

Release Notes for Cisco 6400 Service Connection Manager, Release 2.2(2)

The Cisco 6400 Service Connection Manager (SCM) is a Cisco Element Manager Framework (CEMF) based element and service management solution for the Cisco 6400 Universal Access Concentrator (UAC). This release note contains compatibility and known problem information for installers and end users of the Cisco 6400 SCM. Also noted are a number of Cisco 6400 UAC hardware issues that might have an impact on the normally routine operation of the Cisco 6400 SCM software.

SCM Release 2.2(2) provides support for constant bit rate (CBR) category on ATM connections, scalability enhancements, and bug fixes. Like SCM Release 2.2(1a), this release of SCM also runs on CEMF Release 3.0.4.

This release note contains the following sections:

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Audience

SCM Release 2.2(2) can be installed in existing SCM installations. Customers who are installing SCM software for the first time must install SCM Release 2.2(2).

New Software Feature in SCM Release 2.2(2)

In addition to the features supported in SCM Release 2.0.1, SCM Release 2.1(1), and SCM Release 2.2(1a), SCM Release 2.2(2) supports:

- Constant bit rate (CBR) feature for ATM interfaces within Cisco 6400 Service Connection Manager. CBR is a QoS service category that provides an ATM connection with a static amount of bandwidth to ensure accurate data delivery. This bandwidth, which is available continuously, is determined by the Peak Cell Rate (PCR). CBR connections are used for delay and jitter sensitive Time Division Multiplex (TDM) traffic such as voice, video, and circuit emulation services in an ATM network.



Note CBR is only supported and available for ATM services and applies only to the Node Switch Processor (NSP). A connection template can be used by either ATM service connections or non-ATM service connections, but not by both.

- Cisco IOS software Release 12.1(5).

Cisco 6400 Services Supported in Cisco 6400 SCM Release 2.2(2)

The following Cisco 6400 aggregation services are supported in this release:

- ATM switching
- Point-to-Point Protocol over ATM (PPPoA) Single Domain
- PPPoA over Layer 2 Tunneling Protocol (L2TP)
- RFC 1483 Bridging
- RFC 1483 IRB
- RFC 1483 Routing (SNAP)
- IP Uplink with Cisco 6400 Service Selection Gateway, subscriber connection options are as follows:
 - PPP Terminated Aggregation to Multiple Domains, PTA-MD (PPPoA and Point-to-Point Protocol over Ethernet [PPPoE])
 - Routed Bridge Encapsulation (RBE)

Cisco 6400 System Requirements

The Cisco 6400 SCM is a Cisco EMF based solution that runs on Sun Solaris/SPARC hardware. This section describes the system requirements for using the Cisco 6400 SCM to manage a Cisco 6400 UAC, including:

- Small deployment requirements
- Typical client requirements
- Large deployment requirements
- System requirements
- System limitations

For information about software requirements, refer to the release notes for the SCM release you are installing.

Small Deployment Requirements

Small deployments require a Sun Ultra 60 workstation configured as follows:

- 17-inch color monitor
- 2 x 9 gigabyte (GB) internal disks
- 1 x 9 GB 10,000 RPM external disk
- 512 megabytes (MB) memory (or 1 GB depending on performance benchmarking)
- 2 x 360 megahertz (MHz) processors
- 2 GB swap space (See the [“Important Notice: NRP2 Card Data Migration Workaround”](#) section on page 13.)

Typical Client Requirements

Client requirements include those for small deployments (see the previous section), with the following replacements:

- 256 MB memory
- 1 GB swap space



Note If you plan to run several graphically intensive applications on the workstation, it is helpful to use a Sun color card (for example, 24-bit color). A typical server installation requires 300 MB of free disk space in a file system (for example, /opt). Allow an appropriate amount of free disk space for database files. To determine the available amount of swap space and RAM, respectively, on your machine, use the Solaris **swap -s** and **prtconf** commands.

Large Deployment Requirements

Large deployments require a Sun Enterprise 450 workstation configured as follows:

- 17-inch color monitor
- 6 x 9 GB 10,000 RPM disks on three Ultra SCSI controllers
- 1 GB memory
- 4 x 250 MHz processors
- 2 GB swap space



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

System Requirements

Cisco 6400 SCM Release 2.2(2) has the following system requirements:

- Sun Solaris, SPARC hardware running Solaris Release 2.6
- Cisco Element Management Framework (EMF) Release 3.0.4 with patch 15 and patch 15.2
- COM Release 1.0.14, which is delivered as part of SCM

Use the Cisco 6400 SCM with the following Cisco IOS releases:

- Node Switch Processor (NSP) card—Cisco IOS Release 12.1(5)DB1
- Node Route Processor (NRP) card—Cisco IOS Release 12.1(5)DC
- NRP2 card—Cisco IOS Release 12.1(5)DC



Note Cisco 6400 Service Connection Manager Release 2.2(2) software supports Cisco IOS Release 12.1(5)DB1 on the NSP card and Cisco IOS Release 12.1(5)DC on the NRP and NRP2 cards.

System Limitations

If you plan to install the Cisco 6400 SCM in a deployment with another element manager, such as the Cisco DSLAM Manager (CDM) or the Cisco GSR Manager (CGM), make sure that the element manager uses the same release of Cisco EMF and COM as SCM. Otherwise, the element managers cannot work together.

Determining the Software Release Number

You can determine Cisco EMF packages and release numbers installed on your system by entering the CEMF command:

```
<CEMF_ROOT>/bin/cemf install -show
```



Note

<CEMF_ROOT> is the installation directory for CEMF and the Cisco 6400 SCM software. The default location is the `/opt/cemf` directory.

To determine installed Cisco EMF packages, use the Solaris command sequence from a terminal window:

```
> pkginfo | grep -v SUNW
```

To determine the release numbers of installed Cisco EMF packages:

Step 1 Perform one of the following:

- Enter the following Solaris command:

```
> pkginfo -l <package name>
```

or

- From a terminal window, enter the following Solaris admintool command:

```
> admintool
```

The Admintool: Users window appears.

Step 2 From the Browser menu, select the pull-down list and change the **All Software option** to **Application Software option**.

Step 3 To view the software package, scroll down to the end of the list.

Adding More Swap Space

Cisco Element Manager Framework (CEMF) Release 3.0.x requires 2 gigabytes of swap space. In general, if your machine requires additional swap space, you should repartition one of the disks to allocate a new swap partition. Use the Solaris command **format** (1M), and in particular the partition option of this command, to partition appropriate swap space.



Note

If you must repartition an existing disk to increase swap space, consult a Solaris system administrator. Repartitioning a disk means that you will lose all data on that disk.

A simple, but less efficient (in performance terms) method of increasing swap space is to create a file as follows and add the file to your available swap space.



Note

This is not a particularly efficient swap file system and results in slower application performance.

The following example shows how to add 1 GB of swap space to your Sun workstation (assuming sufficient available free disk space).

```
> mkfile 1000m /opt/MY_EXTRA_SWAP_FILE
> swap -a /opt/MY_EXTRA_SWAP_FILE
```

To ensure that this file is added to your swap space after a system reboot, remember to add it to your machine's `/etc./vfstab` file. If in doubt, consult a Solaris system administrator.

Installation Notes

Before you begin SCM installation, read these important installation notes:

- CEMF Release 3.0.4 with patch 14 or later is required for SCM Release 2.2(2).



Note CEMF Release 3 supports online element manager installation, so you must install the Cisco 6400 SCM onto a running CEMF server.

- Previous releases of element manager packages that were **not properly removed** can cause problems, such as the commission and decommission buttons not operating correctly or the autodiscovery feature not functioning properly.

You must determine if there are any previous versions of CSCO packages in the Solaris package directory. To do this, you must examine the directory. From a terminal session, type:

```
> ls -lrt /var/sadm/pkg |grep CSCO
```

Then remove any leftover packages by entering the following commands:

```
> cd /var/sadm/pkg/CSCOcemfm/install
> rm preremove
> cd /var/sadm/pkg
> pkgrm CSCOcemfm
> CSCOcemfm/install
> cd/var/adm

> rm -rf atlantech
```

- The following conditions pertain to installation and startup times, especially if you are using hardware specifications less than the minimum recommended in this document.
 - When installed for the first time, CEMF can take up to 30 minutes to start up. This is due to the initial database setup, which only occurs one time at the first startup. Subsequent restarts are significantly faster.
 - After it is installed, CEMF starts up each time the Sun Server is booted. CEMF startup time can take up to 30 minutes in some cases, which can increase the overall boot time of the Sun Server. If you do not want CEMF to automatically start during the Solaris boot process, disable it by renaming the CEMF startup file using the UNIX command:


```
mv /etc/rc2.d/S99cemf /etc/rc2.d/Unused-S99cemf
```
- SCM installation time can take up to 1 hour (or more, if you do not use the recommended minimum hardware).

Upgrading SCM Software

This section describes how to upgrade earlier releases of Service Connection Manager (SCM) software to SCM Release 2.2(2).

You can upgrade the following SCM releases to SCM Release 2.2(2):

- Release 2.2(1a), which is supported with CEMF Release 3.0.4 patch 14 and 14.2 components and Cisco Network Order Manager (CNOM) Release 1.2
- Release 2.1(1), which is supported with CEMF patch 9 (9.1 and 9.2) and CNOM Release 1.0(3) and CNOM Release 1.0(5)
- Release 2.0(1), which is supported with CEMF patch 9 (9.1 and 9.2) and Cisco Network Order Manager software (CNOM) Release 1.0(3)



Note

To upgrade from SCM Release 1.x, you must first upgrade from Release 1.x to Release 2.0(1) as described in the *Upgrading Databases to Cisco 6400 SCM Release 2.0.1* user guide. Then, you can perform this procedure to upgrade to SCM Release 2.2(2).



