

Cisco Broadband Configurator Release 4.0

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1 Product Overview

Cisco Broadband Configurator Release 4.0 is a Java-based, standalone application that collects information and generates a configuration file that is compliant with Data-over-Cable Service Interface Specifications (DOCSIS) or PacketCableTM. The configuration file is used to provision a customer premises equipment (CPE) device. Cisco Broadband Configurator:

- Has a graphical user interface (GUI)
- Supports DOCSIS 1.0, DOCSIS 1.1, and PacketCable 1.0 features
- Allows you to open and save configuration files in both ASCII and binary formats
- Provides a Wizard Mode setting, which lets you create a configuration file with default values from the DOCSIS or PacketCable specification already entered
- Shows Type Length Value vendor-specific information (TLV 43) in ASCII, hexadecimal, or decimal format
- Includes a text editor that lets you view and edit ASCII configuration files
- Includes a multifile editor that lets you apply changes to multiple configuration files at one time
- Provides sample configuration files that you can modify according to your needs
- Allows you to add your own sample configuration files to a menu for easy access
- Supports a command-line interface (CLI) for some tasks

The configuration file that you create with Cisco Broadband Configurator conforms to the format specified in the DOCSIS or PacketCable specifications.

This release runs on the Linux, Solaris, and Windows operating systems.

2 Minimum System Requirements

This section lists the minimum system requirements for each operating system (OS) that Cisco Broadband Configurator supports.

Linux System Requirements

- Pentium PC
- Linux 7.3 OS installed
- 45 megabytes (MB) of available disk space
- 128 MB of memory

Solaris System Requirements

- Ultra 5 Solaris workstation
- Solaris 2.8 OS or a later release installed
- 55 MB of available disk space
- 128 MB of memory

Windows System Requirements

- Pentium PC
- Windows 2000 or Windows XP OS installed
- 20 MB of available disk space
- 64 MB of memory

3 Installing and Starting Cisco Broadband Configurator

This section provides instructions to install and start Cisco Broadband Configurator on each supported platform.

Installing and Starting Cisco Broadband Configurator on the Linux Platform

Step 1 Log in as root.

Step 2 Insert the Cisco Broadband Configurator CD-ROM into the CD-ROM drive.

Step 3 To mount the CD, enter:

```
/bin/mount /mnt/cdrom
```

Step 4 To change to the Cisco Broadband Configurator Linux directory, enter:

```
cd /mnt/cdrom/linux
```

Step 5 To start the installation program, enter:

```
./install
```

Step 6 To unmount and eject the CD, enter:

```
umount /mnt/cdrom  
eject
```

Step 7 To start Cisco Broadband Configurator, change to the `/opt/CSCOcbc/docsisConfig/bin` directory and run `ConfigEdit.sh`.

```
cd /opt/CSCOcbc/docsisConfig/bin  
ConfigEdit.sh
```



Tip If you log in to the remote host to run clients, you can set the `$DISPLAY` environment variable to point to your X server so that you do not have to specify your server in the command line every time you run a client.

Installing and Starting Cisco Broadband Configurator on the Solaris Platform

Step 1 Log in as root.

Step 2 Insert the Cisco Broadband Configurator CD-ROM into the CD-ROM drive.

Step 3 (Optional) If you are not running Solaris Volume Manager, you have to mount the CD manually:

- If a mount point does not exist, create one by making a new `/cdrom` directory.
- Enter the following command, where *CD-ROM device* is the name of your CD-ROM:

```
mount CD-ROM device /cdrom
```



Note If you are running Solaris Volume Manager, the CD-ROM automatically mounts on the `/cdrom/cdrom0` directory.

Step 4 To change to the Cisco Broadband Configurator Solaris directory and install the application, enter:

```
cd /cdrom/cdrom0/solaris  
./install
```



Note The Solaris installation asks more than once if you want to install Cisco Broadband Configurator. For the first prompt, hit Enter. For the second prompt, enter `q` to quit the sequence of questions.

Step 5 (Optional) If you are not running Solaris Volume Manager, to unmount the CD, enter:

```
umount /cdrom
```



Note If you are running Solaris Volume Manager, the CD-ROM automatically unmounts.

Step 6 To eject the CD, enter:

```
eject
```

Step 7 To start Cisco Broadband Configurator, change to the /opt/CSCOcbc/docsisConfig/bin directory and run ConfigEdit.sh.

```
cd /opt/CSCOcbc/docsisConfig/bin  
ConfigEdit.sh
```



Tip If you log in to the remote host to run clients, you can set the \$DISPLAY environment variable to point to your X server so that you do not have to specify your server in the command line every time you run a client.

Installing and Starting Cisco Broadband Configurator on the Windows Platform

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

Step 2 From Windows Explorer, double-click Setup.exe in *CDROM_DRIVE*\win.

Step 3 In the InstallShield Wizard, follow the directions to install Cisco Broadband Configurator.

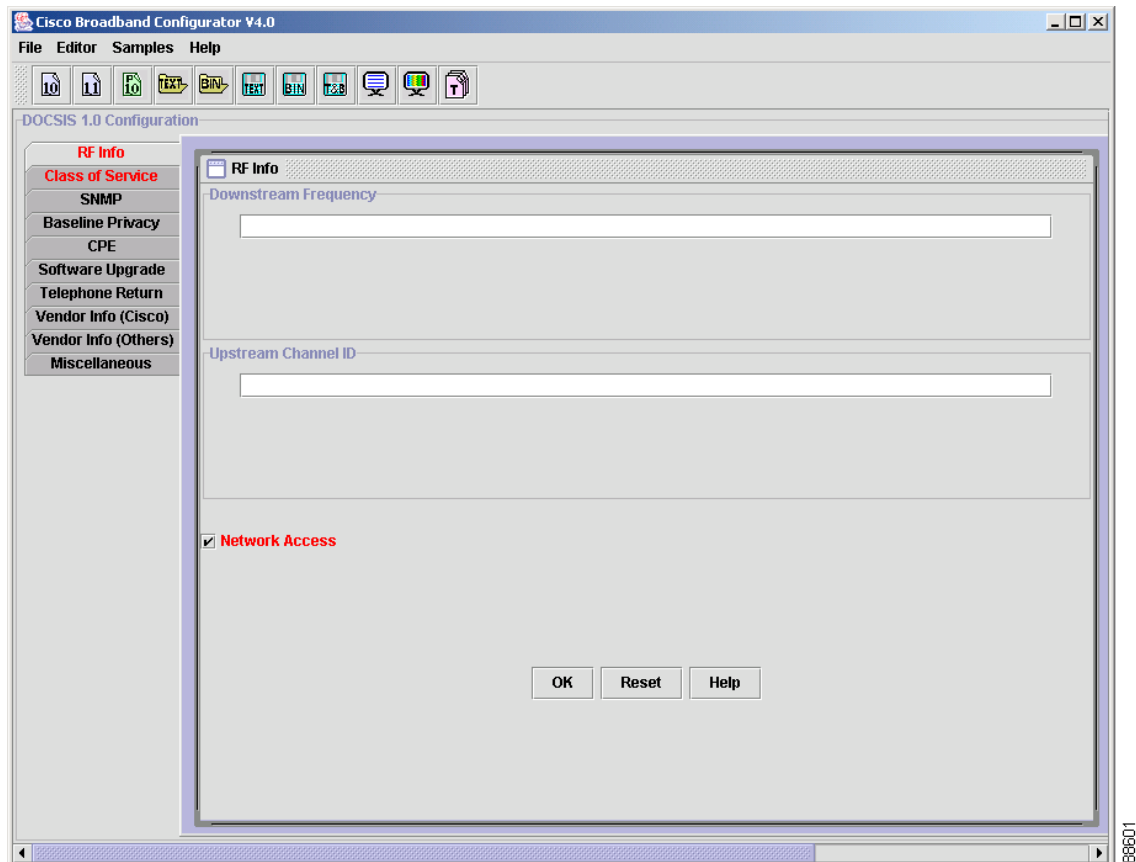
Step 4 To start Cisco Broadband Configurator, choose:

```
Start > Programs > Cisco Broadband Configurator > Start Configurator
```

4 Reviewing the Cisco Broadband Configurator Interface

After you start Cisco Broadband Configurator, you see the graphical user interface shown in Figure 1:

Figure 1 Cisco Broadband Configurator GUI











The tasks in Cisco Broadband Configurator are categorized within four menus:

- File Menu—To create, open, and save a configuration file
- Editor Menu—To edit a configuration file in a text, GUI, or multifile editor
- Samples Menu—To access sample configuration files
- Help Menu—To see Cisco Broadband Configurator’s product overview, user guide, and copyright information

The next sections describe each task on these menus.




Using the File Menu

The File menu contains the following tasks:

Menu Option	Icon	Task
New DOCSIS 1.0 File		Creates a new DOCSIS 1.0 configuration file
New DOCSIS 1.1 File		Creates a new DOCSIS 1.1 configuration file
New PacketCable 1.0 File		Creates a new PacketCable 1.0 configuration file
Provide Default Values	Check box	Provides default values, as defined in DOCSIS or PacketCable specifications, for a new configuration file
Open Text File		Opens an ASCII format configuration file
Open Binary File		Opens a binary format configuration file
Save As Text File		Saves a configuration file in ASCII format
Save As Binary File		Saves a configuration file in binary format
Save As Text & Binary File		Saves a configuration file in ASCII and binary formats
Append Default Value Extensions	Check box	Automatically appends default file extensions, such as .txt or .bin, to saved files
Exit	None	Closes Cisco Broadband Configurator

Using the Editor Menu

The Editor menu contains the following tasks:

Menu Option	Icon	Task
Text Editor		Shows the open configuration file in a text editor
Show TLV43 in ASCII Format	Radio button	For the configuration file shown in the text editor, shows vendor-specific subtype options under TLV 43 in ASCII format
Show TLV43 in Hexadecimal Format	Radio button	For the configuration file shown in the text editor, shows vendor-specific subtype options under TLV 43 in hexadecimal format
Show TLV43 in Decimal Format	Radio button	For the configuration file shown in the text editor, shows vendor-specific subtype options under TLV 43 in decimal format
GUI Editor		Shows the open configuration file in the default graphical user interface
Multifile Editor		Changes multiple configuration files at one time

Using the Samples Menu

The Samples menu contains the following tasks:

- Add/Remove Samples—Allows you to add or remove your own configuration files to the Samples menu for easy access
- Upgrading DOCSIS Certificates (DOCSIS 1.0)—Opens a sample DOCSIS 1.0 configuration file for certification and image upgrade
- Upgrading DOCSIS Certificates (DOCSIS 1.1)—Opens a sample DOCSIS 1.1 configuration file for certification and image upgrade
- Multiple Class of Service (DOCSIS 1.0)—Opens a sample DOCSIS 1.0 configuration file with more than one class of service (CoS)
- Multiple Service Flow and Classification (DOCSIS 1.1)—Opens a sample DOCSIS 1.1 configuration file with multiple service flows and classifications
- Map SFID to MPLS-VPN (DOCSIS 1.1)—Opens a sample DOCSIS 1.1 configuration file that maps a service flow IDs to a Multiprotocol Label Switching (MPLS) virtual private network (VPN)
- Static UGS Flow (DOCSIS 1.1)—Opens a sample DOCSIS 1.0 configuration file with static unsolicited grant service (UGS) flow
- Set NM Access Details (DOCSIS 1.0)—Opens a sample DOCSIS 1.0 configuration file to set network management access details such as Simple Network Management Protocol (SNMP) community strings
- Set NM Access Details (DOCSIS 1.1)—Opens a sample DOCSIS 1.1 configuration file to set network management access details such as Simple Network Management Protocol (SNMP) community strings
- Create LLC Filter (DOCSIS 1.0)—Opens a sample DOCSIS 1.0 configuration file to create a logical link control (LLC) filter
- Create LLC Filter (DOCSIS 1.1)—Opens a sample DOCSIS 1.1 configuration file to create a logical link control (LLC) filter
- Create IP Filter (DOCSIS 1.0)—Opens a sample DOCSIS 1.0 configuration file to create an IP filter
- Create IP Filter (DOCSIS 1.1)—Opens a sample DOCSIS 1.1 configuration file to create an IP filter
- Unprovision PacketCable (PacketCable 1.0 MTA)—Opens a sample PacketCable 1.0 media terminal adapter (MTA) configuration file



Caution

Do not change the content or names of the sample configuration files that are provided with Cisco Broadband Configurator. These sample configuration files meet specification requirements, are accurate to provision a device, and are referenced by their filenames in Cisco Broadband Configurator's property file.

Using the Help Menu

The Help menu contains the following tasks:

- Overview—Opens a product overview
- User Guide—Opens the *Cisco Broadband Configurator User Guide* from the application
- About—Displays version and copyright information

Using the Icon Bar

Below the Cisco Broadband Configurator menu bar, there is a task bar for commonly used tasks on the File and Editor menus. This task bar is shown in Figure 2.

Figure 2 Cisco Broadband Configurator Task Bar



The task each icon represents is described in “Using the File Menu” page 6 and “Using the Editor Menu” page 7.

5 Task Flow: Using Cisco Broadband Configurator to Provision a CPE Device

Figure 3 Provisioning a CPE Device in the Field

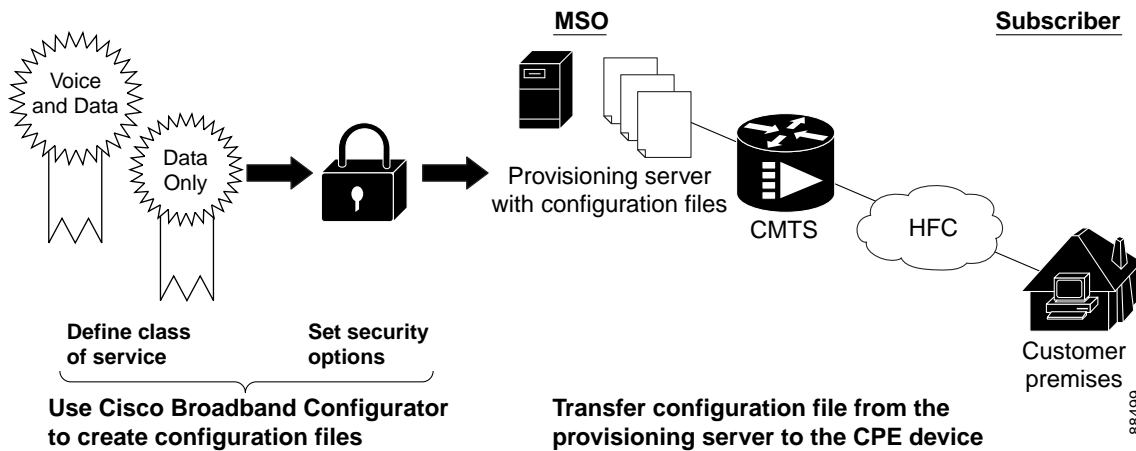


Figure 3 illustrates a high-level task flow for provisioning a customer premises equipment (CPE) device in the field.

Cisco Broadband Configurator Tasks

This section describes the first and second tasks in the task flow shown in Figure 3.

The Multiple System Operator (MSO) uses Cisco Broadband Configurator to generate configuration files, which provide a CPE device with the information the device needs in order to register with the cable modem termination system (CMTS).

Two primary purposes of the configuration file are to:

- Define class of service—Determine how data or voice traffic is handled:
 - A single CoS profile supports a data-only configuration and provides best-effort delivery of data traffic.
 - A multiple CoS profile supports a data and voice configuration. In addition to best-effort delivery of data traffic, it provides real-time delivery of voice traffic.
- Set security options—Determine a variety of security parameters, including but not limited to baseline privacy and CMTS authentication.

Multiple System Operator (MSO) Tasks

This section describes the last task in the task flow shown in Figure 3.

After using Cisco Broadband Configurator to generate configuration files for its customer base, the MSO transfers the configuration file from its provisioning server to the customer premises equipment. The CPE device could be a cable modem for high-speed data or a media terminal adapter (MTA) for voice services.

6 Creating and Modifying Configuration Files

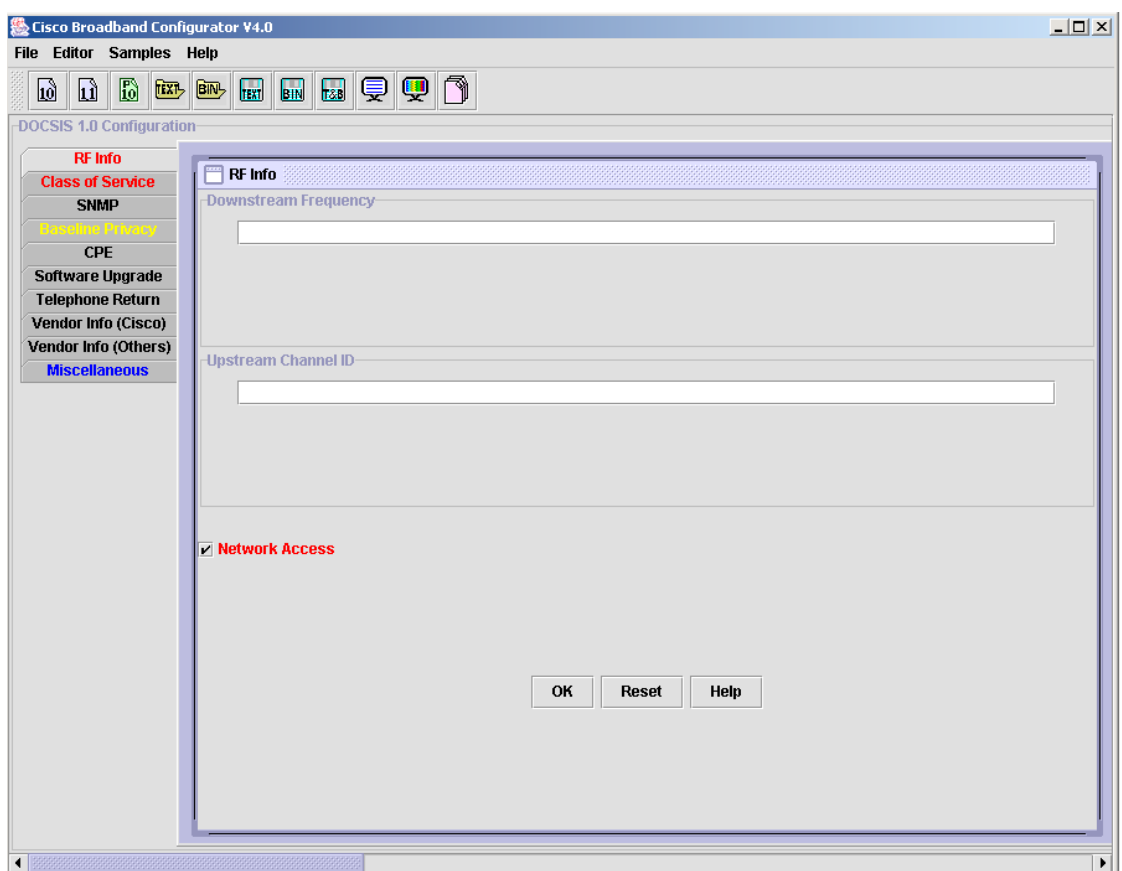
This section:

- Describes the color-coded tabs that you see in the GUI when you create or modify a configuration file
- Provides step-by-step directions for:
 - Creating a configuration file
 - Modifying a configuration file

About the Color-Coded Tabs in Cisco Broadband Configurator

The Cisco Broadband Configurator GUI uses tabs to represent sections of a configuration file, as shown in Figure 4.

Figure 4 Color-Coded Tabs in Cisco Broadband Configurator



The tabs change for DOCSIS 1.0, DOCSIS 1.1, and PacketCable 1.0. Figure 4 shows the tabs for DOCSIS 1.0, which is indicated above the color-coded tabs.

The tabs use the following color-coding scheme:

- A tab with black text—Fields in this tab are not flagged in any way; black is the default text color for tabs.
- A tab with red text—Fields in this tab are mandatory for the configuration file.
- A tab with yellow text—At least one field in this tab contains an invalid parameter for the configuration file.
- A tab with blue text—At least one field in this tab has a value in it from when you:
 - Opened the configuration file
 - Created a new configuration file with default values in it
 - Switched back to the GUI after editing the configuration file with Cisco Broadband Configurator's text editor

Creating a Configuration File




To create a configuration file:

Step 1 (Optional) If you want the configuration file to contain default values according to DOCSIS or PacketCable specifications, from the File menu, select Provide Default Values.



