



# 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/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 of the form, there are two buttons: "Login" and "Reset".

Authorization Required	
Please enter your username and password.	
Username	<input type="text"/>
Password	<input type="password"/>
Login	<input type="button" value="Reset"/>

- 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 shows the 'Status Overview' screen for an EN-2000 LTE Router. 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: 17102.0.1.0, Local Time: Wed Feb 18 10:44:2018.
- Cellular Information:** Cell Signal: -125.0dBm, SIM 1: 25992010101110, SIM 2: H951-VERBODATIC.
- Network:**
  - LAN:** Status: Up, MAC-Address: 04:FD:21:12:81:28, Protocol: static, RX: 1.28 MB (7324 Pkts.), TX: 2.40 MB (8768 Pkts.), IPv4: 192.168.10.1/24.
  - WAN:** Status: Up, MAC-Address: 00:AD:8B:03:00:56, Protocol: dhcp, RX: 1.49 MB (4747 Pkts.), TX: 377.80 KB (3488 Pkts.), IPv4: 192.168.1.204/24.
  - CELL:** Status: Up, MAC-Address: 94:29:84:18:8F:21, Protocol: dhcp, RX: 3.20 MB (46 Pkts.), TX: 376.51 MB (586 Pkts.).
- Wireless:** AR9342 802.11an Radio, SSID: en2000, Mode: 802.11n, Channel: 138 (5.840 GHz), Bitrate: 300 Mb/s, Encryption: None, A-MP: Disabled, DFS Status: Disabled.
- Associated Stations (0):** No information available.
- DHCP Leases:**

Hostname	IPv4-Address	MAC-Address	Leasetime remaining
HP-06-2016	192.168.10.198	38:60:77:82:35:18	12h 5m 7s

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. The top navigation bar includes 'Status', 'System', 'Network', 'Logout', and 'Quickstart'. The main content area is titled 'Application Configuration' and contains the following sections:

- Parameters:** Select the Device Mode and associated parameters.
  - Device Mode: Cell Follower
  - Device Name: NameOfThisDevice
  - LAN IP: 192.168.10.1
  - LAN Netmask: 255.255.255.0
  - LAN DHCP Server: Enabled
  - WAN Protocol: Static
  - WAN IP: 171.1.2
  - WAN Netmask: 255.255.255.0
  - WAN Gateway: 171.1.1
  - DNS Server: 8.8.8.8
  - Follower Ping IP: 8.8.8.8
  - Follower Ping Timeout (seconds): 1
  - Follower Ping Retries: 5
  - VPN Mode: None
  - Enable WiFi Mode:
- Device Password:** Changes the administrator password for accessing the device.
  - Password: [Field]
  - Confirmation: [Field]

At the bottom right, there are buttons for 'Reset', 'Save', and '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.

**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 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 the EN-2000 LTE Router. The 'Device Mode' is set to 'Cell Failover'. The 'WAN Protocol' is set to 'Static'. The parameters are as follows:

Parameter	Value
Device Mode	Cell Failover
Device Name	NameOfThisDevice
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
Failover Ping IP	8.8.8.8
Failover Ping Timeout (seconds)	1
Failover Ping Retries	5
VPN Mode	None
Enable WiFi Mode	<input type="checkbox"/>

At the bottom, there is a 'Device Password' section with fields for 'Password' and 'Confirmation', and buttons for 'Reset', 'Save', and 'Save & Apply'.

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			•
DHCP 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 top navigation bar includes 'Status', 'System', 'Network', and 'Logout'. The 'Quickstart' tab is active. The main content area is titled 'Application Configuration' and includes a sub-header 'Select the Device Mode and associated parameters'. Below this, there are several configuration fields:

- Device Mode:** Set to 'Cell Router'. A note below indicates 'Two Ethernet Ports(LAN+WAN) as a Switch to Cell Broadband Router'.
- Device Name:** Set to 'NameOfThisDevice'.
- LAN IP:** Set to '192.168.10.1'.
- LAN Netmask:** Set to '255.255.255.0'.
- LAN DHCP Server:** Set to 'Enabled'.
- VPN Mode:** Set to 'None'.
- Enable Wifi Mode:** A checkbox is present, currently unchecked.

At the bottom of the screen, there is a 'Device Password' section with fields for 'Password' and 'Confirmation', and 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 empty fields for 'Password' and 'Confirmation'. The bottom right corner has 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 LTE Router. 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 two 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*



The screenshot shows a configuration panel with the following elements:

- Enable WiFi Mode:** A checkbox that is checked, with a blue information icon and the text "Enabling this activates wifi" to its right.
- SSID:** A text input field that is currently empty.
- Encryption:** A dropdown menu currently set to "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*



The screenshot shows a configuration panel with the following elements:

- Encryption:** A dropdown menu currently set to "WPA-PSK/WPA2-PSK Mixed Mode".
- Key:** A text input field containing a redacted key value.

Below the Key field, there is a small blue information icon and the 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.



