**COMTREND CORPORATION**

# CT-361
# ADSL Modem
# User's Manual

Version A2.1    June 26, 2003

261042-012

**Preface**

This manual covers the installation, operation and applications of the ADSL modem.

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**Contacting us**

The reader is presumed to have a basic understanding of telecommunications. For product updates, new product releases, manual revisions, software upgrades, technical support, visit Comtrend Corporation at: http://www.comtrendcorp.com

**Technical support**

If your modem is malfunctioning or you require technical service please send Email to: mailto:globalsp@comtrendcorp.com

**⚠ Warning**

- Before servicing or disassembling this equipment, always disconnect all power and telephone lines from the device.

- Use an appropriate power supply and a UL Listed telephone line cord. Specification of the power supply is clearly stated in Appendix A - Specifications.

# Table of Contents

# Chapter 1  Introduction

This chapter introduces the ADSL Modem. It includes a product overview, description of the products features and applications, and explains the functions of the Front panel LED indicators.

## 1.1    Product Overview

The ADSL Modem is integrated with a USB and an Ethernet Interface. It utilizes an ADI chipset to meet the specific needs of multiple users at small/home offices and remote/branch offices. It provides an Ethernet port and a USB port to connect with a LAN. In addition, it supports one virtual connection.

The ADSL Modem is for ADSL over POTS (Annex A). It supports AAL5 for ATM over ADSL and it is capable of bridging other protocols. It has the speed and stability to be used for multi-media applications. VCI/VPI and encapsulation parameters can easily be auto-configured. The software can be upgraded by GUI, via LAN interface. It can run on MS Windows 98, ME, 2000, XP, Mac and Linux.

## 1.2    Features

The ADSL Modem is compact and high performance standalone unit. It supports:

- ❏   One Ethernet port and one USB port for LAN Interface

- ❏   Bridge function

- ❏   Auto-negotiating rate adaptation

- ❏   AAL5 for ATM over ADSL

- ❏   UBR ATM services

- ❏   VC-based and LLC multiplexing

- ❏   OAM F4/F5

- ❏   Software upgrade via LAN interface

- ❏   Auto configuration

## 1.3    Application

The diagram below shows the typical applications for the ADSL Modem.
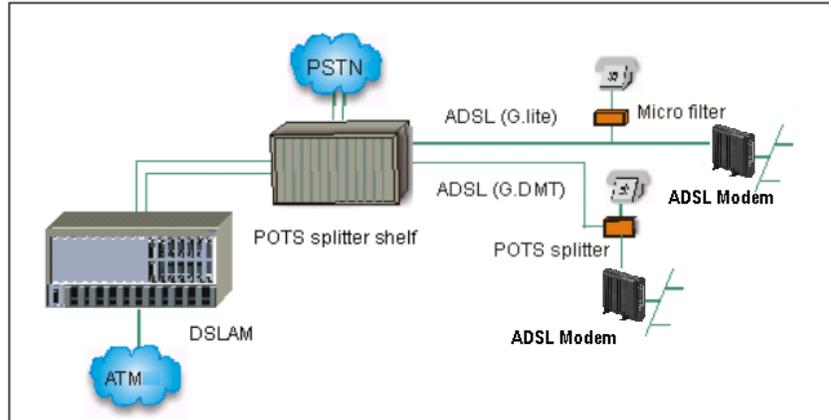


## 1.4    Front Panel LED Indicators
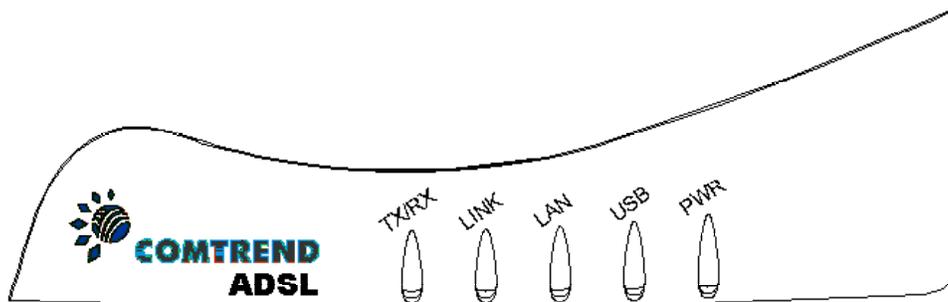


| LED Indicator | Color | Mode | Function |
|---|---|---|---|
| TX/RX | Green | Flash | Receiving or transmitting data over the ADSL link |
| | | Off | Not receiving or transmitting data over the ADSL link |
| Link | Green | Flash | ADSL link is training |
| | | On | An ADSL link is established |
| | | Off | ADSL link not established |
| LAN | Green | On | An Ethernet link is established |
| | | Off | An Ethernet link is not established |
| | | Flash | Activity over the Ethernet link |
| USB | Green | On | USB link is established |
| | | Off | USB link is not established |
| Power | Green | On | Power is supplied to the device |
| | | Off | Power is not supplied |

## 1.5    Rear Panel
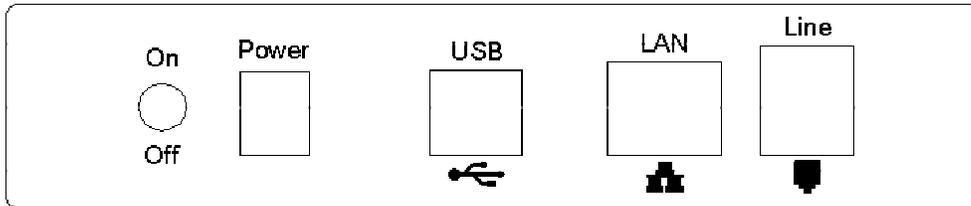


**Figure 1-1 Rear Panel**

The rear panel consists of these components: an On/Off power switch, a Power input socket, a LAN port, and a Line port.

- On/Off power switch: After the power source is connected via the power adapter cord, the switch is used to turn on or turn off the modem.

- Power: An appropriate power adapter is shipped with the modem.  Connect the power source to the modem with this power adapter.

- USB port: Used to establish a USB connection to a PC.

- LAN port: Used to connect the modem to the Ethernet.

- Line: This is used to connect to the ADSL line for ADSL service.

# Chapter 2 Hardware Installation

## 2.1    Installation
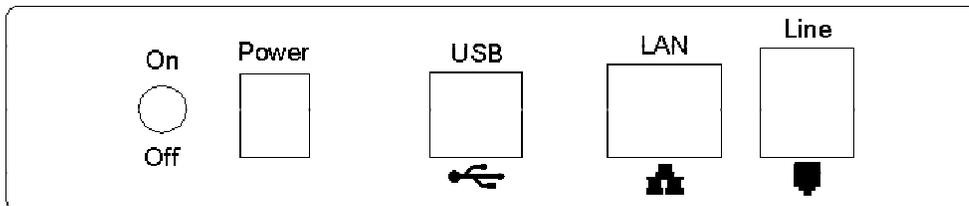


**Caution:** Always disconnect all telephone lines from the telephone wall-outlet before servicing or disassembling this device.

**STEP 1**    Connect the power adapter to the **power jack** of the device, and then plug the power adapter into the wall outlet.

**STEP 2**    *Option A:*

Connect the square-end of the **USB cable** to the **USB port** of the modem and connect the flat-end to a **PC.**

*Option B:*

Connect the **LAN port** to a PC or hub with an RJ45 cable.

**STEP 3**    Connect the **LINE port** to a POTS splitter or micro filter with an RJ11 connector cable.

**STEP 4**    Affix the two clip-on stands to the bottom of the device and place the device in an up-right position (this is strongly recommended in order to optimize the device's performance)

**STEP 5**    Turn on the power switch on the rear panel.

Note: 1: The USB and LAN ports cannot be used simultaneously.

2: If the device fails to power on, or it malfunctions, first verify that the power supply is correctly connected, and then power it on again.

# USB Installation and Operation

This section explains using the modem with a USB installation; if you wish to operate the modem using an Ethernet installation, refer to the Ethernet Installation and Operation section.

## Chapter 3 Software Installation

> ## Take Note!
>
> Before you connect your Modem's USB cable to your PC, you must load the ADSL USB drivers and configure the software. If you run into difficulty because you have connected the USB cable before installing the software, see Troubleshooting, Q1.

## 3.1    Bridged Mode and Routed Mode

This chapter will explain the installation procedures for both Bridged mode and Routed mode. For the purposes of installation, the procedures are the same for both modes; however, the appearance of some Screenshots may slightly vary from those displayed, depending on your operating system.

1. Insert the CD-ROM disc for the ADSL USB Modem

2. The CD-ROM will auto-play and you will see the following screen, click **Next** to continue. (If the screen doesn't appear, browse the CD-ROM and double-click on INSTALL.EXE):

3. Select the type of driver you wish to install and click on the **Next** button.
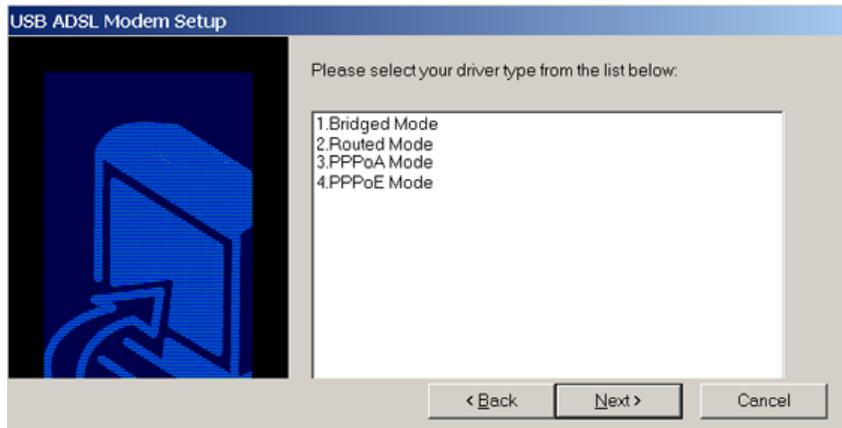


