



# Release Notes for Cisco Broadband Troubleshooter Release 3.3

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## Cisco Broadband Troubleshooter Release 3.3

**June 25, 2008**

Multiple Service Operators (MSOs) and Cable companies 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 monitor and resolve RF problems in the cable plant.

Cisco Broadband Troubleshooter 3.3 (CBT 3.3) is a simple, easy-to-use tool designed to recognize and resolve such issues with efficiency and accuracy.

This document describes the new features and configurations introduced in CBT release 3.3, with resolved caveats and additional references.

## Contents

This document describes CBT enhancements and feature sets for multiple versions of CBT in the following sections:

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# New and Changed Information in CBT 3.3

Cisco Broadband Troubleshooter Release 3.3 introduces significant enhancements, while sustaining several additional features introduced in prior versions (CBT 3.2 and CBT 3.1).

## New Features in CBT 3.3.0.2

There are no new or changed features supported in Cisco Broadband Troubleshooter Release 3.3.0.2. However there is support for uBR7225 routers and a few resolved caveats that are described in the [Resolved Caveats for CBT 3.3.0.2](#) section.

## New Features in CBT 3.3

Cisco Broadband Troubleshooter Release 3.3 introduces the following categories of enhancements and features:

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## CBT 3.3 Download File Sizes

[Table 1](#) summarizes approximate download file sizes for CBT 3.3.

**Table 1**      *CBT 3.3 File Sizes*

Platform	Filename	File Size <sup>1</sup>
Solaris	CBT33-Solaris.tar.gz	209 MB
Linux	CBT33-Linux.tar.gz	268 MB
Windows	CBT33-Win.exe	155 MB

1. Approximate compressed download file size.

## Administrative and Security Enhancements

- CBT 3.3 supports the display of Cisco CMTS headend systems by name.
- CBT 3.3 adds support for hostnames that use dotted notation, such as cmts.a and cmts.b. CBT 3.3 lists only the hostnames of the Cisco CMTS headends for which hostnames are configured.
- CBT 3.3 adds hostname mapping from applet to servlet.

- CBT 3.3 adds an administrative setting for collection of maximum spectrum analyzer points.
- CBT 3.3 removes zero-second polling for non-administrative users.
- CBT 3.3 supports instantaneous CPU usage monitoring on the Cisco CMTS during spectrum operations. The supporting and configurable SpecDataMaxCPU parameter is available in the CBT 3.3 configuration file.
- CBT 3.3 supports the import of the Cisco CMTS data file to the CBT 3.3 server, rather than having to enter CMTS data as with earlier versions of CBT.
- CBT 3.3 introduces support for password-level security.
- CBT 3.3 supports spectrum data playback, according to Cisco CMTS name or IP address.

## Cisco CMTS Support and Licensing Enhancements

- With 500 Cisco CMTS licenses, CBT 3.3 supports 500 Cisco CMTS headends, with 40,000 cable modems per Cisco CMTS. CBT 3.3 supports 50 simultaneous client browser sessions or users.
- CBT 3.3 supports the new Cisco uBR10-MC5X20H broadband processing engine for the Cisco uBR10012 router.
- CBT 3.3 supports DOCSIS 3.0 Wideband Channel Bonding on the Cisco uBR10012 router.

## Enhanced Hardware Server and Client Support

### Windows Systems

Windows systems supported include Windows 2000, Windows XP, and Windows XP Workstation with Linux Enterprise Edition.

### UNIX Server Systems with Solaris

The following environment supports **10 Cisco CMTS headend systems**:

- UNIX Server Sun Fire Systems with Solaris 10
- Sun Fire V100 server: small
- UltraSPARC-IIi processor: one at 550 MHz
- Memory: 256 MB (one 256-MB DIMM)
- 7200 RPM IDE disk drive: one at 80 GB

The following environment supports **50 or 100 Cisco CMTS headend systems**:

- Sun Fire V210 server: Medium
- UltraSPARC IIIi Cu processor: two at 1.34 GHz
- Layer 2 cache per processor: 1 MB
- Memory: 2 GB (four 512-MB DIMMS)
- 10000 RPM Ultra 3 SCSI LVD disk drive: two at 73 GB

The following environment supports **500 Cisco CMTS headend systems**:

- Sun Fire V440 server: Small
- UltraSPARC IIIi Processor: two at 1.593 GHz
- Internal cache per processor: 1 MB

- Memory: 4 GB (eight 12-MB DIMMS)
- 10000 RPM Ultra320 SCSI disk drive: four at 73 GB

### UNIX Server Systems with Linux

The following environment supports **10, 50, or 100 Cisco CMTS headend systems**:

- Linux Red Hat Enterprise Edition workstation
- Pentium 4, 3.2 gigahertz (GHz) processor or higher
- 2-GB DRAM
- 20-GB disk space

### PC Server Systems for Windows

The following environment supports **10, 50, or 100 Cisco CMTS headend systems**:

- Windows 2000, or Windows XP workstation
- Pentium 4, 3.2 gigahertz (GHz) processor or higher
- 2-GB RAM
- 20-GB disk space

### UNIX Client Machine with Solaris

The following client system supports CBT 3.3 on Solaris:

- Sun Fire V100 server: Small
- UltraSPARC-IIi processor: one at 550 MHz
- Memory: 256 MB (one 256-MB DIMM)

### UNIX Client Machine with Linux

The following client system supports CBT 3.3 with Linux:

- Pentium 4, 3.2 gigahertz (GHz) processor or higher
- 1-GB RAM
- Red Hat 10 or 9

### PC Client Machine with Windows

The following client system supports CBT 3.3 with Windows:

- Windows 2000, or Windows XP workstation
- 1-GB RAM
- Pentium 4, at 3.2 GHz or higher

## Enhanced Support for Operating Systems and Web Server Applications

CBT 3.3 offers enhanced support for the following operating systems and web server software environments:

- DST patch

- Java Runtime Environment (JRE)
- Linux operating system
- Solaris operating system
- Tomcat application server
- Windows operating system

### **DST Patch for Operating Systems**

CBT 3.3 introduces the operating system patch associated with recent Daylight Savings Time (DST) requirements.

### **Java Runtime Environment in CBT 3.3**

CBT 3.2 supported the Java Runtime Environment (JRE) through JRE version 1.4.1. CBT 3.3 comes with Java J2SE Runtime Environment 5.0 embedded in it.

We recommend upgrading to JRE 5.0 on the client side to benefit from the latest enhancements, caveat resolutions, and security features, specifically for the Solaris platform.

### **Linux Operating System**

CBT 3.3 introduces support for Red Hat Enterprise Linux products and the Red Hat Desktop operating system. We recommend upgrading from prior Linux versions, such as Linux Red Hat 7, 8, and 9, as these prior versions have reached the end of their support lifetimes.

### **Solaris Operating System**

CBT 3.3 introduces support for the Solaris operating system through Solaris 10. CBT 3.2 supported Solaris through Solaris 8. We recommend upgrading to Solaris 10 for use with CBT 3.3 to gain support for high-performance server machines that require Solaris 10, and related CBT 3.3 enhancements.

