



**Mobile
Broadband
ExpressCard**

Mobile Broadband access to the Internet, e-mail, VPNs, two-way SMS, and more.

· Global · Fast · Wireless · Compact

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About this Guide

This guide provides the following information:

- **Everyday Basics:** If you are working with the default settings and want a quick reference for daily activities, read this section.
- **MobiLink Basics:** This section provides an overview of the MobiLink control panel. Read this to familiarize yourself with the control panel options.
- **Connection Basics:** If you had trouble setting up your profile as part of the installation or you want to find out how to automatically connect to the network when you turn your laptop power on, read this section.
- **SMS Basics:** This section shows you how to send and receive SMS.
- **Address Book Basics:** Thinking about sending an SMS to a group of people? You'll want to read this section first.

For installation instructions, please refer to the Quick Start Guide. A printed version of this guide was included in the product box. You'll also find a copy on the CD.

For information on advanced topics not included in this guide, please refer to the MobiLink online help.

Note: MobiLink software is for supported Windows platforms only. Support for Mac OS and Linux is provided through drivers. For more information, see

<http://www.novatelwireless.com/products/expresscard/merlin-xu870.html>.

Everyday Basics

After you install the MobiLink™ software and set up your Merlin™ XU870 ExpressCard for first-time use, it's time to get down to the everyday basics. The following steps provide a roadmap of typical usage activities. Use it as a guide and customize it according to your needs.

1

Turn on your laptop power.

Remove your Merlin XU870 from the ExpressCard slot before you turn on the power.

2

Start MobiLink.

MobiLink is the communications software you use to send and receive SMS, and connect to the cellular network.



Double-click the MobiLink icon on your desktop to start the application.

Want to have MobiLink start automatically each time you start your computer? See page 15 for instructions.

3

Insert your Merlin XU870.

You'll see the message "No Device Detected" on the Mobilink control panel before you insert your Merlin XU870 into the ExpressCard slot. After you insert it, the message will change to "Initializing Device".

The LED on your Merlin XU870 will display a solid red light while it searches for available networks.

When a network is found and attached to, the light on the LED will begin to flash: green for GPRS, violet for EDGE, or blue for UMTS. The message on the Mobilink control panel will change to "Ready".

You'll find a complete list of LED colors and related states on page 47.

4

Send or receive SMS.

Once you are attached to a cellular network, you can send and receive SMS. Check the envelope icon on the MobiLink control panel. It will appear blue when SMS is available and gray when it is not.

Click the envelope icon on the MobiLink control panel to send and receive SMS.



click to send and receive SMS

Need more information? See page 19.

Not sure what "attached" means? See page 33.

5

Surf the web or check your e-mail.

When you surf the web or send or receive e-mail, you are sending and receiving data from the cellular network. Before you can do this, you have to connect to the network.

Select a profile and click the **Connect** button on the Mobilink control panel to connect to the network. If your SIM card is locked, type in your PIN code and click **OK**. Click the Internet icon to launch your web browser.



Not sure what your PIN code is? Check with your mobile operator.

Don't see a profile? You might have to set one up. See page 13 for instructions.

Want to connect to the cellular network automatically when you turn on your computer? See page 15 for instructions.

See pages 16 and 17 to find out how your PIN code can provide extra security.

6

Disconnect from the network.

- Click **Disconnect** to end your Internet session.
- Click the **Menu** button and select **Exit**.



click to disconnect

- Remove your Merlin XU870 from the ExpressCard slot.

Want to find out how much time you spent online? See page 18 for instructions.

MobiLink Basics

To start MobiLink, double-click the MobiLink icon on your desktop (see page 1). This opens the MobiLink control panel.

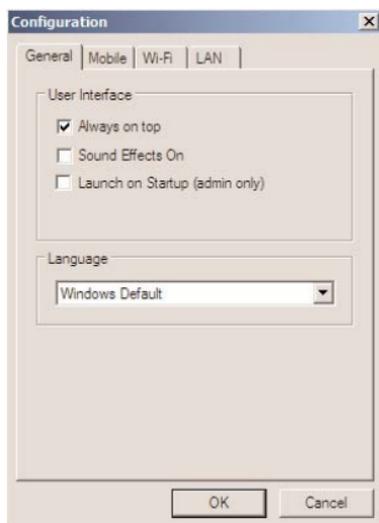


- 1 SMS**
Click to send and receive SMS.
- 2 Address Book**
Click to add SMS contacts or groups.
- 3 Views**
Select the Mobile view to connect to the cellular network.
- 4 Internet**
Click to launch your web browser after you connect.
- 5 Menu**
Click to change your MobiLink settings.
- 6 Help**
Click to access the online help.
- 7 Minimize**
Click to minimize. A MobiLink icon displays in the system tray.
- 8 Exit**
To Exit MobiLink, use the Menu. This only closes the window.
- 9 Signal Strength**
More bars indicate a stronger signal and better connection.

Always on Top

Use the Always on Top setting to keep your MobiLink control panel displayed on your screen when you switch programs or windows.

- Click the Menu button (page 7) and select **Configuration**.
- Select the General tab.

