

EN-2000™ Quick Configuration Guide

The EN-2000™ is a high-performance, low-cost VPN router designed for LTE public and private networks. This compact IP router provides IP, VPN, firewall, Ethernet and IP interworking with an embedded cellular wireless LTE cell module from your choice of carrier.

The EN-2000 supports remote monitoring, video/alarm panel surveillance, business continuity, and enterprise support.

The EN-2000 router supports cellular data and traditional broadband networks such as DSL, cable, and Ethernet. The EN-2000 chassis can also support a 5 GHz 802.11 wireless module. Disaster-recovery failover and business-continuity failover are standard.

This document provides information to configure the EN-2000 router quickly. Confer with your network administrator for specific values to use in your network.

Note: For details of configuration, see the [EN-2000™ Reference Manual](#) and its customer documentation. If there are any problems when configuring the EN-2000, contact your EN-2000 distributor.

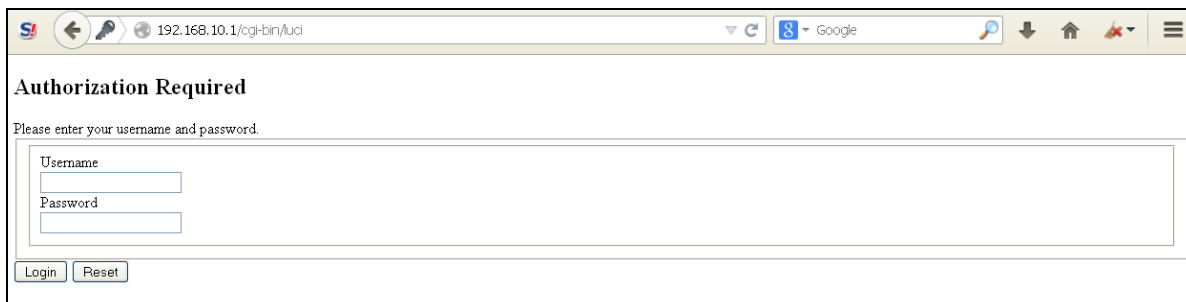
Connecting the EN-2000

- 1 Use an Ethernet cable to connect a management PC to the LAN port on the EN-2000.

Note: For details of hardware connection, see the [EN-2000™ Quick Installation Guide](#). To interpret the EN-2000's LEDs, see the [Quick Guide to EN-2000™ LED Codes](#).

- 2 Power up the EN-2000.
- 3 On the management PC, open a browser and type the IP address **192.168.10.1** in the browser's address field.

EN-2000 Log-In Screen

A screenshot of a web browser window showing the login page for the EN-2000 router. The address bar shows the IP address 192.168.10.1/cgi-bin/luci. The page title is "Authorization Required". Below the title, it says "Please enter your username and password." There are two input fields: "Username" and "Password". At the bottom left, there are two buttons: "Login" and "Reset".

192.168.10.1/cgi-bin/luci

Google

Authorization Required

Please enter your username and password.

Username

Password

Login Reset

4 Log in with the user name and the router's password.

Note: For EN-4000™ routers, the default user name is **root**. For all other EN™ routers, including the EN-2000™, the default user name is **admin**. In addition:

- Devices shipped before July 09, 2018, use the default password **encore!1**.
- Devices shipped from the factory on or after July 09, 2018, use a randomly generated default password. That password is contained in information on a sticker on the bottom of the router's chassis. Retain that sticker; you will need that default password if the router must be reset. (For details, see the document [Password Policy for EN™ Routers](#).)

Encore Networks, Inc., advises users to change a router's password upon first configuration of the router.

- ❖ After successful log-in, the EN-2000 management system's Status Overview screen opens.

EN-2000 Status Overview Screen

The screenshot displays the EN-2000 Status Overview screen. At the top, the Encore Networks logo is visible on the left, and status information (EN 2000 Phone/MTN#, Device Mode: Cell Failover, Auto Refresh: on) is on the right. Below the logo, there are tabs for Status, System, Network, Logout, and Quickstart. The main content area is titled 'Status' and shows various system and network details.