### **Tomcat Application Server**

CBT 3.3 introduces upgraded support for the Tomcat Application Server. With the prior CBT 3.2 version, support was limited to jakarta-tomcat-4.1. CBT 3.3 extends support to include apache-tomcat-5.5.15. The latest Tomcat version introduces scalability and reliability enhancements supported in CBT 3.3, performance optimizations, and reduced garbage collection.

CBT 3.3 implements the latest Tomcat application upgrade, and it is not necessary to download this application server separate from an upgrade to CBT 3.3.

### **Windows Operating System**

CBT 3.3 supports the latest Windows operating systems from Microsoft, such as Windows 2000 or Windows XP. No additional Windows upgrades are required for CBT 3.3.

### **SNMP MIBs**

CBT 3.3 introduces support for additional Management Information Bases (MIBs) and related network management enhancements.

- The following new MIB objects are not contained in the CISCO-PROCESS-MIB for CBT 3.2:

- cpmCPUTotal5secRev Gauge32
- cpmCPUTotal1minRev Gauge32
- cpmCPUTotal5minRev Gauge32
- CBT 3.3 adds SNMP CPU control, with administrative privilege to configure the number of CBT spectrum users.
- CBT 3.3 supports security enhancement for the SNMP community string.
- CBT 3.3 is more robust in clearing the spectrum request entries in the ccsSpectrumRequestTable MIB, applicable upon improper CBT shutdown or the *remove* scheduled event option.
- CBT 3.3 resolves instances in which the ccsSNRRequestEntry MIB was not cleared properly when the CBT server was shut down in earlier versions of CBT.
- CBT 3.3 introduces a new and efficient method for the checkCMTSCPU() MIB to obtain CPU utilization of broadband processing engines.
- CBT 3.3 replaces the obsolete MIB object supporting Subscriber Traffic Management (STM) with the latest objects in the [CISCO-CABLE-QOS-MONITOR-MIB](#), supporting the Cisco IOS STM feature after Cisco IOS Release 12.3(9a)BC.

In CBT 3.2, the STM feature obtained Enforce Rules and Get All Violators with the following obsolete MIB objects:

- ccqmCmtsEnfRuleByteCount
- ccqmEnfRuleViolateByteCount

These obsolete MIB objects are not used by CBT 3.3, in which STM tools are compatible with the latest MIB changes supported in Cisco IOS, through release 12.3(21)BC.

Refer to the following document on Cisco.com for detailed information about MIBs support in relation to CBT 3.3:

- *Cisco CMTS Universal Broadband Series Router MIB Specifications Guide*  
<http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html>

## Trace Window Enhancements

- CBT 3.3 adds Trace Window configuration parameters.
- CBT 3.3 supports additional sorting functions in the Trace Window, by multiple fields.
- CBT 3.3 supports the disabling of the auto-select feature in the Trace Window.

Refer to the *Cisco Broadband Troubleshooter Release 3.3 User Guide* for additional information about using the Trace Window.

## Troubleshooting Enhancements

The Flap List Analyzer management functions are enhanced to support detection of flap lists that may comprise hundreds of cable modems. In cases in which the number of cable modems exceeds 2,000, CBT 3.3 prompts you of the quantity of cable modems, and provides you with the option to either continue or cancel the Flap List Analyzer functions. CBT 3.3 shows the number of cable modems within the Flap List Analyzer.

## New Features in Cisco CBT 3.2

The following features were introduced in CBT 3.2:

- Remote spectrum analysis support with CBT 3.2 on the Cisco MC5x20S/U BPE
- [Using Subscriber Traffic Management with CBT 3.3, page 19](#)

CBT 3.2 enables you to select up to three different cable modems (CMs) under the same CMTS or three different upstreams under the same CMTS. In addition, CBT 3.2 introduces the ability to display upstreams and cable modems combined (mixed) on the same trace window for monitoring and for playback.



### Note

Cisco CBT 3.2 resolves the former CBT 3.1 caveat CSCee03388. With CBT 3.1, trace windows did not support the *mixing* of upstreams or cable modems. Such mixing is supported in CBT 3.2.

For additional information about CBT 3.2, spectrum management and STM 1.1, refer to the following documents on Cisco.com:

- *Spectrum Management for the Cisco CMTS*  
[http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/ufg\\_spec.html](http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/ufg_spec.html)
- *Subscriber Traffic Management for the Cisco CMTS*  
[http://www.cisco.com/en/US/docs/ios/cable/configuration/guide/cmts\\_sbsbr\\_tfmgt.html](http://www.cisco.com/en/US/docs/ios/cable/configuration/guide/cmts_sbsbr_tfmgt.html)

The following features are available in CBT 3.1 with ongoing support in CBT 3.2:

- Support for uBRMC28U, MC28X, MC16U, and MC16X line cards with remote 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](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 releases prior to Cisco IOS 12.3(9a)BC Software, STM is not supported on the MC16U, MC16X, MC28U, and MC28X line cards. CBT 3.2 cannot collect STM data from these cards until a future Cisco IOS release 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.

## Additional Changes for CBT 3.2

The following are changes introduced or supported with CBT 3.2:

- 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
- [Table 2](#) is a summary of supported browsers and Java Virtual Machines (JREs):

**Table 2 Cisco IOS Support for Java™ Runtime Environment (JRE) and Web Browsers**

Platform	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

- Java Runtime Environment (JRE) 1.4.1—Cisco recommends that you install and run the Java Runtime Environment (JRE) 1.4.1 or later in Solaris environments for optimal CBT 3.2 performance. Cisco includes the JRE 1.4.1 libraries with the Cisco CBT 3.2 CBT package. However, if you are using a Web browser without JRE 1.4.1, refer to the following resources from Sun Microsystems for additional information and download:
  - *Java Technology Products Download Archive and Release Notes*  
[http://java.sun.com/products/archive/j2se/1.4.1\\_07/](http://java.sun.com/products/archive/j2se/1.4.1_07/)
  - *Java Runtime Environment (JRE) for Solaris Platforms*



<http://www.sun.com/software/solaris/jre/index.html>

- To use the spectrum management features that Cisco Broadband Troubleshooter 3.2 provides, you must have:
  - Cisco IOS Release 12.3(9a)BC
- The following are the memory requirements for CBT 3.2:
  - 512 MB of memory are required for CBT 3.2 on the client.
- The following are the minimum server requirements for CBT 3.2 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 3.2 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 3.2 on Solaris:
  - Solaris 2.8 OS
  - Ultra 10 Solaris Workstation for low end systems (typically in a range from one to 10 CMTS headends)
  - Ultra 60 Solaris Workstation for higher utilization systems (typically in a range from one to 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 and CBT 3.2 no longer ship on a CD-ROM, and are only available by downloading the application from Cisco.com (see “[Upgrading to CBT 3.3](#)” section on page 13).

## Caveats for Cisco Broadband Troubleshooter Release 3.3

Caveats describe unexpected behavior in Cisco software releases. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious. Severity 3 caveats are moderate caveats, and only selected severity 3 caveats are included in the caveats document.

Caveat numbers and brief descriptions for Cisco Broadband Troubleshooter Release 3.3 are listed in this section.