4. Enter the **VPI** and **VCI** values provided by your ISP, and then click the **Next** button.
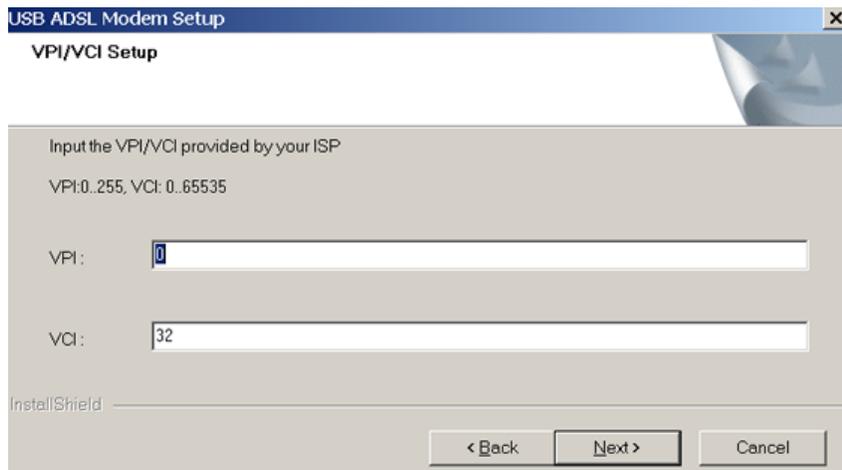
5. Enter the **IP Address** and **Subnet Mask**, supplied by your ISP, when the screen displays as below.
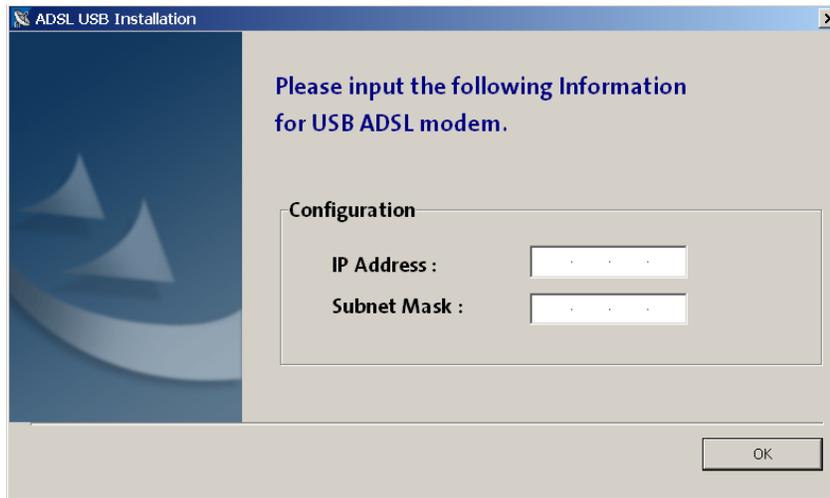
6. When the screen displays as below, connect the USB modem to the USB port of your PC, and click the OK button.

7. The installation is now complete. Shortly after connecting the USB Modem, the Status icon will appear, at the bottom-right of your screen.

You can monitor the status of your modem by clicking the Status icon shown above. For more information, refer to the Chapter:  **GUI: Monitoring and Configuring**.

## 3.2    PPPoA Mode and PPPoE Mode

This chapter will explain the installation procedures for both PPPoA Mode and PPPoE Mode. For the purposes of installation, the procedures are the same for both modes; however, the appearance of some Screenshots may slightly vary from those displayed, depending on your operating system.

1. Insert the CD-ROM disc for the ADSL USB Modem

2. The CD-ROM will auto-play and you will see the following screen, click **Next** to continue. (If the screen doesn't appear, browse the CD-ROM and double-click on INSTALL.EXE):



3. Select the type of driver you wish to install and click on the **Next** button.
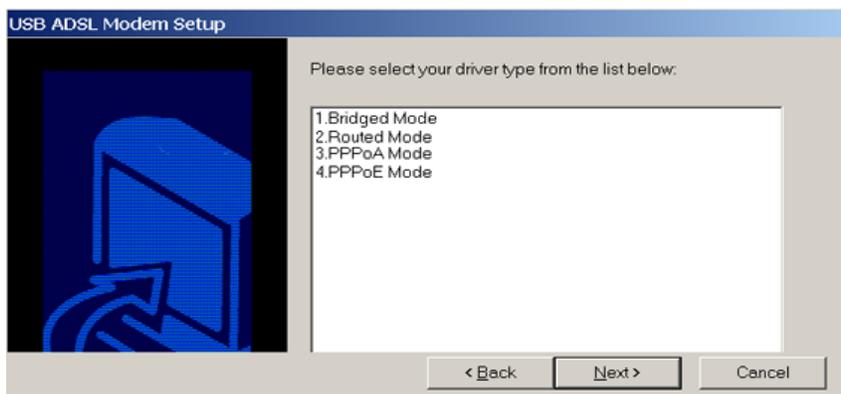
4. Enter the **VPI** and **VCI** values provided by your ISP, and then click the **Next** button.
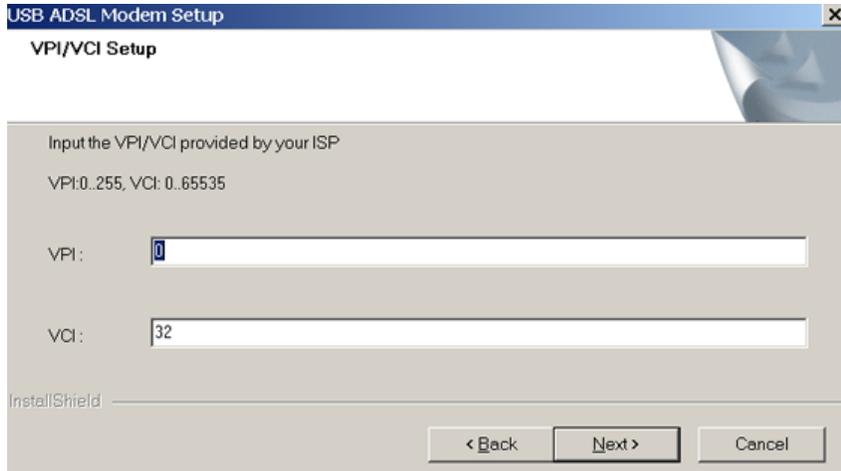


5. When the screen displays as below, connect the USB Modem to your PC's USB port.



**Windows 98 Users only:** If the screen shown below appears insert your Windows 98 Operating System disk.
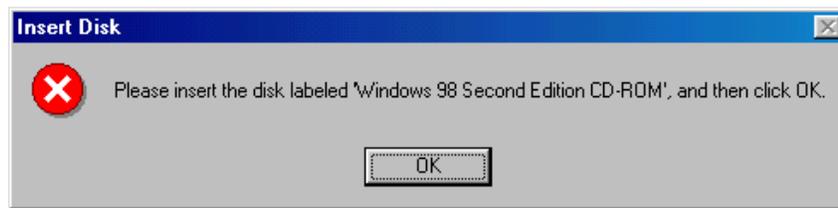
6. Enter the **Username** and **Password** supplied by your ISP, when the screen displays as below.



7. The installation is complete; you can now run your online applications, see the next chapter for details about how to monitor your connection.

# Chapter 4  GUI: Monitoring and Configuring

You can monitor the status of you modem by clicking the icon on the status bar of

your desktop  (this is located at the bottom-left of your screen).
The statuses are as follows:

Modem is disconnected (dark green icon with a red strikethrough)

Modem is training (yellow icon)

Modem is trained, but data not currently being transferred (dark green icon)

Currently Transmitting and Receiving Data (light green icon)

Currently Transmitting Data (left light green, right dark green)

Currently Receiving Data (left dark green, right light green)

Modem is not working properly (red icon)

The DSLMON GUI is a tool that enables users to monitor the USB Modem and ADSL line status, and to change the Modem configuration. To set up the DSL GUI CONFIGURATION FOR all WINDOWS operating systems complete the following steps:

1. Make sure you have already correctly installed your device driver.

2. Double-click the ADI DSLMON logo on the right side of the Windows taskbar.

 The screen will display as below:
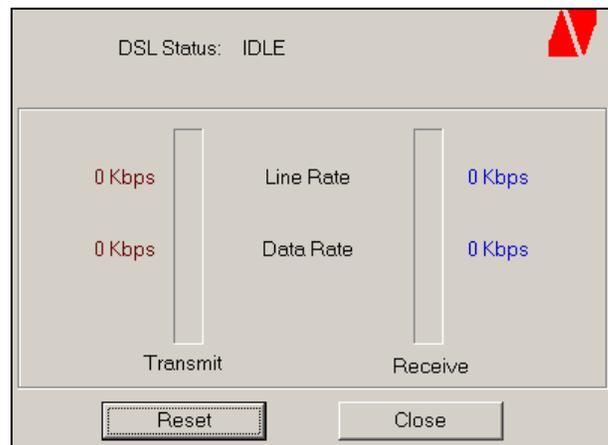


The **ADI ADSL USB** (Main) window of the GUI displays DSL Status.

| Information | Field Description |
|---|---|
| Transmit Line Rate | Upstream data rate negotiated by the ADSL link (Kbit/s) |
| Receive Line Rate | Downstream data rate negotiated by the ADSL link (Kbit/s) |
| Transmit Data Rate | Actual user data transmit rate (Kbit/s) |
| Receive Data Rate | Actual user data receive rate (Kbit/s) |
| DSL Status | Status of the modem: (IDLE, OPERATIONAL, INITIALIZING, FAILED) |