System Information:

- Device Name: EN_Router
- Device Model: EN 2000
- Firmware Version: 17322 05 00
- Build: 24522
- Local Time: Tue Oct 31 14:40:31 2017
- Operation Status: Online using WAN

Cellular Information:

- RSSI: -125 dBm
- RSRP: -125 dBm
- RSRQ: -125 dB
- SINR: 0 dB
- Connection Type: LTE
- IMEI: 359692051059211
- SIM ID: Not Available
- SIM STATUS: ERROR(CPDN SET: NA)
- IMSI: Unknown
- APN: VZWINTERNET
- Carrier: Unknown
- PCI: 0
- EARFCN: 0
- Registration Status: Not registered
- Module Name: A073100(FW: A073100_04_05_00_97_TF)

Network Status:

Network	Status
CELL eth2	Uptime: 0h 0m 0s MAC-Address: 94:B9:B4:18:E0:7E Protocols: dhcp RX: 865.90 KB (16652 Pkts.) TX: 136.71 MB (347863 Pkts.)
LAN br-lan	Uptime: 12d 2h 17m 40s MAC-Address: 00:A0:EB:03:04:FB Protocols: static RX: 860.29 MB (4384149 Pkts.) TX: 11.06 GB (8850381 Pkts.) IPv4: 192.168.10.1/24 Link Status: UP, 100Mbps, Full-Duplex
WAN eth1	Uptime: 7d 1h 9m 7s MAC-Address: 00:A0:EB:03:04:FC Protocols: dhcp RX: 1.66 GB (58149135 Pkts.) TX: 3.36 GB (48134943 Pkts.) IPv4: 192.168.101.7/24 Link Status: UP, 100Mbps, Full-Duplex

DHCP Leases

Hostname	IPv4-Address	MAC-Address	Leasetime remaining
HP-p6-2016	192.168.10.198	38:60:77:82:55:1a	9h 4m 13s

5 On the Status Overview screen, select the **Quickstart** tab.

- ❖ The Application Configuration screen opens.

EN-2000 Application Configuration Screen

The screenshot shows the 'Application Configuration' screen for the EN-2000 device. The 'Device Mode' is set to 'Cell Failover'. The configuration parameters are as follows:

Parameter	Value	Description
Device Mode	Cell Failover	Select Specific Device Mode
Device Name	Cell_Failover_Device	Custom name assigned to this device
LAN IP	192.168.10.1	IP Address assigned to the ethernet LAN port
LAN Netmask	255.255.255.0	Subnet mask of the LAN network
LAN DHCP Server	Enabled	Range varies based on mask
WAN Protocol	DHCP Client	Select Ethernet WAN Protocol
Failover Ping IP	8.8.8.8	Heartbeat monitor to determine health of Primary WAN interface
Failover Ping Timeout (seconds)	1	Number of Seconds to wait for ping response
Failover Ping Retries	5	Number of ping failures to switch to failover and number of successful pings to switch back to primary WAN
VPN Mode	None	For use with IPSec
EnCloud Enabled	Yes	Enables or disables the cloud management system

Buttons at the bottom: Reset, Save, Save & Apply.

Selecting the EN-2000's Device Mode

Make sure you have performed [step 1](#) through [step 5](#) on pages 1 and 2.

- 6 Under the heading **Parameters**, in the upper part of the Application Configuration screen, select the **Device Mode** (discussed in substeps [a](#) through [d](#)).

Note: When you select the **Device Mode**, the screen displays the parameters to configure for that mode.

- a Select **Cell Failover** for automatic connection via a cellular wireless connection when the wired connection fails.

❖ The screen displays parameters for this device mode. See [Configuring the EN-2000 for Cell Failover](#), on page 4.

- b Select **Cell Router** when cellular wireless will be the principal method of connection to a network.

Note: Configuring the EN-2000 as a cell router also configures the WAN port as a second LAN port.

The EN-2000 management system's Status screen may not show IP information for the WAN port the same way as it does for the LAN port.

❖ The screen displays parameters for this device mode. See [Configuring the EN-2000 as a Cell Router](#), on page 6.

- c Select **IP Pass-Through** to provide connection between an existing non-wireless router and a network. Connect the device to the EN-2000's LAN port.

❖ The screen displays parameters for this device mode. See [Configuring the EN-2000 for IP Passthrough](#), on page 7.

- d Select **VRRP Backup** to use the EN-2000 as a backup router in a VRRP set.