**Cisco Bug Search**

Cisco Bug Search Tool (BST), the online successor to Bug Toolkit, is designed to improve effectiveness in network risk management and device troubleshooting. You can search for bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. For more details on the tool, see the help page located at <http://www.cisco.com/web/applicat/cbsshelp/help.html>.

**Resolved Caveats for CBT 3.3.0.2**

Table 3 describes CBT 3.3.0.2 enhancements that resolve prior caveats in earlier CBT releases.

**Table 3 Resolved Caveats in CBT 3.3.0.2**

DDTS ID Number	Description
CSCso98340	<p>Since the Cisco Broadband Troubleshooter 3.3 is using an older version of CISCO-PRODUCT-MIB, the Router Type is not updated in the Manage CMTS list page.</p> <p>The CISCO-PRODUCT-MIB.my file under the MIBS folder of CBT 3.3 has been replaced with the latest MIB which is appended with the product information.</p>
CSCsj64214	<p>CBT is unable to calculate the CPU utilization check for the selected upstream line cards since there is no entAliasMappingIdentifier for some of the shared upstream interfaces. So the result is all spectrum operations cannot be performed with this frequency stacking configurations.</p> <p>This issue is resolved.</p>
CSCsq36547	<p>The column title in the Service Flow Table is changed from "Throughput" to "Minimum Packet Size" since it is more relevant.</p> <p>To navigate to the table: <b>Hotline Tools -&gt; Locate Modem -&gt; Real Time Modem Status -&gt; Modem's Service Flow Table</b>. The Help documentation is updated with this information.</p>
CSCse91696	<p>Null entries were observed when the entPhysicalDescr MIB is queried in: <b>All Spectrum Operation -&gt; Interface and Card Listing</b>.</p> <p>This issue is resolved.</p>

## Resolved Caveats for CBT 3.3

Table 4 describes CBT 3.3 enhancements that resolve prior caveats in earlier CBT releases.

**Table 4** Resolved Caveats in CBT 3.3

DDTS ID Number	Description
CSCsb95957	<p>CBT 3.3 updates the MIBs by which the Subscriber Traffic Manager feature obtains Enforce Rules and Violator Status. CBT 3.3 replaces the obsolete MIB object supporting Subscriber Traffic Management (STM) with the latest objects in the related MIB. This enhancement is supported for the Cisco IOS STM feature after Cisco IOS Release 12.3(9a)BC.</p> <p>Refer to the following section or document on Cisco.com for detailed information about MIBs support in relation to CBT 3.3:</p> <ul style="list-style-type: none"> <li>• “SNMP MIBs” section on page 5</li> <li>• <i>Cisco CMTS Universal Broadband Series Router MIB Specifications Guide</i>  <a href="http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html">http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html</a></li> </ul>
CSCsc09577	<p>CBT 3.3 introduces and supports a mechanism by which scheduled polling events do not consume CPU processing, as was the case in prior CBT releases. The prior issue related to the SpecDataMaxCPU parameter being exceeded.</p> <p>The SpecDataMaxCPU parameter now represents a gateway check that stops new CBT requests from being created if the CPU utilization exceeds a certain threshold.</p>
CSCsc09669	<p>CBT 3.3 introduces a new mechanism by which network administrators may control Spectrogram settings, such as upper and lower frequencies, polling intervals, and step size. These functions are supported in Trace Window Spectrogram displays. Prior releases of CBT did not support these Spectrogram administrative controls and configuration parameters.</p> <p>Refer to the “Configuring Administrative Parameters for Spectrum Analysis” section on page 23 for additional information.</p>
CSCsc13740	<p>CBT 3.3 introduces support for checking CPU utilization, and supports the associated SNMP MIBs that enable this function in the Trace Window. Refer to the following section or document on Cisco.com for related information:</p> <ul style="list-style-type: none"> <li>• “SNMP MIBs” section on page 5</li> <li>• <i>Cisco CMTS Universal Broadband Series Router MIB Specifications Guide</i>  <a href="http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html">http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html</a></li> </ul>
CSCsc13923	<p>CBT 3.3 retains the security of hidden passwords, even when the Password field is highlighted.</p>
CSCsc29221	<p>CBT 3.3 correctly reports the specific CBT release that must be installed when valid licensing error messages are displayed.</p>
CSCsc29256	<p>CBT 3.3 enables you to remove a scheduled polling event that is running, without having to stop it first. CBT 3.3 removes the associated row in the ccsSpectrumRequestTable display, even when the polling event is not stopped prior to its removal.</p>

**Table 4**      **Resolved Caveats in CBT 3.3 (continued)**

<b>DDTS ID Number</b>	<b>Description</b>
CSCsc29262	CBT 3.3 resolves occurrences, in prior CBT releases, of a counter locking problem in the Trace Window display, in circumstances in which CBT was closed without first stopping or closing the Trace Window.
CSCsc74283	CBT 3.3 resolves occurrences, in prior CBT releases, in which the ccsSNRRequestEntry MIB object was not cleared properly, when the CBT server was shut down.
CSCsd47616	CBT 3.3 introduces support for checking cable interface line card CPU utilization, and the associated SNMP MIBs that enable this function in the Trace Window. Refer to the following section or document on Cisco.com for related information: <ul style="list-style-type: none"> <li>• <a href="#">“SNMP MIBs” section on page 5</a></li> <li>• <a href="#">Cisco CMTS Universal Broadband Series Router MIB Specifications Guide</a> <a href="http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html">http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html</a></li> </ul>
CSCse00909	CBT 3.3 supports the latest Cisco uBR10-MC5X20S/U/H broadband processing engines (BPEs).
CSCse38589	CBT 3.3 resolves occurrences, in prior CBT releases, in which the graphical user interface (GUI) would become inaccessible when stopping the application. This prior issue arose when the poller was run for a few hours, and related to Tomcat processes and Telnet session timeouts.
CSCsf96230	CBT 3.3 disables the auto-select behavior for entries in the Trace Window, and CBT 3.3 introduces the ability to sort and reverse-sort all fields of the Trace Window Criteria dialog box. Refer to the <a href="#">Cisco Broadband Troubleshooter Release 3.3 User Guide</a> for additional information.
CSCsg32141	CBT 3.3 introduces support for CMTS hostnames to include dotted notation. Refer to the <a href="#">“Administrative and Security Enhancements” section on page 2</a> for additional information.
CSCsg39114	The GS Analyzer tool of CBT 3.3 adds more efficiency to the maintenance and processing of information in relation to the cdxIfCmtsCmStatusLastResetTime MIB object. Prior to CBT 3.3, related limitations had a negative impact on Flap List troubleshooting on Cisco CMTS headends supporting 7,200 more cable modems.
CSCsg46989	CBT 3.3 introduces a standard feature by which Cisco CMTS headend systems are listed first by name, then by IP address. Prior CBT versions did not support CMTS hostnames. Refer to the <a href="#">“Administrative and Security Enhancements” section on page 2</a> for additional information.
CSCsg74720	CBT 3.3 introduces enhanced Flap List Analyzer functions that provide warnings about large numbers of cable modems on a given Cisco CMTS. Refer to the <a href="#">“Troubleshooting Enhancements” section on page 6</a> for additional information.

