

EN-2000™ Quick Configuration Guide

The EN-2000™ is a high-performance, low-cost VPN router designed for Verizon Wireless LTE public and private networks. This compact IP router provides IP, VPN, firewall, Ethernet and IP interworking with an embedded Verizon LTE cell module. 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 customer documentation. If you have any problems when configuring the EN-2000, contact your EN-2000 distributor.

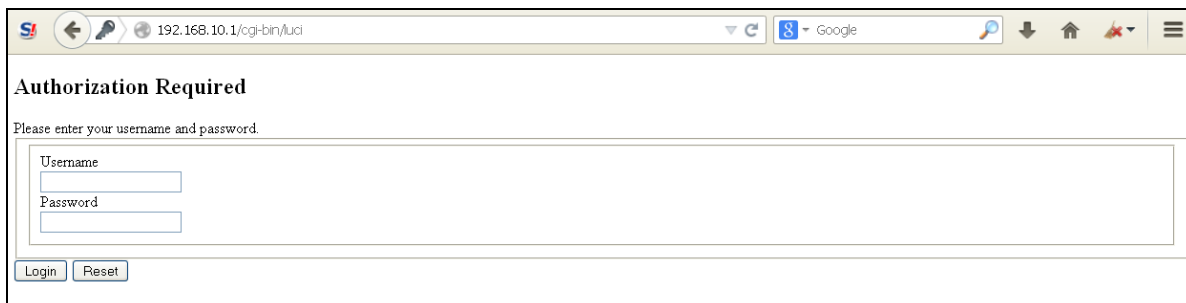
Connecting the EN-2000

- 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 showing the login page for the EN-2000 router. The address bar shows "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, there are "Login" and "Reset" buttons.

- 4 Log in with the user name (**admin**) and the password (**encore!1**).
 - ❖ The management system's Status Overview screen opens.

EN-2000 Status Overview Screen

The screenshot displays the EN-2000 Status Overview screen. At the top left is the 'encore networks' logo. To its right, it shows 'EN 2000 Phone/MTN#:', 'Device Model: Call Failover', and 'Auto Refresh: on'. A 'Changes: 0' indicator is in the top right corner. Below the logo is a navigation bar with tabs for 'Status', 'System', 'Network', 'Logout', and 'Quickstart'. Underneath, there are sub-tabs for 'Overview', 'Routes', 'System Log', 'Realtime Graphs', and 'EnCloud'. The main content area is titled 'Status' and includes a clock showing 'Uptime: 12d 2h 18m 3s'. It is divided into three main sections: 'System', 'Cellular Information', and 'Network'. The 'System' section lists device details like name, model, firmware, and local time. 'Cellular Information' shows signal strength (RSSI, RSRP, RSRQ, SINR), connection type (LTE), and IMEI. The 'Network' section details three interfaces: CELL (eth2), LAN (br-lan), and WAN (eth1), each with its own status, uptime, MAC address, protocol, and traffic statistics. At the bottom, a 'DHCP Leases' table lists a lease for 'HP-p6-2016' with its IPv4 address, MAC address, and remaining lease time.

System

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	AD73100 FW: AD73100_04_05_06_00_97_TF)

Network

Network	Status
CELL eth2	Uptime: 0h 0m 0s MAC-Address: 94:B9:B4:18:E0:7E Protocol: 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 Protocol: 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 Protocol: dhcp RX: 1.66 GB (58149135 Pkts.) TX: 3.36 GB (48154943 Pkts.) IPv4: 192.168.101.79/24 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 an EN-2000 device. The 'Device Mode' is set to 'Cell Failover'. The parameters are as follows:

Parameter	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
EnCloud Enabled	Yes

Buttons at the bottom right: 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.

- ❖ 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 in 'Cell Failover' mode. The 'WAN Protocol' is set to 'DHCP Client'. The parameters are as follows:

Parameter	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
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			•
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 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 LTE Router. The interface is titled 'Application Configuration' and includes a navigation menu with 'Status', 'System', 'Network', 'Logout', and 'Quickstart'. The main content area is divided into two sections: 'Parameters' and 'Device Password'.

Parameters Section:

- Device Mode:** Cell Router (selected)
- Device Name:** NameOfThisDevice (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 range based on mask)
- VPN Mode:** None (for use with IPSec)
- Enable Wifi Mode:** (shaping this activates wifi)

Device Password Section:

Changes the administrator password for accessing the device.

Fields for Password and Confirmation are present, both with a strength indicator (green 'e' icon).

At the bottom right, there are buttons for '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 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. The interface includes a navigation bar with 'Status', 'System', 'Network', 'Logout', and 'Quickstart' tabs. The main content area is titled 'Application Configuration' and contains a form for selecting device mode and parameters. The form fields are as follows:

Parameter	Value
Device Mode	IP Passthrough
Device Name	IP_Bridge_Device
Passthrough Mode	Dynamic
Management HTTPS Port	14443
Management IP	192.168.10.1
EnCloud Enabled	Yes

At the bottom right of the form, there 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
 - Management IP
 - Passthrough Mode
 - enCloud Enabled
 - Management HTTPS Port
 - b 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.
 - c 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 an EN-2000 LTE Router. The 'Device Mode' is set to 'VRRP Backup'. The 'Device Name' is 'NameOfThisDevice'. The LAN IP is '192.168.10.1', LAN Netmask is '255.255.255.0', VRRP ID is '1', and VRRP IP is '192.168.10.3'. The VPN Mode is 'None'. The 'Enable WiFi Mode' checkbox is checked. The 'Device Password' section has empty fields for 'Password' and 'Confirmation'. At the bottom right, there are buttons for '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 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

The screenshot shows the EN-2000 Status Overview screen. The top navigation bar includes 'Status', 'System', 'Network', 'Logout', and 'Quickstart'. The main content area is divided into several sections:

- System:** Device Name: EN2000, Device Model: EN 2000, Firmware Version: 1.7.12.1.0.1.0, Local Time: Wed Feb 18 13:38:44 2016.
- Cellular Information:** Cell Signal: -125 dBm, IMEI: 359692010211100, SIM ID: n511, APN: n511.vnet87410c.
- Network:** A table showing network status for ATLAN3216, CELL, LAN, and WAN. Each entry includes uplink/downlink status, MAC address, protocol, and IP addresses.
- Wireless:** AR9342 802.11an Radio section showing SSID, mode, channel, bitrate, and encryption status.
- Associated Stations (0):** A table with columns for MAC-Address, Network, Device Name, Last IP, Signal, Signal/Chains, Noise, TX Rate, RX Rate, and TX-CQI. It shows 'no information available'.
- DHCP Leases:** A table with columns for Hostname, IPv4-Address, MAC-Address, and Lease time remaining. It shows one lease for host 'HP-20-2016' with IP '192.168.10.128' and lease time '22h 57m 7s'.

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.

- 1 Power up the unit and wait for 2.5 minutes.
- 2 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.
- 3 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.

- 4 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.
 - 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.

