



EAGLE[™] and ***EAGLE II***[™]
**USB ADSL External Modem
Installation Guide**

Operating System:

Macintosh[®] OS X

For use with:

NRE-EAGLE-USB-EV1
NRE-EAGLE-USB-EV2
NRE-EAGLE2-USB-EV1
NRE-EAGLE2-USB-EV2

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ABOUT THIS EVALUATION PACKAGE

This Evaluation Package contains:

- USB ADSL Modem product brief

Either

- **Eagle™** chipset data sheets
 - AD6484 ADSL Digital Data Pump with USB
 - AD6480 ADSL Codec IC/Analog Front End

Or

- **Eagle II™** chipset data sheets
 - AD6485 Digital Data Pump with USB and Ethernet
 - AD6480 Codec IC/Analog Front End (AFE)

And

- USB ADSL External Modem reference design
 - Schematics
 - Bill of Materials
 - Layout (Gerber) files
- USB Modem reference board with 6' Type A-to-B USB Cable
 - Annex A (ADSL over POTS) board, version 1.3 or laterOr
 - Annex B (ADSL over ISDN) board, version 1.3 or later
- Device drivers software and product documentation path to an internal ADI website
Contact your ADI Sales or FAE to obtain the current release for the following:
 - NDISLAN Driver (PPP over Ethernet) for Macintosh® OS X
 - NDISWAN Driver (PPP over ATM) for Macintosh® OS X Utility software
- Utility software
 - ADSL Monitor – Graphical User Interface (for monitoring and configuration)
- **Eagle™** and **Eagle II™** USB ADSL External Modems Installation Guide
- Performance reports

THE **EAGLE™** AND **EAGLE II™** USB ADSL EXTERNAL MODEMS

This modem features:

- Plug and Play USB 1.1-specification interface
- Bus-powered USB ADSL modem, which eliminates external power supply requirements
- Rate-adaptive ADSL technology that adapts to your phone line conditions
- Receive-line rate of up to 12Mbps; transmit-line rate of up to 1 Mbps

THE CO BOARD FOR CENTRAL OFFICE SIMULATION

For full-product evaluation purposes, an emulated single-channel PCI ADSL Internal NIC CO (Central Office) card is available (part number: NRE20msp930EVC-PCI) to simulate an ADSL Central Office. You will need to use a separate and different PC than that used for ADSL RT/CPE. We recommend that you install the PCI CO card drivers on a Windows® NT4 Server or Windows® 2000 Server environment that provides built-in server dial-up services and higher-performance file transfer.

THE GUIDE

This guide has been designed as part of a total evaluation package to help you through the hardware plug-in and software installation for you to evaluate the USB ADSL External Modem.

THE DEVICE DRIVERS SOFTWARE

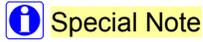
The supplied device drivers support the Macintosh® OS X Operating System.

SYSTEM REQUIREMENTS

To use the USB Modem reference board, your MAC Machine must have:

- 32MB system memory or more
- 10MB free space on your hard drive
- 256-color VGA or higher resolution
- CD-ROM drive
- One available USB port and one USB cable (supplied)
- Telephone cable with RJ-11 connectors
- Macintosh® OS X Operating System disks (supplied by Apple®)
- Available ADSL service or connection to DSLAM or ADSL service emulator

ANNOTATIONS



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DOCUMENT REVISION HISTORY

Revision	Date	Summary of Changes	Author	Editor
1.0	11-25-02	Initial Release	M. A.	S.K.

HARDWARE

THE USB ADSL EXTERNAL MODEM REFERENCE BOARD

DESCRIPTION

The USB ADSL External Modem reference board comes with one RJ-11 phone jack and one USB connector (type B) – see below. POTS splitters or microfilters may be required to work concurrently with conventional POTS equipment such as phone, fax and V.90 modem.

Five LEDs show DSL Status (See Table 1.)

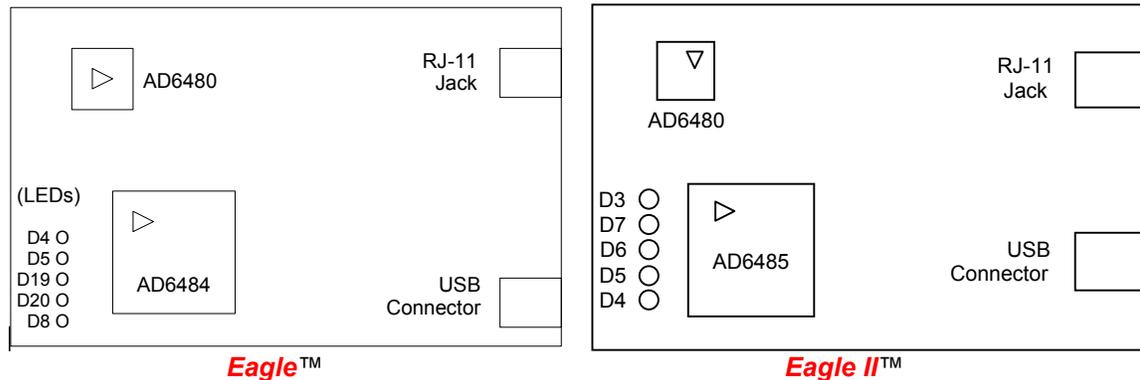


Table 1. LED Functions

EAGLE™	EAGLE II™	DSL Status
D4	D3	Modem Connect or Detect / Connect (default). Blinking indicates Modem Detect. ON indicates Modem Connect.
D5	D7	ADSL Line CRC Error
D19	D6	USB Board Power
D20	D5	Network Transmit Data
D8	D4	Network Receive Data

INSTALLATION

To physically connect the modem, see the Installation of The Modem section on page 10.

SOFTWARE

⚠ It is critical that you read through the entire set of installation instructions before beginning the installation process itself because performing a step out of sequence could result in a failed installation.

DRIVER FOR MACINTOSH® OS X

DESCRIPTION

The driver exports a standard Ethernet interface to the Macintosh® OS X operating system and binds with Apple® protocols that communicate with NDIS 3 or with third-party PPPoE client software (provided by your ADSL service provider) running under Macintosh® OS X. Consult your service provider for the appropriate PPPoE client software and related documentation. VPI, VCI, and other specifications, can be configured via ADSL Monitor.

INSTALLATION OF SOFTWARE

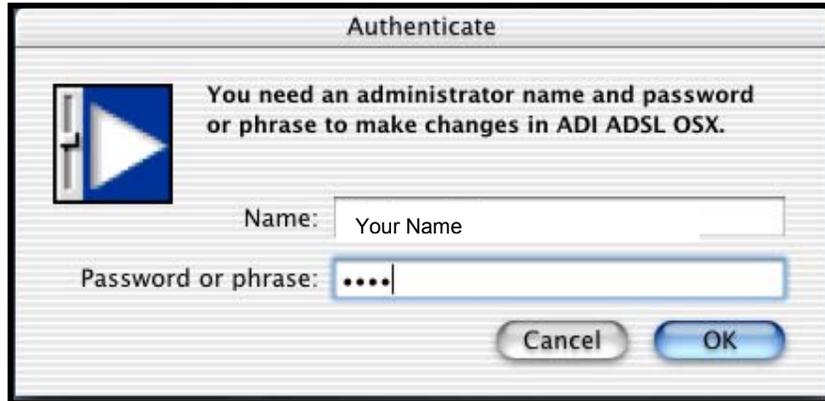
1. Copy the software package from ADI's FTP site, and place the Stuffit® file onto the Desktop.
(The ADI ADSL OSX.hqx will appear on the Desktop.)



