



Cisco Extensible Provisioning and Operations Manager Getting Started Guide

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EPOM Getting Started Guide

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Preface

Obtaining Documentation

Cisco provides several ways to obtain documentation, technical assistance, and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

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

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Documentation CD-ROM

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Registered Cisco.com users can order a single Documentation CD-ROM (product number

DOC-CONDOCCD=) through the Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/ordering_place_order_ordering_tool_launch.html

All users can order monthly or quarterly subscriptions through the online Subscription Store:

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Ordering Documentation

You can find instructions for ordering documentation at this URL:

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You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:
<http://www.cisco.com/en/US/partner/ordering/index.shtml>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit comments electronically on Cisco.com. On the Cisco Documentation home page, click

Feedback at the top of the page.

You can e-mail your comments to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your

document or by writing to the following address:

Cisco Systems

Attn: Customer Document Ordering

170 West Tasman Drive

San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com, which includes the Cisco Technical Assistance Center (TAC) website, as a

starting point for all technical assistance. Customers and partners can obtain online documentation,

troubleshooting tips, and sample configurations from the Cisco TAC website. Cisco.com registered users

have complete access to the technical support resources on the Cisco TAC website, including TAC tools

and utilities.

Cisco.com

Cisco.com offers a suite of interactive, networked services that let you access Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com provides a broad range of features and services to help you with these tasks:

- Streamline business processes and improve productivity
- Resolve technical issues with online support
- Download and test software packages
- Order Cisco learning materials and merchandise

- Register for online skill assessment, training, and certification programs

To obtain customized information and service, you can self-register on Cisco.com at this URL:

<http://tools.cisco.com/RPF/register/register.do>

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: the Cisco TAC website and the Cisco TAC

Escalation Center. The type of support that you choose depends on the priority of the problem and the

conditions stated in service contracts, when applicable.

We categorize Cisco TAC inquiries according to urgency:

- Priority level 4 (P4) You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration. There is little or no impact to your business operations.
- Priority level 3 (P3) Operational performance of the network is impaired, but most business operations remain functional. You and Cisco are willing to commit resources during normal business hours to restore service to satisfactory levels.
- Priority level 2 (P2) Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively impacted by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.
- Priority level 1 (P1) An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Cisco TAC Website

The Cisco TAC website provides online documents and tools to help troubleshoot and resolve technical

issues with Cisco products and technologies. To access the Cisco TAC website, go to this URL:

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

All customers, partners, and resellers who have a valid Cisco service contract have complete access to

the technical support resources on the Cisco TAC website. Some services on the Cisco TAC website

require 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 this URL to register:

<http://tools.cisco.com/RPF/register/register.do>

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco

TAC website, you can open a case online at this URL:

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

If you have Internet access, we recommend that you open P3 and P4 cases online so that you can fully

describe the situation and attach any necessary files.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. 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 automatically opens a case.

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

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

Before calling, please check with your network operations center to determine the Cisco support services

to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Product Catalog describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:
http://www.cisco.com/en/US/products/products_catalog_links_launch.html
- Cisco Press publishes a wide range of networking publications. Cisco suggests these titles for new and experienced users: Internetworking Terms and Acronyms Dictionary, Internetworking Technology Handbook, Internetworking Troubleshooting Guide, and the Internetworking Design Guide. For current Cisco Press titles and other information, go to Cisco Press online at this URL:
<http://www.ciscopress.com>
- Packet magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:
<http://www.cisco.com/go/packet>
- iQ Magazine is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:
<http://www.cisco.com/go/iqmagazine>

- Internet Protocol Journal is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

http://www.cisco.com/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html

- Training Cisco offers world-class networking training. Current offerings in network training are listed at this URL:

http://www.cisco.com/en/US/learning/le31/learning_recommended_training_list.html



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Overview of Cisco EPOM

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- [Cisco EPOM Features, page 1-1](#)
- [Cisco EPOM Server Requirements, page 1-2](#)
- [Cisco EPOM Client Requirements, page 1-3](#)
- [Cisco BTS 10200 Server Requirements, page 1-3](#)
- [Cisco BTS 10200 and Cisco EPOM Compatibility, page 1-4](#)

Cisco EPOM Features

Cisco Extensible Provisioning and Operations Manager (Cisco EPOM) is a web-based application for real-time provisioning of the Cisco BTS 10200 Softswitch that allows authorized users to show, add, modify, delete, and check the status of Cisco BTS 10200 components.

Provisioning tasks in Cisco EPOM generally match tasks done by using the Cisco BTS 10200 Softswitch CLI or MAC interface, but the tasks are done through a web-browser interface. Common multistep procedures are simplified by being grouped into tasks that are done by task wizards.

Authorized Cisco EPOM administrators set up and manage the Cisco EPOM server software and perform Cisco EPOM user administration and network setup tasks:

- Start and stop the Cisco EPOM web server software. (See the [“Starting Cisco EPOM”](#) section on page 2-5.)

- Add, modify, and delete users, user groups, and domains. (See the [“Adding Domains, Groups, and Users”](#) section on page 3-14.)
- Assign users to groups. (See the [“Adding Users and Assigning Them to Groups”](#) section on page 3-18.)
- Assign domain access (either read/write or read only) to groups. (See the [“Adding Groups and Assigning Them to Domains”](#) section on page 3-16.)
- Assign a Cisco BTS login to a Cisco EPOM group. This restricts a Cisco EPOM user’s access to that of the assigned Cisco BTS user login. (See the [“Setting Up Cisco EPOM Security”](#) section on page 6-3.)
- Set up the network initially. (See the [“Setting Up a Network”](#) section on page 3-12.)
- Show, add, modify, and delete single or multiple Cisco BTS 10200 devices. (See the [“Bulk Command Provisioning”](#) section on page 4-8.)
- Set up custom navigation trees. (See the [“Creating Custom Navigation Trees”](#) section on page 6-4.)
- Create custom provisioning flows. (See the [“Customizing Cisco EPOM Provisioning Flows”](#) section on page 5-6.)
- View reports and download them to a Cisco BTS EMS server. (See the [“Viewing Reports”](#) section on page 7-1.)
- Troubleshoot problems. See [Chapter 9, “Troubleshooting Cisco EPOM.”](#)

The Cisco EPOM Database

The Cisco EPOM database maintains Cisco EPOM administrative data (users, groups, and domains) and the inventory of Cisco BTS 10200 devices. Device-level information (such as subscribers, subscriber features, and communication with media gateways) is retrieved from the Cisco BTS EMS server devices in real time, and is not stored in the Cisco EPOM database.

Cisco EPOM Server Requirements

- Sun Ultra-60 workstation (440 MHz or faster, dual processor)
- 2 GB RAM

- 4 GB disk space
- Sun Solaris 8 operating system

Default Port Assignments



Note

You can change these port assignments during installation. See the [“Accessing Cisco EPOM” section on page 2-7](#).

- MySQL port is 3310.
- Tomcat non-secure port is 8080.
- Tomcat secure port is 443.
- Tomcat shutdown port is 8041.

Cisco EPOM Client Requirements

- Microsoft Internet Explorer for Windows, Version 5.5 or later.
- Netscape 6.2 or later



Note

If you attempt to access Cisco EPOM with unsupported web browser versions, this error message is displayed:

Incompatible Browser Version

You must use one of the following browsers with cookies and javascript enabled:

Internet Explorer 5.x or higher

Netscape 6.x or higher

Cisco BTS 10200 Server Requirements

- Cisco BTS 10200 EMS Server 4.2
Or
Cisco BTS 10200 EMS Server 4.1

Or

Cisco BTS 10200 EMS Server 3.5

- Cisco BTSCis software package

Cisco BTS 10200 and Cisco EPOM Compatibility

Cisco BTS 10200 Release Number	Cisco EPOM Release Number
Cisco BTS 3.2	Cisco EPOM 1.1
Cisco BTS 3.3	Cisco EPOM 1.3
Cisco BTS 3.5.x with Visigenics CORBA	Cisco EPOM 1.3
Cisco BTS 3.5.x with Non Secure OpenOrb CORBA	Cisco EPOM 1.5
Cisco BTS 4.1 with Non Secure OpenOrb CORBA	Cisco EPOM 2.1
Cisco BTS 4.2 with Non Secure OpenOrb CORBA	Cisco EPOM 4.2



Note

You must use compatible EPOM and BTS releases only



Installing Cisco EPOM

This chapter contains the following topics:

- [About Cisco EPOM Installation, page 2-1](#)
- [Upgrading Cisco EPOM, page 2-4](#)
- [Starting Cisco EPOM, page 2-5](#)
- [Stopping Cisco EPOM, page 2-6](#)
- [Reinitializing the MySQL and Cisco EPOM Databases, page 2-6](#)
- [Accessing Cisco EPOM, page 2-7](#)
- [Logging In to Cisco EPOM, page 2-8](#)

About Cisco EPOM Installation



Note

The installation information in this section shows that Cisco EPOM is installed in the `/opt/CSCOepom` directory.

Cisco EPOM installation sets up two separate directories:

- Application directory: `/opt/CSCOepom` directory
Do not create or modify any of the files in this directory.
- Data directory: `/var/opt/CSCOepom` directory
This is the location of log files and live data.



Note This directory is not deleted when you uninstall the Cisco EPOM application.

During its initial installation, Cisco EPOM creates and initializes a database that is used to store user IDs, login passwords, group information, and device inventories.

During installation, if an existing database is detected, the installation script does not reinitialize the database. You can determine if the database must be reinitialized, but this is not recommended.

To reinitialize the database, see the [“Reinitializing the MySQL and Cisco EPOM Databases” section on page 2-6](#).

Prerequisites for Installing Cisco EPOM

Before you install Cisco EPOM, check that the Cisco BTScis package is installed on both the Cisco BTS 10200 EMS primary and secondary servers. Refer to the *Cisco BTS 10200 Softswitch Application Installation*.

You can also check if the CORBA application is running on the Cisco BTS 10200 EMS servers as described in the *Cisco BTS 10200 Softswitch Application Installation*.

Installing Cisco EPOM



-
- Note**
- You can install Cisco EPOM on the same server as the Cisco BTS 10200 EMS or on a separate server.
 - Install Cisco EPOM on the primary and secondary Cisco BTS 10200 EMS servers.
-

Step 1 Become a Superuser by entering:

```
su - root
```

Step 2 Download the Cisco EPOM image from this location:

<http://www.cisco.com/cgi-bin/tablebuild.pl/epom15>

Step 3 Extract the tarfile:

```
tar -xvf epom-n_n_n_x-nnnnnnnn-n.tar
```

Step 4 Change the directory by entering:

```
cd epom-n_n_n_x-nnnnnnnn-n
```

Step 5 Run the Setup script:

```
./setup
```

Step 6 Remove the installation image by entering these commands:

```
cd epom-n_n_n_x-nnnnnnnn-n
rm -f epom-n_n_n_x-nnnnnnnn-tar
rm -rf epom-n_n_n_x-nnnnnnnn-n
```

The working Cisco EPOM image is installed in the /opt/CSCOepom directory.

Uninstalling Cisco EPOM

After you uninstall Cisco EPOM, you must manually delete the data files from the /var/opt/CSCOepom directory.



Note

These files are not automatically deleted by the uninstallation process.

