



Release Notes for Cisco Broadband Troubleshooter Release 3.1

May 19, 2004

Multiple Service Operators (MSO) provide a variety of services such as TV, video on demand, data, and voice telephony to subscribers. Network Administrators and radio frequency (RF) technicians need specialized tools to resolve RF problems in the MSO's cable plant. Cisco Broadband Troubleshooter 3.1 (CBT 3.1) is a simple, easy-to-use tool designed to accurately recognize and resolve such issues.

This document describes the new features included with CBT 3.1 as well as known issues for CBT 3.1 and instructions for working around them.

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New and Changed Information

The last release prior to Cisco Broadband Troubleshooter 3.1 is 3.0. Since that release, Cisco Broadband Troubleshooter 3.1 includes the following additions and changes:

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New Features

- Support for uBRMC28U, MC28X, MC16U, and MC16X line cards with spectrum analysis.
- Support for EURO and J-DOCSIS frequency ranges.
- Support secure shell (SSH) communication from the CBT server to the cable modem termination system (CMTS).
 - In order for SSH communication to work, you must configure the CMTS to support SSH. Refer to the configuration guide, *Configuring Secure Shell* at:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800ca7d5.html
- Secure Hypertext Transfer Protocol/Secure Socket Layer (HTTPS/SSL) support between the web clients and CBT server. Support for HTTPS defaults to port 9443 (<https://<server-ip>:9443>).
- Scheduling based spectrum data polling.
- Threshold based spectrum data polling.
- Display up to three traces in the same trace window for monitoring and for playback.
 - The user can select up to three different cable modems (CMs) under the same CMTS or three different upstreams under the same CMTS.
- Save and load markers for trace windows playback.
- Purge collected spectrum data.
- Real-time continuous modem Carrier to Noise Ratio (CNR) and Upstream CNR.
- Subscriber Traffic Management (STM), which allows service providers to identify and control subscribers who exceed the maximum bandwidth allowed under their registered quality-of-service (QoS) profiles. This feature supplements current techniques such as Network-Based Application Recognition (NBAR) and access control lists (ACLs) to ensure that users do not consume more than their allowable bandwidth, without impacting network performance or other users that are abiding by their service agreements.
 - Scheduling based STM 1.0 data polling.
 - Real-time display of STM 1.0 violators.
 - Historical display of STM 1.0 violators along with the enforce-rules violated.
 - Search for violators based on MAC address.
 - STM data purge.



Note With the current release of Cisco IOS Software, STM is not supported on the MC16U, MC16X, MC28U, and MC28X line cards. CBT 3.1 cannot collect STM data from these cards until there is a release that supports STM on these line cards.

- Display enforce-rules currently enabled or disabled among the CMTSs (up to the Cisco IOS maximum of 20 rules on each CMTS).
- Generic query tool that allows the user to get MIB variable data from the CMTS. This feature allows the user to get variable information beyond the default polling instances. The tool supports single instance queries or continuous polling of MIB variables.

Changes

- When a trace is saved as a file, it is now saved in Portable Network Graphics (PNG) format instead of JPEG. Files are saved on the server in these directories:

For Solaris and Linux: `<CBT_installation_directory>/httpServer/webapps/ROOT/data/trace`

For Windows: `<CBT_installation_directory>\httpServer\webapps\ROOT\data\trace`

- The following is a matrix of supported browsers and Java Virtual Machines (JREs):

| | NS 7.0 w/ JRE 1.4.1 | IE 6.0 w/ JRE 1.4.1 |
|-------------|---------------------|---------------------|
| Solaris 2.8 | Supported | Not Supported |
| Windows 2K | Supported | Supported |
| Windows XP | Supported | Supported |
| Linux 7.3 | Supported | Not Supported |

- To use the spectrum management features that Cisco Broadband Troubleshooter 3.1 provides, you must have:
 - Cisco IOS Release 12.2(15)BC2a
- The following are the memory requirements for CBT 3.1:
 - 512 MB of memory are required for CBT 3.1 on the client.
- The following are the minimum server requirements for CBT 3.1 on Windows:
 - Windows 2000, or XP workstation
 - Pentium 4, 2 gigahertz (GHz) processor or higher
 - 1 GB DRAM for Windows 2000 Server or Windows XP Server
 - 700 MB disk space
 - Network access to download the application, and license file
 - SNMP or Telnet connectivity between the server and managed routers
- The following are the minimum server requirements for CBT 3.1 on Linux:
 - Linux RedHat 7.3 workstation
 - Pentium 4, 2 gigahertz (GHz) processor or higher
 - 512 MB DRAM to 768 MB DRAM

