

# Cisco Broadband Troubleshooter Users' Guide

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# Overview of the Cisco Broadband Troubleshooter

Cisco Broadband Troubleshooter (Cisco BT) 1.0 is a GUI-based application that manages point-to-multipoint networks. Cisco BT enables you to quickly isolate provisioning problems and characterize upstream and downstream trouble patterns.

Cisco BT is a standalone application that runs on the Solaris workstation and has the following features:

- Displays both online and flapping modems.
- Analyzes and sorts the modem flap list for each Cisco uBR7200 series router into the following four problem categories:
  - Provisioning problems
  - Reverse path noise problems
  - Reverse path attenuation problems
  - Packet corruption problems and cyclic redundancy check (CRC) errors
- Provides the following summary statistics for each upstream port:
  - Total modems online
  - Percentage of modems online
  - Minimum and maximum power levels received by the Cisco uBR7200 series router
- Stores on-demand queries of subscriber information in an Lightweight Directory Access Protocol (LDAP) directory.

## System Requirements for Solaris Workstations

- Ultra 5 Solaris workstation
- Solaris 2.6 OS installed
- 50 megabytes (MB) of available disk space
- 256 MB of memory
- CD-ROM drive
- SNMP connectivity between the workstation and the Cisco uBR7200 series router

## Enabling SNMP on the Router

**Note**

To be SNMP-enabled, make sure that the Cisco uBR7200 series router is running a Cisco IOS Release 11.3(X)NA or a later release.

**Tips**

Use SNMP to read the Cisco IOS release, router name, and type of router. You can retrieve broadband modem device information by using the command-line interface (CLI) commands over Telnet sessions to the Cisco uBR7200 series router.

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**Step 1** To enable Simple Network Management Protocol (SNMP) on the router, enter:

```
Router(config)# snmp-server community public RW
```

**Step 2** Enable the password:

```
Router(config)# enable password <password>
```

**Step 3** To configure the line password to enable Telnet, enter:

```
Router(config)# line vty 0 4
Router(config)# password <password>
```

**Step 4** To configure the session timeout for all vty lines (because Telnet is used to communicate with the router), enter:

```
Router(config)# line vty 0 4
Router(config-line)# session-timeout 10
```

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## Installing Cisco BT on a Solaris Workstation



### Note

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Before installing Cisco BT, be sure to check the Readme file for additional information.

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**Step 1** Insert the Cisco Broadband Troubleshooter CD-ROM into the CD-ROM drive.

**Step 2** Extract the files from the CD-ROM. Enter:

```
cp /cdrom/cdrom0/fla.tar /cvt
cd /cvt
tar xvf fla.tar
```

**Step 3** Set up file permissions by using these commands:

```
chmod +x FlapListAnalyzerSetup.unix
./FlapListAnalyzerSetup.unix
```

**Step 4** To start the application, enter:

```
./FlapListAnalyzer
```

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## Uninstalling Cisco BT

**Step 1** Exit Cisco BT.

**Step 2** Remove or delete the files that you have installed.

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# About Getting Started with Cisco BT

An Administrator can perform the following tasks:

- Adding and deleting users who can access Cisco BT
- Viewing and changing the SNMP (READ) community string
- Viewing and changing CLI passwords that Cisco BT uses for accessing the Cisco uBR7200 series routers
- Adding and removing Cisco uBR7200 series routers from the uBR list
- Changing the parameters Cisco BT uses for accessing the LDAP server
- Running and viewing the flap list analysis
- Saving and loading data

Users cannot add or delete routers, perform administrative tasks, or modify application settings.

To use Cisco BT, follow these procedures:

- Setting up a User
- Setting up a Router
- Troubleshooting a Broadband Modem

## Setting Up a User



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**Note** Only an administrator can perform this procedure.

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To set up a user as the root administrator who can add users and manage devices, perform the following steps:

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- Step 1** Log in as **admin** with the default password, **changeme**.
- Step 2** To change the password, click **Task>User List**.
- Step 3** For additional users, click **Task>User List** to create a list that contains all valid end users who can access Cisco BT application.
- Step 4** Enter the following user data:
- Username
  - Password
  - User type (Admin or User)
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## Setting Up a Router



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**Note** Only an administrator can perform this procedure.

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To add or delete the Cisco uBR7200 series routers that you want to manage, perform the following steps:



**Note** To successfully manage routers, make sure that you enter the correct router passwords and enable SNMP on these routers. For routers authenticated by authentication, authorization and accounting (AAA) servers, click the **User Name and User Password** field for more information.

