

Wireless USB Modem

Installation Guide



1: Introducing the USB modem

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USB modem

The USB modem is accessories for your PC that allow you to connect to the Internet, send and receive e-mail, connect to a corporate network/VPN, or view streaming video, without the need of a network cable or phone line.

The USB modem fits into the standard USB port available on most notebook PCs.

Supported operating systems

The USB modem work in:

- Notebook PCs running Windows 2000 and XP.

HSDPA, UMTS, EDGE, and GPRS service support

GPRS, EDGE, UMTS, and HSDPA are add-on data services to GSM mobile phone networks. The maximum data speeds when connected on these services are:

- GPRS(General Packet Radio Service) – 56 kbps
- EDGE(Enhanced Data GSM Environment) – 216 kbps
- UMTS(Universal Mobile Telecommunications System) – 384 kbps
- HSDPA(High Speed Download Packet Access) – up to 1.8 Mbps on the downlink (receive) with 500 to 800 kbps typical

GPRS and EDGE are 2G(second generation) data services.

UMTS and HSDPA are 3G(third generation) data services.

When establishing a connection, your USB modem uses the fastest available service. If, for example, you are using an USB modem in an area that has GPRS and EDGE service but not UMTS or HSDPA service, the USB modem connects using EDGE service.

These data connections are Internet connections. Once the connection is established, you can connect to any web site accessible through the Internet

or use Internet services(such as e-mail).

Frequency band support

Every GSM network operates on one of these radio frequency bands, in providing 2G(GPRS or EDGE) service:

- 850 MHz band – (also called the cellular band) used by some North American service providers
- 900 MHz band – used by some European service providers
- 1800 MHz band – used by some European and Asian service providers
- 1900 MHz band – (also called the PCS band) used by many North American service providers

Every network that offers 3G UMTS/HSDPA service does so on one of these bands:

- WCDMA 2100 – used by European, Asian, and Australian service providers

Your account and coverage area

Companies that operate GSM networks and provide access to those networks are called service providers. You must have an account with a GSM service provider that offers HSDPA or UMTS service to use the USB modem's 3G capability. (The USB modem is backward compatible to 2G service.)

When you obtain your account, you are given a SIM card, also called a "smart card" or "smart chip". (Depending on how you purchased your USB modem, you may already have an account, and your SIM card may have been included in your package.) The SIM card contains account information and must be inserted in the USB modem anytime you use it.

Before you can use the USB modem, you must install the USB modem software and ensure that your USB modem is configured to use your account. Instructions on completing these steps are provided in the chapters that follow.

Once installed and configured, you can connect to the Internet with the USB modem in any area in which you can obtain GPRS, EDGE, UMTS, or HSDPA

service. Your ability to obtain service depends on these factors:

- Proximity to a GSM network – You must be within the coverage area of a GSM network in order to use the USB modem.
- Service provider – If you are within the coverage area of a network that is not operated by your own service provider, you can only obtain service if there is a roaming agreement between your service provider and the network operator.
- Account provisions – Your account may restrict your usage to certain networks or limit the amount of time you can use the network.
- Frequency band – You cannot connect to networks operating in bands not supported by your USB modem, regardless of roaming agreements or account provisions.

Most service providers have coverage maps on their web sites.

USB modem software

The USB modem comes with this software(made by Sierra Wireless):

- The Watcher program that you use to manage the USB modem and monitor your connections.
- The driver software that forms the interface between the USB modem and your Windows operating system.
- The Network Adapter Manager software that allows you to switch between the USB modem and other network cards

Before you can begin using the USB modem

Before you can use the USB modem for the first time you must:

1. Install the USB modem software : Watcher, the Network Adapter Manager, and the USB modem driver
2. Insert the SIM into the USB modem and insert the USB modem into your USB port. (Do not insert the USB modem before installing the software.)
3. Obtain a GSM account (if this wasn't done when you purchased the USB modem).
4. Configure the USB modem to use your account (unless it was pre-configured.)
5. If your Internet browser is configured to use a dial-up modem, you may need to set it to use a network card)

Package contents

Your USB modem package contains the following:

- USB modem
- Installation CD containing the USB modem software and this installation guide
- Quick start guide
- Cradle

2: The SIM Card and Your Account

- . Inserting a SIM card into your USB modem
- . Removing a SIM card

You require a GSM account and a SIM(Subscriber Identity Module)card to use the USB modem. The SIM card is a small chip(about the size of a postage stamp) that you insert into the USB modem. The SIM contains account information used by the network to validate your access.