2. Double-click the **ADI ADSL.hqx** icon.
(The ADI ADSL OSX icon will appear on the Desktop.)



3. Double-click the **ADI ADSL OSX** icon.
(This will take you through some authentication screens if you need to make changes to the ADSL OSX on the way to installation.)

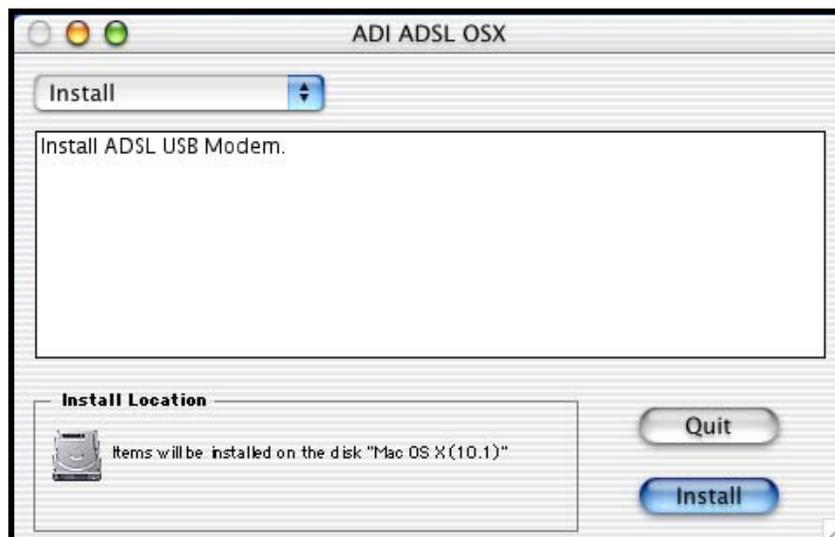


4. Enter **Name** and **Password or phrase**.
5. Click **OK**.

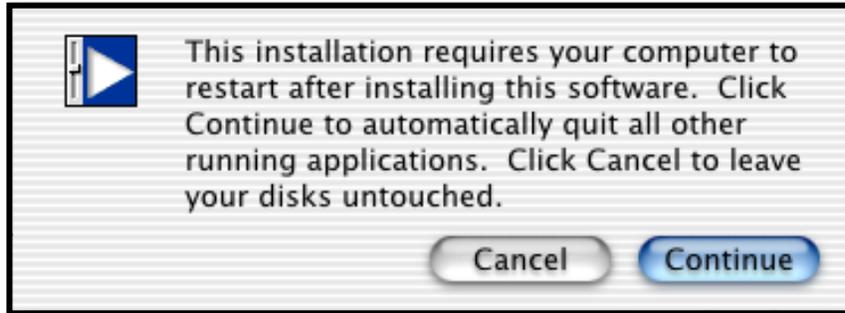
 **You must have at least Administrator privileges to make changes in ADI ADSL OSX; otherwise, you will see a sequence of screens that will deny you access to make changes. If you are not authorized, clicking Cancel or OK will get you back to continue the Installation.**



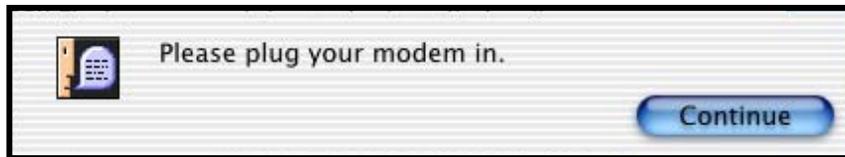
6. Click **Continue**.



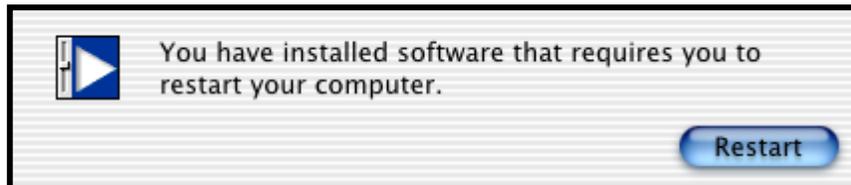
7. Click **Install**.



8. Please save your work and close all other programs and then click **Continue**. (A temporary **Installing** screen will appear temporarily to show the numbers of Items remaining to be installed.)



9. Plug the modem in and click **Continue**. (Please refer to the **Installation of The Modem** section on page 10.)



10. Click **Restart**.



11. After the system reboots, click **OK**.
12. Verify Installation of the modem. (See page 11.)

INSTALLATION OF THE MODEM

1. Plug one end of the provided RJ11 telephone cable into the ADSL wall connector or the ADSL splitter box provided by your ADSL provider.



2. Plug the other end of the RJ11 telephone cable into the LINE port (phone jack receptacle) of the USB modem reference board.
3. Plug one end of the provided flat USB cable into an available USB port on your Macintosh.



4. Plug the other end of the flat USB cable into the USB port of the modem on your reference board.



 Your Macintosh® computer will now detect the modem and load the installed software, enabling you to use your new high-speed ADSL Internet service.

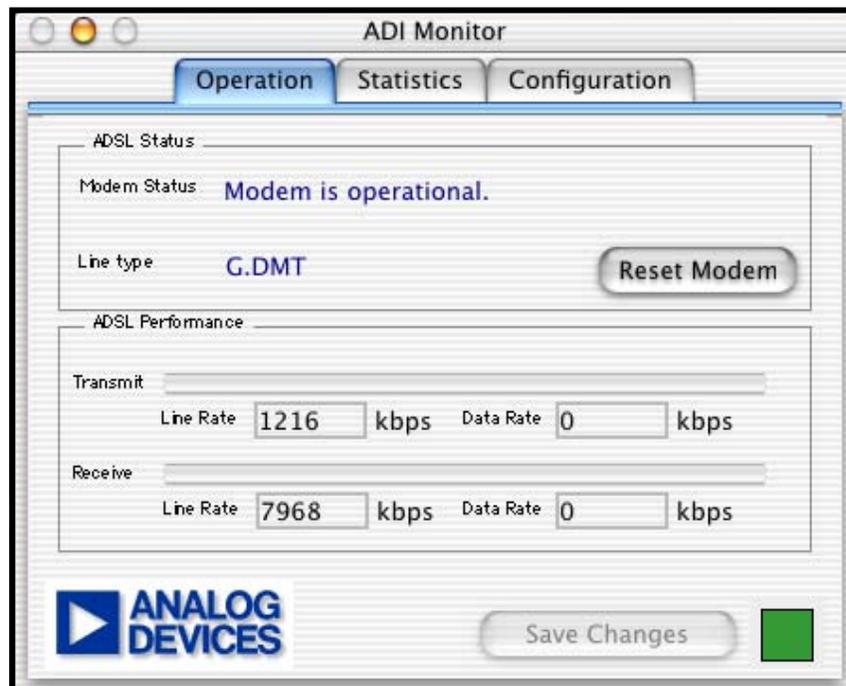
 Before you configure your modem (Configuration section is on page 14), be sure to verify your modem installation.