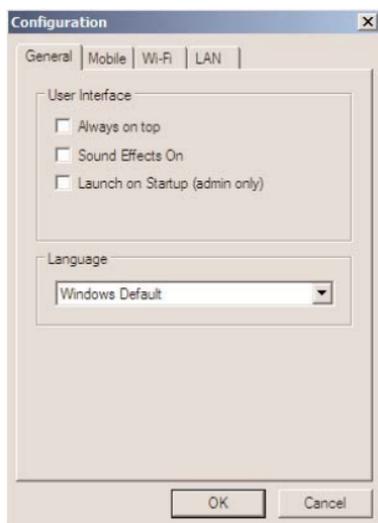


- Select **Always on top**.
- Click **OK**.

Sound Effects

You can customize more than just visual effects with MobiLink. Use the Sound Effects On setting to hear a sound when you click on items on the MobiLink control panel. This setting is turned on by default.

- Click the Menu button (page 7) and select **Configuration**.
- Select the General tab.

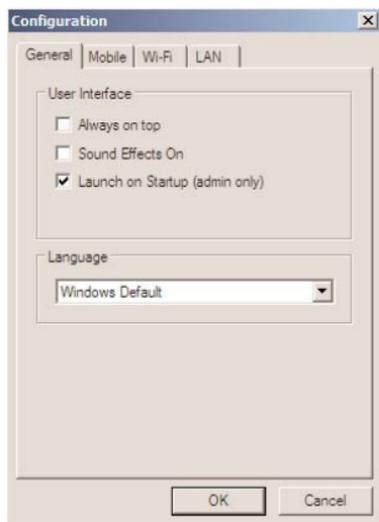


- De-select **Sound Effects On** to turn the sound effects off.
- Click **OK**.

Launch at Startup

Use the Launch at Startup setting to automatically start MobiLink when you start your laptop. You must have Windows Administrator rights to enable this setting. Check your Windows system documentation for additional information on Administrator rights.

- Click the Menu button (page 7) and select **Configuration**.
- Select the General tab.

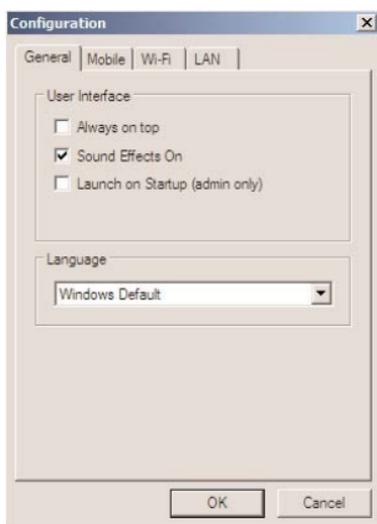


- Select **Launch at Startup**.

Language

MobiLink is automatically set to the language you use for Microsoft Windows (Windows Default). You can select a different language, if your operating system supports the language.

- Click the Menu button (page 7) and select **Configuration**.
- Select the General tab.



- Select the language you require from the **Language** list.
- Click **OK**.

Transparency

Use the Transparency setting to allow desktop items to appear even when the MobiLink control panel is on top. Adjust it anywhere from 0 to 90 percent (0% being solid and 90% being the most transparent).

- Click the Menu button (page 7) and select **Transparency**.
- Select the required transparency setting.



Get Connected

Connect to the cellular network when you want to surf the web or send or receive e-mail.

Connection Profile

A connection profile is used to authorize your request and create a secure connection to the available cellular network. You'll need to get the Access Point Name (APN), Username and Password from your mobile operator. Most European operators do not require a User Name and Password.

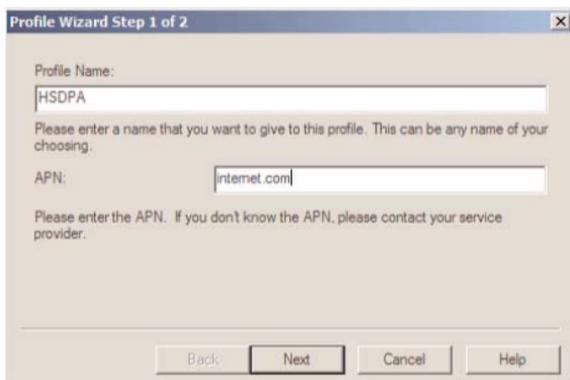
Create a Profile Name that is meaningful to you. After you add a new profile, the Profile Name displays in the Profile list on the MobilLink control panel when a network is available.

- Click the Menu button (page 7) and select **Profile Manager**.



- Click the **New** button.

- Enter the **Profile Name** and the **APN***.



The screenshot shows a dialog box titled "Profile Wizard Step 1 of 2". It contains two text input fields. The first is labeled "Profile Name:" and contains the text "HSDPA". Below it is a line of instructional text: "Please enter a name that you want to give to this profile. This can be any name of your choosing." The second input field is labeled "APN:" and contains the text "internet.com". Below it is another line of instructional text: "Please enter the APN. If you don't know the APN, please contact your service provider." At the bottom of the dialog, there are four buttons: "Back", "Next", "Cancel", and "Help". The "Next" button is highlighted with a black border.

- Click the **Next** button.