Depending on how you purchased your USB modem, you may already have an account. In this case, the SIM should be included in your package. Otherwise, your retailer should direct you to a local company that provides GSM service.

To activate an account, the service provider needs from you:

- Billing information (such as a credit card number) used to collect payment for your network usage
- Possibly the IMEI(International Mobile Equipment Identity)- a number that identifies your device(USB model) on the GSM network.

Your USB modem must be configured to use your account. If purchased from a service provider, your USB modem may have been pre-configured. Otherwise, you must set up a profile in Watcher.

If you change GSM service providers(such as if you move to a new city), you will need a new SIM card from your new service provider. You will also need to set up a new profile.

Inserting a SIM card into your USB modem

To install your SIM card into the USB modem, follow these steps:

1. Open SIM card door on the back of USB modem.
2. Insert SIM card into SIM card slot
3. Close SIM card door



Removing a SIM card

To remove your SIM card, follow these steps:

1. Power off : If your PC is connected with USB modem, Select "Tool/Radio off" on Watcher.
2. Remove USB modem from USB port of your PC.
3. Open SIM card door on back of SIM card.
4. Remove SIM card from SIM card slot, Close SIM card door.

3: Installing the 3G Watcher

1. Installation Wizard

Double-click on the **3G_Watcher.msi** icon and follow the Installation Wizard.

Click on the **Next** button on the Wizard to move next step.



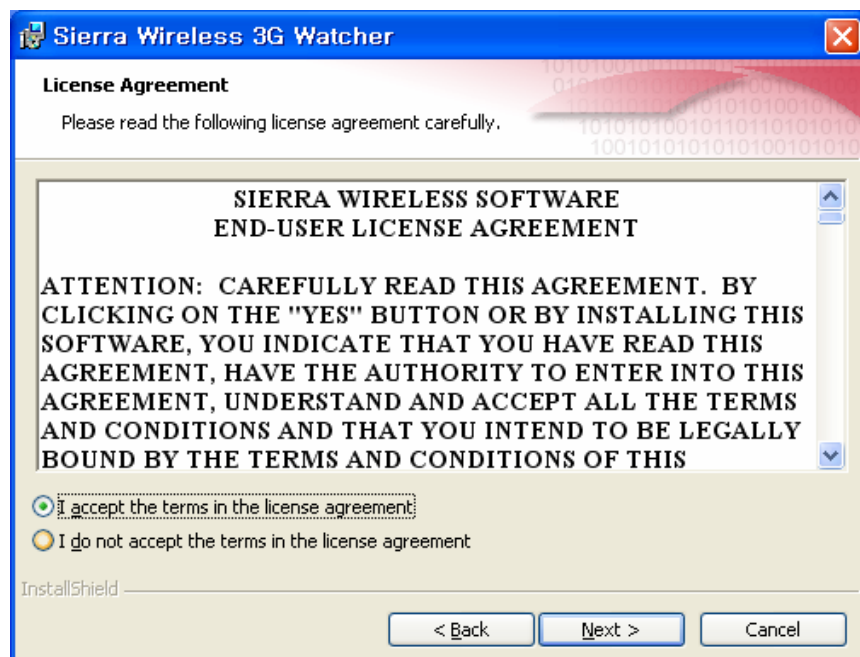
2. Select the Region

Select the region where the product has been purchased and click on the **Next** button to proceed further on.



