

EA100

ADSL USB Modem

Installation Guide

Microsoft® Windows 98, 2000
Driver Version v1.05.0004q / Re.001

**EA100 USB
DSL Modem**

*The GlobeSpan USB DSL Modem
Reference Design - Installation Guide
and User's Manual*

*September 22, 2000
GAUM-0003
Rev. 0.9*

Table of Contents

ABOUT THIS MANUAL	1
PREFACE.....	2
THE GLOBESPAN USB ADSL MODEM MANUAL.....	2
CHAPTER 1: OVERVIEW.....	3
ABOUT ADSL.....	3
PROTOCOL AND DEVICE DRIVER SELECTION.....	3
FEATURES	5
CHAPTER 2: GLOBESPAN USB ADSL MODEM INSTALLATION AND SOFTWARE SETUP	6
SOFTWARE SETUP.....	7
MODEM INSTALLATION.....	9
CHAPTER 3: CUSTOMIZING COMMUNICATION SETTINGS	11
CHAPTER 4: UPDATING THE GLOBESPAN USB ADSL MODEM SOFTWARE.....	12
CHAPTER 5: GLOBESPAN CONTROL PANEL APPLICATION.....	13
DEVELOPMENT MODE	17
CHAPTER 6: SOFTWARE UNINSTALL.....	24
APPENDIX A: MODIFYING TCP/IP NETWORKING OPTIONS	26
WAN USB DRIVER	26
Microsoft® Windows® 98, First and Second Editions	26
Microsoft® Windows® 2000	29
LAN USB DRIVER.....	31
Microsoft® Windows® 98, First and Second Editions	31
Microsoft® Windows® 2000	34
ATM USB DRIVER	36
Microsoft® Windows® 98, Second Edition	36
Microsoft® Windows® 2000	40
APPENDIX B: FCC/INDUSTRY CANADA REQUIRED INFORMATION.....	42
FCC REQUIRED INFORMATION:	42
INDUSTRY CANADA REQUIRED INFORMATION	44

About This Manual

This manual provides a comprehensive user's guide and installation manual for GlobeSpan USB modems. It has been organized in such a way to make it easy to follow by users worldwide. In order to ensure optimal comprehension, the following list provides brief descriptions of the formatting styles used throughout this manual.

- **Commands:** Commands are always referred to by using the word "click" before them. These commands are always shown as bold-faced words. For example, click **Next**, click **OK**, or click **Cancel**.
- **Names of Windows (Dialog Boxes):** The names of the windows (also referred to as dialog boxes) that appear on the PC screen are always referred to in quotes. For example, the "Setup Complete" window.
- **Names of Options in Windows:** The names of options to choose from inside the windows that appear on the PC screen are always referred to in italics. For example, choose the *Yes, I want to restart my computer now* option from the window.
- **Notes:** In some cases, preparatory or cautionary information is needed before proceeding onto the next step in an installation process. This kind of information is provided in the form of notes, which are always referred to in bold-faced and italicized letters. For example, ***Note: To access the GlobeSpan Control Panel, the driver must be running. Also, make sure the USB cable is plugged into the modem.***

Preface

The GlobeSpan USB ADSL Modem Manual

This manual contains information regarding the installation, operation, and configuration of the GlobeSpan USB ADSL Modem. Additionally, it outlines the use of the Control Panel Application.

The following chapters are included in this manual:

- **Chapter 1:** “Overview” offers a brief description of ADSL, protocol and device driver selection, and the features of the GlobeSpan USB ADSL Modem.
- **Chapter 2:** “GlobeSpan USB ADSL Modem Installation and Software Setup” describes the steps for installing the GlobeSpan USB ADSL Modem. The software installation procedure is detailed.
- **Chapter 3:** “Customizing Communication Settings” provides detailed steps for altering the ATM Virtual Path ID (VPI), ATM Virtual Circuit ID (VCI), Encapsulation type and/or Modulation type values previously defined.
- **Chapter 4:** “Updating the GlobeSpan USB ADSL Modem Software” details the procedure for updating to a new version of the modem software.
- **Chapter 5:** “GlobeSpan Control Panel Application” describes how to configure and check the performance of the GlobeSpan USB ADSL Modem and the ADSL connection.
- **Chapter 6:** “Software Uninstall” provides the steps for uninstalling the GlobeSpan USB ADSL Modem.

Chapter 1: Overview

About ADSL

Asymmetric Digital Subscriber Line (ADSL) technology provides high-speed data access across regular phone lines (copper wires) by making use of previously unused frequency bandwidth above the voice band. By placing the ADSL signal above the frequency of the voice signal, ADSL service is able to coexist on the same line with your telephone service. ADSL is asymmetric in the sense that it provides a higher data rate in the downstream (receive) direction than in the upstream (transmit) direction. Asymmetric operation is ideal for typical home and small office use where files and information are downloaded more frequently than uploaded.

There are several standard types of ADSL modulation techniques including Discrete Multitone (DMT) and Carrierless Amplitude and Phase (CAP). The GlobeSpan USB ADSL Modem is capable of supporting the following DSL standards: ANSI T1.413 Issue 2, ITU G.992.1 (G.DMT), ITU G.992.2 (G.lite), and CAP (T1 TR-59).

Protocol and Device Driver Selection

The GlobeSpan USB ADSL Modem can be easily connected to a USB port on the PC via a standard USB cable. The GlobeSpan USB ADSL Modem is fully software upgradeable so that new features and updates may be added by simply loading a new version of the device driver onto your PC.

ADSL modems employ ATM (Asynchronous Transfer Mode) framing. ATM is a protocol that divides packets into small fixed sized cells for rapid transmission over high-speed networks. The ATM protocol allows various types of traffic (e.g. data, voice, and video) to be securely and efficiently carried over the same network. ATM is being widely deployed by telecommunications carriers in their backbone networks. Two type of ATM connections are possible, PVC (Permanent Virtual Circuit) and SVC (Switched Virtual Circuit).

Several different protocols are used on top of ATM. The protocol required in your configuration depends on the equipment deployed by your DSL service provider. There are several possibilities:

1. Point to Point Protocol (PPP) Over ATM (RFC 2364) - PPP provides session setup, user authentication (login), and encapsulation for upper layer protocols such as IP (Internet Protocol). The use of PPP makes the modem appear as a dial modem to the operating system. Dial-Up Networking is used to establish a connection. PPP is supported by either the WAN (Wide Area Network) driver, or the ATM driver.
2. Bridged/Routed Ethernet/IP over ATM (RFC 1483) – This protocol makes the modem appear as a local area network (LAN) device to the operating system.
3. RFC 1577 – this is another local area network like protocol for IP address and ATM

address mapping.

Three types of device drivers are provided for the GlobeSpan ADSL USB modem, WAN, LAN, and ATM. Note that all three drivers support ATM protocol. In addition, the ATM driver works with ATM services that are available in recent Windows operating systems. The proper choice of driver depends on the combination of Windows operating system and protocol.

1. WAN driver – this driver causes the modem to resemble a dial-up modem. Call establishment is performed through Dial-Up Networking. This driver supports RFC 2364 with PVC connections. It can be used with Windows 98, Windows 98 SE and Windows 2000.
2. LAN (RFC 1483) driver - this driver makes the modem appear as a LAN or Ethernet device. Connection establishment is automatic. This driver supports RFC 1483 with PVC connections. It can be used with Windows 98, Windows 98 SE, and Windows 2000.
3. ATM driver – this driver works in conjunction with ATM services provided by Windows. Both RFC 1577 and RFC 2364 are supported. The ATM driver uses Dial-Up Networking to create a PVC or SVC connection to establish a PPP (RFC 2364) connection. This driver can be used with Windows 98 SE and Windows 2000.

The device driver choices are summarized in the table below:

Driver Type	Protocol	Windows OS
LAN	RFC 1483	Windows 98 Windows 98 SE Windows 2000
WAN	RFC 2364	Windows 98 Windows 98 SE Windows 2000
ATM	RFC 1577 RFC 2364	Windows 98 SE Windows 2000

Features

The GlobeSpan USB ADSL Modem provides the following features:

- Compliant with Universal Serial Bus Specification Revision 1.1
- USB bus-powered; an external power supply is not required
- Supports three device drivers: Microsoft NDIS 4.0 WAN Miniport, NDIS 4.0 LAN Miniport or NDIS 5.0 ATM Miniport
- Compatible with all T1.413, G.DMT, and G.lite compliant CO DSLAM equipment as well as the vast majority of deployed CAP RADSL CO equipment
- Software upgradeable
- Supports up to sixteen simultaneous ATM virtual connections
- Includes a Microsoft Windows control panel monitoring program for configuring the adapter and checking the status of the connection
- Provides an RJ-11 connector for connection to the telephone line
- Supports DSL downstream data rates up to 7 Mbps (125 times faster than standard 56K modems)
- Supports DSL upstream data rates up to 1024 Kbps

Chapter 2: GlobeSpan USB ADSL Modem Installation and Software Setup

WAN, LAN and ATM software drivers are supported. WAN and LAN applications support the Microsoft Windows 98 First Edition, Windows 98 Second Edition and Windows 2000 operating systems. ATM applications support the Microsoft Windows 98 Second Edition and Windows 2000 operating systems.

Be sure to follow the instructions provided for your PC's operating system.

The following information may be required for software installation. Contact your DSL service provider before proceeding with software installation.

- Type of Driver to be Installed – WAN, LAN and ATM software drivers are supported. The choice depends upon your DSL service provider.
- IP Address Settings – the GlobeSpan software installation process allows the server to dynamically assign IP Address settings. If your application requires static setting of specific address information you will need to know:

IP Address

Subnet Mask (for Bridged Ethernet applications only)

Default Gateway (for Bridged Ethernet applications only)

- Name Server Information – the GlobeSpan software installation process allows the server to dynamically assign Name Server Address settings. If your application requires static setting of specific address information you will need to know:

Primary DNS Address

Secondary DNS Address

Primary WINS Address

Secondary WINS Address

- ATM Virtual Path ID (VPI)

Note: Required if not using default values for driver type

- ATM Virtual Circuit ID (VCI)

Note: Required if not using default values for driver type

- Encapsulation type

Note: Required if not using default values for driver type

- Modulation type

Note: Required if not using default values for driver type

- User Name (for PPP applications only)

- Password (for PPP applications only).

Software Setup

Before starting the software setup process, close all Windows programs previously running on your PC.