Note

This procedure assumes that you have already installed the Cisco EMF software and any relevant Cisco EMF patches, and that you have a valid license key. For detailed instructions, refer to the *Cisco Element Management Framework Installation and Licensing Guide* (Cisco EMF Release 3.0).



Note

When you install or upgrade software, you must be in the directory in which the software package is located. In this document, the string `<CEMF_ROOT>` represents the directory where the CEMF software is installed (typically, `/opt/cemf`). If you installed the CEMF software in another directory, enter that directory name instead of `<CEMF_ROOT>`.

Upgrading SCM

To successfully upgrade your system to SCM Release 2.2(2), you must perform the following procedures:

- [Back Up Your Database, page 8](#)
- [Install the Cisco EMF Reallocator Tool, page 9](#)
- [Run the Cisco EMF Reallocator Tool, page 9](#)
- [Upgrade Cisco EMF Patches, page 9](#)
- [Start Cisco EMF, page 10](#)
- [Upgrade to Service Connection Manager Release 2.2\(2\), page 10](#)
- [Upgrade Cisco Network Order Manager, page 11](#)
- [Perform Service Connection Manager Data Migration, page 11](#)
- [Perform Cisco Network Order Manager Migration, page 12](#)
- [Archive the Old Service Connection Manager Database, page 12](#)
- [Back Up the New SCM Database, page 13](#)
- [Start Cisco EMF and SCM, page 13](#)

Back Up Your Database

Before you upgrade to SCM Release 2.2(2), you must back up your current database.



Note

Be aware that the first backup is a master backup; subsequent backups (called incremental backups) save only what has changed. When you back up your database, be sure to save everything.



Note

Your database is composed of system data and user data. The backup includes both system and user data. Before you perform the backup, identify and note the installation environment in which the backup will be performed (that is, CEMF release number, CEMF patches that are installed, SCM release number, and any other element managers installed). By identifying and noting these items, the required backup information is recorded properly in the event that you need to restore the original database. You must perform a restore to the exact original environment.



Note

To display installed CEMF, SCM, and COM components, use the `<CEMF_ROOT>/bin/cemf install -show` command.

To perform a backup, follow these steps:

-
- Step 1** From a terminal session, log in as superuser to the system on which you want to upgrade the SCM software.
- Step 2** Make sure that the Cisco EMF is installed and running. To start the Cisco EMF:
- ```
<CEMF_ROOT>/bin/cemf start
```
- Step 3** Back up your existing SCM installation by entering the following command (where `<CEMF_ROOT>` is the path of the directory where the Cisco EMF software is installed; the default is `/opt/cemf`). You are prompted to confirm this directory.
- ```
<CEMF_ROOT>/cemf backup
```
- The `./cemf backup` command creates a new directory called `<CEMF_ROOT>/../AVBackup/`.
- Step 4** Move (copy and delete) the backup directory (`<CEMF_ROOT>/../AVBackup/`) and the files it contains to a separate directory outside of the CEMF directory.
-



Caution

If you do not move (copy and delete) the backup directory and its files, you cannot restore your existing SCM configuration if you encounter problems during the upgrade. In addition, the backup files created under the older release of SCM software will interfere with future backup files created under the new SCM Release 2.2(2) of software.

**Note**

If problems occur during the upgrade, use the Cisco EMF restore option to restore your original database. See the *Cisco Element Management Framework Installation and Licensing Guide* (Cisco EMF Release 3.0) for more details. Be sure to restore the database into the same environment from which the backup was performed. Ensure that the CEMF, patches, and element managers are the original versions that you started with. This procedure repairs the Cisco 6400 database that contained some incorrectly reallocated data in releases prior to Cisco 6400 SCM Release 2.2(2).

Install the Cisco EMF Reallocator Tool

The reallocator tool is installed only on the server. From a terminal session, change directory to the directory in which the installation package is located. Type:

```
<CEMF_Reallocator Tool package directory>/ceminstall
```

**Note**

Each time that you perform any upgrade, you must change directory to the directory on which the installation package is located.

Run the Cisco EMF Reallocator Tool

**Note**

Before you start upgrading software packages, you must run the Cisco EMF reallocator tool.

To run the reallocator tool, follow these steps:

-
- Step 1** Stop the Cisco EMF session. At a terminal session, type:
- ```
>/opt/cemf/bin/cemf stop
```
- Step 2** Back up the database to make sure you can restore it due to any failure. For backup information, see the [“Back Up Your Database” section on page 8](#).
- Step 3** Run the CEMF shell script. At the prompt, type:
- ```
>/opt/cemf/bin/cemf shell
```
- Step 4** Run the reallocator tool script to correctly allocate the C6400SSControl database. At the prompt, type:
- ```
>./reallocator -d /opt/cemf/db/C6400SSControl.db
```

## Upgrade Cisco EMF Patches

This section describes how to update the CEMF patch to CEMF patch 15 and patch 15.2 using the overlay method. This procedure updates any CEMF system data that may have changed. Patch upgrade are applicable to the server and the client. For details, refer to the *Cisco Element Management Framework Installation and Licensing Guide*.

- 
- Step 1** Locate the directory where the install package with the relevant patches is located. Type:
- ```
<CEMF_Patches and Install package directory>./ceminstall
```
- Step 2** Start the Cisco EMF.

For details, refer to the *Cisco Element Management Framework Installation and Licensing Guide*.

Start Cisco EMF

This section describes how to start Cisco EMF. The Cisco EMF software on a Server or Client workstation is automatically started during system boot-up. To start this software at other times, follow these steps:

Step 1 From a terminal session, login as the superuser. Type:

```
su
```

Step 2 From the command line, type:

```
<CEMF_ROOT>/bin/cemf start
```

Where *<CEMF_ROOT>* is the directory in which Cisco EMF is installed. The Cisco EMF processes start. A message appears when the startup is complete.



Note If you use patch 14 software to restore a database that was backed up using pre-patch 14 software, Cisco EMF can take longer (possibly up to 1 hour or so) to start depending on the size of your database. This slow start is only experienced one time after the restore procedure; thereafter, the stop and start performance returns to normal. After the database is upgraded, it will never run again unless you restore the pre-patch 14 backup.

Upgrade to Service Connection Manager Release 2.2(2)

This section describes how to upgrade to SCM Release 2.2(2) using the overlay method, which installs new software over existing software. The SCM system data in your database is updated by the new SCM software. The SCM upgrade is applicable to both the server and client.



Note The overlay upgrade method allows you to perform the upgrade process without removing any software first.

Refer to the *Cisco 6400 Service Connection Manager Installation and Upgrade Guide*.

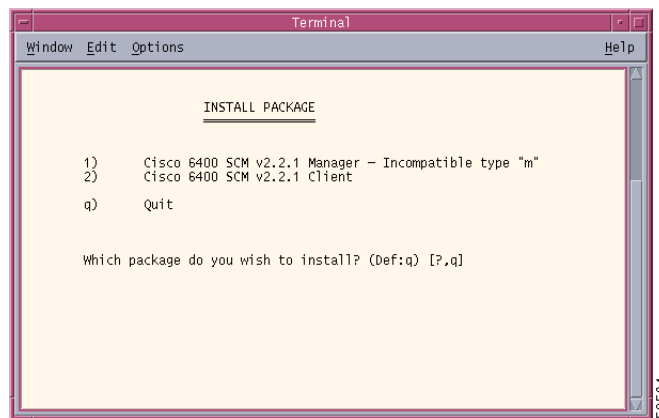
To upgrade SCM software, follow these steps:

Step 1 From a terminal session, run the install script to upgrade the SCM software:

```
./cemfinstall
```

A menu listing the SCM upgrade options appears (Figure 1).

Figure 1 Upgrade Options



- Step 2** Enter the number for the SCM component you want to upgrade (manager or client). The upgrade procedure automatically signals for the upgrade, removes the previous release of SCM software, and installs the new release of software. The procedure also displays informational messages during the process.

Upgrade Cisco Network Order Manager

After the SCM Release 2.2(2) package installation is complete, then upgrade Cisco Network Order Manager (CNOM) software, if present. CNOM Release 1.3 is supported by SCM Release 2.2(2). Perform the CNOM upgrade only on the server workstation. There is no client software for CNOM.

For detailed CNOM upgrade information, refer to the *Cisco Network Order Manager Solution Guide*.

Perform Service Connection Manager Data Migration

When you upgrade from SCM Release 2.2(1) or SCM Release 2.2(1a) you must perform SCM data migration. Data migration is only applicable for the server workstation which contains the CEMF database. To update SCM user data in the database, you must manually run the following two new program scripts:

- **C6400DM**—Provides multiple database adjustments which are necessary to support the new and enhanced features from SCM Release 2.2(2). For example, SCM Release 2.2(1a) introduced enhancements from COM Release 1.0.3 through COM Release 1.0.14.
- **NrpToNrp1DM**—Provides support for the NRP and NRP2 cards. SCM Release 2.0(1) and SCM Release 2.1(1) provided support for the node route processor card (NRP). SCM Release 2.2(2) supports the NRP and NRP2 card. The modeling structure within SCM Release 2.2(2) required to consistently represent both the Cisco 6400 node route processors, NRP and NRP2 cards.

- Step 1** Run the CEMF shell program to designate the set of data migration commands to be executed. Type:

```
<CEMF_ROOT>/bin/cemf shell
```



Note Depending on the size of your database, processing time may vary when you run the C6400DM script and NrpToNrp1DM script.

- Step 2** From a terminal session, run the C6400DM script. Type:
- ```
<CEMF_ROOT>/bin/C6400DM
```
- Step 3** Run the NrpToNrp1DM script. Type:
- ```
<CEMF_ROOT>/bin/NrpToNrp1DM
```
- Step 4** Identify and record this installation environment for the next backup. Include CEMF release number, CEMF patches that are installed, SCM release number, and other element managers and their release numbers.
-

Perform Cisco Network Order Manager Migration

After you upgrade CNOM, you must perform data migration to move existing SCM connections onto CNOM. The CNOM Migration tool is *only used when you upgrade to SCM Release 2.2(2)* from any previous release. To run this tool, type:

```
./IMTLinkDM
```

For detailed information about CNOM, refer to the *Cisco Network Order Manager Solution Guide*.

