



# MultiConnect<sup>®</sup> eCell User Guide

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## MultiConnect® eCell User Guide

Models: MTE-LAT2 Version 1.0

Part Number: S000644

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#### Support

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U.S., Canada, all others:	<a href="mailto:support@multitech.com">support@multitech.com</a>	(800) 972-2439 or (763) 717-5863

#### Warranty

To read the warranty statement for your product, visit [www.multitech.com/warranty.go](http://www.multitech.com/warranty.go). For other warranty options, visit [www.multitech.com/es.go](http://www.multitech.com/es.go).

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# Welcome

## Product Overview

The MultiConnect eCell is an affordable 3G/4G Ethernet to Cellular Bridge used to enable devices with Internet service. It is a simple alternative to complex and expensive cellular routers in applications where advanced networking capabilities are already in place or are not required, but there is a need for remote access without using local wired networks

## Package Contents

Item	Description	Quantity
	MultiConnect eCell	1
	Antenna	2
	Power Adapter	1
	Ethernet Cable	1
	Four Rubber Feet	1
	Mounting Stick	1
Not Pictured	Quick Start	1

## System Requirements

Network Requirements	<ul style="list-style-type: none"> <li>■ An external Ethernet device</li> <li>■ 3G/4G cellular service subscription</li> <li>■ Ethernet connection</li> </ul>
Configuration Requirements	Browser Requirements <ul style="list-style-type: none"> <li>■ Internet Explorer 9.0 or higher</li> <li>■ Chrome 2.0 or higher</li> <li>■ Firefox 3.0 or higher</li> <li>■ Safari 3.0 or higher</li> </ul>

## LED Indicators

Item	Description
Power	<b>On:</b> Solid when the device is in normal operational mode.
	<b>Off:</b> No power.
	<b>Flashing:</b> Device is in firmware upgrade mode, recovery mode, or needs troubleshooting.
SIM	<b>On:</b> SIM card detected and ready.
	<b>Off:</b> SIM card not present or not detected.
Internet	<b>On:</b> 4G/3G is established and active.
	<b>Off:</b> No active cellular connection.
	<b>Flashing:</b> Active data transferred via cellular.
Signal	<b>On:</b> Solid when there is a strong cellular signal.
	<b>Off:</b> No cellular signal.
	<b>Flashing fast:</b> Medium cellular signal.
	<b>Flashing slow:</b> Weak cellular signal.
Ethernet (On the Ethernet port)	<b>On:</b> Solid when there is an Ethernet connection.
	<b>Off:</b> No Ethernet connection.
	<b>Flashing:</b> Data is actively transmitting via the Internet.

# Specifications

MTE-LAT2-B07

Category	Description
<b>General</b>	
Performance	LTE and HSPA+
Frequency Bands	LTE Band: B2/B4/B5/B17 HSPA+ Band: B2/B4/B5
<b>Radio</b>	
Cellular	4G LTE Radio
<b>4G LTE Speed</b>	
Packet Data	Up to 100 Mbps downlink/50 Mbps uplink
<b>Connectors</b>	
Cellular	Two female SMA connectors
SIM Holder	Mini-SIM 2FF push push SIM
<b>Power Requirements</b>	
Voltage	12 VDC
<b>Physical Description</b>	
Dimensions	3.2" x 2.5" x 1.2" (81.2 x 63.5 x 30.5 millimeters)
Weight	1.0 lbs. (0.45 Kg)
<b>Environment</b>	
Operating Temperature	0° C to +40° C
Humidity	Relative humidity 10% to 93% non-condensing
<b>Certifications, Compliance, Warranty</b>	
FCC Compliance	FCC, IC
Network Compliance	PTCRB and AT&T
Warranty	Two years

