

# LAN-Cell 3

4G/3G Cellular Router + VPN + Firewall

## Quick Start Guide

Version 5.1



### The REALLY QUICK Start Guide

1. Insert an activated USB modem & power on the LAN-Cell 3.
2. Wait 60 sec. for the Status & USB LEDs to stop flashing.
3. Connect a DHCP-enabled PC to one of the 4 LAN ports.

The LAN-Cell will automatically detect the USB modem and connect to the Internet. The USB LED will be solid green when the connection is active.

If the modem fails to initialize or connect to the Internet:

- Browse to <http://192.168.1.1:8080> Username/Password: admin/1234
- Select Setup > WAN from the drop-down menus
- Select your modem model and service provider under WAN (USB Modem)
- Click "Save Settings"
- Power-cycle the LAN-Cell to make a cellular connection

**Check <http://support.proxicast.com> for the latest firmware updates**



## Introducing the LAN-Cell 3

The LAN-Cell 3 is the most advanced and secure way to provide cellular Internet access to Ethernet-based devices. Use the LAN-Cell 3 to provide access to remote equipment, gather telemetry or other M2M data, establish Internet service in temporary locations, or back-up wired Internet service with a 4G/3G cellular connection.

Beyond Internet connectivity, the LAN-Cell 3 provides an integrated full-featured IP router, 802.11 b/g/n Wi-Fi access point and client, automatic WAN fail-over, policy-based routing, bandwidth management (QoS), and special features to maximize up-time. Security features include built-in IPsec & PPTP VPN clients and servers, 3DES & AES encryption, DMZ and VLAN support, an SPI firewall and NAT/PAT services. The LAN-Cell's platform independent tablet-friendly embedded management interface makes setup easy and allows the LAN-Cell to be managed from the LAN or remotely over the Internet with any web browser on any PC, tablet or smartphone.



**Figure 1: Typical LAN-Cell 3 Network Configuration**

This guide covers the initial configuration needed to start using the LAN-Cell 3. Please see the *LAN-Cell 3 User's Guide* for more information on all of the LAN-Cell 3's features. Also refer to Proxicast's Support Web Site (<http://support.proxicast.com>) for technical notes, application configuration examples and knowledgebase articles.

## Package Contents

- LAN-Cell 3
- Multi-Function Mounting Base with Modem-LOCK
- 120/240 VAC to 12 VDC Power Adapter
- 2x 3 dBi Wi-Fi Antennas
- 1x CAT5e Cable
- 4x Rubber Feet
- Mounting Hardware Kit
- Quick Start Guide

# Indicators & Connections



Figure 2: LAN-Cell 3 Front Panel

LABEL	LED STATE	DESCRIPTION
<b>USB MODEM</b>		USB 2.0 port for 4G/3G USB modems only
<b>USB</b>	Flashing	USB modem is initializing – or – USB modem is not registered on the carrier network – or – There is no compatible cellular service available at the current location
	Solid	USB modem has made a connection & has been assigned an IP address
<b>Wi-Fi</b>	Solid	The LAN-Cell’s internal Wi-Fi radio is enabled
<b>OS</b>	Solid	An internal OS error has occurred
<b>PWR</b>	Solid	Power is on
<b>STAT</b>	Flashing	Power-on Self Test is in progress (approx. 60 sec)
	Solid	LAN-Cell is at normal operational status
<b>WAN</b>	Solid	Link Status on the wired WAN Ethernet port
	Flashing	Data activity on the wired WAN Ethernet port
<b>LAN 1-4</b>	Solid	Link Status on the corresponding LAN Ethernet port
	Flashing	Data activity on the corresponding LAN Ethernet port
<b>EJECT USB</b>		Press & hold for 5 seconds and wait for LED to stop flashing before removing a USB modem
<b>RESET</b>		Press & hold for 5 seconds until the STAT LED begins to flash. Wait for STAT LED to stay on solid. This returns the LAN-Cell to its default settings: LAN IP = 192.168.1.1:8080 Username/Password = admin/1234