Archive the Old Service Connection Manager Database

If you must have access to your original database at a later time, you must use the original database, prior to the installation of new software, to restore into the previous software environment (which includes SCM release, CEMF and patches, and other element managers).



Note If a problem occurs during the upgrade, you must restore the old database, perform all upgrade procedures, and run all scripts again from the beginning.

Make certain to only restore the original database into the same environment from which the backup was performed. Ensure that the CEMF software, patches, and element managers are the original versions that you started with.



Note Be aware that for a valid restore, you must move the entire directory. If you move the backup directory, you must include all files. For example, if you have a specific backup directory that is backed up each day for a week, you must restore all backups from the entire week, not just the backup from the most recent day.

Back Up the New SCM Database

After the upgrade procedures are complete, and both user data and system data are updated, you must back up the new database—that is, the database now running SCM Release 2.2(2) software. This enables you to restore the database being backed up in the new environment (with new software), if any problems occur.

Use the new SCM Release 2.2(2) database backup for future restoration, if necessary.

To back up the database, follow these steps:

-
- Step 1** Copy the backup directory and all its files to a separate directory, outside of the CEMF directory. If a problem occurs during the backup, you will need this copy.
- If this situation occurs, use the Cisco EMF restore option to restore your original database from this separate directory.
- Step 2** Perform the backup procedure (see the [“Back Up Your Database” section on page 8](#)).
-

Start Cisco EMF and SCM

After all backup, upgrade, and migration procedures are complete, start a Cisco EMF session, which activates Service Connection Manager (SCM).

-
- Step 1** From a terminal session, start a Cisco EMF session:
- ```
<CEMF_ROOT>/bin/cemf session
```
- Step 2** The Cisco EMF login window appears. For information on using SCM, refer to the *Cisco 6400 Service Connection Manager User Guide*.
- 



### Note

When you launch SCM after the upgrade, objects might be decommissioned. To commission an object that is decommissioned, right-click on the object and select **Cisco 6400 UAC > Module > Manage > Configuration** in the SCM menu. In the resulting window, click the **Commission** button to activate the object.

---

## Important Notice: NRP2 Card Data Migration Workaround



### Caution

The NRP2 card is newly supported in SCM Release 2.2(1a); therefore, you must deploy NRP2 features in a chassis managed by SCM Release 2.2(1a) and not by any earlier releases.

---

This section describes an NRP2 card data migration workaround procedure.

If your Cisco 6400 chassis contains NRP2 cards while managed by SCM Release 2.0(1) or SCM Release 2.1(1), follow these steps to perform the NRP2 data migration workaround when you upgrade to SCM Release 2.2(2) or SCM Release 2.2(1).

- 
- Step 1** After all SCM Release 2.2(2) upgrade procedures are properly completed, locate the slots containing the NRP2 cards. You can determine the slot number in one of two ways. Either:
    - Using the Cisco 6400 IOS **show hardware** command, or
    - Go to the Component Managed view to locate the relevant chassis. When a generic module object appears instead of a specific port type object, this is the slot in the chassis that is affected.
  - Step 2** From the Component Managed view, decommission and then delete the card in the relevant NRP2 slot number.
  - Step 3** Verify that the card is removed from the Component Managed view.
  - Step 4** Be certain that the Cisco 6400 relevant chassis is set to the proper SNMPv2c and SNMPv3 settings. Using the Chassis 6400 SNMP Management window, check that the settings match in the Cisco 6400 NSP and the NRP2 Cisco IOS configuration.




---

**Note** The SNMPv2c protocol is used to communicate with the Cisco 6400 chassis and SNMPv3 proxy protocol is used for NSP to NRP2 communication.

---

- Step 5** Commission the relevant chassis to initiate sub-chassis discovery. The NRP2 card should now be properly deployed and the NRP2 ATM port in a normal state.
- 

## Important Notice: Disabling SNMP Traps for NRP2 Cards

The NRP2 cards in a Cisco 6400 UAC chassis generate SNMP chassisChange and chassisFailure traps that may clog SCM with NRP related traps (CSCdu12259). To avoid this, perform the following steps to disable these traps on the chassis:

- 
- Step 1** Establish a console terminal session or a Telnet connection to the NSP.
  - Step 2** Change to privileged mode and then to configuration mode. If prompted for a password, enter your enable mode password.

```
Switch> enable
Password: <ENABLE password>
Switch# config terminal
Enter configuration commands, one per line. End with CTNL/Z.
Switch(config)#
```

- Step 3** Disable SNMP chassisChange and chassisFailure traps, and exit configuration mode:

```
Switch(config)# no snmp-server enable traps chassis-change
Switch(config)# no snmp-server enable traps chassis-fail
Switch(config)# end
Switch#
```

The system no longer generates SNMP traps for NRP2 chassisChange and chassisFailure conditions.

---

# Important Notice: NRP2 Engine ID Being Sent to NSP


If the NRP2 cards in the Cisco 6400 UAC chassis are not sending their engine ID to the NSP, perform the following steps to configure each NRP2 to automatically send its engine ID to the NSP:

- 
- Step 1** Establish a console terminal session or a Telnet connection to the NSP.
- Step 2** Determine the engine ID for each NRP2, as follows:
- Establish a Telnet connection from the NSP to the NRP2 (where # is the slot number of the NRP2). For example, **nrps3** connects to the NRP2 in slot 3.
 

```
Switch> nrps#
```
  - Change to privileged mode and then to configuration mode. If prompted for a password, enter your enable mode password.
 

```
Router> enable
Password:<ENABLE password>
Router#
```
  - Enter the following command to display the engine ID for the NRP2. The system returns the local SNMP engine ID, along with other information. Note the local SNMP engine ID for use later.
 

```
Router# show snmp engineID
Local SNMP engineID: 80000009030000107BA9C7A0
```
  - Exit enable mode on the NRP2 and close the Telnet connection:
 

```
Router# end
Router> exit
```
  - Perform Steps a through d for each NRP2 in the chassis.
- Step 3** Change to privileged mode and then to configuration mode on the NSP. If prompted for a password, enter your enable mode password.
- ```
Switch> enable
Password: <ENABLE password>
Switch# config terminal
Enter configuration commands, one per line. End with CTNL/Z.
Switch(config)#
```
-  **Note** Perform Step 4 for each NRP2 in the chassis.
-
- Step 4** Configure each NRP2 to send its engine ID to the NSP (where `<nrp2slot>` is the slot number in which the NRP2 is installed and `<NRP2_engineID>` is the NRP2's engine ID, which you obtained in Step 2):
- ```
Switch(config)# snmp-server engineID remote 10.<nrp2slot>.0.2 vrf 6400-private
<NRP2_engineID>
Switch(config)# snmp-server user scm scm remote 10.<nrp2slot>.0.2 vrf 6400-private v3
```
- Step 5** Exit configuration mode on the NSP:
- ```
Switch(config)# end
Switch>
```
-

Uninstalling SCM

To uninstall the Cisco 6400 SCM, use the **cemfinstall -r** command as described in the *Cisco 6400 Service Connection Manager Installation and Upgrade Guide*.

**Note**

If you remove an element manager, this renders any database objects related to that element manager unusable. To upgrade SCM software, use the upgrade procedure in the *Cisco 6400 Service Connection Manager Installation and Upgrade Guide*.

Software Features in SCM Release 2.2(1a)

SCM Release 2.2(1a) introduced the following:

- Cisco Node Router Processor (NRP2) card for the Cisco 6400 Universal Access Concentrator (UAC) performs aggregation and termination of large numbers of broadband subscribers, while providing the increased bandwidth per subscriber critical to the introduction of new services.
- OAM (Operations, Administration, and Maintenance) Loopback between a subscriber and a remote service. The OAM loopback feature:
 - Is used to verify connectivity between devices in the network or connectivity through the entire network.
 - Enables you to find faults by looping a signal at various points in the network.
- SNMPv3 Proxy Forwarder Protocol, which is used for communication between the Cisco 6400 Node Switch Processor (NSP) card and NRP2 cards.

Closed Caveats

This section lists any caveat that has been fixed since SCM Release 2.2(1a).

- CSCdu37488: It now takes approximately 40 minutes to convert an SCM Release 2.2(1a) C6400SSController 700 MB database to the new format. Previously, the conversion could take up to 12 hours or more.

Open Caveats

This section lists known problems that have been found in the following Cisco EMF software release and Cisco 6400 SCM software releases:

- Cisco EMF Release 3.0.4, [Table 1 on page 17](#)
- SCM Release 2.2(2), [Table 2 on page 18](#)
- SCM Release 2.2(1a), [Table 3 on page 19](#)
- SCM Release 2.2(1), [Table 4 on page 26](#)
- SCM Release 2.0(1), [Table 5 on page 30](#)
- SCM Release 2.0, [Table 6 on page 35](#)

Cisco EMF Release 3.0.4 Open Caveats

Table 1 lists the Cisco EMF (CEMF) Release 3.0.4 issues that affect the operation of SCM Release 2.2(2).

For a full list of known problems in CEMF Release 3.0.4, consult the appropriate CEMF release note.