-
- Step 1** Become a Superuser by entering:
- ```
su - root
```
- Step 2** Check that you are not in the /opt/CSCOepom directory.
- Step 3** Run the uninstallation script by entering:
- ```
/opt/CSCOepom/uninstall/uninstall
```
-

Upgrading Cisco EPOM

This procedure shows you how to upgrade from Cisco EPOM Release 1.5(3) to Cisco EPOM Release 1.5 (4). Follow the same procedure in order to upgrade to Cisco EPOM Release 1.5.4

-
- Step 1** Become a Superuser by entering:
- ```
su - root
```
- Step 2** Create a temporary directory (epom\_install2) for the Cisco EPOM 1.5.4 image:
- ```
cp epom-1_5_4-20040817-1.tar /opt/epom_install2
cd /opt/epom_install2
```
- Step 3** Untar the image:
- ```
tar -xvf epom-1_5_4-20040817-1.tar
```
- Step 4** List the image contents:
- ```
ls
epom-1_5_4_20040817-1 epom-1_5_4_20040817-1.tar
```
- Step 5** Change to the location of the new, untarred image:
- ```
cd epom-1_5_4-20040817-1
```
- Step 6** Start installing the new image:
- ```
./setup
```
- This message appears:
- ```
Warning:
```

The Extensible Provisioning and Operations Manager 1.5 (3) is currently installed and must be uninstalled before this version is installed.

**Step 7** Verify that you wish to uninstall your current version of Cisco EPOM:

Do you wish to uninstall this product [y,n,?] **y**

Note: The CSCOepom data directory, /var/opt/CSCOepom still exists and must be removed manually.

Using previously installed MySQL database.

Using previously installed EPOM database.

Verifying EPOM Database.

Starting mysqld daemon with databases from /var//opt/CSCOepom/data/db

MySQL Server has started

Verifying EPOM Database Tables

Extensible Provisioning and Operations Manager installation is complete.



**Note** To reinitialize the Cisco EPOM database, see the [“Reinitializing the MySQL and Cisco EPOM Databases”](#) section on page 2-6.

## Starting Cisco EPOM

The Cisco EPOM web server must be running in order to be accessed by web clients.

**Step 1** From the EPOM web server, type:

```
/opt/CSCOepom/bin/epom start
```

You will see the following:

```
% /opt/CSCOepom/bin/epom start
```

```

Starting EPOM

```

**Step 2** Enter responses to the InstallShield Wizard sequence.

When the installation is complete, you will see the following:

```
Starting MySQL
MySQL server is already started
Starting Tomcat
Tomcat has started

EPOM Started

```

---

## Stopping Cisco EPOM

---

From the EPOM web server, type:

```
/opt/CSCOepom/bin/epom stop
```

You will see the following:

```
% /opt/CSCOepom/bin/epom stop

Stopping EPOM

Stopping MySQL
030220 15:26:12 mysqld ended (This appears only in the window from
which EPOM was started)
MySQL server has stopped
Stopping Tomcat
Tomcat has stopped

EPOM Stopped

```

---

## Reinitializing the MySQL and Cisco EPOM Databases

You can reinitialize the MySQL and Cisco EPOM databases for these reasons:

- To reset the Admin password necessary to log in to Cisco EPOM.



- To clear the databases following a Cisco EPOM upgrade.

Reinitialize the MySQL and Cisco EPOM databases by entering:

```
/opt/CSCOepom/mysql/install/bin/installMySQLDB -ifs
/opt/CSCOepom/mysql/install/bin/installEPOMDB -ifs
```



---

**Note** If you reinitialize the MySQL database, you must initialize the Cisco EPOM database as well.

---

## Accessing Cisco EPOM

You can access Cisco EPOM from a web browser. (For supported web browsers, see the [“Cisco EPOM Client Requirements” section on page 1-3.](#))

Before you start Cisco EPOM, you will need this information:

- Tomcat non-secure port number
- Tomcat secure port number

You can also select the displayed defaults for these ports.

**For a secure connection:**

- If you are using the default port 443, enter:

```
https://EPOMhostname
```

- If you are using any other port, enter:

```
https://EPOMhostname:port number
```

Where

*EPOMhostname*—The host where Cisco EPOM is installed.

*port number*—Identifies the port that is used.

**For an insecure connection:**

- If you are using port 80, enter:
- If you are using any other port (default installed port is 8080), enter:

```
http://EPOMhostname
```

```
http://EPOMhostname:port number
```

Where

*EPOMhostname*—The host where Cisco EPOM is installed.

*port number*—Identifies the port that is used.

## Logging In to Cisco EPOM

- 
- Step 1** Launch a web browser. (For supported web browsers, see the [“Cisco EPOM Client Requirements”](#) section on page 1-3.)
- Step 2** Access Cisco EPOM (see the [“Accessing Cisco EPOM”](#) section on page 2-7.)
- Step 3** Log in with the default administrator account:
- User Name: `admin`
- Password: `admin`
- Step 4** Click **Login**.
- You can now build a Cisco EPOM inventory as described in [Chapter 3, “Setting Up Cisco EPOM.”](#)
-



## Setting Up Cisco EPOM

---

This chapter contains the following topics:

- [Navigating the Cisco EPOM Interface, page 3-1](#)
- [Setting Up a Network, page 3-12](#)
- [Adding Domains, Groups, and Users, page 3-14](#)

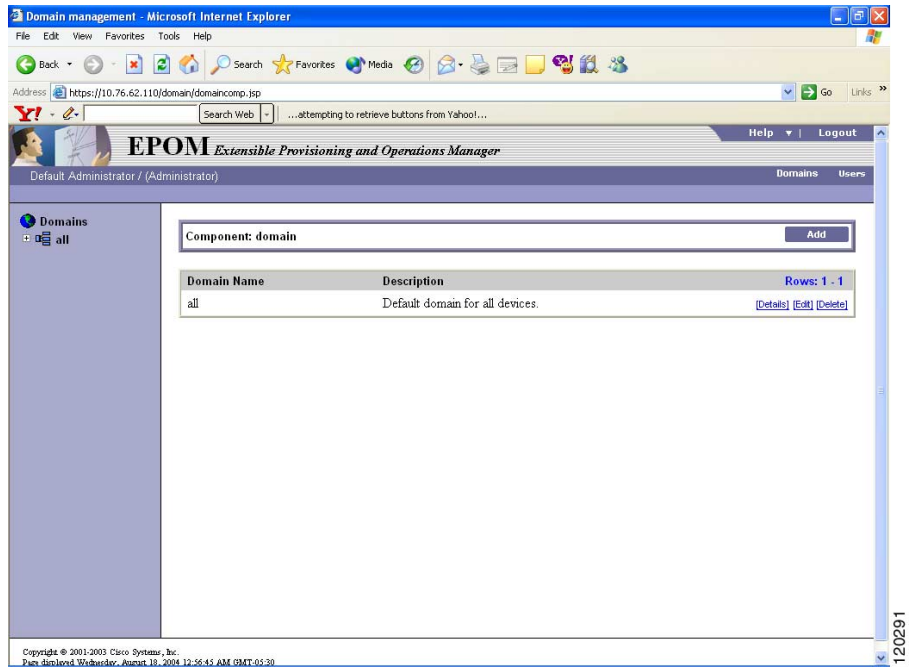
## Navigating the Cisco EPOM Interface

Navigating the Cisco EPOM interface is described in these topics:



- [Overview of the Cisco EPOM Application Window, page 3-2](#)
- [About Main Cisco EPOM Windows, page 3-9](#)
- [Using Cisco EPOM Forms, page 3-10](#)

## Overview of the Cisco EPOM Application Window

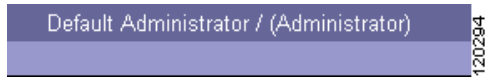
This is an example of the Cisco EPOM application window:



## Standard Window Elements

| Window Element | Description                                                                           |
|----------------|---------------------------------------------------------------------------------------|
| Window title   | Identifies the current window, such as Component: domain management.                  |
|                |   |
| Window banner  | Displays the application name and includes the <b>Help</b> and <b>Logout</b> buttons. |
|                |   |

| Window Element | Description                                                                                                                                                                   |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main menu      | Displays the current user name, user type (Administrator or User). This menu bar also includes main menu buttons to switch between domain management and user administration. |



|         |                                                                                                        |
|---------|--------------------------------------------------------------------------------------------------------|
| Submenu | Displays the currently selected component, if any, and buttons for major operations on that component. |
|---------|--------------------------------------------------------------------------------------------------------|



This submenu bar also has the Reports, Config, Edit, and Delete buttons. These buttons are duplicated in the BTS10200 Details pane. They have the same function whether you click them in the submenu bar or the Details pane.






The submenu includes a highlighted link to the selected Cisco BTS 10200 EMS server. Click the link to go to the index for the selected server, where you can access reports or Help.

| Window Element             | Description                                                                                                                                                                                                                  |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Navigation pane, tree view | Displays a tree view you can use to display the structure of the current view, such as the Domains tree, the User/Groups tree, the inventory device Configuration tree, the Reports tree, and navigate through tree objects. |



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|                        |                                                                                                                                                                                                                                                                   |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Navigation pane, icons | When you select a Cisco BTS 10200 EMS server and click on <b>Config</b> , icons (in the Configuration tree) identify the main object types and the default action that occurs when you click on the tree object. The available actions depend on the object type. |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Window Element                                                                    | Description                                                                                                                                                          |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | A main component, expandable to view subcomponents.                                                                                                                  |
|  | Click to show the component or list of components of that type, and access other operations such as adding a new component of that type or searching for components. |
|  | Click to search for components of this type.                                                                                                                         |
|  | Click to check or change status.                                                                                                                                     |
|  | Click to diagnose the component.                                                                                                                                     |

**Window Element****Description****Content area**

Displays information about the object selected in the navigation pane. The display changes if you select a different object or click a command button, such as **Add** or **Edit**.


| Component: domain |                                 | Add                                                                       |
|-------------------|---------------------------------|---------------------------------------------------------------------------|
| Domain Name       | Description                     | Rows: 1 - 1                                                               |
| all               | Default domain for all devices. | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |

This pane includes a title box across the top, containing a description of the current object and command buttons for actions that apply to it. Management windows display a list of the managed objects and buttons applicable to the object, such as **Edit** or **Delete**.



**Window Element****Description****Managed object windows**

These windows include standard elements and navigation features as shown in this example.

 Success: Entries 1-101 of 2071 returned.

Component: **dial\_plan**

[Check All](#) [Clear All](#) [Details](#) [Edit](#) [Delete](#)

| id ▲                                              | dest_id                   | digit_string | Rows: 1 - 100 of 2071 ➔                                                   |
|---------------------------------------------------|---------------------------|--------------|---------------------------------------------------------------------------|
| <input type="checkbox"/> <a href="#">Dial1</a>    | <a href="#">dst1</a>      | 222          | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 271201       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 271202       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 271203       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 271204       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 271205       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 271206       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">RLGHNCDS1</a> | 306291       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 306301       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 306362       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |
| <input type="checkbox"/> <a href="#">Incoming</a> | <a href="#">local-sub</a> | 306391       | <a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a> |

- You can sort on column headers.
- All defined objects of the selected type are listed.
- Allowed operations on a selected object are listed at right, such as Details, Edit, and Delete. See the “[Standard Cisco BTS 10200 Operations](#)” section on page 3-8 for a complete list.
- Links to other parts of the configuration are provided, for quick navigation between related windows. Click the items displayed with blue underlining to jump to that component. In the example above, you can click a dial plan profile ID (dp1) to go directly to a dial plan profile.

## Standard Cisco BTS 10200 Operations

In the managed object window, you can carry out any operation supported for the selected object type. The operation appears as an underlined blue link. Operations are executed in real time. These Cisco BTS 10200 operations are available in Cisco EPOM:

- **Add**—Add a component.
- **Edit**—Edit the component.
- **Details**—Show all the information on the component.
- **Delete**—Remove the component from the configuration.

You cannot delete a component if other components depend on it. For example, you cannot delete a subscriber profile until you have deleted all the subscribers that are associated with it.

- **Status**—Check the status of the component.
- **Control**—Take the component in or out of service.
- **Diag**—Issue a diagnostic command to the component.
- **Equip**—Equip components to put them in service.
- **Unequip**—Unequip a component prior to deleting.
- **Reset**—Reset defined circuit identification codes (CICs).  
Reset the CIC if there are errors in the communication on that trunk.
- **Search**—Search for components meeting the specified criteria.