VERIFY INSTALLATION OF THE MODEM

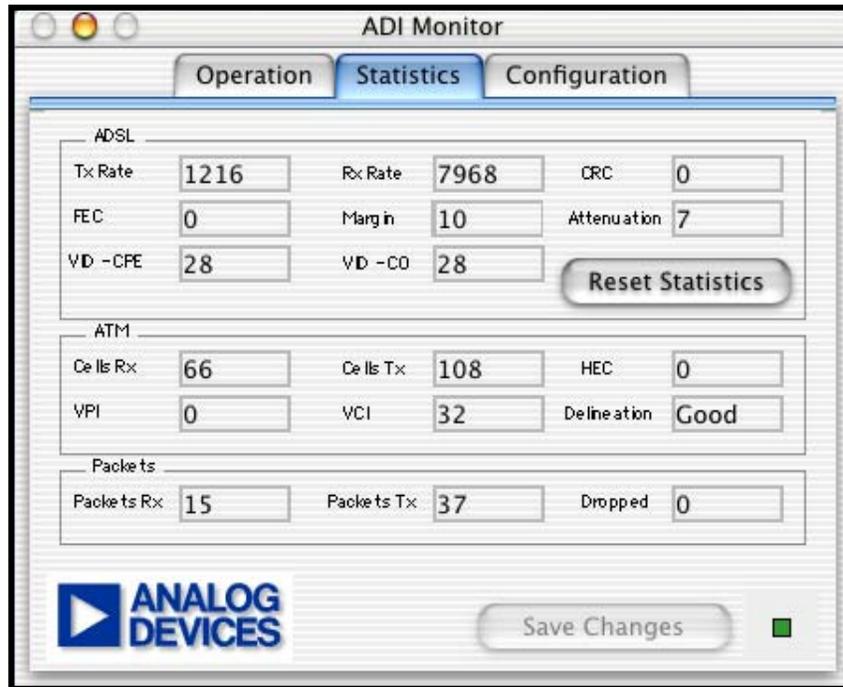
1. At the Desktop, Locate the **ADSL Monitor** icon.



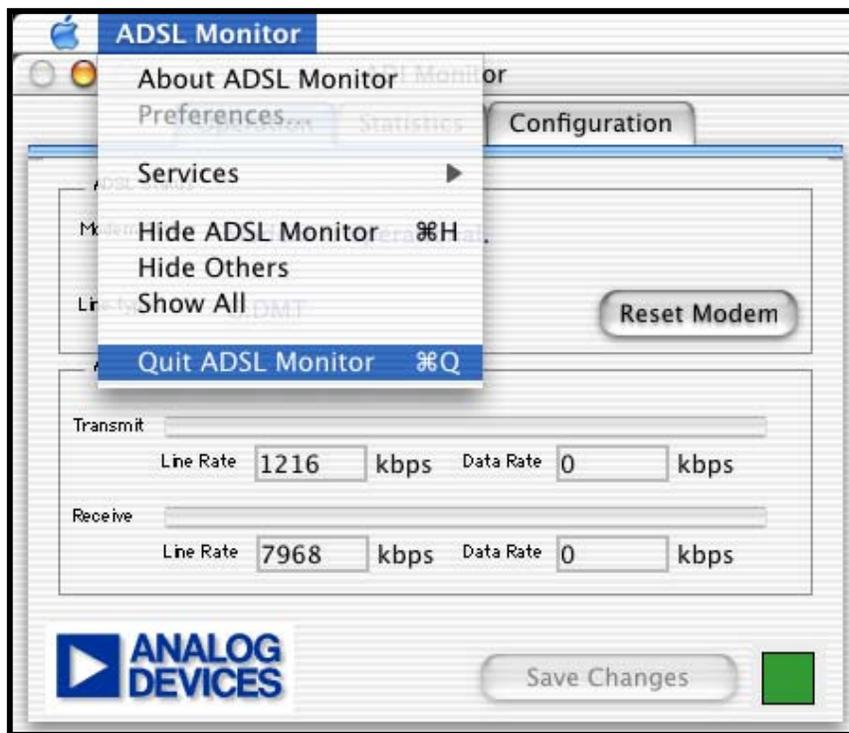
2. Double-click the **ADSL Monitor** icon.



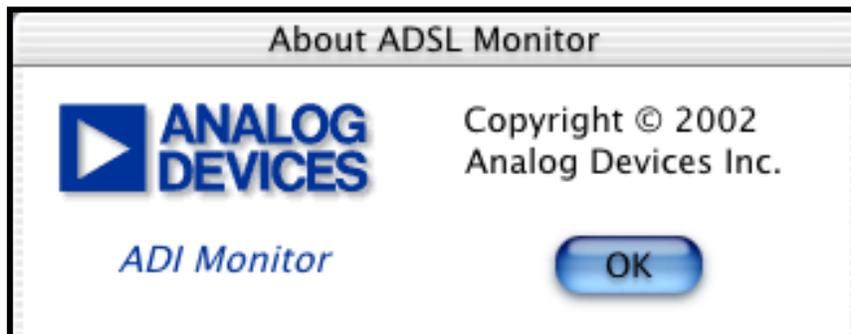
3. Navigate through the Operation, Statistics, and Configuration pages, as needed. (Change settings only on the **Configuration** page.)
4. If you wish to leave this screen, you have the option to:
 - Click the **Statistics** tab (also shown on the Troubleshooting page):



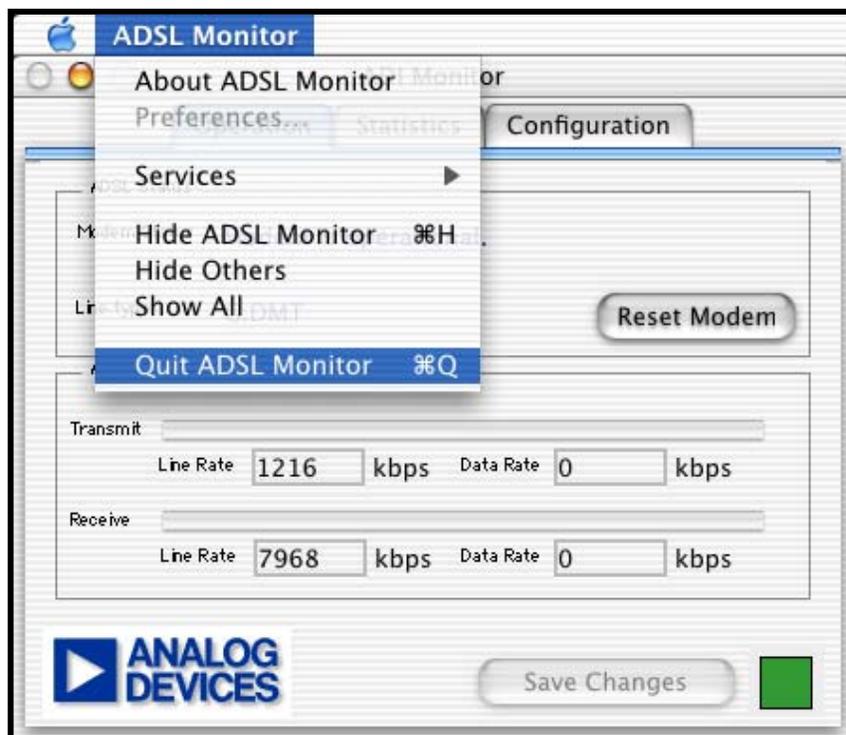
- Select the Configuration tab (You will do that in the Configuration section).
- Minimize the screen by clicking the yellow LED on the ADI Monitor menu bar.
- See ADSL Monitor options available to you by clicking the **ADSL Monitor** menu on the top menu bar:



- Click **About ADSL Monitor**:



- Quit ADSL Monitor:



5. Click **Quit ADSL Monitor**.

CONFIGURATION

In most cases, you will not have to change the ADSL-specific configuration parameters for your modem. Your ADSL provider will have customized the software so that it installs with the provider's defaults, which are required for connecting to the provider's own equipment.

ADSL

ADSL parameters can be changed at the Configuration page of ADI Monitor, or by manually editing the ADI USB ADSL Preferences file in the Preferences subfolder of the System folder.

ADSL MONITOR

Each parameter setting is specific to your ADSL provider's network configuration; therefore, either keep the default settings, or obtain alternate settings from your ADSL provider.

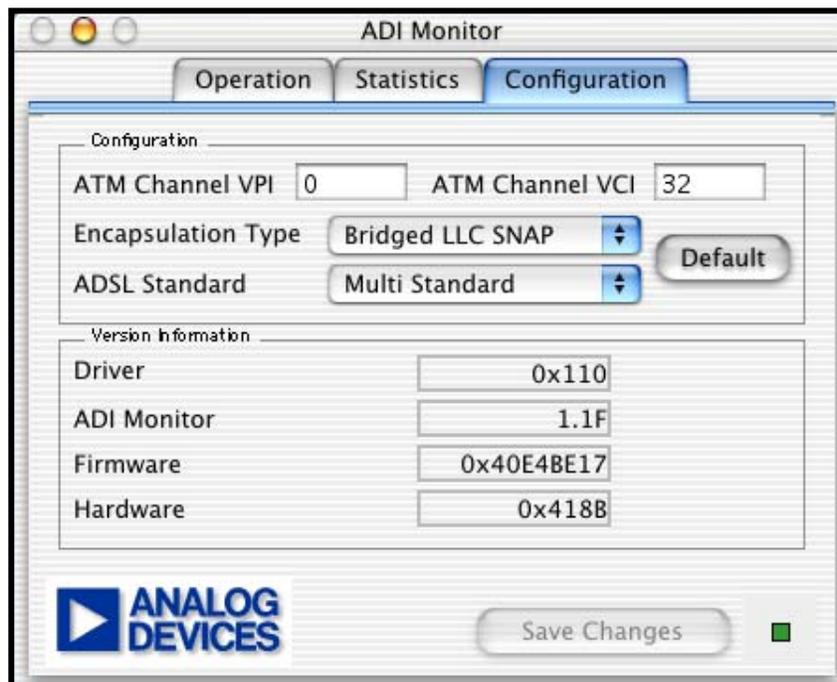
The settings that can be changed on the Configuration page of ADSL Monitor are:

- ATM Channel VPI
- ATM Channel VCI
- Encapsulation Type

1. If you have left the ADSL Monitor, go back to the Desktop and locate the **ADSL Monitor** icon.



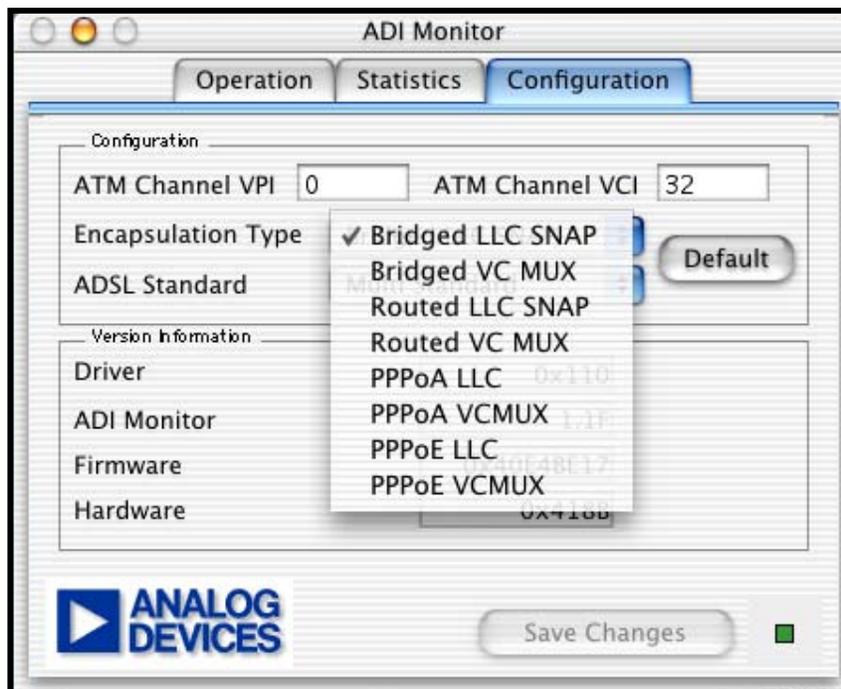
2. Double-click the **ADSL Monitor** icon and click the **Configuration** tab.



The **Configuration** page appears with Encapsulation Type Bridged LLC SNAP. The VPI and VCI options control the path of the ATM packets that are sent by the modem.

The value that you choose for Encapsulation Type will determine whether your modem is exposed to the operating system as a network-type device or as a modem-type device. The choices that begin with PPP will cause the operating system to view your modem as a modem-type device, and the remaining options will cause the operating system to view your modem as an Ethernet-type device.

3. Click the **Bridged LLC SNAP** menu.



⚠ If you change any settings on the Configuration page of the ADI Monitor, you must Save Changes. Then close the ADI Monitor, unplug the USB cable from your modem, then re-plug the USB cable into the modem; *otherwise*, the new settings will not take

ADI USB ADSL PREFERENCES FILE

The ADI USB ADSL Preferences file is located in the Preferences subfolder of the System folder.

⚠ Because this file contains settings that enable your modem to properly connect to your ADSL provider's network, realize that changing these settings can result in your no longer being able to connect to the network.

