



## **Cisco Extensible Provisioning and Operations Manager Getting Started Guide**

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## Preface

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This guide provides the necessary information to help you use the Cisco EPOM, from getting started to using the various windows it provides. The organization of this guide complements the application's menu structure and describes each managed object and feature.

A full list, including brief description, of each chapter in this guide is available in the “[Document Organization](#)” section.

## Audience

This guide is a technical resource for network managers, system administrators, network analysts, and system operators with the following qualifications:

- Basic understanding of network design, operation, and terminology
- Familiarity with your own network configurations
- Basic familiarity with UNIX

## Conventions

This publication uses the following conventions:

Convention	Description
<b>boldface font</b>	Commands and keywords are in <b>boldface</b> . Names of onscreen elements that you click or select are in <b>boldface</b> .
<i>italic font</i>	Arguments for which you supply values are in <i>italics</i> .
[ ]	Elements in square brackets are optional.
{ x   y   z }	Alternative keywords are grouped in braces and separated by vertical bars.
[ x   y   z ]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Convention	Description
screen font	Terminal sessions and information the system displays are in screen font.
<b>boldface screen font</b>	Information you must enter is in <b>boldface screen font</b> .
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
^	The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords are in angle brackets.

Notes use the following conventions:



**Note**

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.

## Product 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.

**Table 1** *Product Documentation*

Document Title	Available Formats
<i>Getting Started Guide for Cisco EPOM, Release 4.5</i>	<ul style="list-style-type: none"> <li>PDF on the product CD ROM.</li> <li>Available on Cisco.com</li> </ul>

## Document Organization

This document is organized as follows:

**Table 2** *Document Organization*

Chapter/Appendix, Title	Description
<a href="#">Chapter 1, “Overview of Cisco EPOM”</a>	Introduces the Cisco EPOM and provides an overview of its key features.
<a href="#">Chapter 2, “Installing Cisco EPOM”</a>	Describes the installation details of Cisco EPOM.

Chapter/Appendix, Title	Description
<a href="#">Chapter 3, “Setting Up Cisco EPOM”</a>	Provides instructions on setting up of Cisco EPOM and Cisco BTS10200 Softswitch provisioning.
<a href="#">Chapter 4, “Configuring Cisco BTS 10200 Components”</a>	Describes how to configure the components of Cisco BTS 10200
<a href="#">Chapter 5, “Using Cisco EPOM Flow Provisioning”</a>	Describes using Cisco EPOM Flow Provisioning
<a href="#">Chapter 6, “Managing Security with Cisco EPOM”</a>	Describes managing Security with Cisco EPOM
<a href="#">Chapter 7, “Viewing Reports with Cisco EPOM”</a>	Describes viewing performance and billing reports using Cisco EPOM
<a href="#">Chapter 8, “Advanced EPOM Usage”</a>	Describes advanced use of Cisco EPOM
<a href="#">Chapter 9, “Troubleshooting Cisco EPOM”</a>	Provides troubleshooting tips for Cisco EPOM.

## Related Documentation

While you can access all related documentation on the Cisco website, URLs which are available at the time of publication are noted in the following lists.

The *Quick Start Guide for Cisco EPOM Version 4.5*. is available for reference.

## Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain 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 at this URL:

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

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

## Product Documentation DVD

Cisco documentation and additional literature are available in the Product Documentation DVD package, which may have shipped with your product. The Product Documentation DVD is updated regularly and may be more current than printed documentation.

The Product Documentation DVD is a comprehensive library of technical product documentation on portable media. The DVD enables you to access multiple versions of hardware and software installation, configuration, and command guides for Cisco products and to view technical documentation in HTML. With the DVD, you have access to the same documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .pdf versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD=) from the Ordering tool or Cisco Marketplace.

Cisco Ordering tool:

<http://www.cisco.com/en/US/partner/ordering/>

Cisco Marketplace:

<http://www.cisco.com/go/marketplace/>

## Ordering Documentation

Beginning June 30, 2005, registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

Cisco will continue to support documentation orders using the Ordering tool:

- Registered Cisco.com users (Cisco direct customers) can order documentation from the Ordering tool:  
<http://www.cisco.com/en/US/partner/ordering/>
- Instructions for ordering documentation using the Ordering tool are at this URL:  
[http://www.cisco.com/univercd/cc/td/doc/es\\_inpck/pdi.htm](http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm)
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 1 800 553-NETS (6387).

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Cisco Systems  
Attn: Customer Document Ordering  
170 West Tasman Drive  
San Jose, CA 95134-9883

We appreciate your comments.

## Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

[http://www.cisco.com/en/US/products/products\\_psirt\\_rss\\_feed.html](http://www.cisco.com/en/US/products/products_psirt_rss_feed.html)

## Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—[security-alert@cisco.com](mailto:security-alert@cisco.com)

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- Nonemergencies—[psirt@cisco.com](mailto:psirt@cisco.com)

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

**Tip**

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We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

The link on this page has the current PGP key ID in use.

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## Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

## Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

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

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

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

**Note**

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Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

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## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

**Severity 1 (S1)**—Your 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.

**Severity 2 (S2)**—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

**Severity 3 (S3)**—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

**Severity 4 (S4)**—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

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

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

<http://www.cisco.com/go/marketplace/>

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

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

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *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/ipj>

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>



# Overview of Cisco EPOM

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This chapter contains the following topics:

- [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 4.5 and Cisco EPOM 4.5 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, Edit, Delete, and check the status (reword) of Cisco BTS 10200 components.

The provisioning of tasks in Cisco EPOM generally match the tasks done by using Cisco BTS 10200 Softswitch CLI or MAC interface, but the tasks are done through a web-browser interface. Common multi step 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 2-6.)
- Configure EPOM user authentication using a separate RADIUS server. (See the [“Configuring EPOM Authentication Using a Separate RADIUS Server”](#) section on page 2-4
- Configure SSL (Secure Socket Layer) Corba properties and certificates for secure Corba communication between Cisco EPOM and Cisco BTS 10200. (See the [“Configuring SSL Corba for Secure Communication Between Cisco EPOM and Cisco BTS 10200”](#) section on page 2-5
- Configure BTS and EPOM users using Security Wizard. ( See the [“Configuring BTS and EPOM users using Security Wizard”](#) section on page 2-9
- Add, Edit, and Delete users, user groups, and domains. (See the [“Adding Domains, Groups, and Users”](#) section on page 3-12.)
- Assign users to groups. (See the [“Adding Users and Assigning Them to Groups”](#) section on page 3-15.)
- Assign domain access (either read/write or read only) to groups. (See the [“Adding Groups and Assigning Them to Domains”](#) section on page 3-14.)

- 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 6-2.)
- Set up the network initially. (See the [“Setting Up a Network”](#) section on page 3-11.)
- Show, Add, Edit, and Delete single or multiple Cisco BTS 10200 devices. (See the [“Bulk Command Provisioning”](#) section on page 4-12.)
- Check boxes in the Edit page of EPOM GUI windows. Edit page will be initially loaded with invisible check boxes. They become visible only when you select a field to update it. (See [“Editing a Component in the Cisco BTS 10200 Configuration”](#) section on page 4-9)
- Set up custom navigation trees. (See the [“Creating Custom Navigation Trees”](#) section on page 6-3.)
- Create custom provisioning flows. (See the [“Customizing Cisco EPOM Provisioning Flows”](#) section on page 5-5.)
- View reports and download them to a Cisco BTS EMS server. (See the [“Viewing Reports”](#) section on page 7-1.)
- Manage EPOM BTS Corba Cache using Online Cache Management. [“Managing Cisco EPOM Corba Cache”](#) section on page 3-18
- Import and export Cisco BTS configurations over secure connections. [“BTS Export”](#) section on page 8-7
- Troubleshoot problems. See [Chapter 9, “Troubleshooting Cisco EPOM.”](#)

## 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

Platform requirements for Cisco EPOM 4.5 are:

- Cisco EPOM Server supporting 5 simultaneous client and 5 BTS servers
  - Sun workstation (440 MHz or more)
  - 1 GB RAM
  - 2 GB disk space
  - Sun Solaris 8 or Solaris 10 operating system
- Cisco EPOM Server supporting 20 simultaneous client and 10 BTS servers
  - Sun Ultra-60 workstation (440 MHz or faster, dual processor)
  - 2 GB RAM
  - 4 GB disk space
  - Sun Solaris 8 or Solaris 10 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

### For Windows

For Windows the Cisco EPOM Client requirements are:

- Microsoft Internet Explorer, Version 5.5 or higher.
- Netscape 6.2 or higher.

### For Solaris

For Solaris you need Mozilla 1.1 or higher .

You can download Mozilla from <http://www.sun.com/software/solaris/browser>

If you try to access Cisco EPOM with unsupported web browser versions, an error message appears.

