

LAN-Cell Gateway Series

Secure Cellular Data Gateway

Quick Start Guide

Models

1xMG-401

1xMG-401A

1xMG-401S

February 2007



Introducing the LAN-Cell 1x Mobile Gateway

The LAN-Cell is the ideal gateway for all data passing between cellular carrier data networks and LAN-attached devices. By integrating a full-featured IP router (including NAT, firewall and VPN capability) with an embedded cellular data modem, Proxicast's LAN-Cell is a complete security solution that protects your intranet, efficiently manages data on your network, and intelligently controls the use of cellular data network access. The embedded web configurator is easy to operate and totally independent of the operating system platform you use.

I. Hardware Installation

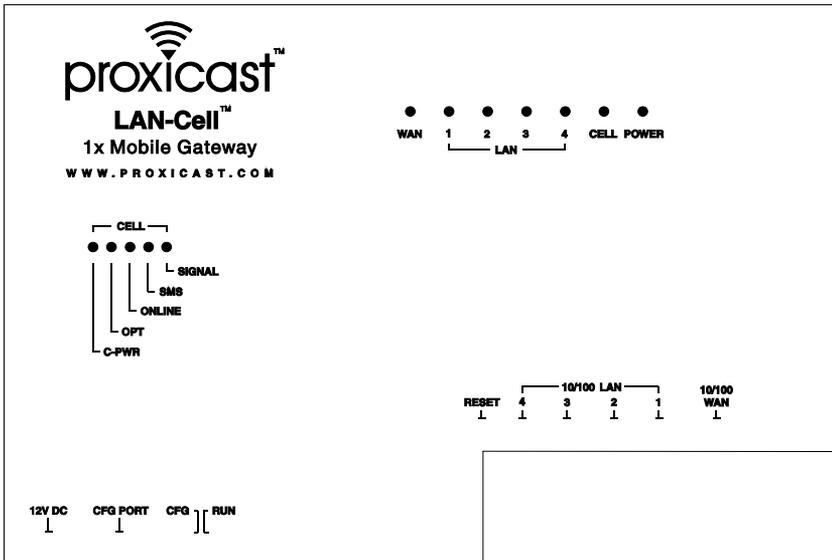


Figure 1: LAN-Cell 1x Mobile Gateway (*Model 1xMG-401S shown*)

Front Panel LEDs

LABEL	DESCRIPTION
Power	Indicates that power is supplied to the LAN-Cell. The Power LED blinks while performing system testing and stays on if the testing is successful. Red indicates that the supplied voltage is too low.
Cell	Indicates activity between the router and its cellular modem.
WAN & LAN 1-4	Indicate Link Status and Activity on the corresponding ports. Green = 10 Mbps, Orange = 100 Mbps
Cell Signal	Indicates that the embedded cellular modem has detected the presence of a signal from the carrier for which it is configured.
Cell SMS	Indicates that an SMS message has been received.
Cell Online	Turns on when the cellular modem has made a successful data connection to the carrier. Minute and/or data charges may be incurred when this LED is ON. Consult your cellular service provider for details regarding your cellular data service plan.
Cell OPT	Future Use. (<i>model 1xMG-401S only</i>)
Cell C-PWR	Indicates that power is being supplied to the internal modem.

Front Panel Connections

LABEL	DESCRIPTION
12VDC	Connect the included power adapter (use only this adapter) to this power socket.
CFG Port	This DB9 connection is used to access the embedded cellular modem for configuration, if necessary (<i>see Activating the Cellular Modem</i>). The CFG Port communication parameters are 115200 bps, no parity, 8 data bits, 1 stop bit and hardware flow control. Use the supplied DB9/DB25 serial cable.
CFG/RUN Switch	Set this switch to CFG to access the modem configuration via the CFG Port. Otherwise, set the switch to RUN . Note: moving the switch from RUN to CFG will disconnect any active cellular modem connection.
Reset	Only use this button if you've forgotten the LAN-Cell's password. It returns the LAN-Cell its factory defaults (password is 1234, LAN IP 192.168.1.1), <u>not necessarily the "as-shipped" configuration for your specific carrier</u> . Use only as a last resort.
10/100 LAN 1-4	Connect computer equipment to these ports with Ethernet cable. These ports are auto-negotiating (can connect at 10 or 100 Mbps) and auto-sensing (automatically adjust to the type of Ethernet cable you use, straight-through or crossover).
10/100 WAN	Connect a cable/DSL modem or other Ethernet-based WAN equipment to this port.
Antenna	Attach the supplied antenna to the SMA connector located on the side of the LAN-Cell, near the Proxicast logo. Use only the antenna supplied with your unit. Be sure to tighten the antenna connector fully to ensure a reliable cellular connection.