3. Press the **Alt** and **D** keys (Alt-D) at the same time to display the ATM/DSL detailed information.
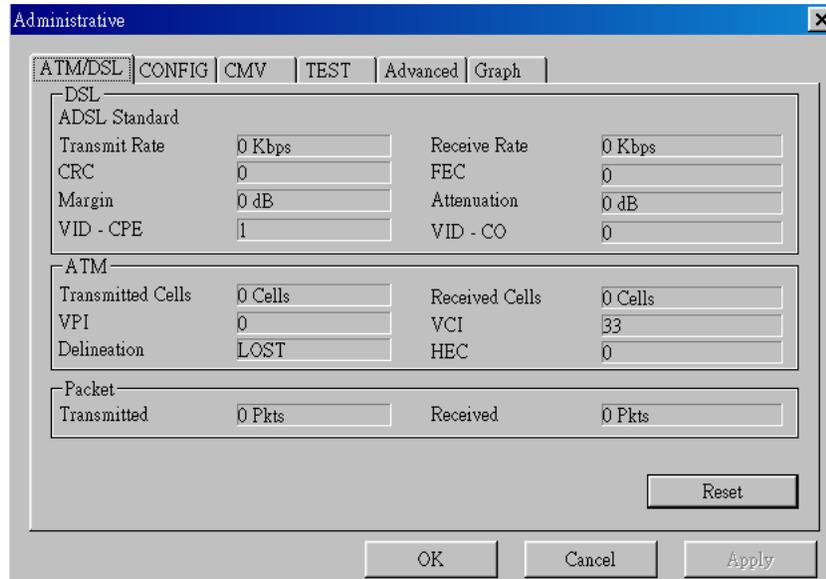


| ATM/DSL Information | Description |
|---|---|
| ADSL Standard | ADSL Standard (ANSI T1.413, G.DMT, G.LITE, Multi-Standard) |
| Transmit Rate | Upstream data rate negotiated by DSL link (Kbit/s) |
| CRC | Number of errors per second since training |
| Margin | Near end (CPE) current SNR margin (dB) |
| VID-CPE | Vendor ID of the DSL ATUR |
| Receive Rate | Downstream data rate negotiated by the DSL link (Kbit/s) |
| FEC | Number of uncorrectable errors since start of link |
| Attenuation | Current attenuation (dB) |
| VID-CO | Vendor ID of the DSL ATUC |
| **ATM Information** | **Description** |
| Transmitted Cells | Number of (non-IDLE) ATM cells transmitted since start of link |
| VPI | Virtual Path Identifier field used in the ATM cell header |
| Delineation | ATM delineation status. |
| Received Cells | Number of (non-IDLE) ATM cells received since start of link |
| VCI | Virtual Channel Identifier field used in the ATM cell header |
| HEC | Number of ATM cells received with errors since start of link. |
| **PACKET Information** | **Description** |
| Transmitted | Number of AAL5 packets transmitted since start of link |
| Received | Number of AAL5 packets received since start of link |

4. Click the **CONFIG** tab to change the modem configuration. The screen shown
   below will display:
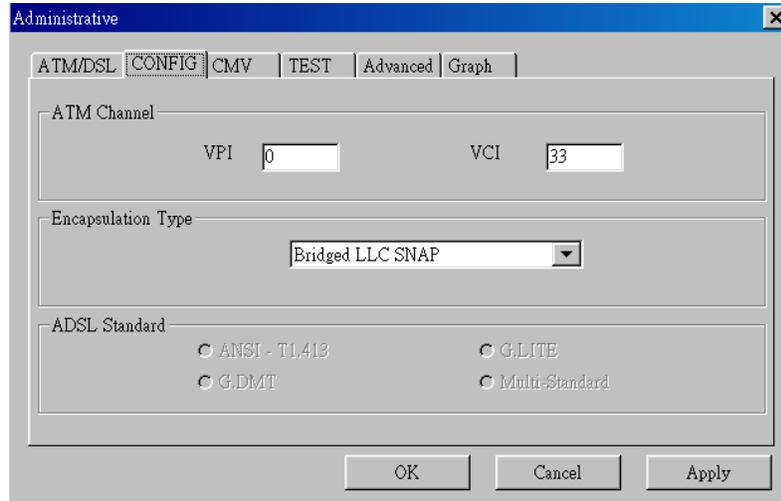


The **Administrative window** displays the CONFIG fields that are defined below.

| Information Field | Description |
|---|---|
| ATM Channel | VPI and VCI values. Enter values in decimal format. |
| Encapsulation Type | Available for Ethernet/IPoA installation only. Enter Bridged LLC SNAP, Bridged VC MUX, Routed LLC SNAP or Routed VC MUX. |
| ADSL Standard | Select ANSI T1.413, G.LITE, G.DMT or Multi-Standard |

5. Click the **CMV** tab to display the CMV screen.
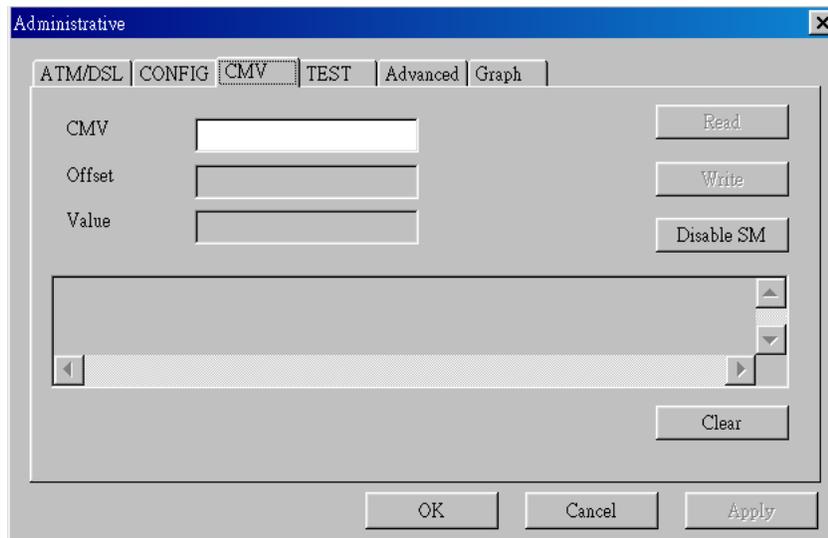


The **Administrative window** displays the CMV fields that are defined below.

| Information Field | Description |
|---|---|
| CMV | Configurable Management Variables. |
| Offset | Numbering convention |
| Value | Contents of CMV (hex) |

6. Click the **TEST** tab to display the TEST page.
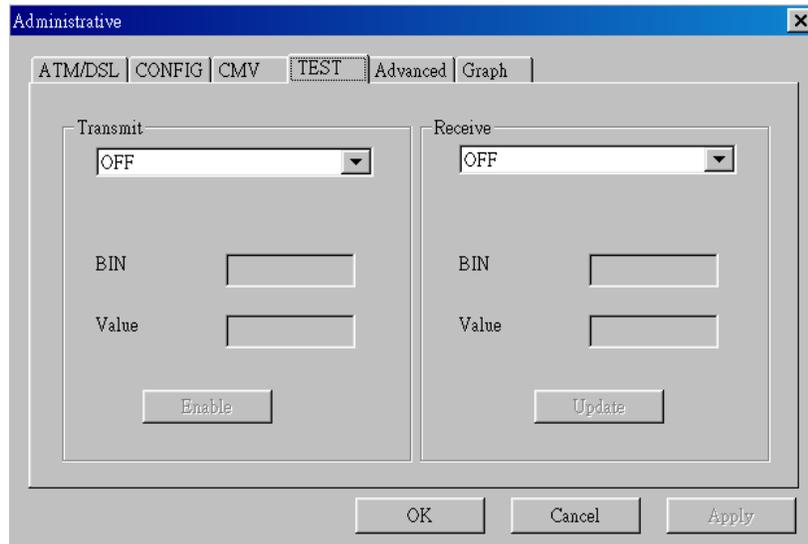


The **Administrative window** displays the TEST fields that are defined below.

| Information Field | Description |
|---|---|
| Transmit BIN | Upstream ADSL sub-channel number. |
| Transmit Value | Power transmitted using sub-channel specified in Transmit BIN. |
| Receive BIN | Downstream ADSL sub-channel number. |
| Receive Value | Power received in sub-channel specified by Receive BIN. |

7. Click the Advanced tab to display the Advanced page.
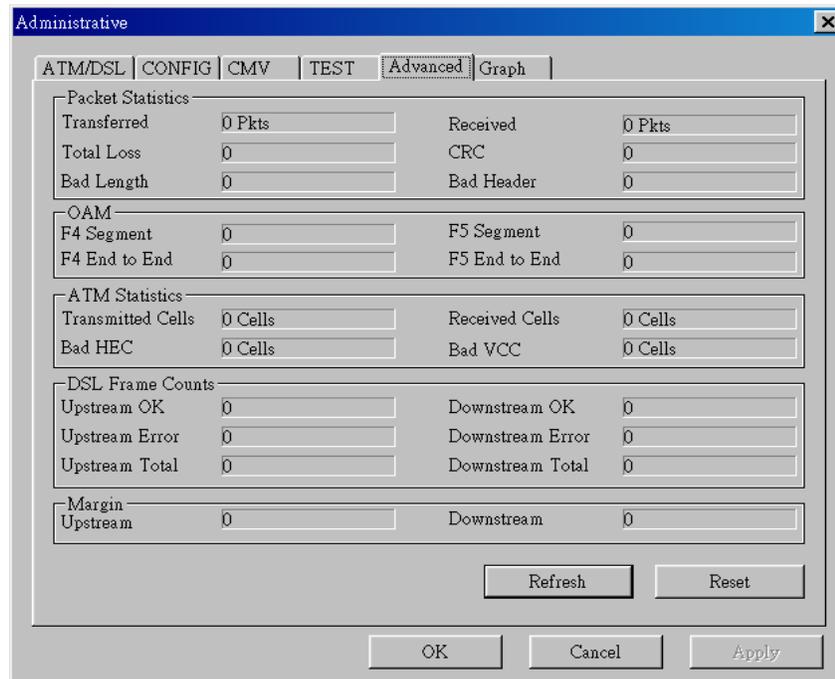


The **Administrative** window displays the Advanced

page with detailed DSL and ATM information.

| Packet Statistics | Description |
|---|---|
| Transferred | Upstream data rate negotiated by DSL link (Kbit/s) |
| Total Loss | Total number of packets lost |
| Bad Length | Number of packets that were of bad length |
| Received | Downstream data rate negotiated by DSL link (Kbit/s) |
| CRC | Number of errors per second since training |
| Bad Header | Number o f packets with bad headers |
| **OAM Information** | **Description** |
| F4 Segment | Number of (non-IDLE) ATM cells transmitted since start of link |
| F4 End to End | Number of (non-IDLE) ATM cells received since start of link |
| F5 Segment | ATM delineation status. |
| F5 End to End | Virtual Path Identifier field used in the ATM cell header |
| **ATM Statistics** | **Description** |
| Transmitted Cells | Number of AAL5 packets transmitted since start of link |
| Bad HEC | Number of ATM cells with corrupted headers |
| Received Cells | Number of AAL5 packets received since start of link |
| Bad VCC | Number of ATM cells with wrong virtual channel ID |
| **DSL Frame Counts** | **Description** |
| Upstream OK | Upstream DSL frames transmitted without error |

| | |
|---|---|
| Upstream Error | Upstream DSL frames transmitted with error |
| Upstream Total | Upstream DSL frames transmitted in total |
| Downstream OK | Downstream DSL frames received without error |
| Downstream Error | Downstream DSL frames received with error |
| Downstream Total | Downstream DSL frames received in total |
| **Margin** | **Description** |
| Upstream | Upstream SNR in dB above minimum requirement |
| Downstream | Downstream SNR in dB above minimum requirement |