Fill in the search criteria, then click **Search**. For example, in the subscriber window, to find a list of subscribers using a particular media gateway, in **mgw\_id** enter the gateway id, then click **Search**. A list of matching subscribers appears.

- **Audit**—Examine entries on data tables
- **Sync**—Syncing the data between data tables and shared memory segments

## About Main Cisco EPOM Windows

Cisco EPOM's two main windows are Domain Management and User Management. From Domain Management you access all device-related functions. From User Management, Cisco EPOM administrators can access user and group access functions, and Cisco EPOM users can access their own user record, for example, to change their password.

This table describes the main Cisco EPOM windows in each category. The Access With column gives an example of how to access the window, but as in any web application, there are many links between windows that can shortcut hierarchical navigation.

| Window—Domains                       | Access With                                                                                                                                                                                                   | Use To...                                                                                                                                                                                                 |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Domain Management                    | Domains button                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>• Manage domains and devices</li> <li>• Access domain-level tasks</li> </ul>                                                                                       |
| Domain Details                       | <b>Details</b> or click the domain in the Domain tree                                                                                                                                                         | <ul style="list-style-type: none"> <li>• View what inventory devices are contained in the domain and what user groups have access to the domain</li> </ul>                                                |
| Modify Domain                        | <b>Edit</b> from Domain Details                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Add devices, add groups with access to the domain</li> </ul>                                                                                                     |
| Cisco BTS 10200 Component Status     | With a Cisco BTS 10200 EMS server selected in the Domain tree window, click <b>Config</b>                                                                                                                     | <ul style="list-style-type: none"> <li>• View, modify, and check or change the status of Cisco BTS 10200 devices</li> <li>• Schedule provisioning tasks</li> <li>• Access Provisioning Wizards</li> </ul> |
| Cisco BTS 10200 Configuration Wizard | In the Configuration tree, click <b>Provisioning Flow</b> and click the provisioning task                                                                                                                     | <ul style="list-style-type: none"> <li>• Carry out common provisioning operations with prompts for each required step in the procedure</li> </ul>                                                         |
| Cisco BTS 10200 Component Reports    | With a Cisco BTS 10200 EMS server selected in the Domain tree window, click <b>Reports</b>                                                                                                                    | <ul style="list-style-type: none"> <li>• Select and view Performance or Billing Reports</li> </ul>                                                                                                        |
| Window—Users                         | Use To...                                                                                                                                                                                                     |                                                                                                                                                                                                           |
| User Administration                  | <p><b>Administrators</b>—Add, modify, or delete users, including assigning users to one or more groups.</p> <p><b>Users</b>—View your settings and change your first name, last name, password, or email.</p> |                                                                                                                                                                                                           |

---

Group Administration     **Administrators**—Add or delete groups. Groups are listed under Groups in the Edit User window so that you can assign or unassign users to them.

---

## Using Cisco EPOM Forms

You can use Cisco EPOM forms to add, view, and change information on inventory components, domains, users, and groups, to specify report parameters, to search for devices, and so forth. The Add component form is an example:

## About Form Actions

In a form, you can do the following:

- Fill in or select field values. Required fields are identified with a red checkmark.
- Click **Clear Form** to clear out existing information.
- Click **OK** to save the current field values, including any changes you have made, and return to the previous window.
- Click **Cancel** to discard any changes and return to the previous window.

## Adding Multiple Components with Common Properties

In Component Add forms, you can use **Apply** to add multiple components with the same properties. For example, in the Subscriber Add form, enter common properties and fill in the ID for the first subscriber of that type, then click **Apply**. The subscriber is added and the form stays open. Fill in the id for the next subscriber and click **Apply**. Repeat for each subscriber of this type.

## About Field Types

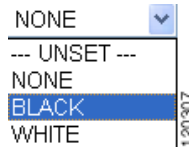
There are five field types:

- **Text fields**, where you fill in text information:

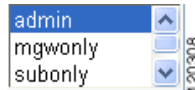


For many text fields, you need to know the correct value to enter, such as the hostname of a Cisco BTS 10200 EMS server.

- **Dropdown list boxes**, where you select one from a list of choices:

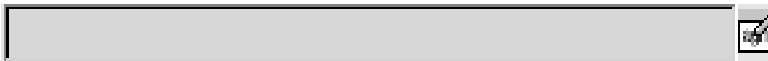



- **Multiple-select fields**, such as the Groups field in the Edit User window, where you select one or more in a list of choices:



Click to select a single value, or **Ctrl+click** to select multiple values. Selected values are highlighted.


- **Parameter fields**, where you click to select from a list of parameters values:



Click  to open the Selection Helper window. Make your choices, then click **OK**.


- **Add subelement fields**, where you click to drill down to a form to add a subelement. In this example for the component, ISDN B-channel, the trunk group ID field is empty:


**No trunk\_grp items defined.** 

Click  to open a form to define the subelement, then click **OK** to save the changes and return to the previous form, or **Apply** to save the changes and keep working in the subelement form.

View-only fields have a gray background and cannot be edited.

### About Field-Level Help

For help on a field, point to  in order to view a short description of the field and any requirements, such as minimum or maximum number of characters.

For parameter fields, click  to open the Selection Helper window.

### About Moving Between Windows

Use the application buttons or the various tree views in the navigation pane to move between windows.

If you simply want to move back to the previous window, use the Cisco EPOM **Cancel** button, if available, or another application button.

## Setting Up a Network

Setting up a network is described in these topics:

- [About Adding a Cisco BTS 10200 EMS Server, page 3-12](#)
- [Adding a Cisco BTS 10200 EMS Server, page 3-13](#)

### About Adding a Cisco BTS 10200 EMS Server

The first step is to add a Cisco BTS 10200 Softswitch EMS server to the Cisco EPOM inventory.

Before you begin, obtain this information about the Cisco BTS 10200 EMS server:

- Hostname or IP address.
- Login and password.
- Site ID. This is necessary for CORBA communication (how Cisco EPOM communicates with the Cisco BTS 10200 EMS server). See [“Determining a Cisco BTS 10200 EMS Server Site ID”](#) section on page 3-13.

## Determining a Cisco BTS 10200 EMS Server Site ID

This server ID enables Cisco EPOM to communicate with the Cisco BTS 10200 EMS server via the CORBA interface.

- 
- Step 1** Log in to the Cisco BTS 10200 EMS server as the root user.
- Step 2** To determine the site ID, enter:
- ```
grep SITEID /etc/optical.cfg  
SITEID=rtpvtc2
```
-

Adding a Cisco BTS 10200 EMS Server

With this procedure, you can add a Cisco BTS 10200 EMS server to the “all” domain and set up the initial configuration.

-
- Step 1** Start Cisco EPOM (see the [“Logging In to Cisco EPOM”](#) section on page 2-8). Cisco EPOM opens to the Domain Management window.
- Step 2** In the Domain pane, in the **all** domain row, click **Edit**.
The Modify component: Domain window opens.



Tip

Because you are viewing the “all” domain, the Inventory and Groups items are also preceded by “all” (all Inventory and all Groups).


- Step 3** In the all Inventory pane, click **Add**.
The Add component window opens.



Note Red checkmarks identify required fields.

Step 4 Enter the required information:



Tip Move your cursor over the  symbol to access field-level help, such as the range of characters allowed for a response.

- **Hostname:** The hostname or IP address of the Cisco BTS 10200 EMS server.
- **Type:** Select **BTS 10200**.
- **Login:** The Cisco BTS 10200 EMS server login.
- **Password:** The Cisco BTS 10200 EMS server password.
- **Site Id:** The site ID for the Cisco BTS 10200 EMS server. See [“Determining a Cisco BTS 10200 EMS Server Site ID”](#) section on page 3-13.

Step 5 Click **OK**.

The specified Cisco BTS 10200 EMS server is added to the “all” domain.

Adding Domains, Groups, and Users

By using the user, group, and domain administrative tools in Cisco EPOM, you can set up read and write or read-only access for Cisco EPOM users to any Cisco BTS 10200 EMS server network. Use domains to organize networks into logical

groups that are accessible to specific user groups. Use groups to organize users based on the domains to which you want users to have access. You can also assign a

Cisco BTS 10200 user login name and password to a Cisco EPOM user group to further control access to the Cisco BTS 10200 EMS server (see Chapter 6, [Managing Security with Cisco EPOM](#)).

Procedures to add domains, groups, and users are described in the following topics:

- [Adding Domains, page 3-15](#)
- [Adding Groups and Assigning Them to Domains, page 3-16](#)
- [Adding Users and Assigning Them to Groups, page 3-18](#)

Adding Domains

Add a domain to create a logical network group that is accessible to specific user groups. A domain definition includes a Cisco BTS 10200 EMS server (which may have been already defined in another domain, or can be defined when you add the domain) and groups with access to the domain.

-
- Step 1** Click **Domains** if you are not already in the Domain Management window.
- Step 2** Click **Add**. The Add Domain window opens.
- Step 3** Define the domain:

The screenshot shows a dialog box titled "Add component: domain". At the top right are "OK" and "Cancel" buttons. Below the title bar is a "Clear Form" link. The main area contains two input fields: "Domain Name" (with a checkmark icon) and "Description" (with a question mark icon). The dialog box is set against a light green background.

- Domain Name**—The domain name that appears in the Domain tree. Enter up to 15 characters; spaces are allowed.
- (Optional) **Description**—Descriptive information that appears in the Domain Management window.

- c. Click **OK**. You return to the Domain Management window, with the new domain listed in the domain list, but is not yet listed in the Domain tree.
 - Step 4** To add a Cisco BTS 10200 EMS server or a user group to a domain, click **Edit**. The Modify Domain window opens.
 - Step 5** Do one of the following:
 - To add a Cisco BTS 10200 EMS server to this domain:
 - a. Next to **No Inventory Found**, click **Edit**.
The Inventory Edit window opens listing existing Cisco BTS 10200 EMS servers.
 - b. Select the server you want to add to this domain, then click **OK**.
 - c. If you want to add a new Cisco BTS 10200 EMS server and include it in this domain at the same time, click **Add**.
 - d. Define the server (see Chapter 4, [Configuring Cisco BTS 10200 Components](#)).
 - Or
 - To specify which groups have access to this domain,
 - a. Next to *XYZ Domain* **Groups**, click **Edit**.
 - b. The Group Edit window opens listing all groups and their current access.
 - c. For each group that should have access to this domain, select the desired access type, **Read/Write** or **Read Only**.
 - d. Click **OK**.
You return to the Domain Management window.
 - Step 6** If you added a Cisco BTS 10200 EMS server and now want to add groups, or vice versa, repeat Steps 4 and 5.
-

Adding Groups and Assigning Them to Domains

A domain definition specifies user groups with read/write or read-only access to that domain. Add groups to organize users according to what domains they should have access to.

-
- Step 1** Click **Users** if you are not already in User Administration window.
- Step 2** In the navigation pane, click **Groups**. The Group Administration window opens listing existing groups.
- Step 3** Click **Add**.
- Step 4** Specify the name of the new group, which can be up to 255 characters. Spaces are allowed.
- Step 5** Click **OK**. The group is added to the group list.

**Tip**

The Cisco BTS 10200 Login and Cisco BTS 10200 Navigation Tree fields are described in the [“Setting Up Cisco EPOM Security”](#) section on page 6-3.

-
- Step 6** To switch to the Domain Management window, click **Domains**.
- Step 7** In the Domain list, click **Edit** for the domain that you want the new group to be able to access. The Modify Domain window opens.
- Under *XYZ Domain* Groups you see a list of groups that currently have access to this domain.
- Step 8** Click **Edit**. The Group Edit window opens listing all groups and their current access.
- Step 9** In the dropdown list box for the new group, select the desired access:
- **None** (to remove access from a group that has had access)
 - **Read/Write**
 - **Read Only**
- Step 10** Click **OK**. The access level for this domain is changed, and you return to the Domain Management window.
-

Deleting Groups

You can delete obsolete groups. For example, you can delete a group if you delete the domain it is associated with.