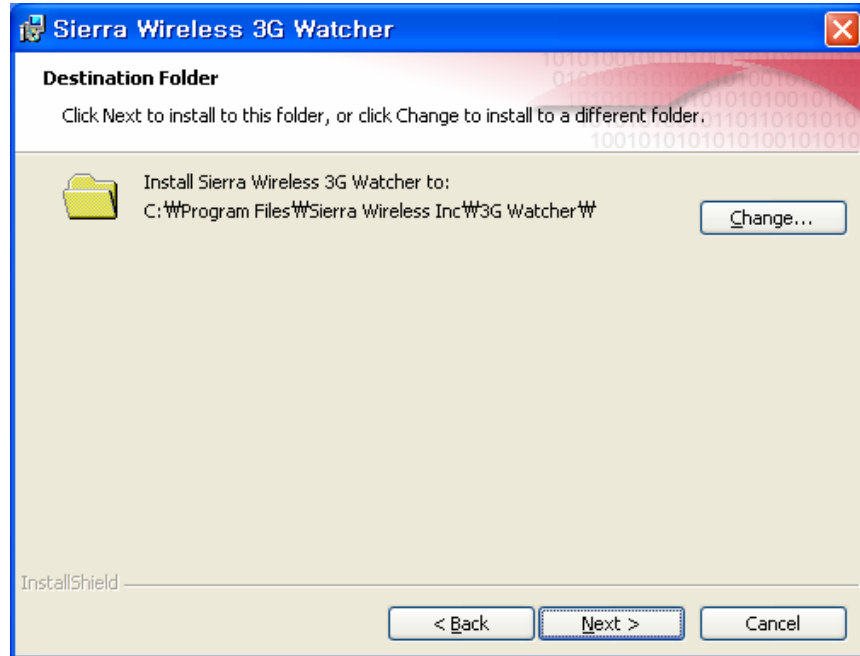
3. License Agreement

Read and Check the License Agreement. Select **I accept the terms in the license agreement** if you agree with the terms and click on the **Next** button to proceed further on.



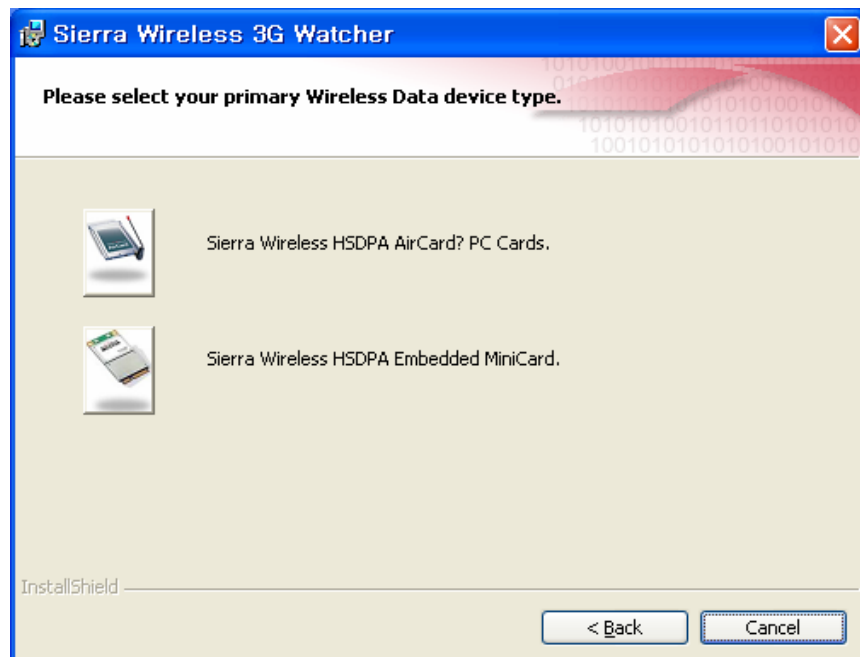
4. Selecting destination folder for the installation

To change the destination folder, click on the **Change** button and install or click on the **Next** button to install the program on the default folder



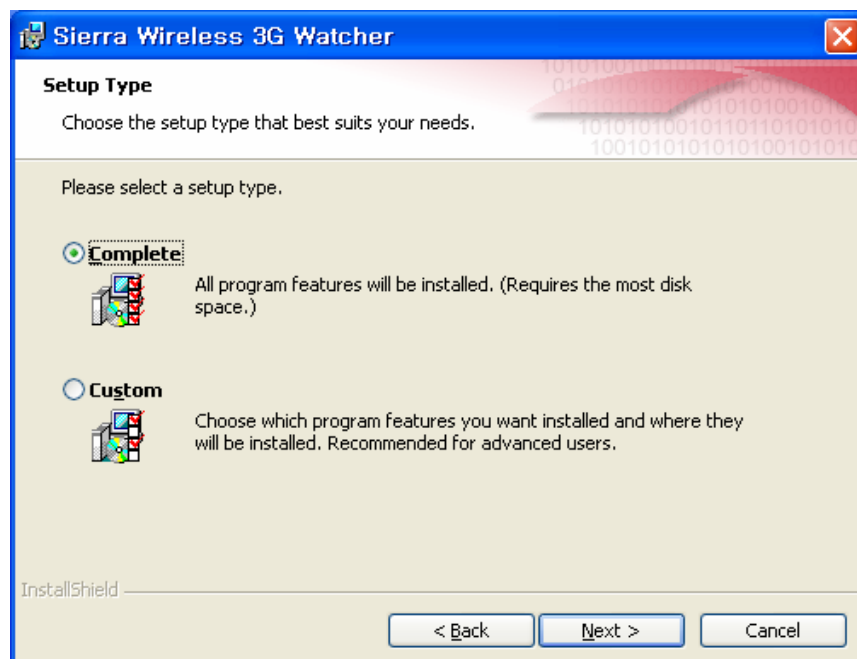
5. Selecting a Modem

Click on the Icon of **Sierra Wireless HSDPA Embedded MiniCard** to proceed further on