**Figure 3: LAN-Cell 3 Rear Panel**

LABEL	DESCRIPTION
<b>Wi-Fi (B)*</b>	Attach one of the supplied cylindrical Wi-Fi antennas to this RP-SMA (reverse polarity) connector if using the LAN-Cell's integrated 802.11 b/g/n radio.
<b>LAN 1-4 (yellow)</b>	Connect equipment to these ports with Ethernet cables. These ports are auto-negotiating (supporting 10, 100, 1000 Mbps) and auto-sensing (adjusts to the Ethernet cable type: straight-through vs. cross-over).
<b>WAN (blue)</b>	Connect a cable/DSL modem or other 10/100/1000 Ethernet-based WAN equipment to this auto-sensing/auto-negotiating port.
<b>PWR</b>	Connect the included 12V DC power adapter to this jack. This is a 2.1mm center pin positive connector.
<b>ON/OFF</b>	Power Switch. Insert a #6-32 screw into the Multi-Function Mounting Base to prevent accidental disengagement of the switch.
<b>Wi-Fi (A)*</b>	Attach one of the supplied cylindrical Wi-Fi antennas to this RP-SMA (reverse polarity) connector if using the LAN-Cell's integrated 802.11 b/g/n radio.

\* Attaching other types of antennas (such as antennas with standard SMA, TNC or FME connectors) to this jack may damage the antennas and/or Wi-Fi antenna jack!

## LAN-Cell 3 Default Settings

<b>LAN-Cell's LAN IP Address</b>	192.168.1.1
<b>HTTP Management Access</b>	admin / 1234 on port 8080
<b>LAN DHCP Server</b>	192.168.1.33 to .65 Subnet mask 255.255.255.0
<b>USB 4G/3G WAN</b>	Auto Detect & Configure
<b>Ethernet WAN</b>	DHCP Client Enabled
<b>Wi-Fi Access Point</b>	Disabled
<b>DNS Host Name</b>	serial#.proxidns.com

Press the RESET button for 5 seconds to return the LAN-Cell to these settings.

# LAN-Cell 3 Web Management Interface

The LAN-Cell's web management interface is divided into 3 sections (Figure 4):

1. Drop-down Navigation Menus
2. The Status Summary Column
3. Configuration Parameters



Figure 4: Typical LAN-Cell 3 Screen

## Menu Structure

<b>Status</b>	Provides real-time and historical information about the LAN-Cell's operation.
<b>Setup</b>	Changes the LAN-Cell's LAN, WAN, DHCP, DDNS, Time and other settings. The WAN screen configures the USB modem and wired Ethernet connections. WAN Advanced configures fail-over modes and related settings.
<b>Wireless (Wi-Fi)</b>	Configures the LAN-Cell's embedded 802.11 b/g/n Wi-Fi radio.
<b>Security</b>	Includes screens for configuring the LAN-Cell's firewall, filtering, and VPN features.
<b>Applications</b>	Port-Forwarding, DMZ and other application-specific settings.
<b>QoS</b>	Enables Quality-of-Service (bandwidth management) and performance enhancing features.
<b>Admin</b>	Includes system management, firmware updates, utilities and system event logging.

# Configuring the LAN-Cell 3

- Step 1:** Enter **http://192.168.1.1:8080** as the web site address in a web browser.
- Step 2:** At the **Login** screen (Figure 5), enter the default Username=**admin** and the default Password=**1234**. Click **Login** to proceed.
- Step 3:** The LAN-Cell's **Router Status** screen will be displayed (Figure 6).
- Step 4:** Changing the default password highly recommended! Navigate to the **Admin > Management** screen (Figure 7). Enter a new password, retype it to confirm and click **Save Settings**.



Figure 5: Login Screen



Figure 6: Router Status Screen

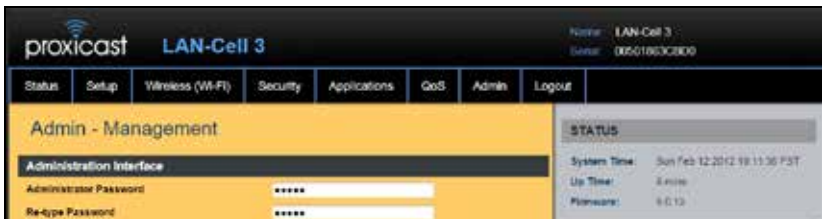


Figure 7: Changing the Password

## Configuring USB Modems

The LAN-Cell 3 auto-recognizes and configures itself for over 100 different USB modem models on dozens of cellular service provider networks. Please refer to the *LAN-Cell 3 Firmware Release Notes* for the list of currently supported modems.