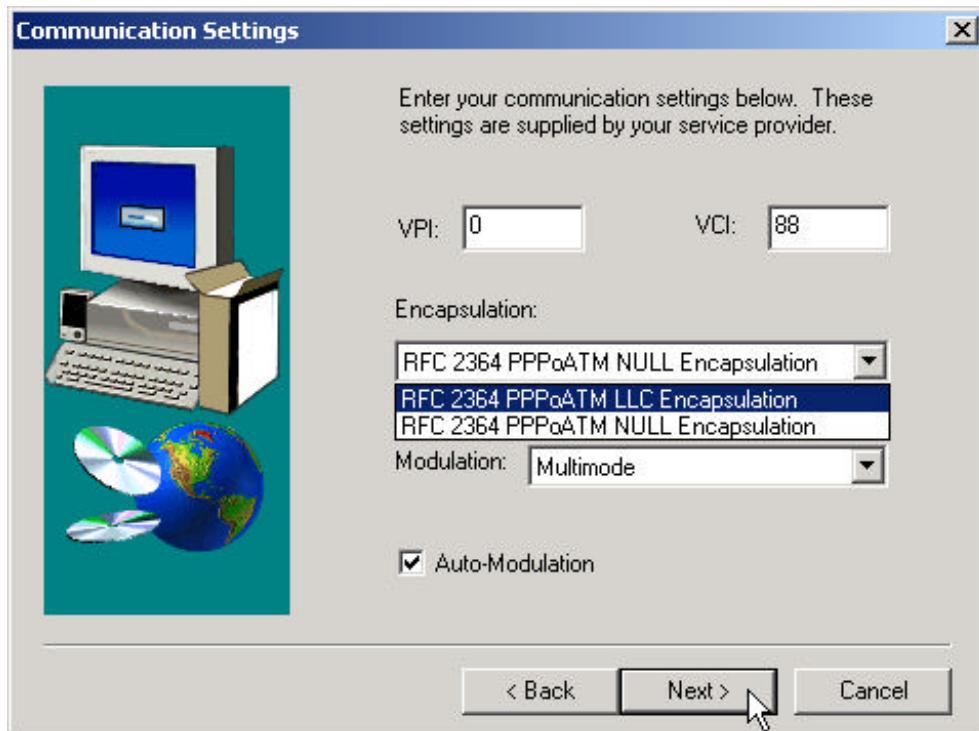
1. Insert the installation CD into the CD drive and double click **Setup.exe** to start the installation procedure. A notification message will appear indicating that the setup process has begun.
2. The “Welcome” window provides an opportunity to quit the setup process to exit all Windows programs before continuing. If the Windows programs were previously closed, click **Next**.
3. A Licensing Agreement message will be displayed. Click **Yes**.
4. The “Select ISP” window allows you to specify your DSL service provider. A list of service providers is displayed. Default values for the Type of Driver, ATM Virtual Path ID (VPI), ATM Virtual Circuit ID (VCI), Encapsulation type and Modulation type are provided for each DSL service provider listed in the window.

If your DSL service provider is listed and you would like to accept the default values, highlight the provider’s name and click **Next**. Continue with Step 5 below.

If your DSL service provider is listed and you would like to change the default values, highlight the provider’s name and click **Customize**. Continue with Step 4a below.

If your DSL service provider is not listed select *Other Service Provider* and click **Next**. Continue with Step 4a below.

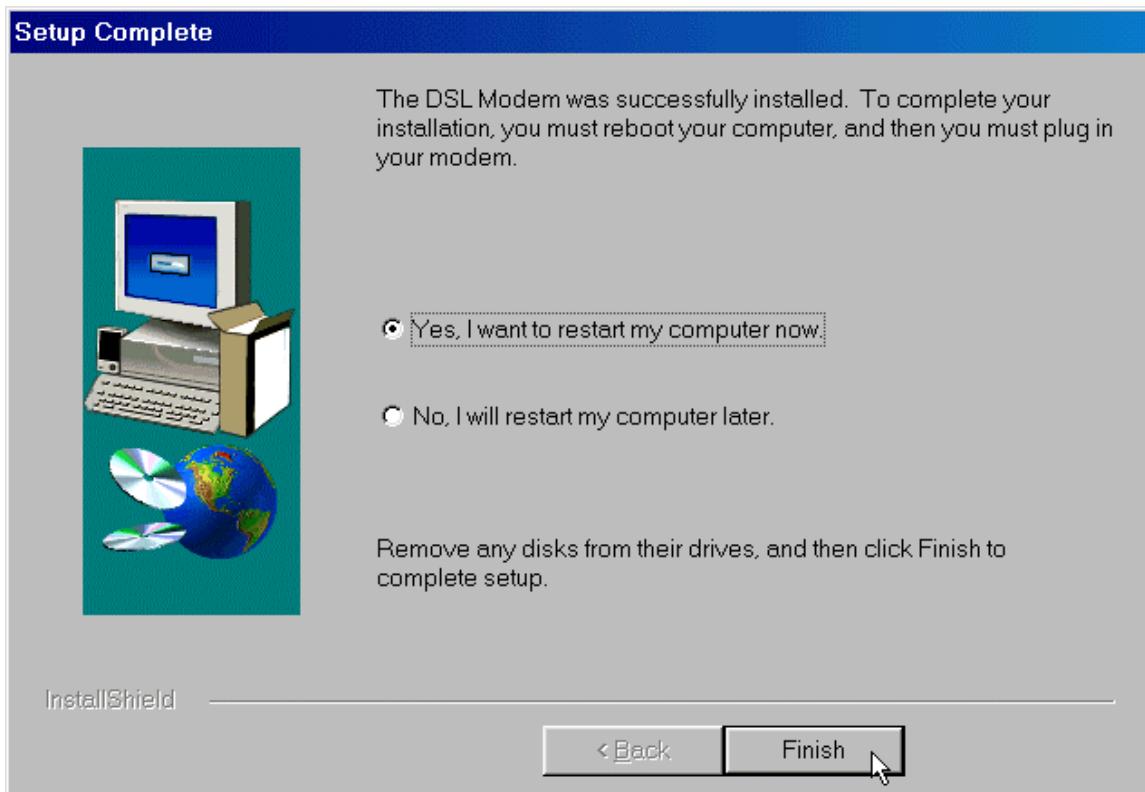
- a) Select the type of driver to be installed from the “Select Driver Type” window and click **Next**.



b) Enter the VPI, VCI, Encapsulation type and Modulation type from the "Communication Settings" window and click **Next**.

Note: Encapsulation types vary depending upon the application.

5. The "Start Copying Files" window will be displayed. You may review the current settings and click **Customize** or **Back** to change the settings. Click **Next** to accept the current settings; a message will be displayed indicating that files are being copied.



6. The “Setup Complete” window indicates successful completion of the installation process. Select the *Yes, I want to restart my computer now* option, remove any disks from their drives, and click **Finish**. Your PC will reboot. Continue with the Modem Installation section.

Modem Installation

Note: For Windows 98 SE applications, you may need the Windows 98 SE CD ROM to complete the installation.

Once the PC has rebooted, install the GlobeSpan USB ADSL Modem.

1. Insert the rectangular end of a USB cable into the USB port of your PC.
2. Insert the square end of the USB cable into the USB port of the GlobeSpan USB Modem.

Note: The USB Modem will be detected and messages will be displayed as the modem software is installed.

3. For Windows 2000 applications, the “Digital Signature Not Found” window may appear warning that the installation software is not a digitally signed version. A digital signature is not necessary; GlobeSpan has tested the software with Windows 2000. Click **Yes** to allow the installation to continue. (GlobeSpan will be releasing a digitally signed version of the driver in the near future)

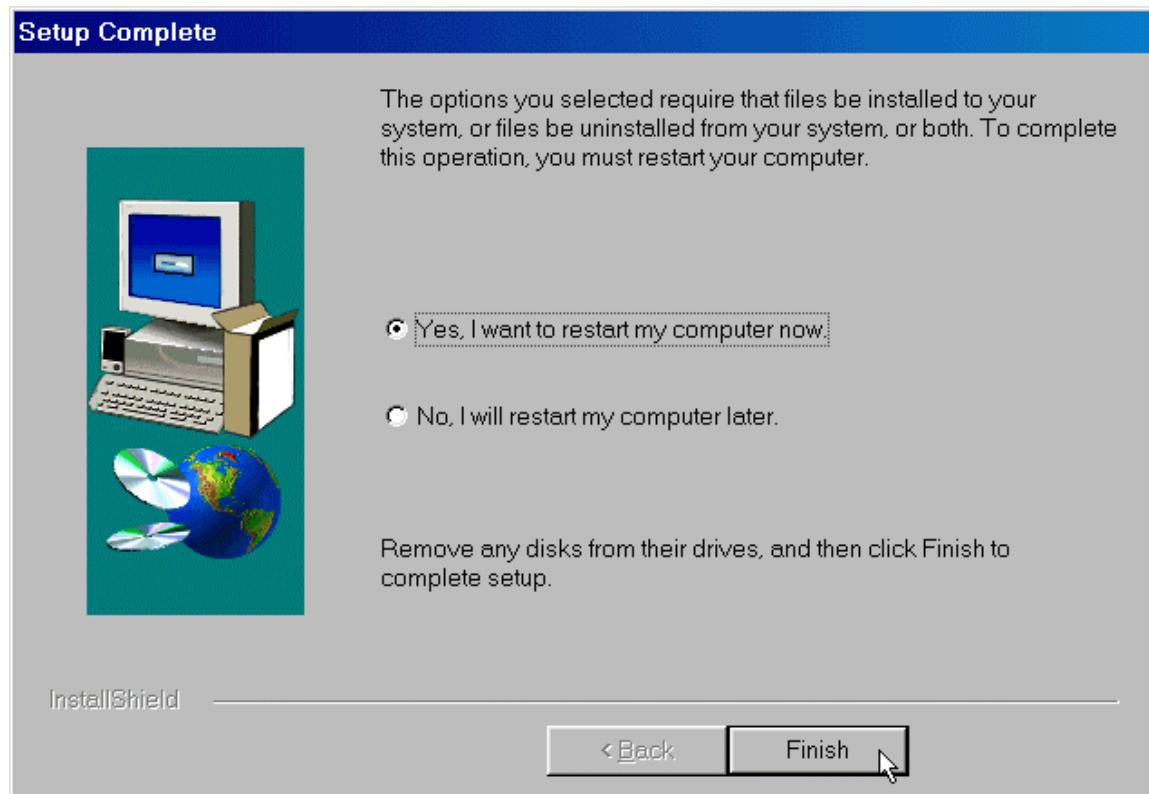
4. For Windows 2000 applications, the “Found New Hardware Wizard” window indicates the modem has been installed and suggests you reboot the system to have new settings take effect. Click **Finish**.
5. A message will be displayed confirming reboot of the system, click **Yes**.

Once the PC has rebooted, installation of the GlobeSpan USB Modem is complete.

Chapter 3: Customizing Communication Settings

Once the GlobeSpan USB ADSL Modem and software have been installed the communication settings may be easily updated by performing the following steps.

1. From your PC desktop click **Start – Programs – GlobeSpan DSL Modem – Configure**. A notification message will appear indicating that the setup process has begun.
2. Click **Settings** from the “DSL Modem Installer” window.
3. The “Communication Settings” window will be displayed. Make the necessary changes to the VPI, VCI, Encapsulation type and/or Modulation type and click **Apply**.



4. The “Setup Complete” window indicates successful completion of the customization process. Select the *Yes, I want to restart my computer now* option, remove any disks from their drives, and click **Finish**. Your PC will reboot.

Chapter 4: Updating The GlobeSpan USB ADSL Modem Software

Once the GlobeSpan USB ADSL Modem has been installed, updating to a new version of the software is a simple process as detailed below.

1. From your PC desktop click **Start – Programs – GlobeSpan DSL Modem – Configure**. A notification message will appear indicating that the setup process has begun.
2. Click **Update** from the “DSL Modem Installer” window.
3. A message will be displayed asking you to confirm the update, click **Yes**.
4. The “Select installation location” window will be displayed. Indicate the location of the Setup files and click **OK**.
5. Since updating the modem software requires removing the old version and installing a new one, a message will be displayed informing the user not to unplug the USB modem cable until the uninstall process has been completed. Click **OK**.
6. A message will be displayed indicating the software is being uninstalled.
7. The “Setup Complete” window indicates successful completion of this portion of the updating process; click **Finish**.
8. Unplug the USB modem cable.
9. Processing will continue with Step 2 of the Software Setup process. Please turn to page 7, Step 2 to complete the installation portion of the updating process.