❖ The screen displays parameters for this device mode. See [Configuring the EN-2000 for VRRP Backup](#), on page 8.

Configuring the EN-2000 for Cell Failover

Make sure you have performed [step 6a](#) on page 3.

*Application Configuration Screen to use EN-2000 in Cell Failover Mode
(WAN Protocol Displayed as DHCP Client)*

The screenshot shows the 'Application Configuration' screen for the EN-2000 device. At the top, the 'Quickstart' tab is selected. The 'Device Mode' is set to 'Cell Failover'. The 'Device Name' is 'Cell_Failover_Device'. The 'LAN IP' is '192.168.10.1' and the 'LAN Netmask' is '255.255.255.0'. The 'LAN DHCP Server' is 'Enabled'. The 'WAN Protocol' is 'DHCP Client'. The 'Failover Ping IP' is '8.8.8.8', the 'Failover Ping Timeout (seconds)' is '1', and the 'Failover Ping Retries' is '5'. The 'VPN Mode' is 'None'. The 'Enable One Talk Mode' checkbox is unchecked. The 'EnCloud Enabled' dropdown is set to 'Yes'. At the bottom right, there are buttons for 'Reset', 'Save', and 'Save & Apply'.

Parameters	Value
Device Mode	Cell Failover
Device Name	Cell_Failover_Device
LAN IP	192.168.10.1
LAN Netmask	255.255.255.0
LAN DHCP Server	Enabled
WAN Protocol	DHCP Client
Failover Ping IP	8.8.8.8
Failover Ping Timeout (seconds)	1
Failover Ping Retries	5
VPN Mode	None
Enable One Talk Mode	<input type="checkbox"/>
EnCloud Enabled	Yes

7 Do the following when the EN-2000 will provide cell failover:

a Modify settings for the following parameters, if required:

- **Device Name**
- **LAN IP**
- **LAN Netmask**
- **LAN DHCP Server**
- **enCloud Enabled** (at the bottom of the screen)

b Pull down the menu at the right of the **WAN Protocol** field, and select the EN-2000's WAN protocol (**DHCP Client**, **PPPoE**, or **Static**).

❖ Parameters (listed in the table) are displayed for the selected **WAN Protocol**.

Parameters Displayed	WAN Protocol		
	DHCP Client	PPPoE	Static
PPPoE Username		•	
PPPoE Password		•	
WAN IP			•

Parameters Displayed	WAN Protocol		
	DHCP Client	PPPoE	Static
WAN Netmask			•
WAN Gateway			•
DNS Server			•
Failover Ping IP	•	•	•
Failover Ping Timeout	•	•	•
Failover Ping Retries	•	•	•
VPN Mode	•	•	•

c Configure the parameters for the WAN protocol you selected.

d If a box to **Enable Wifi Mode** is displayed, make sure the box is checked. (That checkbox is displayed only if the EN-2000 has an 802.11 wireless card.)

e If a box to **Enable One Talk Mode** is displayed, make sure the box is checked. (That checkbox is displayed only if the EN-2000 has a Verizon module.)

Note: This option is for Verizon's One Talk application. It gives priority to voice traffic.

f If a box for **enCloud Enabled** is displayed, check the box to manage this router via the enCloud™ management system.

g Go to [Configuring the EN-2000's Use of 802.11 Wireless](#), on page 9.

Configuring the EN-2000 as a Cell Router

Make sure you have performed [step 6b](#) on page 3.

Application Configuration Screen to use EN-2000 in Cell Router Mode

The screenshot shows the 'Application Configuration' screen for the EN-2000 device. At the top, the Encore Networks logo is on the left, and the device information 'EN 2000 Phone/MTN#: 12677334030' and 'Device Mode: Cell Failover' is on the right. A 'Changes: 0' indicator is in the top right corner. Below the logo is a navigation bar with 'Status', 'System', 'Network', 'Logout', and 'Quickstart' tabs. The 'Quickstart' tab is active. The main section is titled 'Application Configuration' and contains a sub-header 'Select the Device Mode and associated parameters'. Below this is a 'Parameters' section with a table of configuration options:

Device Mode	Cell Router <small>Select Specific Device Mode</small>
Two Ethernet Ports(LAN+WAN) as a Switch to Cell Broadband Router	
Device Name	Cell_Router_Device <small>Custom name assigned to this device</small>
LAN IP	192.168.10.1 <small>IP Address assigned to the ethernet LAN port</small>
LAN Netmask	255.255.255.0 <small>Subnet mask of the LAN network</small>
LAN DHCP Server	Enabled <small>Range varies based on mask</small>
VPN Mode	None <small>For use with IPSec</small>
Enable One Talk Mode	<input type="checkbox"/> <small>Enabling this changes qos parameters</small>
EnCloud Enabled	Yes <small>Enables or disables the cloud mangement system</small>

At the bottom right of the form are three buttons: 'Reset', 'Save', and 'Save & Apply'.