8. Click the Graph tab to display the Graph page.
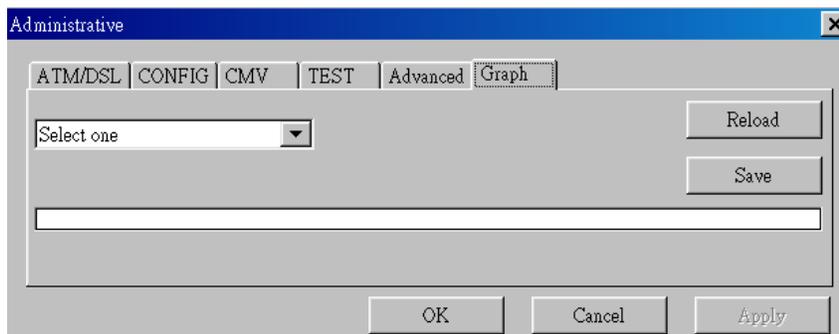


The Graph page offers graph options

9. Open the drop-down list box to choose from the given BIN options.
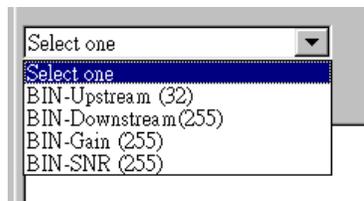


10. If you wish to save a graph click on the **save** button

# Chapter 5 TROUBLESHOOTING

Please read the following to help solve problems with your USB ADSL Modem.

**Q1: What happens if I plug the USB Modem into the PC before running " Setup.exe"?**

The Windows Hardware Wizard will detect USB Modem as new hardware and will prompt you to provide the Device Driver. You must cancel the InstallShield Wizard, unplug the USB cable, and then follow the installation procedure.

**Q2: Can I let Windows detect and install the driver automatically?**

This has been disabled in order to simplify installation and create a more reliable connection

**Q3: The USB Driver is not re-loaded after I unplug the USB Cable from the USB modem and then plug it in again.**

Go to Control Panel and double-click the System icon. Click the Device Manager tab on the System Properties screen. Delete any unknown USB device(s), if any, and then reboot the PC.

**Q4: I am using Windows 98/ 98 Second Edition and have followed the installation procedure but the installation process stops after USB ADSL LOADER is installed.**

Verify if the modem is installed (Appendix A), if you do not see any USB ADSL adapter installed, restart Windows while leaving your modem connected to the USB port. Once Windows boots up it will resume driver installation.

**Q5: I've followed the driver installation procedure and the modem is still not connecting to the CO.**

Check if the Connection LED is on (see Table 1-1).

**Q6: Which OS works the best?**

Windows98, 98SE (Second Edition), ME (Millennium Edition), XP, and 2000 are supported. Windows ME, XP, 2000 are recommended because they are the most recent, and have updated drivers for different PC hardware systems. They also support USB bus power management and Native ATM functions, and exhibit better reliability and performance. Windows 95 and Windows NT do *not* support the USB interface.

**Q7: How do I know if the USB ADSL driver is installed correctly?**

See Appendix A

**Q8: Is my modem trained correctly?**

The **Connection** LED should remain ON when the modem is correctly linked to the Central Office modem.

**Q9: How can I configure the USB/PC power policy ?**

If your USB device can be turned off under Windows standby or hibernation mode, you can check the item "Allow the computer to turn off this device to save power". Otherwise, you should not select this option. If the device can be turned off under standby or hibernation mode, Windows will turn off the USB Root Hub and the attached USB devices when it goes into hibernation mode.  For USB devices that do not support Windows power management policy, the system could fail to resume power to those devices after it returns from standby or hibernation mode.
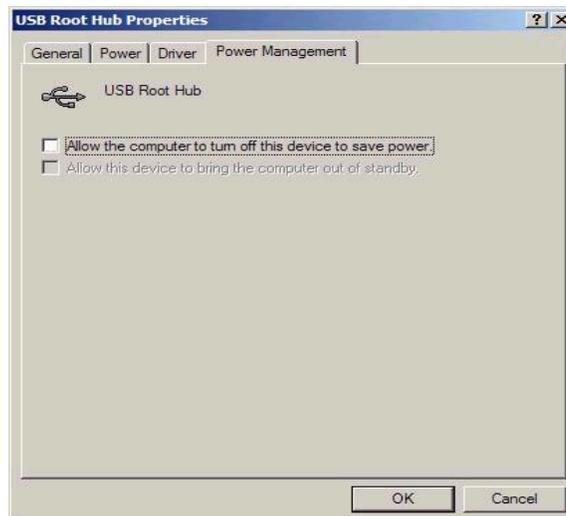
**Q10.What happens if my PC goes into hibernation/ power saving mode. ?**

The situation differs depending on your application mode.

1.  For **static IP application** mode: Just make sure the system comes back to normal power state and the ADSL link is up again. The network connection will be available as soon as your PC system is restored to its normal state.

2.  For **dynamic IP application** mode: The Dial-Up networking connection may be disrupted due to the hibernation. In this case you may lose your connection and the PC enter into Hibernation mode. (If you are using **Windows 98SE** the following popup message may appear, in this case enter **No** to avoid the PC entering hibernation mode.
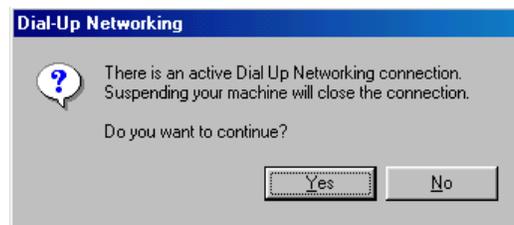
    

    If your PC goes into hibernation mode, you can re-establish your connection by returning your PC to normal operating mode and then redialing the Dial-up networking application.

**Q11: What if the software installation doesn't continue after I connect the USB cable?**

If software installation fails to continue after you plug the USB cable into your PC, check the following:

1.     You may have previously installed drivers for the USB ADSL LAN Adapter. To check for this, right click on the "My Computer" icon on your desktop. Then select "properties". On **system properties** click on the "Device Manager" tab. Then click on the "Network adapter". Check to see if the USB ADSL LAN Adapter  appears in the list of network adapters. If it does not appear, see the next item in the troubleshooting list.

2.     The USB cable is not firmly connected to your computer.

3.     The USB cable is malfunctioning. Please contact customer service.

**Q12. What if the DSL monitor shows a modem error?**

The line status can be verified by looking at the icon for the modem status in the bottom-right corner of the screen, the possible statuses are listed below (the on-screen color of the icons are mentioned in brackets):

## *What if the DSL monitor shows a modem error?*

Modem is disconnected (dark green icon with a red strikethrough)

Modem is training (yellow icon)

Modem is trained, but data not currently being transferred (dark green icon)

Currently Transmitting and Receiving Data (light green icon)

Currently Transmitting Data (left light green, right dark green)

Currently Receiving Data (left dark green, right light green)

Modem is not working properly (red icon)

If the DSL monitor detects an error, the icon will be: ![icon] or ![icon] (or icon will be disappeared)

- If the icon is ![icon]

    - Make sure that the telephone cord is plugged into the wall and into the correct jack on the USB ADSL LAN Adapter.

    - Check with DSL service provider to make sure that DSL is enabled on phone line.

· If the icon is ![icon] (or icon is disappeared)

    - Make sure that the USB cable is firmly connected to your computer.

    - Or the USB cable is broken. Please contact your customer service.

**Q14. What if I want to disconnect my USB ADSL LAN Adapter, under Windows 2000, without removing the USB cable?**

If you want to disconnect your USB ADSL LAN Adapter under Windows 2000 without removing the cable follow these steps:

Go to the "unplug or eject Hardware" icon in your system tray (in the bottom right corner of your desktop). Double click on the unplug or eject Hardware icon. In the window of the unplug or eject Hardware, select the USB ADSL LAN Adapter. After selecting the USB modem click the **Stop** button. In the next window press the OK button. A message will appear advising that it is safe to disconnect your USB cable. Remove the USB cable from your USB ADSL LAN Adapter or your PC, then press OK. Then also press OK in the first window. Your USB ADSL LAN Adapter is now safely disconnected from your computer.

**Q15. What if I cannot establish a connection with my ISP?**

If you cannot establish a connection with your ISP. The possible reason for this might **be:You did not get an IP address from your ISP.**

To check this, go to the DOS Prompt. To open a DOS Prompt, go to "Start", then RUN and then type "command" and press ENTER. In the DOS Prompt you type "ipconfig/all" and press ENTER.  If you have no IP address you are not assigned to your ISP. You must contact your ISP for this.

**Q16. What if I cannot browse after I have been connected to my ISP?**

If you cannot browse after you have been connected to your ISP. The possible reason for this might be:

**You did not get a DNS IP address from your ISP**.

To check this, go to the DOS Prompt. To open a DOS Prompt, go to "Start", then RUN and then type "command" and press ENTER. In the DOS Prompt you type ipconfig/all" and then press ENTER.

Normally the DNS IP address will be assigned by your ISP. If you have no DNS IP address assigned by your ISP, you must fill in your DNS IP address manually.

# Chapter 6 APPENDIX A: Verifying Modem Installation

❖ The following instructions apply for Windows. 98, 98SE, ME, 2000, and XP. Some of the screens may slightly differ from those shown.

1. Left click the Windows **Start** button on the taskbar.

2. Point to **Settings** on the Start menu (Start > Control Panel in Windows. XP).

3. Double-click **Control Panel** and locate the **System** icon.

4. Double-click the **System** icon.

5. Click the **Device Manager** tab to display the Device Manager page. (With Windows. XP and 2000 you must first click the **Hardware** tab and then click the **Device Manager** button). The screen will display as below:
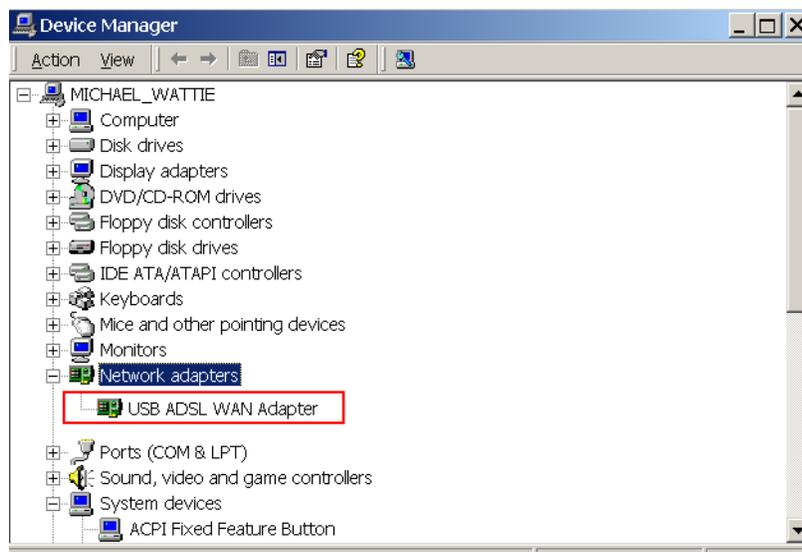


The **System Properties** window displays a list of devices folders.