The screenshot shows a dialog box titled "Profile Wizard Step 2 of 2". It contains three text input fields. The first is labeled "Username:" and contains the text "WSteward". The second is labeled "Password:" and contains seven asterisks. The third is labeled "Confirm Password:" and also contains seven asterisks. Below these fields is a button labeled "Advanced...". At the bottom of the dialog, there are four buttons: "Back", "Finish", "Cancel", and "Help". The "Finish" button is highlighted with a black border.

- If required, enter the **Username*** and **Password***.
- Click the **Finish** button.

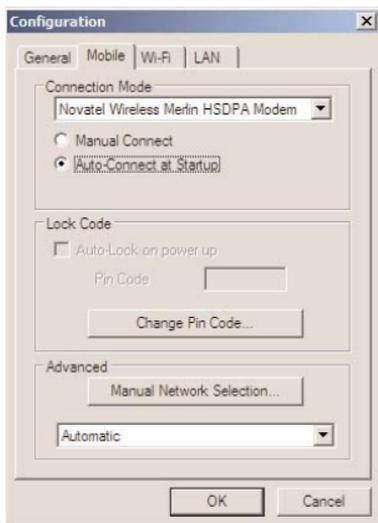
* The APN, Username and Password are specific to your mobile operator. Contact your mobile operator for more information.

Connection Mode

You can connect to the cellular network manually or automatically each time you start your computer. Your Merlin XU870 is set up by default to connect manually.

If you change this default to connect automatically, the profile you used the last time you connected manually will be used for the automatic connection. Your connection will be established as soon as you insert your Merlin XU870 without launching MobiLink.

- Click the Menu button (page 7) and select **Configuration** from the menu.
- Select the Mobile tab.

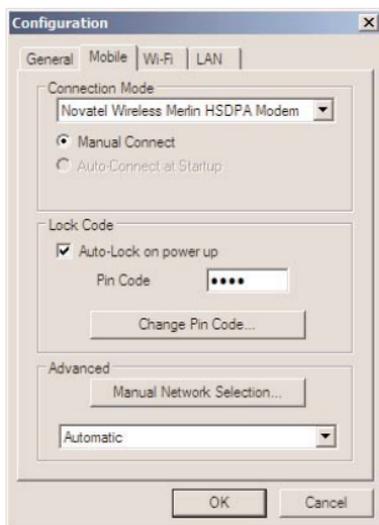


- Select **Auto-Connect at Startup**.
- Click **OK**.

Lock Code

Use the Lock Code setting to secure your cellular network connections. When enabled, you will be prompted to enter the PIN code for your SIM card each time you connect.

- Click the Menu button (page 7) and select **Configuration** from the menu.
- Select the Mobile tab.



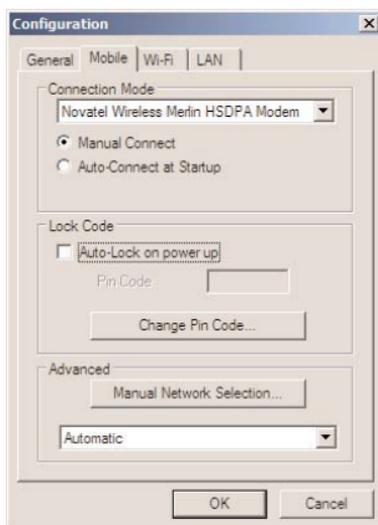
- Select **Auto-Lock on power up**.
- Type your PIN code in the **Pin Code** box.
- Click **OK**.

Note: To disable the Auto-Lock, delete the PIN code from the **Pin Code** box and then deselect **Auto-Lock on powerup**.

Change PIN Code

For security reasons, you should change your preset PIN code. The length of your PIN code will vary, depending on your mobile operator.

- Click the Menu button (page 7) and select **Configuration** from the menu.
- Select the Mobile tab.



- Click the **Change Pin Code** button.

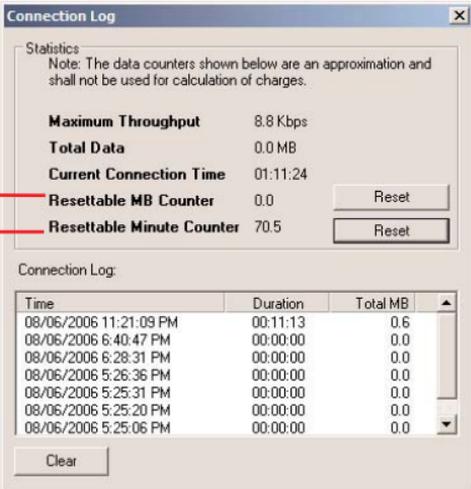


- Type your existing PIN code in the **Current Code** box and your new PIN code in the **New Code** box.
- Click **OK**.

Connection Log

To monitor the duration of your connection and data transferred, you can view connection statistics throughout the month. You can reset the Data and Time counters at any time. Please note that the usage information shown in MobilLink may be different from that shown on your bill.

- Click the Menu button (page 7) and select **Connection Log**.