II. LAN-Cell Default Connection Parameters

The factory default settings for the LAN-Cell's key interfaces are:

LAN-Cell's IP Address	192.168.1.1
LAN DHCP Server	ON
LAN DHCP Settings	192.168.1.33 to .64 Subnet mask 255.255.255.0
WAN DHCP Client	ON
Management Access Password	1234
CFG Port	115200 bps, no parity, 8 data bits, 1 stop bit and hardware flow control.

III. Configuring the LAN-Cell

Activating the Cellular Modem

Your LAN-Cell may have been activated at the factory or by your reseller. If so, the LAN-Cell's Electronic Serial Number (ESN) and cellular telephone number (Mobile Identification Number or MIN) will be indicated on the label on the bottom of the unit. If this is the case, your LAN-Cell is ready to use. Otherwise, follow the steps below to activate the cellular modem.

The embedded cellular modem in the LAN-Cell must be activated with the designated cellular service provider before it can establish a cellular data connection. You must subscribe to a carrier's cellular data plan before activating the LAN-Cell. The LAN-Cell's cellular modem is pre-configured for a specific cellular service provider at the time of manufacture (indicated on the LAN-Cell's label).

LAN-Cell ESN Decimal	
LAN-Cell ESN Hexadecimal	
Mobile Directory Number (MDN)	
Mobile Information Number (MIN)	

Note: Your MDN and MIN may differ, especially if you ported your phone number from another carrier. Some carriers use only the MIN value. Both are required for Verizon Wireless. Ask your activation agent to confirm the values of both your MIN and MDN.

For Verizon Wireless USA Users

Over-The-Air (OTA) Verizon Wireless Activation (recommended approach)

- Step 1:** Contact Verizon Wireless and subscribe to a cellular data service plan. Provide them with the LAN-Cell's ESN. Verizon Wireless recognizes the LAN-Cell by its internal cellular modem module (1xMG-401 = AnyData DT2000; 1xMG-401S = AnyData DTG2000). Ask the activation agent to provide you with the Mobile Identification Number (MIN) and the Mobile Directory Number (MDN). We recommend that you request a "1X data-only" service plan with "no roaming" unless you will be using the LAN-Cell outside of the U.S.
- Step 2:** Slide the CFG/RUN switch to the CFG position.
- Step 3:** Connect a terminal (or terminal emulation program such as HyperTerminal) to the CFG Port. Use the supplied serial cable. Settings are 115200, N81, Hardware Flow Control.
- Step 4:** Type AT and press return. The modem will respond with OK.
- Step 5:** Type: AT+CDV*22899 and press return. The modem will respond with OK.

After a few seconds, the modem will respond with:

```
CONNECT
```

```
PROGRAMMING_IN_PROGRESS. . .
```

followed by a series of status messages. Programming will continue until the message:

```
COMMIT_OK
```

is displayed. At this point, the modem has been configured with the MDN, MIN and latest PRL file (preferred roaming list).

If you do not receive the COMMIT_OK message, then programming was unsuccessful. Confirm that you have adequate signal strength (AT+CSQ? command) and reattempt the OTA session. Otherwise, follow the manual activation procedure below.

You should confirm that the MDN and MIN values programmed into the modem match those assigned to your account by Verizon Wireless.

Type: AT+WMDN? and press return. The modem will respond with the programmed MDN value.

Type: AT+MIN? and press return. The modem will respond with the programmed MIN.

- Step 6:** Disconnect the serial cable and return the switch to the **RUN** position.

Your LAN-Cell is now ready to be configured for your specific application. Please see the *User's Guide* for additional information.

Manual Verizon Wireless Activation (use if OTA fails or as directed by Technical Support)

Step 1: Contact Verizon Wireless and subscribe to a cellular data service plan. Provide them with the LAN-Cell's ESN. Verizon Wireless recognizes the LAN-Cell by its internal cellular modem module (1xMG-401 = AnyData DT2000; 1xMG-401S = AnyData DTG2000). Ask the activation agent to provide you with the Mobile Identification Number (MIN) and the Mobile Directory Number (MDN). We recommend that you request a "1X data-only" service plan with "no roaming" unless you will be using the LAN-Cell outside of the U.S.

Step 2: Slide the CFG/RUN switch to the CFG position.

Step 3: Connect a terminal (or terminal emulation program such as HyperTerminal) to the CFG Port. Use the supplied serial cable. Settings are 115200, N81, Hardware Flow Control.

Step 4: Type AT and press return. The modem will respond with OK.

Step 5: **Model 1xMG-401:**

Type: AT+SPC="000000" (type the double quotes) and press return. The modem will respond with OK.

Type: AT+WMDN="0123456789" (type the double quotes) and press return, where 0123456789 is your Mobile Directory Number (MDN)

Type: AT+WMDN? and press return. The modem will respond with the programmed MDN value.