6. Expand the **Network Adapters** folder.

7. Verify that the **USB ADSL Adapter** is listed and select it.

8. Double-click the **USB ADSL Adapter** to display its **Properties** (In Windows XP and 2000, select and *right*-click **USB ADSL Adapter,** then click **Properties** in the command menu.)

❖ The USB ADSL modem is listed as a **WAN Adapter,** or an **ATM Adapter** depending on the installed device driver.



The **USB ADSL Adapter Properties** window displays the General page.

9. The **Device status** (center section) should read, "This device is working properly." There is a **Troubleshooter** button to use if you have problems with this device.

# Chapter 7 APPENDIX B: Uninstalling the USB Adapter

This section explain the procedures for removing the USB ADSL Adapter software. Note that the screen shots are for Windows XP, other operating systems will appear similar.

1. Click the Windows. **Start** button on the taskbar.

2. Select **ALL Programs** (**Programs** for other operating systems)

3. Then select and click on **Uninstall** as shown in the screenshot below.
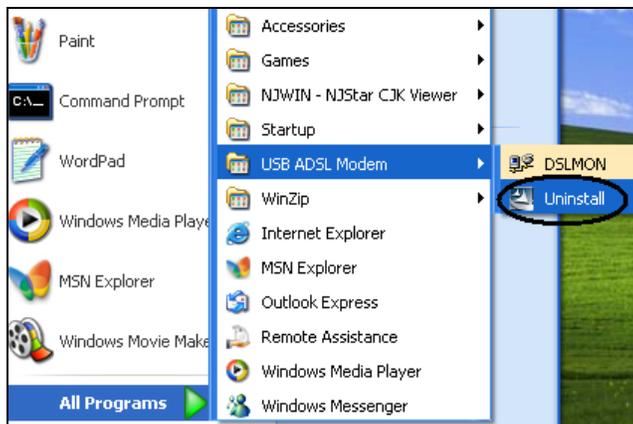


4. Click **OK** when the screen displays as below

5. When the screen displays as below, disconnect your Modem and then click **OK**, your PC will now restart. The uninstallation procedure is now complete.



6. Click **OK** when the screen displays as below, to restart your PC and finish removing the USB software.



7. After your PC restarts, your device should be uninstalled. You can verify it by following the instructions in Appendix A.

# Ethernet Installation and Operation

This section explains using the modem with an Ethernet installation; if you wish to operate the modem using an USB installation, refer to the USB Installation and Operation section.

Important Note:

To run a PPPoE connection you will also need to install PPPoE connection management software, such as Winpoet (not supplied with this device). You must run this software to enter your username and password.

# Chapter 8  Ethernet GUI Installation

The GUI management requires a proprietary software program.  To manage the modem via the GUI, complete the hardware installation, as explained in the previous chapter, and then complete the following steps:

1. insert the CD-ROM that was shipped with your device.

2.Run the file **BridgeMon2.2.0_03_EN.exe**

3. Click **Next** when the screen displays as below.
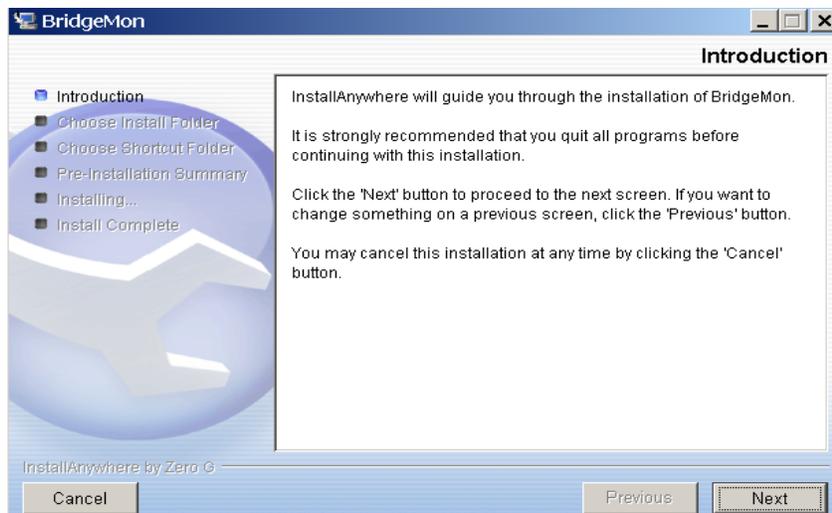
4. The program will be installed into the location shown in the middle of the screen, click **Choose** to change the installation directory, or click **next** to continue with the installation.
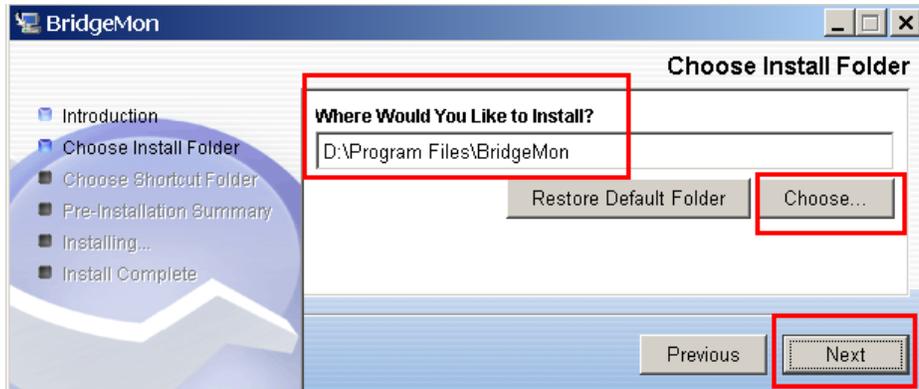


5. When the screen displays as below, click **Next** to continue with the installation, or if you wish to change the location of the product icons, select from the available options and then click **Next.**
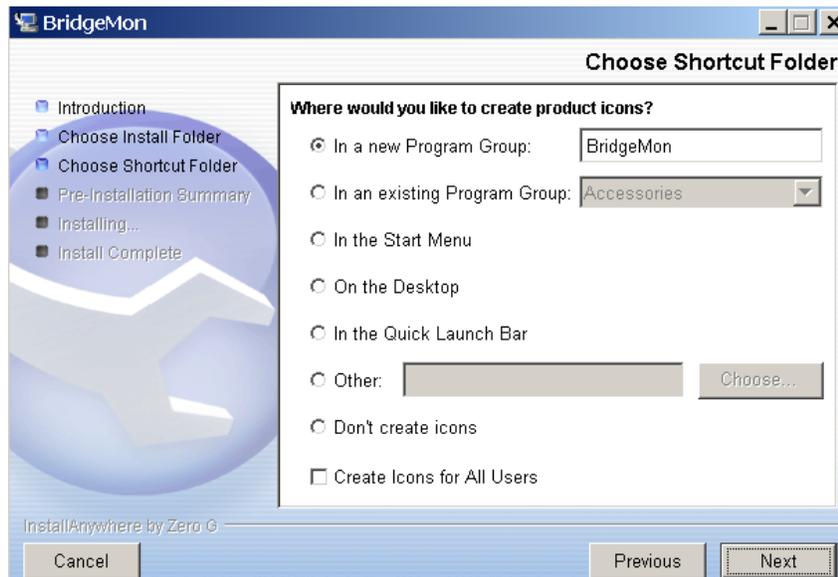
6. The screen will display as below providing a summary of the installation options, if you wish to change the installation options press **cancel** to restart the process, **previous** to go back one screen at a time, or **Install** to continue with the installation.
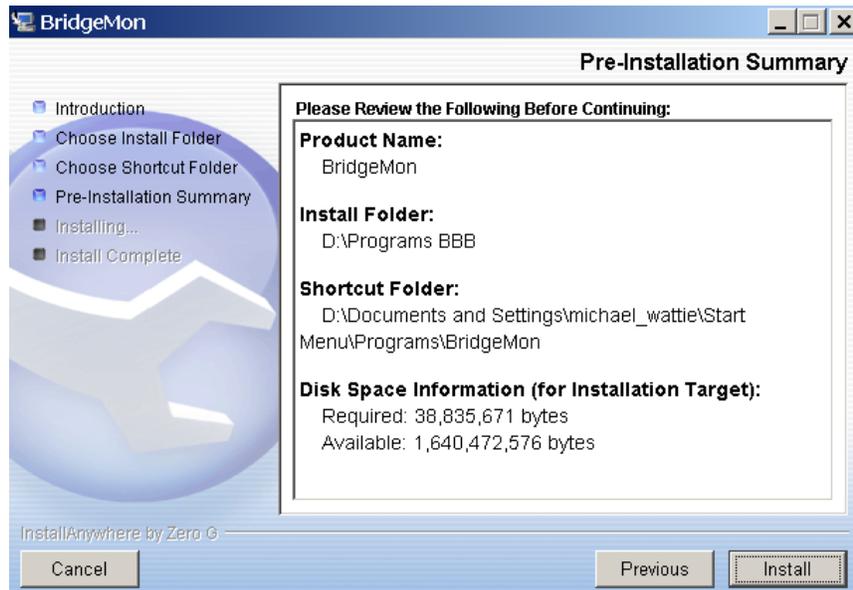


7. The screen will display as below, confirming successful installation. Proceed to the next chapter for details about operating the GUI interface.
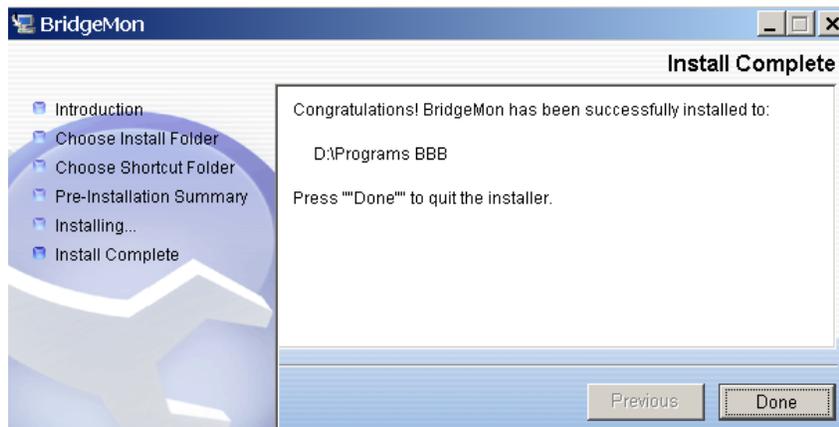


**Note:** To run an Ethernet connection you will also need to install PPPoE connection management software (except Windows XP). You must run this software to enter your username and password.

