
MultiModem[®] rCell

Intelligent Wireless Router



Quick Start Guide



Quick Start Guide

MultiModem® rCell
MTCBA-H-EN2
82100401L, Revision B

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Record of Revisions

Revision	Date	Description
A	05/12/09	Initial release.
B	02/03/10	This release documents firmware version 2.5.

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Introduction

The purpose of this guide is to cover safety concepts, the basic connections, and general setup of the MultiModem rCell Intelligent Wireless Router. For detailed information refer to the User Guide which is available on your MultiModem CD accompanying your router product and on the Multi-Tech Web site.

Check Multi-Tech's Web site for current versions of our product documentation.

Safety

Ethernet Ports Caution

The Ethernet ports are **not** designed to be connected to a Public Telecommunication Network or used outside the building.

Handling Precautions

All devices must be handled with certain precautions to avoid damage due to the accumulation of static charge. Although input protection circuitry has been incorporated into the devices to minimize the effect of this static build up, proper precautions should be taken to avoid exposure to electrostatic discharge during handling and mounting.

Caution: Maintain a separation distance of at least 20 cm (8 inches) between the transmitter's antenna and the body of the user or nearby persons. The modem is not designed for, nor intended to be, used in applications within 20 cm (8 inches) of the body of the user.

Vehicle Safety

- Do not use your Wireless MultiModem while driving, unless equipped with a correctly installed vehicle kit allowing 'Hands-Free' Operation.
- Respect national regulations on the use of cellular telephones in vehicles. Road safety always comes first.
- If incorrectly installed in a vehicle, the operation of Wireless MultiModem telephone could interfere with the correct functioning of vehicle electronics. To avoid such problems, be sure that qualified personnel have performed the installation. Verification of

the protection of vehicle electronics should be part of the installation.

- The use of an alert device to operate a vehicle's lights or horn on public roads is not permitted.

Internal Lithium Battery

- A lithium battery located within product provides backup power for the timekeeping capability. The battery has an estimated life expectancy of ten years.
- When the battery starts to weaken, the date and time may be incorrect. If the battery fails, the board must be sent back to Multi-Tech Systems for battery replacement.
- Lithium cells and batteries are subject to the Provisions for International Transportation. Multi-tech Systems Inc. confirms that the Lithium batteries used in the Multi-Tech product(s) referenced in this manual comply with **Special Provision 188 of the UN Model Regulations, Special Provision A45 of the ICAO-TI/IATA-DGR (Air), Special Provision 310 of the IMDG Code, and Special Provision 188 of the ADR and RID (Road and Rail Europe).**

Warning! There is danger of explosion if the battery is incorrectly replaced!

Ship Kit Contents

Unbundled Package with no Accessories	Bundle Package With Accessories
1 router 1 Quick Start Guide 1 MultiModem CD Note: You must supply mounting screws, AC or DC power supply, and an antenna.	1 router 1 antenna 1 Ethernet cable 1 RS-232 cable 1 power supply 1 Quick Start Guide 1 MultiModem CD Note: You must supply mounting screws

Note: Refer to the User Guide for antenna specifications.

Activate your Wireless Account

Please refer to the wireless account **Activation Notice** included with your product and located on the MultiModem CD. Follow the directions on the Activation Notice to activate your account.

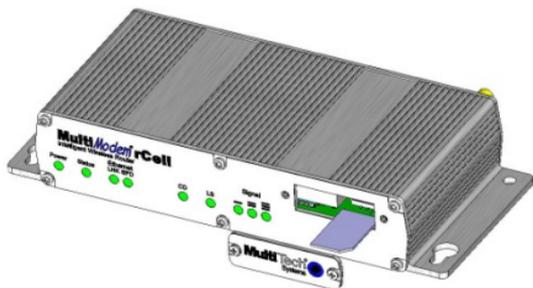
Note: If you need remote access to your MultiModem over the Internet for remote configuration, you need to ensure that your wireless network provider has provisioned mobile terminated data and fixed or dynamic public IP address in which they can configure the network to redirect any incoming connection to that predefined IP.

Insert the SIM Card into Holder, If required

The MultiModem requires the power supply connection to begin operation. It also requires a SIM card (Subscriber Identity Module) to operate on a GSM network. To install the SIM, do the following:

1. Using a small Phillips screwdriver, remove the two SIM door screws and remove the SIM door.

Note: When changing a SIM, ensure that power is removed from the unit.