# Upgrading to CBT 3.3

This section describes installation, upgrade, and patch installation procedures for CBT 3.3. This section contains the following procedures:

- [Downloading and Upgrading CBT 3.3, page 14](#)
- [Requirements for Installing DST Operating System Patches, page 16](#)

Follow the steps below to upgrade to CBT 3.2:



## Note

Temporary instructions for Beta deployment and access are described in steps immediately below.

## Beta Deployment Download and Upgrade Instructions

- Step 1** Click on the Smart URL below to download the CBT32-Win.bin file to your local directory:
- <https://www.cisco.com/cgi-bin/Software/SFA/sfa.cgi?menu=step2&code=10928653973101196289062515517431418710432301>
- Step 2** Rename the CBT32-Win.bin file to CBT32-Win.exe.
- Step 3** Double click on **CBT32-Win.exe** to start the InstallShield utility. Choose a directory that has sufficient disk space specified elsewhere in this document. Cisco recommends that you use the default install directory if there is sufficient space there.
- Step 4** Continue with and complete the installation steps as provided by the InstallShield utility. Two command prompt windows display automatically, and these start the CBT server processes and other functions. Do not close these windows.
- Step 5** Install the CBT 3.2 Beta license file by copying the attached license file to the following location on your local system:
- <install\_dir>\httpServer\webapps\ROOT\WEB-INF\classes\lic/License
- Step 6** Once the CBT 3.2 installation is complete, close the InstallShield utility as prompted.
- Step 7** Use the Windows **Start** menu at the lower left corner on the Windows desktop. Cisco Broadband Troubleshooter should be listed under program menu.
- Step 8** Choose **Stop Troubleshooter** from its submenu to stop CBT. A command prompt window appears.
- Step 9** Once it is stopped, launch **Start Troubleshooter**. Two command prompt windows display. Allow the MIB to be loaded at this point.
- Step 10** To launch the CBT client, point your browser to one of the following two online locations:
- <http://<server-ip>:9080> — Use this location if you did not enable https during installation.
- <https://<server-ip>:9443> — Use this location if you have enabled https during installation for up to 100 Cisco CMTS headends with these instructions.

The CBT 3.2 attachment (CBT32-Win.bin file) contains a license for up to 100 CMTS headends, and this will expire at approximately September end.

For reference, please use the following links to the *CBT 3.0 User Guide* and *CBT 3.2 Release Notes*:

- *CBT 3.0 User Guide*:

[http://www.cisco.com/en/US/docs/net\\_mgmt/cisco\\_broadband\\_troubleshooter/3.3/user/guide/cbt3\\_ug\\_book.html](http://www.cisco.com/en/US/docs/net_mgmt/cisco_broadband_troubleshooter/3.3/user/guide/cbt3_ug_book.html)

- CBT 3.2 Release Notes  
<http://lbj.cisco.com/targets/ucdit/cc/td/doc/product/cable/trblshtr/cbt32/cbt32rn.htm>



**Note** The second link is an internal link. The external link for FCS is to be determined.

## Downloading and Upgrading CBT 3.3

Use the following steps to download and to install CBT 3.3 on a system with the Linux, Solaris, or Windows operating systems.

### Using TCP Ports for CBT 3.3 Upgrade and Operation



**Note**

Cisco implements a default TCP port of 8105 on the licensing server for CBT 3.3 in XML script. This prevents port conflict with other applications. If you require a TCP port other than the default of 8105, then set the TCP port after installation of CBT 3.3, but prior to licensing. Refer to the “[CBT 3.3 Download and Upgrade](#)” section on page 14.

We recommend ports other than 8005, 8080, 9080, 9443, or 9082.

The following are the default ports used by CBT 3.3:

- Port 8105: Java Virtual Machine (JVM) server port
- Port 9080: non-SSL HTTP port
- Port 9443: SSL HTTP port
- Port 9082: Apache JServ Protocol (AJP) 1.3 Connector
- Port 2640: For Sybase Database connectivity.
- Port 8020: For Poller operation

CBT 3.3 uses the following port ranges for spectrum operations. Spectrum events such as Trace Window, Spectrogram, CNR Trending, and the Generic Query use a specified range of port numbers for operation.

- For both Trace Window events and the Spectrogram events, the port numbers range from 2100 to 2500.
- For the Spectrum tools, such as CNR Trending, port numbers range from 3100 to 3500.
- For the Diagnostic tools, such as Generic Query, the port numbers range from 5100 to 5500.
- The usage of these spectrum port numbers should be in increments of 1, meaning the first Trace Window launched obtains port number 2100, and the next Trace Window obtains port 2101. The next Spectrogram window would be port 2102, and continuing upward to port 2500.

### CBT 3.3 Download and Upgrade

- Step 1** Download CBT 3.3 software for the desired platform from Cisco.com to your local directory <CBT3.3\_DOWNLOAD\_DIR>.
- Cisco.com download location:

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

- CBT 3.3 download entails the following platform-specific files:
  - There is a single file for the Solaris platform—**CBT33-Solaris.tar.gz**
  - There is a single file for the Linux platform—**CBT33-Linux.tar.gz**
  - Platform files for the Windows platform—**CBT33-Win.exe**
  - CBT 3.3 Release Notes—**CBT33ReleaseNotes.pdf**

**Step 2** Extract the software. For Solaris and Linux, use the commands below. For Windows 2000 and Windows XP, skip to [Step 3](#).

- Solaris:
  - a. **cd <CBT3.3\_DOWNLOAD\_DIR>**
  - b. **gunzip CBT33-Solaris.tar.gz**
  - c. **tar xvf CBT33-Solaris.tar**
- Linux:
  - a. **cd <CBT3.3\_DOWNLOAD\_DIR>**
  - b. **gunzip CBT33-Linux.tar.gz**
  - c. **tar xvf CBT33-Linux.tar**

**Step 3** If there is a previous CBT installation (CBT 2.x, CBT 3.0 or CBT 3.2), uninstall it using the following procedures; otherwise, skip to [Step 4](#).

- Solaris: **cd <CBT3.x\_DOWNLOAD\_DIR> ./uninstall**
- Linux: **cd <CBT3.x\_DOWNLOAD\_DIR> ./uninstall**
- Windows:
  - Remove the existing CBT installation by clicking **Start, Settings, Control Panel, Add or Remove Programs**, and removing CBT 3.x following the Windows prompts.
  - In Windows Explorer, navigate to the directory that was uninstalled, and verify it was removed. If necessary, delete the CBT3x-Win.exe in <CBT3.x\_DOWNLOAD\_DIR> file and related files if they remain.

**Step 4** Install CBT 3.3. Use the following commands, according to platform.

- Solaris: **cd <CBT3.3\_DOWNLOAD\_DIR> ./install**
- Linux: **cd <CBT3.3\_DOWNLOAD\_DIR> ./install**
- Windows:
  - In Windows Explorer, double-click **CBT33-Win.exe** in <CBT3.3\_DOWNLOAD\_DIR>.
  - Select the default answers to the installation questions.




---

**Note** A demonstration version of CBT 3.3 is now running (a license is not included in the Cisco.com download). To make the software fully functional, obtain a license for CBT 3.3 from Cisco Systems. See [Step 5](#).

---

**Step 5** Purchased copies of CBT no longer include a software CD, but include a license certificate with a PAK key. This PAK key generates the necessary license file from the following websites, and the software is downloaded from Cisco Connection Online.