## RF Specifications

Operating Band	Tx	Rx
WCDMA Band 2	1850 MHz - 1910 MHz	1930 MHz - 1990 MHz
WCDMA Band 4	1710 MHz - 1755 MHz	2110 MHz - 2155 MHz
WCDMA Band 5	824 MHz - 849 MHz	869 MHz - 894 MHz
LTE Band 2	1850 MHz - 1910 MHz	1930 MHz - 1990 MHz
LTE Band 4	1710 MHz - 1755 MHz	2110 MHz - 2155 MHz
LTE Band 5	824 MHz - 849 MHz	869 MHz - 894 MHz
LTE Band 17	704 MHz - 716 MHz	734 MHz - 746 MHz

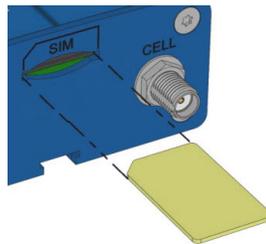
# Installing and Using the eCell

## Installing the SIM Card

This device requires a SIM card, which is supplied by your service provider. Install the SIM card before connecting antennas and cabling the device.

To install the SIM card:

1. Locate the SIM card slot on the side of the device. The slot is labeled SIM.
2. Slide the SIM card into the SIM card slot with the contact side facing down as shown. When the SIM card is installed, it locks into place.



## Attaching Antennas and Cables

**Note:** Before powering up the device, enable DHCP on your computer's Ethernet port.

1. Connect the provided antennas to the connectors labeled CELL and AUX. Finger tighten. For best cellular performance, position the top of the antennas as far apart as possible.
2. Connect the Ethernet cable between the Ethernet ports on your computer and the device.
3. Connect the power adapter to the 12V DC connector.
4. To power up the device, plug the power adapter into an electrical outlet.



## Using the Setup Wizard

When using a 3G/4G network, verify a SIM card has been installed before powering on and starting setup. Configure the device using the web UI. To access the web UI, enter the IP Address into your browser. The default IP Address is 192.168.2.1. If this has been changed, type in the new IP Address.

From the menu on the left, click **Wizard**.

1. Wait for 60 seconds after connecting power. The computer gets IP address 192.168.2.100 via DHCP.
2. In a web browser, enter IP address 192.168.2.1.
3. Login using **admin** as both the **Username** and **Password**.
4. Click **Wizard** on the left.
5. Click **Next**.
6. **Change password**, if desired and click **Next**. (Recommended)
7. Set the device's **Time Zone** and click **Next**.
8. Enter and configure **APN**.
  - a. Select **Manual Configuration**.
  - b. Set **Country** to **Others**.
  - c. Enter the **APN** provided by the SIM provider.
  - d. Click **Next**.
9. Click **Apply**.
10. Wait a few minutes and check LED status. Power, SIM, Internet, and Signal LEDs are on when there is a live Internet connection. For more information on the LEDs, refer to *LED Indicators*.

After the device has a valid Internet connection, your computer automatically renews to the new IP address assigned to cellular connection and have full access to the Internet.

# Basic Network

## WAN and Internet Setup for 3G/4G

This device has 3G/4G WAN interfaces, these can be configured individually to maximize Internet connection setup.

To configure 3G/4G WAN settings go to **Basic Network > WAN** on the menu on the left.