Chapter 5: GlobeSpan Control Panel Application

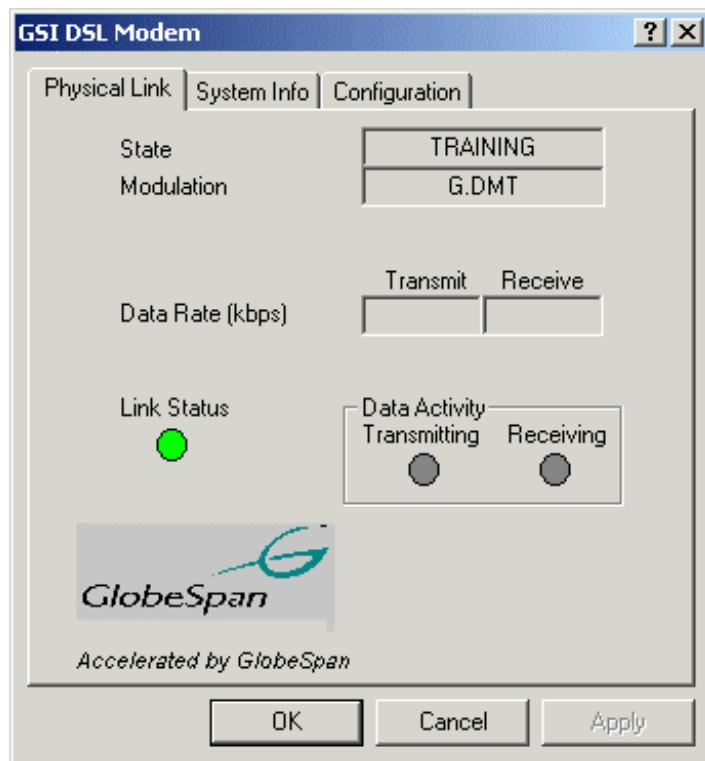
The GlobeSpan USB ADSL modem control panel program provides a quick and easy way to configure and check the performance of the modem and the ADSL connection. When open, the monitor window updates every 2 seconds.

Note: The following screen shots of the GlobeSpan Control Panel are preliminary and are not final, as the Control Panel functionality is continually being upgraded and improved. Updated screen shots of the finished Control Panel will be available in revised versions of this manual through GlobeSpan, Inc.

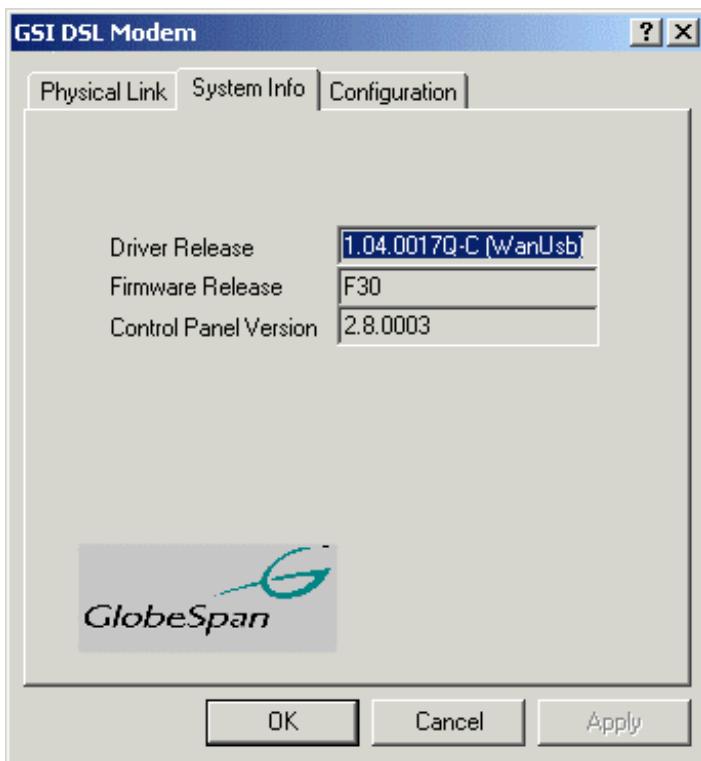
1. There are two methods to access the GlobeSpan control panel:

- From the “Control Panel” window (**Start – Settings – Control Panel**), double click the **GlobeSpan DSL Modem** icon, or
- From the PC desktop, double click the **GlobeSpan Globe** icon in the system tray.

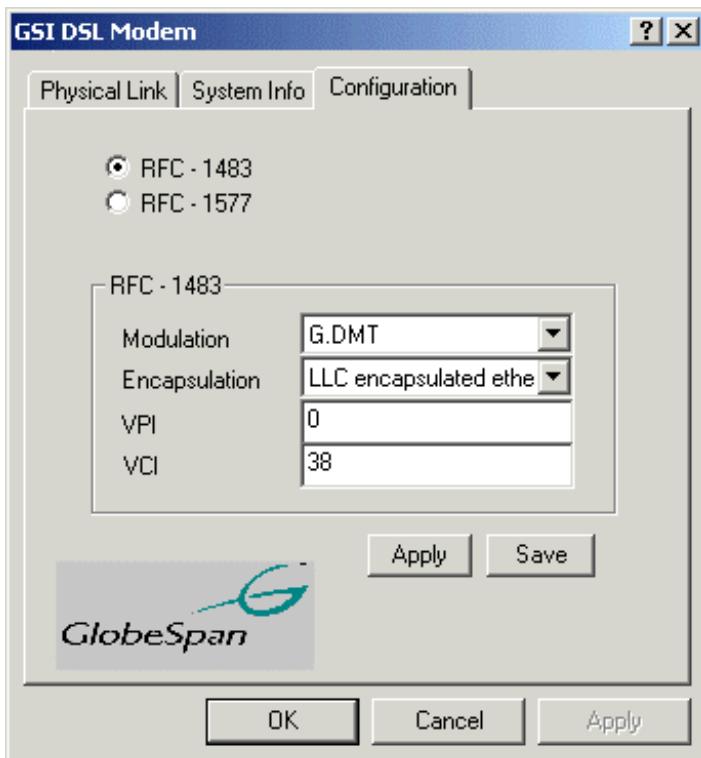
Note: To access the GlobeSpan Control Panel, the driver must be running. Also, make sure the USB cable is plugged into the modem.



2. The “Physical Link” tab of the “GlobeSpan DSL Modem” window (Control Panel) allows you to review the current state of the GlobeSpan DSL Modem and connection. When the green indicator is on in the *Link Status* field, it indicates that a connection has been made. This indicator blinks while a connection is being established. The *Transmitting* and *Receiving* data activity are shown separately by individual flashing yellow indicators.



3. The "System Info" tab displays the release number of the GlobeSpan DSL modem driver, the firmware release number, and the control panel version that you are currently using.



4. The "Configuration" tab offers driver appropriate Modulation, Encapsulation, and VPI and VCI values. If you are using a WAN or ATM driver, only the Modulation type will be displayed and may be modified. LAN driver applications will be able to view and modify the Modulation type, Encapsulation type, and VPI and VCI values.

Development Mode

Note: The following Control Panel features are useful for OEMs' development purposes. This section should be omitted before releasing the manual to the end user.

1. To transition to development mode of the Control Panel:
 - Position your cursor in any gray area of the “Physical Link” tab of the Control Panel.
 - *Slowly* right mouse click three times, followed by one left mouse click.
2. The development mode format of the “Physical Link” tab is displayed. The Restart and Abort buttons can be used to establish and disconnect a connection for testing purposes. Click **Cancel** or **OK** to end the development mode session.
3. From the “Physical Link” tab, click **Advanced** at the bottom right corner.
4. The “Advanced Link Data” window offers more detailed transceiver information covering Downstream Bit Loading, Upstream Bit Loading, SNR Margin Per Bin, Error Counters and the Actual Configuration.
 - Click **Downstream Bit Loading** to show the number of bits in each frequency bin for the downstream channel. Click **Close** to return to the “Advanced Link Data” window.
 - Click **Upstream Bit Loading** to show the number of bits in each frequency bin for the upstream channel. Click **Close** to return to the “Advanced Link Data” window.
 - Click **SNR Margin Per Bin** to display a plot of signal to noise ratio margin per bin. A positive number roughly indicates the number of dB that the noise could increase before the modem produces errors. Click **Close** to return to the “Advanced Link Data” window.

- Click **Error Counters** to obtain counts for ADSL line related near-end and far-end anomalies and defects. The counts provided are detailed below. Click **Close** to return to the “Advanced Link Data” window.

Note: Reed-Solomon forward error corrections are perfectly normal, and will not necessarily affect the application. CRC errors, however, may affect the application.

RS - Interleaved

Count of local and remote Reed-Solomon forward error corrections for the interleaved data stream

RS - Fast

Count of local and remote Reed-Solomon forward error corrections for the fast data stream

CRC - Interleaved

Count of local and remote CRC (cyclic redundancy check) errors for the interleaved data stream

CRC - Fast

Count of local and remote CRC (cyclic redundancy check) errors for the fast data stream

Severely Errored Frame

Count of local and remote severely errored frame (sef) defects

Loss of Signal

Count of local and remote loss of signal (los) defects.

- Click **Actual Configuration** to return the current configuration of the modem. The configuration items are detailed below. Click **Close** to return to the “Advanced Link Data” window.

Downstream Channel

Downstream bit rate in kbps. The latency is also provided.

Upstream Channel

Upstream bit rate in kbps. The latency is also provided.

R_F

Upstream and downstream number of redundant bytes per Reed-Solomon code word for the fast buffer.

R_I

Upstream and downstream number of redundant bytes per Reed-Solomon code word for the interleaved buffer.

D

Upstream and downstream delay (in symbols) incurred by RS for the interleaved buffer

S

Upstream and downstream number of DMT symbols per RS code word for the interleaved buffer

$$\text{Note: the total delay in a given direction} = \frac{D * S}{4} \text{ msec.}$$

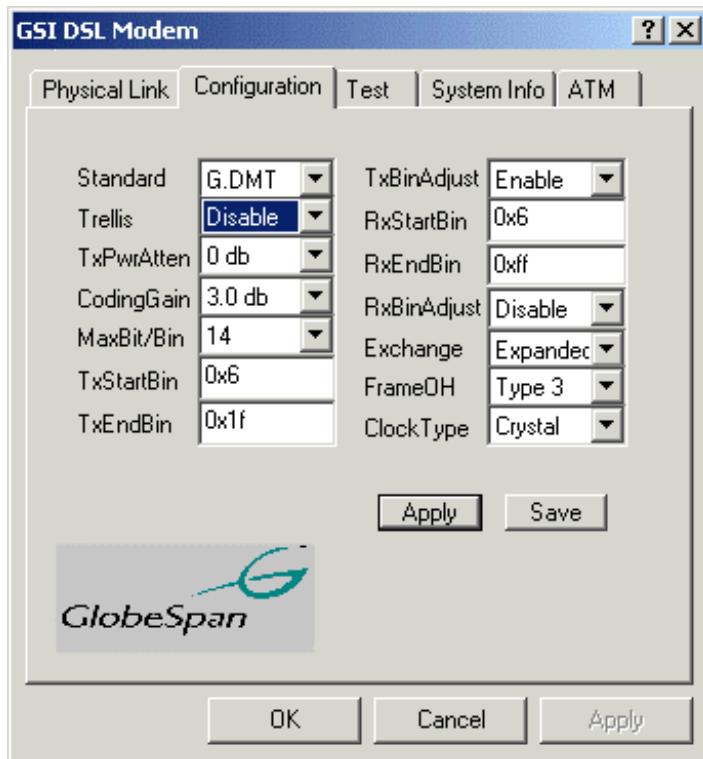
Framing Overhead

There are two types of framing defined per T1.413: full overhead and reduced overhead. Each type has 2 versions thus resulting in four framing structures referred to as 0, 1, 2, and 3. These framing structures are described in Table 4 of T1.413.

Trellis Coding

Indicates whether trellis coding is enabled or disabled. Note that trellis coding will only be enabled if both CO and CP choose to enable.

- Click **Close** to return to the Control Panel.