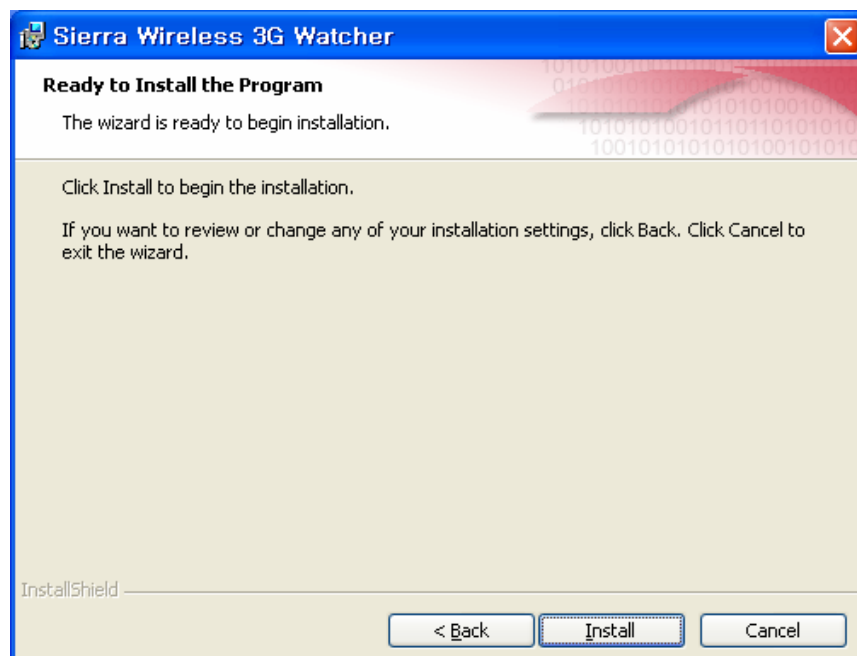
6. Setup Type

Select **Complete** and click on the **Next** button to proceed further on.



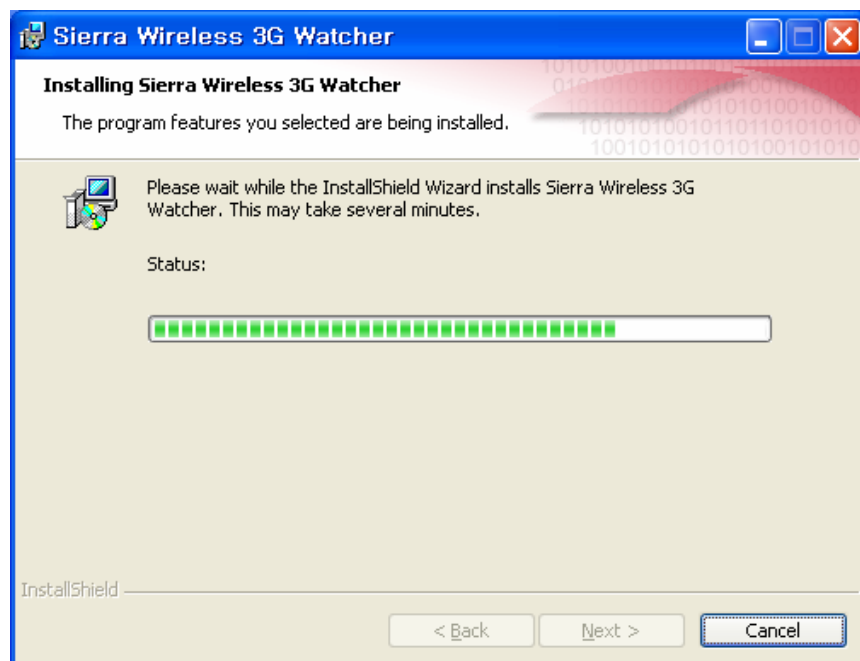
7. Ready to Install the Program

Choose the **Install** button to install the program



8. Installing Sierra Wireless 3G Watcher

After the automatic installation, wait until the complete page is displayed.



