



Configuring the EN-1000 for its Network Functions

The EN-1000 provides wireless and cabled connections to a local area network (LAN), to a wide area network (WAN), and to peripheral devices and remote devices.

Before configuring the EN-1000, you may wish to review the document [EN-1000 Hardware Description and Specifications](#). See the document [Using the EN-1000's Management System](#) for information on navigating the EN-1000 management screens. After configuring the EN-1000, you may wish to study the document [Monitoring the EN-1000](#).

Note: If you prefer quick installation, see the following documents:

- [EN-1000™ Quick Installation Guide](#)
- [EN-1000™ Quick Configuration Guide](#)
- [Quick Guide to EN-1000™ LED Codes](#)

When you log onto the EN-1000 management system (for details, see [Logging In](#) in the document [Using the EN-1000's Management System](#)), the first management screen that displays is the EN-1000 Status Overview Screen ([Figure 3-1](#)).

Figure 3-1. EN-1000 Status Overview Screen

The screenshot shows the EN-1000 Status Overview Screen. At the top, the Encore Networks logo is on the left, and system information is on the right: EN1000 LTE Router Phone/MTN#, Device Mode: Cell Failover, Cell Signal: -125dBm, and Operation Status: Online using WAN. The main content area is divided into several sections:

- System:** Device Name: EN1000, Device Model: EN1000, Firmware Version: 17229 01 10, Local Time: Mon Sep 22 23:36:56 2014.
- Cellular Information:** Cell Signal: -125 dBm, IMEI: 359692051010438.
- Network:** A table showing the status of three interfaces:

Network	Status
CELL eth2	Uptime: 3h 5m 0s MAC-Address: 94:B9:B4:09:B2:4A Protocol: dhcp RX: 9.57 MB (184 Pkts.) TX: 1.50 MB (3819 Pkts.)
LAN eth0	Uptime: 3h 10m 43s MAC-Address: 04:F0:21:11:86:44 Protocol: static RX: 5.56 MB (24617 Pkts.) TX: 34.78 MB (37421 Pkts.) IPv4: 192.168.10.1/24
WAN eth1	Uptime: 3h 8m 23s MAC-Address: 04:F0:21:11:86:45 Protocol: dhcp RX: 35.54 MB (49551 Pkts.) TX: 5.72 MB (34362 Pkts.) IPv4: 192.168.1.151/24
- DHCP Leases:** A table with columns: Hostname, IPv4-Address, MAC-Address, and Leasetime remaining.

Hostname	IPv4-Address	MAC-Address	Leasetime remaining
HP-p6-2016	192.168.10.198	38:60:77:82:55:1a	11h 28m 6s

3.1 Configuring Network Hosts

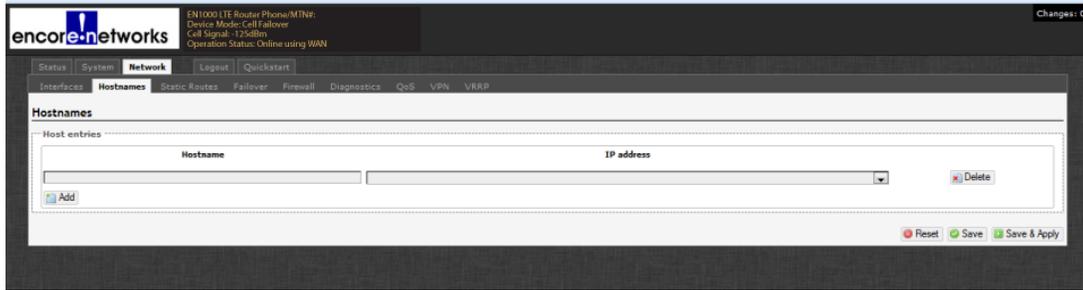
- To configure names for host devices (in the private network and in the public network), select **Network, Hostnames**.
 - ❖ The Network Host Names Screen is displayed (Figure 3-2).

Figure 3-2. Network Host Names Screen

The screenshot shows the Network Host Names Screen. At the top, the Encore Networks logo is on the left, and system information is on the right: EN1000 LTE Router Phone/MTN#, Device Mode: Cell Failover, Cell Signal: -125dBm, and Operation Status: Online using WAN. The main content area is titled "Hostnames" and contains a table with columns "Hostname" and "IP address". The table is currently empty, and there is an "Add" button at the bottom left. At the bottom right, there are buttons for "Reset", "Save", and "Save & Apply".

- To add a host name, click on the **Add** button.
 - ❖ An entry row is added to the screen, as shown in the Network Host Names Add Screen (Figure 3-3).