5. Select the “Configuration” tab of the Control Panel to view and/or modify the current connection parameter settings. When you have completed your changes click **Apply**. A message will appear asking if you would like to restart the connection with the new configuration parameters in effect. Click **yes** if you want the parameter changes to take effect. Once the Control Panel reappears, click **Save** if you want the parameter changes to be remembered following subsequent PC reboots.

The following connection parameters may be altered to optimize your design:

Standard

Compliance to either ANSI T1.413 Issue 2, ITU G.992.1 (G.DMT), ITU G.992.2 (G.lite), ADI, or “Multimode.” “Multimode” is where the CP can detect the difference between T1.413 standard compliant CO, Alcatel 1.4 CO or ADI CO.

Trellis

Trellis coding may be enabled/disabled. Note that trellis coding will truly be enabled only if both CO and CP choose to enable.

TxPwrAtten

The value of transmit power attenuation can be from 0 to 12 dB, programmable in 1 dB increments.

CodingGain

Coding gain is the expected improvement, or gain, due to trellis/RS coding. It is used to help determine the downstream connect rate. The larger the value of coding gain, the more aggressive, i.e. higher, the selected rate will be. Note, however, that the CO modem has the final say in the rate selection. Automatic coding gain selection is recommended for automatic bit allocation depending upon line conditions. Otherwise, requested coding gain is selectable from 0 to 7 dB in 1dB increments.

MaxBits/Bin

The maximum number of receive bits per bin can be selected.

TxStartBin

The lowest bin number allowed for the transmit signal can be specified.

TxEndBin

The highest bin number allowed for the transmit signal can be specified.

TxBinAdjust

Automatic bin adjustment can be enabled or disabled.

RxStartBin

The lowest bin number allowed for the receive signal can be specified.

RxEndBin

The highest bin number allowed for the receive signal can be specified.

RxBinAdjust

Automatic bin adjustment can be enabled or disabled.

Note: The allowable values for Tx/Rx start and end bins are as follows –

0x06-0x1f upstream

0x06-0xff downstream

This allows the customer to limit bins used for special configurations.

Exchange

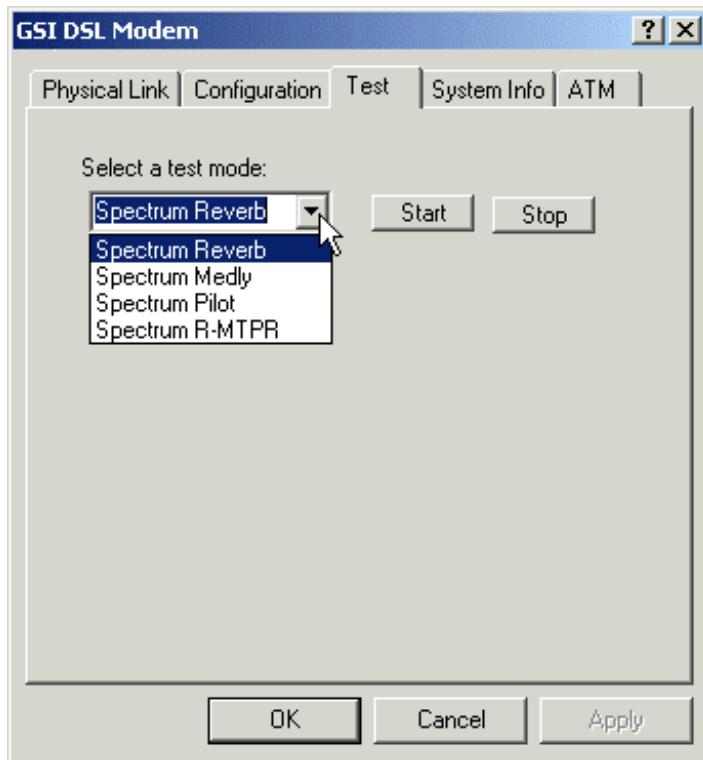
For T1.413 only, Expanded Exchange Sequence (EES) can be short or expanded exchange.

FrameOH

There are two types of framing defined per T1.413: full overhead and reduced overhead. Each type has 2 versions thus resulting in four framing structures referred to as 0, 1, 2, and 3. These framing structures are described in Table 4 of T1.413.

Clock Type

The design engineer can select either a crystal or an oscillator, but the transceiver must be informed as to which has been chosen. Note that the default value is crystal.



6. Select the “Test” tab of the Control Panel to initiate a Spectrum Test. Four tests are supported: Spectrum Reverb, Spectrum Medley, Spectrum Pilot and Spectrum R-MTPR. Select the test from the drop down menu; click **Start** to initiate the test and **Stop** to end it.

Spectrum Reverb Test

The Spectrum Reverb Test induces an R-REVERB signal to be continually sent by the CP. During startup (termed “initialization” in T1.413), R-REVERB signals are used to allow the ATU-C receiver to measure the upstream wideband power in order to adjust the ATU-C transmit power level, adjust its receiver gain control, and synchronize its receiver and train its equalizer. Refer to T1.413 i2 sections 9.4.6 and 9.5.2 for details regarding C-REVERB1 and R- REVERB1.

Spectrum Medley Test

The Spectrum Medley Test induces an R-MEDLEY signal to be continually sent by the CP. R-MEDLEY is a wideband pseudo-random signal used at the ATU-C for training its frequency-domain equalizer and for estimation of the upstream SNR. Refer to T1.413 i2 sections 9.6.6 and 9.7.8 for details regarding C-MEDLEY and R-MEDLEY.

Spectrum Pilot Test

The Spectrum Pilot Test induces an R-PILOT signal to be continually sent by the CP. R-PILOT is a single frequency sinusoid used for synchronization of the ATU-C and ATU-R. Refer to T1.413 i2 sections 9.4.3 and 9.5.4 for details regarding C-PILOT1 and R-PILOT1.

Spectrum R-MTPR Test

The Spectrum R-MTPR (MultiTone Power Ratio) Test leaves a few bins empty, thus providing a convenient way to measure non-linear distortion in the transmitting path. The test measures the ratio of the rms value of the full-amplitude tone in a sub-carrier to the rms sum of all the non-tone signals in the 4.3125 kHz frequency band centered on the sub-carrier frequency. Refer to T1.413 i2 section 9.13.2 and G.992.1 section 7.13.2 for details regarding the Noise/Distortion floor.

7. Select the “System Info” tab of the Control Panel to display the driver release number, transceiver firmware release number, DSP version, remote vendor ID, remote vendor revision, and control panel version number.
8. Select the “ATM” tab of the Control Panel to display the current ATM statistics.

An OEM may choose to use the GlobeSpan EEPROM Interface to program the Zero Byte, Vendor ID, Product ID, Device ID, or MAC Address when distributing the DSL Modem. Click **Advanced** to access this application. You may refer to the GlobeSpan Application Note, "Programming the GlobeSpan EEPROM on USB Modem Reference Boards" (AN-012), for a detailed explanation of this procedure.

Chapter 6: Software Uninstall

Remove the GlobeSpan USB ADSL Modem software drivers by performing the following steps.

Note: The USB cable should not be unplugged until after the uninstall process has been completed. For Windows 98 applications, the cable must be unplugged immediately following Step 6 below.

1. From your PC desktop click **Start – Programs – GlobeSpan DSL Modem – Uninstall**. A notification message will appear indicating that the setup process has begun.
2. Click **Remove** from the “DSL Modem Installer” window.
3. A message will be displayed asking you to confirm the removal of the USB ADSL modem software, click **Yes**.
4. The “Information” window will be displayed reminding you not to unplug the USB cable until the uninstall process has been completed. Click **OK**.
5. A message will be displayed indicating the software is being removed.



6. The “Setup Complete” window indicates successful completion of the uninstall process. Click **Finish**.

Note: The screen for Windows 2000 applications will not ask the user to reboot the system.

Click Finish to complete the Uninstall process.

7. Unplug the USB cable from the PC.

Note: The USB cable must be unplugged before the system is rebooted. For Windows 98 applications the cable must be unplugged immediately as the reboot process was begun in Step 6 above.

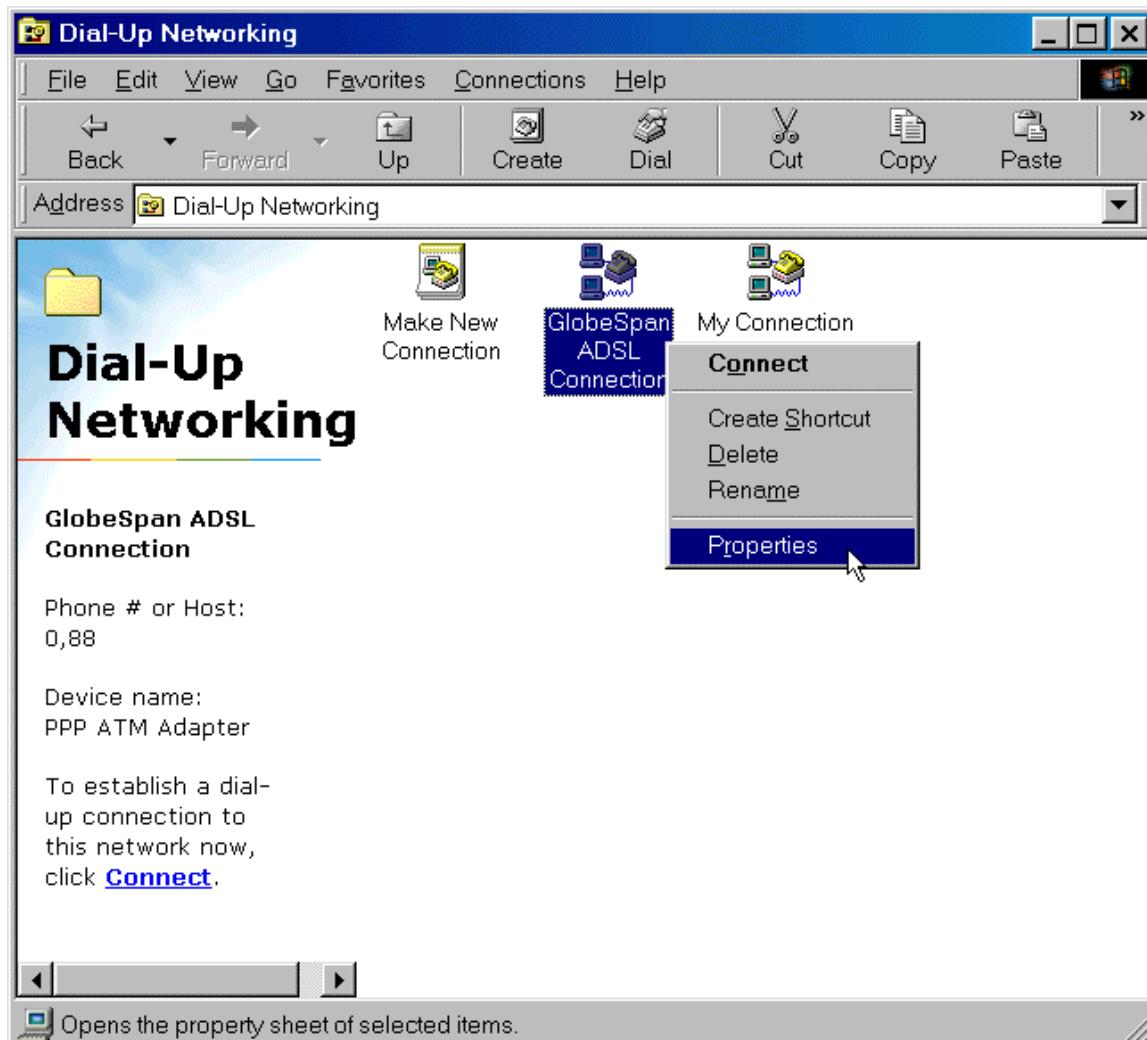
Appendix A: Modifying TCP/IP Networking Options