- Use this site if you are a registered user of Cisco Connection Online:

[www.cisco.com/go/license](http://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](http://www.cisco.com/go/license/public)




---

**Note** Save the license file with the name “License” from the Cisco Server location cited in an earlier step, and follow the instructions in Step 6 to copy it to the appropriate directory for use by CBT 3.3.

---

Demonstration copies are available either via the Internet, or as an ordered accessory for a universal broadband router product. The copies supplied with a universal broadband router product include a demo license certificate with a PAK key. The copy available from the Internet uses a registration page where the PAK key is emailed to you.

**Step 6** Use the following commands to copy the license to the license directory and restart CBT 3.3.

- 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**  
**<CBT3.3\_INSTALLATION\_DIR>\httpServer\webapps\ROOT\WEB-INF\classes\lic**
  2. Click **Start, Programs, Cisco Broadband Troubleshooter, Stop Troubleshooter.**
  3. Click **Start, Programs, Cisco Broadband Troubleshooter, Start Troubleshooter.**




---

**Note** Once the CBT 3.3 license is installed and active, additional changes to the license are not supported. License changes disable an otherwise valid license.

---

## Requirements for Installing DST Operating System Patches

CBT 3.3 requires that the latest operating system patches be installed for all platforms supported by CBT 3.3. Refer to the “[Enhanced Support for Operating Systems and Web Server Applications](#)” section on [page 4](#) for additional information about supported platforms.

### JRE OS-Level Requirements

CBT 3.3 supports the latest Java Runtime Environment (JRE 5.0) platform. However, the network administrator must ensure that all OS-level patches are installed to avoid system problems with CBT 3.3. This section describes patch requirements according to platform.



- Microsoft Windows Operating Systems:
  - See DST information at <Preparing for Daylight Saving Time changes in 2007> available at <http://www.microsoft.com/windows/timezone/dst2007.msp>
- Linux Operating Systems:
  - For Red Hat Enterprise Linux 3 (RHEL3), see information at <http://rhn.redhat.com/errata/RHEA-2005-655.html>
  - For Red Hat Enterprise Linux 4 (RHEL4), see information at <http://rhn.redhat.com/errata/RHEA-2005-656.html>
- Sun Solaris Operating Systems:
  - See DST patch information for Sun Solaris 8, 9, and 10 at the following locations:  
Australia—#102178: Daylight Saving Time (DST) Changes for Australia (2006)  
<http://sunsolve.sun.com/search/document.do?assetkey=1-26-102178-1>  
United States (2007) and additional countries  
<http://sunsolve.sun.com/search/document.do?assetkey=1-26-102178-1>

## Using CBT 3.3

CBT 3.3 introduces the following new procedures and enhanced configurations supported in release 3.3. These procedures are not supported in releases prior to CBT 3.3. Refer also to the “[Related Documentation](#)” section on page 28 for further CBT 3.3 documentation and configuration information.

### General Procedures for CBT 3.3

- [Using SNMP MIBs in CBT 3.3, page 17](#)
- [Using Subscriber Traffic Management with CBT 3.3, page 19](#)
- [Disabling or Enabling Password Text Display, page 19](#)

### CPU Procedures for CBT 3.3

- [Enabling Instantaneous CPU Assessment for Spectrum Polling, page 20](#)

### Trace Window Procedures for CBT 3.3

- [Viewing Trace Windows, page 21](#)
- [Sorting Support in the Trace Window, page 22](#)
- [Mapping Hostnames from Applet to Servlet, page 22](#)
- [Configuring Administrative Parameters for Spectrum Analysis, page 23](#)
- [Using Auto-Select in the Trace Window, page 25](#)

## Using SNMP MIBs in CBT 3.3

Cisco Broadband Troubleshooter (CBT) 3.3 uses the following SNMP MIBs in the Cisco IOS 12.3 BC Software Release train. Refer also to the “[New Features in Cisco CBT 3.2](#)” section on page 7.

- RFC1213-MIB
- IANAifType-MIB

- IF-MIB
- SNMPv2-MIB
- SNMPv2-TC
- CISCO-SMI
- OLD-CISCO-CHASSIS-MIB
- CISCO-PRODUCTS-MIB
  - DOCS-IF-MIB
  - DOCS-IF-EXT-MIB
  - CISCO-CABLE-SPECTRUM-MIB
  - CISCO-DOCS-EXT-MIB
- CISCO-PING-MIB
- INET-ADDRESS-MIB
- SNMP-FRAMEWORK-MIB
  - DOCS-CABLE-DEVICE-MIB
  - CISCO-PROCESS-MIB
  - DOCS-QOS-MIB
  - ENTITY-MIB
  - CISCO-CABLE-QOS-MONITOR-MIB
  - CISCO-DOCS-REMOTE-QUERY-MIB

When extracting the downloaded CBT 3.3 file, these MIBs are placed by default in the following path:  
 <CBT Install Directory>/httpServer/webapps/ROOT/WEB-INF/mibs


**Note**

Not all the tables contained in these MIBs are used with CBT 3.3.

Generally, all read and create objects in the `ccsSpectrumRequestTable` and `ccsSNRRequestTable` can be set with spectrum management tools in CBT 3.3. These objects require a WRITE community string:

- `ccsSpectrumRequestTable`
  - `ccsSpectrumRequestIfIndex`
  - `ccsSpectrumRequestMacAddr`
  - `ccsSpectrumRequestLowFreq`
  - `ccsSpectrumRequestUpperFreq`
  - `ccsSpectrumRequestResolution`
  - `ccsSpectrumRequestOperation`
  - `ccsSpectrumRequestStatus`
- `ccsSNRRequestTable`
  - `ccsSNRRequestMacAddr`
  - `ccsSNRRequestOperation`
  - `ccsSNRRequestStatus`

For additional MIBs information for the Cisco CMTS, refer to the following resources on Cisco.com:

- *Cisco CMTS Universal Broadband Router MIB Specifications Guide*  
<http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html>
- *SNMP Object Navigator*  
<http://www.cisco.com/cgi-bin/Support/Mibbrowser/unity.pl>

## Using Subscriber Traffic Management with CBT 3.3

To use the Subscriber Traffic Management (STM) feature of CBT 3.3, the **cable qos enforce-rule** command on the Cisco 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 a management profile.



**Note** STM is newly supported on the MC16U, MC16X, MC28U, MC28X, and MC5X20S/U/H line cards with CBT 3.3. STM data is now enabled with CBT 3.3.

To create a management profile, follow these steps:

	Command	Purpose
<b>Step 1</b>	Router# <b>show cable modem registered</b>	Finds the registered profiles on the CMTS. Find a current registered profile that has the features you need.
<b>Step 2</b>	Router# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 3</b>	Router (config)# <b>cable qos profile number</b>	Enters the QoS profile number of the registered profile that has the features you need.
<b>Step 4</b>	Router (config)# <b>exit</b>	Exits global configuration mode.

## Disabling or Enabling Password Text Display

CBT 3.3 enables you to display password text, or to disable password text display according to your needs. By default, this parameter is set to YES. If you set the corresponding parameter to NO, CBT does not display password text when the Password field is displayed.