Figure 3-3. Network Host Names Add Screen



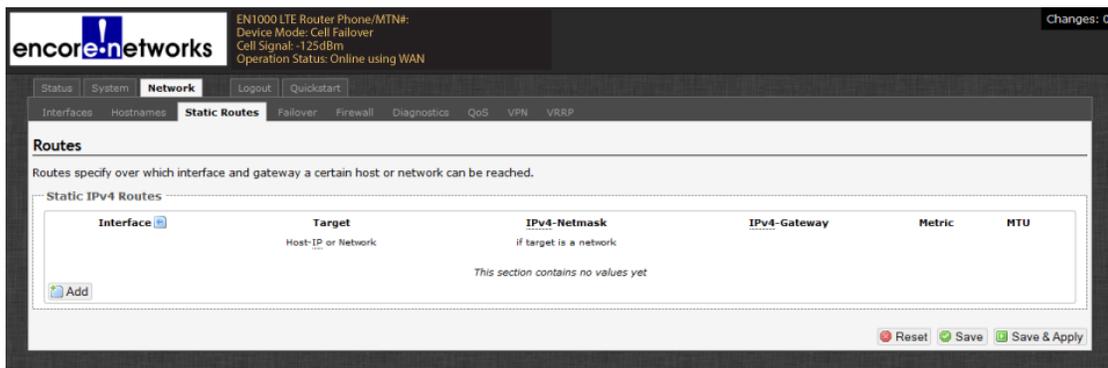
- 3 In the **Hostname** field, type a name for the host device.
- 4 In the **IP Address** field, type the host device's IP address.
- 5 Then do one of the following:
 - a If you want to add another host device to the list, return to [step 2](#).
 - b If you wish to delete a host name, select the **Delete** button at the right end of that host name's row.
 - ❖ The host name is removed from the list.
 - c When you have finished configuring host devices, do one of the following:
 - i If you wish to save the configuration and use it immediately, select **Save and Apply**.
 - ii If you wish to save the configuration, but not to use it until the EN-1000 is restarted, select **Save**.
 - iii If you wish to discard the configuration, select **Reset**.

3.2 Routing

Configure the routing screens with settings determined by your network administrator.

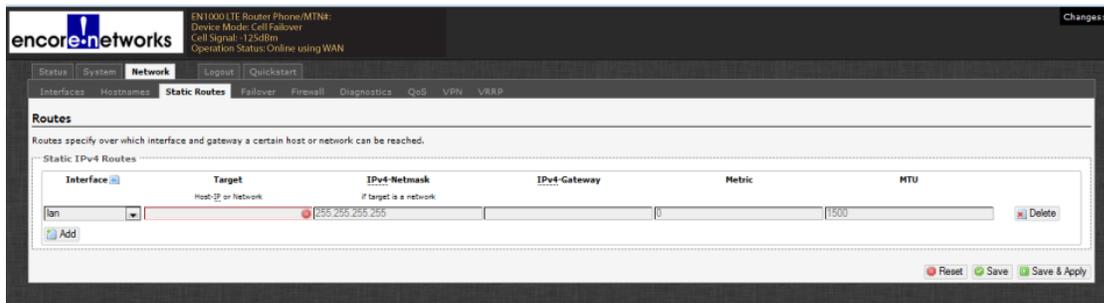
- 1 To create a static routing table, select **Network, Static Routes**.
 - ❖ The Static Routes Configuration Screen is displayed ([Figure 3-4](#)).

Figure 3-4. Static Routes Configuration Screen



- 2 Select the **Add** button under the Interface headings for IPv4 or for IPv6, as appropriate for your network. (The example uses IP version 4.)
 - ❖ The Static Routes Table is displayed ([Figure 3-5](#)).