# Chapter 9 Ethernet GUI Management

## 9.1 Running the GUI

To run the GUI click on **Start menu>Programs>ADI ADSL Bridge Modem>BridgeMon.** This will run the status indicator in the bottom-right corner of the screen. See the following section for details. [Note that the GUI interface, should be operated with your screen size set to 1024x768 or above]
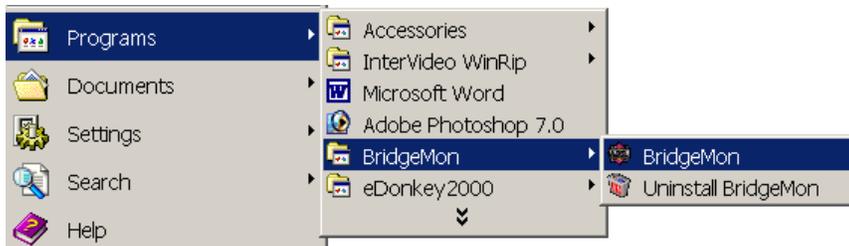


## 9.2 Status Indicator

After running the program, the **Status indicator** icon displays in the status bar, in the bottom-right corner of the screen indicating the following statuses:



 = Disconnected/Training (red)

 Modem is training (yellow icon)

 = Operational (green)

## 9.3   Status screen

Click on the status indicator icon to access the status screen.
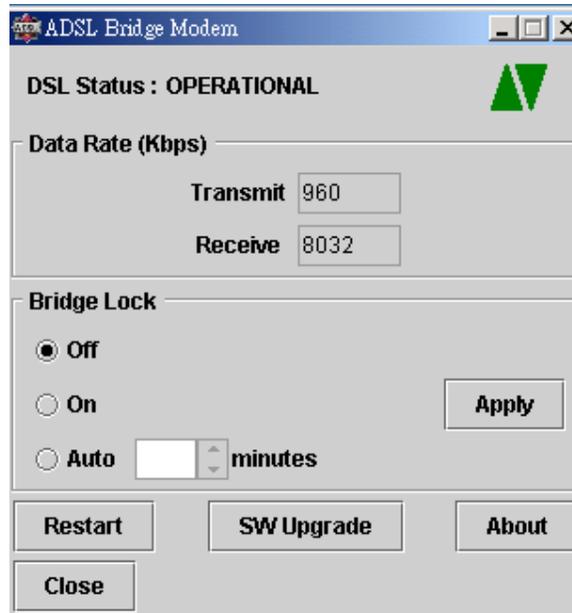




The following parameters are displayed:

The **data rate** for transmitting and receiving.

The **Bridge Lock** function prevents data from passing through the modem. There are three modes of bridge operation.   After choosing a mode, click the Apply button to submit the settings.

● Off: Data passes through the MODEM.

● On: Data is blocked, only DHCP/PPPoE keep-alive and ARP packets can pass through the bridge (upstream/downstream).

● Auto: After a predefined period of traffic inactivity in the upstream direction the auto lock feature blocks all downstream traffic. Downstream traffic is passed only after the presence of upstream traffic is detected.

## Buttons

- Restart: to reboot the MODEM

- SW Upgrade: To perform the software upgrade see note below*

- About: to list the versions of the GUI, hardware, software, and other information for reference.

- Close: to exit the GUI management

*Note that if you click **SW Upgrade**, you will see the following screen, click **Yes** to continue with the software upgrade, or click **No** to cancel the software upgrade:
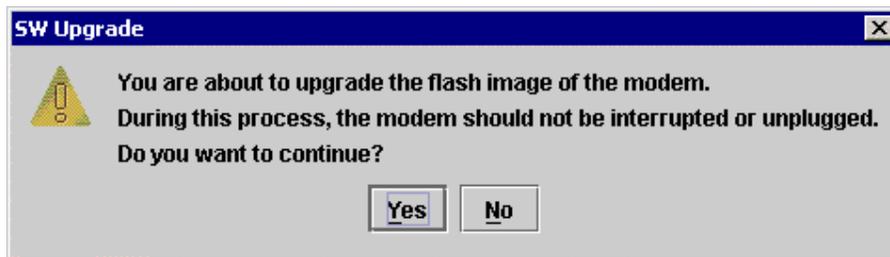
## 9.4 Advanced Configuration

To configure and monitor advanced parameters complete the following steps:

1. Click on the status indicator icon to access the status screen.
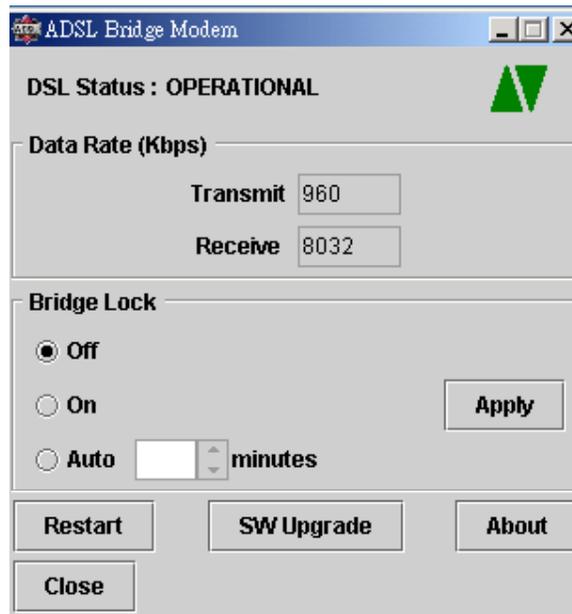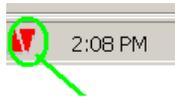
2. Hold down the **ATL-D** keys to display the Administration screen.  The screen has many tabs that when clicked on lead to submenus. The current screen (**About** screen) displays version information.

| Physical Layer | DSL Errors | CMV | VPI/VCI List | CMV List | |
|---|---|---|---|---|---|
| About | Status | ATM Statistics | Bridge Lock | Configuration | |

| | |
|---|---|
| GUI Version : | 2.2.0_03_EN |
| Vendor Specific Version : | 1.7 |
| Hardware Version : | 1.0 |
| Product Type : | Bridge |
| Product ID : | Eagle II |
| Product Revision : | 1.6 |
| Product Serial Number : | 1.6R1_EA53 |
| DSL Firmware Version : | 0x42e2ea53 |
| Bridge Firmware Version : | 0x05100107 |
| FPGA Code Version : | 0x00 |
| Splitter ID : | |
| Control TX / RX LED : | on same LED |
| ADI PID : | Eagle II |
| Ethernet Operating Mode : | Auto-Negotiation |
| Multicast IP Address : | 234.1.4.9 |
| MAC Address : | 00-60-f0-23-09-12 |
| DSL Chipset Vendor : | 0x1c |
| Splitter Type : | Annex A, No splitter |
| Dying Gasp : | Disabled |
| DSL Provider Code : | ADI |
| Manufactured Week : | |
| HCP Version : | 0x0411010b |

Restart    Start Auto Refresh    Cancel

## 9.5    Physical layer

This screen displays information about the physical layer.

| | |
|---|---|
| DSL AttainRate (upstream) | Maximum attainable upstream line rate |
| DSL AttainRate (downstream) | Maximum attainable downstream line rate |
| DSLSNR (far end) | Signal to noise ratio at the far end |
| DSLSNR (near end) | Signal to noise ratio at the near end |
| DSL Attenuation (far end) | Attenuation at the far end |
| DSL Attenuation (near end) | Attenuation at the near end |
| DSL Outpower | Used for testing purposes only |
| LatencyPath (Up stream) | Indicates whether the upstream transmission is interleaved (spreading of date for more reliable transmission) or not. Not that with G.lite interleaving is required. |
| LatencyPath (Down stream) | Indicates whether the downstream transmission is interleaved (spreading of date for more reliable transmission) or not. Not that with G.lite interleaving is required. |
| Line Type | Identifies the line type as: G.Lite, G.DMT,T1.413, or Multi-Mode (enables all modes) |
| Frame OH | Indicates the framing overhead, including the framing mode |
| Trellis Coding | Indicates whether trellis coding is in use or not. |

| Administration | ☒ |
| --- | --- |

| Physical Layer | DSL Errors | CMV | VPI/VCI List | CMV List |
| --- | --- | --- | --- | --- |

| About | Status | ATM Statistics | Bridge Lock | Configuration |
| --- | --- | --- | --- | --- |

DSLAttainRate (Up Stream) :                                            1120

DSLAttainRate (Down Stream) :                                        13216

DSLSNR (Far End) :                                                         22

DSLSNR (Near End) :                                                        8

DSLAttenuation (Far End) :                                                0

DSLAttenuation (Near End) :                                               0

DSLOutPower :                                                           15991

LatencyPath (Up Stream) :                                        Interleaved

LatencyPath (Down Stream) :                                      Interleaved

LineType :                                                             G.DMT

FrameOH :                              Framing mode 3, reduced overhead

TrellisCoding :                                                   Not in Use

| Restart | Start Auto Refresh | Cancel |
| --- | --- | --- |

## 9.6    DSL Errors

The DSL Errors tab displays the following information:

- RSInter: Returns the number of NE received blocks containing corrected errors since the beginning of the link
- CRCInter: Number of NE received blocks containing uncorrected errors in the interleave path since the beginning of the link
- CRCFast: Number of NE received blocks containing uncorrected errors in the fast path since the beginning of the link
- SevErrFrame: Indicates the of existence of any Severely Errored Frames
- LossOfSignal: The number of the Loss of signal errors
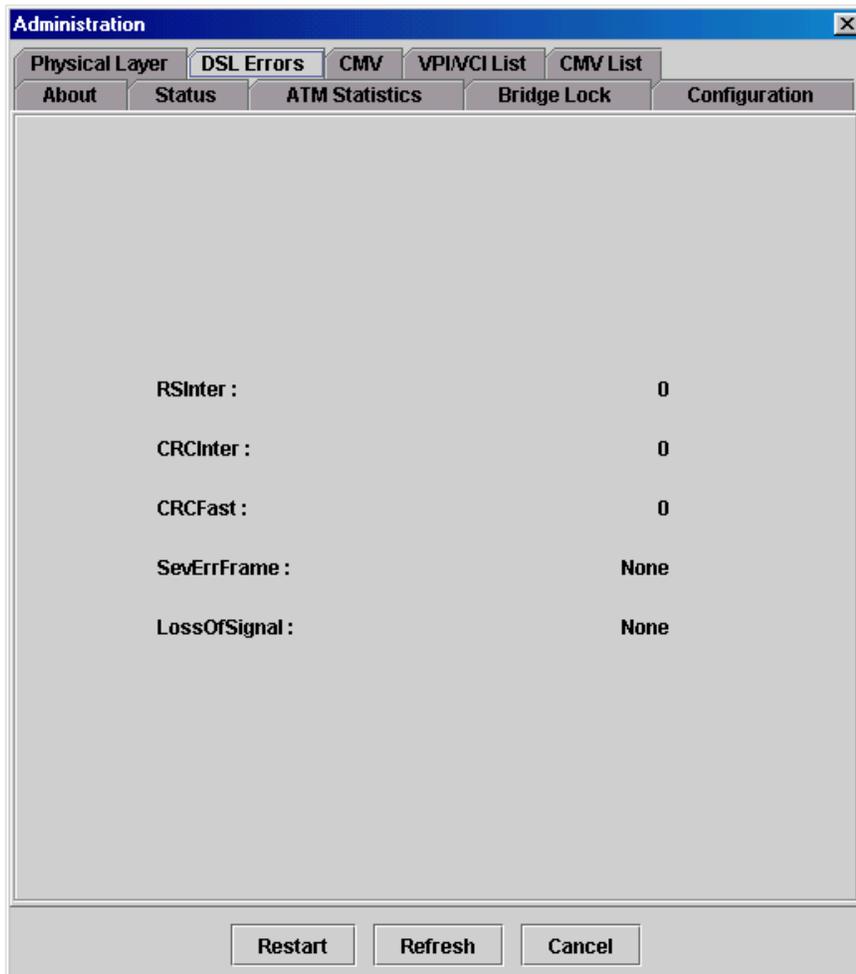
## 9.7    CMV

The CMV tab is reserved only.  The CMV settings have been optimized for system performance.  It is not necessary to configure them.

## 9.8    VPI/VCI List

There are 8 VPI/VCI entries by factory default. To add a VPI/VCI, enter a value in the VPI and VCI fields, and click the **Add** button.  You can access an established VPI/VCI by using the **Up**, **Down**, and then make the VPI/VCI active by clicking the **Apply** button, or delete it by clicking the **Remove** button.

## 9.9    CMV List

The CMV List tab configures the CMV settings.  For this software version CMV values have been optimized, and it is not possible to ADD additional CMV entries. You can access an established VPI/VCI by using the **Up**, **Down**, and then make the VPI/VCI active by clicking the **Apply** button, or delete it by clicking the **Remove** button.

## 9.10   Status

The Status tab displays the status of the modem, including the following information:

| Internet connection | Indicates whether the modem is connected to the Internet, unconnected or training. |
| --- | --- |
| Modem state | The Ethernet Bridge possesses four software states: <br> • IDMA Boot <br> • Auto-configuration <br> • Data pump & OAM <br> • Test Mode <br><br> 'IDMA Boot' is the first software state visible to the user when the MODEM is powered on. The MODEM remains in this state until the modem completes the DSL training. Upon completion of the 'IDMA Boot' state the modem enters 'Auto-configuration' where the MODEM attempts to find the VPI/VCI and Encapsulation type used by the Telco. The list of available VPI/VCI's can be viewed by reading the aforementioned Dynamic parameters. Please note that the Auto-configuration should be disabled to use the modem with a CO evaluation platform, that does not use higher layer communication protocols, such as DHCP and/or PPPoE servers. The 'Data pump & OAM' state is entered upon the completion of 'Auto-configuration' state where the MODEM passes data to the PC. In this state, the majority of HCP commands are functional. Due to strict timing functional requirements, the other two states allow a limited set of HCP commands. |
| Downstream (Kbps) | The current downstream rate in Kbps |
| Upstream (Kbps) | The current upstream rate in Kbps |
| DSLCelldelin (interleaved) | Indicates whether cell delineation has been achieved for interleaved transmissions. Cell delineation is the process of identifying a cell's boundaries from within the serial ADSL bitstream. |
| DSLCelldelin (fast) | Indicates whether cell delineation has been achieved for non-interleaved (fast) transmissions. Cell delineation is the process of identifying a cell's boundaries from within the serial ADSL bitstream. |
| DSLDelayDown (interleaved) | Indicates the latency for downstreaming, when using interleaved transmissions. |
| DSLDelayUp (interleaved) | Indicates the latency for upstreaming, when using interleaved transmissions. |
| DSLDelayDown (fast) | Indicates the latency for downstreaming, when using non-interleaved transmissions. |
| DSLDelayUp (fast) | Indicates the latency for upstreaming, when using non-interleaved transmissions. |

## Administration

**Physical Layer** | **DSL Errors** | **CMV** | **VPI/VCI List** | **CMV List**

**About** | **Status** | **ATM Statistics** | **Bridge Lock** | **Configuration**

| | |
|---|---|
| **Internet Connection :** | **Not connected** |
| **Modem State :** | **Data pump & OAM** |
| **Down stream (Kbps) :** | **9952** |
| **Up stream (Kbps) :** | **832** |
| **DslCellDelin (Interleaved):** | **Delineation Achieved** |
| **DslCellDelin (Fast):** | **Delineation Achieved** |
| **DSLDelayDown (Interleaved) :** | **0.25** |
| **DSLDelayUp (Interleaved) :** | **0.25** |
| **DSLDelayDown (Fast) :** | **N/A** |
| **DSLDelayUp (Fast) :** | **N/A** |

**Restart** | **Refresh** | **Cancel**

## 9.11   ATM Statistics

The ATM Statistics tab displays the ATM statistics as follows:

| | |
|---|---|
| LinkUpTime | The duration of the connection |
| RX Cell Count | The total number of cells received, since the connection was established |
| TX Cell Count | The total number of cells transmitted, since the connection was established |
| RX OAM Cells | The total number of OAM cells received, since the connection was established |
| TX OAM Cells | The total number of OAM cells transmitted, since the connection was established |
| Cells with invalid VPI/VCI | The total number of cells received, with an invalid VPI/VCI since the connection was established |
| F4 Loopback Segment RX Cells | The number of Received F4 Loopback Segment Cells. F4 flows are OAM information flows between network elements (NEs) used within virtual paths to report an unavailable path or a virtual path (VP) that cannot be guaranteed. |
| F4 Loopback Segment TX Cells | The number of transmitted F4 Loopback Segment Cells. F4 flows are OAM information flows between network elements (NEs) used within virtual paths to report an unavailable path or a virtual path (VP) that cannot be guaranteed. |
| F4 End-to-end RX Cells | The number of Received F4 end-to-end Segment Cells. F4 flows are OAM information flows between network elements (NEs) used within virtual paths to report an unavailable path or a virtual path (VP) that cannot be guaranteed. |
| F4 End-to-end TX Cells | The number of transmitted F4 end-to-end Segment Cells. F4 flows are OAM information flows between network elements (NEs) used within virtual paths to report an unavailable path or a virtual path (VP) that cannot be guaranteed. |
| F5 Loopback Segment RX Cells | The number of Received F5 Loopback Segment Cells. F5 flows—OAM information flows between network elements (NEs) used within virtual connections to report degraded virtual channel (VC) performance such as late arriving cells, lost cells, and cell insertion problems. |
| F5 Loopback Segment TX Cells | The number of transmitted F5 Loopback Segment Cells. F5 flows are OAM information flows between network elements (NEs) used within virtual connections to report degraded virtual channel (VC) performance such as late arriving cells, lost cells, and cell insertion problems. |
| F5 End-to-end RX Cells | The number of Received F5 end-to-end Segment Cells. F5 flows— are OAM information flows between network elements (NEs) used within virtual connections to report degraded virtual channel (VC) performance such as late arriving cells, lost cells, and cell insertion problems. |
| F5 End-to-end TX Cells | The number of transmitted F5 end-to-end Segment Cells. F5 flows are OAM information flows between network elements (NEs) used within virtual connections to report degraded virtual channel (VC) performance such as late arriving cells, lost cells, and cell insertion problems. |
| Detected VPI | The current VPI parameter |
| Detected VCI | The current VCI parameter |
| Detected encapsulation | The current encapsulation parameter |
| RX Dropped Cells (Fast) | The current number of dropped cells for non-interleaved frames received. |
| RX Dropped Cells (Interleaved) | The current number of dropped cells for interleaved frames received. |

**Administration** ✕

| Physical Layer | DSL Errors | CMV | VPI/VCI List | CMV List | |
|---|---|---|---|---|---|
| About | Status | **ATM Statistics** | Bridge Lock | Configuration | |

| | |
|---|---|
| LinkUpTime : | 0 days 00:07:18 |
| RX Cell Count : | 0 |
| TX Cell Count : | 56 |
| RX OAM Cells : | 0 |
| TX OAM Cells : | 0 |
| Cells with invalid VPI/VCI : | 162 |
| F4 LoopBack Segment RX Cells : | 0 |
| F4 LoopBack Segment TX Cells : | 0 |
| F4 End-to-end RX Cells : | 0 |
| F4 End-to-end TX Cells : | 0 |
| F5 LoopBack Segment RX Cells : | 0 |
| F5 LoopBack Segment TX Cells : | 0 |
| F5 End-to-end RX Cells : | 0 |
| F5 End-to-end TX Cells : | 0 |
| Detected VPI : | 0 |
| Detected VCI : | 35 |
| Detected Encapsulation : | LLC |
| RX Dropped Cells (Fast): | 0 |
| RX Dropped Cells (Interleaved): | 102 |

[ Restart ]  [ Refresh ]  [ Cancel ]

## 9.12   Bridge Lock

The Bridge Lock prevents data from passing through the MODEM.  There are three modes of the bridge operation.   After choosing a mode, click the Apply button to submit the settings.