9. Completing the installation

Click on the **Finish** button to complete the installation.

For more details about the use this program, refer to the **help** menu on the Watcher program



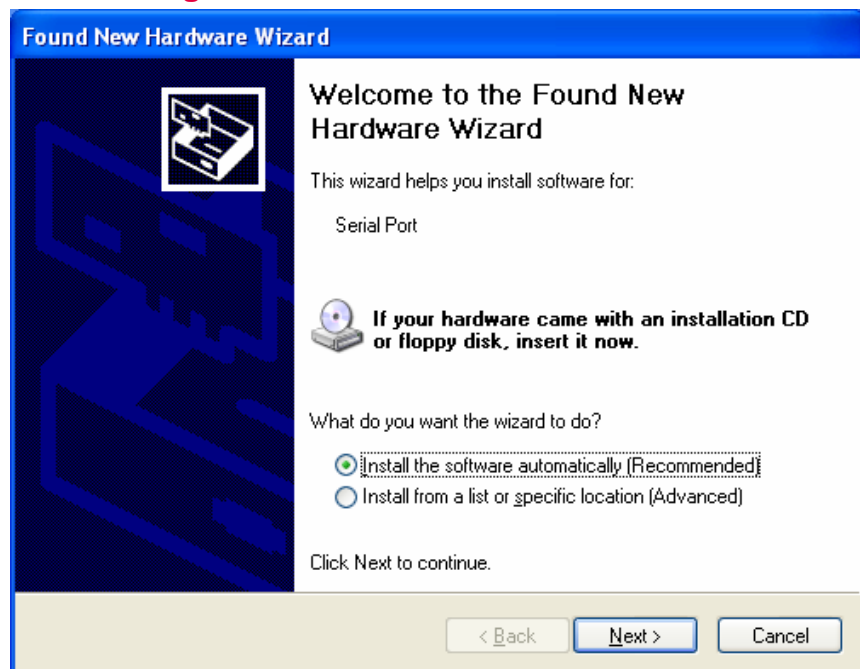
10. Installing the USB Device

For an Automatic installation, you have to connect the modem to an USB port of

your computer



11. Installing the Serial Port



12. Installing the Network Adapter

After the automatic installation of the Network Adapter, double-click on the icon of the 3G Watcher on your desktop

Found New Hardware Wizard



Welcome to the Found New Hardware Wizard

This wizard helps you install software for:

Network Adapter



If your hardware came with an installation CD or floppy disk, insert it now.

What do you want the wizard to do?

- Install the software automatically (Recommended)
- Install from a list or specific location (Advanced)

Click Next to continue.

< Back

Next >

Cancel

4: Configuring Your Account

. Setting up a profile

Profiles contain account information used by the USB modem to establish connections. At least one profile must be set up on the USB modem before you can use it. The profiles(s) may have been stored on the USB modem before you purchased it.

Otherwise, your service provider should give you all the information you need to set up the profile(s) you require.

Depending on your service provider, some or all of this information must be entered into your profile:

- User Name
- Password
- APN(Access Point Name)
- IP(Internet Protocol) Address (if the address is not automatically assigned by the network)
- Use of IP header compression
- DNS(Domain Name Server) address or addresses

Your service provider may give you only one APN in which case you require only one profile. Some service providers assign separate APNs for separate purposes. For example, some service providers supply one APN to use for Internet browsing and a different APN to use with a VPN. In this case you must set up multiple profiles. The USB modem allows for up to sixteen profiles.

Most service providers have one or two standard profiles that all or most of their subscribers are expected to use. Most of these standard profiles have been pre-defined in Watcher, allowing you to select a standard profiles, rather than creating it manually.

One of your profiles must be set as the “default” profile. This is the one that is used if you select the Connect button without selecting a profile. The default profile is also used if you set the USB modem to autoconnect. If you are using the USB modem to access a network that requires you to provide a password each time you connect, you must set the connection mode for your profile to

prompt for password(in which case you must connect manually).

Setting up a profile

To determine whether you have a profile:

1. Insert the SIM into the USB modem if it is not already inserted.
2. Insert the USB modem into the USB port if it is not already inserted.
3. If Watcher is not running, start Watcher, by selecting Start > Programs > Sierra Wireless > 3G Watcher > 3G Watcher



3G Watcher

or double-click the desktop shortcut.