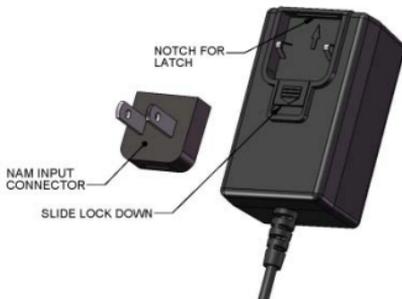


2. Insert the SIM card into the card holder. The above graphic illustrates the correct SIM card orientation.
3. Verify that the SIM card fits into the holder properly and then replace the cover.

Connect the Antenna and Power



1. Connect a suitable antenna to the SMA connector (see antenna specifications in the User Guide).
2. Using an Ethernet cable, connect one end of the cable to the ETHERNET connector on the back of the router and the other end to your pc either directly or via a switch or hub.
3. If you are connecting a customer's legacy device to the router, connect the serial, RS232 cable from the customer's device to the RS232 connector on the back of the router.
4. Depending on the power source, connect either the power supply module with the appropriate blade or the optional DC power cable. If you are using the power supply module, remove the protective shipping cover. Attach the appropriate interchangeable blade piece to the power supply module.



Screw-on the power lead from the power supply module to the power connection on the router. Now, plug the power supply into your power source.

For Optional Direct DC Power

- Screw-on the DC power cable to the power connector on the router.
- Then attach the two wires at the other end of the DC power cable to a DC fuse/terminal block on a vehicle in which you are mounting the MultiRouter.
- Connect red wire to the "+" (positive) terminal and black wire to the "-" (negative) terminal. Be sure the GND connection is correct.

Warning: Over-voltage protection is provided on the device. To ensure complete protection, you may want to add additional filtering to the DC input.

Note: For an application involving a battery: you can use permanent "+" or key-switched "+" source. Connect the power supply to its source (for example, in a mobile situation, to the DC fuse/terminal block).

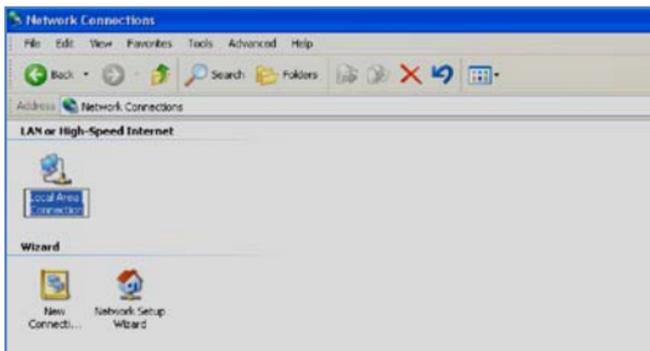
Notes

- The **POWER** LED. The **POWER** LED lights after power-up.
- The **Status** LED is a solid ON when the router is booting up, saving a configuration, or updating firmware. When the **Status** LED begins to blink, the router is ready.
- The **Reset** Button. Pressing and holding the **Reset** button for 5 seconds will restore all factory default settings. It also will set the username and password back to admin and admin as well as setting the IP address to the default of 192.168.2.1.

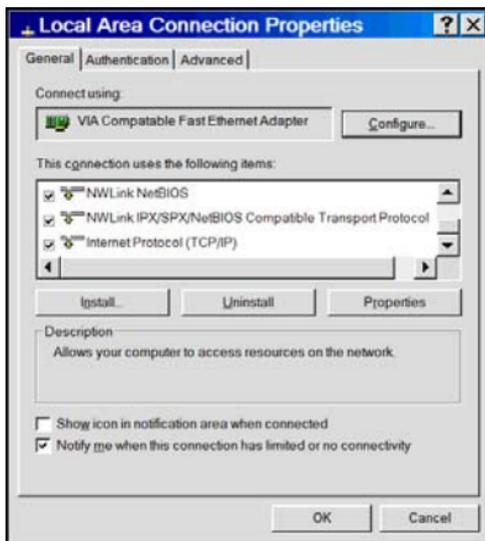
Set Your PC's TCP/IP Address for Ethernet Functionality

The following directions establish a TCP/IP connection at the pc so the PC can communicate with the router. The following directions were written using a Windows XP/ 2003+ operating system.