## Cisco BTS 10200 Server Requirements

Following are the Cisco BTS 10200 Server requirements:

- Cisco BTS10200 EMS Server 4.5.0  
Or
- Cisco BTS10200 EMS Server 4.4.1  
Or
- Cisco BTS 10200 EMS Server 4.4.0  
Or
- Cisco BTS 10200 EMS Server 4.2.x  
Or
- Cisco BTS 10200 EMS Server 4.1.x  
Or
- Cisco BTS 10200 EMS Server 3.5.x

Or

- Cisco BTSC is software package

## Cisco BTS 10200 4.5 and Cisco EPOM 4.5 Compatibility

The following table lists the compatibility among the various release of Cisco BTS and Cisco EPOM:

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 4.1.0 with Non Secure OpenOrb CORBA	Cisco EPOM 2.1
Cisco BTS 4.2.0 with Non Secure OpenOrb CORBA	Cisco EPOM 4.2(0)
Cisco BTS 4.4.0 with Secure or Non Secure OpenOrb CORBA	Cisco EPOM 4.4(0)
Cisco BTS 4.4.1 with Secure or Non Secure OpenOrb CORBA	Cisco EPOM 4.4(1)
Cisco BTS 4.5.0 with Secure or Non Secure OpenOrb CORBA	Cisco EPOM 4.5

You must use only compatible EPOM and BTS releases.

## External RADIUS Server Requirements

Any platform capable of running Radius IETF (International Engineering Task Force).

Radius software must implement RADIUS IETF protocol.



## Installing Cisco EPOM

---

This chapter contains the following topics:

- [About Cisco EPOM Installation, page 2-1](#)
- [Upgrading Cisco EPOM, page 2-3](#)
- [Configuring EPOM Authentication Using a Separate RADIUS Server, page 2-4](#)
- [Configuring SSL Corba for Secure Communication Between Cisco EPOM and Cisco BTS 10200, page 2-5](#)
- [Starting Cisco EPOM, page 2-6](#)
- [Stopping Cisco EPOM, page 2-6](#)
- [Reinitializing the MySQL and Cisco EPOM Databases, page 2-7](#)
- [Accessing Cisco EPOM, page 2-7](#)
- [Logging Into Cisco EPOM, page 2-8](#)

### About Cisco EPOM Installation

Cisco EPOM installation sets up two separate directories:



**Note**

---

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

---

- Application directory is /opt/CSCOepom directory  
Do not create or modify any of the files in this directory.
- Data directory is 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 2-7.

## 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. See 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*.

If you intend to use a RADIUS server for Cisco EPOM authentication, verify that RADIUS server is running and all logins, shared secret keys, Cisco EPOM server IP address / hostname and other relevant information is configured on the RADIUS server.

See the [“Configuring EPOM Authentication Using a Separate RADIUS Server”](#) section on page 2-4

Cisco EPOM server is shipped along with relevant SSL keystore, truststore and certificate.



### Note

In case you change the default Cisco EPOM installation directory from /opt/CSCOepom to some other directory, see the [“About Cisco EPOM Installation”](#) section on page 2-1.

## Installing Cisco EPOM

You can install Cisco EPOM on a server that meets Cisco EPOM platform requirements.

- 
- Step 1** Change the user to superuser by entering:
- ```
su - root
```
- Step 2** Download the Cisco EPOM image from this location:
- <http://www.cisco.com/cgi-bin/tablebuild.pl/epom45>
- Step 3** Extract the tarfile:
- ```
tar -xvf epom-n_n_n_x-nnnnnnnn-n.tar
```
- Step 4** Change the working 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. These files are not automatically deleted by the uninstallation process.

- 
- Step 1** Change the user to 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 to Cisco EPOM Release 4.5. Follow the same procedure in order to upgrade to Cisco EPOM Release 4.5 from any other previous version of EPOM

- 
- Step 1** Change the user to superuser by entering:
- ```
su - root
```
- Step 2** Create a temporary directory (`epom_install2`) for the Cisco EPOM 4.5 image:
- ```
cp epom-4_5_20041216-1.tar /opt/epom_install2
cd /opt/epom_install2
```
- Step 3** Extract the image from the tarfile:
- ```
tar -xvf epom-4_5_20041216-1.tar
```
- Step 4** List the image contents:
- ```
ls
epom-4_5_20041216-1 epom-4_5_20041216-1.tar
```
- Step 5** Change to the location of the new, untarred image:
- ```
cd epom-4_5_20041216-1
```
- 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** Confirm that you want to uninstall your current version of Cisco EPOM. To do this select `y` at this prompt:
- ```
Do you wish to uninstall this product [y,n,?]
```

A message appears:

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.

To reinitialize the Cisco EPOM database, see the [“Reinitializing the MySQL and Cisco EPOM Databases” section on page 2-7](#).

## Configuring EPOM Authentication Using a Separate RADIUS Server

The external RADIUS IETF Server usage is optional. If EPOM requires a radius authentication, then the external Radius IETF Server must be running and configured in order to be used by Cisco EPOM Server.

See the [“Prerequisites for Installing Cisco EPOM” section on page 2-2](#)

**Step 1** Log into EPOM web server via telnet or ssh session with root login, type:

```
cd /opt/CSCOepom/tomcat/webapps/ROOT/WEB-INF/classes/com/cisco/opus/
props
```

**Step 2** Edit the following parameters in main.properties file, as suitable to your setup environment:

```
radius.enable=no
radius.ip=10.76.62.105
radius.sharedsecret=1001
radius.authenticationPort=1812
radius.accountingPort=1813
```

By default the Radius Enable flag is set to **no**. It means that Radius server will not be used for EPOM authentication. If EPOM requires Radius authentication, then update the Radius enable flag to **yes**.

In this case 10.76.62.105 is the IP address of our RADIUS server, 1001 is the shared secret key for the IP address / hostname of the Cisco EPOM server and the RADIUS server’s authenticationPort, accountingPort are 1812, 1813 respectively.

Generally you do not need to change the authenticationPort, accountingPort, unless you have modified these on your RADIUS server.

# Configuring SSL Corba for Secure Communication Between Cisco EPOM and Cisco BTS 10200

Cisco EPOM server is shipped along with relevant SSL keystore, truststore and certificate. This section should only be referred to, in case you change the default Cisco EPOM installation directory from /opt/CSCOepom to some other directory.

The default SSL configuration can be viewed as follows:

---

**Step 1** Log into EPOM web server via telnet or ssh session with root login, type:

```
cd /opt/CSCOepom/tomcat/webapps/ROOT/WEB-INF/classes/com/cisco/opus/
props
```

**Step 2** View the following parameter in main.properties file:

```
corba.orb.configfile=/opt/CSCOepom/tomcat/ssliiop/OpenORB.xml
```

**Step 3** List the SSL files:

```
cd /opt/CSCOepom/tomcat/ssliiop
```

The following files appear:

```
ls
bts10200.cer  bts10200_ts  OpenORB.xml  pss.xml
bts10200_ks  default.xml  ots.xml      SSLIOP.xml
```

**Step 4** View the following parameters in the SSLIOP.xml file:

```
<property name="context.keyStore.URL" value = "/opt/CSCOepom/tomcat/ssliiop/bts10200_ks"
/>

<property name="context.trustStore.URL" value = "/opt/CSCOepom/tomcat/ssliiop/bts10200_ts"
/>
```

---

In case you install Cisco EPOM under directory /opt/myEPOM, then following changes need to be made in order to configure Corba over SSL:

---

**Step 1** Log into EPOM web server through Telnet or ssh session with root login, type:

```
cd /opt/myEPOM/tomcat/webapps/ROOT/WEB-INF/classes/com/cisco/opus/
props
```

**Step 2** Change the corba.orb.configfile value in main.properties file as follows:

```
corba.orb.configfile=/opt/myEPOM/tomcat/ssliiop/OpenORB.xml
```

**Step 3** List the SSL files:

```
cd /opt/myEPOM/tomcat/ssliiop
```

The following files appear:

```
ls
bts10200.cer  bts10200_ts  OpenORB.xml  pss.xml
bts10200_ks  default.xml  ots.xml      SSLIOP.xml
```

**Step 4** Change the value of following parameters in the SSLIOP.xml file:

```
<property name="context.keyStore.URL" value = "/opt/myEPOM/tomcat/ssliiop/bts10200_ks" />
```

```
<property name="context.trustStore.URL" value = "/opt/myEPOM/tomcat/ssliiop/bts10200_ts"
/>
```

---

## 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, the following message appears:

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

```
-----
EPOM Started
-----
```

---

## Stopping Cisco EPOM

To stop Cisco EPOM, do the following:

From the EPOM web server, type:

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

The following message appears:

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

```
-----
Stopping EPOM
-----
```

```
Stopping MySQL
041216 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
```

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 defaults displayed 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 machine where Cisco EPOM is installed.

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

For an Insecure connection:

- If you are using port 80, enter:

```
http://EPOMhostname
```

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

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

Where

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

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

# Logging Into Cisco EPOM

To log into Cisco EPOM, do the following:

- 
- 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 admin 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 3-11](#)
- [Adding Domains, Groups, and Users, page 3-12](#)
- [Managing Cisco EPOM Corba Cache, page 3-18](#)

### 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 3-7](#)
- [Using Cisco EPOM Forms, page 3-9](#)

## Overview of the Cisco EPOM Application Window

On logging in to the Cisco EPOM application, the following window appears.:

The screenshot displays the Cisco EPOM (Extensible Provisioning and Operations Manager) web interface. The browser window title is "EPOM Extensible Provisioning and Operations Manager". The user is logged in as "Default Administrator / (Administrator)". The navigation menu includes "Security", "Online Cache", "Domains", and "Users".