The USB modem may need to be activated with a cellular service provider before it can be used in the LAN-Cell 3. [Follow the service provider or modem manufacturer's instructions for activating, testing, and updating the firmware on the USB modem before attempting to use it in the LAN-Cell 3.](#)

Proxicast recommends implementing the WAN Fail-Over Connectivity Check found on the **Setup > WAN Advanced** screen for maximum 4G/3G connection reliability. By default, this feature is enabled and configured to ping a high-availability server.

Some modems require cellular service provider specific settings to be entered on the LAN-Cell 3's **Setup > WAN** screen. If the USB modem and carrier settings are not auto-detected, obtain the following information from the service provider:

Parameter	Your Cellular Carrier's Settings
APN <sup>†</sup>	
Authentication Type	
Username / Password	
ISP Access # <sup>⓪</sup>	#777 for CDMA, *99# for GSM
PIN Code <sup>‡</sup>	

† APN applies only to GSM carriers. Many GSM carriers operate different APNs for different types of data service plans.

⓪ The LAN-Cell does not use the phone number assigned to the USB modem. That number is used only by the provider.

‡ The 4 digit PIN code field is required only if the SIM/RUIM is has been locked.

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**Once the LAN-Cell is functioning satisfactorily, Proxicast strongly recommends backing up the device configuration to a PC.**

**See: Admin > Management > Configuration > Export**

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## External Antenna Connections

Most USB modems include one or more external antenna ports. Consult the documentation of the USB modem for the location of these ports. For modems without external antenna ports, use a USB extension cable to relocate the modem for improved signal strength if necessary.

Use a LAN-Cell "pigtail" consisting of the connector for the USB modem and a standard SMA female jack. Install the SMA connector in one of the four "D" shaped SMA mounting holes in the Multi-Function Mounting Base (Figure 8).

**Warning:** The external antenna ports on USB modems are very fragile. Use extreme care when inserting and removing antenna pigtails.

# Multi-Function Mounting Base

The LAN-Cell 3's Multi-Function Mounting Base (Figures 8 & 9) provides:

- A. Wall and deck mounting options
- B. Multiple external antenna mounting points
- C. Cable management slots & tie-down posts
- D. Power switch & plug locking features
- E. Modem-LOCK™ USB modem retention system

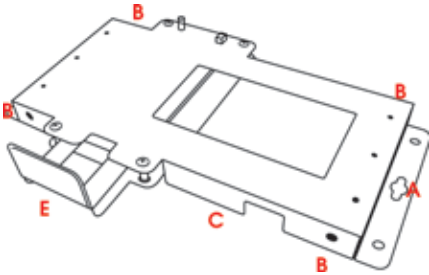


Figure 8: Mounting Base

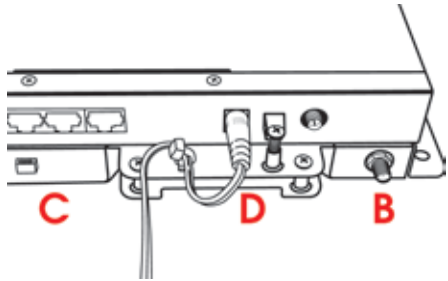


Figure 9: Power Lock Features

## Modem-LOCK™

The LAN-Cell 3's patent-pending Modem-LOCK system is a mechanism for securing a USB modem to prevent it from being removed or coming loose in mobile applications.

Simply insert a USB modem into the LAN-Cell 3's USB port. Then slide the Modem-LOCK against the modem. Use the four screws (2 front, 2 rear) to secure the Modem-LOCK into place (Figure 10).