WAN USB Driver

Microsoft® Windows® 98, First and Second Editions

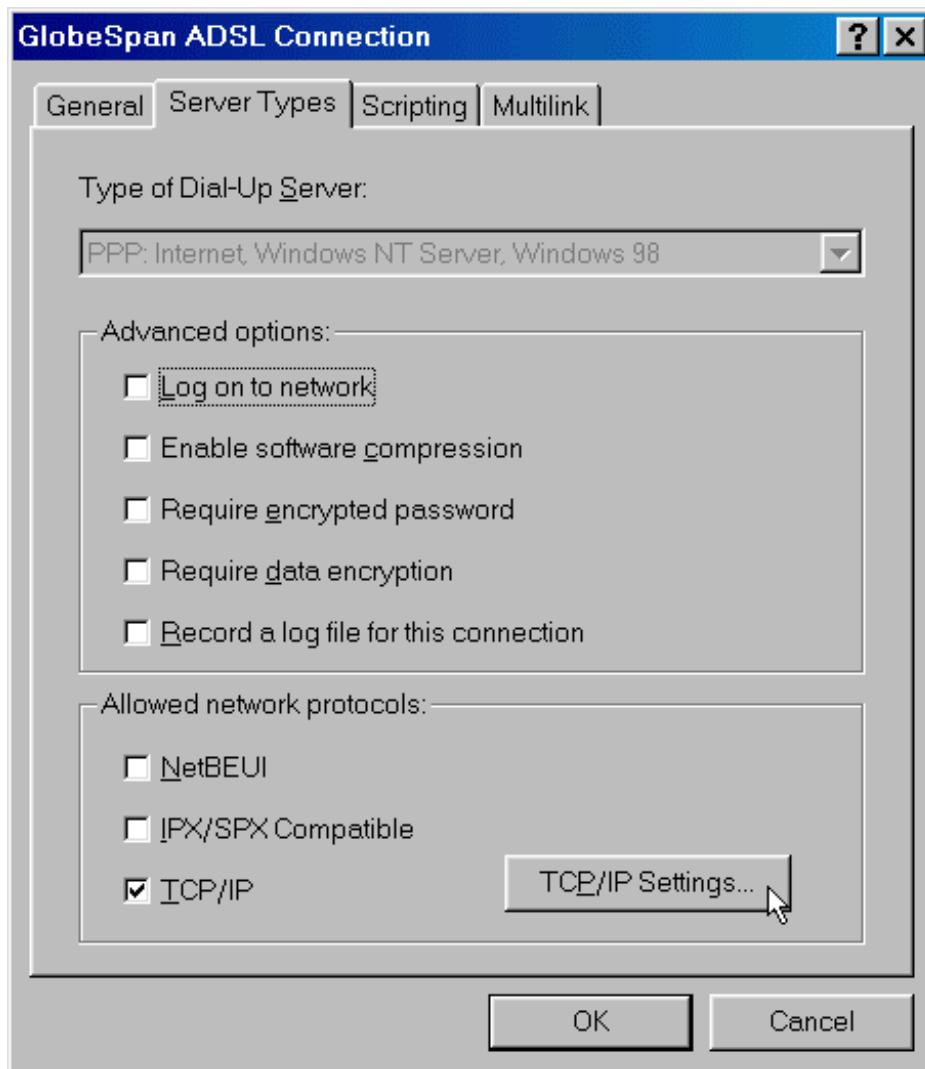
TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, double click the **My Computer** icon.

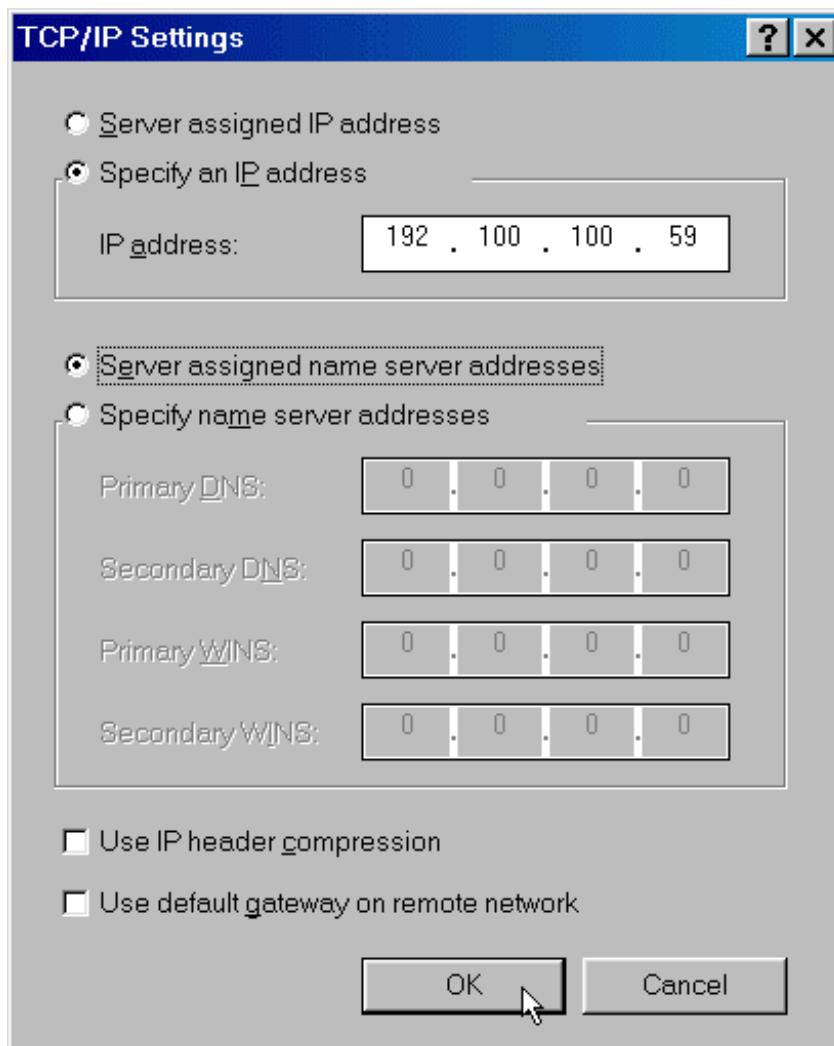


2. From the “My Computer” window, double click the **Dial-Up Networking** icon.
3. From the “Dial-Up Networking” window, right click on the **GlobeSpan ADSL Connection** icon and click **Properties**.

Note: The icon name may differ from that specified above. The GlobeSpan connection icon will be identified as “GlobeSpan ADSL WAN Modem” in the Device Name column when details are viewed from the “Dial-Up Networking” window (View – Details).



4. From the “Server Types” tab of the “GlobeSpan ADSL Connection” window, select **TCP/IP** (marked with a check in the box to the left) and click **TCP/IP Settings**.



5. The “TCP/IP Settings” window is used to modify the IP address, Name Server addresses and/or default gateway as follows:
 - Change the IP address to a user defined address by selecting *Specify an IP address* (click inside the circle to the left of it) and typing the address in the space provided
 - Change the Name Server addresses to user defined addresses by selecting *Specify name server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided
 - Change the default gateway by leaving the box blank to the left of *Use default gateway on remote network*.
- Click **OK**.

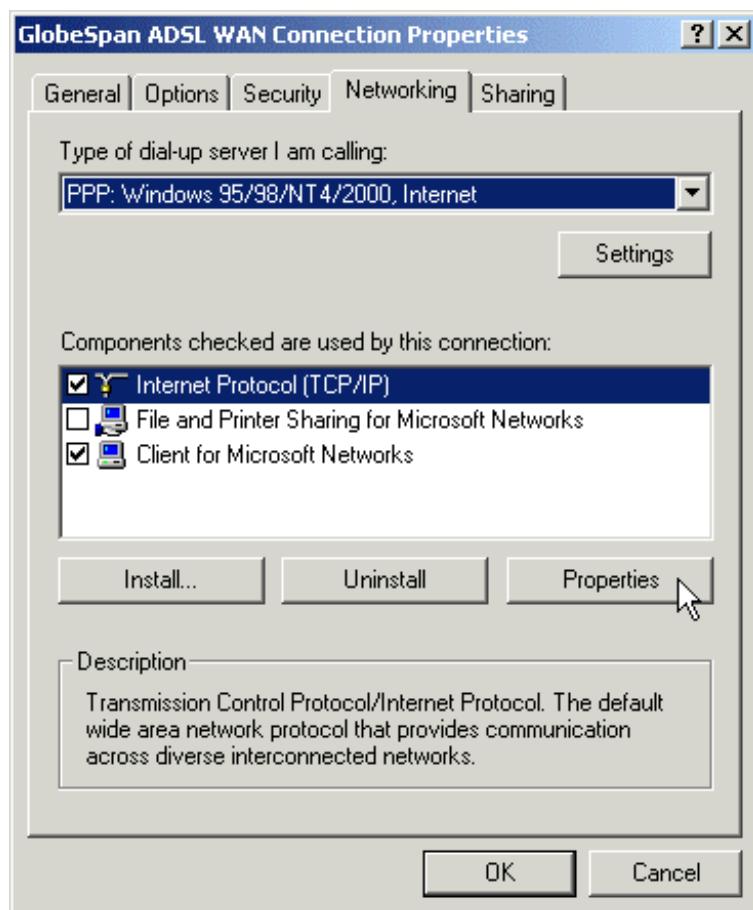
6. The “GlobeSpan ADSL Connection” window will be redisplayed. Click **OK** to end the modifying TCP/IP options session.

Microsoftâ Windowsâ 2000

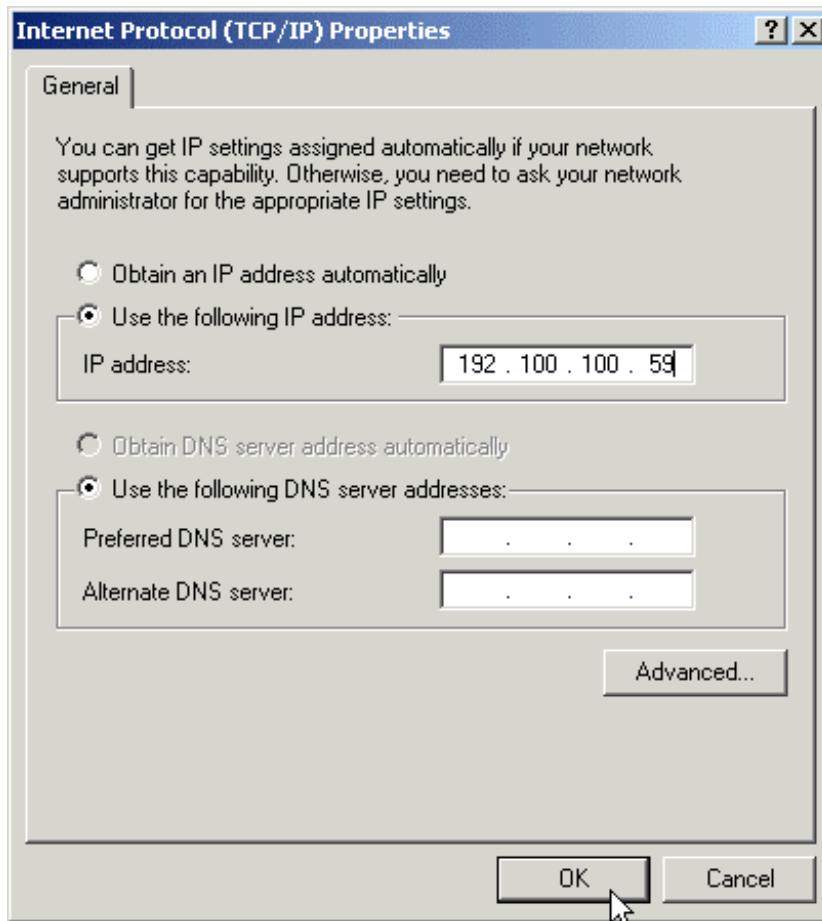
TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, right click the **My Network Places** icon and select **Properties**.
2. From the “Network and Dial-Up Connections” window, right click on the **GlobeSpan ADSL WAN Connection** icon and click **Properties**.