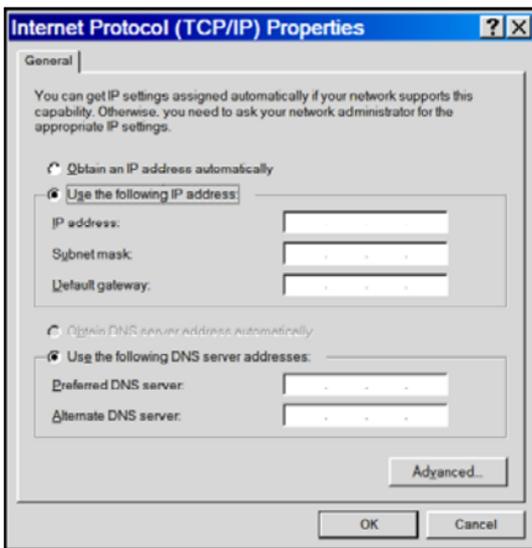
1. Click **Start | Settings | Control Panel**. Double-click the **Network Connections** icon.



2. The **Network Connections** screen displays. Right-click the **Local Area Connection** icon and choose **Properties** from the drop down list.



- The **Local Area Connection Properties** dialog box displays.
 - Select **Internet Protocol [TCP/IP]**.
 - Click the **Properties** button. The **Internet Protocol (TCP/IP) Properties** screen displays.
- The **Internet Protocol (TCP/IP) Properties** screen.



Important Note:

If this screen opens and displays your current IP configuration, we suggest you record this information for future reference (i.e., after the router is configured, you may wish to return this PC to its original settings).

- To set a Fixed IP Address for the pc, select **Use the following IP address**.
 - Enter the pc **IP Address**. Example: 192.168.2.x.
Note: The x in the address stands for numbers 101 and up.
 - Enter the pc **Subnet Mask**. Example: 255.255.255.0
 - Enter the pc **Default Gateway**. Example: 192.168.2.1

Note: The pc settings must be in the same subnet range as the router.

The factory default settings for the router are:

IP Address: 192.168.2.1

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.2.2

- Select **Use the following DNS server addresses.**
 - Enter the IP Address for the **Preferred DNS Server.**
Example: 205.171.3.65
 - Click **OK.**
- Close the **Local Area Properties** screen by clicking **OK.**
- Close the **Control Panel.**
- Repeat these steps for each PC on your network.

AT Command for Verifying Signal Strength

To communicate directly with the cellular modem to verify signal strength, network registration, and roaming status, telnet to the modem.

Note: Ensure that the Status LED is blinking, indicating that the router is ready.

1. To Telnet to the modem. You can access the modem thru the Run icon or from the Command Prompt:
Click **Start | Run** icon. In the Open window, enter **cmd** and then press **ENTER.**

or

Click **Start | All Programs | Accessories | Command Prompt**

- In the command window, type **telnet 192.168.2.1 5000**
 - At the Login prompt, type the default user name: **admin** (all lower-case). Press **ENTER**
 - At the Password prompt, type the default pass word: **admin** (all lower-case). Press **ENTER**
2. In the command window, type **AT+CSQ**

- The router responds with the received signal strength (rssi) and the channel bit error rate (ber).RSSI ranges from 0 to 31. BER ranges from 0 to 7 (7 is the highest error rate).

Signal Strength – RSSI	
10 – 31	Sufficient
0 – 9	Weak or Insufficient
99	Insufficient

AT Command for Checking Network Registration and Roaming Status

Use this command to verify that the wireless Router has been registered on a wireless network.

- In the command window, type **AT+CREG?**
- The router will respond in one of the following ways:

Network Registration Verification	
Value	Network Registration Status
+CREG: 0,0	The router is not registered on any network
+CREG: 0,1	The router is registered on the home network
+CREG: 0,5	The router is registered on a network and it is roaming

Note: If the router indicates that it is not registered, verify the signal strength to determine if the problem is the strength of the received signal.

Exiting Modem Mode

- After the last AT Command is entered, press:
CTRL +] (the right bracket).
- The following prompt displays:
telnet>
Type **quit** and press **Enter**.
- Then the following prompt displays:
c:>
Type **exit** and press **Enter**.