Type: AT+SPC="000000" (type the double quotes) and press return. The modem will respond with OK.

Type: AT+WMIN="1234567890" (type the double quotes) where 1234567890 is the MIN provided to you by the carrier, and press return. The modem will respond with OK.

Wait 5 seconds, then type: AT+MIN? and press return. The modem will respond with the programmed MIN.

Model 1xMG-401S:

Type: AT*OFFLINE and press return. The modem will respond with OK.

Type: AT*SPC=000000 and press return. The modem will respond with OK.

Type: AT*WMDN=0123456789 and press return, where 0123456789 is your Mobile Directory Number (MDN)

Type: AT*WMDN? and press return. The modem will respond with the programmed MDN value.

Type: AT*OFFLINE and press return. The modem will respond with OK.

Type: AT*SPC=000000 and press return. The modem will respond with OK.

Type: AT*WMIN=1234567890 where 1234567890 is the MIN provided to you by the carrier, and press return. The modem will respond with OK.

Wait 5 seconds, then type: AT*MIN? and press return. The modem will respond with the programmed MIN.

Step 6: Disconnect the serial cable and return the switch to the **RUN** position.

Your LAN-Cell is now ready to be configured for your specific application. Please see the *User's Guide* for additional information.

For Sprint PCS Users

Please see the file: \Baseline CFG Files\Sprint\SprintActivation.pdf on the LAN-Cell Support CD for information on using the *Activator.exe* program to activate the LAN-Cell on the Sprint PCS network.

Cellular Modem Activation For All Other CDMA Carriers:

Step 1: Contact the cellular carrier indicated and subscribe to a cellular data service plan. Provide the carrier with the LAN-Cell's ESN. Cellular carriers recognize the LAN-Cell by its internal cellular modem module (1xMG-401 = AnyData DT2000; 1xMG-401S = AnyData DTG2000). Ask them to provide you with the Mobile Identification Number (MIN).

Step 2: Slide the CFG/RUN switch to the **CFG** position.

Step 3: Connect a terminal (or terminal emulation program such as HyperTerminal) to the CFG Port. Use the supplied serial cable. Settings are 115200, N81, Hardware Flow Control.

Step 4: Type: AT and press return. The modem will respond with OK .

Step 5: **Model 1xMG-401:**

Type: AT+SPC="000000" (type the double quotes) and press return. The modem will respond with OK .

Type: AT+WMIN="1234567890" (type the double quotes) where 1234567890 is the MIN provided to you by the carrier, and press return. The modem will respond with OK.

Wait 5 seconds, then type: AT+MIN? and press return. The modem will respond with the programmed MIN.

Model 1xMG-401S:

Type: AT*OFFLINE and press return. The modem will respond with OK.

Type: AT*SPC=000000 and press return. The modem will respond with OK.

Type: AT*WMIN=1234567890 where 1234567890 is the MIN provided to you by the carrier, and press return. The modem will respond with OK.

Wait 5 seconds, then type: AT*MIN? and press return. The modem will respond with the programmed MIN.

Step 6: Disconnect the serial cable and return the switch to the **RUN** position.

Your LAN-Cell is now ready to be configured for your specific application. Please see the *User's Guide* for additional information.

IV. Using the Internal Web Configurator

NOTE: You can use either the embedded web configurator or the System Management Terminal (SMT) to access and configure the LAN-Cell. This Quick Start Guide shows you how to use the web configurator only. See your User's Guide for more information on all of the LAN-Cell's features and configuration options. Click the web configurator online help for screen-specific assistance.

- Step 1:** Launch your web browser. Enter `http://192.168.1.1` as the web site address.
- Step 2:** The default password ("1234") is already in the password field (in non-readable format). Click **Login** to proceed to the change password screen.
- Step 3:** It is highly recommended that you change the default password! Enter a new password, retype it to confirm and click **Apply**; alternatively, click **Ignore** to proceed if you do not want to change the password now.
- Step 4:** Click **OK** to create a unique security Certificate for the LAN-Cell or click **Ignore** to later import your own Certificate.
- Step 5:** You should now see the web configurator **Main Menu** screen.

Consult your *User's Guide* for more information on how to configure the LAN-Cell's features. Some common items you may wish to review immediately include:

- LAN** Use the screens in this area to change the LAN-Cell's IP address and its DHCP server settings.
- WAN** The screens in this area enable you to configure your Wired and Cellular WAN settings. Refer to any documentation from your service provider regarding their requirements.
- Firewall** The LAN-Cell's integrated firewall is **ENABLED** by default and is set to block inbound initiated packets to LAN devices. You may need to change the default firewall rules to suit your specific application. See the *User's Guide* for more information on configuring the firewall.
- Cellular Modem** If your LAN-Cell was purchased directly from Proxicast along with an unlimited cellular data plan, then the LAN-Cell's cellular modem is **ENABLED** and configured as **ALWAYS ON** and the unit is ready for use. Otherwise, the LAN-Cell's embedded cellular modem is **NOT ENABLED** by default. After you have activated the modem with your cellular carrier and configured the modem's MIN/MDN values via the CFG port, the cellular modem also must be configured and enabled in the WAN/Cellular Modem Screen. See the *User's Guide* or contact

your carrier or Proxicast for carrier/application specific information on these settings.