Table 1 Cisco EMF Release 3.0.4 Caveats

Caveats	Description
CSCdt54575, CSCdu09231, CSCuk23167	<p>The user cannot deploy connection objects and the ObjectStore logs a "PSR Reach Exceeded" exception in the c6400Controller.log. This problem may occur in SCM Release 2.0(1) and SCM Release 2.1(1) environments, where the c6400Controller.db database file approaches 680 MByte in size.</p> <p>This situation is a result of a database which contains 100 or more Cisco 6400 chassis, each with a few thousand VC connections. There are potentially other object combinations which can also cause this situation to occur.</p> <p>Environments which originate using SCM Release 2.2(2) do not experience this problem.</p> <p>Workaround: Any CEMF database originating using SCM Release 2.0(1) or SCM Release 2.1(1) requires that you perform a reallocation on the c6400Controller.db file, even if the system is to be upgraded to SCM Release 2.2(2).</p> <p>The required process is: Run the reallocator tool on the c6400Controller.db database file before you upgrade to SCM Release 2.2(2). After the reallocation is complete, then you can upgrade to SCM Release 2.2(2).</p> <p>The documentation for the database reallocator tool is available at the following web site: http://www.cisco.com/cgi-bin/tablebuild.pl/cemf-sp304</p>
CSCdr19677, CSCat16019	<p>An error can be caused when you select the Physical field in the Deployment Wizard—Object Parameters window more than two times.</p> <p>Workaround: When you deploy objects, in the Deployment window, click the Physical selection button only one time.</p>
CSCds58007, CSCds64018	<p>The option to launch performance manager from node line (NLC) cards should not be listed in the menu. There are no performance manager attributes to monitor from NLC cards.</p> <p>Workaround: None.</p>
CSCds90771, CSCdt10247	<p>Service Objects should not be visible in the Physical tree within the Viewer.</p> <p>Workaround: Ignore the presence of service objects found within the Physical tree in the Viewer.</p>
CSCdt03420, CSCdt58602	<p>In the Cisco 6400 Service Connection Manager (SCM) chassis map, card names overlap.</p> <p>Workaround: Tooltips appear when the mouse is placed over a card in the chassis. Use these tooltips to help identify the object being examined.</p>

Table 1 Cisco EMF Release 3.0.4 Caveats (continued)

Caveats	Description
CSCdt03555, CSCdt58687	Some windows do not prevent the user from entering illegal information. For example, in the RFC 1483 Bridging Service Profile Configuration window, you can enter alphabetical characters in the Bridge Group field, when in fact only numerics are allowed. Workaround: The tooltips for fields often indicate the legal character types and ranges of values. For the Bridge Group field, the values are from 1 through 255.
CSCdr19684	Access security by management region (data partitioning) does not function correctly if the domain is set up at a CEMF site level. Workaround: None.
CSCat15804	If you attempt to perform a Cisco IOS image download to a device in the errored state, this results in an Unable to Login error message if the device is not operational. Workaround: From the node switch processor (NSP) card download the image and then reboot the device.
CSCat20118	Excessive logging messages are output to the c6400Controller.log file, which can make it difficult to find error messages in the log file. Workaround: None.

SCM Release 2.2(2) Open Caveats

Table 2 lists known problems in Release 2.2(2) of the Cisco 6400 SCM. Unless otherwise noted, there is no workaround.

Table 2 Open Caveats for SCM Release 2.2(2)

Caveats	Description
CSCdu65166	Node line card (NLC) ports remain in the commission state and major alarms occur when you reload your Cisco 6400 chassis, even though the ports are in a normal state. Workaround: You must decommission and then commission each port and then manually clear the alarms from the event browser.
CSCdu66316	When you reload the Cisco 6400 chassis, a trap message does not appear. SCM does not immediately display that your chassis goes into a lostcomms state. After a while, the message does appear. Workaround: None.
CSCdu69656	The SCM allows you to create a connection template without a name and as a result, problems (for example, object confusion) can occur. Workaround: Do not create any connection template without a name.
CSCdu71450	If a failure occurs on an NRP or NRP2 ATM port2, there is no alarm generated on the port and the Cisco 6400 NRP ATM port management window displays the incorrect status for the port that failed. Workaround: At the terminal session, check on the correct status of the port by entering the <code>show interface <port_name></code> command.

Table 2 Open Caveats for SCM Release 2.2(2) (continued)

Caveats	Description
CSCdu71576	If your system has a large number of subscriber connections, you may notice that some Cisco UAC pop-up menus are inconsistent. This only occurs if you used a CNOM script to create a large number of subscribers in SCM. Workaround: None.
CSCdu72845	If you access the command log window from a Cisco 6400 chassis object, incorrect parameter values may appear. Workaround: Always use the Node Switch Processor (NSP) command log window to obtain parameter values.
CSCdu73011	The Severity and Time Stamp columns in the SYSLog Message window are misrepresented. Workaround: None.
CSCdu73049	The SysLog Message window does not display properly. Messages can be misleading or are not present or updated on time. Workaround: To view the log messages and check events, enter the show logging command.
CSCdu75915	If you open a module or interface configuration window from an OC-3 or an OC-12 object, the incorrect module (NSP) is highlighted. All other modules (NRP, NRP2, and DS3) work correctly. Workaround: After the configuration or interface window is opened, click the NLC OC-3 or OC-12 module object to highlight it.

SCM Release 2.2(1a) Open Caveats

[Table 3](#) lists known problems in Release 2.2(1a) of the Cisco 6400 SCM. Unless otherwise noted, there is no workaround.

Table 3 Cisco SCM Release 2.2(1a) Caveats

Caveats	Description
CSCds24842	The Deployment process does not check for duplicate IP addresses for NRP objects. A system can end up with multiple objects with different names but with the same IP addresses for NRP objects. Workaround: Carefully check that you do not duplicate the same IP address for two different NRP objects.
CSCdu26756	The IOS Image Download window may report that the download was successful, when there was actually no download performed. You are misled that the new image has been downloaded to the platform. Workaround: To manually check the release that is present on the platform, execute a show version command on the platform.

Table 3 Cisco SCM Release 2.2(1a) Caveats (continued)

Caveats	Description
CSCdu39896	<p>The Cisco 6400 chassis can be deployed a second time within SCM Release 2.2(1a), if you deployed and upgraded a Cisco 6400 chassis using SCM Release 2.0(1) or SCM Release 2.1(1).</p> <p>These two earlier SCM releases did not support Network View features. The Network View feature is used for checking duplicate IP deployment within SCM Release 2.2(1a).</p> <p>This is not an issue for any Cisco 6400 chassis deployed using SCM Release 2.2(1a).</p> <p>Workaround: None.</p>
CSCds78986, CSCds83888, CSCdu32207	<p>Occasionally, when you try to delete an object in the Commission or errored state, the ActionReport error message only indicates that the deletion failed. There is no message as to why the deletion failed.</p> <p>If you want to delete a chassis, you must:</p> <ul style="list-style-type: none"> • Disconnect subscribers from services and disconnect each ATM port listed. • For each service that was created, you must decommission each service. • Decommission the chassis. • Delete the relevant chassis <p>Workaround: Always deliberately decommission a chassis before you try to delete it.</p>
CSCdu32593	<p>If you use the SCM automatic allocation function, and you set the VCI value to 1023 on the NRP2, the VC creation fails.</p> <p>The default value for the parameter, max_vc_per_vp in the NRP2, is 16 VPs and 1024 VCs. SCM tries to create a VC with a 1024 VCI value and as a result, it fails.</p> <p>Workaround: Telnet to the NRP2 and modify the parameter max_vc_per_vp value on ATM interface 0/0/0 to a higher value. The maximum VC value is 8092.</p>
CSCdu33565	<p>If you delete Node Route Processor (NRP) or Node Line Card (NLC) objects from a chassis and then initiate sub-chassis discovery, the cards are rediscovered correctly. However, these objects may not display alarm conditions that are in the alarm table.</p> <p>Workaround: None.</p>
CSCdu33755	<p>If you try to save configured parameters in the NRP ATM Port Configuration window without setting the ILMI automatic configuration parameter to Disable, no error messages appear to inform you of this condition.</p> <p>Workaround: Set the ILMI automatic configuration parameter to Disable before you change any NRP ATM port parameters.</p>
CSCdu22479	<p>You cannot launch the Module Performance window from a node line card (NLC). Node line cards appear in the module list on the Performance Module window.</p> <p>Workaround: Ignore the NLC objects in the Module Performance window.</p>
CSCdt14060	<p>The loopback or testing state shows as 'down' in SCM for ATM ports.</p> <p>Workaround: When an interface is in loopback mode, it is in the down state because no user data can pass. If the interface is supposed to be up, use either the SCM Interface Configuration window or Telnet feature to set the interface to up.</p>

Table 3 Cisco SCM Release 2.2(1a) Caveats (continued)

Caveats	Description
CSCdt91694, CSCdt91760	<p>Configuration Backup and Restore is not functioning properly.</p> <p>Issues include:</p> <ul style="list-style-type: none"> • Backup configuration file copies can be overwritten. • No method of choosing backup destination filename and location exists. • No method of restoring a non-default filename exists. • You cannot select whether or not a UNIX touch is required for creating a new backup file on the tftp server. • When the tftp server is not the same as the CEMF Manager workstation, the Timestamp does not match the saved file timestamp. <p>Workaround: Use the default filenames and location, archive configurations to a unique storage location, and when possible, use the CEMF Manager workstation as the tftp server.</p>
CSCds26849, CSCds56145	<p>When you enter the NRP Backup and Restore Configuration window, the pull-down list item Backup after Every Action lists no value.</p> <p>Workaround: The NRP Backup after Every Action feature should typically be disabled by manually selecting Disable when using this window.</p>
CSCdt47832, CSCdt47799	<p>The user can select only one device in the IOS Image Download window. Multiple selection is not allowed.</p> <p>Workaround: Download IOS images to one device at a time.</p>
CSCat19636	<p>You are able to deploy an NRP card with a duplicate IP address and then commission it.</p> <p>Workaround: Error checking is performed for duplicate IP addressing within the same Cisco 6400 chassis, but not for duplicate IP addressing which may occur between NRPs in different Cisco 6400 chassis.</p>
CSCds65381	<p>A trapAlarmMapper core dump occurs if you delete two chassis with the same IP address.</p> <p>Workaround: This condition does not occur unless there is a duplicate IP address condition in your map.</p>
CSCds78956	<p>You cannot delete more than 76 Cisco 6400 devices at one time.</p> <p>Workaround: If you want to delete chassis, then delete less than 10 chassis at a time. If more than 10 chassis are selected for simultaneous deletion, then SCM processes might cause core dumps or restarts.</p> <p>Before you delete any chassis, make certain that all subscribers and services are removed from the chassis that you plan to delete.</p>
CSCds81800	<p>Occasionally, the status of the Cisco 6400 chassis does not autorecover until alarm events are cleared.</p> <p>Workaround: Verify the connection with the device using the Telnet feature and then open some of the device status windows. If there is a valid connection then clear the alarm events from the device Event Browser.</p>