Note For more information on default values, see “The Wizard Mode Parameter” page 26.

Step 2 To create a configuration file, choose one of the following options from the menu or click one of the icons in the icon bar:

Menu	Icon Bar
To create a DOCSIS 1.0 configuration file, from the File menu, choose New DOCSIS 1.0 File.	
To create a DOCSIS 1.1 configuration file, from the File menu, choose New DOCSIS 1.1 File.	
To create a PacketCable 1.0 configuration file, from the File menu, choose New PacketCable 1.0 File.	



Tabs appear for the type of configuration file you chose.

Step 3 Select a tab on the left to display the fields for it. To fill in each field in the tab, click Help to refer to the Cisco Broadband Configurator online help for directions and acceptable values.



Note You can select the tabs in any order. You do not have to go through them in a prescribed sequence.

Step 4 (Optional) When you view or modify a configuration file, you can work in a text editor or in the GUI. The GUI is the default. To toggle between editors, choose one of the following options from the menu or click one of the icons in the icon bar:

Menu	Icon Bar
To view or modify a configuration file in ASCII format, from the Editor menu, choose Text Editor.	
To view or modify a configuration file in the GUI, from the Editor menu, choose GUI Editor.	






Note To get online help with detailed instructions, you must be in the GUI Editor, from which you can click Help.

Step 5 (Optional) When you are ready to save the file, to automatically append the default file extension to the configuration file, from the File menu, choose Append Default File Extension.



Note For details on setting default file extensions, see “File Extension Parameters” page 25.

Step 6 To save the configuration file, choose one of the following options from the menu or click one of the icons in the icon bar:

Menu	Icon Bar
From the File menu, choose Save As Text to save the configuration file in ASCII format.	
From the File menu, choose Save As Binary to save the configuration file in binary format.	
From the File menu, choose Save As Text & Binary to save the configuration file in both ASCII and binary formats.	





Tip Cisco Broadband Configurator allows you to use a colon (:) in a DOCSIS configuration filename on the Linux and Solaris platforms. The colon is not supported in filenames on the Windows platform because it is reserved to indicate a disk drive. For security reasons, Cisco recommends including the colon in a DOCSIS configuration filename on the Linux and Solaris platforms. A filename with a colon makes it harder for a hacker to obtain and serve their cable modem's DOCSIS configuration file to their modem.

Modifying a Configuration File

To modify a configuration file:

Step 1 To open a configuration, choose one of the following options from the menu or click the icon bar:



Menu	Icon Bar
To open an ASCII format configuration file, from the File menu, choose Open Text File.	
To open a binary format configuration file, from the File menu, choose Open Binary File.	


Step 2 Select a tab on the left to display the fields for it. To fill in each field, click Help for detailed directions and acceptable values.



Note You can select the tabs in any order. You do not have to go through them in a prescribed sequence.

Step 3 (Optional) When you view or edit a configuration file, you can work in a text editor or in the GUI. The GUI is the default. To toggle between editors, choose one of the following options from the menu or click one of the icons in the icon bar:




Menu	Icon Bar
To view or edit a configuration file in ASCII format, from the Editor menu, choose Text Editor.	
To view or edit a configuration file in the GUI, from the Editor menu, choose GUI Editor.	


 **Note** To get online help for detailed instructions, you must be in the GUI Editor, from which you can click Help for any window.

Step 4 (Optional) When you are ready to save the file, to automatically save the configuration file with the default file extension automatically appended to it, from the File menu, choose Append Default File Extension.

Step 5 To save the configuration file, choose one of the following options from the menu or click one of the icons in the icon bar:

 **Tip**

Menu	Icon Bar
From the File menu, choose Save As Text to save the configuration file in ASCII format.	
From the File menu, choose Save As Binary to save the configuration file in binary format.	
From the File menu, choose Save As Text & Binary to save the configuration file in both ASCII and binary formats.	

 **Tip** Cisco Broadband Configurator allows you to use a colon (:) in a DOCSIS configuration filename on the Linux and Solaris platforms. The colon is not supported in filenames on the Windows platform because it is reserved to indicate a disk drive. For security reasons, Cisco recommends including the colon in a DOCSIS configuration filename on the Linux and Solaris platforms. A filename with a colon makes it harder for a hacker to obtain and serve their cable modem's DOCSIS configuration file to their modem.

7 Using the Multifile Editor to Change Multiple Configuration Files at One Time

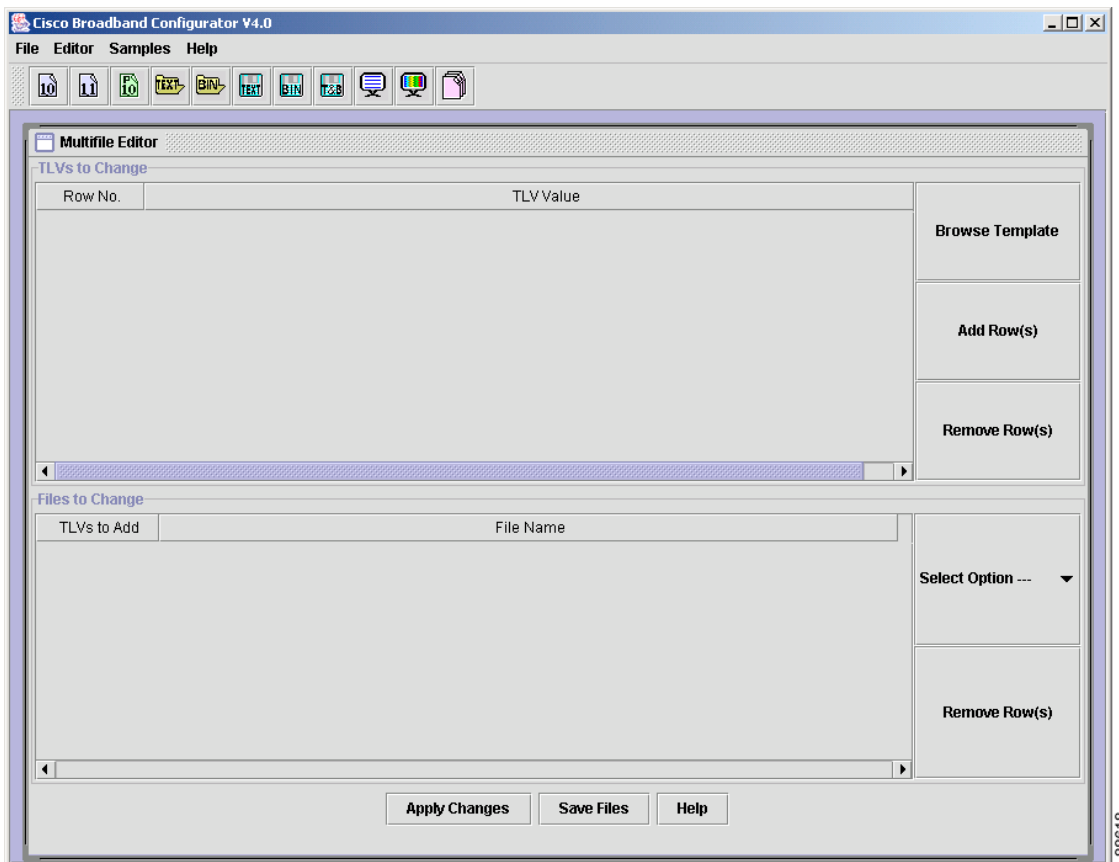
The Multifile Editor allows you to change multiple configuration files at one time. Specifically, you can use the Multifile Editor to open:

- Multiple configuration files and apply the same change to all of them
- Multiple configuration files and apply different changes to each file
- One base configuration file, from which you:
 - Make multiple copies
 - Apply different changes to each copy
 - Save each copy with a different filename

As shown in Figure 5, the Multifile Editor has two parts:

- TLVs to Change— Use this upper half of the Multifile Editor to list all the TLVs that you want to apply to configuration files
- Files to Change— Use this lower half of the Multifile Editor to list all the configuration files that you want to change

Figure 5 *Template Editor*



About Template Files

In the Multifile Editor, you can manually list TLVs or you can use a template file that contains the TLVs. A template file is a text format configuration file that lists more than one instance of some or all TLVs. Example 1 shows a sample template file that lists more than one instance of three TLVs:

- DS Frequency
- Net Access Control
- Class of Service

Example 1 *Template File in Text Format*

```
01 (DS Frequency) = 62500
01 (DS Frequency) = 125000
01 (DS Frequency) = 187500
01 (DS Frequency) = 250000

03 (Net Access Control) = 1
03 (Net Access Control) = 0

04 (Class of Service)
  S01 (Class ID) = 5
  S02 (Max DS Rate) = 10000000
  S03 (Max US Rate) = 2000000
  S06 (Max US Transmit Rate) = 1522

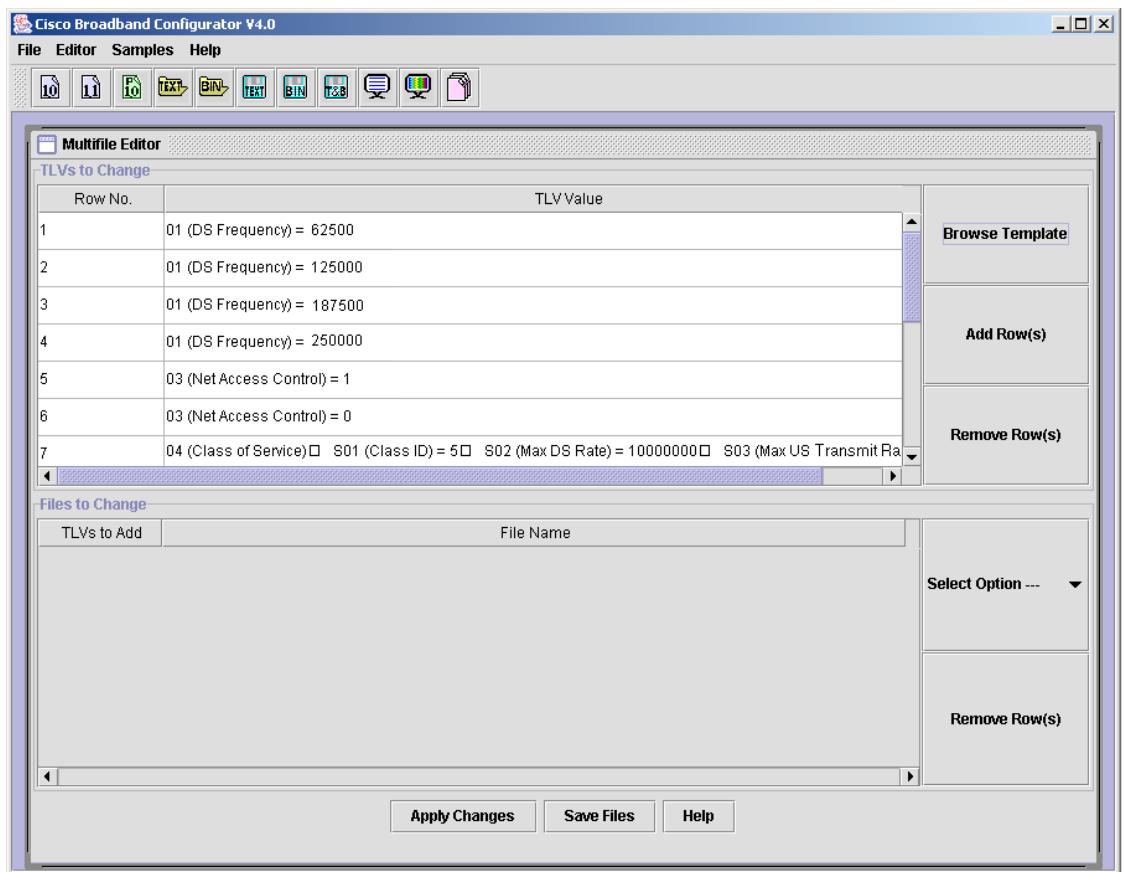
04 (Class of Service)
  S01 (Class ID) =4
  S02 (Max DS Rate) = 10000000
  S03 (Max US Rate) = 2000000
  S06 (Max US Transmit Rate) = 1522

04 (Class of Service)
  S01 (Class ID) =3
  S02 (Max DS Rate) = 10000000
  S03 (Max US Rate) = 2000000
  S06 (Max US Transmit Rate) = 1522

04 (Class of Service)
  S01 (Class ID) =2
  S02 (Max DS Rate) = 10000000
  S03 (Max US Rate) = 2000000
  S06 (Max US Transmit Rate) = 1522
```


Figure 6 shows the same template file in Example 1, but in the Multifile Editor. The contents of the file are displayed in the TLVs to Change section, in the upper half of the Multifile Editor.

Figure 6 Template File in the Multifile Editor

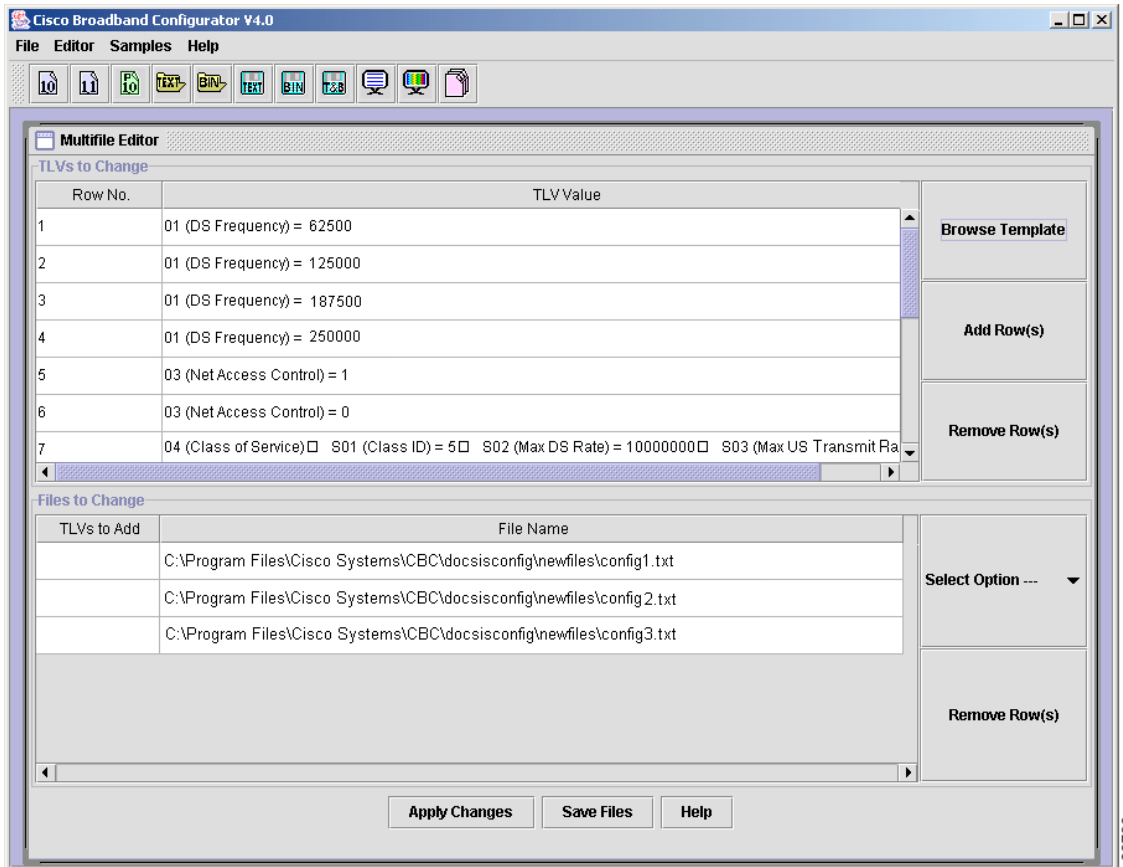


As shown in Figure 6, the TLVs to Change section lists the following TLVs from the template file:

- DS Frequency—Rows 1 to 4
- Net Access Control—Rows 5 and 6
- Class of Service—Row 7

Figure 7 shows a list of configuration files in the Multifile Editor. These files are listed in the Files to Change section, in the lower half of the Multifile Editor.

Figure 7 Template and Configuration Files in the Multifile Editor



As shown in Figure 7, the Files to Change section lists three configuration files:

- config1.txt
- config2.txt
- config3.txt

Creating Template Files

You can create a template file in any text editor, save it with the .tpl file extension and open it in Cisco Broadband Configurator's Multifile Editor.

Cisco Broadband Configurator supplies two sample templates, example.tpl and example2.tpl. Example 1 shows the contents of example.tpl. Template files are in the following platform-dependent directories:

- Linux and Solaris—/opt/CSCOcbc/docsisConfig/resources/templates
- Windows—%CSCOCBC_ROOT%\docsisConfig\resources\templates


To create a template file that you use in the Multifile Editor:

-
- Step 1** Open a text editor.
 - Step 2** Using Example 1 as a model, add multiple instances of any TLV to the file. If you want, you can list every TLV in the file.
 - Step 3** Save the file with a .tpl extension in the templates directory for your operating system.
-

Changing Multiple Configuration Files at Once with the Multifile Editor

To use the Multifile Editor to apply changes to more than one configuration file at a time:

-
- Step 1** Open the Multifile Editor by choosing the option from the menu or clicking the icon in the icon bar:

Menu	Icon Bar
From the Editor menu, choose Multifile Editor.	

- Step 2** List the TLVs that you want to apply to configuration files by doing one of the following:
 - Click Browse Template to open template files that contains the TLVs
 - Click Add Row(s) to manually enter one TLV per row
 - Step 3** List the configuration files that you want to create or change by doing one of the following:
 - Click Select Option
 - Create New Files—To create configuration files
 - Browse Existing Files—To change existing configuration files
 - Step 4** In the Multifile Editor window, click Help for detailed directions on applying TLVs in the upper half of the window to configuration files in the lower half of the window.
-

8 Referencing Sample Configuration Files

You can use sample configuration files that:

- Cisco Broadband Configurator supplies—For you to reference
- You create and add to the Samples menu—For you to quickly access

On the Samples menu, Cisco Broadband Configurator supplies the following sample configuration files:

- Upgrading DOCSIS Certificates (DOCSIS 1.0)
- Upgrading DOCSIS Certificates (DOCSIS 1.1)
- Multiple Class of Service (DOCSIS 1.0)
- Multiple Service Flow and Classification (DOCSIS 1.1)
- Map SFID to MPLS-VPN (DOCSIS 1.1)
- Static UGS Flow (DOCSIS 1.1)
- Set NM Access Details (DOCSIS 1.0)
- Set NM Access Details (DOCSIS 1.1)
- Create LLC Filter (DOCSIS 1.0)
- Create LLC Filter (DOCSIS 1.1)
- Create IP Filter (DOCSIS 1.0)
- Create IP Filter (DOCSIS 1.1)
- Unprovision PacketCable (PacketCable 1.0 MTA)



Caution

Do not change the content or names of the sample configuration files that are provided with Cisco Broadband Configurator. These sample configuration files meet specification requirements, are accurate to provision a device, and are referenced by their filenames in the Cisco Broadband Configurator's property file.

Sample configuration files, which must be in text format, are in the following platform-dependent directories:

- Linux and Solaris—`/opt/CSCOcbc/docsisConfig/resources/samples`
- Windows—`%CSCOCBC_ROOT%\docsisConfig\resources\samples`

The sample configuration files that Cisco Broadband Configurator supplies have the .txt file extension. For details on setting your own default file extensions, see “File Extension Parameters” page 25.

As you create your own configuration files, you can add them to the Samples menu for easy access and remove them when you no longer need them. You cannot remove sample configuration files that are supplied with Cisco Broadband Configurator.

Referring to a Sample Configuration File

To open a sample configuration file from the Samples menu, choose one of the supplied files listed below or one that you created and added to the menu:

- Upgrading DOCSIS Certificates (DOCSIS 1.0)
- Upgrading DOCSIS Certificates (DOCSIS 1.1)
- Multiple Class of Service (DOCSIS 1.0)
- Multiple Service Flow and Classification (DOCSIS 1.1)
- Map SFID to MPLS-VPN (DOCSIS 1.1)
- Static UGS Flow (DOCSIS 1.1)
- Set NM Access Details (DOCSIS 1.0)
- Set NM Access Details (DOCSIS 1.1)
- Create LLC Filter (DOCSIS 1.0)
- Create LLC Filter (DOCSIS 1.1)
- Create IP Filter (DOCSIS 1.0)
- Create IP Filter (DOCSIS 1.1)
- Unprovision PacketCable (PacketCable 1.0 MTA)



Note To add or remove a sample configuration file, see “Adding or Removing Your Configuration File on the Samples Menu” page 21.