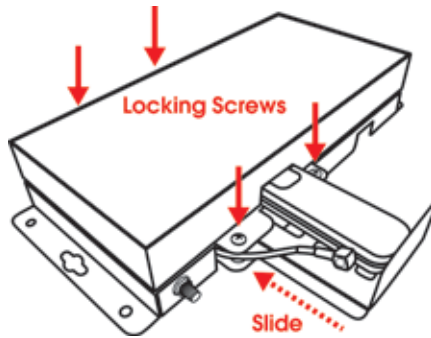


Figure 10: Modem-LOCK Operation



## Common Tasks

HOW TO	WHERE	ACTION
Change the LAN-Cell's IP address/subnet	Setup > LAN	Enter the IP address to assign to the LAN-Cell and select the subnet mask for the LAN. The DHCP Server will automatically adjust to the new subnet.
Configure the USB modem	Setup > WAN	Select the modem model and service provider from the drop-down lists or override the settings using Manual mode.
Enable Wi-Fi	Wireless > Basic	Enable the Wi-Fi radio and configure the Access Point's SSID and security settings.
Forward ports to LAN devices	Applications > Port Forwarding	Click the <b>Add</b> button to create a new port-forward/translation rule.
Set up a VPN	Security > VPN	Select either the PPTP or IPsec menus to create the corresponding VPN connection.
Connect to a remote Wi-Fi network	Setup > WAN Wi-Fi must first be enabled via Wireless > Basic	Change the Connection Type of the Ethernet WAN to <b>Wi-Fi Client</b> and enter the connection details for the remote Wi-Fi network.
Configure Dynamic DNS settings	Setup > DDNS	Select the preferred DDNS service provider and enter the required login information and host name.  Each LAN-Cell 3 also has a unique permanent DNS name: <i>serial#.proxidns.com</i>
Configure WAN keep-alive & fail-over	Setup > WAN Advanced	Set primary WAN, fail-over target and tolerance parameters to periodically send pings to detect WAN failures.
Restart Periodically	Setup > Time	Select the frequency for the LAN-Cell 3 to automatically reboot.
Change the default unit name	Admin > SNMP	Enter the System Identification parameters.
Change the default password	Admin > Management	Passwords are <u>case sensitive</u> . The username cannot be changed from "admin" however, multiple users may log in concurrently.
Update Firmware	Admin > Management	Download firmware updates from <a href="http://support.proxicast.com">http://support.proxicast.com</a>

Consult the *LAN-Cell 3 User's Guide* for more detailed information on how to configure all of the LAN-Cell's features.

# Troubleshooting

PROBLEM	CORRECTIVE ACTION
None of the LEDs turn on	Ensure that the correct power adapter is connected to the LAN-Cell and plugged in to an appropriate power source. If the LEDs still do not turn on, there may be a hardware failure.
Cannot access the LAN-Cell from a PC on the LAN	<p>Check the cable between the computer (or hub/switch) and the LAN-Cell. Check that the corresponding LAN port LED is ON.</p> <p>Configure the PC to receive its IP settings via DHCP (automatic assignment).</p> <p>Confirm that any other network interfaces on the PC (such as Wi-Fi) are disabled. Wi-Fi cannot be used for the initial configuration of the LAN-Cell – the internal Wi-Fi Access Point is disabled by default.</p>
Cannot ping any computer on the LAN	<p>If the LAN LEDs are off, check the cable connections.</p> <p>Verify that the IP address and subnet of the LAN-Cell is in the same range as the computers on the LAN and that the LAN-Cell is the default gateway for all LAN devices.</p>
<p>USB modem does not initialize</p> <p>(USB LED continues to flash)</p>	<p>Confirm that the USB modem has been activated by the cellular carrier. Follow their instructions for activating the modem using a Windows PC.</p> <p>Ensure that the SIM/RUIM card (if required) is properly inserted.</p> <p>Network registration may take several minutes.</p> <p>Confirm that the USB modem is supported by the LAN-Cell's current firmware version.</p>
<p>Cannot make (or maintain) a cellular data connection when cellular signal is present</p> <p>(i.e. no USB WAN IP address)</p>	<p>Confirm that the USB modem's APN, Username, Password, Authentication Type, PIN and ISP Access Phone Number settings are correct for the cellular service provider.</p> <p>Confirm that the USB modem has been provisioned with the correct type of Internet access data service.</p> <p>Confirm that the USB modem has been activated by the carrier and/or by using a Windows PC.</p> <p>Consult the manufacturer's documentation for the USB modem regarding its LED status indicators.</p>