- Step 1** To create a router list, choose **Task>UBR List**.
- Step 2** Enter the IP address.
- Step 3** Enter the SNMP read community strings configured on the router in the Community String (Read) field. The default value is public. Verify that access lists, if configured in the router, allow for SNMP read access from your workstation.
- Step 4** Enter the Domain Name System (DNS) name of the router. If the DNS name is not available, the IP address appears.
- Step 5** (Optional) If you have configured a username on the router, enter the vty username .



**Note** If login local is the authentication method on the router's vty lines, then you can find the username by entering the router's **show config** command. For AAA server authentication, enter your TACACS account name.

- Step 6** Enter the same user password as configured on the router.  
For AAA server authentication, enter your TACACS password.
- Step 7** Enter the same line password as the router if the router has a password configured on its vty lines.  
This is the case when both the login name and a password are in the router configuration file under an entry such as line vty 0 4. Routers with no line passwords cannot be managed by Cisco BT.
- Step 8** Enter **enable password** <password> or **enable secret** <password> as set up on the router.



**Tips** You cannot manage the routers with no enable passwords with Cisco BT.



**Note** You cannot edit the IOS Version column, which indicates the Cisco IOS software image that is running on the router; the router type column, which indicates the model of the Cisco uBR7200 series router.

## About Troubleshooting Broadband Modems

You can perform the following troubleshooting tasks with Cisco BT:

- Viewing and analyzing flapping modems
- Viewing flap-list details

The Flap-list Analysis screen shows the output of the following data for modems with a total online time of more than 60 seconds:

- Upstream global analysis

- Problem categories for flapping modems
- Loading analysis

## Global Summary Report

This is a global summary report for each upstream port for each line card in the selected Cisco uBR7200 series router. The following data appears for each upstream port:

- Cable interface identifier
- Upstream port identifier
- Minimum receive power computed over all broadband modems
- Maximum receive power computed over all broadband modems
- Percentage of modems reported as online for the upstream port
- Number of modems reported as online for the upstream port
- Total number of modems reported for the upstream port

## Problem Categories for Flapping Modems

Cisco BT shows flapping modems in the following four problem categories on the Flap List Analysis screen:



**Note**

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The categories are not exclusive, so one modem can appear in multiple lists.

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- Provisioning Problems—A report that describes the total number of modems that have a provisioning problem, with detailed data for each modem.
- Reverse Path Noise Problems—A report that describes the total number of modems with a reverse path noise problem category, with the following detailed data for each modem:
  - Radio interface identifier
  - Upstream port identifier
  - MAC address
  - Noise flaps per hour (ratio of the total flaps reported for the modem with respect to the total modem online time in hours)



**Note**

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When calculating the noise flaps per hour, the modem's flap rate calculation might not be accurate if the flap-list is cleared, if any of the flap-list counters are cleared by the router administrator, or if the modem goes out of the flap-list (due to aging) and back in again.

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- Reverse Path Attenuation Problems—A report that describes the total number of modems with reverse path attenuation problems with the following detailed data for each modem:
  - Radio interface identifier
  - Upstream port identifier
  - MAC address
  - Power flaps per hour (ratio of the total number of power adjustments reported for the modem with respect to the total modem online time in hours)




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**Note** For wireless modems, power adjustments are not reported in this version.

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- Packet Corruption (CRC) Problems—A report that describes the total number of modems with packet corruption or CRC error problems and provides the following detailed data for each modem:
  - Radio interface identifier
  - Upstream port identifier
  - MAC address
  - Packet corruption count (number of CRC errors detected for the modem)

You can also view account information for a modem by clicking on LDAP information.

## Refreshing the Information on the Screen




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**Note** If the flaplist analysis does not show any flapping modems, but the modems appear as part of the **show cable flap list** command on the router, then click **Apply** to obtain the Cisco IOS release information.

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- Step 1** To perform a new capture of the flap list and modem data and to analyze the new data, click **Capture and Analyze Flap List**.
- Step 2** Click **Save** to save the current set of captured data from the selected Cisco uBR7200 series router. The save operation generates two files: *flaplist.ip address of router* and *analysis.ip address of router*.
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## About Viewing Flap-list Details

You can view the raw output captured from the selected Cisco uBR7200 series router. Use this data to check on the various operating parameters, state, and flap counters reported by the router for each broadband modem on the Flap-list Details screen.

- Router Information:
  - IP address
  - Router name
  - Router type
  - Cisco IOS release running on the router
- Output of the following two CLI commands:
  - **show cable modem**—Includes the total number of modems reported from the router, followed by the actual output from the router in a tabular format.