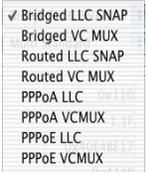
A sample of settings that can be found in the ADI USB ADSL Preferences file:

```
OPTN0=80020066
OPTN15=09090909
VPI=00000000
VCI=00000020
Encapsulation=00000001
Linetype=00000004
RatePollFreq=00000009
PreferredLocale=00000000
AutoConfigEnable=00000001
EnableAdmin=00000001
DefaultVPI=00000000
DefaultVCI=00000020
DefaultEncap=00000001
DefaultLinetype=00000004
DefaultOAM=00000001
```

See Table 2, Preference File Options, for a description of each option and the possible values that can be assigned to them.

i Be sure to use the **OSX vi Editor** to edit this file.

Table 2. Preference File Options

Option	Description and possible values
OPTN*	The OPTN* options control settings related to the operation of the modem. You should only change these values to new values you receive from your ADSL provider.
VPI, VCI	The VPI and VCI options control the path of the ATM packets that are sent by the modem. You should only change these values to new values you receive from your ADSL provider.
Encapsulation	The encapsulation option controls how the network data from the operating system is packaged before it is sent out over the ADSL link. This option also affects how the modem is exposed to the operating system. Possible values are 1- 8, paired directly with the choices in the Encapsulation Type menu of "ADSL Monitor." 
Linetype	The Linetype option is not currently used; therefore, you should not change this value.
RatePollFreq	The RatePollFreq option controls the rate at which the "ADSL Monitor" program queries the driver for rate information that it uses for the "ADSL Performance" pane of the Operation page. Specifying a smaller number for RatePollFreq will result in more-frequent updating of the performance numbers. The default value of 9 seems to be the best choice for

Option (continued)	Description and possible values
RatePollFreq.	
PreferredLocale	The PreferredLocale option controls what language the “ADI Monitor” program uses. The possible values are: 00000001 – English 00000004 – Italian 00000007 – Dutch 00000002 – French 00000005 – Spanish 00000003 – German 00000006 – Portuguese
AutoConfigEnable	0 = Don’t configure TCP/IP, Modem and RemoteAccess on OS 8/9 Don’t configure Location on OS X 1 = Configure all items
EnableAdmin	0 = “CONFIGURATION” tab in Monitor application will be read-only 1 = “CONFIGURATION” tab in Monitor application will be accessible
DefaultVPI/VCI/Encap/LineType	The values will be set on the driver by clicking the “default” button on the “Configuration” tab.
DefaultOAM	0 = Reply to OAM every time regarding connection status, VCI, and VPI 1 = Reply to OAM cells which have the same VCI- and VPI-like driver setting 2 = Reply to OAM cells which have the same VCI- and VPI-like driver setting after making a connection

MACINTOSH® OS X

⚠ Once you have properly configured your ADSL modem, the Macintosh® OSX operating system needs to know how to properly communicate with your modem’s software.
THE INSTALLER CONFIGURES THIS AUTOMATICALLY.
However, if you need to change the configuration, you should configure the system software based on whether your ADSL provider expects your modem to communicate as

i If you are *not* going to change the configuration, disregard the **TCP/IP** instructions and proceed to the INTERNET CONNECT (REMOTE ACCESS) section.

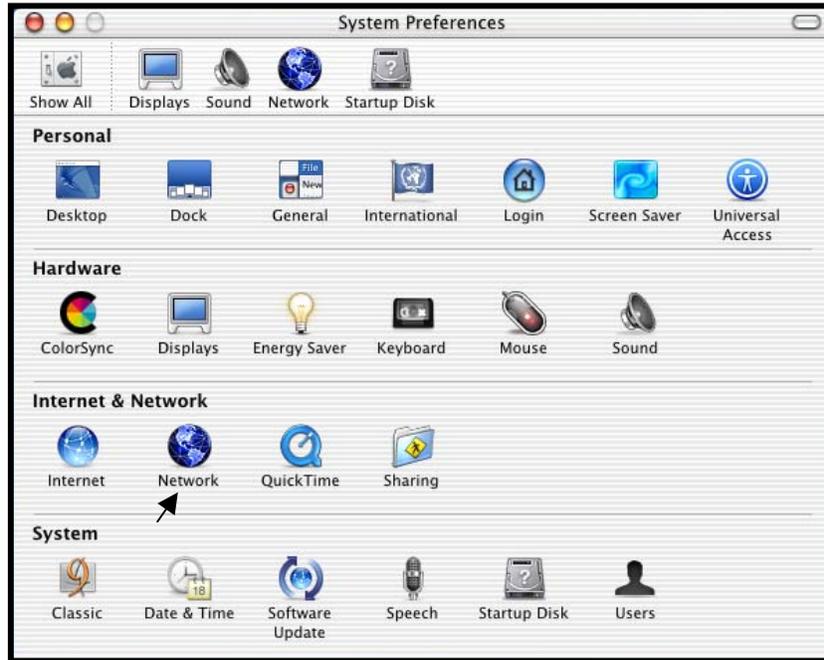
If your choice for the ADSL Encapsulation Type option is one of the PPP options, your ADSL provider will expect your modem to communicate as a standard modem using the PPP protocol. This will require your configuring TCP/IP *and* Remote Access.

If your Encapsulation Type is *not* one of the PPP options, your ADSL provider will expect your modem to communicate as an Ethernet device. See TCP/IP configuration in the next paragraph.

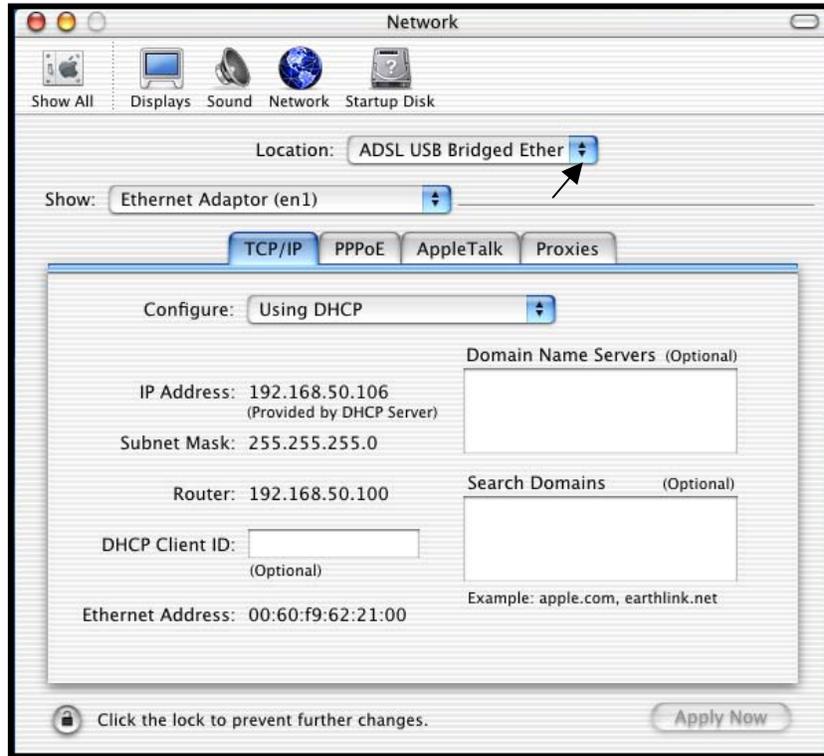
TCP/IP

The most commonly used *language*, or protocol used to communicate over the Internet is called TCP/IP (Transmission Control Protocol / Internet Protocol). You will operate your modem in either *Ethernet* mode or *Modem* mode.