1. **Dial-up Profile:** Use information given by your 3G/4G data services provider to setup your connection including APN, dialed number, and account/password. Choose from **Manual Configuration** or **Auto-Detection**. When selecting **Manual Configuration**, configure the following:
  - Country:** Select the country. If using custom APN, select **Others**.
  - Service Provider:** Select the service provider. If using custom APN, select **Others**.
  - APN:** Verify predefined APN name or manually enter a custom APN name.
  - PIN code:** If your card needs to be unlocked before making a data connection, enter the SIM card PIN code.
  - Dial Number:** Enter the ISP-provided dial number.
  - Account/Password:** Enter the ISP-provided Account/Password.
  - Authentication:** Choose **Auto**, **PAP**, or **CHAP** according to your ISP's authentication approach. If unsure, choose **Auto**.
  - Primary/Secondary DNS:** Enter the IP Address of the Domain Name Server. Most ISPs assign them automatically.
2. **Roaming:** Allow internet connection when roaming.
3. **Data Usage Monitor:** Controls how much data is allowed for the 3G/4G connection during a defined cycle period. This will help to avoid data overage charges from your Cellular service provider.
  - Carrier Name:** Name of the carrier or provider.
  - Cycle Period:** Cycle period duration in hours, weeks, or months.
  - Cycle Start Date:** Cycle period start date and time.
  - Data Allowance:** Set amount of data allowed during the cycle period.
  - Halting Internet:** Stop internet connection when the maximum data allowance is reached during the cycle period.
4. **Connection Control:** Setup WAN connection to be **Always on**, **Connect-On-Demand**, or **Connect Manually**.
5. **Time Schedule:** Set the WAN connection to be active for a certain predefined period. Choose from **Always** or **By Schedule**. If you choose **By Schedule**, add a new schedule at **System > Scheduling**.
6. **MTU:** Maximum Transmit Unit. Different WAN connections have different values. If unsure, use default value of **0** (Auto).
7. **IP Passthrough:** This is a bridge mode between a LAN device and a WAN interface. For security, assign a WAN interface IP Address to a fixed MAC address on the LAN device.
8. **NAT:** Enable or disable the NAT mechanism between the LAN and WAN interfaces. The default is disable, bridge mode only.
9. **Network Monitoring (keep alive):** Monitor the WAN interface connection status. Check **Enable** and the system will monitor when there is no activity for a defined period of time, it will reset the cellular connection.

10. **Data Load Check:** Enable this option if there are continuous incoming and outgoing data packets passing through the WAN connection. If no data traffic is detected for the duration of the check interval, it will disconnect and reconnect the 3G/4G WAN connection.
11. **Check Interval:** Indicate how often to check the data traffic on the WAN connection.

## Ethernet LAN

This device has one Ethernet LAN port to connect to one external Ethernet device. To configure, on the menu on the left go to **Basic Network > LAN**.

1. **LAN IP Address:** Enter the LAN's IP address. This IP address must be used as the computer's default gateway. This is also the IP address of the web UI. If you change this, type in the new IP address into a web browser to see the web UI.
2. **Subnet Mask:** Enter the LAN's subnet mask. This defines how many clients are allowed in one network or subnet. The default subnet is 255.255.255.0 and allows for a maximum of 254 IP addresses.

## Dynamic DNS

To host a server on a changing IP address, you have to use dynamic domain name service (DDNS). DDNS maps the name of your host to the current IP address, which changes each time you connect to your ISP. Before you enable DDNS, you need to register an account on one of the DDNS servers in the provider list. To configure, from the menu on the left choose **Basic Network > Client/Server**.

1. **DDNS:** Check **Enable**.
2. **Provider:** The DDNS provider supports a service to bind your IP with a certain domain name.
3. **Host Name:** Register a domain name to the DDNS provider.
4. **Username/email:** Enter a username or email based on the DDNS provider requirements.
5. **Password/Key:** Enter a password or key based on the DDNS provider requirements.

## DHCP Server

The gateway supports DHCP server to serve the DHCP requests from a LAN device. There is one default LAN IP address that is the same as the gateway LAN interface. The subnet mask is 255.255.255.0, and the IP Pool ranges from .100 to .200 as shown on the following DHCP Server List. To edit one DHCP server configurations, click **Edit** at the end of the DHCP server information.

There is one additional option to show the DHCP client list and IP addresses of local client hosts.

To configure, from the menu on the left choose **Basic Network > Client/Server**.

1. **DHCP Server Name:** Name of the DHCP server. This is optional.
2. **LAN IP Address:** Specify the local IP address of the enabled DHCP Server. This is the LAN IP address of this gateway for the DHCP server. Normally, this IP address will be also the default gateway of local computers and devices.
3. **Subnet Mask:** Select the subnet mask for the DHCP server. The subnet mask defines how many clients are allowed in one network or subnet. The default subnet mask is 255.255.255.0/24. This means that a maximum of 254 IP addresses are allowed in the subnet. However, one of them is occupied by the LAN IP of the gateway.