If Watcher detects that no profile has been set up, you are prompted, "Would you like to configure a profile now?" Select Yes.

If this prompt does not appear, your USB modem may have been preconfigured. You can verify that you have a profile by selecting Tools > Connections to access the USB modem tab of the Connections window which lists all profiles.

To create a profile:

1. On the Connections window, select the Add button.
2. If you want to use a pre-defined profile, in the Profile Name field, select the profile from the drop-down list. Then skip to Step 5.
3. Complete the fields in the USB modem Profile window by entering a Profile Name(any meaningful description of the profile, such as the name of your service provider) and User Name, Password, and/or APN, if applicable.
4. Select whether you want to make connections automatically or manually, or whether you are required to provide a password each time you make a connection :
 - If you select Autoconnect, a connection is established automatically whenever you insert the USB modem.
 - If you select Manual, you must select the Connect button on the main Watcher window to make a connection.
 - If you select Prompt for Password, you must select Connect and enter a password to make a connection. Use this option if you have an external device that provides a time-scheduled secure password for your

corporate network.

5. If you want to set Watcher to launch your Internet browser, VPN, or any other program automatically, or if your service provide specified an IP address, DNS address(es), or Quality of Service (QoS) parameters, select the Advanced button to open the Advanced Profile window. Otherwise, click OK and skip to Step 12.
6. On the Autolaunch tab, select which application, if any, you want Watcher to automatically launch when a connection is established with this profile:
 - **None** – Select this if you do not want any application to be autolaunched.
 - **Browser** – Select this if you want Watcher to autolaunch your Internet browser (such as Internet Explorer or Netscape Communicator) when a connection is established with this profile. In the URL field, specify the web site (such as <http://www.sierrawireless.com>) you want to view on connection.
 - **Microsoft VPN (PPTP) Connection** – Select this if you want Watcher to autolaunch a VPN connection that you have set up in Windows when a GPRS, EDGE, or UMTS connection is established with this profile. From the drop-down list, select the VPN connection.
 - **Application (VPN Client, etc...)** – Select this if you want Watcher to autolaunch an installed VPN program, or any other program, when a GPRS, EDGE, or UMTS connection is established with this profile, In the field below, enter the path to the program, or use the Browse button to locate the program.
7. If your service provider has given you an IP address, on the TCP/IP tab, select Use static IP address and enter the address in the field below. Otherwise select Use dynamic IP address. (This is the default because most networks use dynamic IP addressing.) Use the check boxes to enable data compression of IP header compression if supported by your service provider.

Note: The Use IP header compression field should NOT be checked unless your service provider is using this compression. The USB modem cannot maintain a connection if this is enabled but not supported on the network.

8. If you have a DNS address or addresses, select the DNS tab and enter the address(es). (In most cases, it is not necessary to enter a DNS address.)

9. If your service provider specifies values for Quality of Service (QoS) parameters, enter those settings on the appropriate tabs (Minimum QoS and Requested QoS). (In most cases it is not necessary to adjust Quality of Service parameters and the tabs do not appear.) Do NOT change any Quality of Service parameters unless advised to do so by your service provider.
10. Select OK to close the Advanced Profile window.
11. Select OK to close the GPRS Profile window.
12. If you have more than one profile, use the Default Profile radio button to select which is the default.(The "default" profile is the one used by the autoconnect feature and is used if you select Connect without selecting a profile.)

5: Watcher™ Basics

- . [Launching Watcher](#)
- . [The Watcher window](#)
- . [Icons and indicators on the main Watcher window](#)
- . [View options](#)
- . [Status icons](#)
- . [Frequency band and network selection](#)
- . [Frequency band selection](#)
- . [Network selection](#)


Watcher is the program you use to manage and monitor your USB modem connections. Watcher allows you to:

- Create an account profile. (This is explained under "The SIM Card and Your Account".)
- Determine signal strength, roaming status, GPRS/EDGE/UMTS/HSDPA availability, and other network connection parameters
- Monitor the status of the USB modem and GSM service
- Initiate data connections
- Enable or disable SIM security that prevents others from using your SIM card if it is lost or stolen
- Set options related to notifications and the Watcher window

If you set your account profile to autoconnect, you do not need to run Watcher when you use the USB modem, but Watcher does provide useful status information.