The "Domains" section is active, showing a tree view on the left with "all" selected under "BTS10200s" (IP: 10.76.176.156). The main content area shows a "Component: domain" header with an "Add" button. Below this is a table with the following data:

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

At the bottom of the page, there is a copyright notice: "Copyright © 2001-2005 Cisco Systems, Inc. Page displayed Wednesday, September 21, 2005 11:36:14 AM IST". The browser status bar shows "Done" and "Internet". A vertical ID number "144497" is visible on the right edge of the screenshot.

## Standard Window Elements

Window Element	Description
<b>Window title</b>	Identifies the current window, such as Component: domain management.
<b>Window banner</b>	Displays the application name and includes the <b>Help</b> and <b>Logout</b> buttons.
<b>Main menu</b>	Displays the current user name, user type (Administrator or User). This menu bar also includes main menu buttons to switch between domain management, user administration, Online Cache Management, and Security Management.
<b>Submenu</b>	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 this link to go to the index for the selected server, where you can access reports or Help.

Window Element	Description
<b>Navigation pane, tree view</b>	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.



**Navigation pane, icons** When you select a Cisco BTS 10200 EMS server and click on **Config**, 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
	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**.

Domain Name	Description	Rows: 1 - 1
all	Default domain for all devices.	[Details] [Edit] [Delete]

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**.

**Managed object windows**

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

Success: Entries 1-101 of 2071 returned.

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

- 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, page 3-7](#) 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 go 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 and 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 three main windows are Domain Management, User Management, and Online Cache 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.

From Online Cache Management users can view, delete and renew Corba connections between Cisco EPOM and Cisco BTS 10200 servers.

This table describes the Main Cisco EPOM windows in each category. The Access With column gives an example of how to access the window. However, 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>• Perform 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	<b>Administrators</b> —Add or delete groups. Groups are listed under Groups in the Edit User window so that you can assign or unassign users to them.	
Window—Online Cache	Use To...	
Online Cache Management	<p><b>Administrators</b>—Renew, Delete and view Corba connections between Cisco EPOM and configured Cisco BTS 10200 inventories.</p> <p><b>Users</b>—View Corba connections between Cisco EPOM and configured Cisco BTS 10200 inventories.</p> <p>See the <a href="#">Managing Cisco EPOM Corba Cache, page 3-18</a></p>	

## Security Management

**Administrators**

- Add new BTS users in BTS10200 EMS systems
- Add new BTS10200 inventories in EPOM
- Add, edit, and delete EPOM users.
- Create new EPOM groups and include EPOM users in the EPOM groups.

## Using Cisco EPOM Forms

You can use Cisco EPOM forms to Add, View, and Edit 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

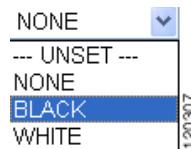
There are five field types:

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

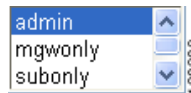


For many text fields, you need to know the correct value to enter, such as the hostname of a Cisco BTS 10200 EMS server.

- **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 sub-element, then click **OK** to save the changes and return to the previous form, or **Apply** to save the changes and continue working in the sub-element 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 3-11](#)
- [Adding a Cisco BTS 10200 EMS Server, page 3-11](#)

## 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 the [Determining a Cisco BTS 10200 EMS Server Site ID, page 3-11](#).

## Determining a Cisco BTS 10200 EMS Server Site ID

This server ID enables Cisco EPOM to communicate with the Cisco BTS 10200 EMS server using 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/optical1.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 Into Cisco EPOM, 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**

Since 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.

- 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, page 3-11](#).

- 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 sections.

## 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:

- 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.
- 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**.

If you want to add a new Cisco BTS 10200 EMS server and include it in this domain at the same time, click **Add**,

c. Define the server (see Chapter, “[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.

If you added a Cisco BTS 10200 EMS server and now want to add groups, or vice versa, repeat Steps 4 and 5.

**Note**

Create the “group” before creating the “domain”. By default all the groups belong to the domain you create. Currently using the “edit” option, you can only change the permission of any group.

## 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, page 6-2](#).

- 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.

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

To delete a group:

---

**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.



**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

You can add users and assign them to various 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.

**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.

**Note**

You must create the “group” before creating the “user”. Use the security wizard to create the user and the group easily.

## 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. .

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

The Delete User window opens.

- 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.

---

## Managing Cisco EPOM Corba Cache

The Online Cache window enables a user to view, renew and delete the internal Corba cache maintained by Cisco EPOM.

The Corba Cache is of utmost importance to EPOM as it cuts down the Cisco BTS 10200 query time and enhances the performance of Cisco EPOM.

If the Cisco BTS 10200 server is restarted or someone invokes the `kill cis` command then Cisco EPOM is unable to query Cisco BTS 10200 server. This is because of the persistent nature of the Cisco BTS 10200 Corba objects.

Using Online Corba Cache Management a user need not restart the Cisco EPOM server, but instead the user may delete or renew the Corba Cache. This enables Cisco EPOM server to query restarted Cisco BTS 10200 servers without being restarted itself.

**Note**

---

Renew and Delete operations can be invoked with Administrator privileges only.

---

## When to Use

The Online Cache Window can be used in three instances:

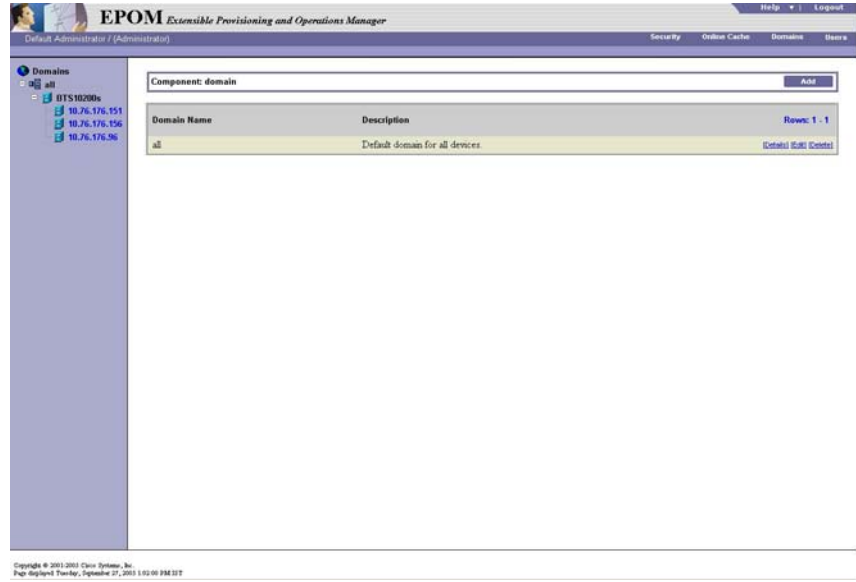
- To View Corba Cache.
- To Renew Corba Cache for a particular Cisco BTS 10200:
  - When Cisco BTS 10200 has been restarted.
  - When someone invokes `kill cis` on Cisco BTS 10200 server.
  - When Cisco EPOM is unable to locate Cisco BTS 10200 Corba objects.
- To Delete Corba Cache. This occurs when a Cisco BTS 10200 has been deleted from the inventory list of Cisco EPOM server.

## Viewing, Deleting and Renewing EPOM Corba Cache

You can view, delete and renew the EPOM Corba Cache. This section describes how to view, delete, and renew the EPOM Corba Cache.

**Step 1** From Cisco EPOM window, click **Online Cache**.

The Online Cache Management window opens.



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**Step 2** Cache information for all the configured Cisco BTS 10200 inventories can be viewed.

Pool name	Key Names
10.76.62.126----opt	IDENTIFIER_ANONYMOUS_UNUSED4 IDENTIFIER_ANONYMOUS_UNUSED3 IDENTIFIER_ANONYMOUS_UNUSED2 IDENTIFIER_ANONYMOUS_UNUSED1 IDENTIFIER_ANONYMOUS_UNUSED10 IDENTIFIER_ANONYMOUS_UNUSED9 IDENTIFIER_ANONYMOUS_UNUSED8 IDENTIFIER_ANONYMOUS_UNUSED7 IDENTIFIER_ANONYMOUS_UNUSED6 IDENTIFIER_ANONYMOUS_UNUSED5
172.28.169.55----opt	IDENTIFIER_ANONYMOUS_UNUSED4 IDENTIFIER_ANONYMOUS_UNUSED3 IDENTIFIER_ANONYMOUS_UNUSED2 IDENTIFIER_ANONYMOUS_UNUSED1 IDENTIFIER_ANONYMOUS_UNUSED10 IDENTIFIER_ANONYMOUS_UNUSED9 IDENTIFIER_ANONYMOUS_UNUSED8 IDENTIFIER_ANONYMOUS_UNUSED7

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**Step 3** Click **Renew** or **Delete** for the desired Cisco BTS 10200 inventory to renew or delete its Corba Cache.