## Troubleshooting

PROBLEM	CORRECTIVE ACTION
<p>Wrong type of 4G/3G WAN IP address is assigned</p> <p>(i.e. dynamic instead of static or private instead of public)</p>	<p>The IP address assigned to the LAN-Cell's WAN interface is controlled by the cellular service provider. Confirm that the account has been provisioned for the proper type of IP address and that the connection parameters match those required by the service provider.</p> <p>"Static" cellular IP addresses are assigned by the carrier via a DHCP process – the static cellular IP address is not configured in the LAN-Cell in advance.</p>
<p>Cellular Signal Strength is low</p>	<p>Cellular data connections may be unreliable if the signal strength is poor (&lt; 20%).</p> <p>Check that the proper external antenna is securely attached to the USB modem.</p> <p>Use a USB extension cable to locate the USB modem to a more favorable location.</p> <p>Move the LAN-Cell to a location where the carrier's signal is stronger or use a higher-gain antenna or amplifier.</p>
<p>Cannot get a WAN IP address from the Ethernet WAN ISP</p>	<p>The WAN IP address is provided after the ISP verifies the MAC address, host name or User ID. Confirm the verification method used by the ISP and configure the corresponding fields.</p> <p>Check the LAN-Cell's connection to the wired WAN (cable/DSL modem). Check whether the Ethernet WAN connection requires a crossover or straight cable.</p> <p>Check the settings in the WAN screens, especially the fail-over/load balancing parameters.</p>
<p>Wi-Fi clients periodically disconnect, esp. when LAN-Cell configuration parameters are updated</p>	<p>Some updates to the LAN-Cell's configuration require that the Wi-Fi Access Point be reinitialized, causing client connections to drop. Configure Wi-Fi clients to automatically reconnect to the LAN-Cell.</p> <p>Upgrade the firmware and driver software on Wi-Fi client devices to the latest version.</p>
<p>After pressing RESET, cannot make a cellular connection</p>	<p>The RESET button returns the LAN-Cell to its factory default settings including clearing any cellular modem parameters. The USB modem settings may have to be manually reconfigured if the modem is not auto-detected.</p>

## Common Carrier-Specific Issues

CARRIER	COMMENT
Verizon Wireless 4G/LTE	<p>Verizon Wireless' LTE network currently provides only NAT'd private IP addresses (10.x.x.x). This prevents all Internet initiated inbound connections from reaching the LAN-Cell. Use the LAN-Cell's VPN features to make an outbound connection to a VPN server on another network. NAT-Traversal (NAT-T) must be enabled on the VPN server.</p> <p>To avoid address conflicts, do not use 10.x.x.x addressing on the LAN-Cell's LAN subnet.</p>
Verizon Wireless 3G/CDMA 4G/LTE	<p>Verizon Wireless' default gateways do not respond to ICMP (ping) packets. Do not select the "Default Gateway" option under <b>Setup &gt; WAN Advanced &gt; Fail-Over</b>; select another public IP address.</p>
AT&T Wireless	<p>The "broadband" and "isp.cingular" APN's block <u>all</u> packets originating from the Internet. To access the LAN-Cell or other equipment remotely, request that AT&amp;T provide access to the "internet" APN, or another APN which offers <i>mobile terminated data service</i>. Or use the LAN-Cell's VPN features to make an outbound connection to a VPN server on another network.</p> <p>Do not select the "Default Gateway" option under <b>Setup &gt; WAN Advanced &gt; Fail-Over</b>; select another public IP address.</p>
Sprint	<p>Sprint blocks access to ports 80 &amp; 5000 (and perhaps others) from Internet addresses. Move LAN devices to different port numbers or use the LAN-Cell's Port Forwarding feature to redirect open public ports to the blocked ports on the LAN.</p>

Also see our online Knowledge Base at <http://support.proxicast.com> for more troubleshooting tips, documentation, TechNotes and configuration examples.



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