Table 3 Cisco SCM Release 2.2(1a) Caveats (continued)

Caveats	Description
CSCds81816	<p>Service Connection Manager (SCM) does not always detect that a card mismatch condition occurred. This condition might occur when a card is deployed in SCM as one line card type and a different line card type is present in the Cisco 6400 chassis.</p> <p>Workaround: Telnet to the Cisco 6400 Node Switch Processor (NSP) and verify the type of line card present in the chassis. Using this information, decommission and delete the erroneous line card from SCM. Initiate a subrack discovery by decommissioning and commissioning the Cisco 6400 chassis in SCM. This forces SCM to create the proper line card objects in the SCM database.</p>
CSCds89858	<p>The Service Uplink Profile is only used with RFC 1483 Routing Service.</p> <p>Workaround: None.</p>
CSCdt02669	<p>You are able to delete a subscriber with an active connection.</p> <p>Workaround: None.</p>
CSCdt03416	<p>The DHCP IP address field is missing in the PPPoA-SD Configuration window.</p> <p>Workaround: None.</p>
CSCdt03715	<p>The CapMon Tool Auto-Allocation file allows values lower than 32.</p> <p>Workaround: Do not manually configure the automatic allocation configuration file to values below 32. Typically, the file does not exist, which allows defaults to be used.</p>
CSCdt05796	<p>The same IP pool cannot be used by different services.</p> <p>Workaround: You must configure a separate IP pool for each individual service that uses one.</p>
CSCdt05902	<p>Do not create more than 25 services using virtual templates.</p> <p>Workaround: None.</p>
CSCdt19460	<p>There are no maps in the Viewer below the Chassis View in the c6400 Manager tree. The chassis disappears from Viewer after you double-click the NSP card icon.</p> <p>Workaround: Use other trees to view individual interfaces and line cards.</p>
CSCdt19495	<p>The state of the Node Switch Processor (NSP) card does not change when its operational state is in fault using a device simulator.</p> <p>Workaround: This is only an issue when an NSP is enabled enough to return a fault status for the NSP MIB instance for CISCO-RHINO-MIB.ciscoLS1010ModuleOperStatus. In most situations, when the NSP is in a fault condition, it cannot respond to SNMP MIB queries.</p>
CSCdt19882	<p>The LostComms alarm is displayed several times in the Event Browser.</p> <p>Workaround: None.</p>
CSCdt34157	<p>Existing VPI/VCI values are assigned to new connections.</p> <p>Workaround: SCM Release 2.2(1a) has no means of knowing if VPI or VCI were configured using other means than the CEMF installation it is running in. There is no procedure for uploading existing connections in this release.</p>

Table 3 Cisco SCM Release 2.2(1a) Caveats (continued)

Caveats	Description
CSCdt60927	<p>The Cisco Express Forwarding (CEF) option under Service Selection Gateway (SSG) Configuration feature is not functioning properly. This option should be a part of PPPoE configuration.</p> <p>Workaround: If necessary, use the Telnet feature to enable CEF on NRPs and NRP2s which need CEF switching deliberately enabled.</p>
CSCdt63912	<p>End-to-end OAM Loopback is not supported on the Cisco 6400 platform, and does not operate when initiated through SCM.</p> <p>Workaround: Use the other forms of OAM Loopback and multiple chassis to troubleshoot problems.</p>
CSCdt86326	<p>When there is a DS3 or OC-3 alarm condition present on the line, alarms are not generated or cleared in the Event Browser or Views.</p> <p>There is no indication for the user to know that there is an error on the line connected with one of the OC-3 or DS3 physical errors. The error only displays for the first time.</p> <p>Workaround: Check for the error condition in the Cisco 6400 Line Card ATM Port Management window after the first DS3 or OC-3 line failure displays in the Event Browser.</p>
CSCds43155	<p>CapMon VPI Statistics fields are not updated properly.</p> <p>Workaround: Refresh the Capacity Monitor window by clicking another port and then returning to the port being monitored.</p>
CSCds92321	<p>SNMP v3 AuthNoPriv Request does not work on the Cisco 6400 chassis and will not function if used through SCM.</p> <p>Workaround: When you manage a Cisco 6400 chassis, use SNMPv2c only.</p>
CSCdt01566,	Module type displays incorrectly in the NLC Management window for DS3.
CSCdt67104	<p>Workaround: Telnet onto the Cisco 6400 NSP card using the Telnet feature and then issue the CLI show hardware command.</p>
CSCdt01602	<p>The Apply button in Connection Template Configuration window functions like the Save button.</p> <p>Workaround: None.</p>
CSCdt03691	<p>In the L2TP Service Profile Configuration window, the Tunnel Number field should appear as Tunnel Name.</p> <p>Workaround: None.</p>
CSCdt12614	<p>The Component Managed tree in the Viewer displays Node Line Cards (NLC) as modules instead of calling them NLCs such as OC-3, OC-12, DS3, NRP, or NRP2.</p> <p>Workaround: Use the other trees in the Viewer to identify the line card types.</p>
CSCdt12954	<p>The ATM Service Configuration window does not indicate which port is in use for this operation.</p> <p>Workaround: Ensure that the desired port is used to launch this window.</p>
CSCdt19444	<p>Tabs and carriage returns do not work consistently in all windows.</p> <p>Workaround: When a tab or carriage return does not place the mouse cursor in the proper location, use the mouse to click into the desired field.</p>

Table 3 Cisco SCM Release 2.2(1a) Caveats (continued)

Caveats	Description
CSCdt49524	<p>It is possible to deploy the Cisco 6400 using SNMPv1 and SNMPv3 when these are not fully supported by the Cisco 6400 SCM.</p> <p>If the Cisco 6400 is configured to use SNMP v3 for traps, SCM cannot process the traps.</p> <p>Workaround: Configure the Cisco 6400 Node Switch Processor (NSP) and NRP cards to use SNMPv2c only. SNMPv3 is only used for proxy communication between the NSP and an NRP2 within the same chassis.</p>
CSCdt03435, CSCdt54647	<p>In the Service Uplink Profile window, fields exist that are unique to the service instances that these profiles will be applied to. For example, the same tunnel number cannot be applied to different tunnels.</p> <p>Service Uplink Profile QoS categories do not have grayed-out fields, which allows the user to enter illegal values in the fields.</p> <p>Workaround: Be aware that not all active fields are legal or useful for a particular profile. Do not configure parameters that do not belong to a QoS category.</p>
CSCdt58835	<p>When you are configuring the SSG Configuration window, you must select a value in the Transparent Passthrough and Cisco Express Forwarding fields to avoid an error Action Report.</p> <p>Workaround: When configuring the SSG Configuration window, click in the Transparent Passthrough and Cisco Express Forwarding fields and make a selection, even if the selection is to keep the default values.</p>
CSCdt59849	<p>The Configure and Deconfigure buttons in the SSG Configuration window look active at the same time, when actually only one of them is active.</p> <p>Workaround: If the user clicks the inactive button, an Action Report appears informing the user that the button is inactive.</p>
CSCdt67514	<p>An OAM LoopBack trap can be sent by the Cisco 6400, but is not represented in SCM.</p> <p>Workaround: None.</p>
CSCdt67939	<p>After a subscriber is connected to use an NRP multidomain, there is no window to view the NRP that is in use.</p> <p>Workaround: None.</p>
CSCdt76546	<p>IP Host and SNMP icons for NRP and NRP2 cards are not automatically converted to NRP and NRP2 icons.</p> <p>If NRP devices are autodiscovered and created in the CEMF database as IP host or SNMP devices, they are not converted into NRP objects after the Cisco 6400 (which contains them) is commissioned. They remain as IP host or SNMP devices until the user deletes the objects.</p> <p>Workaround: After the NRP and NRP2 devices are properly discovered and deployed within a Cisco 6400 chassis, manually delete the generic icons.</p>

Table 3 Cisco SCM Release 2.2(1a) Caveats (continued)

Caveats	Description
CSCdt77844	<p>No error checking is performed in the autodiscovery wizard. It is possible to initiate an autodiscovery process which discovers devices but does not deploy them in the Viewer.</p> <p>Workaround: If devices are discovered but not deployed in the Viewer, repeat the autodiscovery process and ensure that Physical and Generic locations are properly selected in the Deployment Wizard window.</p>
CSCdt83769	<p>Subscriber connection objects, under ATM ports, are always in a decommissioned state.</p> <p>Workaround: Objects that do not change states always appear in the decommissioned state. This is normal operation.</p>
CSCdt96273	<p>The active Node Switch Processor (NSP) card always appears in slot 0A.</p> <p>Workaround: If it is necessary to identify which slot an NSP is in, Telnet to the NSP using the Telnet feature and then issue the CLI show hardware command.</p>
CSCds27203	<p>Default values do not display next to check boxes in the IOS Image Download window.</p> <p>Workaround: Click in all fields and enter the required information by hand.</p>
CSCdt08500, CSCdt20885, CSCdt59408, CSCdt86384, CSCdt69280	<p>Action Reports are sometimes vague.</p> <p>Workaround: Observe the context in which the Action Report is generated. Check the object status, listed in the status line at the bottom of window. If there is a configuration failure or communication failure, check IOS Command Line Security password entries and the SNMP Management community string entries.</p>
CSCdu04152	<p>The ATM interface which has an NRP card residing in this slot does not properly display its alarm state in SCM.</p> <p>For example, if an NRP card in slot 4 has a Fast Ethernet port in Link Down state, the link down alarm becomes associated with the NSP interface ATM 4/0/0.</p> <p>Workaround: If an alarm is reported against the NRPATM interface, confirm the situation by Telnetting to the chassis or NSP card and issuing the Cisco IOS show facility-alarm status command. As a result, you can review all open alarms in the Cisco 6400 chassis in this table.</p>
CSCdt73918	<p>Help does not work in Chassis Configuration windows.</p> <p>Workaround: Refer to the <i>Cisco 6400 Service Connection Manager User Guide</i> for information on this window.</p>
CSCdt14652	<p>Default chassis names are inconsistent when the chassis is deployed manually or when you use Autodiscovery deployment. Manual deployment uses all capital letters, CHASSIS. Autodiscovery uses the chassis name and the IP address. The chassis names should be consistent.</p> <p>Workaround: You may either change autodiscovery to use the name “CHASSIS” or change the manual default name to be “Chassis”.</p>

SCM Release 2.1(1) Open Caveats

Table 4 lists known problems in Release 2.1(1) of the Cisco 6400 SCM. Unless otherwise noted, there is no workaround.