Note

You cannot delete the default group admin and the default userid admin.

- Step 1** Click **Users** if you are not already in the User Administration window.
- Step 2** In the navigation pane, click **Groups**. The Group Administration window opens listing existing groups.
- Step 3** In the row for the group that you want to delete, click **Delete**. The Delete Group window opens.

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- Step 4** Click **OK**. The group is deleted and you return to the Group Administration window. The Group Names list reflects the deletion.

Adding Users and Assigning Them to Groups

- Step 1** Click **Users** if you are not already in the User Administration window. The list of current users appears.
- Step 2** Click **Add**. The Add user window opens.

The screenshot shows a web-based form titled "Add user". At the top right of the form are two buttons: "Add" and "Cancel". The form fields are as follows:

- Username:** A text input field.
- First Name:** A text input field.
- Last Name:** A text input field.
- Password:** A text input field.
- Confirm Password:** A text input field.
- Email Address:** A text input field.
- Groups:** A dropdown menu with "admin" selected and a dashed line below it.

On the right side of the form area, there is a vertical text label "120315".

- Step 3** Define the user:
- **Username**—Enter the name that the user will use to log in to Cisco EPOM.
 - **First Name**—Enter the user’s first name.
 - **Last Name**—Enter the user’s last name.
 - **Password**—Enter the initial password for Cisco EPOM access. The user can change this later.
 - **Confirm Password**—Enter the password again for confirmation.
 - **Email Address**—Enter the user’s email address, which provides an email shortcut in the user list.
 - **Groups**—Click the group this user will belong to. To select multiple groups, press **Ctrl+click**. The selected groups are highlighted.
To deselect a group, point to the group, and press **Ctrl+click**.
- Step 4** Click **OK**. The user is added, and you return to the User Administration window where the new user is listed.

Modifying and Deleting Users

If you are a member of the admin group, you can modify user information, including group membership, or you can delete users who no longer require Cisco EPOM access. (If you are not a member of the Admin group, you can change your password, name, and email, but not your userid or group association.)

- Step 1** Click **Users** if you are not already in the User Administration window. The list of current users appears.
- Step 2** In the row for the user whom you want to change, do one of the following:
- To modify user information:
 - a. Click **Edit**.
The Edit User window opens. .

Modify user: skarunan

OK Cancel

Username: skarunan

First Name: s

Last Name: karunan

Password:

Confirm Password:

Email Address: skarunan@cisco.com

Groups: admin

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- b. Make the changes and click **Edit** to save them.
- c. To delete the user, click **Delete**. The Delete User window opens.

Delete user: skarunan

Delete Cancel

Username: skarunan

First Name: s

Last Name: karunan

Password:

Email Address: skarunan@cisco.com

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- d. Click **Delete**.
- e. You return to the User Administration window, showing the list of users.

Changing Your User Information

As a user, you can change your password, email address, and first name/last name information. You cannot change your user name, group membership, or domain access, which can be changed only by the Cisco EPOM administrator.

-
- Step 1** From any Cisco EPOM window, click **Users**. The User Administration window opens.
- Step 2** In the row with your user information, click **Edit**. The Edit User window opens.
- Step 3** Modify the desired fields. You can change these fields:
- First Name
 - Last Name
 - Password (you must enter the password again in Confirm Password)
 - Email Address
- Step 4** Click **Edit**. You return to the User Administration window.
-



Configuring Cisco BTS 10200 Components

This chapter contains the following topics:

- [Configuring a Cisco BTS 10200 EMS Server, page 4-1](#)
- [Adding a Component to the Cisco BTS 10200 Configuration, page 4-3](#)
- [Editing a Component in the Cisco BTS 10200 Configuration, page 4-6](#)
- [Deleting a Component from the Cisco BTS 10200 Configuration, page 4-7](#)
- [Bulk Command Provisioning, page 4-8](#)
- [Checking the Status and Controlling Components, page 4-12](#)

Configuring a Cisco BTS 10200 EMS Server

Use this procedure after you have added a new Cisco BTS 10200 EMS server to the Cisco EPOM inventory. (See the [“Adding a Cisco BTS 10200 EMS Server” section on page 3-13.](#))

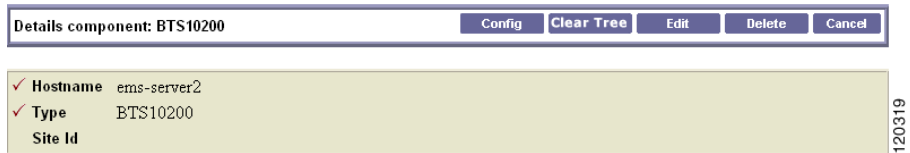
Step 1 In the navigation pane, expand the domain tree:

- a. Click **all**.
- b. Click **BTS 10200s**.

You see the Cisco BTS 10200 EMS servers currently in the inventory. In this example, there are two servers: **ems server** and **ems server 3**.



- Step 2** Click the Cisco BTS 10200 EMS server that you want to configure. The Details window opens, as shown in this example:



- Step 3** Click **Config**. The Component Status window opens (see Step 4).
The navigation pane shows the Configuration tree, and the content area shows the status of the selected Cisco BTS 10200 EMS server.



Note The first access of the Cisco BTS 10200 EMS server component status may take a few seconds.

- Step 4** To show or change the Cisco BTS 10200 EMS server configuration, click objects in the Configuration tree. See the [“Adding a Component to the Cisco BTS 10200 Configuration”](#) section on page 4-3.

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Adding a Component to the Cisco BTS 10200 Configuration



Tip

Make sure that you have the configuration information for the component that you want to add to the Cisco EPOM inventory.

Add components to the Cisco EPOM inventory to build a managed network. The device information includes static and dynamic selections to other parts of the configuration. Follow this example to add a dial plan.

- Step 1** From the Domain window, select the *domain* > **BTS10200s** > the *Cisco BTS 10200 EMS server*.
- Step 2** Click **Config**.

Adding a Component to the Cisco BTS 10200 Configuration

The Cisco BTS 10200 Component Status window opens.

Step 3 In the Configuration tree, choose **Office Tables > dial_plan**.

Success: Entries 1-101 of 2071 returned.

Component: dial_plan Add Search

[Check All](#) [Clear All](#) [Details](#) [Edit](#) [Delete](#)

id ▲	dest_id	digit_string	Rows: 1 - 100 of 2071 ➔
<input type="checkbox"/> Dial1	dst1	222	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	271201	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	271202	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	271203	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	271204	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	271205	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	271206	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	RLGHNCDS1	306291	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	306301	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	306362	[Details] [Edit] [Delete]
<input type="checkbox"/> Incoming	local-sub	306391	[Details] [Edit] [Delete]

The Cisco BTS 10200 Component window opens showing a list of dial plans. If this is the first dial plan (or device of this type) that you are adding, the list is empty.

Step 4 Click **Add**.

The Cisco BTS 10200 Component Add window opens.

Step 5 Define the device. Required fields are identified with a red checkmark.

Step 6 Click **OK** or **Apply**.

- When you click **OK**, the component is added and the list of components in the Component:*name* window appears.
- When you click **Apply**, the component is added, but you remain in the Add component window for further tasks.

You return to the Cisco BTS 10200 Component window. The new dial plan is added to the list.

To edit a single component, see the [“Editing a Component in the Cisco BTS 10200 Configuration”](#) section on page 4-6; to delete a single component, see the [“Deleting a Component from the Cisco BTS 10200 Configuration”](#) section on page 4-7.

To add, edit, or delete multiple components with a single operation, see the [“Bulk Command Provisioning”](#) section on page 4-8.

Editing a Component in the Cisco BTS 10200 Configuration

- Step 1** From the Domain window, choose the *domain* > **BTS10200s** > the *Cisco BTS 10200 EMS server*.
- Step 2** Click **Config**.
- The Cisco BTS 10200 Component Status window opens.
- Step 3** In the Configuration tree, choose **Office Tables** > **dial_plan**.
- The Cisco BTS 10200 Component window shows a list of currently configured dial plans.
- Step 4** Select the dial plan that you wish to edit.
- Step 5** Click **Edit** in the row of the dial plan that you wish to edit.
- The Change component window appears.

OK Cancel

Change component: dial_plan

[Clear Form](#)

	<input checked="" type="checkbox"/>
✓ id	Dial1 <input type="text"/>
✓ digit_string	222 <input type="text"/>
✓ noa	NATIONAL <input type="text"/>
del_digits	0 <input type="text"/>
dest_id	dst1 <input type="text"/>
max_digits	10 <input type="text"/>
min_digits	10 <input type="text"/>
px_digits	<input type="text"/>
split_npa	NONE <input type="text"/>

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Note

The first (blank) row with the checked box indicates that the component identified in the window title was selected for displaying details, editing, or deletion.

Step 6 Make the required changes to the attribute fields.

Step 7 Click **OK**.

You return to the Cisco BTS 10200 Component window. The edited dial plan appears in the list.

To add a single component, see the [“Adding a Component to the Cisco BTS 10200 Configuration” section on page 4-3](#); to delete a single component, see the [“Deleting a Component from the Cisco BTS 10200 Configuration” section on page 4-7](#).

To add, edit, or delete multiple components with a single operation, see the [“Bulk Command Provisioning” section on page 4-8](#).

Deleting a Component from the Cisco BTS 10200 Configuration

Step 1 from the Domain window, choose the *domain* > **BTS10200s** > the *Cisco BTS 10200 EMS server*.

Step 2 Click **Config**.

The Cisco BTS 10200 Component Status window opens.

Step 3 In the Configuration tree, choose **Office Tables** > **dial_plan**.

The Cisco BTS 10200 Component window shows a list of currently configured dial plans.

Step 4 In the Component:*name* window, select one or more dial plans to delete.

Step 5 Click **Delete**.

The Delete component window with the requested deletion appears.

Delete component: dial_plan		OK	Cancel
Clear Form			
	<input checked="" type="checkbox"/>		
✓ id	<input type="text" value="Dial1"/>	<input type="button" value="Ⓜ"/>	
✓ digit_string	<input type="text" value="222"/>	<input type="button" value="Ⓜ"/>	
✓ noa	<input type="text" value="NATIONAL"/>	<input type="button" value="Ⓜ"/>	

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Note The first (blank) row with the checked box indicates that the component identified in the banner title was selected for displaying details, editing, or deletion.

Step 6 Click **OK**.

To add a single component, see the [“Adding a Component to the Cisco BTS 10200 Configuration”](#) section on page 4-3; to edit a single component, see the [“Editing a Component in the Cisco BTS 10200 Configuration”](#) section on page 4-6.

To add, edit, or delete multiple components with a single operation, see the [“Bulk Command Provisioning”](#) section on page 4-8.

Bulk Command Provisioning

Cisco EPOM allows you to perform add, delete, and edit commands on multiple components with a single operation. You can only perform bulk provisioning commands on the same type of devices. For instance, if a group of subscribers use the same media gateway and subscriber profile, you can add or edit these subscribers by using a single command.

Adding Multiple Components

Step 1 In the `ems-server` window left pane, click a component.

The Component:*name* window appears.

Step 2 Click **Add**.


The Add component window appears.

Step 3 Select the **Expand range expression** check box.

If you fail to select this check box, you get an error message when you enter a range expression.



Tip

For information on acceptable range expressions, move your cursor over the  symbol next to the Expand range expression field.

Step 4 In the id field, enter a range expression in square brackets [].

For example, to add a group of 10 dial plans with the id prefix dp001_new, enter dp001_new[01-10]. Doing so adds dial plans dp001_new01, dp001_new02, through dp001_new10.