Note: The icon name may differ from that specified above. The GlobeSpan connection icon will be identified as “GlobeSpan ADSL WAN Modem” in the Device Name column when details are viewed from the “Network and Dial-Up Connections” window (View – Details).



3. From the “Networking” tab of the “GlobeSpan ADSL WAN Connection Properties” window, select **Internet Protocol (TCP/IP)** and click **Properties**.



4. The “Internet Protocol (TCP/IP) Properties” window is used to modify the IP address and DNS Server addresses:
 - Change the IP address to a user defined address by selecting *Use the following IP address* (click inside the circle to the left of it) and typing the address in the space provided
 - Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided.

Note: The “Advanced” button of the “Internet Protocol (TCP/IP) Properties” window may be used to alter DNS addresses, WINS addresses and IP security settings.

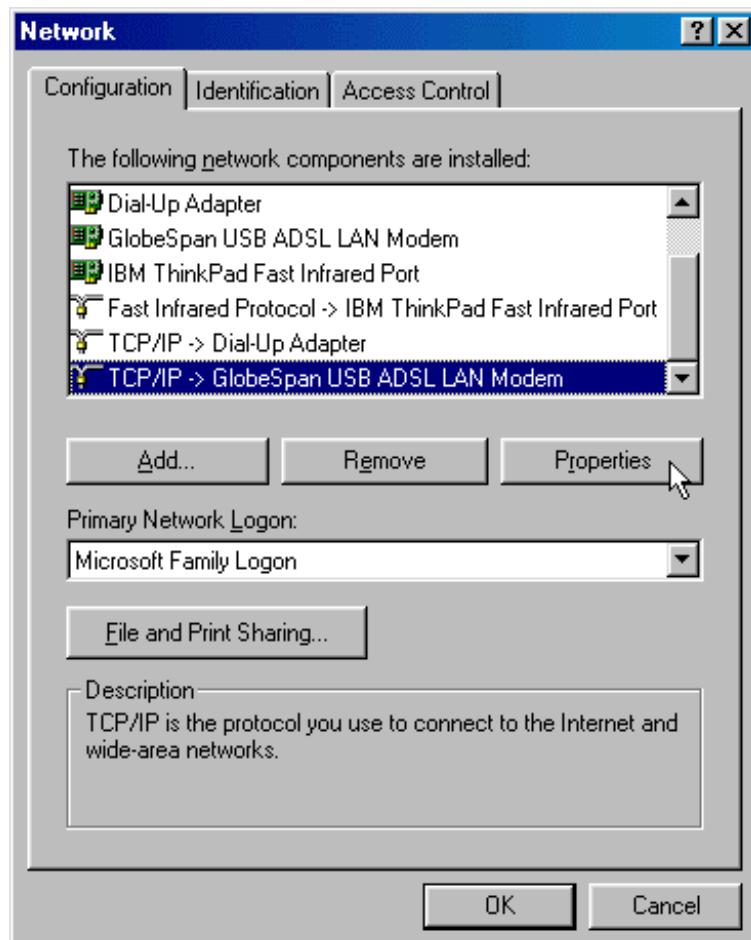
5. Click **OK** from the “Internet Protocol (TCP/IP) Properties” window.
6. The “GlobeSpan ADSL WAN Connection Properties” window will reappear. Click **OK** to end the modifying TCP/IP options session.

LAN USB Driver

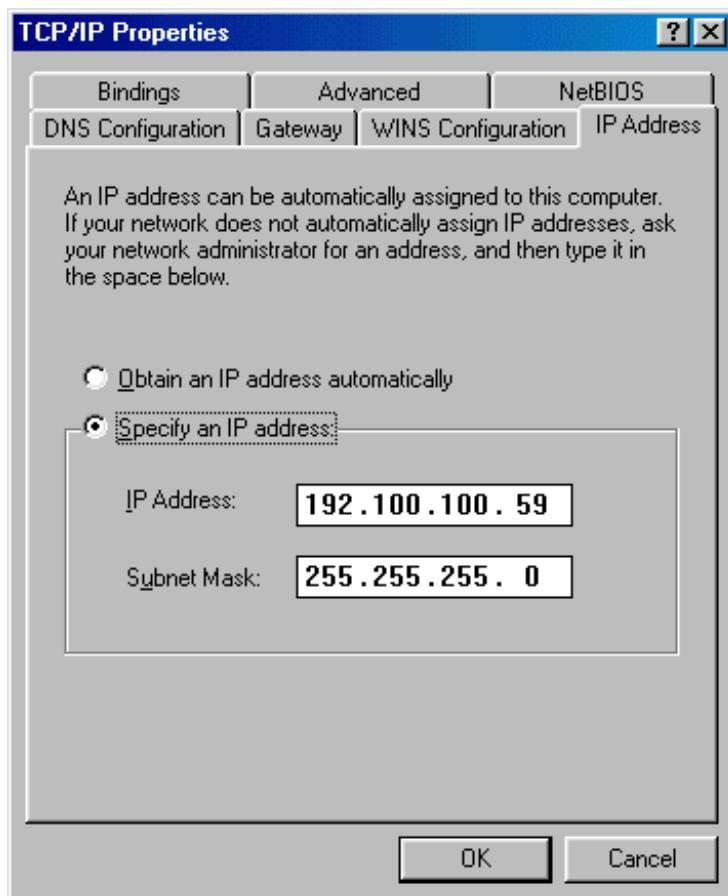
Microsoftâ Windowsâ 98, First and Second Editions

TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

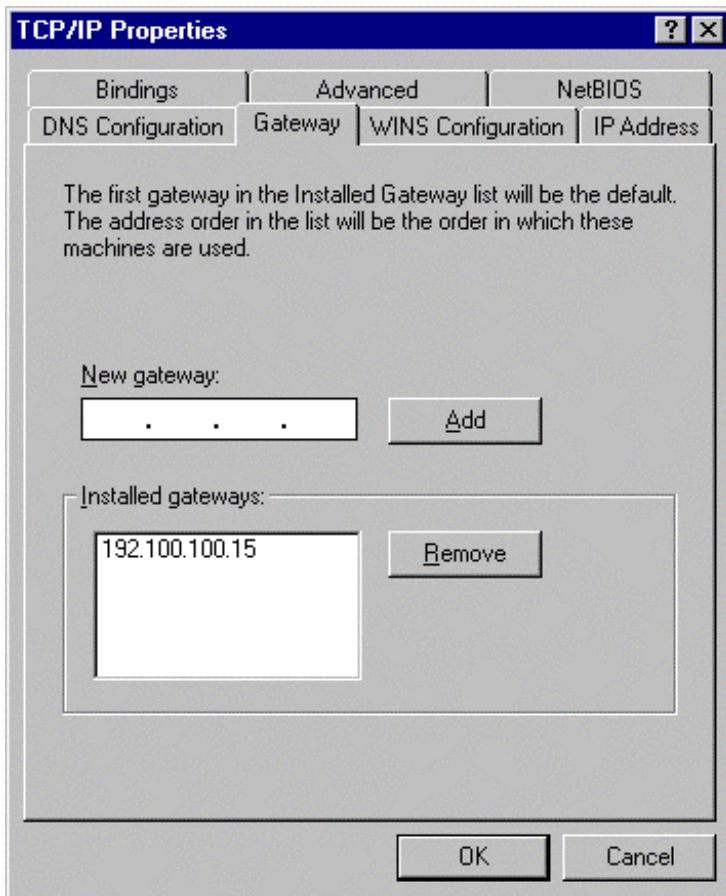
1. From the “Control Panel” window (**Start – Settings – Control Panel**) double click on the **Network** icon.



2. Select **TCP/IP -> GlobeSpan USB ADSL LAN Modem** from the “Configuration” tab of the “Network” window. Click **Properties**.



3. From the “IP Address” tab of the “TCP/IP Properties” window, select either the *Obtain an IP address Automatically* or *Specify an IP Address* option, depending on your network setup. If you select *Specify an IP address*, type the *IP Address* and *Subnet Mask* in the spaces provided. Consult with your network administrator to determine which option best suits your individual needs.



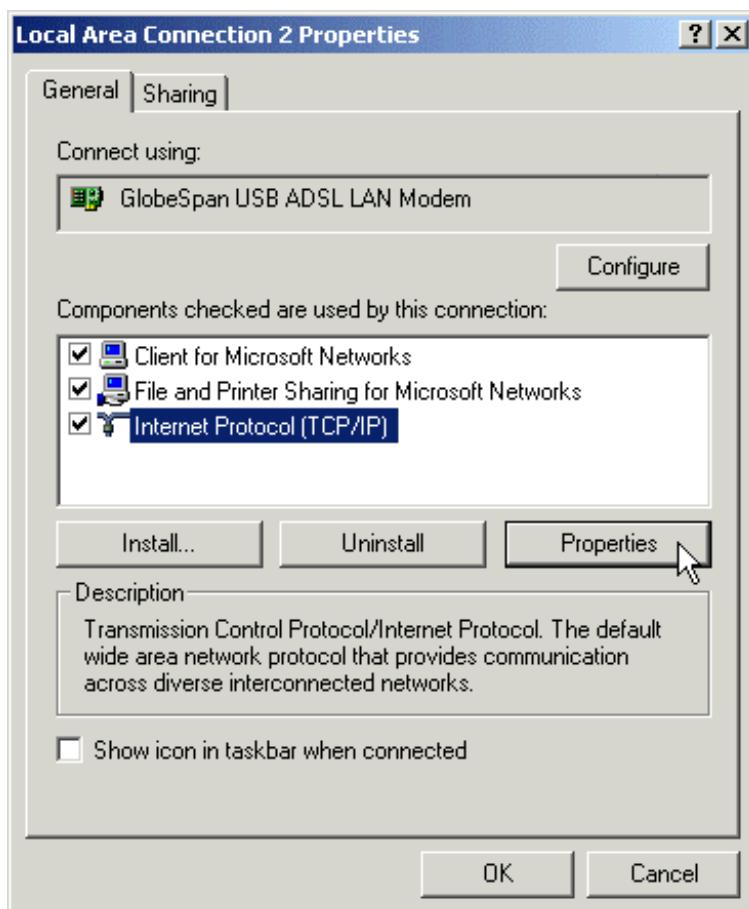
4. The “Gateway” tab allows you to add or remove gateways. Consult with your network administrator to determine the appropriate addresses for your individual needs.
 - To add a new gateway, type the address in the *New gateway* field and click **Add**. The new gateway will appear in the *Installed gateways* list.
 - To remove a previously installed gateway, highlight the entry to be removed in the *Installed gateways* list and click **Remove**. The gateway will no longer appear in the *Installed gateways* list.
5. Click **OK** from the “TCP/IP Properties” window.
6. The “Network” window will reappear. Click **OK** to end the modifying TCP/IP options session.
7. If you have made changes to TCP/IP properties, you will be asked to restart/reboot your PC. Click **Yes**, and your PC will restart.