Figure 3-5. Static Routes Table



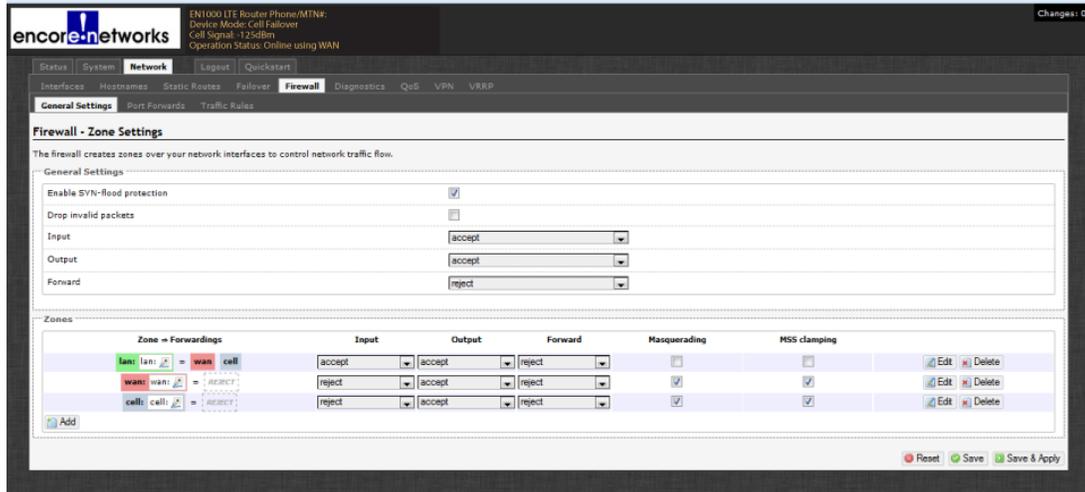
- 3 Add information for the new entry.
- 4 Do one of the following:
 - a If you wish to add another static route, return to [step 2](#).
 - b If you wish to delete a route from the table, select the **Delete** button at the right end of that row.
 - ❖ The row is deleted from the table.
 - c When you have finished configuring this screen, select the **Save & Apply** button.
 - ❖ The Static Routes Configuration Screen is redisplayed (recall [Figure 3-4](#)).
- 5 On the Static Routes Configuration Screen, do one of the following:
 - a If you wish to save the configuration and use it immediately, select **Save and Apply**.
 - b If you wish to save the configuration, but not to use it until the EN-1000 is restarted, select **Save**.
 - c If you wish to discard the configuration, select **Reset**.

3.3 Firewall Configuration

Get all firewall configuration settings from your network administrator.

- 1 Select the **Network** tab. Then select the **Firewall** tab. If necessary, select the **General Settings** tab.
 - ❖ The Firewall General Settings Screen is displayed ([Figure 3-6](#)).

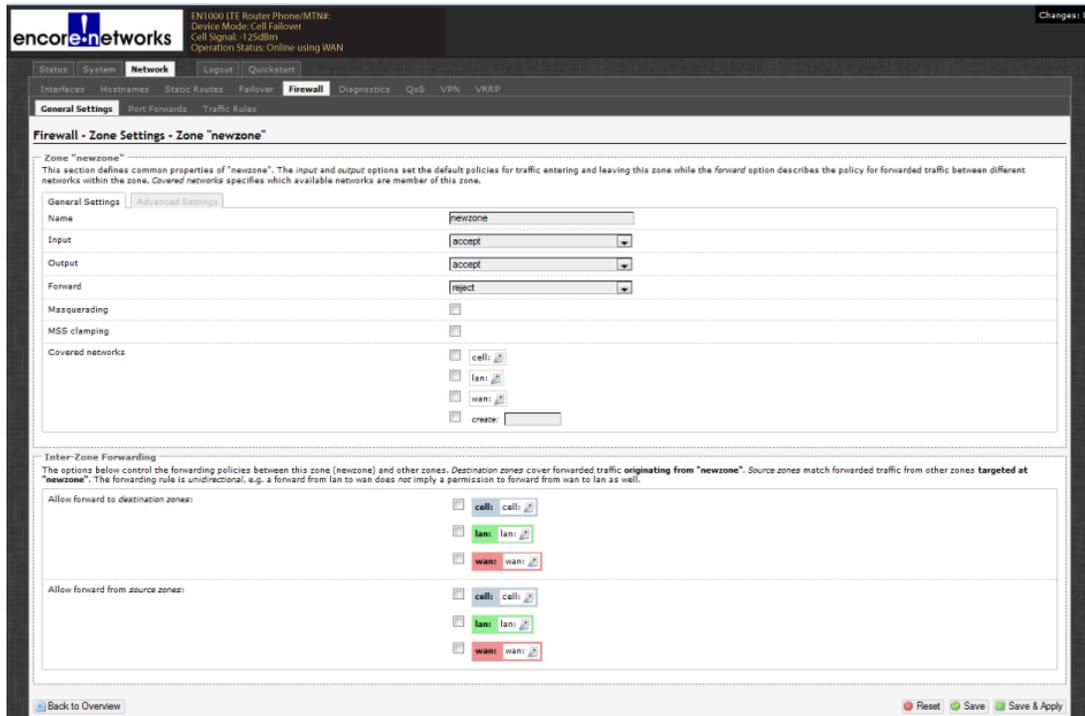
Figure 3-6. Firewall General Settings Screen



- 2 After configuring the fields on the screen, select the **Save & Apply** button. Then select the **Add** button.