Table 4 Cisco SCM Release 2.1(1) Caveats

Caveats	Description
CSCat20077, CSCds81816	<p>If an NLC is predeployed into a slot that is occupied by another type of NLC, the object can go into the normal state when commissioned instead of a mismatched state.</p> <p>Workaround: Delete the incorrectly deployed NLC. Then decommission and then commission the Cisco 6400 chassis to cause the correct NLC to be properly deployed by the subrack discovery process.</p>
CSCds69176	<p>After you upgrade from SCM Release 2.0(1) to SCM Release 2.1(1) and launch the PVC Usage function from a chassis object, the PVC Usage window shows a list of all deployed chassis in the chassis list box. A larger list of chassis appears rather than the list that normally appears when the PVC Usage window is launched from that point.</p> <p>Workaround:</p> <p>Launch the PVC Usage option from a Shelf or Site instead of a chassis.</p> <p>or</p> <p>Restart the objectServer process.</p> <p>The preferred way to use this feature is to stop and start cemf, but you can also achieve the same results using the following commands (from a cemf shell):</p> <pre><CEMF_ROOT>/bin/cemf shell <CEMF_ROOT>/bin/sysmgrClient -k objectServer <CEMF_ROOT>/bin/sysmgrClient -x objectServer</pre> <p>You must not restart the objectServer in this way during object deployment or deletion.</p>
CSCdr21084	<p>The system permits you to edit the NLC ATM Port window Configuration tab and More Configuration tab fields when they should not be editable. If you attempt to edit those fields, an error is generated in the Action Report.</p> <p>Workaround: None.</p>
CSCdr34017	<p>You cannot use the Chassis Configuration window to enable and disable power supplies. An error dialog box or Action Report appears.</p> <p>Workaround: Use the CLI.</p>
CSCds24801	<p>The More button on both the SysLog Messages and Command Log windows appear to serve no function.</p> <p>Workaround: Ignore the button.</p>
CSCds25753	<p>The tooltip text for the Connection Details list box on the Subscriber Configuration window always reads L2TP Service Connections, even though this field can contain any type of service connection.</p> <p>Workaround: Ignore the tooltip text.</p>

Table 4 Cisco SCM Release 2.1(1) Caveats (continued)

Caveats	Description
CSCds25790	<p>TAB indexing in the Deployment Wizard does not include the Forward, Cancel, and Finish buttons on the bottom of each window.</p> <p>Workaround: Use the mouse to click these buttons instead of using the Tab key.</p>
CSCds26818	<p>When you decommission an interface using the Interface Configuration window, all of the values in the Configurable Parameters window appear blank.</p> <p>Workaround: Select another interface, then reselect the interface that was just commissioned. The values reappear.</p>
CSCds26825	<p>When you decommission or commission a Port object (using the Interface Configuration window), the Action Report displays a variable name and not the appropriate message.</p> <p>Workaround: None.</p>
CSCds33160	<p>Not all windows contain the Commission Status field at the bottom of the window.</p> <p>Workaround: If the interface icon in the Viewer contains cross-hatching, the icon is decommissioned. If there is an error with the object, use the icon bomb or Event Browser to determine this state.</p>
CSCds38146	<p>When you begin to Commission or Decommission a service, the wait cursor does not appear and there is no indication in the status bar.</p> <p>Workaround: Click the Commission or Decommission button only one time and wait until an Action Report appears.</p>
CSCds39272	<p>When the user tries to save an invalid value in one of the Temperature Threshold Configuration frame fields (on the Cisco 6400 Chassis Management window), an error message appears.</p> <p>Workaround: None.</p>
CSCds39899	<p>When data is being loaded, the cursor has an arrow shape instead of a clock shape, which can be confusing.</p> <p>Workaround: None.</p>
CSCds40231	<p>The Cisco 6400 UAC > Configure drop-down menu that is accessed from the Connection Template object is inconsistent with the rest of the drop-down menus. The drop-down menu option should not be Configure. The Connection Template should appear first.</p> <p>Workaround: None.</p>
CSCds40795	<p>If you configure the NRP to use a fast Ethernet port instead of an Ethernet port and then issue the show nrp-ip-address slot x command, the NSP displays a blank response from the NRP.</p> <p>Workaround: None.</p>
CSCds64137	<p>In the Access Manager window, the description of available feature lists does not contain the horizontal scrollbar. The description might be lengthier than the limits of the field box.</p> <p>Workaround: None.</p>

Table 4 Cisco SCM Release 2.1(1) Caveats (continued)

Caveats	Description
CSCat16169	<p>If a subscriber is connected to a service without a local service profile (from the IP Uplink Service Configuration window) configured, the ssg vc-service statement is bound to the zero (0) service.</p> <p>Workaround: Never set up a configuration to have the pppoa_statistically connected to an IP Uplink service without a local service profile configured.</p>
CSCat16713	<p>On the Connect to Single Domain tab of the Service/Subscriber Connection window, if an IP Uplink service instance (with no local service profile value configured) is selected, the Connect button should be grayed out, but it is not.</p> <p>Workaround: None.</p>
CSCat18434	<p>Negative values might display for In Octets, Out Octets, Out Unicast Packets, as well as in the NLC ATM performance window.</p> <p>Workaround: None.</p>
CSCat19449	<p>The critical alarm that occurs when you enter an improper IP address does not clear after the chassis returns to a normal state.</p> <p>Workaround: None.</p>
CSCat19975	<p>In the Line Card ATM Port Management window, the following attribute values in the Fault tab window (SONET Frame Errors area) are incorrectly reversed. The value for the Path FEBE Errors field reflects the value of the Line FEBE Errors field.</p> <p>Workaround: None.</p>
CSCds27777	<p>If you select Yes for the CPE supports ARP option in the RFC 1483 Routing Service Configuration window, the PVC IP Address fields are grayed out.</p> <p>Workaround: When you select the CPE supports ARP option, do not use the PVC IP Address fields.</p>
CSCds57219	<p>The menu option for Cisco 6400 Profile configuration might be confusing.</p> <p>Workaround: Use the Service Uplink service profile menu option to configure RFC 1483 routing services.</p>
CSCds18236	<p>The Tech Spec Tools menu does not appear. This is inconsistent with documentation and the CDM element manager.</p> <p>Workaround: Initiate a Telnet session by using the menu option Cisco 6400 UAC > Tools > Initiate Telnet Session NSP and NRP icons.</p>
CSCds23071	<p>Object status, listed in the status bar at the bottom of several windows, does not display a new change in status.</p> <p>Workaround: Close the dialog box and reopen it.</p>
CSCds25129	<p>Deployment failure causes the Action Report to appear with a nondescriptive Deployment Failed error message.</p> <p>Workaround: Check to see if an object already exists in that slot and try the deployment again in a different slot.</p>
CSCds26168	<p>After the successful backup of an object's configuration, the Time Stamp of the last Backup field does not update.</p> <p>Workaround: None.</p>

Table 4 Cisco SCM Release 2.1(1) Caveats (continued)

Caveats	Description
CSCds29313	<p>The Web Console does not launch from SCM.</p> <p>Workaround: Manually launch the web browser and enter the IP address for the device to be managed in the Browser Location field.</p>
CSCds32056	<p>You cannot change SNMP CommStrgs for the NSP or NRP from their icons.</p> <p>Workaround: From the Site or Shelf icon in the Viewer, use the right mouse button to open the SNMP Management window. Use the selection panel in the window to select the NRP or NSP to be modified.</p>
CSCds40015	<p>The System Name in NSP and NRP Management windows does not always match the IOS hostname.</p> <p>Workaround: The SNMP sysName object (System Name in the SCM dialog boxes) is the concatenation of the Cisco IOS CLI hostname and ip domain-name. The first dot (period) in sysName is the divider between hostname and ip domain-name.</p> <p>The parameter, ip domain-name, does not clear its previous settings unless you use a new ip domain-name. You can set a new name either using Cisco IOS CLI or providing a dot-delimited name with domain in the System Name field in the SCM windows.</p>
CSCds40178	<p>The Connection template can be deleted while it is actively connected.</p> <p>Workaround: Remove all of the active connections using the template before you remove a template.</p>
CSCds41167	<p>The Connection Template > View Connection menu does not work.</p> <p>Workaround: Access the Service or Subscriber Connection window for each ATM service connection and check as to which connection template is used with each connection.</p>
CSCds42139	<p>The commission or decommission NSP card does not have any effect on objects under it in the device tree.</p> <p>Workaround: Decommission the Chassis or Shelf icon to decommission all objects in the device tree.</p>
CSCds23071	<p>All Service windows always appear as decommissioned even when they are in a normal state or commissioned.</p> <p>Workaround: To determine if the chassis is truly Commissioned or Decommissioned, view the icon status in the Viewer.</p>
CSCds45972	<p>The CapMon VCC space utilization alarm does not clear automatically when the alarm is cleared.</p> <p>Workaround: Enter the Event Browser and clear the alarm manually.</p>

SCM Release 2.0(1) Open Caveats

Table 5 lists the known problems in Release 2.0(1) of the Cisco 6400 SCM. Unless otherwise noted, there is no workaround.