4. **IP Pool Starting/Ending Address:** Specify the starting/ending address of the IP address pool. When there is a request, the DHCP server will automatically allocate an unused IP address from the IP address pool to the requesting computer.  
**Note:** The number of IP addresses in this IP pool must be less than the maximum number of subnet networks according to the set subnet mask.
5. **Lease Time:** DHCP lease time to the DHCP client.
6. **Domain Name:** This information is passed to the clients. This is optional.
7. **Primary DNS/Secondary DNS:** Assign DNS Servers. This is optional.
8. **Primary WINS/Secondary WINS:** Assign WINS Servers. This is optional.
9. **Gateway:** This is the alternate Gateway IP address. Assign another gateway to your computer when the DHCP server offers an IP address. For example, the gateway will assign an IP address to local computers but they will access the Internet through another gateway. This is optional.
10. **Server:** Check **Enable** if you want the DHCP server active.

# System

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This section includes system information, system logs, system tools (i.e. firmware updates), scheduling, and external syslog server setup.

## Change Password

1. **Old, New, and Confirmation Password:** To change your password, type in your old password, then enter in the new password in the new password and confirm password fields. Click **Save** to store your settings or **Undo** to cancel the changes.
2. **Administrator Time-out:** Other options allow you to set when there are no activities on the web user interface.
3. **Telnet with CLI:** Check to **Enable** CLI access via LAN.
4. **Connection Type:** Check to **Enable** Telnet or SSH access via LAN. The Telnet and SSH access IP port number can be configured to use custom port.

## System Information

This section displays System Information for the WAN interface and the current date and time.

## System Status

System Status displays and captures log information. It also allows log files to be sent to an external syslog server.

1. **Web Log:** Check **Enable** for System, Attacks, Drop, and Debug categories, then click **Save**. Click **View** to display or download log files.
2. **Syslogd:** Check to **Enable** logging to an external syslog server. The external syslog server's IP address can be configured using the **External Servers** option.

## System Tools

Options to setup system time, perform firmware updates, ping test, trace route test, reboot or schedule a reboot, reset to factory defaults, wake up on LAN, and backup configuration settings.

- **System Time:** Configure the time zone. You can select sync current time and date with external time server or local PC time.
- **Firmware Upgrade/Configuration Restore:** Perform firmware upgrade or restore a backup configuration file.

**Note:** To check the current firmware version, refer to the top of the page after login.

- **Reboot:** Select reboot now or set a schedule for an auto-reboot to occur.
- **Reset to Default:** Reset all settings back to factory defaults.
- **Backup Configuration Settings:** Save all current settings to a configuration file.

## Scheduling

1. **Enable** the schedule function and setup a rule for each schedule. The rule can be used in many other functions, such as scheduling an auto-reboot, scheduling an auto WAN connectivity, etc.
2. Click **Save** to store all schedule settings.

## External Servers

1. Click **Add** to add and configure an external syslog server. The server will allow logging to be captured via an external syslog server.
2. Click **Save** to save all the server settings.

# Safety Warnings

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## Ethernet Ports

**CAUTION:** Ethernet ports and command ports are not designed to be connected to a public telecommunication network.

## Radio Frequency (RF) Safety

Due to the possibility of radio frequency (RF) interference, it is important that you follow any special regulations regarding the use of radio equipment. Follow the safety advice given below.

- Operating your device close to other electronic equipment may cause interference if the equipment is inadequately protected. Observe any warning signs and manufacturers' recommendations.
- Different industries and businesses restrict the use of cellular devices. Respect restrictions on the use of radio equipment in fuel depots, chemical plants, or where blasting operations are in process. Follow restrictions for any environment where you operate the device.
- Do not place the antenna outdoors.
- Switch OFF your wireless device when in an aircraft. Using portable electronic devices in an aircraft may endanger aircraft operation, disrupt the cellular network, and is illegal. Failing to observe this restriction may lead to suspension or denial of cellular services to the offender, legal action, or both.
- Switch OFF your wireless device when around gasoline or diesel-fuel pumps and before filling your vehicle with fuel.
- Switch OFF your wireless device in hospitals and any other place where medical equipment may be in use.