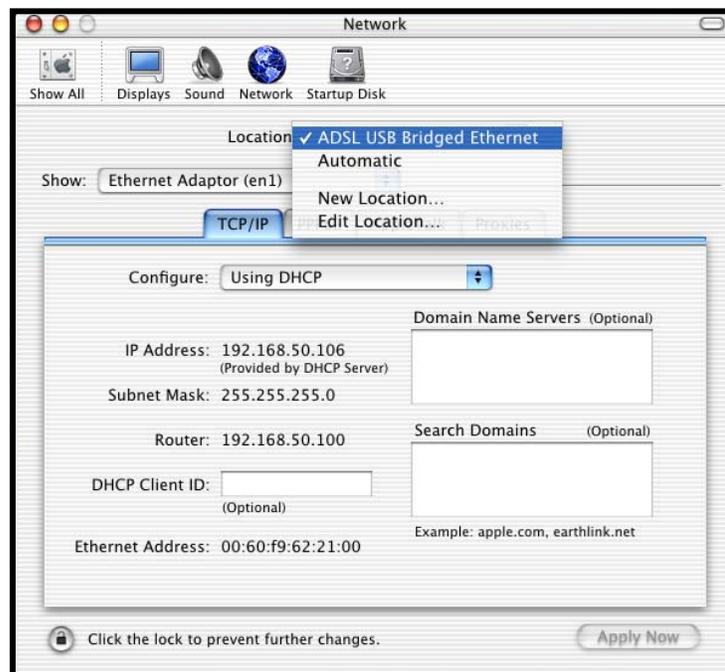
1. Go to the **System Preferences** submenu of the Apple® menu.



2. Select and click the **Network** icon.

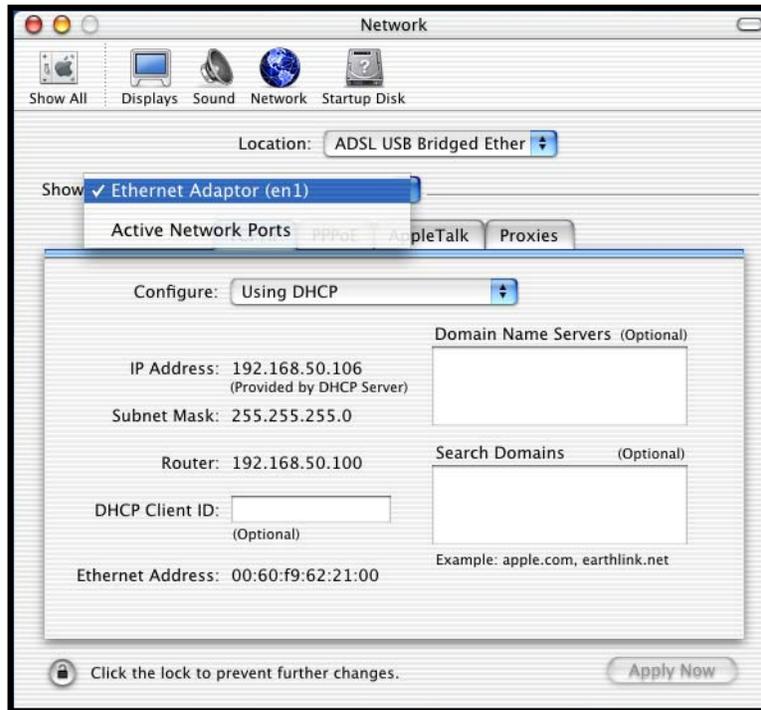


3. Open the **Location:** menu.



4. For *Location:* Select **ADSL USB Bridged Ethernet** if Encapsulation is Bridged XXX.

i Select **ADSL USB Routed IP** if Encapsulation is Routed XXX.
 Select **ADSL USB PPPoE/PPPoA** if Encapsulation is PPPoX.