8 Do the following when the EN-2000 will perform as a cell router:

a Modify settings for the following parameters, if required:

- Device Name
- LAN IP
- LAN Netmask
- LAN DHCP Server
- VPN Mode
- enCloud Enabled

b If a box to **Enable Wifi Mode** is displayed, make sure the box is checked. (That checkbox is displayed only if the EN-2000 has an 802.11 wireless card.)

c If a box to **Enable One Talk Mode** is displayed, make sure the box is checked. (That checkbox is displayed only if the EN-2000 has a Verizon module.)

Note: This option is for Verizon's One Talk application. It gives priority to voice traffic.

d If a box for **enCloud Enabled** is displayed, check the box to manage this router via the enCloud™ management system.

e Go to [Configuring the EN-2000's Use of 802.11 Wireless](#), on page 9.

Configuring the EN-2000 for IP Passthrough

Make sure you have performed [step 6c](#) on page 3.

Application Configuration Screen to use EN-2000 in IP Passthrough Mode

The screenshot shows the 'Application Configuration' screen for the EN-2000 device. At the top, the Encore Networks logo is on the left, and the device information 'EN 2000 Phone/MTN#: 12677334030' and 'Device Mode: Cell Failover' is on the right. A 'Changes: 0' indicator is in the top right corner. Below the logo is a navigation bar with 'Status', 'System', 'Network', 'Logout', and 'Quickstart' tabs. The main heading is 'Application Configuration', followed by the instruction 'Select the Device Mode and associated parameters'. A 'Parameters' section contains the following fields:

- Device Mode:** A dropdown menu set to 'IP Pass-through'. Below it is a link 'Select Specific Device Mode'.
- Device Name:** A text field containing 'IP_Bridge_Device'. Below it is a link 'Custom name assigned to this device'.
- Passthrough Mode:** A dropdown menu set to 'Dynamic'. Below it is a link 'Select Pass-through Mode'.
- Management HTTPS Port:** A text field containing '14443'. Below it is a link 'TCP port to access the web interface over the cell'.
- Management IP:** A text field containing '192.168.10.1'. Below it is a link 'IP Address used to access the device'.
- Enable One Talk Mode:** A checkbox that is currently unchecked. To its right is a link 'Enabling this changes qos parameters'.
- EnCloud Enabled:** A dropdown menu set to 'Yes'. Below it is a link 'Enables or disables the cloud management system'.

At the bottom right of the configuration area are three buttons: 'Reset', 'Save', and 'Save & Apply'.

- 9 Do the following when the EN-2000 will provide cellular wireless access for an existing non-cellular router:
 - a Modify settings for the following parameters, if required:
 - **Device Name**
 - **Passthrough Mode**
 - **Management HTTPS Port**
 - **Management IP**
 - **enCloud Enabled**
 - b If a box to **Enable One Talk Mode** is displayed, make sure the box is checked. (That checkbox is displayed only if the EN-2000 has a Verizon module.)

Note: This option is for Verizon's One Talk application. It gives priority to voice traffic.
 - c If a box for **enCloud Enabled** is displayed, check the box to manage this router via the enCloud™ management system.
 - d When you are satisfied with the parameters, select the **Save & Apply** button (in the lower right corner of the screen).
 - ❖ The configuration is saved and the EN-2000 reboots. After rebooting, the log-in screen is displayed.
 - e Go to [Using the EN-2000's Configuration](#), on page 10.

Configuring the EN-2000 for VRRP Backup

Make sure you have performed [step 6d](#) on page 3.