The screenshot shows a window titled "Connection Log" with a close button (X) in the top right corner. The window is divided into two main sections. The top section is labeled "Statistics" and contains a note: "Note: The data counters shown below are an approximation and shall not be used for calculation of charges." Below the note are four rows of statistics, each with a label and a value, and a "Reset" button to the right of the value. The bottom section is labeled "Connection Log:" and contains a table with three columns: "Time", "Duration", and "Total MB". The table has seven rows of data. A "Clear" button is located at the bottom left of the window.

Data Counter (MB) —

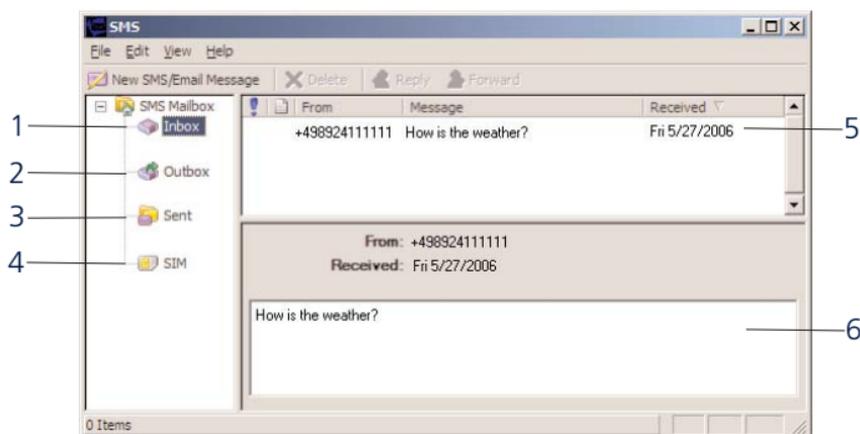
Time Counter (Minutes) —

Time	Duration	Total MB
08/06/2006 11:21:09 PM	00:11:13	0.6
08/06/2006 6:40:47 PM	00:00:00	0.0
08/06/2006 6:28:31 PM	00:00:00	0.0
08/06/2006 5:26:36 PM	00:00:00	0.0
08/06/2006 5:25:31 PM	00:00:00	0.0
08/06/2006 5:25:20 PM	00:00:00	0.0
08/06/2006 5:25:06 PM	00:00:00	0.0

Note: The Connection Log is intended for use by people who connect manually. If you are using the Auto-Connect at Startup option (page 15), the log statistics may not be meaningful.

SMS Basics

Your Merlin XU870 is equipped to send and receive SMS. This feature may or may not be available, depending on your mobile operator. Click the SMS button on the MobiLink control panel to open the SMS window.

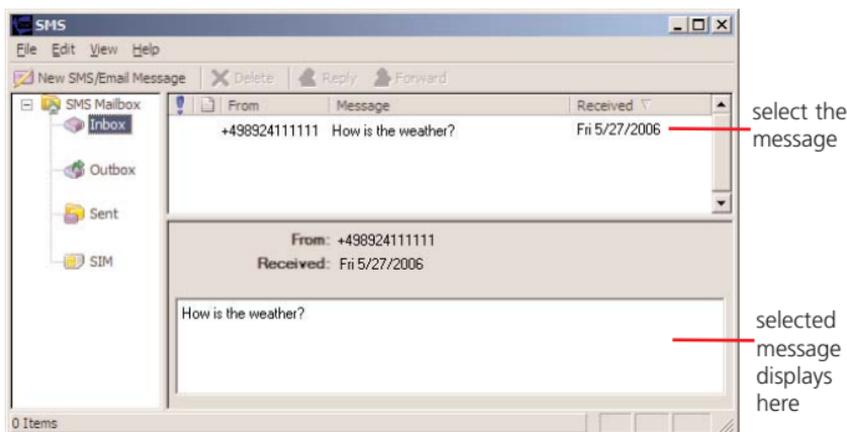


- 1 Inbox**
Messages you receive on your Merlin XU870.
- 2 Outbox**
Messages waiting to be sent.
- 3 Sent**
Messages sent on your Merlin XU870.
- 4 SIM**
When you use the same SIM card in both your mobile phone and in your XU870, messages sent or received while using the SIM in your mobile phone display in this folder.
- 5 Summary**
Click a message header in the summary area to read.
- 6 Message**
Displays the message selected in the Summary area.

Read messages

An envelope icon will display in the top right corner of the MobiLink control panel when you receive a new message.

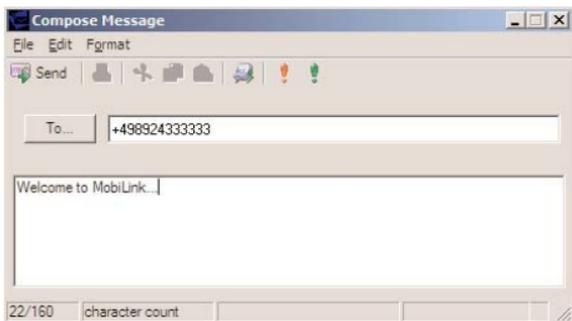
- Select the required folder.
- Select the message you want to read in the top panel (Summary). The messages displays in the bottom panel (Message).



Send messages

The length of outgoing messages is limited to 160 characters. If your message is longer than this, it will be sent in multiple messages.

- Click the **New SMS/Email Message** button.



- In the **To** box, type the phone number of the recipient.