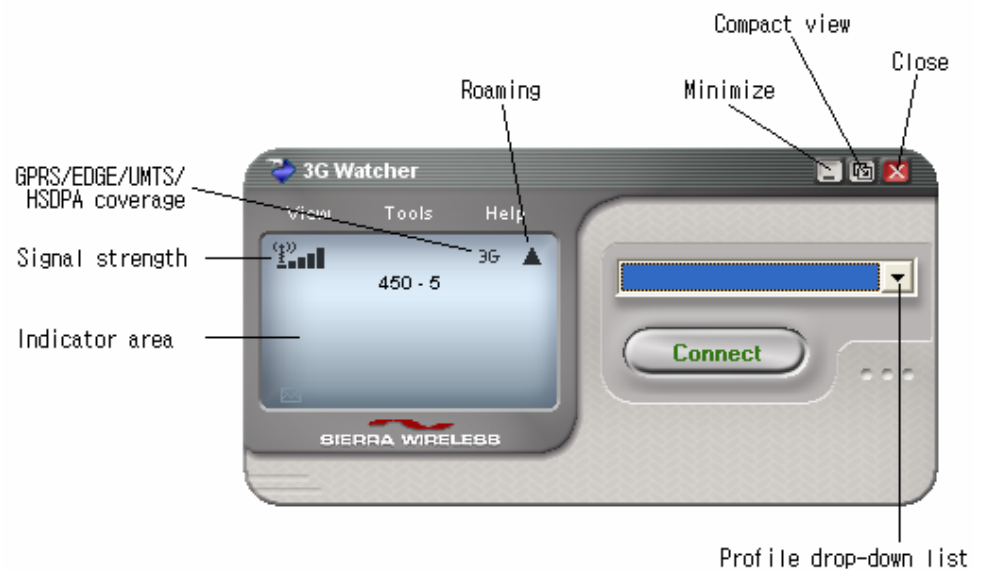
Launching Watcher

On notebook PCs, unless the feature has been disabled, Watcher launches automatically anytime you insert the USB modem. You can also launch Watcher by:

- Double clicking the desktop shortcut,  or
- Selecting **Start > Programs > Sierra Wireless > 3G Watcher > 3G Watcher**

Depending on how your profile is configured, your browser, VPN, or other program may launch automatically anytime you launch Watcher

The Watcher window



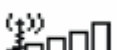
Icons and indicators on the main Watcher window

These icons are used on the main Watcher window:

Icon	Meaning
	Device status. If an USB modem icon with an "X" is displayed, Watcher is unable to detect the USB modem. The ToolTip that displays when you position the mouse pointer over this indicator says, "Device not available". This usually indicates that the USB modem is not fully inserted into the USB port.
	If an USB modem icon with a "?" is displayed, Watcher has detected the USB modem but is unable to communicate with it. The ToolTip that displays when you position the mouse pointer over this indicator says, "Device not responding ". You may be able to resolve this problem by restarting Watcher, by stopping, ejecting, and reinserting the USB modem, or by restarting your PC.



Signal strength and service status. The number of bars beside the antenna increases as signal strength increases, to a maximum of five bars. The ToolTip that displays when you position the mouse pointer over this indicator, shows the numeric value of the RSSI(Received Signal Strength Indication in dBm).



Blank bars in the signal strength indicator mean that you are outside of the coverage area or have insufficient signal strength to maintain a GSM data connection.



A red thermometer icon indicates overheating. In the unlikely event that this occurs, the USB modem suspends data transmission until the temperature drops, then normal operation is resumed. (This usually takes no more than 10 seconds.)

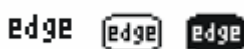


A red flashing antenna icon indicates an antenna problem. If this occurs, try reorienting the antenna and ensure that there is nothing on or near the antenna that could be blocking the signal.

Coverage. The icon shows the best service available where the:



gprs icon – indicates that GPRS is the fastest service available



edge icon – indicates that EDGE is the fastest service available



3G - indicates that UMTS is the fastest service available



HS – indicates that HSDPA is the fastest service available.

When only the letters are displayed, you are within coverage but have not yet acquired the service.

When the indicator has an outline, you have

acquired service and are able to establish a connection.

When the indicator is filled, you have a connection on the service.

Roaming. When displayed, you are connected to a network other than your local service provider's. There may be a surcharge for roaming service.

New SMS message. Select the icon to open the SMS Express window and read your messages. When your SIM becomes full, this icon flashes and turns red.

Data transmission. When this indicator is on and neither circle is shaded, you have a connection but no data transmission is occurring.

A shaded top circle indicates that data is being sent and a shaded bottom circle that data is being received.