Step 5 Enter information in the remaining attribute fields.

Step 6 Click **OK** or **Apply**.

- When you click **OK**, the component is added and the list of components in the Component:*name* window appears.
- When you click **Apply**, the component is added, but you remain in the Add component window for further operations.

You have now added multiple components to the Cisco BTS 10200 EMS network.

Editing Multiple Components

- Step 1** In the `ems-server` window left pane, click a component.
The Component:*name* window appears.
- Step 2** In the Component:*name* window, select one or more components that you want to edit.
- Step 3** Click **Edit**.
The Change component window appears.

Change component: dial_plan OK Cancel

[Clear Form](#)

	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
✓ id	Dial1	Incoming	
✓ digit_string	222	271201	
✓ noa	NATIONAL	NATIONAL	
del_digits	0	0	
dest_id	dst1	local-sub	
max_digits	10	10	
min_digits	10	10	
pfx_digits			
split_npa	NONE	NONE	



Note The first (blank) row with the checked box indicates that the component in the window title was selected for displaying details, editing, or deletion.

- Step 4** Make the required changes to the attribute fields.
- Step 5** Click **OK**.

You have now edited multiple components in the Cisco BTS 10200 EMS network.

Deleting Multiple Components

- Step 1** In the `ems-server` window left pane, click a component.
The Component:*name* window appears.
- Step 2** In the Component:*name* window, select one or more components that you want to delete.
- Step 3** Click **Delete**.
The Delete component window appears with the requested deletions.

Delete component: dial_plan OK Cancel

[Clear Form](#)

	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
✓ id	Dial1 <small>?</small>	Incoming <small>?</small>	Incoming <small>?</small>
✓ digit_string	222 <small>?</small>	271201 <small>?</small>	271202 <small>?</small>
✓ noa	NATIONAL <small>?</small>	NATIONAL <small>?</small>	NATIONAL <small>?</small>



Note The first (blank) row with the checked box indicates that this component was selected for displaying details, editing, or deletion.

- Step 4** Click **OK**.
You have now deleted multiple components in the Cisco BTS 10200 EMS network.

Checking the Status and Controlling Components

You can check the status of a component and you can control its status. For example, you can change status of a Cisco BTS 10200 EMS server from Normal to Forced Active Standby.



Note Exercise care in changing component status.

-
- Step 1** From the Domain window, navigate to the desired Cisco BTS 10200 EMS server.
 - Step 2** Click **Config**. The Cisco BTS 10200 Component Status window opens. The Configuration tree appears in the left navigation pane.
 - Step 3** Navigate to the desired device and click to select it.
 - Step 4** In the Status window, click **Control**.
 - Step 5** From the Component Control window, verify that you have selected the correct component, then select a **target_state**.
 - Step 6** Select the desired state. Options depend on the type of component that you selected.
 - Step 7** Click **OK**.
-



Using Cisco EPOM Flow Provisioning

This chapter is designed for network operators using Cisco EPOM for ongoing provisioning once the network inventory has been set up.

This chapter contains the following topics:

- [About Provisioning Flows, page 5-1](#)
- [Adding or Deleting Subscribers, page 5-3](#)
- [Provisioning Other Components by Using Cisco EPOM Wizards, page 5-5](#)
- [Customizing Cisco EPOM Provisioning Flows, page 5-6](#)

About Provisioning Flows

A provisioning flow consists of a number of steps that you perform to complete a task. You can also perform each step by expanding the Cisco BTS 10200 navigation tree, finding the right components, and clicking the appropriate action. A provisioning flow links these steps together for your convenience.

Using a Provisioning Flow Wizard

This section describes the general process for using a wizard; specifics depend on the type of task.

-
- Step 1** From a Domain window, click the desired domain.

- Step 2** Click **BTS10200s**.
- Step 3** Click the desired Cisco BTS 10200 EMS server.
- Step 4** Click **Config**. The BTS 10200 Component Status window opens.
- Step 5** In the Configuration tree, click **Provisioning Flows**; then, click the appropriate provisioning wizard. The Cisco BTS 10200 Configuration Wizard opens showing the list of provisioning tasks for this flow.

Wizard : mgw_diagnose Cancel

- [Control MGW MAINT](#)
- [Diagnose MGW](#)
- [Control MGW INS](#)

The wizard will lead you through the necessary steps to finish *mgw_diagnose*. You may click on any step to start with.

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- Step 6** Click the first task. The form for the selected task opens.

Control component: mgw OK Apply Skip

[Clear Form](#)

✓ id

✓ mode

✓ target_state

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- Step 7** Fill in the form; then, click **OK**. Alternatively, if this task is not required or you are not ready to complete it now, click **Skip**. The form for the next task opens.
- Step 8** Repeat step 5 for the remaining tasks.

Adding or Deleting Subscribers

Adding a subscriber involves adding the subscriber termination, equipping the subscriber termination, and then adding the subscriber. The Cisco EPOM Subscriber wizard steps you through these tasks and also allows you to add a media gateway or subscriber profile if they have not yet been added.

Deleting a subscriber reverses the task sequence to add a subscriber. The Cisco EPOM Subscriber wizard steps you through these tasks as well.



Tip

Make sure that you have the subscriber information, and if you are adding a subscriber to a new media gateway, the gateway IP address or Fully Qualified Domain Name (FQDN) and its ID, the number of terminations, and the termination prefix.

Adding a Subscriber

The Provisioning Flow wizard guides you through each of the steps to add a subscriber.

-
- Step 1** From a Domain window, click the *domain* > **BTS10200s** > the *Cisco BTS 10200 EMS server*.
 - Step 2** To open the Cisco BTS 10200 Component Status window, click **Config**.
 - Step 3** In the Configuration tree, choose **Provisioning Flows** > **Subscriber (add)**. The Cisco BTS 10200 Configuration Wizard opens showing the list of subscriber provisioning tasks:



- Step 4** Click the first task. The Component Add form for the selected task opens.
- Step 5** Fill in the form; then, click **OK**. Alternatively, if this task is not required, or if you are not ready to complete it now, click **Skip**. The Component Add form for the next task opens.
- Step 6** Repeat step 5 for the remaining tasks.

Deleting a Subscriber

- Step 1** From a Domain window, choose the *domain* > **BTS10200s** > the *Cisco BTS 10200 EMS server*.
- Step 2** To open the Cisco BTS 10200 Component Status window, click **Config**.

- Step 3** In the Configuration tree, choose **Provisioning Flows > Subscriber (delete)**. The Cisco BTS 10200 Configuration Wizard opens showing the list of subscriber provisioning tasks:



- Step 4** Click the first task. The form for the selected task opens.
- Step 5** Fill in the form; then, click **OK**. Alternatively, if this task is not required, or if you are not ready to complete it now, click **Skip**. The form for the next task opens.
- Step 6** Repeat step 5 for the remaining tasks.

Adding, Modifying, or Deleting Subscriber Services

You can add, modify, or delete subscriber services in two ways:

- Use the Subscriber wizard to add, modify, or delete subscriber services.
- Navigate to **subscriber-service-profile** and assign a service to a subscriber.

Provisioning Other Components by Using Cisco EPOM Wizards

The Provisioning Flow wizards guide you through each of the steps in a multistep provisioning task. Information is carried over from one step to the next. Cisco EPOM provides wizards for these common provisioning tasks:

- Provisioning announcements
- Provisioning call agents
- Adding subscribers
- Deleting subscribers
- Deleting residential media gateways
- Diagnosing media gateways
- Provisioning Centrex groups
- Provisioning Centrex subscribers
- Provisioning multiline hunt groups
- Provisioning multiline hunt group subscribers
- Provisioning SS7 trunk groups
- Provisioning H323 trunk groups
- Provisioning basic SS7 routing
- Provisioning advanced SS7 routing
- Provisioning ISDN trunk groups
- Provisioning softswitch trunk groups
- Provisioning 911 (CAS) trunk groups

**Tip**

Before you begin, make sure that you have the relevant provisioning information.

For additional information on provisioning the Cisco BTS 10200, refer to the Cisco BTS 10200 Softswitch documentation.

Customizing Cisco EPOM Provisioning Flows

Cisco EPOM ships with several default navigation trees and provisioning flows that help you to organize frequently used tasks to reduce the need to navigate through multiple windows. (See the [“Provisioning Other Components by Using Cisco EPOM Wizards”](#) section on page 5-5.)

Cisco EPOM also allows you to define new provisioning flows (consisting of the tasks necessary to achieve them) and to add them to the list of existing provisioning flows in the left pane. To develop a customized provisioning flow, see the following:

1. [“Example of an .xml File” section on page 5-7](#)
2. [“Creating a Provisioning Flow” section on page 5-9](#)

Example of an .xml File

The following example shows the process of creating a new provisioning flow called MTA Diag.



Note

Cisco EPOM sees the media termination adapter (MTA) as a media gateway (MGW).

The tasks achieved by this provisioning flow are:

- Placing the MGW into a maintenance state
- Diagnosing the MGW
- Restoring the MGW to service



Note

In this example, the filename that is used is `mgw_diagnose.xml`. It is located in this directory: `/opt/CSCOepom/tomcat/webapps/ROOT/xml/bts/wizard/`.

```
<Provisioning_wizard>

  <step_name="Control MGW MAINT"
    url="btscompcontrol.jsp?_noun=mgw"
    help_mssg="Control the mgw into MAINT state"
    img="bluedot.gif">
    <provideParameterList>
      <parameter name="mgwId" sourceName="id"/>
    </provideParameterList>
    <takeParameterList>
      <parameter name="mode" sourceName="FIXED" value="FORCED"/>
      <parameter name="target_state" sourceName="FIXED"
        value="MAINT"/>
    </takeParameterList>
```

```

</step>

<step_name="Diagnose MGW"
  url="btscompdiag.jsp?_noun=mgw"
  help_mssg="When done with diagnosis, click the skip button, I
  really should not carry you away from this page"
  img="bluedot.gif">
  <provideParameterList>
  <parameter name="mgwId" sourceName="id"/>
  </provideParameterList>
  <takeParameterList>
  <parameter name="id" sourceName="mgwId/">
  <parameter name="test" sourceName="FIXED" value="3"/>
  </takeParameterList>
</step>

<step_name="Control MGW INS"
  url="btscompcontrol.jsp?_noun=mgw"
  help_mssg="Control the mgw into INS state"
  img="bluedot.gif">
  <provideParameterList>
  <parameter name="mgwId" sourceName="id"/>
  </provideParameterList>
  <takeParameterList>
  <parameter name="mode" sourceName="mgwId/">
  <parameter name="mode" sourceName="FIXED" value="INS"/>
  <parameter name="mgwId" sourceName="id"/>
  </takeParameterList>
</step>

```

Where,

- *step_name*—The name of the task displayed in the right pane when you click on the MTA Diag provisioning flow item in the left pane.
- *url*—The jsp page name from the URL, followed by the component name.
- *help_mssg*—Reserved for future use.
- *img*—The example uses the default icon, but you can define your own icon for each step.
- *provideParameterList*—Items within this tag record user input for this step after the page appears and the user clicks **Ok**. You can use the parameters that are used here in subsequent steps.
 - *name*—The parameter name used by the page.

- *sourceName*—When this is FIXED, the value that follows is used. Otherwise, you can use parameter names that are defined under the `provideParameterList` tag in previous steps.
- *takeParameterList*—Items within this tag accept parameters passed from previous steps.
 - *name*—The parameter name used by the page.
 - *sourceName*—When this is FIXED, the value that follows is used. Otherwise, you can use parameter names that are defined under the `provideParameterList` tag in previous steps.

This file is used in the [“Creating a Provisioning Flow” task on page 5-9](#).

Creating a Provisioning Flow



Note In this task, the filename used is `mgw_diagnose`.