Adding or Removing Your Configuration File on the Samples Menu

Step 1 To add or remove a configuration file of your own, from the Samples menu, choose Add/Remove to open the Add/Remove Sample Files window.



Note You cannot remove a sample configuration file from the Samples menu if that file was supplied with Cisco Broadband Configurator.

Step 2 For detailed directions, click Help in the Add/Remove Sample Files window.

9 Using a Command-Line Interface with Cisco Broadband Configurator

You can use a command-line interface (CLI) to perform the following tasks in Cisco Broadband Configurator:

- Start Cisco Broadband Configurator
- Create a configuration file in binary format
- Specify a shared secret
- View and create a configuration in ASCII format
- Display TLV in hexadecimal, decimal, or ASCII format

This functionality allows you to perform these tasks one at a time or within a script that you create. If you use the commands in a script, you can generate multiple configuration files without using the GUI.

Starting Cisco Broadband Configurator with a Command-Line Interface

To use a CLI to start Cisco Broadband Configurator, enter the command for your operating system:

- Linux and Solaris—`/opt/CSCOcbc/docsisConfig/bin/ConfigEdit.sh`
- Windows—`ConfigEdit.bat`

Creating a Configuration File in Binary Format with a Command-Line Interface

To use a CLI to create a configuration file in binary format by entering a configuration file in ASCII format, enter the command for your operating system:

- Linux and Solaris—`/opt/CSCOcbc/docsisConfig/bin/ConfigEdit.sh make input-text-filename output-binary-filename`
- Windows—`ConfigEdit.bat make input-text-filename output-binary-filename`



Note To see a sample text format configuration file, see “Sample ASCII Format DOCSIS Configuration File with All Supported TLVs” page 37.

Specifying a Shared Secret with a Command-Line Interface

When you create a configuration file in binary format by entering a configuration file in ASCII format, you can specify a shared secret. To use a CLI to specify a shared secret, enter the command for your operating system:

- Linux and Solaris—`/opt/CSCOcbc/docsisConfig/bin/ConfigEdit.sh make input-text-filename output-binary-filename [-s[secret] shared-secret-string]`
- Windows—`ConfigEdit.bat make input-text-filename output-binary-filename [-s[secret] shared-secret-string]`

Viewing and Creating a Configuration File in ASCII Format with a Command-Line Interface

To use a CLI to view a configuration file in ASCII format by entering a configuration file in binary format, enter the command for your operating system:

- Linux and Solaris—`/opt/CSCOcabc/docsisConfig/bin/ConfigEdit.sh show input-binary-filename`
- Windows—`ConfigEdit.bat show input-binary-filename`

To create a configuration file in ASCII format by entering a configuration file in binary format, enter the command for your operating system:

- Linux and Solaris—`/opt/CSCOcabc/docsisConfig/bin/ConfigEdit.sh show input-binary-filename > text-filename`
- Windows—`ConfigEdit.bat show input-binary-filename > output-text-filename`



Tip

If you edit the ASCII output from this command, you can create a binary format version of it by using the command in the “Creating a Configuration File in Binary Format with a Command-Line Interface” page 22.

Displaying TLV 43 in Hexadecimal, Decimal, or ASCII Format with a Command-Line Interface

When you show a configuration file in ASCII format by entering a configuration file in binary format, you can show vendor-specific subtype options under TLV 43 in hexadecimal, decimal, or ASCII format. To do this, enter the command for your operating system:

- Linux and Solaris—`/opt/CSCOcabc/docsisConfig/bin/ConfigEdit.sh show input-binary-filename [-hex | -dec | -ascii]`
- Windows—`ConfigEdit.bat show input-binary-filename [-hex | -dec | -ascii]`

10 Using Non-Specification TLVs and DOCSIS 2.0 TLVs

The following TLVs can be specified in a configuration file in ASCII format when you enter them in a command-line interface or in Cisco Broadband Configurator's text editor:

- Non-specification TLVs—Are not included in the DOCSIS or PacketCable specifications
- DOCSIS 2.0 TLVs—Are included in the DOCSIS 2.0 specification



Note If you switch from Cisco Broadband Configurator's text editor to its GUI editor, these TLVs do not show. Non-specification TLVs and DOCSIS 2.0 TLVs show in the text editor only.

You can specify whether or not to remove these TLVs from a configuration file when you save it. For more information, see “The Remove Unknown Type TLV Parameter” page 26.

Using Non-Specification TLVs

Cisco Broadband Configurator supports non-specification TLVs in a configuration file in ASCII format when you enter them in a command-line interface or in Cisco Broadband Configurator's text editor. To use them, you must supply the following parameters in the format shown:

```
ID (Description) = value
```

Acceptable values for these parameters are:

- ID—128 to 250
- Description—Unknown Type
- Value—Can be one of the following:
 - Hex string starting with 0x
 - String enclosed by double quotes (" ")
 - IP address

The following example shows a TLV in this format:

```
S128 (Unknown Type) = "/tftpboot/ios.cfg"
```

Using DOCSIS 2.0 TLVs

Cisco Broadband Configurator supports two TLVs that are specific to DOCSIS 2.0 and can be used in the command-line interface or in Cisco Broadband Configurator's text editor. To use them in a configuration file in ASCII format, you must supply the following parameters in the format shown:

```
ID (Description) = value
```

Acceptable values for these parameters are:

- ID (Description)—39 (Enable 2.0 Mode) or 40 (Enable Test Mode)
- Value—1 or 0
- Description—Enable 2.0 Mode or Enable Test Mode

The following example shows each of these TLVs in this format:

```
S39 (Enable 2.0 Mode) = 1
```

```
S40 (Enable Test Mode) = 0
```


Verifying Non-Specification TLVs or DOCSIS 2.0 TLVs in Configuration Files

After you create a configuration file in ASCII format that includes non-specification or DOCSIS 2.0 TLVs, you can:

1. Convert the configuration file from ASCII format to binary format. See “Creating a Configuration File in Binary Format with a Command-Line Interface” page 22.
2. Verify that the non-specification or DOCSIS 2.0 TLVs were included correctly in the binary file. See “Viewing and Creating a Configuration File in ASCII Format with a Command-Line Interface” page 23.

11 Understanding Parameters in the Property File

Cisco Broadband Configurator has a property file that contains application settings, such as which choices appear on each menu. This file, `DOCSIS_Config.properties`, is located in the following platform-dependent directories:

- Linux and Solaris—`/opt/CSCOcbc/docsisConfig/resources`
- Windows—`%CSCOCBC_ROOT%\docsisConfig\resources`

Although most settings in `DOCSIS_Config.properties` cannot be edited, you can modify the following settings:

- Default file extensions
- Wizard mode
- Vendors
- Remove unknown TLV types

This section describes each setting that you can change and provides step-by-step directions to modify the `DOCSIS_Config.properties` file.

File Extension Parameters

For text and binary configuration files, you can specify the following criteria:

- Default extension for text files
- Default extension for binary files
- Whether or not to automatically append the default extension when you save a file

The default text file extension parameters are shown below:

```
DefaultTextFileExtension=.txt
DefaultBinaryFileExtension=.bin
```

The default append parameter is shown below:

```
AppendDefaultFileExtension=no
```

Acceptable values are yes and no.

If the `AppendDefaultFileExtension` parameter is set to no, Cisco Broadband Configurator saves a configuration file with the filename only. For example, it would save a configuration file as `myconfig` rather than `myconfig.txt` or `myconfig.bin`.



Note From the File menu, you can choose Save As Text & Binary File. When you choose this option, Cisco Broadband Configurator appends the default file extension for each file type, even if the `AppendDefaultFileExtension` parameter is set to no. This is necessary because you are saving one file in two formats and the file extension is needed to make the filename unique.

On a file-by-file basis, you can override the `DefaultTextFileExtension` and `DefaultBinaryFileExtension` parameters. For example, if you have the `DefaultTextFileExtension` parameter set to `.txt` and choose Save As Text File from the File menu, you can name the file `myconfig.cm`. These parameters in the property file do not prohibit you from using other file extensions on a file-by-file basis.

The Wizard Mode Parameter

The Wizard Mode setting determines if default values display when you create a new configuration file. Default values come from .txt files in the following platform-dependent directories:

- Linux and Solaris—/opt/CSCOcbc/docsisConfig/resources/defaultvalues
- Windows—%CSCOCBC_ROOT%\docsisConfig\resources\defaultvalues

The default Wizard Mode parameter is shown below:

```
EnableWizardMode=yes
```

Acceptable values are yes and no.

You can also provide default values on a file-by-file basis, which overrides the Wizard Mode parameter set to no. For example, if you have the Wizard Mode parameter set to no and want to create three configuration files with default values, you can select the Provide Default Values option when you create each of the three files. This provides flexibility without changing the Wizard Mode parameter and is explained in step 1 of “Creating a Configuration File” page 12.

The Vendors Parameter

The Vendors setting specifies each vendor that has TLV 43 subtype options. By specifying the vendor here, Cisco Broadband Configurator can display TLV 43 options in ASCII format. The default Vendors parameter is shown below:

```
vendors=cisco
```

The Vendors setting is one part of a two-part relationship. Each vendor specified in this setting must also have a vendor file that lists each subtype option under TLV 43 for that vendor. The vendor filename must:

- Be the same as the name specified in the Vendors setting
- Not have a file extension

For example, Cisco is specified in the Vendors setting as cisco. Consequently, Cisco has a vendor file that is also named cisco. For more information on the vendor file, see “Understanding the Vendor File” page 32.

The Remove Unknown Type TLV Parameter

The Remove Unknown Type TLV setting indicates if the following TLVs should be removed from the configuration file when you save it:

- Non-specification TLVs, which are not included in the DOCSIS or PacketCable specifications
- DOCSIS 2.0 TLVs, which are two TLVs specific to DOCSIS 2.0

The default Remove Unknown Type TLV parameter is shown below:

```
RemoveUnknownTypeTLV=no
```

Acceptable values are yes and no.

For more information on non-specification TLVs or DOCSIS 2.0 TLVs, see “Using Non-Specification TLVs and DOCSIS 2.0 TLVs” page 24.