Application Configuration Screen to use EN-2000 in VRRP Backup Mode

The screenshot shows the 'Application Configuration' screen for the EN-2000 device. The top navigation bar includes 'Status', 'System', 'Network', 'Logout', and 'Quickstart'. The 'Quickstart' tab is active. The page title is 'Application Configuration'. Below the title, it says 'Select the Device Mode and associated parameters.' The 'Parameters' section contains the following fields:

- Device Mode:** VRRP Backup (dropdown menu). Below it, a link: 'Select Specific Device Mode'.
- Device Name:** VRRP_Device (text field). Below it, a link: 'Custom name assigned to this device'.
- LAN IP:** 192.168.10.1 (text field). Below it, a link: 'IP Address assigned to the ethernet LAN port'.
- LAN Netmask:** 255.255.255.0 (dropdown menu). Below it, a link: 'Subnet mask of the LAN network'.
- VRRP ID:** 1 (text field). Below it, a link: 'VRRP identifier used by the primary router'.
- VRRP IP:** 192.168.10.3 (text field). Below it, a link: 'VRRP IP address used by the primary router'.
- VPN Mode:** None (dropdown menu). Below it, a link: 'For use with IPSec'.
- Enable One Talk Mode:** ☐ (checkbox). Below it, a link: 'Enabling this changes qos parameters'.
- EnCloud Enabled:** Yes (dropdown menu). Below it, a link: 'Enables or disables the cloud mangement system'.

At the bottom right, there are three buttons: 'Reset', 'Save', and 'Save & Apply'.

10 Do the following when the EN-2000 will act as a backup router in a VRRP set:

a Modify settings for the following parameters, if required:

- Device Name
- LAN IP
- LAN Netmask
- VRRP ID
- VRRP IP
- VPN Mode
- enCloud Enabled

b If a box to **Enable Wifi Mode** is displayed, make sure the box is checked. (That checkbox is displayed only if the EN-2000 has an 802.11 wireless card.)

c If a box to **Enable One Talk Mode** is displayed, make sure the box is checked. (That checkbox is displayed only if the EN-2000 has a Verizon module.)

Note: This option is for Verizon's One Talk application. It gives priority to voice traffic.

d If a box for **enCloud Enabled** is displayed, check the box to manage this router via the enCloud™ management system.

e Go to [Configuring the EN-2000's Use of 802.11 Wireless](#), on page 9.

Configuring the EN-2000's Use of 802.11 Wireless

Make sure the box to **Enable Wifi Mode** is checked or unchecked, to reflect whether the EN-2000 will use an 802.11 wireless connection.

11 Do the following to configure use (or non-use) of 802.11 wireless:

a If the box to **Enable Wifi Mode** is not checked, go to step 11f.

b If the box to **Enable Wifi Mode** is checked, continue to step 11c.

Note: When you select **Enable Wifi Mode**, two additional fields (**SSID** and **Encryption**) are displayed.

Fields for SSID and Encryption Type



c In the **SSID** field, type a name for this EN-2000's 802.11 wireless card. Get the name from your network administrator.

d By default, the EN-2000's 802.11 wireless card uses **No Encryption**. Do one of the following:

i If the card will not use encryption, go to step 11f.

ii If the card will use encryption, select the encryption type:

- WPA-PSK
- WPA2-PSK
- WPA-PSK/WPA2-PSK Mixed Mode

❖ When you select an encryption type, the 802.11 wireless **Key** field is displayed.

Field for Wireless Key



e Type the 802.11 wireless key in the **Key** field.

Note: The key can include 8 to 63 characters. Get the value from your network administrator.

f When you are satisfied with the parameters, select the **Save & Apply** button (in the lower right corner of the screen).

❖ The configuration is saved and the EN-2000 reboots. After rebooting, the log-in screen is displayed.

g Go to [Using the EN-2000's Configuration](#), on page 10.