Microsoft® Windows® 2000

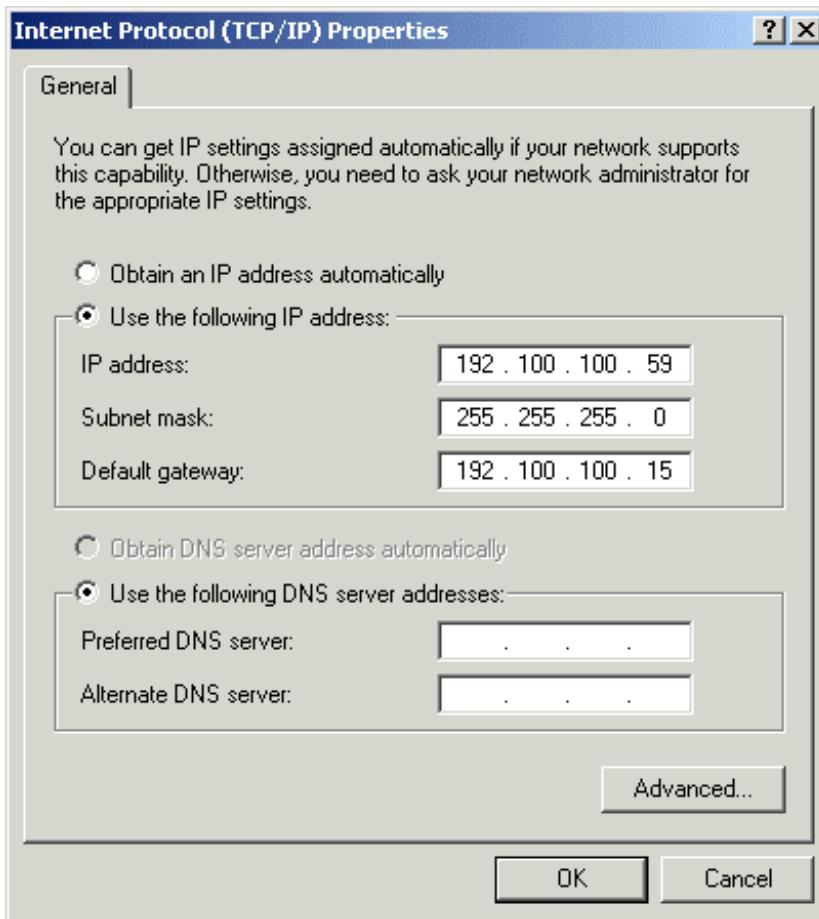
TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From the PC desktop, right click the **My Network Places** icon and select **Properties**.
2. Double click the **GlobeSpan Local Area Connection** icon from the “Network and Dial-Up Connections” window.

Note: The icon name may differ from that specified above. The GlobeSpan connection icon will be identified as “GlobeSpan USB ADSL LAN Modem” in the Device Name column when details are viewed from the ‘Network and Dial-Up Connection’ window (View – Details).



3. Select **Internet Protocol (TCP/IP)** from the “General” tab of the “Local Area Connection” window. Click **Properties**.



4. The “Internet Protocol (TCP/IP) Properties” window is used to modify the IP addresses and DNS Server addresses:
 - Change the IP address to a user defined address by selecting *Use the following IP address* option (click inside the circle to the left of it) and typing the addresses in the spaces provided
 - Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided.

Note: The Advanced button of the ‘Internet Protocol (TCP/IP) Properties’ window may be used to alter IP settings, DNS server addresses, WINS addresses, IP security options, and TCP/IP filtering options.

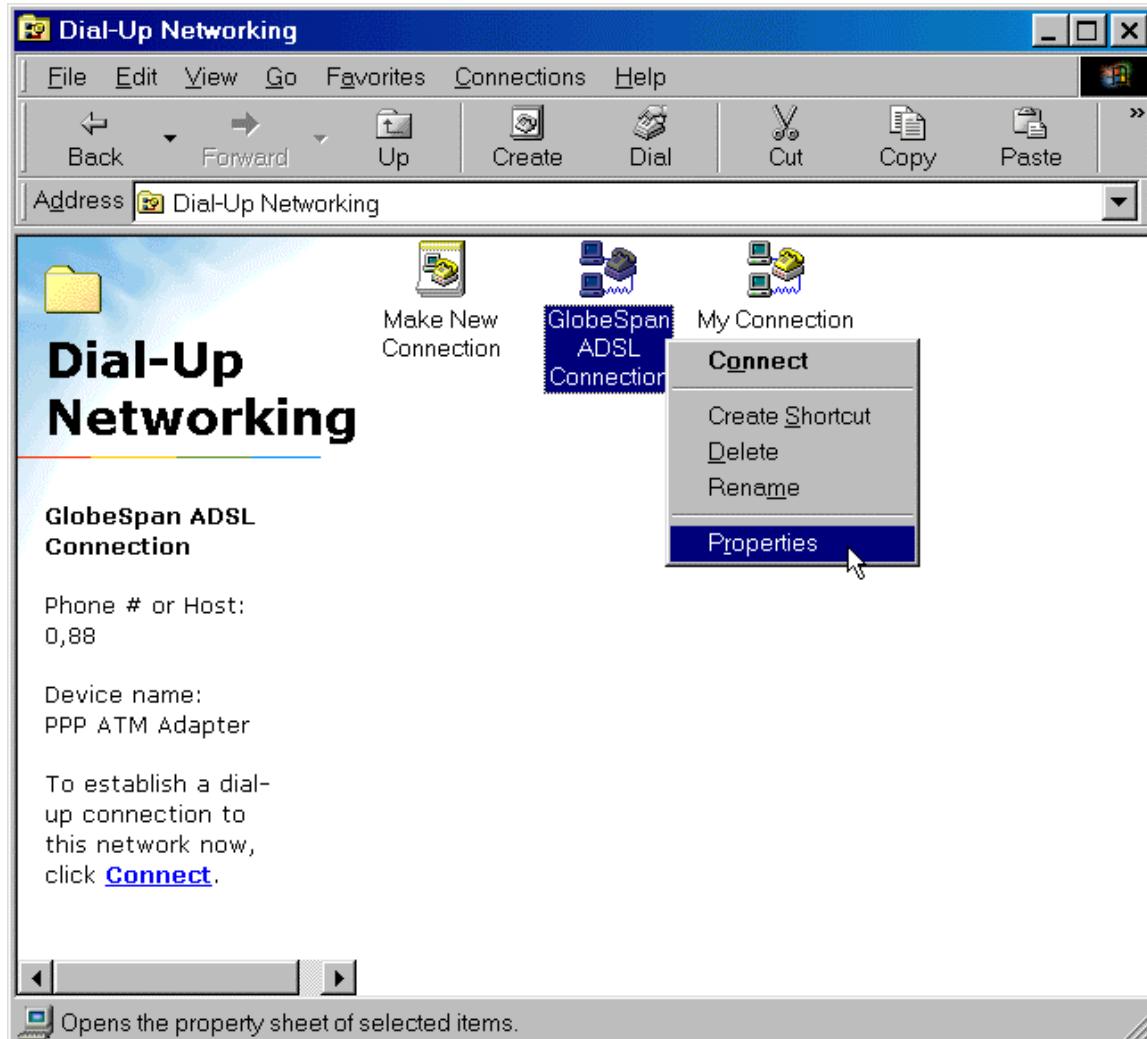
5. Click **OK** from the “Internet Protocol (TCP/IP) Properties” window.
6. The “GlobeSpan Local Area Connection Properties” window will reappear. Click **OK** to end the modifying TCP/IP options session.

ATM USB Driver

Microsoftâ Windowsâ 98, Second Edition

TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

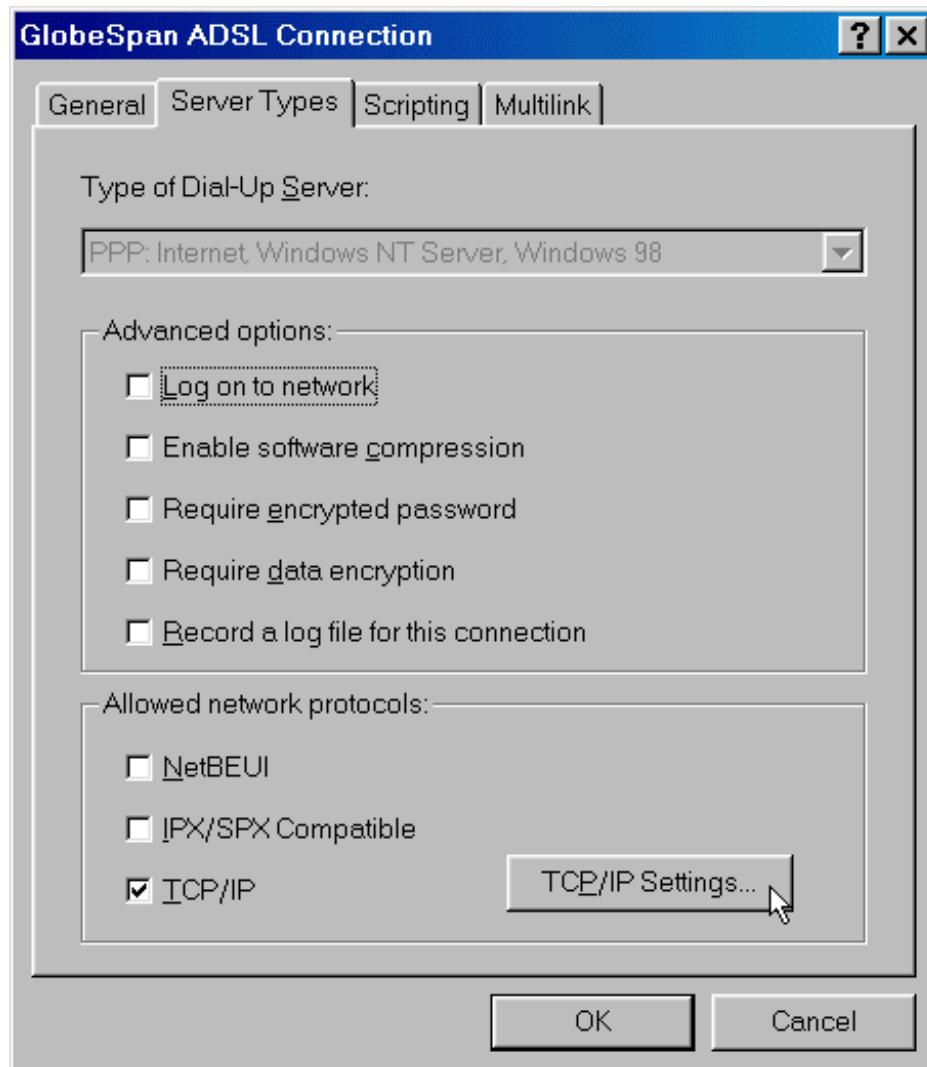
1. From your PC desktop, double click the **My Computer** icon.