Setting Parameters in the Property File

To modify the DOCSIS_Config.properties file:

Step 1 Open the DOCSIS_Config.properties file from the appropriate directory for your operating system:

- Linux and Solaris—/opt/CSCOcbc/docsisConfig/resources
- Windows—%CSCOCBC_ROOT%\docsisConfig\resources

Step 2 To specify a default file extension, enter the extension for these settings:

```
DefaultTextFileExtension=  
DefaultBinaryFileExtension=
```

Step 3 To specify whether you want to automatically append a default file extension when you save a file, enter yes or no for the following setting:

```
AppendDefaultFileExtension=
```

Step 4 To specify whether you want to default values in a configuration file that you create, enter yes or no for the following setting:

```
EnableWizardMode=
```

Step 5 To add a vendor to the Vendors setting, enter a space and the additional vendor's name:

```
vendors=cisco newvendor
```



Note In these directions, *newvendor* represents the name of the vendor for which you are creating a file.

Step 6 To specify whether you want to remove non-specification or DOCSIS 2.0 TLVs from a configuration file when you save it, enter yes or no for the following setting:

```
RemoveUnknownTypeTLV=
```

Step 7 Save the DOCSIS_Config.properties file.



Caution Do not change the name of the DOCSIS_Config.properties file.

1.2 Understanding the Set of Mapping Files for MIB OIDs

Cisco Broadband Configurator has a set of mapping files that lists each MIB object identifier (OID) used by Simple Network Management Protocol (SNMP) to generate a DOCSIS or PacketCable configuration file. These files are located in the following platform-dependent directories:

- Linux and Solaris—/opt/CSCOcbc/docsisConfig/resources/mibs
- Windows—%CSCOCBC_ROOT%\docsisConfig/resources\mibs

MIBs List File

The following files specify the MIBs for each set of features:

- mibs_DOCSIS10—Specifies the MIBs for DOCSIS 1.0 features
- mibs_DOCSIS11—Specifies the MIBs for DOCSIS 1.1 features
- mibs_PacketCable10—Specifies the MIBs for PacketCable 1.0 features

Example 2 shows the contents of one file, mibs_DOCSIS10.

Example 2 Example of mibs_DOCSIS10 File

```
DOCS-IF-MIB
DOCS-IF-EXT-MIB
DOCS-BPI-MIB
CISCO-DOCS-EXT-MIB
DOCS-CABLE-DEVICE-MIB
```

Parent OIDs File

The following files list all parent OIDs that are required by each MIB:

- mibs_prefixes_DOCSIS10—Lists all parent OIDs for DOCSIS 1.0 MIBs
- mibs_prefixes_DOCSIS11—Lists all parent OIDs for DOCSIS 1.1 MIBs
- mibs_prefixes_PacketCable10—Lists all parent OIDs for PacketCable 1.0 MIBs

Example 2 shows the contents of one file, mibs_prefixes_DOCSIS10.

Example 3 Example of mibs_prefixes_DOCSIS10 File

```
iso                , 1                , nonLeaf , ,
org                , 1.3              , nonLeaf , ,
dod                , 1.3.6            , nonLeaf , ,
internet          , 1.3.6.1          , nonLeaf , ,
directory         , 1.3.6.1.1        , nonLeaf , ,
mgmt              , 1.3.6.1.2        , nonLeaf , ,
mib_2             , 1.3.6.1.2.1      , nonLeaf , ,
transmission      , 1.3.6.1.2.1.10   , nonLeaf , ,
private           , 1.3.6.1.4        , nonLeaf , ,
enterprises       , 1.3.6.1.4.1      , nonLeaf , ,
cisco             , 1.3.6.1.4.1.9    , nonLeaf , ,
```

```

ciscoMgmt          , 1.3.6.1.4.1.9.9          , nonLeaf , ,
cableLabs          , 1.3.6.1.4.1.4491          , nonLeaf , ,
clabProject        , 1.3.6.1.4.1.4491.2       , nonLeaf , ,

```

MIB OID Name Mapping File

Each SNMP MIB attribute is listed in a MIB OID name mapping file. Cisco Broadband Configurator supplies nine MIB OID name mapping files. Table 1 lists each supplied MIB OID name mapping file and the set of features to which each one applies:

Table 1 *Supplied MIB OID Name Mapping Files and Applicable Feature Sets*

Supplied MIB OID Name Mapping File	Set of Features to Which it Applies
CISCO-DOCS-EXT-MIB	DOCSIS 1.0 and DOCSIS 1.1
DOCS-IF-EXT-MIB	DOCSIS 1.0 and DOCSIS 1.1
DOCS-IF-MIB	DOCSIS 1.0 and DOCSIS 1.1
DOCS-BPI-MIB	DOCSIS 1.0
DOCS-BPI-PLUS-MIB	DOCSIS 1.1
DOCS-QOS-MIB	DOCSIS 1.1
DOCS-CABLE-DEVICE-MIB	DOCSIS 1.0 and DOCSIS 1.1
PKTC-MTA-MIB	PacketCable 1.0
PKTC-SIG-MIB	PacketCable 1.0

Format of MIB OID Name Mapping File

For each SNMP MIB attribute defined in a MIB OID name mapping file, the attribute must contain four parameters:

- Text name
- Object ID
- Value type
- Maximum access
 - read-only
 - read-write
 - read-create
 - not-accessible

Each parameter must be separated by a comma, in the format shown below:

```
snmp mib attribute name, object id, value type, max-access
```

The value type and max-access parameters do not apply to every attribute. In such cases, a comma is required, as shown below:

```
snmp mib attribute name, object id, , ,
```




Note If no maximum access value is provided, the attribute is treated as non-accessible.

Example 4 shows a portion of the MIB OID name mapping file for DOCS-IF-MIB. The upper rows do not have a maximum access value, but the lower ones do.

Example 4 Portion of MIB OID Name Mapping File for DOCS-IF-MIB

```
docsIfMib , 1.3.6.1.2.1.10.127 , nonLeaf , ,
docsIfMibObjects , 1.3.6.1.2.1.10.127.1 , nonLeaf , ,
docsIfBaseObjects , 1.3.6.1.2.1.10.127.1.1 , nonLeaf , ,
docsIfDownstreamChannelTable, 1.3.6.1.2.1.10.127.1.1.1, Aggregate, not-accessible
docsIfDownstreamChannelEntry , 1.3.6.1.2.1.10.127.1.1.1.1, Aggregate, not-accessible
docsIfDownChannelId, 1.3.6.1.2.1.10.127.1.1.1.1.1, Integer32(0..255), read-only
docsIfDownChannelFrequency,1.3.6.1.2.1.10.127.1.1.1.1.2,Integer32(0..1000000000),read-write
docsIfDownChannelWidth , 1.3.6.1.2.1.10.127.1.1.1.1.3, Integer32(0..16000000), read-write
docsIfDownChannelModulation , 1.3.6.1.2.1.10.127.1.1.1.1.4, INTEGER, read-write
docsIfDownChannelInterleave , 1.3.6.1.2.1.10.127.1.1.1.1.5, INTEGER, read-write
docsIfDownChannelPower , 1.3.6.1.2.1.10.127.1.1.1.1.6 , Integer32, read-write
```

 **Note** Cisco Broadband Configurator 4.0 does not perform validation to ensure that a value does not exceed the range specified in a MIB OID name mapping file.

Adding a MIB OID Name Mapping File

-
- Step 1** For the MIB you want to add, create a MIB OID name mapping file according to “Format of MIB OID Name Mapping File” page 29.
- Step 2** For each SNMP MIB attribute you add, enter values for the following four parameters in the format shown:
snmp mib attribute name, object id, value type, max-access
- Step 3** Save the file.
- Step 4** To include all parent OIDs of the MIB you added, update the appropriate parent OID file:
- mibs_prefixes_DOCSIS10—Update this file for DOCSIS 1.0.
 - mibs_prefixes_DOCSIS11—Update this file for DOCSIS 1.1.
 - mibs_prefixes_PacketCable10—Update this file for PacketCable 1.0.

 **Note** If you added a partial MIB, make sure all parent OIDs exist in the parent OIDs file.

- Step 5** For the MIB you added, update the MIBs list file to include the name of the mapping file you saved in step 3:
- mibs_DOCSIS10—Update this file for DOCSIS 1.0.
 - mibs_DOCSIS11—Update this file for DOCSIS 1.1.
 - mibs_PacketCable10—Update this file for PacketCable 1.0.
-

Adding an SNMP Attribute to a MIB OID Name Mapping File

Step 1 Open the MIB OID name mapping file from the appropriate directory for your operating system:

- Linux and Solaris—`/opt/CSCOcbc/docsisConfig/resources/mibs`
- Windows—`%CSCOCBC_ROOT%\docsisConfig/resources/mibs`

Step 2 To add an SNMP MIB attribute, enter the attribute in the format shown:

snmp mib attribute name, object id, value type, max-access

If the SNMP attribute does not have a value type or maximum access value, the format must be:

snmp mib attribute name, object id, , ,

Step 3 Save the file.



Caution

Do not change the name of the supplied MIB OID name mapping files.

1.3 Understanding the Vendor File

For each vendor or manufacturer of CPE devices referenced in a configuration file, Cisco Broadband Configurator can present vendor-specific subtype options under TLV 43 in ASCII format if the vendor defines its vendor-specific subtype options in a vendor file. Vendor files are located in the following directories, depending on which operating system you have:

- Linux and Solaris—`/opt/CSCOcbc/docsisConfig/resources/vendors`
- Windows—`%CSCOCBC_ROOT%\docsisConfig\resources\vendors`

This section:

- Describes file naming conventions for the vendor file
- Specifies the seven fields for a subtype option and describes acceptable values for each one
- Shows a sample vendor file
- Provides step-by-step directions to create a vendor file.

File Naming Conventions for the Vendor File

Cisco Broadband Configurator comes with one vendor file, `cisco`, which is in the following locations:

- Linux and Solaris—`/opt/CSCOcbc/docsisConfig/resources/vendors/cisco`
- Windows—`%CSCOCBC_ROOT%\docsisConfig\resources\vendors\cisco`

The vendor filename can not have a file extension, because it must agree with the vendor's name as it is specified in the Vendors setting in the property file, which is show below:

```
vendors=cisco
```

For more information, see “The Vendors Parameter” page 26.