These statistics are displayed during GPRS/EDGE/UMTS/HSDPA connections only; no statistics are displayed for dial-up connections.



View options

On notebook PCs, you have these options concerning the Watcher window:

You can enable/disable always on top from the View menu. When enabled, the Watcher window always appears in front of other application windows.




You can switch between the full Watcher window and the compact window from the View menu or by using the Compact View button:



You can use the Minimize button to close the Watcher window but leave the program running.

Status icons

These icons appear in the system tray (usually in the lower right corner of your screen).

Icon	Meaning
	You have a GPRS, EDGE, UMTS, or HSDPA connection.
	You do not have a GPRS, EDGE, UMTS, or HSDPA connection.
	You have one or more unread SMS messages.

Power Down and Up

The power down/power up option allows you to conserve your battery by powering the USB modem down when you are not using it.

To power down the USB modem:

1. Select Tools > Turn Radio off

When powered down, the menu options switches to Turn Radio on and the message, "Radio is Off" is displayed on the Watcher window.

You cannot maintain a connection when the USB modem is powered down.

Frequency band and network selection

Watcher has two options that affect your ability to obtain GPRS, EDGE, UMTS, or HSDPA service in any given area. You can select:

- The frequency band you want to use
- The network you want to use, if you are within the coverage area of more than one network

Frequency band selection

Every GSM network operates on one set of frequency bands. The USB modem is designed to change frequency bands automatically as required to obtain network service. You can also change frequency bands manually from the

Network tab of the Options window (**Tools > Options > Network**).

Note: Unless your service provider specifies otherwise, it is recommended that you use the Auto setting.

Network selection

Depending on your location, you may be within the coverage area of several networks. Your ability to obtain service on each network is dependent on your account.

Your options for network selection are:

- **Automatic** – The USB modem automatically selects a network based on your account and network availability.
- **Manual** – The USB modem scans the area and displays a list of detected GSM networks. You can then choose from a list of available networks.

If you select a network on which you cannot obtain service, the message, “Failed to register with network” appears. You should then choose a different network.

This option is set on the Network tab of the Options window (**Tools > Options > Network**).

6: Technical Specifications

This chapter describes the operation of the LED and provides technical data for USB modem.

LED state		How to interpret
Green	Off	Not Powered
	On	Powered, associated, and authenticated and s/w upgrade but not transmitting or receiving
	Slow Blink	Powered but not associated or authenticated; Searching
	Intermittent Blink	Activity proportional to transmitting/receiving speed
Red	Off	Not Powered
	On	Powered

Radio frequency and electrical specifications

Compliance	GSM Release 99
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Multi-slot class	Class 10
Transmit	PCS: 1850 to 1910 MHz DCS1800: 1710 to 1785 MHz EGSM900: 880 to 915 MHz GSM 850: 824 to 849 MHz WCDMA2100 1920 to 1980 MHz
Receive	PCS: 1930 to 1990 MHz DCS1800: 1805 to 1880 MHz

	EGSM 900: 925 to 960 MHz GSM850: 869 to 894 MHz WCDMA2100: 2110 to 2170 MHz
Channel spacing	200 kHz(GSM) 5 MHz(WCDMA)
Channel raster	200 kHz
Frequency stability	0.1 ppm

Environmental specifications

Operating temperature	-20 to +60 °C
Storage temperature	-30 to +75 °C
Humidity	95%, non-condensing
Vibration	15 g peak 10 to 2000 Hz(non-operating)

7: Regulatory and Safety Information

- . Important notice
- . Safety and hazards

Important notice

Because of the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless network card are used in a normal manner with a well-constructed network, the Sierra Wireless network card should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless and its affiliates accept no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless network card, or for failure of the Sierra Wireless network card to transmit or receive such data.

Safety and hazards

Do not operate your USB modem :

- In areas where blasting is in progress
- Where explosive atmospheres may be present including refueling points, fuel depots, and chemical plants
- Near medical equipment
- Near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, the USB modem **MUST BE POWERED OFF**. Otherwise, the USB modem can transmit signals that could interfere with this equipment.

In an aircraft, the USB modem **MUST BE POWERED OFF**.

Otherwise, the USB modem can transmit signals that could interfere with various onboard systems and may be dangerous to the operation of the aircraft or disrupt the cellular network. Use of a cellular phone in an aircraft is illegal in some jurisdictions. Failure to observe this instruction may lead to suspension or denial of cellular telephone services to the offender, or legal action or both.

Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. The USB modem may be used normally at this time.