Perform the following steps to disable or to enable password text display for one or more user names.

- 
- Step 1** Open the GUNSLINGER.INI file available in the CBT server machine.
- For Solaris and Linux, the GUNSLINGER.INI file is under the directory /opt/CSCOcbt/httpServer/webapps/ROOT or <CBT\_Install\_Directory>/httpServer/webapps/ROOT.
  - For Windows, the GUNSLINGER.INI file is under the directory C:\Program Files\Cisco Systems\Cisco Broadband Troubleshooter\httpServer\webapps\ROOT\ or <CBT\_Install\_Directory>\httpServer\webapps\ROOT\.
- Step 2** Change the value of the ShowPasswordWhileEditing parameter to YES or NO as per your need.
- For YES, CBT 3.3 does not display the password text when the password field is highlighted.
- Step 3** Save the GUNSLINGER.INI file with your changes.

**Step 4** Restart CBT 3.3.

---

## Enabling Instantaneous CPU Assessment for Spectrum Polling

CBT 3.3 enables the option of preventing excessive CPU consumption in circumstances in which the Trace Window, Spectrogram functions, or Scheduled Polling features might otherwise exceed CPU bandwidth.

CBT has provisions to instantaneously check the CPU utilization and prevents the spectrum operation if the CPU utilization exceeds the CPU thresholds (value of SpecDataMaxCPU parameter).

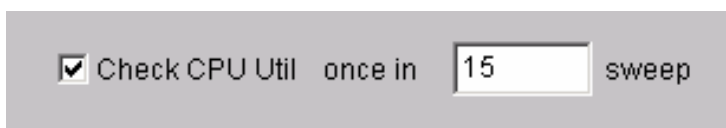
Perform these steps to enable or disable CPU assessment in the Trace Window Criteria dialog box, the Spectrogram Criteria dialog box, or the Spectrum Data Clients dialog box before launching the spectrum event.

### DETAILED STEPS

---

- Step 1** Launch CBT 3.3.
- Step 2** Launch the desired window in which to configure this change.
- For Trace Window changes, from the Spectrum Tools menu, choose **Trace Window**. The Trace Window Criteria dialog box appears. Proceed to the next step.
  - For Spectrogram changes, from the Spectrum Tools menu, choose **Spectrogram**. The Spectrogram Criteria dialog box appears. Proceed to the next step.
  - For Spectrum Data Scheduler changes, from the Spectrum Tools menu, choose **Spectrum Data Clients**. The Spectrum Data Clients dialog box appears. Proceed to the next step.
- Step 3** Select the **Check CPU Util** check box. Only when the check box is selected is the field enabled to enter the number of spectrum sweeps that should be done for every CPU utilization check. If periodic check of CPU utilization is not necessary, then deselect this option and proceed. If not selected, the CPU utilization is checked only once before the launch of the spectrum operation. Refer to [Figure 1](#).

**Figure 1** Check CPU Util Dialog Box



- Step 4** When the Check CPU Util check box is selected, enter the number of sweeps in which CPU utilization should be checked. The default value is 10.

This setting means that the CPU utilization is checked and compared with the SpecDataMaxCPU parameter. Upon positive results, the spectrum operation gets started. The spectrum data is collected continuously with the specified poll interval.

One sweep corresponds to a single polling of spectrum data. After 10 such polling events, CBT again checks the CPU Utilization and compares it with the SpecDataMaxCPU parameter. If the results are positive, the spectrum operation continues; otherwise, the continuous query is stopped. If the number of sweeps is 1, then the CPU utilization is checked before every polling of spectrum data.

**Step 5** Continue with the launch of the spectrum operation.

---

## Configuring the Number of Sessions and Users in SNMP-based CPU Control

CBT 3.3 enables the measurement of CPU utilization levels associated with spectrum operations. CBT 3.3 adds the capability to define the maximum number of sessions and users to be supported, and this feature helps to preserve CPU resources.

Perform the following steps to change the number of sessions and users to be supported in CBT 3.3. This procedure changes the `SpecDataMaxRequests` parameter in the `SPECTRUM.INI` file.

### DETAILED STEPS

---

- Step 1** Open the `SPECTRUM.INI` file available in the CBT server machine.
- For Solaris and Linux, the `SPECTRUM.INI` file is under the directory `/opt/CSCOcbt/httpServer/webapps/ROOT` or `<CBT_Install_Directory>/httpServer/webapps/ROOT`
  - For Windows, the `SPECTRUM.INI` file is under the directory `C:\Program Files\Cisco Systems\Cisco Broadband Troubleshooter\httpServer\webapps\ROOT\` or `<CBT_Install_Directory>\httpServer\webapps\ROOT\`
- Step 2** Change the value of the `SpecDataMaxRequests` profile to the desired and supported number of sessions or users. This value must conform to the number of licenses provisioned, and to the number of supported sessions according to your installation of CBT 3.3.
- Refer to the following two sections of this document for additional information:
- [“Cisco CMTS Support and Licensing Enhancements” section on page 3](#)
  - [“Enhanced Hardware Server and Client Support” section on page 3](#)
- Step 3** Save the `SPECTRUM.INI` file with your changes.
- Step 4** Restart CBT 3.3.
- 

## Viewing Trace Windows

Some browsers give the user the ability to stop pop-up windows from being launched by the browser. CBT 3.3 normally launches a new window to display the trace and spectrum data charts. If the data chart window does not appear and the browser is configured to stop pop-up windows from launching, you can configure CBT 3.3 to display data charts within the browser window.

To configure CBT 3.3 to display data charts within the browser window, perform the following steps:

---

- Step 1** Select **Configuration > System** in the CBT 3.3 menu.
- Step 2** In the System Configuration screen, deselect the **Use Popup** check box.
-

## Sorting Support in the Trace Window

CBT 3.3 introduces sorting support for the List fields in the following windows or dialog boxes:

- Spectrum Data Scheduler
- Trace Window Criteria
- Spectrogram Criteria
- CNR Analysis Criteria
- CNR Trending Criteria

To change the order of sorting, perform the following steps:

- 
- Step 1** Select the desired page:
- **Configuration > Scheduler > Spectrum Data > Spectrum Data Scheduler page**
  - **Spectrum Tools > Trace Window > Trace Window Criteria page**
  - **Spectrum Tools > Spectrogram > Spectrogram Criteria page**
  - **Spectrum Tools > CNR Analysis > CNR Analysis Criteria page**
  - **Spectrum Tools > CNR Trending > CNR Trending Criteria page**
- Step 2** Click on the label of the desired field, and data is sorted in ascending or descending order. Each click of the label reverses the current order displayed.
- 

## Mapping Hostnames from Applet to Servlet

CBT 3.3 introduces support for hostname-based communications between applet and servlet on the network, in addition to sustaining IP-based communications, as with the prior CBT 3.2.

In CBT 3.2 all the communication between the applet and the servlet was based only on the IP address of the server. Every request and response between the applet and servlet had the IP address in the URL. CBT 3.3 removes this limitation, to support both hostnames and IP addresses.

This mapping configuration procedure changes the UseHostName parameter of the GUNSLINGER.INI file. By default, this value is NO in CBT 3.3. Changing this value to YES enables hostname-based communication between applet and servlet, and removes IP addresses from corresponding displays and processing.