-
- Step 1** Create the `mgw_diagnose.xml` file (see the [“Example of an .xml File” section on page 5-7](#)).
 - Step 2** Place the `mgw_diagnose.xml` file in `/opt/CSCOepom/tomcat/webapps/ROOT/xml/bts/wizard`.
 - Step 3** Make a backup copy of the `defaulttree.xml` file located at `/opt/CSCOepom/tomcat/webapps/ROOT/xml/bts/navigation/defaulttree.xml`.
 - Step 4** Modify the `defaulttree.xml` by adding these commands to the file:

```
<node name="MTA Diagnose">
<url base="btswizard">mgw_diagnose</url>
</node>
```



Note The location of this code in the `.xml` file defines the structure of the navigation tree. Make sure that you add it to the correct “branch.”

- Step 5** Stop and start Cisco EPOM. See the [“Starting Cisco EPOM” section on page 2-5](#).

- Step 6** Verify that MTA Diag is added to the Provisioning Flow list by choosing **Domain** > **all** > **BTS10200** > **Summary** > **Provisioning Flow**.
-



Managing Security with Cisco EPOM

This chapter contains the following topics:

- [About Cisco EPOM Security, page 6-2](#)
- [Setting Up Cisco EPOM Security, page 6-3](#)
- [Creating Custom Navigation Trees, page 6-4](#)

The Cisco EPOM security management system extends the functionality of the Cisco BTS 10200 security system which controls and monitors access to the Cisco BTS 10200 Softswitch from outside sources. This security system is important in preventing:

- Errors by personnel not trained in specific procedures
- Unauthorized changes to system provisioning
- Unauthorized viewing or modification of databases

Internal security functions include:

- Providing user interface to provision users and security classes (privilege levels)
- Storing user login profiles
- Performing user authentication
- Managing the level of access on a per user basis
- Providing session oriented security measures
- Providing transaction oriented security measures
- Logging all access activity to a log
- Maintaining security log for 7 days

- Providing user interface for security log reporting

About Cisco EPOM Security

With Cisco EPOM, you can assign a Cisco BTS 10200 login name and password to a Cisco EPOM group. This allows Cisco EPOM to restrict a user's access to that of the assigned Cisco BTS 10200 login. A combination of user identity and command tables determines if access is granted or denied.

When a user logs in to Cisco EPOM, the user's group is examined for an associated Cisco BTS 10200 login. If Cisco EPOM finds an association, Cisco EPOM queries the Cisco BTS 10200 user table for that user's assigned security level and work groups. Cisco EPOM caches the command table for each Cisco BTS 10200 EMS server. The command table defines valid noun-verb combinations as well as required security level and work groups to run those combinations. By using the login security level and workgroups, Cisco EPOM determines if the user has permission to enter a command. This check is done for every request. If the user does not meet or exceed permission requirements, a "permission denied" message appears.



Note

If no Cisco BTS 10200 login name is assigned to the Cisco EPOM group, security defaults to the user login and password that is specified for the device. (To check the user and password for a device, choose **Domains** > *domain name* > **Edit** > *device name* > **Edit**.)



Tip

-
- Because all commands are issued from Cisco EPOM, the commands appear in the Cisco BTS 10200 audit logs as being performed by a single Cisco BTS 10200 user. You can check the Cisco EPOM audit.log to determine who issued which commands. The trace.log shows the access denials that occurred. The audit.log and trace.log files are located on the Cisco EPOM server in /var/opt/CSCOepom/logs.
 - If you modify the Cisco BTS 10200 login security level or workgroups, the impacted Cisco EPOM user must log out and log in to Cisco EPOM for those changes to take effect.

- Because Cisco EPOM caches the command table when the initial connection is made, if you change the security level or work groups for commands on the Cisco BTS 10200, you must restart Cisco EPOM for the changes to take effect.

Setting Up Cisco EPOM Security

- Step 1** Create Cisco BTS 10200 users with required security levels. Refer to [Chapter 17, “Security Functions and Activity Summary”](#) in the *Cisco BTS 10200 Softswitch Operations Manual*.
- Step 2** On the Cisco EPOM server, log in as admin and create user groups. See the [“Adding Domains, Groups, and Users”](#) section on page 3-14.
- Step 3** On the Cisco EPOM server, create users, and assign them to the user groups that you created in [Step 2](#). See the [“Adding Domains, Groups, and Users”](#) section on page 3-14.
- Step 4** choose **Users** > *user name* > **Edit**.
The Modify User window appears.

- Step 5** Enter a password to access Cisco EPOM.
- Step 6** Choose **Users** > **Groups** > **Edit**.
The Edit Group window appears.
- Step 7** Select a group from the list and click **Edit**.

- Step 8** Assign the Cisco EPOM user group to a Cisco BTS 10200 user by entering the user's Cisco BTS 10200 Login and (optional) Cisco BTS 10200 Navigation Tree.



- Note** If a Cisco EPOM user group is not assigned to a Cisco BTS 10200 user, all users in that group have a security level of 10 (unrestricted).

- Step 9** To verify the assigned Cisco BTS 10200 login, choose **Users > Groups > group name > Edit**.

The assigned login appears.

Creating Custom Navigation Trees

With Cisco EPOM, you can create custom navigation trees that define how Cisco BTS 10200 objects (such as media gateways, subscribers, and call agents) are presented. These trees are defined by an .xml file that follows simple syntax rules. The tree is then assigned to a Cisco EPOM user group. Customized trees allow administrators to define and limit navigation functionality based on a user's job function.

Example of a Navigation Tree

The defaulttree.xml file shown here is located in:

`/opt/CSCOepom/tomcat/webapps/ROOT/xml/bts/navigation.`

This file can be used as a template for defining new trees. Remember changing `<tree name=default>` to be equivalent to the name of your customized tree e.g. `<tree name=mytree>`, if your tree is mytree.xml .

```

<tree name= default >

  <baseurl name= bts >
    <urlprefix><![CDATA[/bts/btscomp.jsp?_inv=[_inv]&_noun=]]></url
    prefix>
  </baseurl>

  <baseurl name= btssearch >
    <urlprefix><![CDATA[/bts/btscompsearch.jsp?_inv=[_inv]&_noun=]]
    ></urlprefix>
  </baseurl>

  <baseurl name= btsstatus >
    <urlprefix><![CDATA[/bts/btscompstatus.jsp?_inv=[_inv]&_noun=]]
    ></urlprefix>
  </baseurl>

  <baseurl name= btsdiag >
    <urlprefix><![CDATA[/bts/btscompdiag.jsp?_inv=[_inv]&_noun=]]><
    /urlprefix>
  </baseurl>

  <baseurl name= btswizard >
    <urlprefix><![CDATA[/bts/btswizard.jsp?_inv=[_inv]&_noun=]]></u
    rlprefix>
  </baseurl>

  <baseurl name= images >
    <urlprefix>../images/treemenuimage</urlprefix>
  </baseurl>

  <imagepath>
    <url base= images />
  </imagepath>

  <image name= BTS10200 >
    <url base= images >16x16_BTS_10200_Softswitch_Blue.gif</url>
  </image>

  <image name= tablegrp >
    <url base= images >table16_window.gif</url>
  </image>

  <image name= bts >
    <url base= images >table16.gif</url>
  </image>

  <image name= btssearch >

```

```

        <url base= images >table16_basicquery.gif</url>
</image>

<image name= btsstatus >
    <url base= images >table16_show.gif</url>
</image>

<image name= btsdiag >
    <url base= images >table16_diag.gif</url>
</image>

<image>
    <url base= images >menu_folder_open.gif</url>
</image>

<image>
    <url base= images >menu_folder_closed.gif</url>
</image>

<image>
    <url base= images >menu_corner.gif</url>
</image>

<image>
    <url base= images >menu_corner_plus.gif</url>
</image>

<image>
    <url base= images >menu_corner_minus.gif</url>
</image>

<image>
    <url base= images >menu_bar.gif</url>
</image>

<image>
    <url base= images >menu_link.gif</url>
</image>

<cssclassmap type= branch class= parent_node />
<cssclassmap type= node class= child_node />

<imagemap type= branch image= tablegrp />
<imagemap type= node image= bts />

<root name= [_hostname] class= parent_node image= BTS10200 >
    <url base= btsstatus ><![CDATA[system&_cmd=do_status]]></url>
    <branch name= bts.head.ain >

```

```

<node name= bts.ani_wb_list
<url base= bts >ani_wb_list</url>
</node>

<node name= bts.cust_grp
<url base= bts >cust_grp</url>
</node>

<node name= bts.dn2cust_grp
<url base= bts >dn2cust_grp</url>
</node>

<node name= bts.ii_restrict_list
<url base= bts >ii_restrict_list</url>
</node>

</branch>
</root>
</tree>

```

Activating the Navigation Tree

- Step 1** Create the .xml file that defines your navigation tree. (See the [“Example of a Navigation Tree”](#) section on page 6-4.)
- Step 2** Place the .xml file in the `/opt/CSCOepom/tomcat/webapps/ROOT/xml/bts/navigation` directory.
- Step 3** Choose **Users > Groups > group name > Edit**.
The Edit Group window appears.

Edit Group		OK	Cancel
Group Name	admin		
BTS Login			
BTS Navigation Tree			

- Step 4** In the Cisco BTS 10200 Navigation Tree field, enter the name of the file that you created.
- Step 5** Click **OK**.

**Note**

If you do not specify the name of a customized navigation tree, Cisco EPOM uses the defaulttree.xml.



Viewing and Exporting Reports with Cisco EPOM

With Cisco EPOM, you can access Cisco BTS 10200 EMS reporting parameters that include performance and billing reports (call detail records created on the system through the `billing_record` function). You can also export report data to a comma-delimited file.

This chapter contains the following topics:

- [Viewing Reports, page 7-1](#)
- [Exporting a Report to a File, page 7-2](#)

Viewing Reports

- Step 1** From a Domain window, navigate to the desired Cisco BTS 10200 EMS server.
- Step 2** Click **Reports**. The Cisco BTS 10200 Component Reports window opens.
- Step 3** In the Reports tree, under Performance or Billing, select the type of report you want.

A report query form opens.

Report on: call_trace_summary

OK Cancel

[Clear Form](#)

call_date ?

calling_dn ?

customer_dn ?

end_time ?

privacy_status ?

start_time ?

sub_id ?

term_id ?

trace_date ?

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- Step 4** Specify the criteria for the report and click **OK**.
The window changes to display the requested report.

**Note**

- For detailed information on performance (traffic) reports, refer to the *Cisco BTS 10200 Softswitch Operations Manual*.
- For detailed information on billing reports, refer to the *Cisco BTS 10200 Softswitch Billing Interface Guide*.

Exporting a Report to a File

You can export a report to a comma-delimited .csv file.

- Step 1** Generate the report. See the [“Viewing Reports” section on page 7-1](#).
- Step 2** Click **Output**. Enter a name for the file.

Cisco BTS 10200 writes the data to an output file named *Tm_filename.csv* which is then stored in the report directory located at http://<ems-server>:10200/report/Tm_filename.csv.

■ Exporting a Report to a File



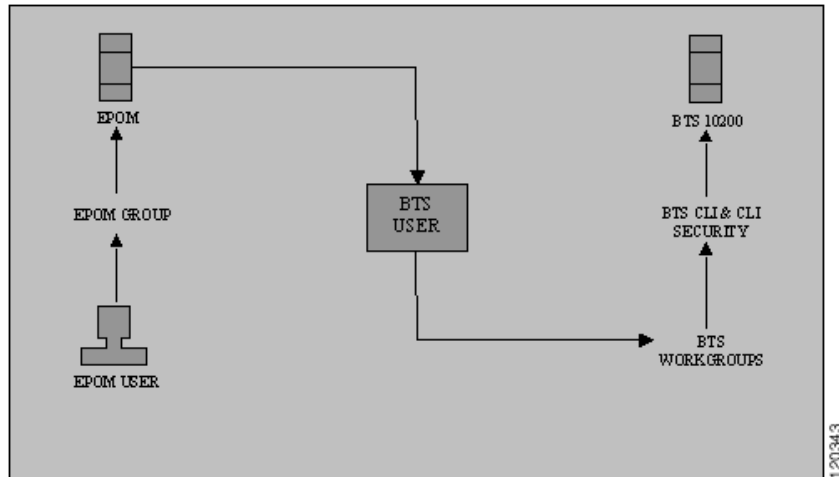
Advanced EPOM Usage

EPOM Groups and Restricted BTS Command Access

There is a general misconception that provisioning a BTS account with restricted BTS CLI access and simultaneously adding the same account to EPOM would automatically lead to that EPOM account gaining the same privileges as the BTS account.