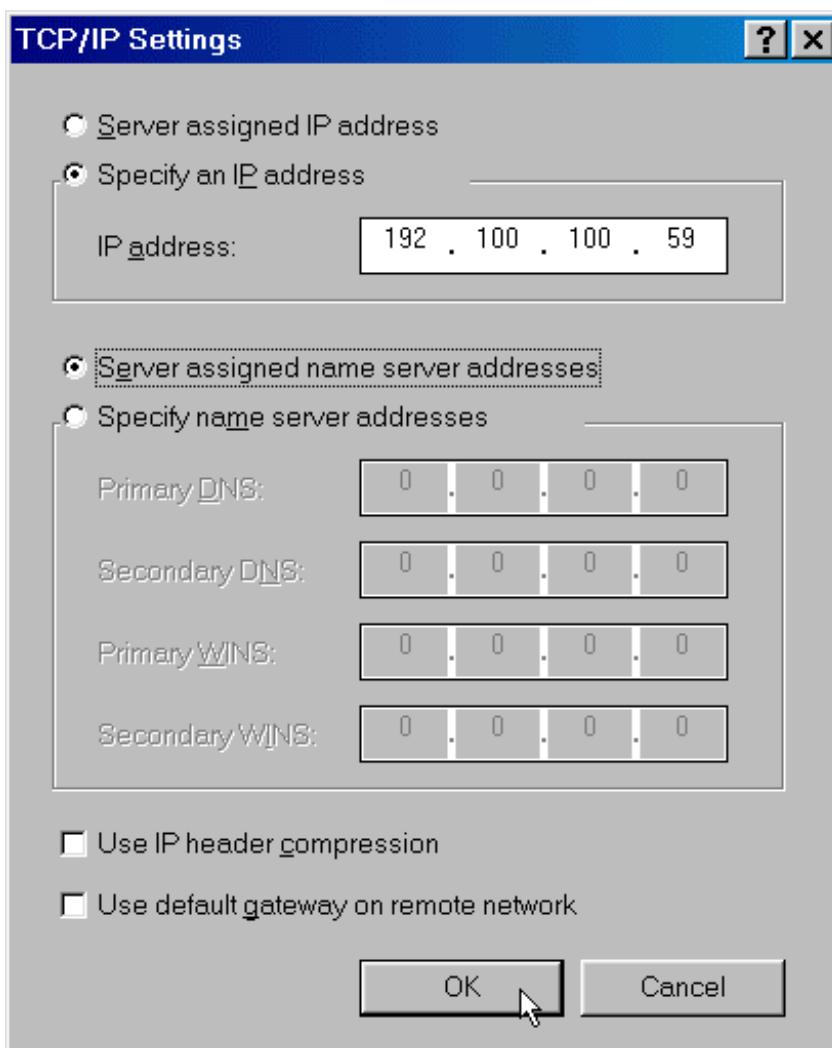
2. From the “My Computer” window, double click the **Dial-Up Networking** icon.
3. From the “Dial-Up Networking” window, right click on the **GlobeSpan ADSL Connection** icon and click **Properties**.

Note: The icon name may differ from that specified above. The GlobeSpan connection icon will be identified as “GlobeSpan ADSL ATM Modem” in the Device Name column when details are viewed

from the “Dial-Up Networking” window (View – Details).



4. From the “Server Types” tab of the “GlobeSpan ADSL Connection” window, select **TCP/IP** (marked with a check in the box to the left) and click **TCP/IP Settings**.



5. The “TCP/IP Settings” window is used to modify the IP address, Name Server addresses and/or default gateway as follows:
 - Change the IP address to a user defined address by selecting *Specify an IP address* (click inside the circle to the left of it) and typing the address in the space provided
 - Change the Name Server addresses to user defined addresses by selecting *Specify name server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided
 - Change the default gateway by leaving the box blank to the left of *Use default gateway on remote network*.

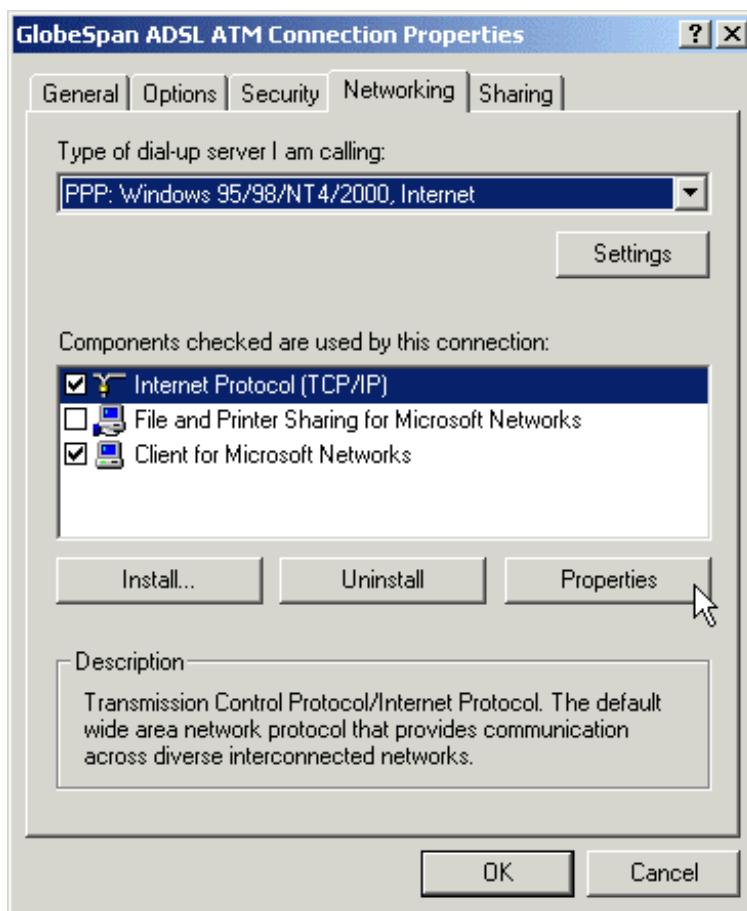
Click **OK**.
6. The “GlobeSpan ADSL Connection” window will be redisplayed. Click **OK** to end the modifying TCP/IP options session.

Microsoftâ Windowsâ 2000

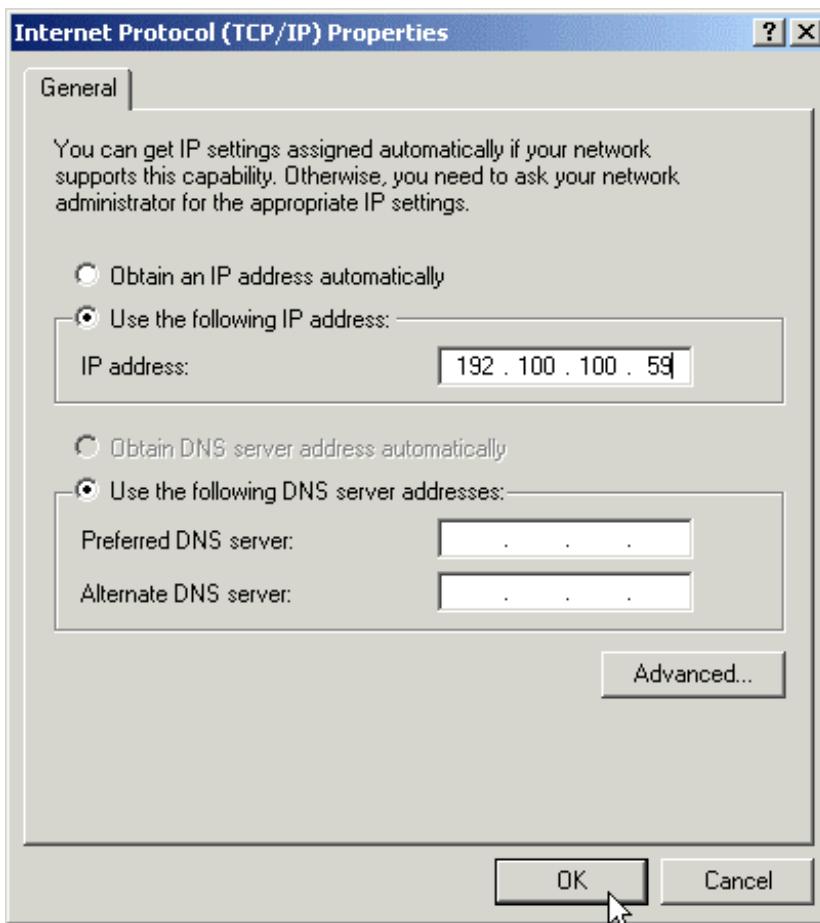
TCP/IP settings are automatically set up during the software installation process. The following procedure may be used to change TCP/IP settings, if necessary.

1. From your PC desktop, right click the **My Network Places** icon and select **Properties**.
2. From the “Network and Dial-Up Connections” window, right click on the **GlobeSpan ADSL ATM Connection** icon and click **Properties**.

Note: The icon name may differ from that specified above. The GlobeSpan connection icon will be identified as “GlobeSpan ADSL ATM Modem” in the Device Name column when details are viewed from the “Network and Dial-Up Connections” window (View – Details).



3. From the “Networking” tab of the “GlobeSpan ADSL ATM Connection Properties” window, select **Internet Protocol (TCP/IP)** and click **Properties**.



4. The “Internet Protocol (TCP/IP) Properties” window is used to modify the IP address and DNS Server addresses as follows:
 - Change the IP address to a user defined address by selecting *Use the following IP address* (click inside the circle to the left of it) and typing the address in the space provided
 - Change the DNS Server addresses to user defined addresses by selecting *Use the following DNS server addresses* (click inside the circle to the left of it) and typing the addresses in the spaces provided.

Note: The “Advanced” button of the “Internet Protocol (TCP/IP) Properties” window may be used to alter DNS address, WINS address and IP security settings.

5. Click OK from the “Internet Protocol (TCP/IP) Properties” window.
6. The “GlobeSpan ADSL ATM Connection Properties” window will reappear. Click **OK** to end the modifying TCP/IP options session.

Appendix B: FCC/Industry Canada Required Information

FCC Required Information:

1. This equipment complies with Part 68 of the FCC rules. This unit bears a label, which contains the FCC registration number and ringer equivalence number (REN). If requested, this information must be provided to the telephone company.
2. This equipment uses the following standard jack types for network connection: RJ11-6
3. This equipment contains an FCC compliant modular jack. It is designed to be connected to the telephone network or premises wiring using compatible modular plugs and cabling which comply with the requirements of FCC Part 68 rules.
4. In the unlikely event that this equipment causes harm to the telephone network, the telephone company can temporarily disconnect your service. The telephone company will try to warn you in advance of any such disconnection, but if advance notice isn't practical, it may disconnect the service first and notify you as soon as possible afterwards. In the event such a disconnection is deemed necessary, you will be advised of your right to file a complaint with the FCC.
5. From time to time, the telephone company may make changes in its facilities, equipment, or operations, which could affect the operation of this equipment. If this occurs, the telephone company is required to provide you with advance notice so you can make the modifications necessary to maintain uninterrupted service.
6. Repair service or warranty information may be obtained from:
GlobeSpan, Inc.
100 Schulz Drive
Red Bank, N.J. 07701
7. If a user experience difficulties, check your connection and software configurations. There are no user repairs that can be done on the unit.

FCC CLASS B STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1 This device may not cause harmful interference, and
- 2 This device must accept any interference received, including interference that may cause undesired operation.

WARNING: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.

Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the 4F-2, No.171, Sung-Tech Road, Taipei, aiwan, R.O.C

Tested to comply with the FCC Standards for home and office use.

NOTE: In order to maintain compliance with the limits of a Class B digital device, Turbocomm requires that you use quality interface cables when connecting to this device. Changes or modifications not expressly approved by Turbocomm could void the user's authority to operate this equipment. Refer to the manual for specifications on cabling types.

Industry Canada Required Information

EQUIPMENT ATTACHMENTS LIMITATIONS

To ensure that certified equipment is attached correctly and only to the networks of participating carriers, the following statement shall accompany each unit of certified equipment offered for sale. This statement must be included conspicuously in written or electronic format, at or near the front of each copy of the operating manual, or accompany other technical information, or be included as a separate sheet. The required statement is:

“NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements documents(s). The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions might not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas. **Caution:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.”

An explanatory note on Ringer Equivalence Numbers (see Section 10.0) and their use must be provided for the terminal equipment user in the information accompanying the terminal equipment. A notice similar to the following would be suitable:

“NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the ringer equivalence Numbers of all the devices does not exceed 5.”