If you are sending the message to more than one person, separate the names or phone numbers with a semicolon (;).

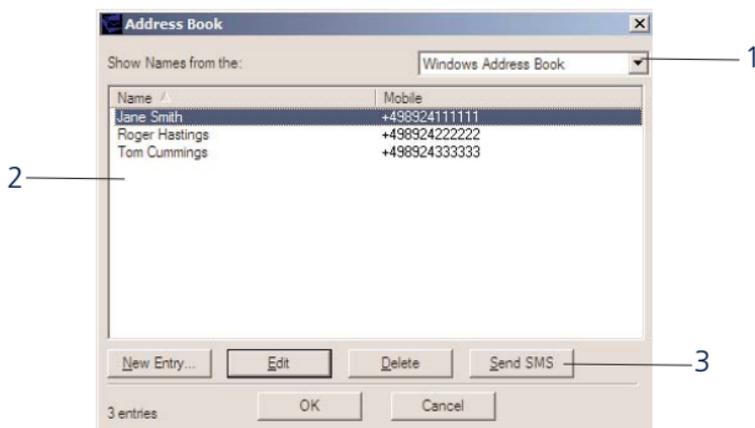
You can also click the **To** button to address the message to contacts or groups in your Address Book.

- Click the **Send** button on the toolbar to send your message.

Address Book Basics

Tired of typing the same e-mail address or phone number every time you send an SMS? Want to send an SMS regularly to a group of friends? Use the Address Book to set up contact information. You can also send an SMS to a contact in your Address Book without opening the SMS window.

To open the Address Book, click the Address Book icon on the MobiLink control panel.



1 Address Book

Store individual contacts either locally on your computer (Windows Address Book) or share them with your mobile phone (SIM). Use contacts from your Windows Address Book or SIM to create groups (Global Group Contacts).

2 Contacts

Contacts or groups display in this area.

3 Send SMS

Send an SMS to the selected contact or group.

Add a new contact

A display name is required for each contact. Be sure to include the correct phone number for your contact.

- Select either **Windows Address Book** or **SIM** from the Address Book list.
- Click the **New Entry** button.



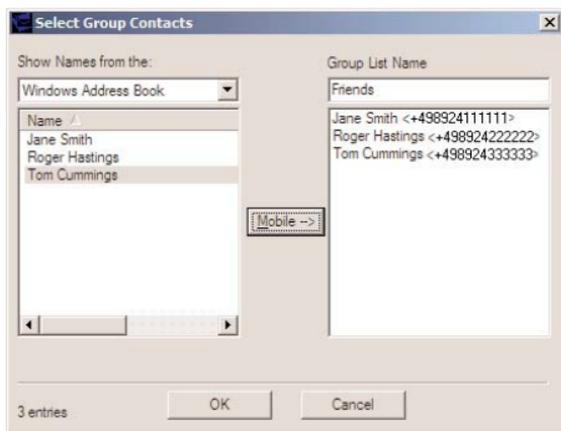
The image shows a dialog box titled "Contact" with a close button (X) in the top right corner. It contains two text input fields: "Display Name" with the text "Jane Cummings" and "Mobile Number" with the text "+498924111111". At the bottom of the dialog box, there are two buttons: "OK" and "Cancel".

- Type the contact name in the **Display Name** box.
- Type the phone number in the **Mobile Number** box.
- Click **OK**.

Add a new group

Groups are useful when you want to send an SMS to several contacts at once. Create a group name and then add individual contacts from your Address Book to the group. To send an SMS to the group, just enter the name of the group in the To box.

- Select **Global Group Contacts** from the Address Book list.
- Click the **New Entry** button.



- Select either **Windows Address Book** or **SIM** from the Address Book list.
- Enter a unique name for the group in the **Group List Name** box.
- Select the contact from the **Name** list.
- Click the **Mobile** button to add the contact to the group.
- When you are finished adding contacts to the group, click **OK**.

Troubleshooting

Why can't I install MobiLink?

You might not have administrative privileges. Contact your system administrator, if applicable, or log on to your computer as an administrator and create a user account with administrator privileges.

Why do I see the message "No card detected" when I run MobiLink?

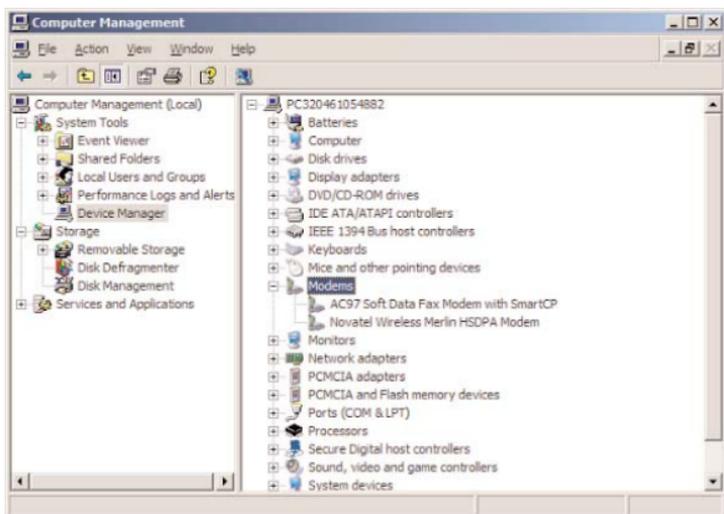
This can happen for any of the following reasons:

Your XU870 is not inserted properly.

