

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. For details of configuration, see the EN-2000 customer documentation.

Note: 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 window showing the login page for the EN-2000 router. The address bar shows "192.168.10.1/cgi-bin/uci". 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 of the form 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, it shows the device name 'EN2000 LTE Router (HTM)', device mode 'Cell Failover', cell signal strength '-135dBm', and operation status 'Online using WAN'. The 'Quickstart' tab is selected in the navigation menu.

System Information:

- Device Name: EN2000
- Device Model: EN 2000
- Firmware Version: 17102.01.18
- Local Time: Wed Feb 16 10:08:44 2016

Cellular Information:

- Cell Signal: -135 dBm
- MCC: 310992101011100
- MNC: 1
- APN: H951-VENB7ATTC

Network Status:

- Cellular:** Status: Protocol: GSM, RX: 0.00 B (0 Pkts.), TX: 0.00 B (0 Pkts.)
- LAN:** Status: Uptime: 0h 0m 0s, MAC-Address: 04:FD:21:12:81:28, Protocol: DHCP, RX: 3.20 KB (46 Pkts.), TX: 376.51 KB (5164 Pkts.)
- WAN:** Status: Uptime: 0h 47m 26s, MAC-Address: 02:AD:8B:03:00:56, Protocol: DHCP, RX: 1.26 KB (1734 Pkts.), TX: 377.80 KB (3488 Pkts.), IPv4: 192.168.1.2/24

Wireless: AR9342 802.11an Radio. Mode: 802.11n, Channel: 118 (5.840 GHz), Bitrate: 300 Mb/s, SSID: EN-2000-118-118-118-118. Encryption: None, AEC: Disabled, DFS Status: Disabled.

Associated Stations (0): No information available.

DHCP Leases:

Hostname	IPv4-Address	MAC-Address	Leasetime remaining
HP-99-2216	192.168.1.198	38:86:77:82:35:18	11h 5m 7s

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

- ❖ The Application Configuration screen opens.

EN-2000 Application Configuration Screen

The screenshot displays the EN-2000 Application Configuration screen. The 'Quickstart' tab is selected in the navigation menu.

Application Configuration

Select the Device Mode and associated parameters

Parameters

- Device Mode: Cell Failover
- Device Name: NameOfTheDevice
- LAN IP: 192.168.10.1
- LAN Netmask: 255.255.255.0
- LAN DHCP Server: Enabled
- WAN Protocol: Static
- WAN IP: 1.1.1.2
- WAN Netmask: 255.255.255.0
- WAN Gateway: 1.1.1.1
- DNS Server: 8.8.8.8
- Fallover Ping IP: 8.8.8.8
- Fallover Ping Timeout (seconds): 1
- Fallover Ping Retries: 5
- VPN Mode: None
- Enable WiFi Mode: Enabling this activates wifi

Device Password

Changes the administrator password for accessing the device

Password:

Confirmation:

Buttons: Reset, Save, Save & Apply

Note: The lower part of the Application Configuration screen provides a **Device Password** configuration area. Change the password only if your network administrator provides a new password. If the password is not changed, it remains at its default value (**encore!1**).

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**:

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.
 - ❖ The screen displays parameters for this device mode. See [Configuring the EN-2000 as a Cell Router](#) on page 5.
- c** Select **Cell Pass Through** to provide cellular wireless connection between an existing non-wireless router and a network.
 - ❖ The screen displays parameters for this device mode. See [Configuring the EN-2000 for Cell Passthrough](#) on page 6.
- 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 7.

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 Static)

The screenshot shows the 'Application Configuration' screen for an EN-2000 LTE Router. The 'Device Mode' is set to 'Cell Failover'. The 'WAN Protocol' is set to 'Static'. The 'Device Name' is 'NameOfThisDevice'. The LAN IP is '192.168.10.1' and the LAN Netmask is '255.255.255.0'. The WAN IP is '1.1.1.2' and the WAN Netmask is '255.255.255.0'. The WAN Gateway is '1.1.1.1'. The DNS Server is '8.8.8.8'. The Failover Ping IP is '8.8.8.8' and the Failover Ping Timeout is '1'. The Failover Ping Retries is '5'. The VPN Mode is 'None'. The 'Enable WiFi Mode' checkbox is checked.

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

a Modify the following parameters, if required:

- **Device Name**
- **LAN IP**
- **LAN Netmask**
- **LAN DHCP Server**

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 this EN-2000 has an 802.11 wireless card, select the box to **Enable Wifi Mode**.

e Go to [Configuring the EN-2000's Use of 802.11 Wireless](#) on page 8.

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 (with a note: 'Two Ethernet Ports(LAN+WAN) as a Switch to Cell Broadband Router')
- LAN IP:** 192.168.10.1 (with a note: 'IP address assigned to the ethernet LAN port')
- LAN Netmask:** 255.255.255.0 (with a note: 'Subnet mask of the LAN network')
- LAN DHCP Server:** Enabled (with a note: 'Range varies based on mask')
- VPN Mode:** None (with a note: 'For use with IPSec')
- Enable Wifi Mode:** (with a note: 'Shaping this activates wifi')

Device Password Section:

Changes the administrator password for accessing the device.