Pool name	Login	Site id	Maxsize	Size	
10.76.62.126	optuser		50	10	<a href="#">[Renew]</a> <a href="#">[Delete]</a>
172.28.169.55	optuser		50	10	<a href="#">[Renew]</a> <a href="#">[Delete]</a>
172.28.169.54	optuser		50	10	<a href="#">[Renew]</a> <a href="#">[Delete]</a>
10.76.62.79	optuser	rtp2vtc	50	10	<a href="#">[Renew]</a> <a href="#">[Delete]</a>
ems-server3	optuser		50	10	<a href="#">[Renew]</a> <a href="#">[Delete]</a>

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**Step 4** Click any Cisco BTS 10200 inventory on the left pane and the proceed with normal operations for the relevant inventory.

## Managing Security Using Security Wizard

Cisco EPOM(4.5) introduces a new feature called the Security Wizard. This Security Wizard enables the administrator to create both BTS and EPOM user easily.

It reduces the cumbersome method of user creation in EPOM and allows the Administrator user to create users in multiple BTS 10200 EMS servers with appropriate security levels in a single operation.

### Adding BTS User Using Security Wizard

If you are a member of the admin group, you can add user information, including group membership for an inventory or multiple inventories.

To add BTS User:

**Step 1** Select BTS and click **Next**.

The list of current BTS users along with the inventories appears.

BTS Users	
	<a href="#">Add</a> <a href="#">Cancel</a>
Inventory	BTS User
10.76.176.151	optuser
10.76.176.156	optuser
10.76.176.151	test
10.76.176.156	test

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**Step 2** Click **Add**.

The Add user window opens.

**Step 3** Define the user:

- **Username**—Enter the name that the user will use to log in to Cisco EPOM. The user name must not exceed 16 characters.
- **Password**—Enter the initial password for Cisco EPOM access. The user can change this later. The password must contain atleast 6 characters and should not exceed 8 characters.
- **Confirm Password**—Enter the password again for confirmation.
- **Shell**—Select the shell from the drop down list.
- **Command Level**—Enter the value for the command levels based on the security levels assigned. Enter any value ranging from 1-10.
- **Work Groups**—Enter the names of the workgroups. The work group name must not exceed fifty characters.
- **Inventory**—Select the inventory from the Available box and move to the Selected box. To deselect an inventory, move it back to the Available box.

**Step 4** Click **OK**.

The details of the added user appears on the window.

User Name	sanjib
Shell	CLI
Command Level	6
Work Groups	bts_user
Inventory	10.76.176.156

**Step 5** Click **Finish** to add the user details.

or

Click **Prev** to go back to the previous window.

or

Click **Cancel** if you do not want to add the user.

To add more inventories to the list of Available inventories, click **Add**.

## Adding BTS Inventory

To add a BTS inventory to the existing list of BTS inventories.

**Step 1** Click **Add**.

The Add User window opens.

**Step 2** Define the:

- **IP Address/Hostname**—Enter the IP Address or hostname. The hostname must not exceed two hundred and fifty five characters.
- **Type**—Select a host type from the drop down list.
- **Site ID**—Enter the site ID. The ID must not exceed two hundred and fifty five characters.
- **Optiuser Password**—Enter the Optiuser password. The password must contain atleast 6 characters and should not exceed 8 characters
- **Confirm Optiuser Password**—Enter the password again for confirmation.

**Step 3** Click **OK**.

The inventory is added, and you return to the User Administration window where the new inventory is listed.

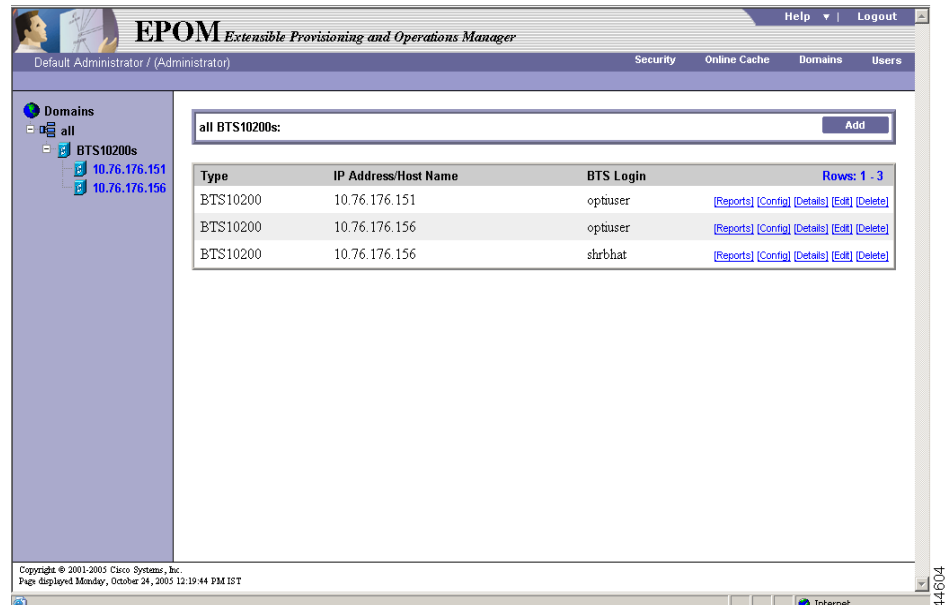
Click **Cancel** if you do not want to add the inventory.

## Provisioning BTS Device Using the Domain Tree Structure

The BTS Device can be provisioned using the Domain Tree Structure.

To provision the BTS Device:

- Step 1** Select a BTS Device from the left pane.  
A window with the list of inventories appears.



- Step 2** Select the specific device from the displayed list . If it is selected from the Tree on the left pane, then the user with the highest security level would be considered for provisioning.
- Step 3** To provision or to view the reports for a device using specific users, click the respective Config link or the Reports link displayed against the users.  
You can now view the reports or provision the BTS device.

## Adding EPOM User Using Security Wizard

If you are a member of the admin group, you can add EPOM user information, including group membership for an inventory or multiple inventories.

To add an EPOM User:

- Step 1** Select EPOM and click **Next**.  
The list of current EPOM users along with their details appears.

Security Wizard: EPOM Users					
admin	Default	Administrator	admin@cisco.com	admin	<a href="#">Edit</a> <a href="#">Delete</a>
mahesh	Mahesh	Kumar	mahesh@telind.com	EPOMS	<a href="#">Edit</a> <a href="#">Delete</a>

**Step 2** Click **Add**.

The Add user window opens.

Security Wizard: Add EPOM User	
✓ Login ID	kiran
✓ Password	*****
✓ Confirm Password	*****
✓ First Name	Kiran
✓ Last Name	Bhat
✓ Email Address	kiran@telind.com
✓ Groups	<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid gray; padding: 2px;">Available</div> <div style="border: 1px solid gray; padding: 2px;">Selected</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>&gt;&gt;</span> <span>&lt;&lt;</span> </div>

**Step 3** Define the:

- **Login ID**—Enter the name that the user will use to log in to Cisco EPOM. The user name must not exceed 16 characters.
- **Password**—Enter the initial password for Cisco EPOM access. The user can change this later. The password must contain atleast 6 characters and should not exceed 8 characters.
- **Confirm Password**—Enter the password again for confirmation.
- **First Name**—Enter the user's first name.
- **Last Name**—Enter the user's last name.
- **Email Address**—Enter the user's email address, which provides an email shortcut in the user list.
- **Groups**— Select the group to which this user will belong to from the Available box and move to the Selected box. To deselect a group, move it back to the Available box.

**Step 4** Click **OK**.

The details of the added user appears on the window.

EPOM User Summary	
Login ID	kiran
First Name	Kiran
Last Name	Bhat
E mail	kiran@telind.com
Groups	EPOMS

- Step 5** Click **Finish** to add the user details.
- or
- Click **Prev** to go back to the previous window.
- or
- Click **Cancel** if you do not want to add the user.
- To add more groups to the list of Available groups, click **Add**.

## Adding EPOM Groups

To add an EPOM group to the existing list of EPOM groups:

- Step 1** Click **Add**.
- The Add user window opens.

- Step 2** Define the :
- **Group Name**—Enter the name of the group. The group name must not exceed thirty two characters.
  - **BTS Login**—Enter the BTS Login ID.
  - **BTS Navigation Tree**—Enter the BTS customised navigation tree . The navigation tree can contain two hundred and fifty five characters.
- Step 3** Click **OK**.
- The group is added, and you return to the User Administration window where the new group is listed.
- Click **Cancel** if you do not want to add the EPOM group.

## Editing and Deleting EPOM User Using Security Wizard

You can modify or delete the EPOM user information. If you are not a member of the Administrator group, you can change your password, first name, last name and email, but not your login ID or group association.

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

Security Wizard: EPOM Users				
Login ID	First Name	Last Name	Email Address	Groups
admin	Default	Administrator	admin@cisco.com	admin <a href="#">[Edit]</a> <a href="#">[Delete]</a>
mahesh	Mahesh	Kumar	mahesh@telind.com	EPOMS <a href="#">[Edit]</a> <a href="#">[Delete]</a>

**Step 3** 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.
  - b. Make the changes and click **Edit** to save them.
  - c. To delete the user, click **Delete**.  
The Delete User window opens.
  - d. Click **Delete**.