- Exit MobiLink.
- Remove your XU870 from the ExpressCard slot.
- Restart your computer.
- Restart MobiLink.
- Insert your XU870 into the ExpressCard slot again.

Windows did not install the drivers for your XU870 correctly.

- Right-click on the My Computer icon on your desktop and select **Manage** from the shortcut menu.
- Select **Device Manager**.
- Click the plus sign (+) next to **Modems**.



If you see a yellow exclamation mark (!) or red x beside any device, try the following:

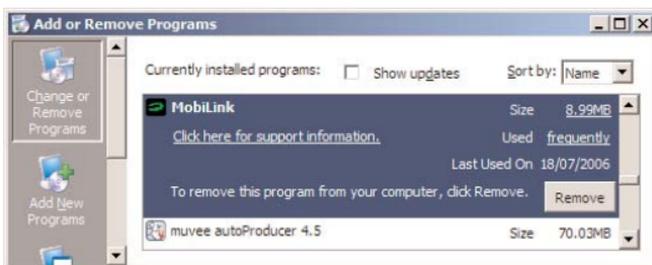
- Restart your computer.

OR

- Choose **Start-Settings-Control Panel-Add or Remove Programs**.

Note: Make sure your XU870 is in the ExpressCard slot.

- Select **MobiLink** and click **Remove**.



- Remove your XU870 from the ExpressCard slot.
- Re-install the MobiLink software. See the Quick Start Guide for instructions.

Why do I see the message “SIM not found” when I run MobiLink?

Your SIM card uses contact points to connect with your XU870. Take care not to touch or damage the contact points. Use the orientation notch as a guide to properly insert the SIM.

Why does the LED flash red?

This happens when your SIM card is locked. Enter your PIN code when prompted. If you enter the wrong PIN code 3 times, you will be prompted to enter your PUK code. If you enter the wrong PUK code 10 times, your SIM card will be locked forever. Contact your mobile operator to obtain a new SIM card.

Why does the message “Searching for network” display continuously when I run MobiLink?

You are outside of the coverage area. Contact your mobile operator to find out more about coverage areas.

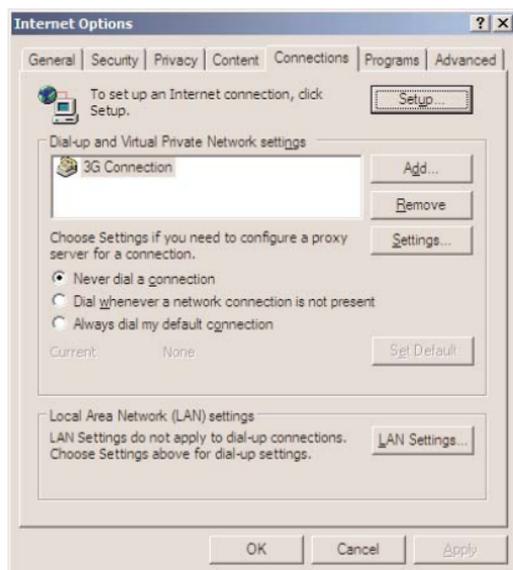
Why can't I connect to the network?

Check the user name, password and access point name (APN) in your profile (page 13). If any of these entries are wrong, you won't be able to connect to the network.

Why can't I browse the web?

Check your server settings.

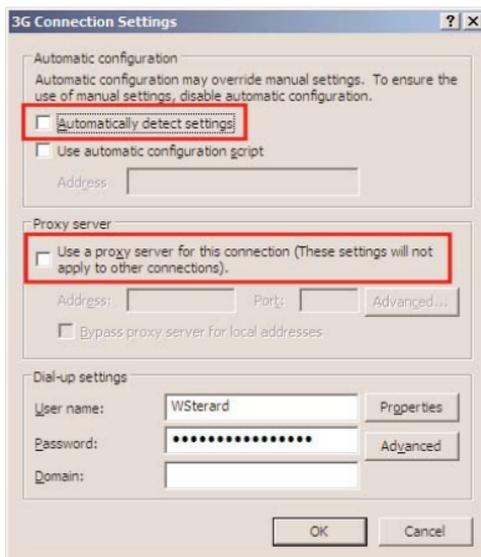
- Start Internet Explorer.
- Choose **Tools-Internet Options**.
- Click on the **Connections** tab.



- Double-click on **3G Connection***.

* This field name will vary, depending on your service provider.

- If you are using a proxy server, select the appropriate boxes.



Glossary

Attached

When your Merlin XU870 has found a cellular network and has registered to it, the LED will flash (see page 47). In this state you can send and receive SMS. However, to pass data (i.e., surf the web or check your e-mail), you must be connected.

APN

Access Point Name. Provides routing information for GPRS. The APN consists of two parts; the Network ID, which identifies the external service requested by a user of the GPRS service, and the Operator ID, which specifies routing information.

bps

Bits per second - rate of data flow.