- ❖ The Firewall General Settings Screen to Add Record is displayed (Figure 3-7).

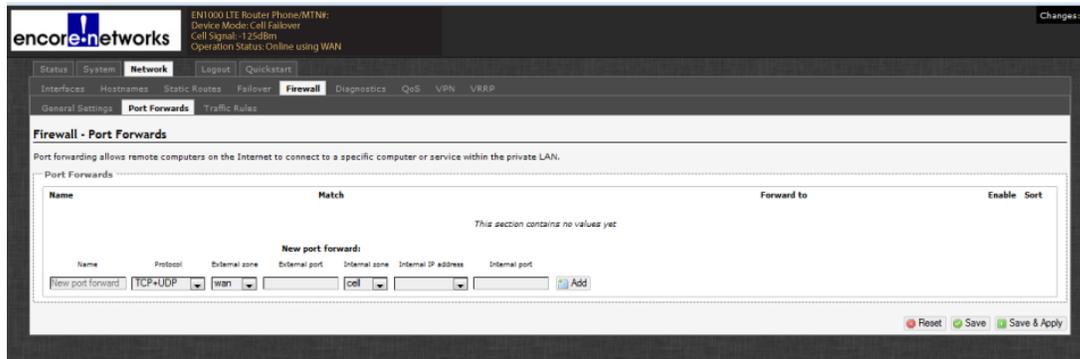
Figure 3-7. Firewall General Settings Screen to Add Record



- 3 After configuring the fields on the screen, select the **Save & Apply** button. Then select the tab for **Port Forwards**.

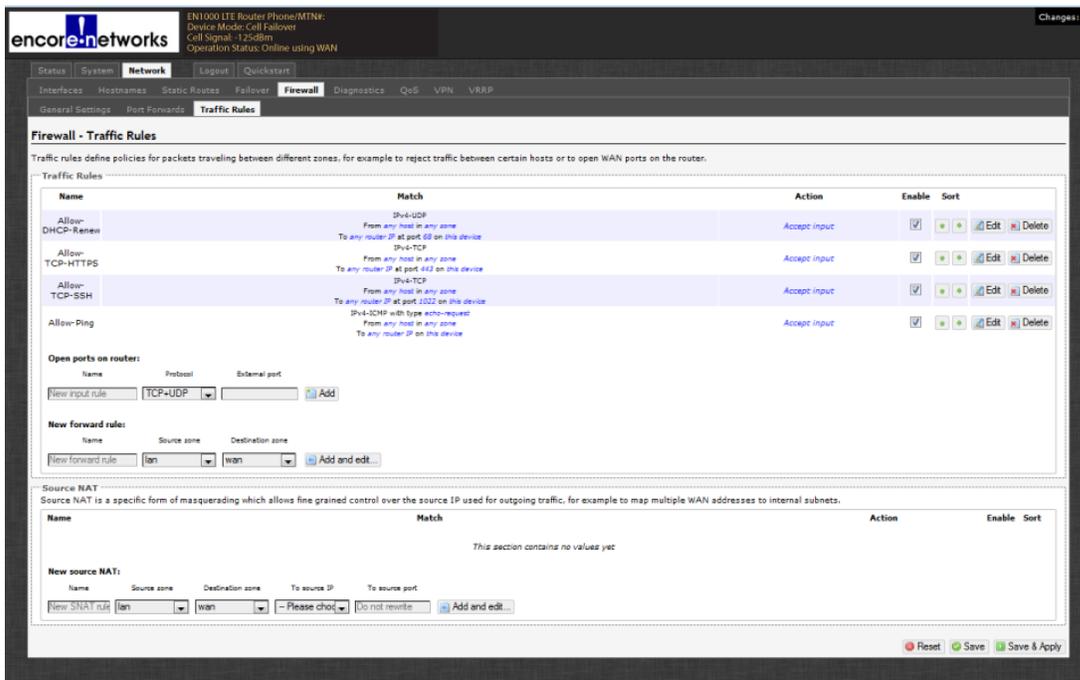
- ❖ The Firewall Port Forward Screen is displayed (Figure 3-8).

Figure 3-8. Firewall Port Forward Screen



- 4 See [Port Forwarding](#) on page 7. After configuring the fields on the screen, select the **Save & Apply** button. Then select the tab for **Traffic Rules**.
 - ❖ The Firewall Traffic Rules Screen is displayed ([Figure 3-9](#)).