- 700 MB of disk space
- Network access to download the application, and license file
- SNMP or Telnet connectivity between the server and managed routers
- The following are the minimum server requirements for CBT 3.1 on Solaris:
 - Solaris 2.8 OS
 - Ultra 10 Solaris Workstation for low end systems (typically 1 to 10 CMTS)
 - Ultra 60 Solaris Workstation for higher utilization systems (typically 1-50 CMTS licenses)
 - 768 MB to 1 GB DRAM
 - 700 MB disk space
 - Network access to download the application, and license file
 - SNMP or Telnet connectivity between the server and managed routers
- CBT 3.1 no longer ships on a CDROM and is only available by downloading the application from Cisco.com (see [“Upgrade to CBT 3.1” section on page 4](#)).

Upgrade to CBT 3.1

Follow the steps below to upgrade to CBT 3.1:

-
- Step 1** Download CBT3.1 software for the desired platform from Cisco.com to your local directory <CBT3.1_DOWNLOAD_DIR>.
- Cisco.com location:
<http://www.cisco.com/cgi-bin/tablebuild.pl/cbt>
 - Platform files:
 There are two files for the Solaris platform: CBT31-Solaris1.tar.gz and CBT31-Solaris2.tar.gz
 There are two files for the Linux platform: CBT31-Linux1.tar.gz and CBT31-Linux2.tar.gz
 There is one file for the Windows platform: CBT31-Win.exe
- Step 2** Extract the software. For Solaris and Linux, use the commands below. For Windows 2000 and Windows XP, skip to Step 3.
- Solaris:
 1. cd <CBT3.1_DOWNLOAD_DIR>
 2. gunzip CBT31-Solaris1.tar.gz
 3. tar xvf CBT31-Solaris1.tar
 4. gunzip CBT31-Solaris2.tar.gz
 5. tar xvf CBT31-Solaris2.tar
 - Linux:
 1. cd <CBT3.1_DOWNLOAD_DIR>
 2. gunzip CBT31-Linux1.tar.gz
 3. tar xvf CBT31-Linux1.tar
 4. gunzip CBT31-Linux2.tar.gz

5. `tar xvf CBT31-Linux2.tar`

Step 3 If there is a previous CBT installation (CBT 2.x or CBT 3.0), uninstall it using the following procedures; otherwise, skip to Step 4.

- Solaris: `cd <CBT3.1_DOWNLOAD_DIR> ./uninstall`
- Linux: `cd <CBT3.1_DOWNLOAD_DIR> ./uninstall`
- Windows:
 1. From Windows Explorer, double-click **CBT31-Win.exe** in `<CBT3.1_DOWNLOAD_DIR>`
 2. Remove the existing CBT installation.

Step 4 Install CBT 3.1

- Solaris: `cd <CBT3.1_DOWNLOAD_DIR> ./install`
- Linux: `cd <CBT3.1_DOWNLOAD_DIR> ./install`
- Windows:
 - From Windows Explorer, double-click `CBT31-Win.exe` in `<CBT3.1_DOWNLOAD_DIR>`
 - Select the default answers to the installation questions.



Note A demo version of CBT 3.1 is now running (a license is not included in the Cisco.com download). To make the software fully functional, obtain a license for CBT 3.1 from Cisco Systems. See [Step 5](#).

Step 5 Purchased copies of CBT will no longer include a software CD, but will include a license certificate with a PAK key. This PAK key is used to generate the necessary license file from the following websites, and the software is downloaded from CCO.

- Use this site if you are a registered user of Cisco Connection Online:
www.cisco.com/go/license
- Use this site if you are not a registered user of Cisco Connection Online:
www.cisco.com/go/license/public



Note Save the license file with the name “License” and follow the instructions in Step 6 to copy it to the appropriate directory for use by CBT 3.1.

- Demonstration copies are available either via the web, or as an ordered accessory for a uBR product. The copies supplied with a uBR product include a demo license certificate with a PAK key, the copy available from the web uses a registration page where the PAK key is emailed to the user.

Step 6 Use the following commands to copy the license to the license directory and restart CBT 3.1.