You return to the User Administration window, showing the list of users.

## Maintaining EPOM Log Files

EPOM automatically generates various log files. These logs are created in the logs directory in the “/var/opt/CSCepom/logs/” path .

Following are the various types of logs generated by EPOM:

- User and Domain related information is generated in “audit.log”
- Stand alone tomcat information is generated in “Catalina.out”
- User HTTP request information is generated in “localhost\_access\_log”, this is generated date wise.
- Detail log is generated in the server “localhost\_log”, this is generated date wise.
- Detail log of all debugging information is generated in “trace.log”

User access log details are generated date wise , so you can track them later. Similarly the “trace.log” appends the information to the existing log, unless you manually clean them. EPOM does not clean this log information automatically. The Administrator has the choice to archive and transfer them to the right place.

Archive all the logs by executing the following command:

```
/usr/bin/tar -cvf epom_logs.tar /var/opt/CSCOepom/logs/
```

You can ftp or tftp to the machine having a larger disk space.



## 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 4-6](#)
- [Editing a Component in the Cisco BTS 10200 Configuration, page 4-9](#)
- [Deleting a Component From the Cisco BTS 10200 Configuration, page 4-11](#)
- [Bulk Command Provisioning, page 4-12](#)
- [Checking the Status and Controlling Components, page 4-15](#)

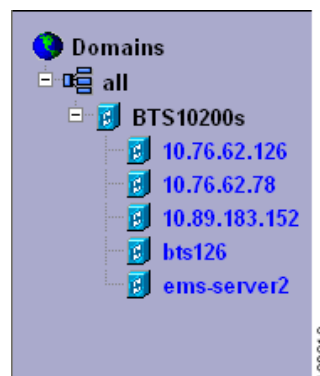
### Configuring a Cisco BTS 10200 EMS Server

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 3-11.)

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

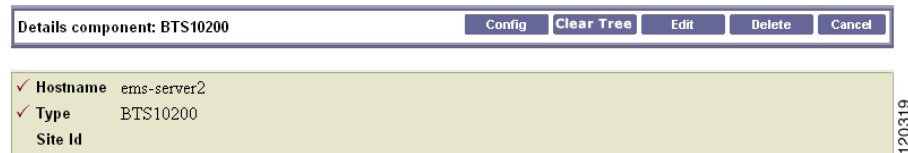
- a. Click **all**.
- b. Click **BTS 10200s**.

You will see the Cisco BTS 10200 EMS servers currently in the inventory. In this example, there are two servers: bts126 and ems server 2.



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



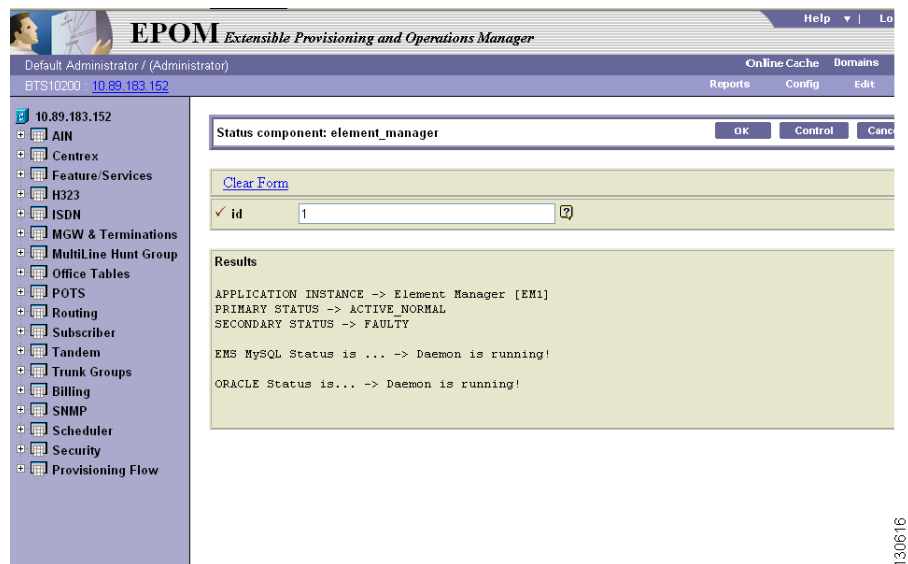
- Step 3** Click **Config**.  
The Component Status window opens (see Step ).

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.

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 4-6.



## About Cisco EPOM Templates

Cisco EPOM templates allow you to compose and save templates that can be used later for creating Cisco BTS 10200 Softswitch objects. With a template you can add several similar objects to the Cisco EPOM inventory without having to repeatedly select configuration items for each individual device.

Templates are stored on the Cisco EPOM server by Cisco BTS noun and template name.

Templates can be created, viewed, and applied by all levels of Cisco EPOM users. (See [“Creating a Template From an Existing Template”](#) section on page 4-3)

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Administrators can edit and delete all existing templates, whereas Users can edit and delete only the templates that they created. (See the “[Editing a Cisco EPOM Template](#)” section on page 4-4 and the “[Deleting a Cisco EPOM Template](#)” section on page 4-6.)

One template for each device type can be identified as the default template. When you add a device, the default template for this type of device is loaded automatically. If necessary, you can select a different template for this device. (See the “[Designating a Default Cisco EPOM Template](#)” section on page 4-5.)

Templates are applied only when creating an object (during an Add operation). (See the “[Applying a Cisco EPOM Template](#)” section on page 4-8.)

## Creating a New Cisco EPOM Template

The ID field is unique to each device and cannot be repeated among devices. Assign a unique ID for the device before adding it to the Cisco EPOM inventory. You can either specify a value in the ID field to be used as a prefix, or leave a blank field that forces the user to specify a valid, unique ID.

- 
- Step 1** In a Domain view, select the **Desired domain > BTS10200s > The desired Cisco BTS EMS server**
- Step 2** Click on **Config**. The Cisco BTS 10200 Component Status view opens.
- Step 3** In the Configuration tree, select **Office Tables > Call\_agent**.  
The Cisco BTS 10200 Component view opens showing a list of call agents.
- Step 4** Select a call agent and click **Details**.

Details component: cust_grp	
Cancel	
<a href="#">Check All</a> <a href="#">Clear All</a> <a href="#">Details</a> <a href="#">Edit</a> <a href="#">Delete</a>	
Template: <input type="button" value="Save"/> new template name	
<input checked="" type="checkbox"/>	
id	cust-1212
ani_wb_list	NONE
collect_pin	Y
dnis_pattern	
ii_restrict_list	WHITE
num_pin_digits	
overflow_carrier	
overflow_pots	
route_guide_id	<a href="#">rt_gd</a>

- Step 5** Enter or change information in the fields.
- Step 6** Enter a name for the template and click on **Save**.

The created template contains field information from the Details Component window.

---

## Creating a Template From an Existing Template

The ID field is unique to each device and cannot be repeated among devices. Assign a unique ID for the device before adding it to the Cisco EPOM inventory. You can either specify a value in the ID field to be used as a prefix, or leave a blank field that forces the user to specify a valid, unique ID.

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- Step 1** In a Domain view, select the **Desired domain > BTS10200s > The desired Cisco BTS EMS server.**
- Step 2** Click **Config.**  
The Cisco BTS 10200 Component Status view opens.
- Step 3** In the Configuration tree, select **Template Manager > Templates.**  
A list of templates is displayed.
- Step 4** Select a template and click **Details.**

Parameter	Value
ani_wb_list	NONE
collect_pin	Y
id	cust-1212
ii_restrict_list	WHITE
route_guide_id	rt_gd

- Step 5** Enter or change information in the fields
- Step 6** Enter a new template name and click **Save.**  
The new template is stored under the specified name.

## Editing a Cisco EPOM Template

To edit a Cisco EPOM Template:

- Step 1** In a Domain view, select the **Desired domain > BTS10200s > The desired Cisco BTS EMS server.**
- Step 2** Click **Config.**  
The Cisco BTS 10200 Component Status view opens.
- Step 3** In the Configuration tree, select **Template Manager > Templates.**  
A list of templates is displayed.

Noun	Template Name	Default	Commands
<input type="checkbox"/> cust_grp	NewT	No	<a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a>
<input type="checkbox"/> cust_grp	call_agent	No	<a href="#">[Details]</a> <a href="#">[Edit]</a> <a href="#">[Delete]</a>

- Step 4** Select a noun and template and click **Edit.**  
The Edit Template window is displayed.

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If necessary, make changes to the information in the fields and click **OK** to save changes.

## Designating a Default Cisco EPOM Template

To designate a default Cisco EPOM Template:

- Step 1** In a Domain view, select the **Desired domain > BTS10200s > The desired Cisco BTS EMS server**.
- Step 2** Click **Config**.  
The Cisco BTS 10200 Component Status view opens.
- Step 3** In the Configuration tree, select **Template Manager > Templates**.  
A list of templates is displayed (see the “Editing a Cisco EPOM Template” section on page 4-4).
- Step 4** Select a noun and template and click **Edit**.  
The Edit Template window is displayed

- Step 5** Select the Default template checkbox.
- Step 6** Click **OK** to save changes.