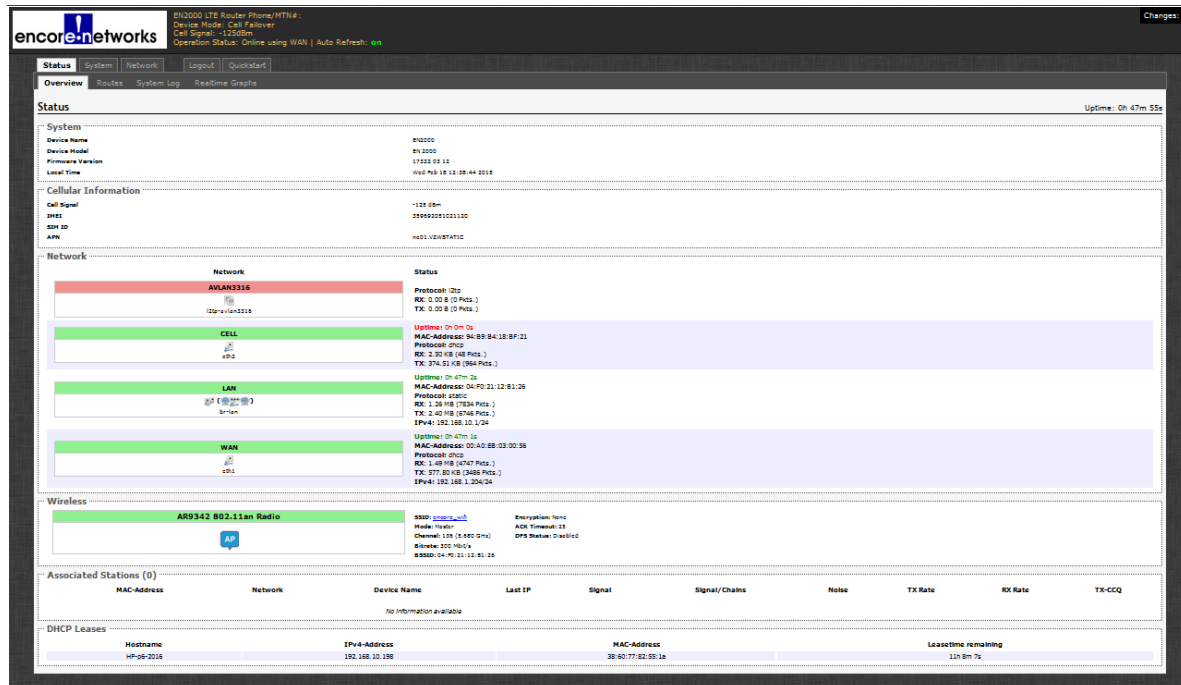
Using the EN-2000's Configuration

Make sure you have selected the **Save & Apply** button (in the lower right corner of the screen). That saves the configuration, reboots the EN-2000, and displays the log-in screen (recall the EN-2000 Log-In Screen shown on page 1).

12 When the log-in screen is displayed, log in again. (If you changed the password, use the new password.)

- ❖ The Status Overview screen is displayed. This screen provides quick information about the connections in the EN-2000.

EN-2000 Status Overview Screen



13 If you need to reconfigure the device mode (for example, to change the DHCP Server setting), select the **Quickstart** tab.

- ❖ The Application Configuration screen is displayed. The screen shows the current configuration parameters.

Note: The EN-2000 reboots only after the initial configuration (when the **Save & Apply** button is selected). Later configurations also use the **Save & Apply** button, but they do not require reboot.

Returning to the Default Configuration

! Caution: If your EN-2000's configuration is not correct, try to reconfigure the EN-2000 before returning to the default configuration. Do not perform the action described here unless there is no other way to resolve problems with the EN-2000 configuration.

- Power up the unit and wait for 2.5 minutes.
- On the front of the chassis, insert the end of a paper clip into the hole marked **Reset**.
Note: The paper clip will stop when it reaches the **Reset** button.
- Press the paper clip in slightly and hold the button in, while watching the **Sys Status** LED (also on the front of the chassis).
Note: As you hold the **Reset** button in, the **Sys Status** LED will flash slowly one time, then again a second time, then (possibly) a third time. Then it will flash fast.
- When the **Sys Status** LED starts to flash fast, release the **Reset** button.

- ❖ At this point, the **Cell** LED and **Net Status** LED should flash at the same time. This indicates that the unit is resetting back to factory defaults.
- 5 Wait one (1) full minute; then log into the EN™ router's management system (the GUI menu) via a web browser.
Note: Use the factory-set user name and default password, as described in the [Note](#) after [step 4](#), on page 2.
 - 6 When the Status Overview screen is displayed, select the **Quickstart** tab (returning to [step 5](#) on page 2) and proceed again with the EN-2000's quick configuration.