- Solaris:
 1. `cp License /opt/CSCOcbt/httpServer/webapps/ROOT/WEB-INF/classes/lic`
 2. `/opt/CSCOcbt/bin/stop_app`
 3. `/opt/CSCOcbt/bin/start_app`
- Linux:
 1. `cp License /opt/CSCOcbt/httpServer/webapps/ROOT/WEB-INF/classes/lic`
 2. `/opt/CSCOcbt/bin/stop_app`

3. /opt/CSCOcbt/bin/start_app
- Windows:
 1. copy License
<CBT3.1_INSTALLATION_DIR>\httpServer\webapps\ROOT\WEB-INF\classes\lic
 2. Start > Programs > Cisco Broadband Troubleshooter > Stop Troubleshooter
 3. Start > Programs > Cisco Broadband Troubleshooter > Start Troubleshooter
-

Caveats

This section contains an explanation of any known issues in Cisco Broadband Troubleshooter 3.1 and directions for working around them.

If the issue is in Cisco's Distributed Defect Tracking System (DDTS), the DDTS number is provided. This is a unique identifier assigned to the issue. For all issues, the following information is provided:

- Symptom—Description of what you experience when you encounter the issue
- Problem description—Details of what causes the issue
- Workaround—Directions for working so that the issue does not impact you or your work

Running Cisco Cable Diagnostic Manager and CBT 3.1 on the Same Server

If the CBT 3.1 server uses a Windows operating system, and you want to run Cisco Cable Diagnostic Manager (CDM) on the same server, you must install CDM first and CBT 3.1 second.

Restarting a Spectrogram or Trace Window if Stopped

Symptom

When using the Spectrogram or the Continuous Sweep feature in the Trace window, the window may stop updating after a period of time.

Description

When using the Spectrogram or the Continuous Sweep feature in the Trace window, you might notice that the window stops updating after a period of time. A dialog that contains one of the following errors appears:

- pending—The test is in the pending queue.
- running—The test is in process.
- notOnLine—The MAC address is not online.
- fftBusy—The Fast Fourier Transform (FFT) in the Digital Signal Processing (DSP) chip is busy.
- others—Other errors.

These errors are generated by the cable modem termination system (CMTS) and are reported in the CBT 3.1 error dialog.

Workaround

You can correct an error as follows:

- **pending**—Make sure that the CMTS uses Cisco IOS Release 12.2(15)BC1 or a later release. For more information, see DDTS CSCea37178, “10k/16s: Pending entries in ccsSpectrumRequestTable,” which was resolved in Cisco IOS Release 12.2(15)BC1.

Alternatively, the problem could be that too many spectrum data requests have been launched in the CMTS. Eliminate some spectrum data requests by closing Spectrograms or Trace windows.

- **running**—Make sure that the CMTS uses Cisco IOS Release 12.2(15)BC1 or a later release. For more information, see DDTS CSCea48330, “MC16S hangs when used with NPE-G1, under certain CLI commands,” which was resolved in Cisco IOS Release 12.2(15)BC1.

Alternatively, the problem could be that too many spectrum data requests have been launched in the CMTS. Eliminate some spectrum data requests by closing Spectrograms or Trace windows.

- **notOnLine**—The cable modem might not be online. Make sure that the cable modem is online before launching a Spectrogram or Continuous Sweep in the Trace window.
- **fftBusy**—Make sure that the CMTS is configured to use a cable spectrum group and that the spectrum group has a band specification. Refer to Cisco IOS documentation about configuring a spectrum group with the **cable spectrum-group** command.
- **others**—Make sure that the CMTS uses Cisco IOS Release 12.2(15)BC1 or a later release. For more information, see DDTS CSCeb04587, “10k/16S: SNMP agent returns others state so often,” which was resolved in Cisco IOS Release 12.2(15)BC1.

To restart the window, click **OK** in the error dialog. Next, click **Resume** in the Spectrogram or click **Continuous Sweep Start** in the Trace window.

Using Subscriber Traffic Management

To use the Subscriber Traffic Management (STM) feature of CBT 3.1, the cable **qos enforce-rule** command on the CMTS must be used with a QoS profile that is not created by the cable modem. Any in-use QoS profile, such as one created by a cable modem, can be turned into management profile.



Note STM is not supported on the MC16U, MC16X, MC28U, and MC28X line cards. CBT 3.1 cannot collect STM data from these cards.