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## Deleting a Cisco EPOM Template

To delete a Cisco EPOM Template:

- 
- Step 1** In a Domain view, select the **Desired domain > BTS10200s > The desired Cisco BTS EMS server.**
- Step 2** Click **Config**.  
The Cisco BTS 10200 Component Status view opens.
- Step 3** In the Configuration tree, select **Template Manager > Templates**.  
A list of templates is displayed.

Templates				
<a href="#">Check All</a> <a href="#">Clear All</a> <a href="#">Delete Selected</a>				
	Noun	Template Name	Default	Commands
<input type="checkbox"/>	cust_grp	NewT	No	<a href="#">Details</a> <a href="#">Edit</a> <a href="#">Delete</a>
<input checked="" type="checkbox"/>	cust_grp	call_agent	No	<a href="#">Details</a> <a href="#">Edit</a> <a href="#">Delete</a>

- Step 4** Select a noun and template and click **Delete**. After a verification message, the template is deleted.
- 

## Adding a Component to the Cisco BTS 10200 Configuration

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.

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

- 
- Step 1** From the Domain window, select 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, select **Office Tables > dial\_plan**.

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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"/> <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>

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.

Add component: dial\_plan OK Apply Cancel

[Clear Form](#)  Expand range expression

id    
 dest\_id    
 digit\_string    
 max\_digits    
 min\_digits    
 noa    
 split\_npa    
del\_digits    
pfx\_digits

**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.

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To edit a single component, see the “Editing a Component in the Cisco BTS 10200 Configuration” section on page 4-9; to delete a single component, see the “Deleting a Component From the Cisco BTS 10200 Configuration” section on page 4-11.

To add, edit, or delete multiple components with a single operation, see the “Bulk Command Provisioning” section on page 4-12.

To search for the other components:

- 
- Step 1** Click any component in the Configuration tree.
- Step 2** Click **Search**. A window with the id and description fields appears.
- Step 3** Enter the id or description and click OK. All the components with that description get displayed.
- You can also search the description by typing the first letter of the description followed by the “%” symbol. All the components starting with that alphabet get displayed.
- 

## Applying a Cisco EPOM Template

To apply a Cisco EPOM Template:

- 
- Step 1** In a Domain view, select the **Desired domain > BTS10200s > The desired Cisco BTS EMS server**.
- Step 2** Click **Config**.
- The Cisco BTS 10200 Component Status view opens
- Step 3** In the Configuration tree, select **Office Tables > dial\_plan**.
- The Cisco BTS 10200 Component view 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

Success: Entries 1-101 of 2071 returned.

Component: dial\_plan Add Search

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

<input type="checkbox"/>	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>

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**Step 4** Click **Add**.

The Cisco BTS 10200 Component Add view opens.

**Step 5** Select a template from the list.

**Step 6** Click **Load**.

Click **OK** or **Apply**.

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

The new dial plan is added to the list when you return to the Cisco BTS 10200 Component view.

The ID field is unique to each device and cannot be repeated among devices. Assign a unique ID for the device before adding it to the Cisco EPOM inventory. You can either specify a value in the ID field to be used as a prefix, or leave a blank field that forces the user to specify a valid, unique ID.

To create a new template from this window, make changes to the existing component details and save the resulting dial plan as a template by entering a template name and clicking **Save**.

## Editing a Component in the Cisco BTS 10200 Configuration

To edit a component in the Cisco BTS 10200 Configuration:

**Step 1** From the Domain window select 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 row that you wish to edit and click **Edit**

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The Change component window appears.

Change component: dial_plan		OK	Cancel
<a href="#">Clear Form</a>			
	<input checked="" type="checkbox"/>		
✓ id	<input type="checkbox"/>	Dial1	<input type="button" value="?"/>
✓ digit_string	<input type="checkbox"/>	222	<input type="button" value="?"/>
✓ noa	<input type="checkbox"/>	NATIONAL	<input type="button" value="?"/>
del_digits	<input type="checkbox"/>	0	<input type="button" value="?"/>
dest_id	<input type="checkbox"/>	dst1	<input type="button" value="?"/>
max_digits	<input type="checkbox"/>	10	<input type="button" value="?"/>
min_digits	<input type="checkbox"/>	10	<input type="button" value="?"/>
px_digits	<input type="checkbox"/>		<input type="button" value="?"/>
split_npa	<input type="checkbox"/>	NONE	<input type="button" value="?"/>

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 5** Make the required changes to the attribute fields. To do this:

- a. Enter the new value in the text field or select a new value from the drop down box.  
A checkbox appears against the changed field. This checkbox is enabled by default

Change component: dial_plan		OK	Cancel
<a href="#">Clear Form</a>			
	<input checked="" type="checkbox"/>		
✓ id	<input checked="" type="checkbox"/>	Dial1	<input type="button" value="?"/>
✓ digit_string	<input checked="" type="checkbox"/>	222	<input type="button" value="?"/>
✓ noa	<input checked="" type="checkbox"/>	NATIONAL	<input type="button" value="?"/>
del_digits	<input type="checkbox"/>	0	<input type="button" value="?"/>
dest_id	<input checked="" type="checkbox"/>	dest_id1	<input type="button" value="?"/>
max_digits	<input type="checkbox"/>	10	<input type="button" value="?"/>
min_digits	<input checked="" type="checkbox"/>	10	<input type="button" value="?"/>
px_digits	<input type="checkbox"/>		<input type="button" value="?"/>
split_npa	<input checked="" type="checkbox"/>	NEW_NPA	<input type="button" value="?"/>

- b. Click **OK** to save changes.

EPOM will send only the checked elements along with the mandatory fields to BTS, instead of sending whole edit page elements. This will update the BTS Server with the new values along with the mandatory attributes.

Mandatory attributes cannot be edited, hence no checkbox will be displayed against it when the user tries to change its value.

**Caution**

If you decide to revert and retain the old values do so before saving. To do this uncheck It can be done the checkbox. This way the old values are send to the database when you click **OK** to save the changes.

You can edit multiple nouns in a single instance. To do this select the nouns which needs to be updated in template and click **Edit**.The browser displays multiple templates

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Clear Form			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
✓ id	dial_p_pro1	dial_p_pro1	dial_p_pro1
✓ digit_string	233233	233233	233233
✓ noa	NATIONAL	UNKNOWN	UNKNOWN
del_digits	0	0	0
dest_id	dest_id1	dest_id2	dest_id2
max_digits	9	10	10
min_digits	9	9	9
px_digits			
split_npa	OLD_NPA	NEW_NPA	NEW_NPA

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An error message is displayed, for a few nouns, while editing attribute which states that the user must also edit other associated attributes. In such a case select/click on the associated attribute mentioned in the error message and to make the change successful

**Step 6** 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 4-6](#); to delete a single component, see the [“Deleting a Component From the Cisco BTS 10200 Configuration” section on page 4-11](#).

To add, edit, or delete multiple components with a single operation, see the [“Bulk Command Provisioning” section on page 4-12](#).

## Deleting a Component From the Cisco BTS 10200 Configuration

To delete a component from the Cisco BTS 10200 configuration, do the following.

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

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Delete component: dial_plan		OK	Cancel
<a href="#">Clear Form</a>			
	<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 4-6](#); to edit a single component, see the [“Editing a Component in the Cisco BTS 10200 Configuration” section on page 4-9](#).

To add, edit, or delete multiple components with a single operation, see the [“Bulk Command Provisioning” section on page 4-12](#).

## 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

To add multiple components:

**Step 1**

In the EMS-Server window left pane, click a component.

The Component:*name* window appears.

**Step 2**

Click **Add**.


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The Add component window appears.

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

If you do not 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.

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## Editing Multiple Components

To edit 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		
<a href="#">Clear Form</a>		
<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

To delete 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**.

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The Delete component window appears with the requested deletions.

Delete component: dial_plan				OK	Cancel
<a href="#">Clear Form</a>					
	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
✓ id	<input type="text" value="Dial1"/>	<input type="text" value="Incoming"/>	<input type="text" value="Incoming"/>	<input type="text" value="Incoming"/>	
✓ digit_string	<input type="text" value="222"/>	<input type="text" value="271201"/>	<input type="text" value="271202"/>	<input type="text" value="271202"/>	
✓ noa	<input type="text" value="NATIONAL"/>	<input type="text" value="NATIONAL"/>	<input type="text" value="NATIONAL"/>	<input type="text" value="NATIONAL"/>	

**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.

Be careful while changing component states.