For Verizon Wireless, you must enter your login information as “MDN@vzw3g.com”, password “vzw” and set the access phone number to “#777”, where MDN is the Mobile Directory Number assigned to your ESN by Verizon Wireless. Other carriers may use different login names and passwords; contact your carrier for more information.

Once the LAN-Cell is functioning to your satisfaction, we strongly recommend that you backup the device configuration to your PC. See: Maintenance > Configuration > Backup

Special Note for Users with Cellular Static IP Addresses

Users of LAN-Cell Model 1xMG-401S on Verizon Wireless and users of other models on carriers that support static IP assignment to cellular devices should specify “Get IP Address Automatically from Remote Server” as the TCP/IP option on the Cellular Modem configuration screen. Verizon Wireless (and most other carriers) implement “static IP” by using DHCP servers that simply assign the same IP address to your ESN each time one is requested; however these “static” addresses have DHCP lease times associated with them and must be periodically renewed.

If you choose not to use DHCP assignment of your carrier’s IP address, then you must manually configure the static IP address, remote carrier IP address/subnet and you also manually specify the carriers’ DNS servers on the System/General screen.

V. Troubleshooting

PROBLEM	CORRECTIVE ACTION
None of the LEDs turn on	<p>Make sure that you have the correct power adapter connected to the LAN-Cell and have plugged it into an appropriate power source. Check all cable connections.</p> <p>If the LEDs still do not turn on, you may have a hardware problem. In this case, you should contact your vendor.</p>
Cannot access the LAN-Cell from the LAN	<p>Check the cable connection between your computer (or hub) and the LAN-Cell. Check that the corresponding LAN port LED is ON (indicates Link Status).</p> <p>Try to ping the LAN-Cell's LAN IP address from a LAN PC.</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.</p>
Cannot get a WAN IP address from the ISP	<p>The WAN IP is provided after the ISP verifies the MAC address, host name or User ID.</p> <p>Find out the verification method used by your ISP and configure the corresponding fields. Try using PAP-only authentication with no PPP compression.</p> <p>For Cellular Modem WAN connections, this problem is usually related to either a misconfigured MIN between the modem and the carrier or is the result of an incorrect username/password entered in the Cellular Modem screen. Use the AT+MIN? command via the CFG Port to verify your MIN.</p>
Cannot access the Internet via the WAN port	<p>Check the LAN-Cell's connection to the wired WAN (cable/DSL modem). Check whether your Ethernet WAN connection requires a crossover or straight cable.</p> <p>Check your settings in the WAN screens, especially the routing priority.</p>
Cell Signal LED does not come on	<p>Check that the proper antenna is securely attached.</p> <p>Connect a terminal to the CFG Port and put the switch in the CFG position. Enter AT+CSQ? and press return. The modem will respond with a signal strength indicator between 0 and 31 (higher indicates a stronger signal; 99 indicates no signal detected).</p> <p>Move the LAN-Cell to a location when the carrier's signal can be detected.</p>

PROBLEM	CORRECTIVE ACTION
Cell Online LED goes ON then OFF	This problem is usually due to an incorrect username/password entered in the Cellular Modem screen. It may also be caused if other Cellular Modem parameters do not match those required by the carrier. Contact your cellular service provider or Proxicast for more information on carrier specific settings.
Unable to perform Over-the-Air (OTA) activation (AT+CDV*22899) VerizonWireless Only	You must have the LAN-Cell in a location with cellular service. Confirm that the correct LAN-Cell ESN is registered with your cellular carrier. Confirm with your carrier that your cellular data account is configured for OTA support. If not, use the manual MIN/MDN programming method.
Cannot make a cellular data connection even when cellular signal is present	Check the position of the CFG slide switch. It must be in the RUN (right) position in order to make a cellular data connection. Confirm that the LAN-Cell's ESN has been activated by your carrier. Check that the antenna is tightly secured to the antenna port. Use the AT+CSQ? command via the CFG port to determine the signal strength. In general, CSQ must be 5+ in order to make a reliable connection.
After pressing RESET, cannot make a cellular connection	The RESET button returns the LAN-Cell to a configuration common to all models, not necessarily to the "as-shipped" configuration for your carrier. You must reconfigure the necessary connection parameters. Contact Support for assistance.

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



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