In reality EPOM doesn't provision restricted BTS command access on per EPOM user basis, but it is based on a per EPOM Group basis. With each EPOM Group associated to a BTS user account, desired instances of EPOM users are created and associated to that particular EPOM Group.

A single EPOM Group is generally associated with a single BTS login (therefore a single BTS device, unless multiple BTS devices have similar logins and restricted access applied to them). However, a single EPOM user can be associated with multiple EPOM Groups to provision restricted access across various BTS devices across the network.



Analysing portions of defaulttree.xml

```
<tree name="default">
```

The above line defines the tree name, when customizing the tree, say in Group settings you gave the navigation tree name as customizedtree. In this if \$EPOM_INSTALL_DIR is the EPOM installation directory then you would create a new xml file named customizedtree.xml under the directory \$EPOM_INSTALL_DIR/tomcat/webapps/ROOT/xml/bts/navigation.

Now change the above line to **<tree name="customizedtree">**.

```
<baseurl name="bts">
```

```
    <urlprefix><![CDATA[/bts/btscomp.jsp?_inv=[_inv]&_noun=]]></urlprefix>
</baseurl>
```

```
<baseurl name="btssearch">
```

```
    <urlprefix><![CDATA[/bts/btscompsearch.jsp?_inv=[_inv]&_noun=]]></urlprefix>
</baseurl>
```

```

<baseurl name="btsstatus">

    <urlprefix><![CDATA[/bts/btscompstatus.jsp?_inv=[_inv]&_noun=]]></
    urlprefix>
</baseurl>

<baseurl name="btsdiag">

    <urlprefix><![CDATA[/bts/btscompdiag.jsp?_inv=[_inv]&_noun=]]></ur
    lprefix>
</baseurl>

<baseurl name="btsreset">

    <urlprefix><![CDATA[/bts/btscompreset.jsp?_inv=[_inv]&_noun=]]></u
    rlprefix>
</baseurl>

<baseurl name="btswizard">

    <urlprefix><![CDATA[/bts/btswizard.jsp?_inv=[_inv]&_noun=]]></urlp
    refix>
</baseurl>

```

The above lines form the backbone of ascertaining, the actions to be invoked for various BTS CLI nouns. Following is the summary of associations they make:

-
- Step 1** bts keyword is associated with the btscomp.jsp page.
 - Step 2** btssearch keyword is associated with the btsscompearch.jsp page.
 - Step 3** btsstatus keyword is associated with the btscompstatus.jsp page.
 - Step 4** btsdiag keyword is associated with the btscompdiag.jsp page.
 - Step 5** btsdiag keyword is associated with the btscompdiag.jsp page.
 - Step 6** btsreset keyword is associated with the btscompreset.jsp page.
 - Step 7** btswizard keyword is associated with the btscompwizard.jsp page.
-

These associations are further extended in the next section and finally used on a per BTS CLI noun basis.

```

<baseurlverbmap base="bts" verb="show" />
<baseurlverbmap base="btssearch" verb="show" />
<baseurlverbmap base="btsstatus" verb="status" />
<baseurlverbmap base="btsdiag" verb="diag" />
<baseurlverbmap base="btsreset" verb="reset" />

```

The above lines further implicate the default BTS CLI verbs to be associated to the keywords defined in above section.

Finally we proceed further with the actual BTS CLI noun formations in the navigation tree.

```

<branch reskey="bts.head.ain">
  <node reskey="bts.ani_wb_list">
    <url base="bts">ani_wb_list</url>
  </node>
</branch >

<branch reskey="bts.head.isdn">
  <node reskey="bts.isdn_bchan" image="btssearch">>
    <url base="btssearch">isdn_bchan</url>
  </node>
</branch >

```

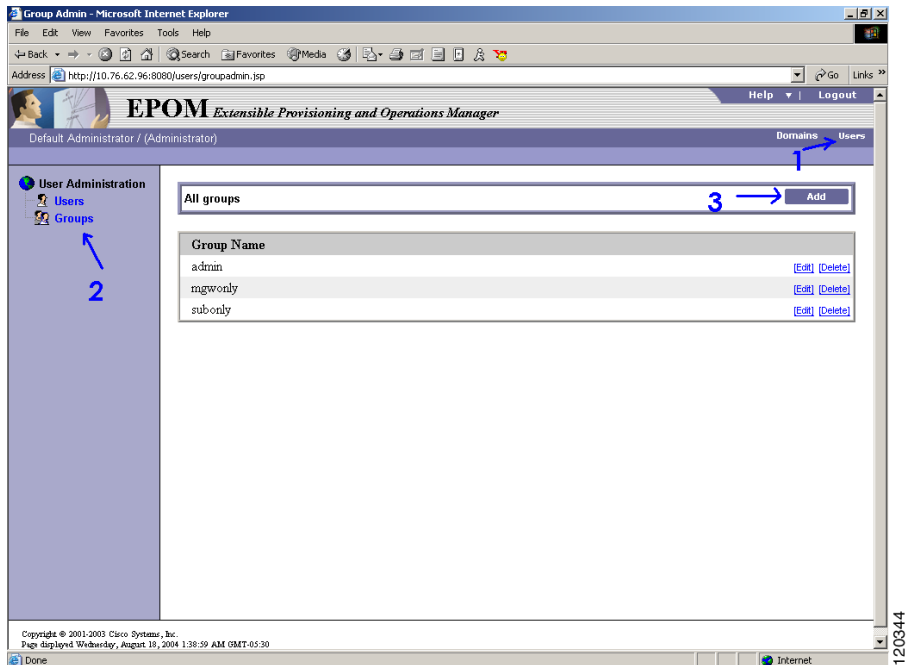
The above defines two different nouns and verb actions to be invoked from them.

- The first <branch...ain>, statement defines that the ain, would be displayed as the heading under which all other nouns would appear. Noticeably in our example ani_wb_list would appear after node ain is expanded. The <url base="bts"> signifies that show verb would be used for that noun and it would be invoked in btscomp.jsp.
- The second <branch...isdn>, statement defines that the isdn, would be displayed as the heading under which all other nouns would appear. Noticeably in our example isdn_bchan would appear after node isdn is expanded. The <url base="btssearch"> signifies that show verb would be used for that noun and it would be invoked in btscompsearch.jsp. Where before invoking show command, parameters would be accepted to build where clauses while searching the noun.

Exercise

Aim: To provide access to just subscriber show, change.

- Step 1 Create a new BTS user restrictedBTSUser, with just show privileges on subscriber noun. Associate it properly with BTS workgroups.
- Step 2 Add a group in EPOM:
 - a. Click on "Users" (#1) in the primary navigation
 - b. Click on Groups in the left side navigation tree, (#2)
 - c. Click on the "Add" button, (#3)



- Step 3 Use parameters as
 - a. Groupname: restrictedGroup
This is the EPOM group that you are creating.

b. BTS Login restrictedBTSUser

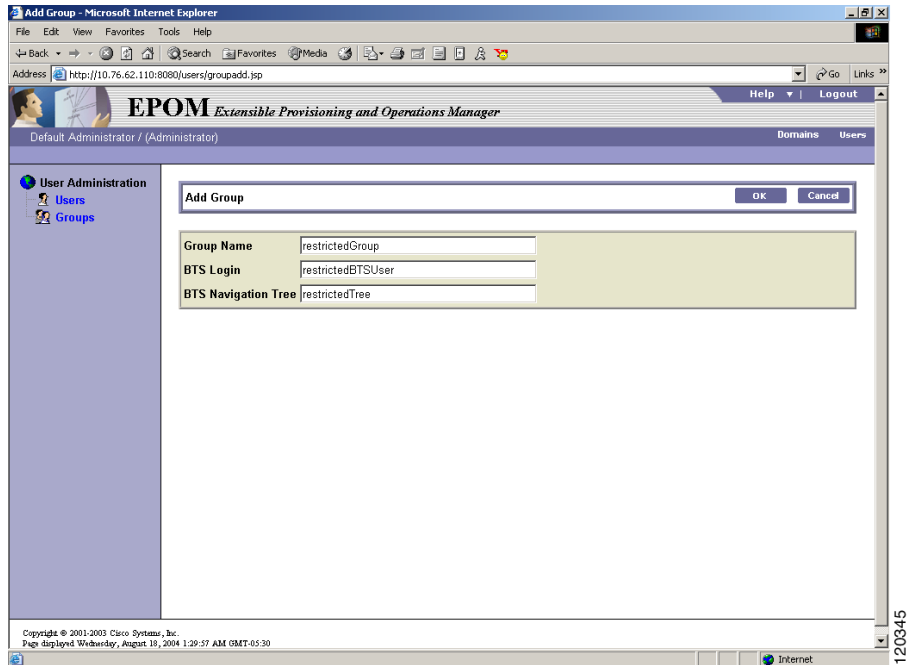
This BTS id was created with restricted access on the BTS server and proper BTS workgroup, and command associations were made on BTS (see BTS CLI Reference for more Details).

c. BTS Navigation tree:restrictedTree

This points to the XML file that you put on the EPOM server, customized using the Navigation Trees section in this document. Do remember to change `<tree name="restrictedTree">` in the file `$EPOM_INSTALL_DIR/tomcat/webapps/ROOT/xml/bts/navigation/restrictedTree.xml`. Review the example `restrictedTree.xml` file at end of the document

Specifying the BTS Login ID indicates that EPOM users of group `restrictedGroup` can only issue BTS commands with the authority and privilege of BTS user `restrictedBTSUser`. By creating the `restrictedBTSUser` user in the BTS CLI file, you are limiting the commands that the users can perform.

The BTS Navigation tree identifies an XML file that will be used to list the users of the `restrictedGroup` the BTS configuration items for them to select.