Fields for Password and Confirmation are present, both with green checkmarks indicating they are valid.

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 the following parameters, if required:

- **Device Name**
- **LAN IP**
- **LAN Netmask**
- **LAN DHCP Server**
- **VPN Mode**

b If this EN-2000 has an 802.11 wireless card, select the box to **Enable Wifi Mode**.

c Go to [Configuring the EN-2000's Use of 802.11 Wireless](#) on page 8.

Configuring the EN-2000 for Cell Passthrough

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

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

The screenshot shows the 'Application Configuration' screen for the EN-2000 LTE Router. The 'Device Mode' is set to 'Cell Passthrough'. The 'Device Name' is 'NameOfThisDevice'. The 'Management Netmask' is '255.255.255.0'. The 'Management Gateway' is '192.168.10.254'. The 'WAN DHCP Server' is 'Disabled'. The 'Device Password' section has two input fields for 'Password' and 'Confirmation', both with green checkmarks indicating they are valid. At the bottom right, there are buttons for '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 the following parameters, if required:
 - **Device Name**
 - **Management Gateway**
 - **Management Netmask**
 - **WAN DHCP Server**
 - 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 9.

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 device. The 'Device Mode' is set to 'VRRP Backup'. The 'Device Name' is 'NameOfTheDevice'. The 'LAN IP' is '192.168.10.1', the 'LAN Netmask' is '255.255.255.0', the 'VRRP ID' is '1', and the 'VRRP IP' is '192.168.10.3'. The 'VPN Mode' is set to 'None'. The 'Enable WiFi Mode' checkbox is unchecked. 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 the following parameters, if required:

- **Device Name**
- **LAN IP**
- **LAN Netmask**
- **VRRP ID**
- **VRRP IP**
- **VPN Mode**

b If this EN-2000 has an 802.11 wireless card, select the box to **Enable Wifi Mode**.

c Go to [Configuring the EN-2000's Use of 802.11 Wireless](#) on page 8.

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

Enable WiFi Mode	<input checked="" type="checkbox"/>  Enabling this activates wifi
SSID	<input type="text"/>
Encryption	No Encryption 

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

Encryption	WPA-PSK/WPA2-PSK Mixed Mode 
Key	<input type="text"/>  WPA pre-shared key, either 8 to 63 characters or a valid WPA key containing exactly 64 hexadecimal characters.

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 9.

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. At the top, it displays the device name 'EN2000', device mode 'Cell Failover', and operation status 'Online using WAN'. The main content is divided into several sections:

- System:** Device Name: EN2000, Device Model: EN 2000, Firmware Version: V1313 0113, Local Time: Wed Feb 18 10:28:44 2016.
- Cellular Information:** Cell Signal: -115 dBm, IMEI: 35989201031110, SIM ID: n/a, APN: n/a.
- Network:** A table showing the status of various interfaces:

Network	Status
ATLAN3216	Protocol: PPP RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)
CELL	Uptime: On On 0s MAC-Address: 94-89-B4-18-BF-21 Protocol: DHCP RX: 3.30 KB (48 Pkts.) TX: 276.51 KB (364 Pkts.)
LAN	Uptime: On 47m 2s MAC-Address: 04-FD-21-12-B1-26 Protocol: DHCP RX: 1.26 KB (734 Pkts.) TX: 2.40 KB (214 Pkts.) IPv4: 192.168.10.1/24
WAN	Uptime: On 47m 1s MAC-Address: 04-AD-8B-03-00-56 Protocol: DHCP RX: 1.49 KB (1747 Pkts.) TX: 377.80 KB (3488 Pkts.) IPv4: 192.168.1.204/24
- Wireless:** AR9342 802.11an Radio. Mode: Master, Channel: 13 (5.885 GHz), Bitrate: 100 Mb/s, SSID: en-20-01-11-01-16. Encryption: None, A-MP: Disabled, DFS Status: Disabled.
- Associated Stations (0):** A table with columns: MAC-Address, Network, Device Name, Last IP, Signal, Signal/Chains, Noise, TX Rate, RX Rate, TX-CCQ. No information available.
- DHCP Leases:** A table with columns: Hostname, IPv4-Address, MAC-Address, Leasetime remaining. One lease is shown for host 'HP-20-0216' with IP '192.168.10.198' and MAC '38:90:77:92:35:18', with 11h 58m 7s remaining.

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.

To set the EN-2000 back to its factory default configuration (cell failover), insert the end of a paper clip into the EN-2000's **Reset** button (a small hole on the front of the chassis). Wait about 5 seconds for the EN-2000's LEDs to blink in synch. Then remove the paper clip from the **Reset** button. When the LEDs stop blinking, the **Sys Status** LED will go out. When the **Sys Status** LED is on again, the EN-2000 uses the default configuration.

Restart the EN-2000 management system to see the default configuration. Return to the beginning of this document to reconfigure the EN-2000 for its use in the network.