To create a management profile, follow these steps:

| | Command | Purpose |
|--------|--|---|
| Step 1 | Router# show cable modem register | Finds the registered profiles on the CMTS using the show cable modem register command. Find a current registered profile that has the features you need. |
| Step 2 | Router# configure terminal | Enters global configuration mode. |

| | Command | Purpose |
|--------|--|---|
| Step 3 | Router (config)# cable qos profile number | Enters the QoS profile number of the registered profile that has the features you need. |
| Step 4 | Router (config)# exit | Exits global configuration mode. |

Viewing Trace Windows

Some browsers give the user the ability to stop new windows (pop-ups) from being launched by the browser. CBT 3.1 normally launches a new window to display the trace and spectrum data charts. If the data chart window doesn't appear and the browser is configured to stop new windows from launching, you can configure CBT 3.1 to display data charts within the browser window.

To configure CBT 3.1 to display data charts within the browser window, follow these steps:

-
- Step 1 Select **Configuration > System** in the CBT 3.1 menu.
 - Step 2 In the System Configuration screen, clear the Use Popup checkbox.
-

DDTS Number CSCed91888 Saving a Trace May Take a Long Time

Symptom

Saving a trace takes at least 5 minutes (sometimes may take almost 30 minutes) to save the file successfully.

Description

Saving a trace with a Solaris 2.8 client takes at least 5 minutes (sometimes may take almost 30 minutes) to save the file successfully. This does not happen on other client platforms.

Workaround

No work around.

DDTS Number CSCec11163 Trace Window Needs to Refresh the Upstream Interface.

Symptom

When a cable modem goes offline and comes up in a different upstream interface, the Trace window does not reflect the change.

Description

A modem can change its upstream, failover, load balancing, or channel override. In all these cases the US ifIndex may be changed. CBT 3.1 does not know why a spectrum request failed due to an ifIndex change or modem going offline. In some of the above cases, such as load balancing, CBT 3.1 may be enhanced to find a new ifIndex of the CM.

Currently, the Trace window will provide a proper error message so the user can take proper action; whether to fix a network problem or start a new trace window at a new ifIndex.

Load balancing can take around 10 or more seconds during which time the modem affected is going through offline/init/online mode. Depending on which state the modem is in and which mode the Trace window is in, a different error message may be provided.

Here are the error messages observed in a Trace window while load balancing occurs:

- If load balancing starts in the middle of continuous mode, an error dialog pops up:

```
ccsSpectrumRequestOperation: SnmpResponseCommitFailed Offending variable:
ccsSpectrumRequestOperation.1
```

```
start time was: Mon Mar 29 11:14:12 PST 2004
```

```
current time is: Mon Mar 29 11:14:12 PST 2004
```

```
:172.22.85.83^44^00301d767347^60^6000^5000
```

This error message suggests load balancing may be in progress.

The user needs to check the CM state, and restart a new trace window from proper upstream (US).

- If the Trace window single sweep or continuous mode starts when a modem is in init or offline mode during load balancing, an error will display:

```
Error collecting spectrum data: MAJORERROR^172.22.85.83: ccsSpectrumRequestOperState not
online
```

```
Current time is: Mon Mar 29 11:14:40 PST 2004
```

```
1:172.22.85.83^44^00301d767347^60^6000^5000
```



Note In this scenario, the error message is the same whether the CM offline or in the init state due to various other causes. Currently CBT 3.1 is not able to isolate the exact cause. The user needs to investigate why the CM is offline or in the init state before starting a new trace window.

Workaround

Restart a new trace window for the cable modem.

DDTS Number CSCed75385 A Trace Window May Stop Updating

Symptom

A Trace window running continuously with MC16S line card in an uBR7246VXR router may stop updating.

Description

A Trace window running continuously with a MC16S line card in a uBR7246VXR router using a poll interval of 0 seconds may stop updating after running for some time. A dialog may appear containing a 'fft busy' message.

Workaround

Clicking the 'OK' button and then the 'Continuous Sweep Start' button will re-start the trace.

Related Documentation

For additional information, see the following documentation:

- *Quick Start Guide for Cisco Broadband Troubleshooter Release 3.0*
- *User Guide for Cisco Broadband Troubleshooter Release 3.0*
- Online help

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/univercd/home/home.htm>

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

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

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

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can send comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

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

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support 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, 365 days a year at this URL:

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

Access to all tools on the Cisco Technical Support 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>

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 automatically provides recommended solutions. If your issue is not resolved using the recommended resources, your service request will be assigned to a Cisco TAC 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 TAC 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, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

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

- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:

<http://cisco.com/univercd/cc/td/doc/pcat/>

- *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>

- *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>

- 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>

This document is to be used in conjunction with the documents listed in the “[Related Documentation](#)” section.

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