF, in this case) can be removed, for example, the Cisco EMF cannot be removed until the C12kM is removed.

---

A message indicates that the uninstall is about to take place. If you proceed with the uninstall, the window scrolls through the application as it is removed. The following message appears:

```
Removal of <package> was successful.
```

```
The option to remove <C12kM> was completed successfully.
```

---

# Upgrading to CEMF 3.2 and C12kM 2.2

This section describes the upgrade procedure from CEMF 3.1 to CEMF 3.2 and C12kM release 2.1/2.1.1 to release 2.2.

This procedure applies when:

- Upgrading from C12kM 2.1  
C12kM 2.1 runs with Cisco EMF 3.1 and patch 4
- Upgrading from C12kM 2.1.1  
C12kM 2.1.1 runs with Cisco EMF 3.1 and patch 5



## Caution

When upgrading C12kM, ensure that all the chassis are moved into the decommissioned state. This ensures that when the chassis objects are commissioned in the new system, the newly added agent poller tasks will be activated in their respective states.



## Note

After upgrading C12kM, by default all cleared alarms (which are one day old) are deleted from the system by a process called alarmDeleter. AlarmDeleter is a CEMF process, refer to Cisco EMF Installation and Administration Guide (78-12539-01) for details. To save all alarms it is recommended to export them to a flat file using Print option in Event browser. Please refer to Cisco Element Management Framework User Guide (78-12536-01) for more details.

To upgrade the C12kM 2.1/2.1.1 to C12kM 2.2, proceed as follows:

- 
- Step 1** Login to the machine where C12kM is installed as the superuser (su).
- Step 2** Change directory to the Cisco EMF bin directory, enter:
- ```
cd <CEMF_ROOT>/bin
```
- Step 3** To display a list of all Cisco EMF packages, enter:
- ```
./cemf install -show
```
- This will list the version of C12kM.
- Step 4** Copy the **pkginfo** file to the specified location. Proceed as follows:
1. To find the target directory,
    - a. Find the package installed by issuing the following command,
 

```
./cemf install -s | grep C12kM_Manager | grep -v "Package"
```

 Some examples of the output: C12kM\_Manager, C12kM\_Manager\_-\_Upgrade etc.
    - b. The target directory will be `/var/adm/Atlantech/avinstall/<Package retrieved using the previous command>`
  2. To find the name of the **pkginfo** file,
    - a. Change current directory to target directory by using `cd` command.
    - b. Find the existing `pkginfo` file by listing the directory using `ls -al`.  
The `packageinfo` file could be one of `.5.pkginfo` or `.15.pkginfo`.
  3. Overwrite the existing package info file with the new file available in the `cd` using `cp`.

- a. `cp /cdrom/cdrom0/upgrade /<pkginfo filename retrieved in the sub-step (2) of Step 4> /var/adm/Atlantech/avinstall/<target directory>/`

**Step 5** As a precautionary measure in case there are problems with the subsequent upgrade, backup all databases, and copy these to a non-default location, using the `cp` command. If the upgrade is successful, this backup will not be required.

**`./cemf backup`**

**`mv /opt/backup /opt/original_backup`** where `original_backup` is a user-defined directory for backup

**Note**

It is necessary to have sufficient disk space for the backups.

For backup instructions for the version of Cisco EMF you are upgrading from, refer to the “Cisco EMF Database Backup and Restore” chapter in the Cisco EMF v3.x Installation and Administration Guide.

**Step 6** Remove the `g.histCriteria` file, enter:

**`rm <CEMF_ROOT>/config/selfManagement/actions/g.histCriteria`**

**Step 7** Uninstall C12kM for upgrade, enter:

**`./cemf install -remove -o -upgrade`**

then choose **C12kM Manager**

**Step 8** Backup the databases, enter:

**`./cemf backup`**

**Caution**

These are the backups that will be restored later.

For backup instructions for the version of Cisco EMF you are upgrading from, refer to the “Cisco EMF Database Backup and Restore” chapter in the Cisco EMF v3.x Installation and Administration Guide.

**Step 9** Copy the `upgradePackages` files to a temporary location so that they can be restored on to the upgraded system before startup. Enter:

**`cp -r <CEMF_ROOT>/config/selfManagement/upgradePackages/* /opt/upgradePackages/`** where `upgradePackages` is a user-defined directory.

**Caution**

These files can be copied to any temporary location except `/tmp/` (`/opt/` is used in the example). Do not use `/tmp` as the reboot (Step 11) will remove any files in this area.

**Step 10** Stop Cisco EMF, enter:

**`./cemf stop`**

**Step 11** Remove the current Cisco EMF installation and Cisco EMF patches, enter:

**`./cemf install -remove`**

then choose the option you require from the menu.

**Caution**

The order in which components are removed is important. Refer to “[CEMF Requirements](#)” section on page 2-4 for details on the order in which the patches must be removed. It is mandatory that the patches are removed in the reverse order. You must remove the patches first, then Cisco EMF itself.

**Step 12** Cisco EMF v3.x and C12kM are now removed, and you must reboot your system.



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**Note** A reboot is necessary to ensure there are no processes remaining which may interfere with successful operation of Cisco EMF v3.2.

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**Step 13** Cisco EMF v3.2 can now be installed. Insert the C12kM product CD into the CD-ROM device.

**Step 14** Change directory into the cdrom area. At the command line prompt, enter:

```
cd /cdrom/cdrom0
```

**Step 15** Install Cisco EMF v3.2, enter:

```
./cemfinstall
```

from the Cisco EMF v3.2 CD-ROM.

**Step 16** Install the Cisco EMF patches in the same order as mentioned in “[CEMF Requirements](#)” section on [page 2-4](#).

**Step 17** Change directory to the Cisco EMF bin directory, enter:

```
cd <CEMF_ROOT>/bin
```

**Step 18** Start Cisco EMF, enter:

```
./cemf start
```

Cisco EMF processes start and Cisco EMF is initialized.

**Step 19** Stop Cisco EMF, enter:

```
./cemf stop
```

**Step 20** Restore the databases backed up in Step8, enter:

```
./cemf restore -t <date of backup> -u
```

Refer to Chapter 10, “Cisco EMF Database Backup and Restore” for complete details. The <date of backup> value is the date the backups were created. The date must always be specified in US format, that is mm-dd-yyyy.



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**Note** The -u flag implements the correct required behavior by preventing the configuration files from the backup being copied across to the new installation.

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**Note** You may see the message Backup system catalog file is missing. You can ignore the message and choose y.

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**Step 21** Remove the following databases, enter:

```
rm <CEMF_ROOT>/db/attributeHistoryCollector.db
```

```
rm <CEMF_ROOT>/db/attributeHistoryServer.db
```

```
rm <CEMF_ROOT>/db/partitioning.db
```



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**Note** This is necessary as it is not possible to guarantee the integrity of any existing performance data.

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- Step 22** Restore the files copied in Step 9, enter:
- ```
cp /opt/upgradePackages/* <CEMF_ROOT>/config/selfManagement/upgradePackages/
```
- Step 23** Start Cisco EMF v3.2, enter:
- ```
./cemf startupgrade
```
- Step 24** To install the C12kM version 2.2 from the CDROM, enter:
- ```
./cemfinstall
```
- Step 25** Choose the option **C12kM Manager - Upgrade from 2.1.x**
- Step 26** The backups created at Step 8 should only be removed after the upgraded Cisco EMF and Element Manager installation has been fully tested and verified.



Note After the upgrade is completed, a message is displayed confirming that the C12kM installation is complete. It is recommended to do a cemf start and stop after the C12kM software is installed.