- Step 4** Create Users with a Group of "restrictedGroup"
- Step 5** Need to associate the "all" domain with the "restrictedGroup"
- a. Click on "Domains"
 - b. Click on the "all" domain in the navigation tree.
 - c. Click on "Edit"
 - d. Scroll down to "All Groups" and hit "Edit"
For the "restrictedGroup" specify "READWRITE"
 - e. Hit OK
- Step 6** Logout, log back in as one of the users that you created in Step 5.
- a. They should only have access to see and to do:
 - subscriber,show and change

restrictedTree.xml

```

<tree name="restrictedTree">

  <baseurl name="bts">
    <urlprefix><![CDATA[/bts/btscomp.jsp?_inv=[_inv]&_noun=]]></urlpre
      fix>
  </baseurl>

  <baseurl name="btssearch">
    <urlprefix><![CDATA[/bts/btscompsearch.jsp?_inv=[_inv]&_noun=]]></
      urlprefix>
  </baseurl>

  <baseurl name="btsstatus">
    <urlprefix><![CDATA[/bts/btscompstatus.jsp?_inv=[_inv]&_noun=]]></
      urlprefix>
  </baseurl>

  <baseurl name="btsdiag">
    <urlprefix><![CDATA[/bts/btscompdiag.jsp?_inv=[_inv]&_noun=]]></ur
      lprefix>
  </baseurl>

  <baseurl name="btsreset">
    <urlprefix><![CDATA[/bts/btscompreset.jsp?_inv=[_inv]&_noun=]]></u
      rlprefix>
  </baseurl>

  <baseurl name="btswizard">
    <urlprefix><![CDATA[/bts/btswizard.jsp?_inv=[_inv]&_noun=]]></urlp
      refix>
  </baseurl>

  <baseurl name="images">
    <urlprefix>../images/treemenuimage</urlprefix>
  </baseurl>

  <baseurlverbmap base="bts" verb="show"/>
  <baseurlverbmap base="btssearch" verb="show"/>
  <baseurlverbmap base="btsstatus" verb="status"/>
  <baseurlverbmap base="btsdiag" verb="diag"/>

```

```
<baseurlverbmap base="btsreset" verb="reset"/>

<imagepath>
  <url base="images"/>
</imagepath>

<image name="BTS10200">
  <url base="images">16x16_BTS_10200_Softswitch_Blue.gif</url>
</image>

<image name="tablegrp">
  <url base="images">table16_window.gif</url>
</image>
<image name="bts">
  <url base="images">table16.gif</url>
</image>
<image name="btssearch">
  <url base="images">table16_basicquery.gif</url>
</image>
<image name="btsstatus">
  <url base="images">table16_show.gif</url>
</image>
<image name="btsdiag">
  <url base="images">table16_diag.gif</url>
</image>

<image>
  <url base="images">menu_folder_open.gif</url>
</image>

<image>
  <url base="images">menu_folder_closed.gif</url>
</image>

<image>
  <url base="images">menu_corner.gif</url>
</image>

<image>
  <url base="images">menu_corner_plus.gif</url>
</image>

<image>
```

```

        <url base="images">menu_corner_minus.gif</url>
</image>

<image>
    <url base="images">menu_bar.gif</url>
</image>

<cssclassmap type="branch" class="parent_node"/>
<cssclassmap type="node" class="child_node"/>

<imagemap type="branch" image="tablegrp"/>
<imagemap type="node" image="bts"/>

<root name="[_hostname]" class="parent_node" image="BTS10200">

<url base="btsstatus"><![CDATA[system&_cmd=do_status]]></url>

<branch name="Restricted Commands">

<node reskey="bts.subscriber" image="btssearch">
    <url base="btssearch">subscriber</url>
</node>

</branch>
</root>
</tree>

```

BTS Export

`bts_export` command is a backup utility for extracting BTS CLI. This command is used to query a BTS server and output a file that contains the CLI commands, used to populate the BTS server. Generally it is used for backing up the currently provisioned BTS state and also used before a BTS upgradation. The resultant CLI file can be FTP ed to the concerned BTS server in the `/opt/ems/ftp/deposit` directory of the BTS server.

Following is the usage description of `bts_export`:

```
root@cyber228:bin 5> /opt/CSCOepom/bin/bts_export
```

NAME

bts_export - BTS Config Export

SYNOPSIS

```
bts_export -h hostname -o outfile [-l login -p password]
```

DESCRIPTION

Export a BTS Configuration.

OPTIONS

- h Hostname
- o Output file
- l Login
- p Password
- s Site ID

EXAMPLES

```
bts_export -h bts_host -o config.cli  
bts_export -h bts_host -l login -p passwd -s siteid -o config.cli
```





Troubleshooting Cisco EPOM

This chapter contains Cisco EPOM specific troubleshooting procedures. For information on troubleshooting the Cisco BTS 10200 Softswitch, refer to the *Cisco BTS 10200 Softswitch Operations Manual*.

Problem

Recreating the Cisco EPOM database if needed (for example, if you forget the admin password and cannot access the database)

Problems in Cisco EPOM communicating to the Cisco BTS EMS server, such as the one in the message below

```
Could not retrieve object attributes for object name. The most possible reason is failure to log into the Cisco BTS EMS server or CORBA agent on Cisco EMS server is not working. Please make sure hostname/login/password/siteid is correct. Also check the log file
```

Troubleshooting Action

Reinitialize the Cisco EPOM databases:

```
/opt/CSCOepom/mysql/install/bin/install/MySQLDB -ifs  
/opt/CSCOepom/mysql/install/bin/install/EPOMDB -ifs
```

- View log files: Log files are stored in `/var/opt/CSCOepom/logs`
Use log files for debugging Cisco EPOM problems or for supplying information to Cisco TAC.
- Check the information in the Cisco BTS EMS server definition to make sure it is correct. See the "To Determine a BTS EMS Server Site ID" section on page 1-11.

- Check connectivity between Cisco EPOM and the Cisco BTS EMS (if they are not co-resident): Log in to the Cisco EPOM server and ping the Cisco BTS EMS server.
- Verify that the correct CORBA adapter has been installed on the Cisco BTS EMS server.
- Check the log files.
- View log files: Log files are stored in:

`/var/$EPOM_INST_DIR/logs,`
 where `$EPOM_INST_DIR` is the Cisco EPOM installation directory.

By default log directory is `/var/opt/CSCOepom/logs`

Most important log file is `trace.log`, current activity can be seen by logging onto Cisco EPOM server and running the command:

```
tail -f /var/$EPOM_INST_DIR/logs/trace.log
```

- View Cisco BTS 10200 CIS log file, **`/opt/ems/log/CIS.log`**. Current activity can be seen by logging onto Cisco BTS server and running command:

```
tail -f /opt/ems/log/CIS.log
```

- Check whether BTScis package is installed on Cisco BTS EMS server. Log onto Cisco BTS EMS server and running command:

```
pkginfo BTScis
```

- Check whether `cis` and `ins` services are running on Cisco BTS EMS server. Log onto Cisco BTS EMS server and invoke commands:

```
ps -ef | grep cis
```

```
ps -ef | grep ins
```

- Check whether ports 683 and 14001 are in LISTEN state on the Cisco BTS EMS server. Log onto Cisco BTS EMS server and invoke commands:

```
netstat -an | grep 683
```

```
netstat -an | grep 14001
```

- Check whether ports 683 and 14001 on Cisco EPOM server are in ESTABLISHED state with the Cisco BTS EMS server. Log onto Cisco EPOM server and invoke commands:

```
netstat -an | grep 683
```

```
netstat -an | grep 14001
```


- Check connectivity between Cisco EPOM server and Cisco BTS EMS server. Log onto Cisco EPOM server and ping Cisco BTS EMS server from Cisco EPOM server.

Check whether Cisco EPOM server can send packets to Cisco BTS EMS server at ports 683 and 14001. Log onto Cisco BTS EMS server and invoke commands:

```
telnet bts_server 683
```

```
telnet bts_server 14001
```

- Check whether Cisco EPOM server can resolve the hostname of the Cisco BTS EMS server. As a workaround insert hostname entries into the /etc/hosts file of Cisco EPOM server.
- Log onto both Cisco EPOM server and Cisco BTS EMS server and use snoop command to verify that sizeable amount of data is exchanged between the 2 servers on port 683 and 14001.
- Verify that the hostname of the Cisco BTS EMS server is same as the name used by the Cisco BTS EMS server for its ins service. Log onto Cisco BTS EMS server and invoke following command:

```
ps -ef | grep ins
```

Output would also contain the hostname to which ins service is bound.

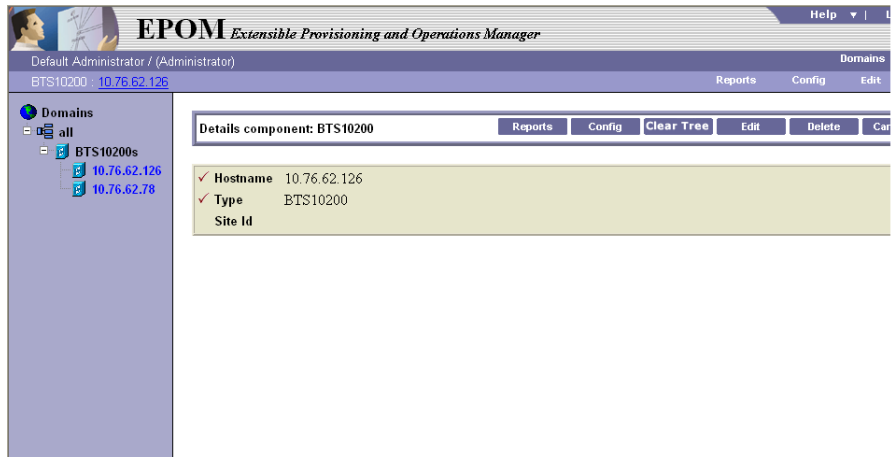
- Use IP address of the Cisco BTS EMS server, while adding to Cisco EPOM server.
- Use IP address of the Cisco BTS EMS server to initialize ins and cis services on the Cisco BTS EMS server. This makes it for Cisco EPOM Corba client to locate the Cisco BTS EMS server Corba server naming context.
- If this happens too often for a Cisco BTS EMS Server that was accessible some time before, it means that the particular Cisco BTS EMS Server has been restarted or the CIS services have been restarted. In this case even Cisco EPOM needs to be restarted. In general a Cisco BTS EMS server reboot is not done very often, so chances of such issues are minimal.

Problem

Cisco EPOM BTS Command Navigation Tree, problems. Tree appears without commands or JavaScript is rendered on the page.

Troubleshooting Action

Cisco EPOM has introduced a new Clear Tree button, click on this button to re-build Cisco EPOM BTS Command Navigation Tree. This tree is otherwise cached and without clicking the Clear Tree buttons, invalid tree is displayed.



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Problem

Cisco EPOM logs not being renewed.

Troubleshooting Action

- Check disk usage of /var directory on Cisco EPOM server. Log onto Cisco EPOM server and invoke command:


```
df -k |grep var
```
- The logs with older date stamps can be safely archived in some other directory.
- The logs can be moved to another directory that has more disk space than /var directory e.g /opt , but that needs restart of Cisco EPOM server. As an example if /opt/CSCOepom is the install directory, then the logs can be moved from their current default location /var/opt/CSCOepom/logs to /opt/CSCOepom/logs. Log onto Cisco EPOM Server and invoke following commands:

```

cd /var/opt/CSCOepom
mv logs /opt/CSCOepom/logs
ln -s /opt/CSCOepom/logs logs
/opt/CSCOepom/bin/epom stop
/opt/CSCOepom/bin/epom start

```

Problem

Cisco EPOM takes time to build its Corba Cache.

Troubleshooting Action

This is default behavior of Cisco EPOM, generally Cisco EPOM should be used at least 10 minutes after it has been started. The time taken by Cisco EPOM depends on the number of Cisco BTS EMS servers added to Cisco EPOM server. If one of the Cisco BTS EMS server faces Corba communication problem, then it would have a tail effect on the Cisco BTS EMS servers following it. Once the Cisco EPOM Corba Cache is built, it takes very less time to communicate via Corba with the Cisco BTS EMS servers.

Problem

Cisco EPOM JVM tunings

Troubleshooting Action

The best Sun JVM settings have been observed as:

```
-server -XX:+UseParallelGC -Xms512M -Xmx512M
```

These settings have major impact on performance of EPOM and Cisco doesn't suggest changing these parameters.

If really essential, the tunings can be changed by modifying EPOM_OPTS variable in the file /opt/CSCOepom/tomcat/bin/epomcatalina.sh

If it is felt that the current Sun JVM settings are not fine for your installation, then enable the:

```
-verbosegc
```

option in EPOM_OPTS, as defined above and contact Cisco TAC with your installation details and logfile:

```
/var/opt/CSCOepom/logs/Catalina.out
```

Problem

Cisco EPOM bts_export errors

Troubleshooting Action

Many errors arise while usage of bts_export, due 2 main reasons:

Corba Communication is not established properly; try using IP address rather than hostname.

root or other such Cisco BTS EMS logins are used, which are not associated with a BTS shell. Try using Cisco BTS EMS logins that are associated with BTS CLI shell, like optiuser.



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