Some Web proxy functions only allow hostname-based IP communication, and otherwise drop communications with IP addresses in the URL. This feature is helpful in such cases.

### Prerequisites

This procedure requires that applet and servlet hostnames be established and otherwise functional on the network prior to mapping hostnames in CBT 3.3. Both the client and server should be able to resolve the hostname of the CBT server machine.

Perform these steps to map hostnames from applet to servlet.

- 
- Step 1** Open the GUNSLINGER.INI file available in the CBT server machine.

- For Solaris and Linux, the GUNSLINGER.INI file is under the directory /opt/CSCOcbt/httpServer/webapps/ROOT or <CBT\_Install\_Directory>/httpServer/webapps/ROOT.
  - For Windows, the GUNSLINGER.INI file is under the directory C:\Program Files\Cisco Systems\Cisco Broadband Troubleshooter\httpServer\webapps\ROOT\ or <CBT\_Install\_Directory>\httpServer\webapps\ROOT\.
- Step 2** Change the UseHostName parameter to YES or NO depending on your need.
- YES enables hostname-based communications.
  - NO implements IP-address-based communications.
- Step 3** Save the GUNSLINGER.INI file with your changes.
- Step 4** Restart CBT 3.3.
- 

## Configuring Administrative Parameters for Spectrum Analysis

CBT releases prior to CBT 3.3 support options for spectrum operation parameters, and CBT 3.3 continues support for these parameters. CBT 3.3 introduces support for administrators to configure upper and lower limits for multiple fields in the Spectrum Operations windows. CBT 3.3 introduces additional configurable parameters in the SPECTRUM.INI file.

Perform the following steps to define administrative upper and lower limits in Spectrum Operations windows:

- 
- Step 1** Open the SPECTRUM.INI file available in the CBT server machine.
- For Solaris and Linux, the SPECTRUM.INI file is under the directory /opt/CSCOcbt/httpServer/webapps/ROOT or <CBT\_Install\_Directory>/httpServer/webapps/ROOT.
  - For Windows, the SPECTRUM.INI file is under the directory C:\Program Files\Cisco Systems\Cisco Broadband Troubleshooter\httpServer\webapps\ROOT\ or <CBT\_Install\_Directory>\httpServer\webapps\ROOT\.
- Step 2** Change the default settings for as few or as many parameters as desired. Listed below are default values, and acceptable parameters, where applicable:
- SpecEventStartFreqMinValue=5
  - SpecEventStartFreqMaxValue=65
  - SpecEventStopFreqMinValue=5
  - SpecEventStopFreqMaxValue=65
  - SpecEventCenterFreqMinValue
  - SpecEventCenterFreqMaxValue
  - SpecEventFreqSpanMinValue
  - SpecEventFreqSpanMaxValue
  - SpecEventDataPointsMinValue
  - SpecEventDataPointsMaxValue
  - SpecEventPollIntervalMinValue

- SpecEventPollIntervalMax Value
- SpecEventStepSizeMinValue
- SpecEventStepSizeMax Value
- SpecEventSamplesMinValue
- SpecEventSamplesMax Value

You can configure the upper and lower limit for the start, stop frequency, poll interval, step size and data points. While entering such data spectrum parameters, CBT 3.3 sustains native-level validation, and additionally, CBT 3.3 validates entries with respect to the newly configured limits in the SPECTRUM.INI file. The following list describes various fields and supported ranges for validation in a Spectrum Event:

- Start Frequency—Should be in the range of 5 to 65, with the value representing MHz. A decimal value is supported.
- Stop Frequency—Should be in the range of 5 to 65, with the value representing MHz. A decimal value is supported.
- Center Frequency and Frequency Span—The frequency span cannot be greater than these results:
  - minimum—(center frequency - 5) x 2
  - minimum—(65 - center frequency) x 2

Validation is performed on Center Frequency and Frequency Span in the following way:

- Start and stop Frequencies are calculated.
- $\text{startFreq} = \text{centerFreq} - (\text{freqSpan}/2)$
- $\text{stopFreq} = \text{centerFreq} + (\text{freqSpan}/2)$

As a result, these values should be in the range 5 to 65. In this way, both the fields are validated.

- Data Points—Should be an integer greater than 2, and are subject to the following additional range requirements, according to the cable interface line cards:
  - Should be in the range from 2 to 6001 for the MC5X20S/U/H BPE.
  - Different upper limits of Data Points for different cable interface line cards are as follows:
    - MC16S: 617
    - MC16U: 3001
    - MC16X: 3001
    - MC28U: 3001
    - MC28X: 3001
    - MC5X20S: 5886
    - MC5X20U: 6001
  - DataPoints with other cable interface line card combinations should result in a start and stop frequency range of 5 to 65.
- Poll Interval—Must be a positive integer.
- Step Size—Should be a positive integer not greater than 6000.



**Note**

For any combination of the above-mentioned field values that you enter, the start and stop frequency should always be in the range 5 to 65.



**Step 3** Save the SPECTRUM.INI file, and restart CBT 3.3.

CBT 3.3 also supports additional checking with respect to the administratively configured values in the SPECTRUM.INI file. When changing this file, all the field values should also be in the range specified, and saved to the SPECTRUM.INI file for non-default configurations.



**Note**

If the value of the SpecEventPollIntervalMinValue parameter is set to 1, then only values above 1 are accepted in the Poll Interval dialog box. This configuration removes the bandwidth-consuming zero-second polling, which occurs if the value is set to zero.

## Using Auto-Select in the Trace Window

CBT 3.3 does not select any given field in the Trace Window by default. To retrieve and display information for any given field in the Trace Window display, select the desired field.

## Troubleshooting Tips for CBT 3.3

This section contains the following procedures for verifying and troubleshooting CBT 3.3:

- [Troubleshooting Continuous Sweep Spectrum Operation in CBT 3.3, page 25](#)
- [Changing Server Ports in XML Script, page 26](#)
- [Saving System Message Logs for Troubleshooting, page 26](#)
- [Verifying Installation Status on the CBT 3.3 Server, page 27](#)
- [Verifying the CBT 3.3 License, page 27](#)

## Troubleshooting Continuous Sweep Spectrum Operation in CBT 3.3

A non-standard behavior has been observed in which the Continuous Sweep Spectrum Operation of CBT 3.3 fails, even in circumstances in which the Single Sweep Spectrum Operation remains functioning. One example would be the proper Trace Window single sweep operation, but with failed continuous sweep behavior in the Trace Window.

CBT 3.3 requires that the following processes and tasks be used for Continuous Sweep Spectrum Operation.

**Step 1** Verify the TCP ports used by CBT 3.3 are as follows, as CBT uses these ports by default:

- Port 8105: JVM server port
- Port 9080: non-SSL HTTP port
- Port 9443: SSL HTTP port
- Port 9082: AJP 1.3 Connector
- Port 2640: For Sybase Database connectivity.
- Port 8020: For Poller operation

Refer also to the [“Using TCP Ports for CBT 3.3 Upgrade and Operation”](#) section on page 14.