Table 5 Open Caveats for SCM 2.0(1)

Caveats	Description
CSCds20141	Occasionally, object lists in the IOS Download window are populated differently, depending on the Cisco EMF View from which the window is launched. In particular, if you download a configuration to a chassis, this is equivalent to downloading to the Cisco 6400 Node Switch Processor (NSP). Also, it is possible that duplicates will appear in this list (that is, the chassis and NSP object both appear). Workaround: Manually check the objects to which you choose to download the configuration (especially if you use multiselect).
CSCds20203, CSCdu33655	A preprovisioned NLC object becomes commissioned and appears in a normal state even though no actual line is physically present in the Cisco 6400 chassis. Workaround: Always keep preprovisioned NLCs in the decommissioned state.
CSCat18377	There can be a mismatch between the number of PVCs on a port as reported by SCM and the Cisco IOS show atm pvc command. The figure reported by SCM is accurate, but includes dynamically created PVCs used for signaling, which are not reported by the show atm pvc command. Workaround: None.
CSCat19660	If the NRP and NLC objects are deleted from a chassis in SCM, and then subchassis discovery is initiated, the cards are rediscovered correctly. However, these objects might not show all of the alarm conditions present in the alarm table on the Cisco 6400. Workaround: None.
CSCat19636	It is possible to commission an NRP object that has the same IP address as an existing commissioned NRP object. Workaround: Decommission the duplicate card and delete the card.
CSCat19966	If an NRP card is removed from a Cisco 6400 chassis and inserted into another Cisco 6400 chassis, the SCM should notice this change. However, if the CEMF server fails to receive the chassis change trap from the Cisco 6400, the SCM might not always notice. This can occur due to network problems, or if the Cisco 6400 is not correctly configured to send traps to the CEMF server. Workaround: Manually delete the NRP object from the original chassis, and redeploy it into the new chassis in SCM.
CSCat19951	In the NRP Capacity Statistics window, it is unclear that the Over-Subscription Factor attribute is a percentage value (for example, a value of 15 means that the NRP is 15% oversubscribed, not 15 times oversubscribed). Workaround: The attribute tooltip provides a clear explanation.
CSCat19914	A subscriber can be connected to the same service more than one time, even though it is usually inappropriate to do so. Workaround: Disconnect duplicate subscriber connections using the Subscriber Disconnection window.

Table 5 Open Caveats for SCM 2.0(1) (continued)

Caveats	Description
CSCat19644	<p>Service commission and subscriber connection actions can be launched, irrespective of the state of the port or card.</p> <p>Workaround: None. If the operation cannot be completed because a port or card is unavailable, the action fails and reverts back to a consistent state.</p>
CSCat19789	<p>The SSG Configuration window can be edited after the Configure action has taken place. When you perform the Deconfigure action, the system tries to remove the edited configuration, which cannot match the original configuration on the device.</p> <p>Workaround: Avoid making changes to the SSG Configuration window after the Configure action has taken place.</p>
CSCat20193	<p>If you click a tooltip with an Object List, this might cause the GUI manager process to stop responding. This results in the window (and possibly other open windows) closing. Any unsaved changes on these windows are lost.</p> <p>Workaround: Reopen the window from the Map Viewer application.</p>
CSCat19697, CSCat20061	<p>The Connect buttons on the Service/Subscriber Connection window can become disabled or enabled when they are not supposed to.</p> <p>Workaround: Try selecting a different tab in the window and then returning to the original tab to enable the Connect button. If this does not work, close and reopen the window.</p>
CSCat18935	<p>If two windows are opened in quick succession, their contents can become mixed up, with the contents of both windows displayed in one window.</p> <p>Workaround: Close the windows and then re-open them.</p>
CSCat19704	<p>The Cisco 6400 UAC menu options are not available if you right-click an RBE connection object.</p> <p>Workaround: Launch the required window from a parent object or the chassis.</p>
CSCat20005	<p>IP address fields can accept invalid IP address values (for example, 0.0.0.0).</p> <p>Workaround: Enter a valid IP address.</p>
CSCat19609	<p>It is not possible to deploy a service object by launching the Deployment Wizard using the Cisco 6400 UAC > Service > Deploy menu from another Service object. The wizard requires that you select a containment relationship in the C6400SSManager view, which is hidden.</p> <p>Workaround: Use the Cisco 6400 UAC > Service > Deploy menu option from the chassis to deploy a service object.</p>
CSCat19318	<p>When an ATM service is commissioned, the Uplink VPI and VCI values for an ATM service are not verified. An invalid value can be entered, which subsequently causes connection to the service to fail.</p> <p>Workaround: If connection to an ATM service fails, check that the Uplink VPI and VCI values are valid on the ATM Service Configuration window.</p>
CSCat19634	<p>Nonnumeric characters are accepted as valid input in some fields that require numerical values.</p> <p>Workaround: Avoid using invalid characters in these fields.</p>

Table 5 Open Caveats for SCM 2.0(1) (continued)

Caveats	Description
CSCat19554	<p>If the Disconnect action is performed on the Service/Subscriber Disconnection window, the following incorrect error message appears: Default Action – Failed: Check Controller log file for more details. Possible error in state machine file.</p> <p>Workaround: Before you select the Disconnect button, select a Connection object.</p>
CSCat19470	<p>The Connection Template Configuration window and Service/Subscriber Connection windows do not display connection template objects that were created since the window was opened.</p> <p>Workaround: To display the new connection templates, close and reopen the window.</p>
CSCat19871	<p>The PPP Authentication type mschap does not work correctly on the L2TP and PPPoA-SD configuration windows. The service commission action fails.</p> <p>Workaround: To use this authentication type, open the Object Configuration window for the L2TP or PPPoA-SD service (right-click the Service object, and select Tools > Open Object Configuration). From the Object Types selector, select VirtualTemplate, then enter ms-chap as the value for the attribute C6400SSControl-MIB.vtAuthenticationType. Save this change, and close the Object Configuration window. The service can now be commissioned.</p>
CSCat19791	<p>In the SSG Configuration window, if the Deconfigure button on the PPPoE Configuration tab is selected, and PPPoE was not configured (or was deconfigured already), an incorrect error message appears (PPPoA is already Deconfigured).</p> <p>Workaround: None.</p>
CSCat19295	<p>The Connection Template Configuration window does not validate QoS values. Incorrect values are rejected if the connection template is used to connect a subscriber.</p> <p>Workaround: If an error occurs when you connect a subscriber, check that the connection template contains valid values.</p>
CSCat19399	<p>The Current Connections object list on the ATM Service Configuration window might remain empty, even though there is a connection to this service.</p> <p>Workaround: Open the Service/Subscriber Disconnection window from the ATM Service object. This shows details of the connection to this service.</p>
CSCat20202	<p>In the Line Card Management window, the Module Type attribute is incorrectly reported for OC-12 NLCs. It should be reported as OC-12 Single Mode Fiber.</p> <p>Workaround: None.</p>

Table 5 Open Caveats for SCM 2.0(1) (continued)

Caveats	Description
CSCat19582	<p>In the Service/Subscriber Connection window, the Service Type attribute on the Single Domain tab uses an old SCM service naming convention.</p> <p>Workaround: The correct name mappings are as follows:</p> <p>ATM = ATM</p> <p>Bridged-Bridged = RFC 1483 Bridging</p> <p>Bridged-Routed = RFC 1483 IRB</p> <p>PPP-L2TP = L2TP</p> <p>PPP-IP = PPPoA-SD</p> <p>PTA-MD = IP Uplink</p> <p>RFC 1483 = RFC 1483 Routing</p>
CSCat18410	<p>The Global Performance Logging button on the Chassis Configuration window does not turn on bandwidth utilization monitoring on ATM ports.</p> <p>Workaround: Turn on bandwidth utilization manually from the Interface Performance window.</p>
CSCat17425	<p>If an RFC 1483 Routing service is decommissioned while subscribers are connected to the service, the decommission action might fail and show the following error message: Updating ATM port bulk list result in error.</p> <p>Workaround: Do not decommission a service while there are subscribers connected to it.</p>
CSCat17727	<p>It is possible that some SCM help files could be overwritten by the installation of another EM package onto the same CEMF server. In particular, the installation of Cisco DSL Manager overwrites the help files for some of the common windows used by both applications. The help file is still relevant for the window, but can link to other CDM help files instead of SCM files.</p> <p>Workaround: None.</p>
CSCat16899	<p>The Username and Password fields should be separated. Currently these are combined into a single field, with Username and Password separated by a space.</p> <p>Workaround: None.</p>
CSCat17632	<p>It is possible to delete connection templates, even if the template is being used by a subscriber connection.</p> <p>Workaround: None. Use the Delete button on the Connection Template Configuration window to delete connection templates.</p>
CSCat16770	<p>Under severe adverse network conditions, Cisco IOS interaction scripts can time out.</p> <p>Workaround: The default timeout setting is 60 seconds. You can change this by creating a timeout file that contains the new timeout value in seconds. Create the file in the directory <CEMF_ROOT>/config/perl. For example, the following command, executed as root, sets the timeout value to 120 seconds (where /opt/cemf is the default CEMF installation directory):</p> <pre>echo 120 > /opt/cemf/config/perl/timeout</pre>