## Interference with Pacemakers and Other Medical Devices

### Potential interference

Radio frequency energy (RF) from cellular devices can interact with some electronic devices. This is electromagnetic interference (EMI). The FDA helped develop a detailed test method to measure EMI of implanted cardiac pacemakers and defibrillators from cellular devices. This test method is part of the Association for the Advancement of Medical Instrumentation (AAMI) standard. This standard allows manufacturers to ensure that cardiac pacemakers and defibrillators are safe from cellular device EMI.

The FDA continues to monitor cellular devices for interactions with other medical devices. If harmful interference occurs, the FDA will assess the interference and work to resolve the problem.

### Precautions for pacemaker wearers

If EMI occurs, it could affect a pacemaker in one of three ways:

- Stop the pacemaker from delivering the stimulating pulses that regulate the heart's rhythm.
- Cause the pacemaker to deliver the pulses irregularly.
- Cause the pacemaker to ignore the heart's own rhythm and deliver pulses at a fixed rate.

Based on current research, cellular devices do not pose a significant health problem for most pacemaker wearers. However, people with pacemakers may want to take simple precautions to be sure that their device doesn't cause a problem.

- Keep the device on the opposite side of the body from the pacemaker to add extra distance between the pacemaker and the device.
- Avoid placing a turned-on device next to the pacemaker (for example, don't carry the device in a shirt or jacket pocket directly over the pacemaker).

# Regulatory Information

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## 47 CFR Part 15 Regulation Class B Devices

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### FCC Interference Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

### Industry Canada Class B Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement Canadien sur le matériel brouilleur.

This device complies with Industry Canada license-exempt RSS standard(s). The operation is permitted for the following two conditions:

1. the device may not cause harmful interference, and
2. the user of the device must accept any interference suffered, even if the interference is likely to jeopardize the operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### Industry Canada

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## Restriction of the Use of Hazardous Substances (RoHS)



**Multi-Tech Systems, Inc.**

**Certificate of Compliance**

**2011/65/EU**

Multi-Tech Systems, Inc. confirms that its embedded products comply with the chemical concentration limitations set forth in the directive 2011/65/EU of the European Parliament (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment - RoHS).

These MultiTech products do not contain the following banned chemicals<sup>1</sup>:

- Lead, [Pb] < 1000 PPM
- Mercury, [Hg] < 1000 PPM
- Hexavalent Chromium, [Cr+6] < 1000 PPM
- Cadmium, [Cd] < 100 PPM
- Polybrominated Biphenyl, [PBB] < 1000 PPM
- Polybrominated Diphenyl Ether, [PBDE] < 1000 PPM

Environmental considerations:

- Moisture Sensitivity Level (MSL) =1
- Maximum Soldering temperature = 260C (in SMT reflow oven)

<sup>1</sup>Lead usage in some components is exempted by the following RoHS annex, therefore higher lead concentration would be found in some modules (>1000 PPM);

- Resistors containing lead in a glass or ceramic matrix compound.

## Waste Electrical and Electronic Equipment Statement

**Note:** This statement may be used in documentation for your final product applications.

### WEEE Directive

The WEEE Directive places an obligation on EU-based manufacturers, distributors, retailers, and importers to take-back electronics products at the end of their useful life. A sister directive, ROHS (Restriction of Hazardous Substances) complements the WEEE Directive by banning the presence of specific hazardous substances in the products at the design phase. The WEEE Directive covers all MultiTech products imported into the EU as of August 13, 2005. EU-based manufacturers, distributors, retailers and importers are obliged to finance the costs of recovery from municipal collection points, reuse, and recycling of specified percentages per the WEEE requirements.

### Instructions for Disposal of WEEE by Users in the European Union

The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources

and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

July, 2005



## **PTCRB Requirements**

There cannot be any alteration to the authorized antenna system. The antenna system must be the same type with similar in-band and out-of-band radiation patterns and maintain the same specifications.