Broadband

High-capacity high-speed, transmission channel with a wider bandwidth than conventional copper telephone lines. Broadband channels can carry video, voice, and data simultaneously.

Connected

To connect to the cellular network you require an APN. You might also require a user name and password, depending on your service provider. Once you are connected, you can pass data (i.e., surf the web or check your e-mail).

EDGE

Enhanced Data GSM Environment OR Enhanced Data for Global Evolution. EDGE is an enhanced version of GPRS that enables the delivery of multimedia and other broadband applications to mobile devices. It is designed to deliver data downloads at rates up to 237 kbps and is considered an evolutionary step to 3G/UMTS.

Firewall

A hardware or software boundary that protects a network or single computer from unwanted outside traffic.

GPRS

General Packet Radio Service. GPRS is a packet-based broadband service with download speeds up to 86 kbps. GPRS is considered an evolutionary step to more advanced technologies such as EDGE and WCDMA.

HSDPA

High Speed Downlink Packet Access. HSDPA is an enhanced version of WCDMA that supports broadband connections with download speeds up to 7.2 Mbps. This enhanced 3G technology enables the download of high-bandwidth multimedia files, high resolution graphics, and other complex files, and viewing e-mail attachments at broadband-like speeds.

ISP

Internet Service Provider. Also referred to as the service carrier, an ISP provides Internet connection service.

IP

Internet Protocol. The mechanism by which packets are routed between computers on a network.

Kbps	Kilobits (1024 bits) per second - rate of data flow.
LAN	Local Area Network. A data network confined to limited area with moderate to high data rates.
Mbps	Megabits (1,048,576 bits) per second - rate of data flow.
MB	Megabyte. A unit of data equal to approximately 1 million bytes.
NDIS	Network Driver Interface Specification. A Windows device driver interface that enables support for multiple network protocols.
PPP	Point-to-Point Protocol. A method of connecting a computer to the Internet.
PIN Code	Personal Identity Number. A code that is linked to your SIM card for security. This four-digit code gives you access to the SIM card and allows you to access your operator's network.
PUK Code	Pin Unlock Code. PUK is the code required to unlock a GSM SIM card that has disabled itself after an incorrect PIN code was entered three times in a row. If an incorrect PUK code is entered 5-10 times, the SIM card will permanently block (disable) itself.

Proxy	A firewall mechanism that replaces the IP address of a host on the internal (protected) network with its own IP address for all traffic passing through it.
SMS	Short Messaging Service. Short text messages of no more than 160 characters sent and received by broadband devices.
TCP/IP	Transmission Control Protocol/Internet Protocol. A protocol for communicating over the Internet.
VPN	Virtual Private Network. A way to communicate through a dedicated server securely to a corporate network over the Internet.
WAN	Wide Area Network. A network which uses common carrier-provided lines. Contrasts with LAN.
WCDMA	Wideband Code Division Multiple Access. Based on the GSM technology evolution roadmap, WCDMA supports upload and download speeds up to 384kbps. WCDMA is also referred to as UMTS.
WWAN	Wireless Wide Area Network. A communications technology that utilizes digital mobile phone systems to access data from any location in the range of a cell tower that is connected to a data-enabled network.

Safety Information

Important Notice

Due to the transmission and reception properties of cellular communications, data can occasionally be lost or delayed. This can be due to the variation in radio signal strength that results from changes in the characteristics of the radio transmission path.

Although data loss is rare, the environment where you operate the XU870 may adversely affect communications. Variations in radio signal strength are referred to as fading. Fading is caused by several different factors including signal reflection, the ionosphere, and interference from other radio channels.

Novatel Wireless or its partners will not be held responsible for damages of any kind resulting from the delays or errors in data transmitted or received with the Merlin XU870, or failure of the Merlin XU870 to transmit or receive such data.

Potential Hazards

Do not operate the Merlin XU870 in an environment that may be susceptible to radio interference resulting in danger specifically:

Areas where prohibited by the law.

- Follow any special rules and regulations and obey all signs and notices. Always turn off the host device and remove the XU870 from the card slot when instructed to do so, or when you suspect that it may cause interference or danger.

Where explosive atmospheres may be present.

- Do not operate your XU870 in any area where a potentially explosive atmosphere may exist. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Be aware and comply with all signs and instructions.
- Users are advised not to operate the XU870 while at a refueling point or service station. Users are reminded to observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants or where blasting operations are in progress.
- Areas with a potentially explosive atmosphere are often but not always clearly marked. Potential locations can include gas stations, below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine.

Near Medical and life support equipment.

- Do not operate your XU870 in any area where medical equipment, life support equipment, or near any equipment that may be susceptible to any form of radio interference. In such areas, the host communications device must be turned off. The XU870 may transmit signals that could interfere with this equipment.

On an aircraft, either on the ground or airborne.

- In addition to FAA requirements, many airline regulations state that you must suspend wireless operations before boarding an airplane. Please ensure that the host device is turned off and your XU870 is removed from the card slot prior to boarding aircraft in order to comply with these regulations. The XU870 can transmit signals that could interfere with various onboard systems and controls.

While operating a vehicle.

- The driver or operator of any vehicle should not operate a wireless data device while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some countries, operating such communications devices while in control of a vehicle is an offense.