Table 5 Open Caveats for SCM 2.0(1) (continued)

Caveats	Description
CSCat18441	<p>The Service/Subscriber Connection window requires that you use the Save button or the File > Save menu option to save attribute changes before selecting an action button. Otherwise, updated values are not used by the action. This is inconsistent with the operation of the Service Configuration windows, which automatically save changes when an action button is selected.</p> <p>Workaround: Save changes before you select an action button.</p>
CSCat16404	<p>The Encapsulation Type options on the Service/Subscriber Connection window might not be appropriate for the selected service. For example, the options <code>aal5mux ppp</code> and <code>aal5cisco ppp</code> are available for connections to RFC 1483 Routing services.</p> <p>Workaround: Ensure that the correct encapsulation type is selected.</p>
CSCat17607	<p>The status bar at the bottom of some SCM windows incorrectly displays the state of some objects as having no value.</p> <p>Workaround: Determine the correct state of the objects by launching the corresponding management window (for example, NRP Management window for NRP cards).</p>
CSCat16042	<p>In the IP Uplink Service Configuration window, it is possible to enter duplicate values in the Next Hop Gateway Key field, which could affect the stability of the service.</p> <p>Workaround: Avoid entering duplicate values in this field. If a service was commissioned with a duplicate key, decommission the service and correct the error.</p>
CSCat15857	<p>The value of the Administration Status attribute on the Cisco 6400 NRP Management window cannot be changed.</p> <p>Workaround: Use Cisco IOS to change the Administration Status of the card.</p>
CSCat18672	<p>In the RFC 1483 Routing Service Configuration window, if you select the Add button on the Service Uplink tab, this creates a new Service Uplink. However, if you select this button, this causes unsaved changes to the service to be lost.</p> <p>Workaround: Before you create a new Service Uplink, click the Save icon or the File > Save menu option to save any changes to the service.</p>
CSCat16179	<p>It is possible to connect a Subscriber to the same Service more than one time. Although this is usually not a logical action, SCM does not prevent it.</p> <p>Workaround: Use the Service/Subscriber Disconnection window to disconnect additional connections.</p>
CSCat19916	<p>Data migration from SCM Release 1.x to SCM Release 2.0(1) can fail if all of the following conditions are true:</p> <ul style="list-style-type: none"> • In SCM Release 1.x, there is an NRP object deployed with no IP address set in SCM. • The NRP is deployed in a slot that is empty on the actual Cisco 6400 chassis. • There is an NRP in another slot in the Cisco 6400 chassis, but there is no corresponding NRP object in SCM. <p>Workaround: In SCM Release 1.x, delete the NRP object and deploy a new NRP object that correctly matches the Cisco 6400 device configuration.</p>

Table 5 Open Caveats for SCM 2.0(1) (continued)

Caveats	Description
CSCat19936	<p>The ATM Port management windows might not work correctly with ATM port objects migrated from SCM Release 1.x. Cisco 6400 IOS software includes a workaround for nonmigrated ATM port objects, but not for migrated ones.</p> <p>Workaround: Open the Object Configuration window for the ATM Port object (right-click the ATM Port object, and select Tools > Open Object Configuration). Select snmpManageable, and enter the value 1 for the attribute <code>snmp-varbinds-per-packet</code>. Save this change and close the Object Configuration window.</p>
CSCat19685, CSCat19871	<p>The Authentication Type attribute of an L2TP service might not be correctly migrated from SCM Release 1.x to SCM Release 2.0(1).</p> <p>Workaround: Select the correct Authentication Type before you commission the service.</p>

SCM Release 2.0 Caveats

[Table 6](#) lists known problems in Release 2.0 of the SCM. Unless otherwise noted, there is no workaround.

Table 6 Open Caveats for SCM Release 2.0

Caveats	Description
CSCdr34047	<p>If you manually deploy a Cisco 6400 chassis and subsequently run CEMF autodiscovery over this range, this chassis appears two times in the Map Viewer.</p> <p>Workaround: None.</p>
CSCdr34055	<p>It can take up to 5 minutes to detect that a card (such as an NRP or NLC) has been physically removed from the Cisco 6400 chassis (that is, an alarm condition appears in the Map Viewer application).</p> <p>Workaround: None.</p>
CSCdr34070	<p>If you launch CEMF autodiscovery from the NSP object in a Cisco 6400 chassis, this categorizes all discovered network elements as children of the NSP in the Physical View.</p> <p>Workaround: None.</p>
CSCdr34493	<p>When CEMF IP autodiscovery is run, NRPs can be discovered.</p> <p>Each time autodiscovery is launched from a site, the physical view is populated with the respective shelves and the NRPs lying in that range underneath it, giving the impression that the NRPs are contained within the site, which is not correct.</p> <p>Workaround: NRPs should be either placed under the chassis or should not appear at all until the chassis is commissioned.</p>
CSCdr34504	<p>Occasionally, the deconfiguration of the PPPoE base configuration on the SSG Configuration window fails.</p> <p>Workaround: If this happens, retry the deconfiguration.</p>

Documentation Issues

This section describes a new QoS category, constant bit rate (CBR), for ATM connection templates. This new information will be added to the next update of the *Cisco 6400 Service Connection Manager User Guide*. For details about configuring connection templates and configuring QoS parameters, refer to the *Cisco 6400 Service Connection Manager User Guide*, Chapter 9, Service/Subscriber Provisioning Windows: Detailed Description.

Constant Bit Rate Support

Constant bit rate (CBR) is a QoS service category that provides an ATM connection with a static amount of bandwidth to ensure accurate data delivery. You configure CBR settings through the Connection Template Configuration window.



Note

SCM Release 2.2(2) supports the configuration of the CBR category on ATM connections. When you upgrade from SCM Release 2.2(1) or 2.2(1a) to SCM Release 2.2(2), you must run the C6400DM migration tool to correct the number of connections associated with each connection template.

When you create an ATM connection, SCM creates an ATM traffic descriptor in the node switch processor card (NSP) for the selected connection template. For all other services, SCM creates an atm vc-class in the node route processor card (NRP) for the selected connection template when you connect to all other services.

To modify an existing connection template, you must first disconnect any ATM-service subscriber connections and non-ATM connections currently using the template. You can save a connection template if there are no ATM connections associated with it. Note that you can save the template, and apply it to the device if there are only non-ATM connections associated with it.

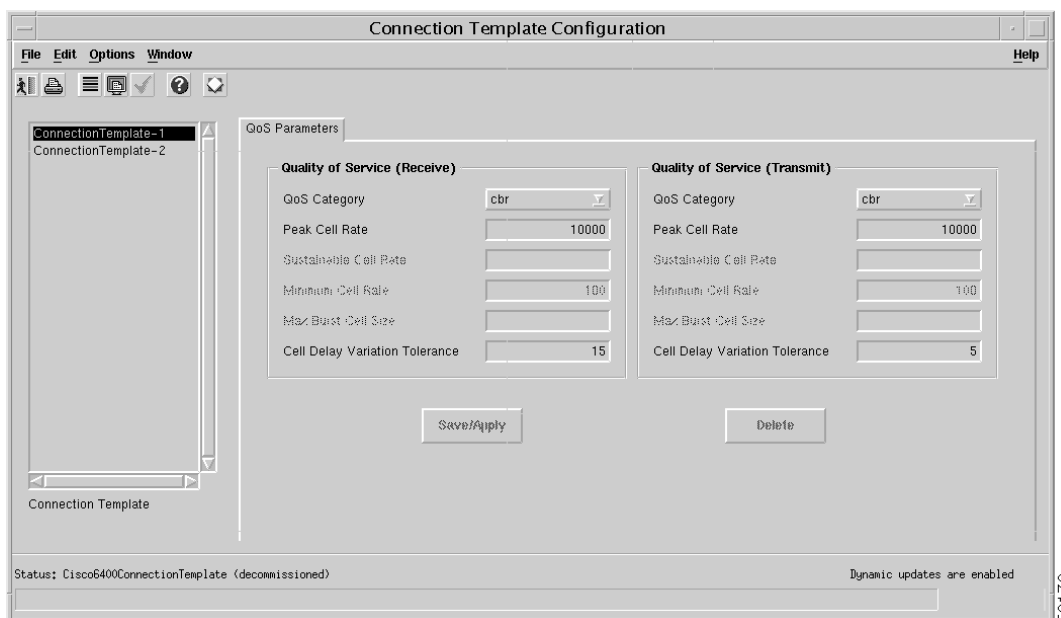


Note

CBR is available for ATM connections only, which are handled by the Node Switch Processor (NSP). You configure a connection template for either ATM service connections or non-ATM service connections, but not both.

Figure 2 displays the Connection Template Configuration window with the QoS Parameters tab.

Figure 2 Connection Template Configuration Window—QoS Parameters Tab



The QoS Category field now contains the following values:

- ubr—Unspecified bit rate
- abr—Available bit rate
- vbr-nrt—Variable bit rate-non real time
- cbr—Constant bit rate



Note

SCM grays out the QoS (Receive/Transmit) parameters that are not applicable to the selected QoS category. For example, if you choose **cbr** in the QoS Category field, you can enter values for the Peak Cell Rate and Cell Delay Variation Tolerance parameters. SCM grays out all other parameters.

The **Save/Apply** button allows you to save changes to the selected connection template. The button is:

- Enabled—If no ATM connections are using the connection template. Note that the button is enabled if non-ATM connections use the template.
- Disabled (grayed-out)—If there is an ATM connection using the connection template.

Click **Delete** to delete the selected connection template. The button is enabled only if there are no connections currently using the connection template. If any connections (ATM or non-ATM) are currently using the template, you must disconnect those connections before you can delete the template.

Obtaining Documentation

The following sections explain how to obtain documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following URL:

<http://www.cisco.com>

Translated documentation is available at the following URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

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Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

<http://www.cisco.com/register/>

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.

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