Fields in the Vendor File

A vendor file defines all vendor-specific subtype options under TLV 43. Each subtype option is defined by the following fields:

- Subtypeid (required)
- Format (required)
- Default
- Length
- Multivalue
- Validrange
- Description

Sample Vendor File

To show the format of a vendor file, Example 5 shows Cisco's vendor-specific subtype options under TLV 43.

Example 5 Vendor File for Cisco

```
# <subtypeid> , <format>, <default>, <length>, <multivalue>, <validrange>, <description>
#
cisco      , SUBOPTION, , , , , Cisco Specific Info
cisco.8    , HEXSTRING, 00 00 0c, 3, false, , , Vendor ID
cisco.1    , UINT, , 4, false, , , Static DS Frequency
cisco.2    , UINT, , 4, false, , , Sync Loss Timeout
cisco.3    , STRING, , , false, , , Update Boot Mon...
cisco.4    , UINT, , 2, false, , , Power Backoff
cisco.9    , UINT, , 1, false, , , Update Factory Sys...
cisco.10   , UINT, , 1, true, , , Number of Phone Lines
cisco.11   , SUBOPTION, , , true, , , IP Precedence
cisco.11.1 , UINT, , 1, false, , , Value
cisco.11.2 , UINT, , 4, false, , , Rate Limit
cisco.128  , STRING, , , false, , , IOS Filename
cisco.131  , STRING, , , true, , , IOS Config Command
cisco.132  , SUBOPTION, , , false, , , Flow Encoding
cisco.132.1 , UINT, , 1, false, , , FLOW ID
cisco.132.2 , UINT, , 1, false, , , Class ID
cisco.132.3 , UINT, , 2, false, 1, 65535, Unsolicited Grant Size
cisco.132.4 , UINT, , 4, false, 1, 65535, Nominal Grant Interval
cisco.132.5 , UINT, , 1, false, 0, 127, Grant per Interval
cisco.132.6 , UINT, , 1, false, 0, 127, Embedded Calls
cisco.132.7 , UINT, , 2, false, 0, 4096, Hold Queue Length
cisco.132.8 , SUBOPTION, , , false, , , Fair Queue
cisco.132.8.1 , UINT, , 2, false, 1, 4096, Congestive Discard...
cisco.132.8.2 , UINT, , 2, false, 16, 4096, Dynamic Conversation...
cisco.132.8.3 , UINT, , 2, false, 0, 1000, Reservable Conversation
cisco.132.9 , UINT, , 1, false, 1, 16, Custom Queue List...
cisco.132.10 , BOOLEAN, , 1, false, , Random Detection
cisco.132.11 , UINT, , 1, false, 1, 16, Priority Group
cisco.132.12 , STRING, , , false, , , Service Policy File
cisco.132.13 , UINT, , 2, false, 1, 10080, Inactivity Timer
cisco.132.14 , STRING, , , false, , , COS Tag
cisco.133  , UINT, , 1, false, 0, 15, DS SubChannel ID
cisco.134  , STRING, , , false, , , SU Tag
```



Note In the Description column, an ellipse (...) indicates that a description was shortened for display purposes in this guide only.

Subtypeid Field

The subtypeid field is a unique identifier for the subtype option. It is a required field. In the subtypeid field, the characters to the left of the first period are called the prefix. The prefix of each subtypeid must be the same as the:

- Vendor name in the Vendors parameter of the property file (see Example 1 “The Vendors Parameter” page 26)
- Vendor filename (see “File Naming Conventions for the Vendor File” page 32)

As shown in the Subtypeid column of Example 5, the prefix for the Cisco subtypeid fields is cisco.

Format Field

The format field specifies the data format and how the subtype option is encoded. It is a required field. The format types are:

- UINT—Unsigned integer
- SUBOPTION—Compound, which means that the TLV has subtypes
- STRING—ASCII string
- HEXSTRING—String of hex numbers, separated by a space, dot, dash, colon, or comma
- DECSTRING—String of decimal numbers separated by a space, dot, dash, colon, or comma
- BOOLEAN—0 or 1

Several of these format types are shown in the Format column of Example 5.

Default Field

The default field specifies the default value of the subtype option. If there is no default value for the subtype option, enter a comma.

As shown in Example 5, most of Cisco’s subtype options do not have a default value and show a comma in the Default column.

Length Field

The length field specifies the length of the subtype value. The following caveats apply:

- If the length is variable, enter a comma.
- If the length is for an unsigned integer, which is indicated by the UINT format, the length field is mandatory.

As shown in Example 5, the Length column shows that most of Cisco’s subtype options have a specified length from 1 to 4 digits.

Multivalue Field

The multivalue field specifies whether multiple instances can be specified for the subtype option in the configuration file. Possible values are true and false.

As shown in Example 5, the Multivalue column shows that most Cisco subtype options do not allow multiple options.

Validrange Field

The validrange field specifies the valid range for the subtype option. If the subtype option does not have a valid range, enter two commas. This indicates that there is no need to perform validation.

As shown in Example 5, the Validrange column shows that about half of Cisco subtype options have a valid range and half do not.

Description Field

The description field is a text description that describes the purpose of the subtype option. A sample description is Vendor ID. As shown in Example 5, the Description column shows short descriptions that are unique to each subtype option.

The Subtype 8 Option

Every vendor has a subtype 8 option, which must be defined on the line below the vendor subtypeid, such as cisco. The subtype 8 option, such as cisco.8, must have the following settings:

- Format—HEXSTRING
- Default—Organizational Unique Identifier (OUI)
- Length—3
- Description—Vendor ID

Example 6 shows the sequence and format of the subtype 8 option in the Cisco vendor file.

Example 6 Sample Subtype 8 Option

```
# <subtypeid> , <format>, <default>, <length>, <multivalue>, <validrange>, <description>
#
cisco          , SUBOPTION, , , , , Cisco Specific Info
cisco.8       , HEXSTRING, 00 00 0c, 3, false, , , Vendor ID
```

Creating a Vendor File

To create a vendor file:

Step 1 To reference a model vendor file, open the vendor file for Cisco from the appropriate directory for your operating system:

- Linux and Solaris—/opt/CSCOcbc/docsisConfig/resources/vendors/cisco
- Windows—%CSCOCBC_ROOT%\docsisConfig\resources\vendors\cisco

Step 2 Save the file as *newvendor*, without a file extension.



Note In these directions, *newvendor* represents the name of the vendor for which you are creating a file.

Step 3 In the first line, define the vendor subtypeid for *newvendor*:

```
# <subtypeid>, <format>, <default>, <length>, <multivalue>, <validrange>, <description>
#
newvendor, SUBOPTION, , , , , Newvendor Specific Info
```

Step 4 Below the subtypeid, define the vendor subtype 8 option for *newvendor*:

```
# <subtypeid>, <format>, <default>, <length>, <multivalue>, <validrange>, <description>
newvendor.8, , HEXSTRING, 00 00 01, 3, false, , , Vendor ID
```



Note The sample subtype 8 option above uses a fake OUI, 00 00 01, in the default field for *newvendor*.

Step 5 Enter as many vendor-specific subtype options for *newvendor* as necessary, by filling in the following seven fields in the format shown:

```
# <subtypeid>, <format>, <default>, <length>, <multivalue>, <validrange>, <description>
```

See the previous topics in this section for details on acceptable values for each of the seven fields.

Step 6 Save the file.



Note The name of the vendor file must be the same as the value in property file. For more information, see “The Vendors Parameter” page 26.

14 Uninstalling Cisco Broadband Configurator

This section provides instructions to uninstall Cisco Broadband Configurator on each supported platform.

Uninstalling Cisco Broadband Configurator on the Linux Platform

Step 1 To uninstall Cisco Broadband Configurator, log in as root and change to the `/opt/CSCOcbc/docsisConfig/bin` directory:

```
cd /opt/CSCOcbc/docsisConfig/bin
```

Step 2 To uninstall Cisco Broadband Configurator, enter:

```
./uninstall
```

Uninstalling Cisco Broadband Configurator on the Solaris Platform

Step 1 To uninstall Cisco Broadband Configurator, log in as root and change to the `/opt/CSCOcbc/docsisConfig/bin` directory:

```
cd /opt/CSCOcbc/docsisConfig/bin
```

Step 2 To uninstall Cisco Broadband Configurator, enter:

```
./uninstall
```

Uninstalling Cisco Broadband Configurator on the Windows Platform

Step 1 To uninstall Cisco Broadband Configurator, choose:

Start > Settings > Control Panel > Add/Remove Programs

Step 2 Select Cisco Broadband Configurator.

Step 3 Click Change/Remove.

Step 4 In the InstallShield Wizard, select Remove and click Next.

15 Sample ASCII Format DOCSIS Configuration File with All Supported TLVs

This section contains an ASCII format DOCSIS configuration file that shows all supported TLVs.

```
# Information: Successfully loaded file Config-ascii.cm.

01 (DS Frequency)          = 1

02 (US Channel ID)        = 2

03 (Net Access Control) = 1

04 (Class of Service Encodings Block)
  S01 (Class ID)          = 1
  S02 (Max DS rate)       = 2
  S03 (Max US rate)       = 3
  S04 (US channel priority) = 4
  S05 (Guaranteed Min US rate) = 5
  S06 (Max US transmit rate) = 6
  S07 (BPI Enable)        = True

05 (Modem Capability)
  S01 (Concatenation Support) = No

09 (Software Upgrade Filename) = tftp.file

10 (SNMP Write Access) = 1.2.3.4.5.6.0
10 (SNMP Write Access) = 2.3.4.5.6.7.1

11 (SNMP MIB Object) = 1.2.3.4 (Integer) = 1
11 (SNMP MIB Object) = 2.1.3.4 (Integer) = 2
11 (SNMP MIB Object) = 1.2.4.5 (Integer) = 3
11 (SNMP MIB Object) = 2.1.4.5 (IP Address) = 2.3.4.5
11 (SNMP MIB Object) = 1.3.4.5 (Octet String) = string
11 (SNMP MIB Object) = 1.3.4.6 (Octet String) = " string with space "
11 (SNMP MIB Object) = 1.3.4.7 (Octet String) = "0xea-f-f1-12-ab"
11 (SNMP MIB Object) = 1.3.4.8 (Octet String) = 0xea-f-f1-12-ab

14 (CPE Ethernet MAC Address) = ab-1c-e-f-23-41
14 (CPE Ethernet MAC Address) = 1e-cd-ef-1-2-3

15 (Telephone Return Block)
```