**Modes:**

- **Off:** Data passes through the MODEM.

- **On:** Data is blocked, only DHCP/PPPoE keep-alive and ARP packets can pass through the bridge (upstream/downstream).

- **Auto:** After a predefined period of traffic inactivity in the upstream direction the auto lock feature blocks all downstream traffic. Downstream traffic is passed only after the presence of upstream traffic is detected.

# 9.13  Configuration

After changing any parameters make sure you click the **Apply** button. The Configuration tab has the following parameters:

**VPI:** A decimal value between 0:255.

**VCI:** A decimal value between 0:65535.

**Encapsulation Type:** Indicates the current Encapsulation Type as: LLC, VC-MUX, FSC = value, No FSC in Receive or Transmit, FCS in both Receive and Transmit, FCS usage in the Receive only.

**DSL Mode:** Indicates the current DSL mode as: G.Lite, G.DMT, T1.413, Multi-Mode, Use CMVs from the CMV list to set appropriate mode settings, Test-Signal Mode for DSL PHY firmware.

**Autoconfig:** Can be set to **TR 037 auto-configuration**, which enables the Dslam to configure the modems VPI/VCI settings, **Non Static trial and error auto-configuration,** for use with modems operating under PPPoE, which enables the modem to send PPPoE discovery packets to the Dslam to establish VPI/VCI settings; **static trial and error auto-configuration,** is used when the modem is only used in bridge mode, it requires setting the gateway IP address (described below), the modem tries different VPI/VCI settings until it can establish a match with the Dslam; **auto-configuration not used** – requires manually setting the VPI/VCI, this can be used for operating the modem in PPPoE or bridge mode.

**RTCCActivate:** If this is enabled the modem can start transmitting OAM F5 Continuity checks without any activation from the CO side.

**Gateway IP Address:**  The IP address of the gateway device. This is the address that will be used if a **static trial and error auto-configuration** is entered (under the Autoconfig parameter).

**Link Drop Type**: The modem needs to be informed when the physical ADSL link drops so that it can perform a soft reset. The PF4 flag indicator is used to indicate a loss of link - the PF4 flag is an interrupt (can be implemented both soft and hard), which is polled by the Bridge State machine to monitor for an LOS state. PF4 is derived from the settings of DIAG 0, which is configured to monitor the level of CRC's, and FLAG 0, which monitors the LOS. Diag 9 is used by the ADSL physical layer code to indicate a Loss of Cell Delineation.

**F5 Ethernet Link:** If this feature is enabled, the Dslam is able to check if the modem is connected to a PC and the Ethernet Link is operational.

| Administration | | | | | ✕ |
|---|---|---|---|---|---|
| Physical Layer | DSL Errors | CMV | VPI/VCI List | CMV List | |
| About | Status | ATM Statistics | | Bridge Lock | Configuration |

VPI : `0`

VCI : `35`

Encapsulation Type : `LLC ▾`

FCS : `None ▾`

DSL Mode : `Use CMVs ▾`

Autoconfig : `Non-static trial and error auto-configuration ▾`

RTCCActivate : ☐ On

Gateway IP Address : `210.210.210.211`

Link Drop Type : `Use PF4 and DIAG 9 ▾`

F5 Ethernet Link : ☐ On

[ Apply ]

[ Restart ]   [ Refresh ]   [ Cancel ]

# Chapter 10 PPPoE Connection

## Important Note:

To run a PPPoE connection you will also need to install PPPoE connection management software, such as Winpoet (not supplied with this device). You must run this software to enter your username and password. Select one of the following two modes to setup your modem: **Autoconfiguration not used,** or **Non Static trial and error auto-configuration.**

## 10.1  Method 1: Autoconfiguration not used mode

1. Install and run the **Bridgemon** software as explained in the previous section.

2. Access the Bridgemon Configuration screen and set the parameters as follows

    **VPI:** Enter the correct VPI setting. A decimal value between 0:255.

    **VCI:** Enter the correct VCI setting A decimal value between 0:65535.

3. Set the **Autoconfig** parameter to **auto-configuration not used**

4. Click the Apply button in the bottom-right of the screen
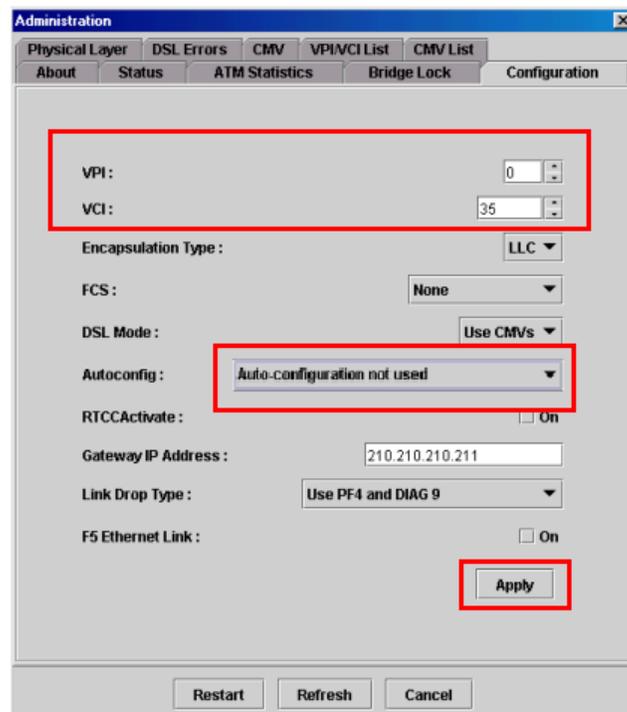


5. Run PPPoE Connection Management software, **,** such as Winpoet (not supplied with this device) and enter your Username and Password. The PPPoE connection will now be established. For subsequent sessions, you only need to run your PPPoE Connection Management software.

## Method 2: Non Static trial and error auto-configuration mode

1. Install and run the **Bridgemon** software as explained in the previous section.

2. Set the **Autoconfig** parameter to **auto-configuration not used**

3. Click the Apply button in the bottom-right of the screen
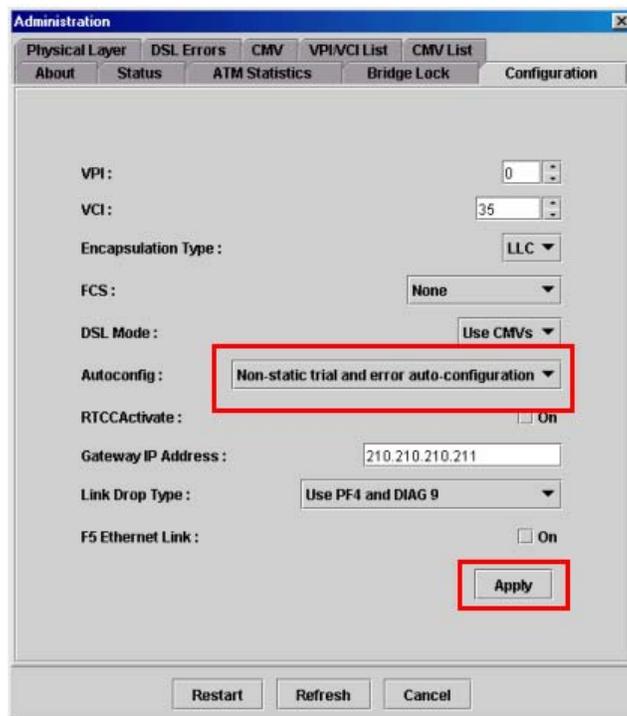
5. Run PPPoE Connection Management software, such as Winpoet (not supplied with this device) and enter your Username and Password. The PPPoE connection will now be established. For subsequent sessions, you only need to run your PPPoE Connection Management software.

Note: You may encounter difficulty with PPPoE Connection Management software timing-out before a connection is established. This can be remedied by changing the **Time-out** parameter of you PPPoE Connection Management software, or you

can go to the **Bridgemon VPI/VCI list** screen, and shift the required VPI/VCI number to the first position and click the **Apply** button. If you don't know the required VPI/VCI values – you may need to use a process of trial-and-error, the key point is that the PPPoE connection software may be timing-out before the latter numbers have a chance to be accessed).

You can access an established VPI/VCI by using the **Up**, **Down**, and then make the VPI/VCI active by clicking the **Apply** button, or delete it by clicking the **Remove** button.

# Chapter 11 Appendix A: Specifications

**WAN Interface** (One RJ-11 port for ADSL interface)

ADSL standard          ITU-T G.992.1(G.dmt), G.992.2(G.lite), G.994.1 (G.hs), and ANSI T1.413

G.dmt data rate                          Downstream: 10 Mbps

                                         Upstream:     1 Mbps

G.lite data rate                         Downstream: 1.5 Mbps

                                         Upstream:     512 Kbps

**LAN Interface** (One RJ-45 port for Ethernet connection)

**USB interface (One USB port)**

Standard                      USB1.1

**ATM Attributes**

Multi-protocol over AAL5 Bridged RFC-1483/2684

VC                            1

AAL type                      AAL5

ATM service class             UBR

ATM UNI support               UNI 3.1/4.0

OAM F4/F5                     Yes

LED Indicators                Power, LAN, ADSL

**Management**

GUI                           Yes

**Operating System**

Windows 98, ME, 2000, XP, Mac and Linux

**Network Access**

Transparent bridge            Yes

**Network Functions**

ARP                           Yes

**Power Supply**

External power adapter        110 VAC or 220 VAC

**Environmental Conditions**

Operating temperature            0~50 degrees Celsius (operating)

Relative humidity                5~95% (non-condensing)

**Dimensions**

142 * 135 * 42 mm


Note: Specifications are subject to change without notice

# Chapter 12 Appendix B: Pin Assignments

**Line port (RJ11)**

| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | - | 4 | ADSL_TIP |
| 2 | - | 5 | - |
| 3 | ADSL_RING | 6 | - |

**Pin Assignments of the RJ11 Port**

**LAN Port (RJ45)**

| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | Transmit data+ | 5 | NC |
| 2 | Transmit data- | 6 | Receive data- |
| 3 | Receive data+ | 7 | NC |
| 4 | NC | 8 | NC |

**Pin Assignments of the LAN Port**