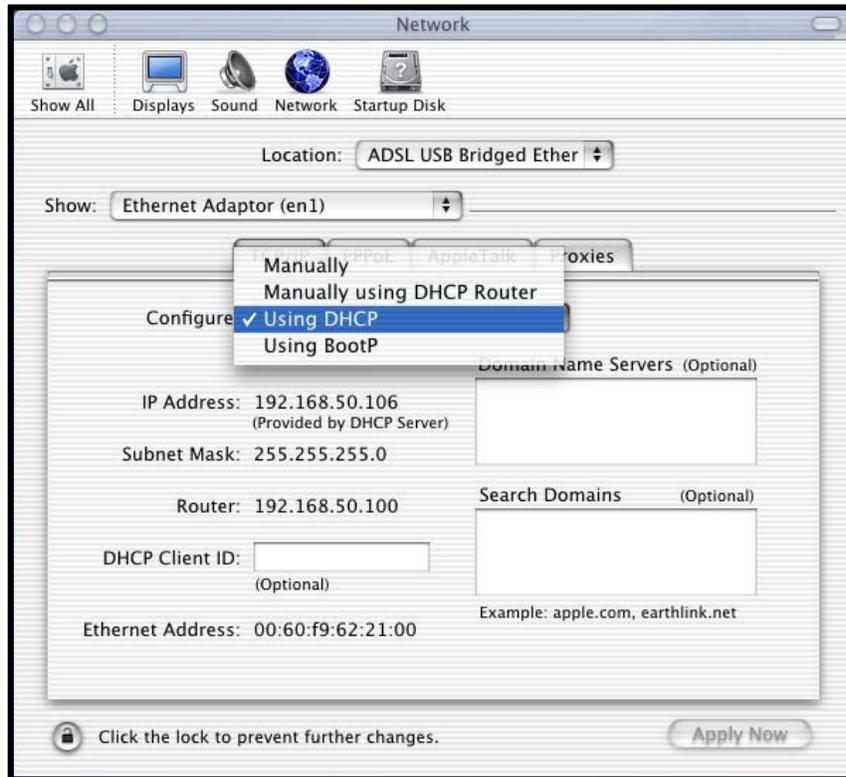


5. For *Show*: select **Ethernet Adaptor (en1)**

6. Click **Apply Now**.

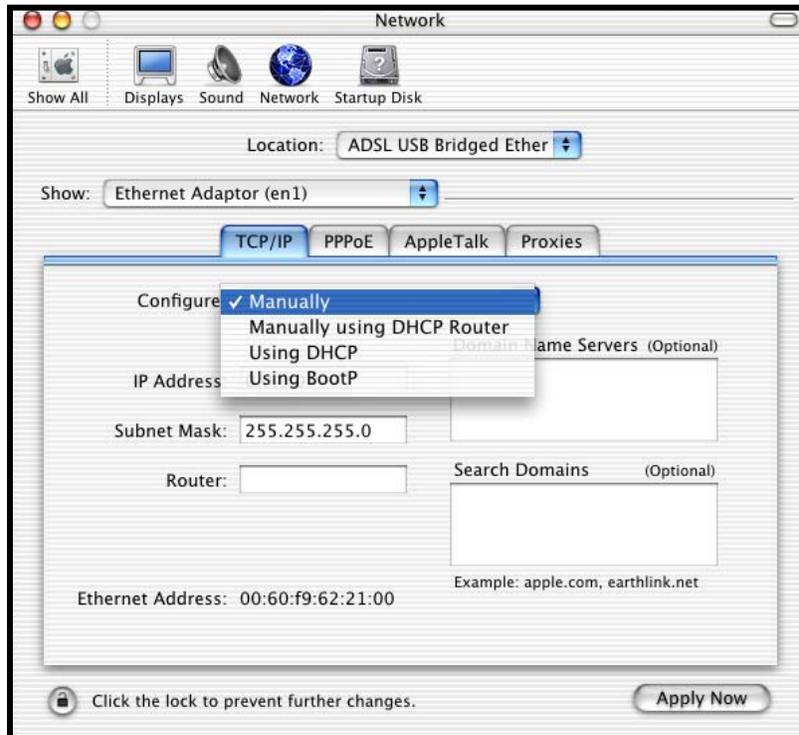
Most ADSL providers will offer DHCP (Dynamic Host Configuration Protocol) as their IP Address. DHCP will automatically set up the proper numbers when your connection is established (as shown in the *Ethernet Mode* screen above).

i You should choose **Using DHCP Server** if you do *not* see an IP Address in the numbering format: **XXX.XXX.XXX.XXX**. They do not appear in the example above.

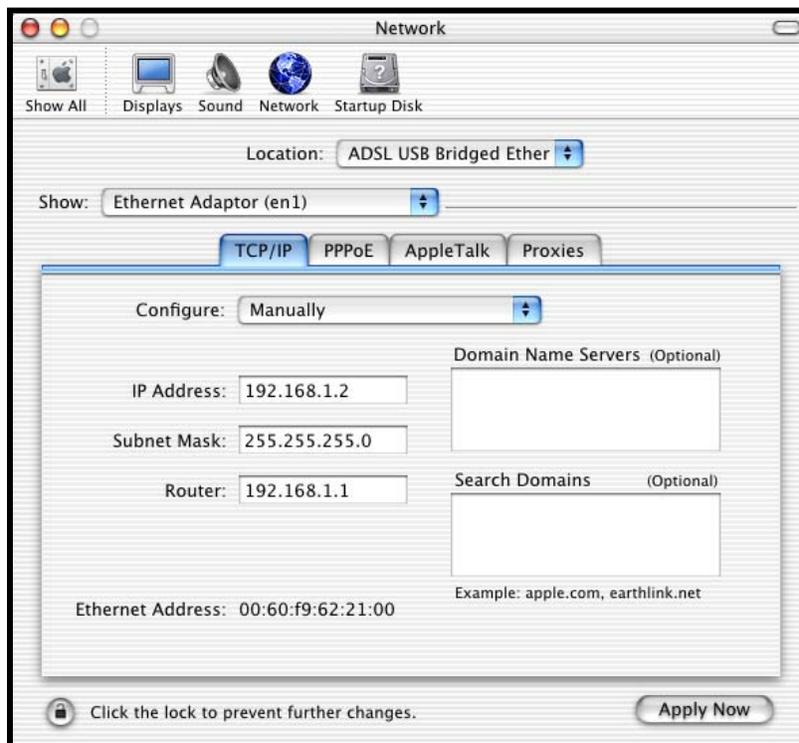


7. For *Configure*: select **Using DHCP Server** from the drop-down menu.

 Some providers will want you to use specific numbers. In that case, select **Configure: Manually** from the drop-down menu.

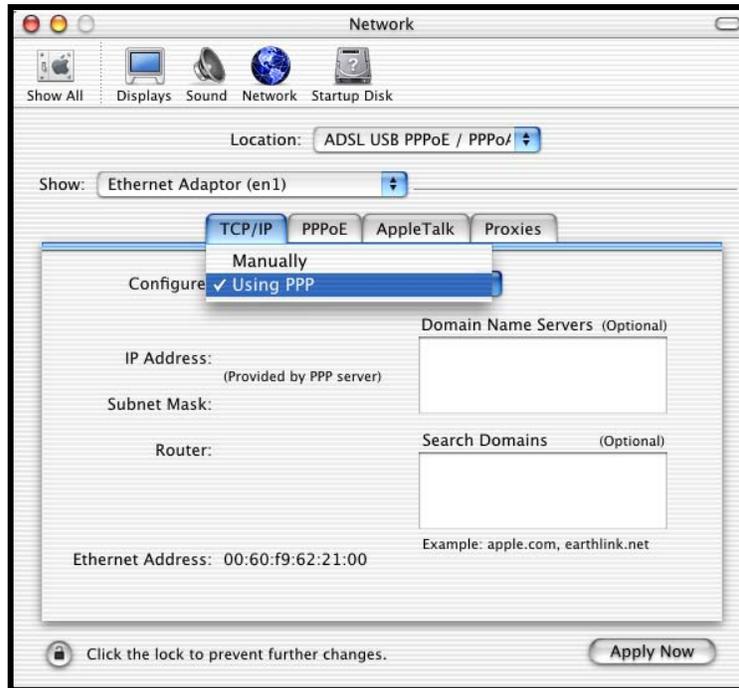


8. For *Configure*: select **Manually**.

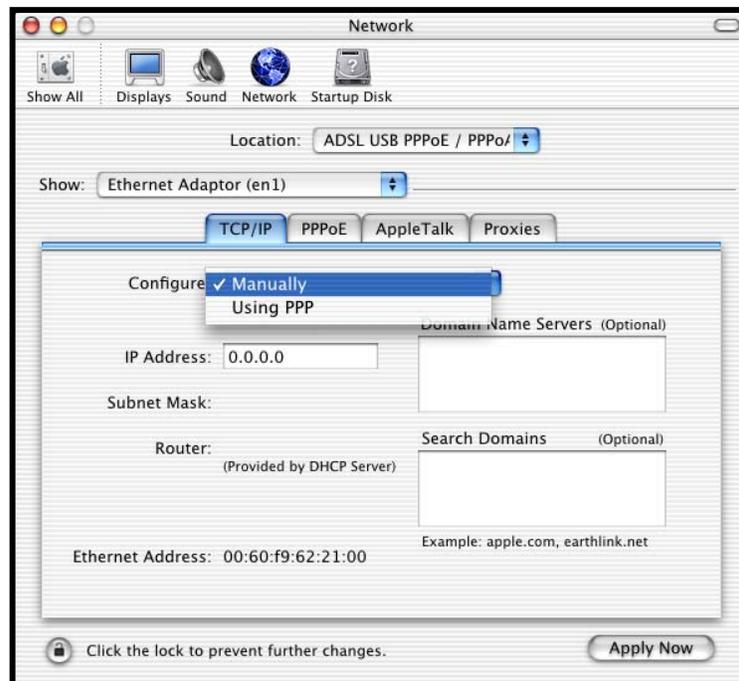


9. Enter the *IP Address*, *Subnet Mask*, and *Router* data.

i If Encapsulation is PPPoX, you have Configuration options of **Manually** or **Using PPP**. The choice is determined by your ADSL service provider.