S02 (Service Provider Name) = uunet
S03 (Telephone Number 1) = 1
S04 (Telephone Number 2) = 2
S05 (Telephone Number 3) = 3
S06 (Connection Threshold) = 4
S07 (Login Username) = user
S08 (Login Password) = password
S09 (DHCP Authenticate) = Yes
S10 (DHCP Server IP) = 1.2.3.4
S11 (RADIUS Realm) = 5
S12 (PPP Authenticate) = 6
S13 (Demand Dial Inactivity Timer Threshold) = 7

16 (SNMP Manager IP) = 1.2.3.4

17 (Baseline Privacy Block)

S01 (Authorize Wait Timeout) = 1
S02 (Reauthorize Wait Timeout) = 2
S03 (Authorize Grace Timeout) = 3
S04 (Operational Wait Timeout) = 4
S05 (Rekey Wait Timeout) = 5
S06 (TEK Grace Time) = 6
S07 (Authorize Reject Wait Timeout)= 7

18 (Maximum Number of CPE) = 1

21 (TFTP Server IP) = 1.1.1.1

22 (Upstream Packet Classification Block)

S01 (Classifier Reference)= 1
S03 (Flow Reference) = 3
S05 (Rule Priority) = 5
S06 (Activation State) = 0
S09 (IP Packet Classification)
T01 (IP ToS Range & Mask) = 8.9.10
T02 (IP Protocol) = 9
T03 (Source Address) = 1.2.3.4
T04 (Source Mask) = 255.255.255.255
T05 (Destination Address) = 1.2.3.4
T06 (Destination Mask) = 255.255.255.255
T07 (Source Port Start) = 1
T08 (Source Port End) = 2
T09 (Destination Port Start)= 1

T10 (Destination Port End) = 2
S10 (Ethernet LLC Packet Classification)
T01 (Destination MAC Addr) = 1-2-3-4-5-6-7-8-9-a-b-c
T02 (Source MAC Addr) = 1-2-3-4-5-6
T03 (Enet/DSAP/MAC Type) = 7.8.9
S11 (IEEE 802.1P/Q Packet Classification)
T01 (IEEE 802.1P User Priority)= 8.9
T02 (IEEE 802.1Q VLAN ID) = 12.1
S43 (Vendor Specific Options) = 10.11.12

23 (Downstream Packet Classification Block)

S01 (Classifier Reference)= 1
S03 (Flow Reference) = 3
S05 (Rule Priority) = 5
S06 (Activation State) = 0
S09 (IP Packet Classification)
T01 (IP ToS Range & Mask) = 8.9.10
T02 (IP Protocol) = 9
T03 (Source Address) = 1.2.3.4
T04 (Source Mask) = 255.255.255.255
T05 (Destination Address) = 1.2.3.4
T06 (Destination Mask) = 255.255.255.255
T07 (Source Port Start) = 1
T08 (Source Port End) = 2
T09 (Destination Port Start)= 1
T10 (Destination Port End) = 2
S10 (Ethernet LLC Packet Classification)
T01 (Destination MAC Addr) = 1-2-3-4-5-6-7-8-9-a-b-c
T02 (Source MAC Addr) = 1-2-3-4-5-6
T03 (Enet/DSAP/MAC Type) = 7.8.9
S11 (IEEE 802.1P/Q Packet Classification)
T01 (IEEE 802.1P User Priority)= 8.9
T02 (IEEE 802.1Q VLAN ID) = 12.1
S43 (Vendor Specific Options) = 10.11.12

24 (Upstream Service Flow Block)

S01 (Flow Reference) = 1
S03 (Service ID) = 2
S04 (Service Class Name) = 3
S06 (QoS Parameter Set Type) = 4
S07 (Traffic Priority) = 5
S08 (Max Substained Traffic Rate) = 6
S09 (Max Traffic Burst) = 7

S10 (Max Reserved Traffic Rate) = 8
S11 (Assumed Min Reserved Rate Packet Size) = 9
S12 (Timeout for Active QoS Parameters) = 10
S13 (Timeout for Admitted QoS Parameters) = 11
S14 (Max Concatenated Burst) = 12
S15 (Service Flow Scheduling Type) = 0
S16 (Request/Transmission Policy) = 514
S17 (Nominal Polling Interval) = 15
S18 (Tolerated Poll Jitter) = 16
S19 (Unsolicited Grant Size) = 17
S20 (Nominal Grant Interval) = 18
S21 (Tolerated Grant Interval) = 19
S22 (Grant/Interval) = 20
S23 (IP ToS Overwrite) = 21.22
S43 (Vendor Specific QoS Parameter) = 23.24.25

25 (Downstream Service Flow Block)

S01 (Flow Reference) = 1
S03 (Service ID) = 2
S04 (Service Class Name) = 3
S06 (QoS Parameter Set Type) = 4
S07 (Traffic Priority) = 5
S08 (Max Substained Traffic Rate) = 6
S09 (Max Traffic Burst) = 7
S10 (Max Reserved Traffic Rate) = 8
S11 (Assumed Min Reserved Rate Packet Size) = 9
S12 (Timeout for Active QoS Parameters) = 10
S13 (Timeout for Admitted QoS Parameters) = 11
S14 (Max Downstream Latency) = 12
S43 (Vendor Specific QoS Parameter) = 13.14.15

26 (Payload Header Suppression Block)

S01 (Classifier Reference) = 1
S03 (Flow Reference) = 3
S07 (PHS Field) = 6
S09 (PHS Mask) = 8
S10 (PHS Size) = 9
S11 (PHS Verification) = 1
S43 (Vendor Specific PHS Parameter) = 11.12.13

28 (Max Number of Classifiers) = 1

29 (Privacy Enable) = Yes

31 (Key Sequence Number) = 2

32 (Manufacturer CVC) = 3

33 (Co-signer CVC) = 4

34 (SNMP V3 Kickstart Block)

S01 (Security Name) = docsisManager

S02 (Manager Public Number) = 1-2-3

34 (SNMP V3 Kickstart Block)

S01 (Security Name) = docsisOperator

S02 (Manager Public Number) = 1e-a2-c3

35 (Subscriber Mgmt Control) = 10.0.1

36 (Subscriber Mgmt CPE IP Table) = 172.27.3.20

36 (Subscriber Mgmt CPE IP Table) = 172.27.3.21

36 (Subscriber Mgmt CPE IP Table) = 172.27.3.22

37 (Subscriber Mgmt Filter Groups) = 1.2.3.4.5.6.7.8

43 (Vendor Cisco Systems Specific Info Block)

S10 (Number of Phone Lines) = 2

S11 (IP Precedence Block)

T01 (Value) = 1

T02 (Rate Limit) = 12500

S11 (IP Precedence Block)

T01 (Value) = 2

T02 (Rate Limit) = 125000

S128 (IOS Filename) = ios.cfg

S131 (IOS Config Command) = ip http server

43 (Vendor Cisco Systems Specific Info Block)

S132 (Flow Encodings Block)

T01 (Flow ID) = 1

T02 (Class ID) = 2

T03 (Unsolicited Grant Size)= 3

T04 (Nominal Grant Interval)= 4

T05 (Grant/Interval) = 5

T06 (Embedded Calls) = 6

T07 (Hold Queue) = 7

T08 (Fair Queue Block)
U01 (Congestive Discard Threshold) = 8
U02 (Dynamic Conversation Queues) = 16
U03 (Reservable Conversation Queues)= 10
T09 (Custom Queue List) = 11
T10 (Random Detection) = 0
T11 (Priority Group) = 13
T12 (Service Policy File) = 14
T13 (Inactivity Timer) = 15
T14 (COS Tag) = 16
S133 (DS SubChannel ID) = 1
S134 (SU Tag) = 2

43 (Vendor Specific Info) = 1.2.3.4.5.6

16 Obtaining Documentation

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

Cisco.com

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

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

International Cisco web sites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which may have shipped 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 through an annual subscription.

Registered Cisco.com users can order the Documentation CD-ROM (product number DOC-CONDOCCD=) through the online Subscription Store:

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

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 Networking Products Marketplace:
<http://www.cisco.com/en/US/partner/ordering/index.shtml>
- Registered Cisco.com users can order the Documentation CD-ROM (Customer Order Number DOC-CONDOCCD=) through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

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

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

You can submit your comments by mail by using the response card 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.

17 Obtaining Technical Assistance

Cisco provides Cisco.com, which includes the Cisco Technical Assistance Center (TAC) Website, as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from the Cisco TAC website. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC website, including TAC tools and utilities.

Cisco.com

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

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

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

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two levels of support are available: the Cisco TAC website and the Cisco TAC Escalation Center. The avenue of support that you choose depends on the priority of the problem and the conditions stated in service contracts, when applicable.

We categorize Cisco TAC inquiries according to urgency:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Cisco TAC Website

You can use the Cisco TAC website to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC website, go to this URL:

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

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC website. Some services on the Cisco TAC website require a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:

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

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC website, you can open a case online at this URL:

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

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC website so that you can describe the situation in your own words and attach any necessary files.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. These classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer automatically opens a case.

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

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

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.

18 Obtaining Additional Publications and Information

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

- The *Cisco Product Catalog* describes the networking products offered by Cisco Systems as well as ordering and customer support services. Access the *Cisco Product Catalog* at this URL:
http://www.cisco.com/en/US/products/products_catalog_links_launch.html
- Cisco Press publishes a wide range of networking publications. Cisco suggests these titles for new and experienced users: *Internetworking Terms and Acronyms Dictionary*, *Internetworking Technology Handbook*, *Internetworking Troubleshooting Guide*, and the *Internetworking Design Guide*. For current Cisco Press titles and other information, go to Cisco Press online at this URL:
<http://www.ciscopress.com>
- *Packet* magazine is the Cisco monthly periodical that provides industry professionals with the latest information about the field of networking. You can access *Packet* magazine at this URL:
http://www.cisco.com/en/US/about/ac123/ac114/about_cisco_packet_magazine.html
- *iQ Magazine* is the Cisco monthly periodical that provides business leaders and decision makers with the latest information about the networking industry. You can access *iQ Magazine* at this URL:
http://business.cisco.com/prod/tree.taf%3fasset_id=44699&public_view=true&kbns=1.html
- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in the design, development, and operation of public and private internets and intranets. You can access the *Internet Protocol Journal* at this URL:
http://www.cisco.com/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html
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