Electrostatic Discharge (ESD).

- Electrical and electronic devices are sensitive to electrostatic discharge (ESD). The MobiLink software will attempt to re-initialize the device should a substantial electrostatic discharge reset the device. If the software is not operational after an ESD occurrence, then restart MobiLink.

Regulatory Notices

CE Marking

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters "CE". The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for products it applies to: the manufacturer affixes the marking in order to be allowed to sell his product in the European market.

This product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. A notified body has determined that this device has properly demonstrated that the requirements of the directive have been met and has issued a favorable certificate of expert opinion. As such the device will bear the notified body number 0682 after the CE mark.

The CE Marking is not a quality-mark. Foremost, it refers to the safety rather than to the quality of a product.

Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary.

Marking: The product shall bear the CE mark, the notified body number(s) as depicted to the right. **CE 0682**

Federal Communications Commission Notice (FCC - United States)

Electronic devices, including computers and wireless modems, generate RF energy incidental to their intended function and are therefore subject to FCC rules and regulations.

This equipment has been tested to, and found to be within the acceptable 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 when the equipment is operated in a residential environment.

This equipment generates radio frequency energy and is designed for use in accordance with the manufacturer's user manual. However, there is no guarantee that interference will not occur in any particular installation.

If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are 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 the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

This device complies with Part 15 of the Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions:

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

WARNING: DO NOT ATTEMPT TO SERVICE THE WIRELESS COMMUNICATION DEVICE YOURSELF. SUCH ACTION MAY VOID THE WARRANTY. THE MERLIN PC CARD IS FACTORY-TUNED. NO CUSTOMER CALIBRATION OR TUNING IS REQUIRED. CONTACT YOUR SERVICE PROVIDER FOR INFORMATION ABOUT SERVICING YOUR WIRELESS COMMUNICATION DEVICE.

FCC CAUTION: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

NOTE: The Radio Frequency (RF) emitter installed in your modem must not be located or operated in conjunction with any other antenna or transmitter, unless specifically authorized by Novatel Wireless Technologies.

MODIFICATIONS: The FCC requires that you be notified that any changes or modifications made to this device that are not expressly approved by Novatel Wireless, Inc. may void your authority to operate the equipment.

This product has been evaluated for SAR and meets the FCC Guidelines for exposure to radio waves.

FCC Equipment Authorization ID: **NBZNRM-XU870**

Your wireless modem is a radio transmitter and receiver. It is designed and manufactured not to exceed the exposure limits for radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government.

These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standard for wireless devices including mobile phones and wireless modems uses a unit of measurement known as the Specific Absorption Rate, or SAR. Tests for SAR are conducted using standard operating positions reviewed by the FCC with the device under test transmitting at its highest certified power level in all frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the phone or modem while operating can be well below the maximum value. This is because the phone or modem is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

Before this device is made available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government-adopted requirement for safe exposure. The tests are performed in positions and locations (for example, at the ear or worn on the body) as required by the FCC for each model.

The FCC has granted an Equipment Authorization for this wireless modem with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. The highest SAR value for this modem when tested for compliance against FCC standards was 1.366W/kg.

Specifications

- Technology/Bands**
- Tri-band HSDPA/UMTS - 850/1900/2100 MHz
 - Quad-band EDGE/GPRS - 850/900/1800/1900 MHz
- Data Speeds**
- 3.6 Mbps peak download & 384 kbps Uplink
 - Firmware upgrade for 7.2 Mbps peak download
- Dimensions and Weight**
- 112 mm x 34 mm x 5.0 mm
 - 39 grams
- Power consumption**
- Voltage 3.3 v (nominal)
- Environmental**
- Operating temperature: 0°C to 55°C (32°F to 131°F)
 - Storage temperature: -20°C to 65°C (-4°F to 149°F)
 - EMI Shielding
- Operating Systems**
- Windows® 2000, XP & Vista-Ready
 - Mac OS X 10.4 Connection Utility
 - Linux 2.6.16
- System Requirements**
- Card Slot: ExpressCard/34/54
 - Disk Drive: CD-ROM
 - Hard Drive: 14 MB
 - RAM: 64 MB
 - Browser: Microsoft Internet Explorer 6.0 or higher
- Accessories**
- External antenna - Hirose MS-151connector
 - Novatel Wireless XCA2 ExpressCard/34 PC Adapter - adapts card to PCMCIA Type II form factor for laptops without an ExpressCard slot

LED States

LED Color	LED State	Description
RED	 SIM Error	Flashing: SIM card may be missing or inserted incorrectly.
	No Service	Solid: GPRS/EDGE/UMTS/HSDPA cellular service is currently not available.
GREEN	 GPRS	Flashing: GPRS service is available.
		Solid: Connected to a network using GPRS.
VIOLET	 EDGE	Flashing: EDGE service is available.
		Solid: Connected to a network using EDGE.
BLUE	 UMTS	Flashing: UMTS service is available.
		Solid:* Connected to a network using UMTS.
YELLOW	 HSDPA	Solid:* HSDPA service is available and is being used during the download.

* The LED may appear to flash blue and then yellow as the service transitions from UMTS to HSDPA and then back again.