**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**.

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## Using Cisco EPOM Flow Provisioning

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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 5-2](#)
- [Provisioning Other Components by Using Cisco EPOM Wizards, page 5-4](#)
- [Customizing Cisco EPOM Provisioning Flows, page 5-5](#)

### About Provisioning Flows

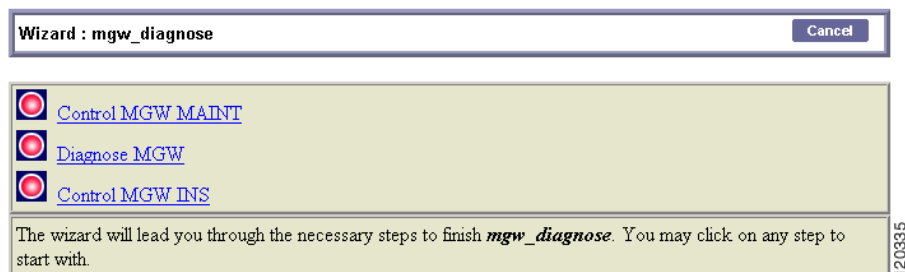
A provisioning flow consists of a number of steps that you perform to complete a task. You can also perform each step by expanding the Cisco BTS 10200 navigation tree, finding the right components, and clicking the appropriate action. A provisioning flow links these steps together for your convenience.

### Using a Provisioning Flow Wizard

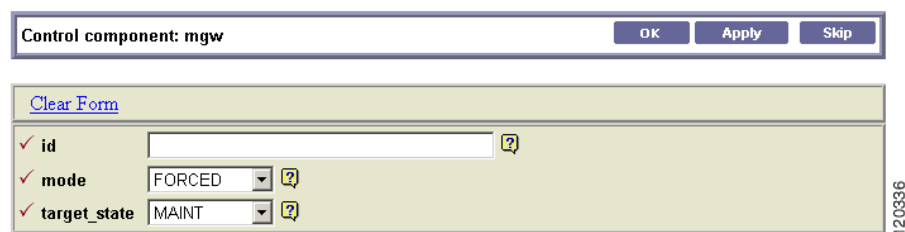
This section describes the general process for using a wizard; specifics depend on the type of task.

---

- 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.



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



- 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.

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

This section describes the procedure for deleting a Subscriber.

To delete a subscriber:

- Step 1** From a Domain window, choose the *domain* > **BTS10200s** > the *Cisco BTS 10200 EMS server*.
- Step 2** Click **Config** to open the Cisco BTS 10200 Component Status window.
- 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 5-4.)

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 5-5
2. [“Creating a Provisioning Flow”](#) section on page 5-7

### 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="btscmpcontrol.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 5-7](#).

## Creating a Provisioning Flow

The section describes the procedure for creating a Provisioning Flow.

In this task, the filename used is **mgw\_diagnose**.

To create a Provisioning Flow:

---

**Step 1** Create the `mgw_diagnose.xml` file (see the [“Example of an .xml File”](#) section on page 5-5).

**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 2-6.

**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 6-2](#)
- [Creating Custom Navigation Trees, page 6-3](#)

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.

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**.)

Since 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.

Since 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

This section describes the procedure for setting up the Cisco EPOM Security.

To set up the Cisco EPOM Security:

- 
- Step 1** Create Cisco BTS 10200 users with required security levels.  
See 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 administrator and create user groups.  
See the "Adding Domains, Groups, and Users" section on page 3-12.
  - Step 3** On the Cisco EPOM server, create users, and assign them to the user groups that you created in [Step 2](#).
  - Step 4** See the "Adding Domains, Groups, and Users" section on page 3-12.
  - Step 5** Choose **Users** > *user name* > **Edit**.  
The Modify User window appears.

- Step 6** Enter a password to access Cisco EPOM.
- Step 7** Choose **Users > Groups > Edit**.  
The Edit Group window appears.
- Step 8** Select a group from the list and click **Edit**.

- Step 9** 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.  
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 10** 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=]]></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=]]></urlprefix>
  </baseurl>

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

This section describes the procedure for activating the Navigation Tree.

To activate a 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.

The screenshot shows a web-based form titled "Edit Group". At the top right of the form are two buttons: "OK" and "Cancel". Below the title bar, there are three input fields stacked vertically. The first field is labeled "Group Name" and contains the text "admin". The second field is labeled "BTS Login" and is empty. The third field is labeled "BTS Navigation Tree" and is empty. To the right of these fields, there is a vertical label "120341".

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

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



## Viewing 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).

The [Viewing Reports, page 7-1](#) chapter describes how to view the performance and billing reports.

### Viewing Reports

This section describes the procedure for viewing the Reports.

To view a Report:

- Step 1** Navigate to the desired Cisco BTS 10200 EMS server from a Domain window.
- 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		
<a href="#">Clear Form</a>		
call_date	<input type="text"/>	?
calling_dn	<input type="text"/>	?
customer_dn	<input type="text"/>	?
end_time	<input type="text"/>	?
privacy_status	<input type="text"/>	?
start_time	<input type="text"/>	?
sub_id	<input type="text"/>	?
term_id	<input type="text"/>	?
trace_date	<input type="text"/>	?

120342

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

For detailed information on performance (traffic) reports see the *Cisco BTS 10200 Softswitch Operations Manual*.

For detailed information on billing reports see the *Cisco BTS 10200 Softswitch Billing Interface Guide*.

## Viewing Reports Created by BTS EMS

You can view the various reports such as the Audit Report, System Health, and BTS Import Errors by clicking the BTS device from the Top Menu bar. To view these reports:

- 
- Step 1** Click the BTS device in the Domains Tree and then click the device from the Top pane. A login dialog box appears.
- Step 2** Enter the BTS login and password. A window with options to view the reports and help file appears.
- Step 3** Select **View a BTS10200 report** link. A window with the list of indexes and reports appears.
- Step 4** Click the required report or index link, the respective report or index gets displayed.
-



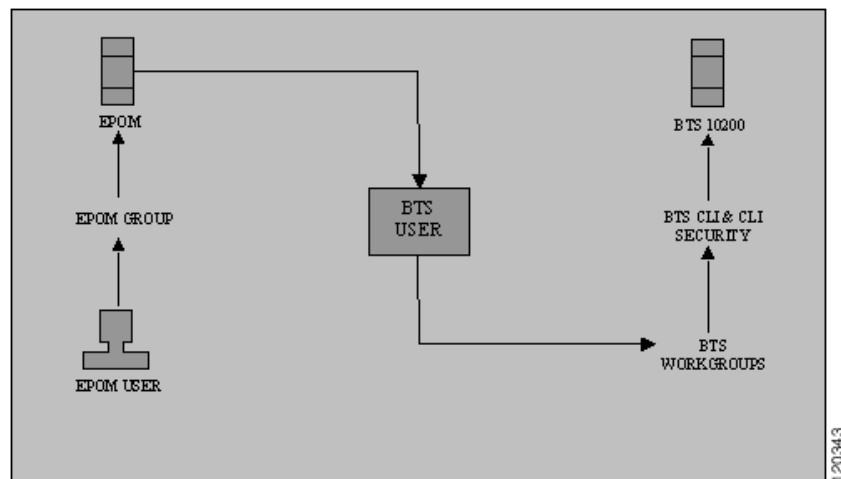
## Advanced EPOM Usage

### 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 does not provision restricted BTS command access on per EPOM user basis. Instead 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

This section describes how to analyse the 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.

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=]]></urlprefix>
</baseurl>

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

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

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

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

In this 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.

In this 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

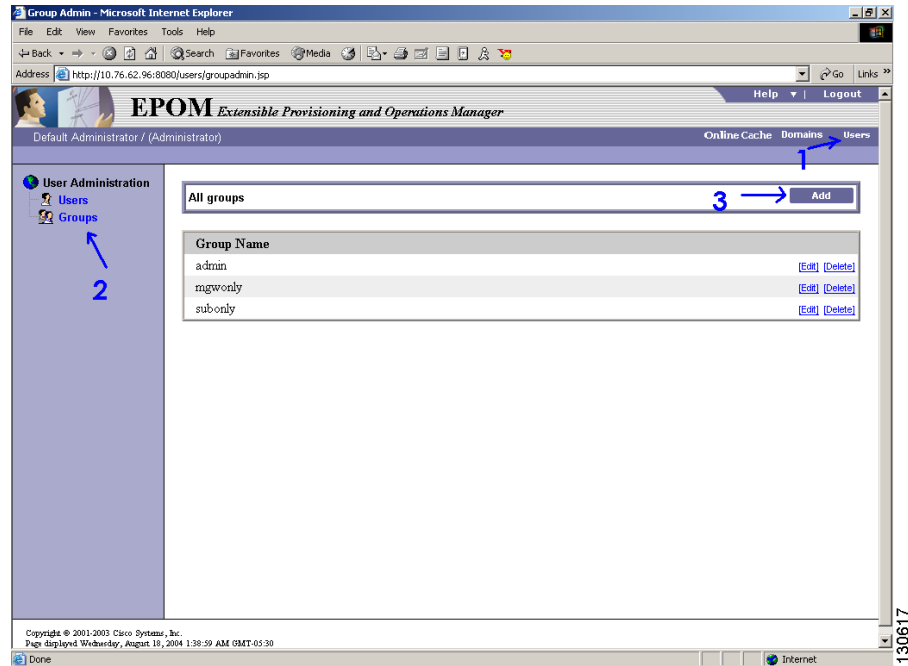
This is to provide access to just subscriber show, change.