- Step 2** Implement the following TCP port ranges for spectrum operations. Spectrum events such as Trace Window, Spectrogram, CNR Trending, and the Generic Query use a specified range of port numbers for operation.
- For both Trace Window events and the Spectrogram events, the port numbers range from 2100 to 2500.
  - For the Spectrum tools, such as CNR Trending, port numbers range from 3100 to 3500.
  - For the Diagnostics tools, such as Generic Query, the port numbers range from 5100 to 5500.
  - The usage of these port numbers would in increments of 1. That is, for the first trace window launched, the port number is 2100, and the next trace window port number 2101. For the next Spectrogram window, the port number is 2102 and so forth up to port 2500.

## Changing Server Ports in XML Script

Cisco IOS Release 12.3(9a)BC changes the Tomcat server port in server XML script. The script is set to port 8105. This prevents possible port conflict when multiple Tomcat Web servers are running on the same workstation.

If required, perform the following steps to change the Tomcat server port in XML script to port 8105 and check for additional port conflicts:

- Step 1** Edit the server.xml script in the following location:
- ```
/opt/CSCOcbt/httpServer/conf
```
- Step 2** Check for all ports numbers that have conflicts with CBT and change all port numbers that have such conflicts. The following are correct ports for the specified functions:
- Port 8105: JVM server port
  - Port 9080: non-SSL HTTP port
  - Port 9443: SSL HTTP port
  - Port 9082: AJP 1.3 Connector

## Saving System Message Logs for Troubleshooting

When troubleshooting CBT 3.3, we recommend that message logs be saved and filtered in the following ways:

- Step 1** To view saved message logs, click **Utilities** then **Message log** in the user interface.
- This is a fixed-size log file that continuously removes the oldest entry as it is updated. This log file is not viewable using an editor (such as vi).
- Step 2** Filter the message log entries by severity, by user, by module, or by date.
- Step 3** To set the logging level, click **Configuration** then **Message Log** in the user interface. Setting the logging level helps to prevent unnecessary messages occupying the fixed-size log file.

For Solaris and Linux, the log file is located at `/opt/CSCOcbt/httpServer/logs/catalina.out`. This file is viewable with viewing utilities such as `vi`, `Cat`, `Tail`, or others.



**Note** The message log file grows in size. For Windows, these messages go to the console and a file is not created.

## Verifying Installation Status on the CBT 3.3 Server

The status of the installed CBT 3.3 server can be verified with the following steps.

**Step 1** Verify that there are no exceptions in the `catalina.out` file located as follows:

- Solaris and Linux: `/opt/CSCOcbt/httpServer/logs/`
- Windows: The CBT 3.3 console

**Step 2** Verify the `dbeng8` process is running:

- Solaris and Linux:

```
ps -ef|grep dbe
root 26449 1 0 Aug 18 ? 0:24 dbeng8 -x tcpip{ServerPort=2640} -q -ud -s local0 -m -c
16M -n cbtdbengine /opt
```

- Windows: There is a Sybase icon shown as a running process.

**Step 3** Verify the following Java processes are running:

- Solaris and Linux:

```
ps -ef|grep java
root 26478 1 0 Aug 18 ? 0:39 /opt/CSCOcbt/jre/bin/java -DCBTpoller -cp
/opt/CSCOcbt/httpServer/webapps/ROOT/
```

```
root 26489 1 0 Aug 18 ? 148:55 /opt/CSCOcbt/jre/bin/java
-Djava.endorsed.dirs=/var/CSCOcbt/httpServer/common/e
```



**Note** Linux displays threads; therefore, there are many Java entries.

- Windows: Use the command console for Tomcat and the CBT poller to view log messages.

## Verifying the CBT 3.3 License

Perform the following steps to verify the CBT 3.3 installation license:

For Solaris and Linux, perform these steps:

1. Verify that the license is present and the file is correct in the following location:  
`/opt/CSCOcbt/httpServer/webapps/ROOT/WEB-INF/classes/lic/License`

2. Log in and allow for error prompts to identify any issues.
3. Scan the catalina.out file for error messages in the following location:  
/opt/CSCOcbt/httpServer/logs/ for error messages

For Windows, perform these steps:

1. Verify that the license is present and the file is correct in the following location:  
INSTALLATION\_DIR\httpServer\webapps\ROOT\WEB-INF\classes\lic\License
  2. Log in and allow for error prompts to identify any issues.
  3. Scan the command console for tomcat and see if there are error messages in the console.
- 

## Related Documentation

The following sections provide references related to CBT 3.3.

## Related Documents

| Related Topic                                                 | Document Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CBT 3.3                                                       | <ul style="list-style-type: none"> <li><i>User Guide for Cisco Broadband Troubleshooter Release 3.3</i><br/><a href="http://www.cisco.com/en/US/docs/net_mgmt/cisco_broadband_troubleshooter/3.3/user/guide/cbt33_ug_book.html">http://www.cisco.com/en/US/docs/net_mgmt/cisco_broadband_troubleshooter/3.3/user/guide/cbt33_ug_book.html</a></li> <li>CBT 3.3 Online Help—available with licensed installation of CBT 3.3</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Cisco IOS Release Notes for Cisco Universal Broadband Routers | <ul style="list-style-type: none"> <li><i>Release Notes for Cisco uBR10012 Universal Broadband Router for Cisco IOS Release 12.3 BC</i><br/><a href="http://www.cisco.com/en/US/docs/cable/cmts/ubr10012/release/notes/12_3bc/ubr10k_123bc_rn.html">http://www.cisco.com/en/US/docs/cable/cmts/ubr10012/release/notes/12_3bc/ubr10k_123bc_rn.html</a></li> <li><i>Release Notes for Cisco uBR7200 Series for Cisco IOS Release 12.3 BC</i><br/><a href="http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/release/notes/12_3bc/123BCu72.html">http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/release/notes/12_3bc/123BCu72.html</a></li> <li><i>Release Notes for Cisco uBR7100 Series for Cisco IOS Release 12.3 BC</i><br/><a href="http://www.cisco.com/en/US/docs/cable/cmts/ubr7100/release/notes/12_3bc/123BCu71.html">http://www.cisco.com/en/US/docs/cable/cmts/ubr7100/release/notes/12_3bc/123BCu71.html</a></li> </ul> |

## Standards

| Standard | Title                                                                                                                                                                                                                                                                                                                       |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOCSIS   | <p>CBT 3.3 conforms to DOCSIS-compliant features and standards supported in Cisco Broadband Cable IOS releases, and CableLabs DOCSIS specifications at this online location:</p> <ul style="list-style-type: none"> <li>CableLabs DOCSIS<br/><a href="http://www.cablemodem.com/">http://www.cablemodem.com/</a></li> </ul> |

## MIBs

| MIB                          | MIBs Link                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SNMP MIBs for the Cisco CMTS | <p>To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:<br/><a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a></p> <p>Refer also to this document:</p> <ul style="list-style-type: none"> <li><i>Cisco CMTS Universal Broadband Series Router MIB Specifications Guide</i><br/><a href="http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html">http://www.cisco.com/en/US/docs/cable/cmts/mib/reference/guide/mibv5ubr.html</a></li> </ul> |

# Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

This document is to be used in conjunction with the documents listed in the “Related Documentation” section.

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