10. Select **Using PPP**.



11. Select **Manually**.

12. Click **Apply Now**.

⚠ If your ADSL service provider does *not* support *Ethernet* mode and you are connecting to the ADSL provider via PPP protocol, you must continue on to the INTERNET CONNECT (REMOTE ACCESS) section below.

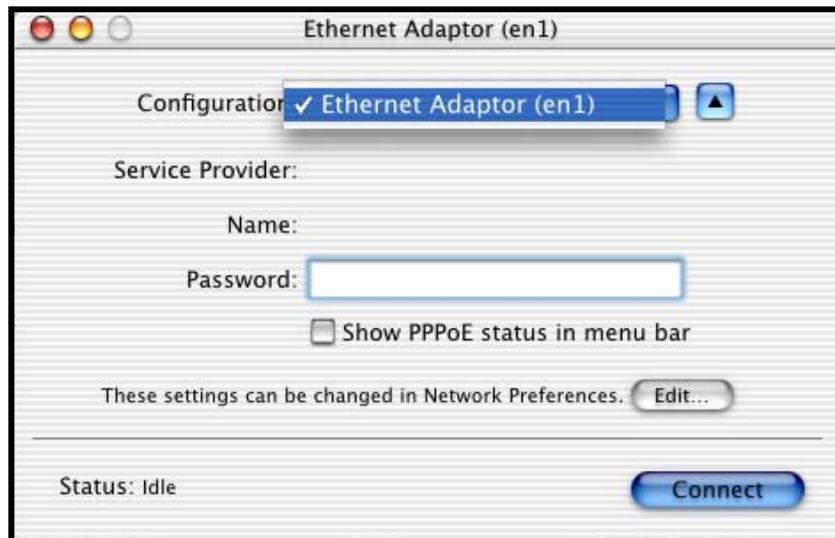
INTERNET CONNECT (REMOTE ACCESS)

When your modem is configured for *Ethernet* mode, the Macintosh® OS X operating system actually views your ADSL modem as if it were a regular Ethernet network adapter, which is the easiest type of configuration to use. Unfortunately, most ADSL providers do not support this type of connection.

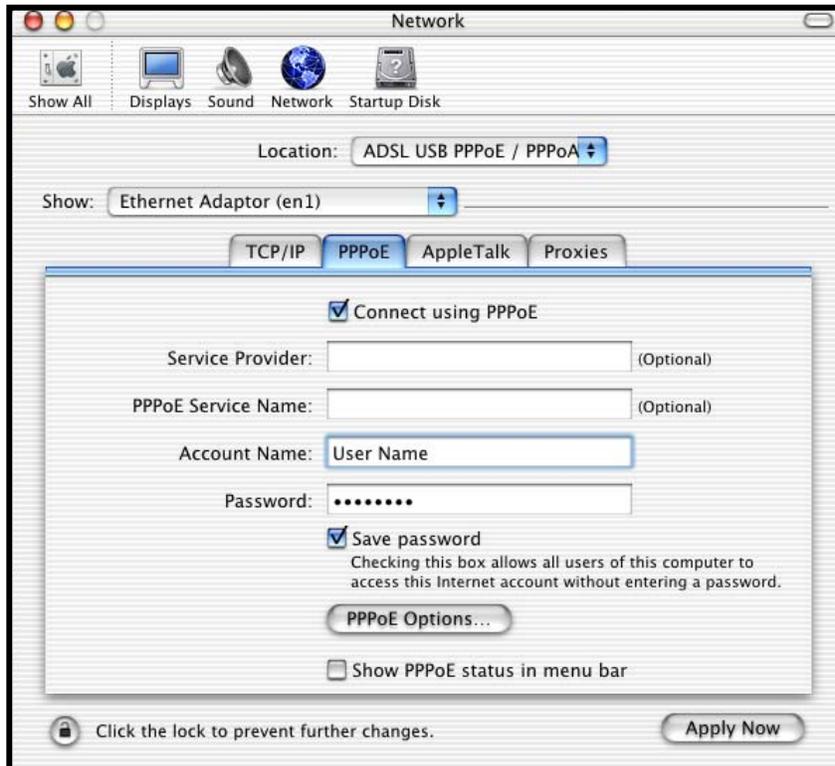
When the Macintosh® OS X operating system is configured for *Modem* mode, it actually views your ADSL modem as a 'regular' analog modem. This does not affect the performance of your high-speed Internet connection; however, it does affect the way you configure the operating system to complete the connection. Because the operating system thinks that you have a 'regular' modem attached to your computer, you must configure the Apple® Internet Connect Dialer application to connect to the Internet.



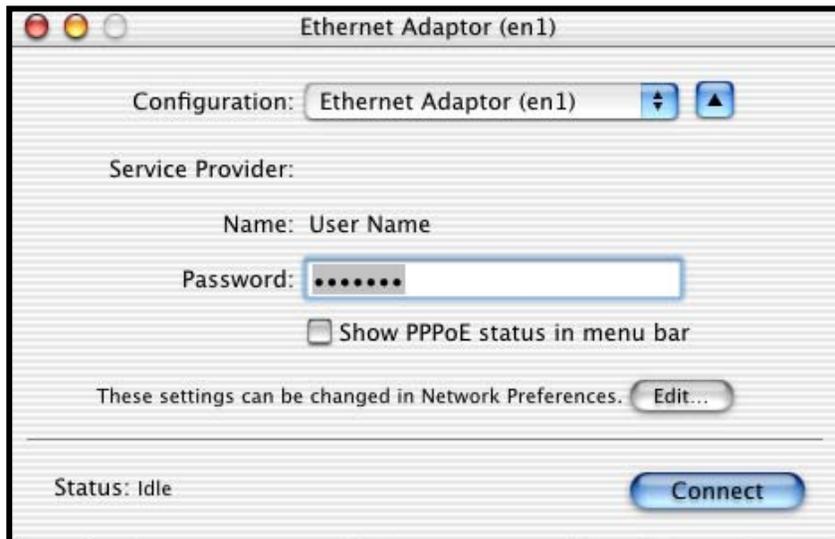
1. Select and double-click the **Internet Connect** icon from the dock bar or from the "Applications" folder.



2. For Configuration: Select **Ethernet Adaptor (en1)**.
3. Click the **Edit** button to open Network (Preferences) page.



4. Select the **PPPoE** tab. (If Connect using PPPoE is not already checked, select it.)
5. Enter your *User Name* in the Account Name window.
6. Enter your *Password* in the Password window.
7. Click **Apply Now**. (This will update user name and password in Internet Connect dialog.)
8. Close the Network screen.



9. Click **Connect**.

⚠ It is critical that these settings be correct for the ADSL modem to work correctly.