Configure the Ethernet Interface Using the Web Management Software

You are now ready to configure the Ethernet interface. This is accomplished by using the router's factory-installed Web Management software. The software is accessed through a Web Browser.

1. From the pc, open a Web Browser.

Type the default Gateway Address: <http://192.168.2.1>

Note: Ensure that the Status LED is blinking, indicating that the router is ready.

2. **Login**

After entering the Address, the **Login** screen displays.

- Type the default User name: **admin** (all lower-case).
- Type the default password: **admin** (all lower-case).

User Name and Password Note: The **User name** and **Password** are case-sensitive (both must be typed in lower-case). A password can be up to 60 characters. If Windows displays the **AutoComplete** screen, you may want to click **No** to tell the Windows OS not to remember the password; this helps maintain PC security.

Password Caution: It is recommended that you change the default password to better protect the security of your router. Use a safe password! Your first name spelled backwards is not a sufficiently safe password; a password such as xFT35\$4 is better.

- Click the **Login** button. The Web Management Home screen displays.

3. **Use the Setup Wizard for Quick Configuration**

A quick way to configure the modem is to use the Wizard Setup in the Web Management software.

- To begin configuration, click the **Wizard Setup** button located under the menu bar.
- After clicking the **Wizard Setup** button, the *Wizard Setup* screen displays.

The Setup Wizard Screen

The following is a screen shot of the *Setup Wizard*. Using this screen saves you time so that you are not entering the same information several screens; the data entered here defaults to the other screens.

The screenshot shows the MultiTech Systems Setup Wizard interface. At the top, there is a navigation bar with links: IP Setup | PPP | Networks & Services | Packet Filters | DNS Settings | DHCP Server | IPsec | Serial Port | Tools | Statistics & Logs | Save & Restart | Help | Index. Below this, there are two main configuration panels.

IP Configuration: This panel contains three input fields: IP Address (192.168.2.1), Mask (255.255.255.0), and DNS (0.0.0.0).

PPP Authentication: This panel has an Authentication Type dropdown menu with options: pap, chap, and pap-chap. Below it is a Username field and a Password field.

PPP Configuration: This panel includes several options and fields:

- PPP: Enable / Disable
- Dial-on-Demand: Enable / Disable
- Idle time out: 180 (with a dropdown arrow)
- Dial number: *99***1#
- APN: (empty field)
- Exit String 1: AT+CSQ
- Exit String 2: (empty field)
- Exit String 3: (empty field)
- Exit String 4: (empty field)

At the bottom center of the configuration area, there is a blue button labeled "SUBMIT".

IP Configuration

IP Address – The default is 192.168.2.1. To change it, simply enter your own IP address.

Mask – The default is 255.255.255.0

DNS – Enter the primary DNS IP address for the system. The default is 0.0.0.0

PPP Configuration

PPP – The default is **Disable**. To connect to the Internet, you have to enable PPP. To issue commands to the modem, PPP must be disabled and telnet port 5000 used.

Dial-on-Demand – The default is **Disabled**.

Idle Time Out – Sets the amount of time the PPP link stays active before disconnecting. Setting the value to zero causes the link to stay active continuously.

Dial Number – Enter the dial number. The number is ***99***1#**.

APN – Enter the APN (Access Point Name). The APN is assigned by your wireless service provider.

Init String – 4 modem initialization strings are allowed.

PPP Authentication

Authentication Type – Click the button corresponding to the authentication protocol you want to use to negotiate with the remote peer. PAP, CHAP, or PAP-CHAP.

Default = PAP-CHAP

User Name – Enter the PPP User Name (it authenticates the remote peer).

Password – Enter the PPP Password (it authenticates the remote peer).

Important Note About *Submit* and *Save & Restart*

Click the **Submit** button located at the bottom of most screens to save any changes you make. Then you must click the **Save & Restart** button in order for your settings to take effect. **Save & Restart** does not have to be executed after each screen; you can change and Submit several screens, and then click **Save & Restart**. The **Save & Restart** button is located on the Menu bar.

Shutdown Caution

Never unplug the power until after you have performed the **Save & Restart** process when changing settings. If setup changes are not properly saved before unplugging the power, data could be lost.