---

**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:

- Click on "Users" (#1) in the primary navigation
- Click on Groups in the left side navigation tree, (#2)
- 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

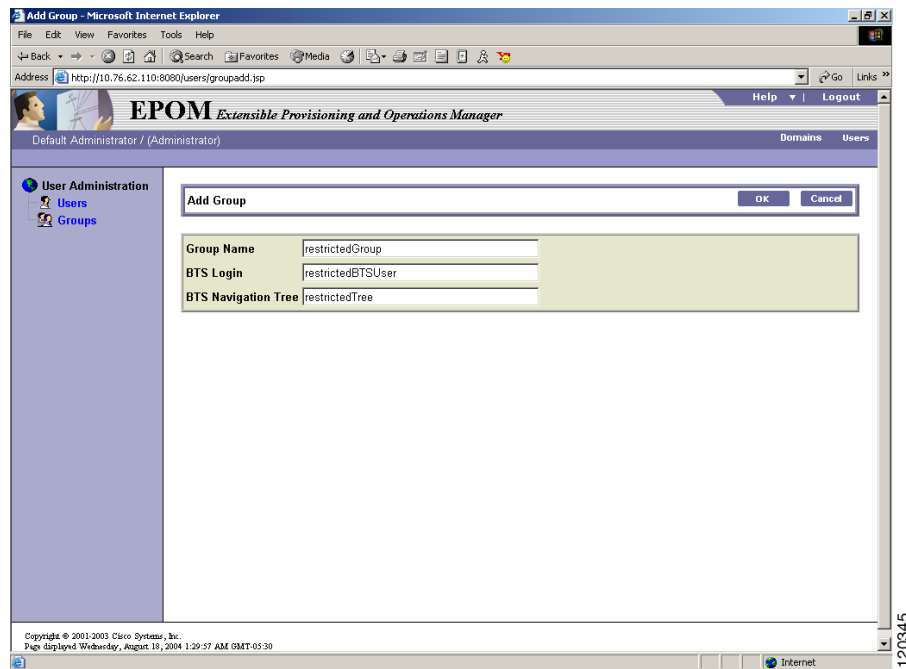
This BTS id was created with restricted access on the BTS server and proper BTS workgroup, and command associations were made on BTS (see BTS CLI Reference for more Details).

- 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. 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 restricted Group from 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"
- Click on **Domains**
  - Click on the **All domain** in the navigation tree.
  - Click on **Edit**
  - Scroll down to All Groups and press **Edit**  
For the RestrictedGroup specify **READWRITE**
  - Press **OK**
- Step 6** Logout, log back in as one of the users that you created in Step 5.  
They should only have access to see, subscribe, show, and change.

## restrictedTree.xml

```
<tree name="restrictedTree">

<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=]]></urlprefix>
</baseurl>

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

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

The **bts\_export** command is a backup utility for extracting BTS CLI. This command is used to query a BTS server and outputs 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 secure FTPed to the concerned BTS server in the **/opt/ems/ftp/deposit** directory of the BTS server using the **bts\_import** utility.

The following is the usage description of `bts_export`:

```
root@cyber229:opt 21> /opt/CSCOepom/bin/bts_export
NAME
    bts_export - BTS Config Export
SYNOPSIS
    bts_export -h hostname -v BTSver of hostname -o outfile [-l login -p password
]
DESCRIPTION
    Export a BTS Configuration.
OPTIONS
    -h    Hostname
    -v    BTSversion of hostname (3.5,4.1,4.2,4.4.0,4.4.1. 4.5.0)
    -o    Output file
    -l    Login
    -p    Password
    -s    Site ID
EXAMPLES
    1. bts_export -h bts_host -v host_bts_ver -o config.cli
    2. bts_export -h bts_host -v host_bts_ver -l login -p passwd -s      siteid -o con
        fig.cli
```

## Other Important Scripts in EPOM

### genInsCmds.sh

This script takes the CLI file of BTS commands as exported by EPOM and produces a file of equip and control commands to place all MGWs in-service, all subscriber-terminations and trunk-terminations in-service.

If any of the exported commands contain the option `-<term_type>` having value other than `term`, must not generate in-service CLI.

## BTS Import

The **bts\_import** command is a utility for bulk configuration of Cisco BTS 10200 servers that uses SSL to transfer BTS 10200 CLI commands from Cisco EPOM server to the Cisco 10200 BTS server.

**bts\_import** is used in scenarios when a CLI file generated from `bts_export` of a Cisco BTS 10200 server is used to configure a Cisco BTS 10200 server. The utility can configure thousands of BTS 10200 CLI commands on a particular Cisco BTS 10200 server with one shot.

The following is the usage description of `bts_import`:

```
root@cyber229:opt 22> /opt/CSCOepom/bin/bts_import

NAME
    bts_import - BTS Config Import
SYNOPSIS
    bts_import -h hostname -u username -f inputfile
```

DESCRIPTION

Import a BTS Configuration.

OPTIONS

-h Hostname  
-f Input file  
-u User name

EXAMPLES

1. `bts_import -h bts_host -u usrname -f config.cli`





## Troubleshooting Cisco EPOM

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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 1

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

### Troubleshooting Action 1

Reinitialize the Cisco EPOM databases:

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

### Problem 2

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 2

- Check the information in the Cisco BTS EMS server definition to make sure it is correct.
- 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
```
- Use log files for debugging Cisco EPOM problems or for supplying information to Cisco TAC.
- 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 you notice exception of sort vmcid 0X200 or another hexadecimal digit, then In this case **renew** the EPOM Corba Cache for the relevant Cisco BTS 10200 server. Refer “[Managing Cisco EPOM Corba Cache](#)” section on page 3-18.
- 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 **renew** the EPOM Corba Cache for the relevant Cisco BTS 10200 server. Refer “[Managing Cisco EPOM Corba Cache](#)” section on page 3-18.

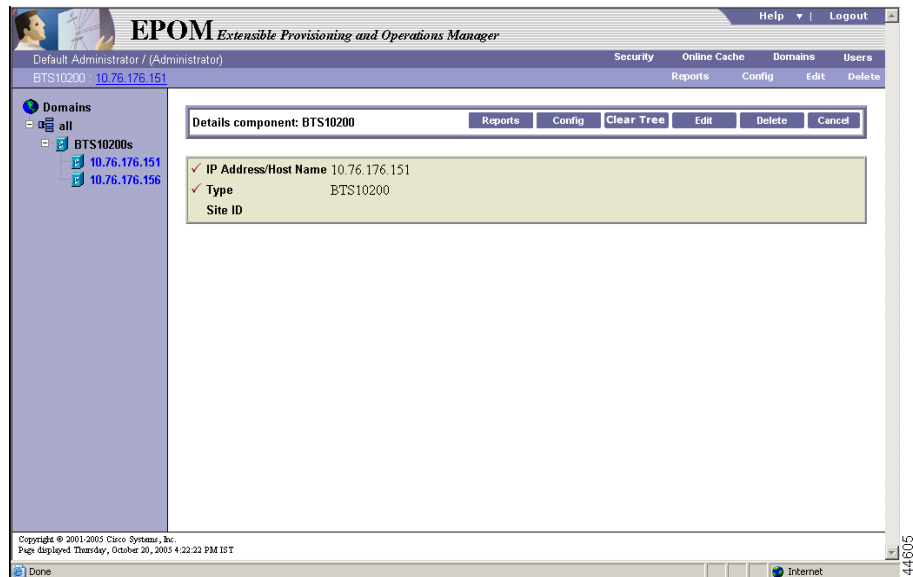
### Problem 3

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

### Troubleshooting Action 3

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.

In case you still face the issue, then delete all the cache from your web-browser. For Internet Explorer, click **Tools > Internet Options > General > Temporary Internet Files > Delete Files**. Or use a separate machine to do the same.



### Problem 4

Cisco EPOM logs not being renewed.

**Troubleshooting Action 4**

- 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 5**

Cisco EPOM takes time to build its Corba Cache.

**Troubleshooting Action 5**

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 through Corba with the Cisco BTS EMS servers.

**Problem 6**

Cisco EPOM JVM tunings

**Troubleshooting Action 6**

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 7**

For a Change (Edit) operation, if a particular parameter has some value and the user wants that value to be null. The simply deleting the value from Cisco EPOM GUI during a change (Edit) operation would not nullify it.

**Troubleshooting Action 7**

Enter **NULL** for the relevant parameter in EPOM GUI.

**Problem 8**

Cisco EPOM `bts_export` errors

**Troubleshooting Action 8**

Many errors arise while usage of `bts_export`, due to two 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`.

**Problem 9**

NULL appears in the Navigation Tree

**Troubleshooting Action 9**

For the Null Tree problem, add English language also for the browser settings in addition to the non-english language which you are currently using.

**Problem 10**

CORBA Error: Exceeded maximum number of users.

**Troubleshooting Action 10**

- You must terminate the CIS process in BTS by logging into the BTS EMS Server and invoke the following commands:

```
ps -ef |grep cis
kill -9 <cis process id
```

**Problem 11**

After changing BTS CIS from non-secure to secure or secure to non-secure EPOM is unable to communicate with BTS 10200 EMS.

**Troubleshooting Action 11**

For changing from secure to non-secure and vice-versa, you must renew or delete the cache for that inventory.





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