For each broadband modem, you can view the following data on the router:

- Primary Service Identifier (SID)
- Modem state

- Timing offset
- Receive power
- Quality of Service (QoS)
- Number of CPEs (reported only for Cisco IOS Release 12.0 and later releases)
- IP address
- MAC address

**show radio flap-list**—Total number of modems reported from the router followed by the actual output from the router in a tabular format.

For each broadband modem, you can view the following data on the router:

- MAC address
- Radio interface/upstream port
- Number of insertion failures
- Number of station maintenance hits
- Number of station maintenance misses
- Number of CRC errors
- Number of power adjustments
- Total number of flaps
- Time stamp for the last flap

## Configuring Information on LDAP

With Cisco BT, you can link broadband modem device information with subscriber information stored in an LDAP directory.

The LDAP server typically contains subscriber-specific information that is used when provisioning broadband modems. Cisco BT links the collected device information with the subscriber information by using the LDAP interface.



### Note

Before accessing the provisioning database and displaying LDAP information, you must configure the LDAP server information using the LDAP Access screen from the Task menu.

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- Step 1** Choose **Task>LDAP Access**.
  - Step 2** Enter the LDAP server name you want Cisco BT to use for retrieving LDAP information.
  - Step 3** Enter the LDAP server port number of the LDAP server.
  - Step 4** Enter the LDAP parent name; for example, o=xxx.com.
  - Step 5** Enter an LDAP username if the LDAP server supports the anonymous user; for example, uid=admin, ou=Administrators, ou=TopologyManagement, o=NetscapeRoot.
  - Step 6** (Optional) Enter the LDAP user password if the LDAP server supports the anonymous user.
  - Step 7** Click **Apply** to validate the LDAP parameters.



If the parameters are valid, the parameters are saved.

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## Viewing LDAP Information

**Step 1** To view LDAP information, go to the Flap List Analysis screen.

**Step 2** Select a flapping modem.

**Step 3** Click **Display LDAP Information**.

The LDAP Information window appears.



**Note** If the LDAP information is stored in two nodes under the same LDAP parent, (for example, "ou=leases, o=xxx.com" and "ou=modems, o=xxx.com"), the attributes or values from both the nodes are combined.

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

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## About Saving and Loading Data

With Cisco BT you can save the current data to time-stamped files, so that you can access and analyze the data. You can also load the previously saved data when necessary.

The following files appear after you save and load the data:

### The flaplist.ip address of router File

This file contains the output from the Cisco IOS commands used for the flap list analysis.

When you click Save, the appropriate file for the selected Cisco uBR7200 series router are added to the following sections of information. All these sections are delimited by the ^ character:

- Time stamp of the capture
- Cisco IOS release
- Output from the show cable modem command
- Output from the show radio flap-list command
- For each radio interface/uBR linecard, the output from show interface<*radio interface*>sid connectivity command. The subsections for each radio interface are delimited by the ~ character.

### The analysis.ip address File

This file contains the output from the flap-list analysis report. When you click Save, the *analysis.ip address of router* file for the selected Cisco uBR7200 series router is added to the following sections of information:

- Time stamp of the capture

- Global upstream analysis details
- Provisioning problem bucket details
- Reverse path noise problem bucket details
- Reverse path attenuation problem bucket details
- Packet corruption (CRC) problem bucket details

Each upstream analysis and problem category detail section is preceded by { and followed by }. The various sections are delimited by a new line.

This file is not used by Cisco BT to restore the flap list analysis reports. This file is for reference only.

## Saving and Loading Data

With Cisco BT you can save the current data to time-stamped files, so that you can access and analyze the data. You can also load the previously saved data when necessary.

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**Step 1** To save the current data to a file in the installed directory as tab-delimited ASCII files, click **Save Analysis**.

The output files are *flaplist.ip address of router* and *analysis.ip address of router*.

**Step 2** (Optional) To load a previously saved file, click **Load Analysis**.

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## Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

### World Wide Web

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

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

### Documentation CD-ROM

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

### Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:  
[http://www.cisco.com/cgi-bin/order/order\\_root.pl](http://www.cisco.com/cgi-bin/order/order_root.pl)
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<http://www.cisco.com/go/subscription>
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Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

### Cisco.com

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To access Cisco.com, go to the following website:

<http://www.cisco.com>

## Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

### Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

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

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

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

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

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

### Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

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

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

This document is to be used in conjunction with the *Cisco Wireless Manager 1.0 Users' Guide*, *CiscoView Wireless Quick Reference Guide* and *Overview of Cisco Wireless Network Management Suite 1.0* publications.

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