Figure 3-9. Firewall Traffic Rules Screen

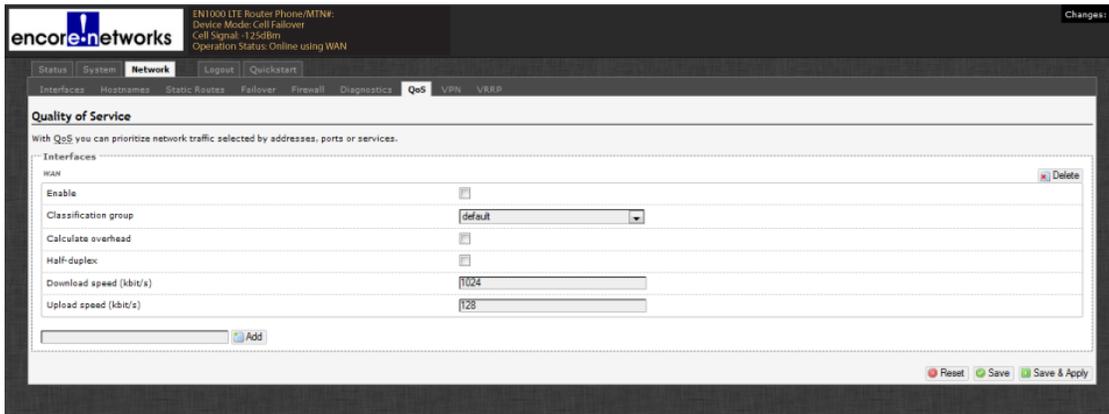


- 5 After configuring the fields for the firewall, do one of the following:
 - a If you wish to save the configuration and use it immediately, select **Save and Apply**.
 - b If you wish to save the configuration, but not to use it until the EN-1000 is restarted, select **Save**.
 - c If you wish to discard the configuration, select **Reset**.

3.4 Configuring Traffic Priority

Use the fields in [Figure 3-10](#) to configure Quality of Service (QoS) settings for network traffic. Consult your network administrator for the settings to use.

Figure 3-10. Quality of Service Configuration Screen



After configuring the fields on the screen, do one of the following:

- a If you wish to save the configuration and use it immediately, select **Save and Apply**.
- b If you wish to save the configuration, but not to use it until the EN-1000 is restarted, select **Save**.
- c If you wish to discard the configuration, select **Reset**.

3.5 Port Forwarding

See the following sections:

- [Configuring the Port](#)
- [Opening the Port for Use](#)

! **Caution:** Remember to select the **Save and Apply** button after configuring each screen. Otherwise, the configuration will be lost.

3.5.1 Configuring the Port

This procedure creates rules for port forwarding.

Note: This procedure discusses configuration of an EN-1000 whose device mode is as a cell router. Some differences in configuration might exist for other device modes. Consult your network administrator for configuration details.

- 1 Log into the EN-1000 management system. (For log-in details, see [Logging In](#), on page 2 of the document [Using the EN-1000's Management System](#).)
- 2 Make sure the device mode for this EN-1000 has been established. To see the device mode, select the **Quickstart** tab.

Note: For information on the device mode, see the [EN-1000™ Quick Configuration Guide](#).

- ❖ The Quickstart Screen is displayed ([Figure 3-11](#)).

Figure 3-11. Quickstart Screen
Device Mode as Cell Router

The screenshot shows the 'Quickstart' configuration page for the EN-1000 LTE Router in 'Cell Fallover' mode. The 'Parameters' section includes fields for Device Mode (Cell Fallover), Device Name (NameOfThisDevice), LAN IP (192.168.10.1), LAN Netmask (255.255.255.0), LAN DHCP Server (Enabled), WAN Protocol (DHCP Client), Fallover Ping IP (8.8.8.8), Fallover Ping Timeout (5 seconds), and Fallover Ping Retries (5). The 'Device Password' section has fields for Password and Confirmation. Buttons for 'Reset', 'Save', and 'Save & Apply' are at the bottom right.

- 3 Select the **Network** Tab.
 - 4 Select the **Firewall** Tab; then select the **Port Forwards** Tab.
- ❖ The Port Forwarding Table is displayed ([Figure 3-12](#)).

Figure 3-12. Port Forwarding Table

The screenshot shows the 'Firewall - Port Forwards' configuration page. It features a table with columns for Name, Match, Forward to, Enable, and Sort. A single entry is shown with Name '-', Match 'IPv4-TCP, UDP From any host on wan Via any router IP', and Forward to 'any host in cell'. Below the table is a 'New port forward:' section with fields for Name, Protocol (TCP+UDP), External zone (wan), External port, Internal zone (cell), Internal IP address, and Internal port. Buttons for 'Reset', 'Save', and 'Save & Apply' are at the bottom right.

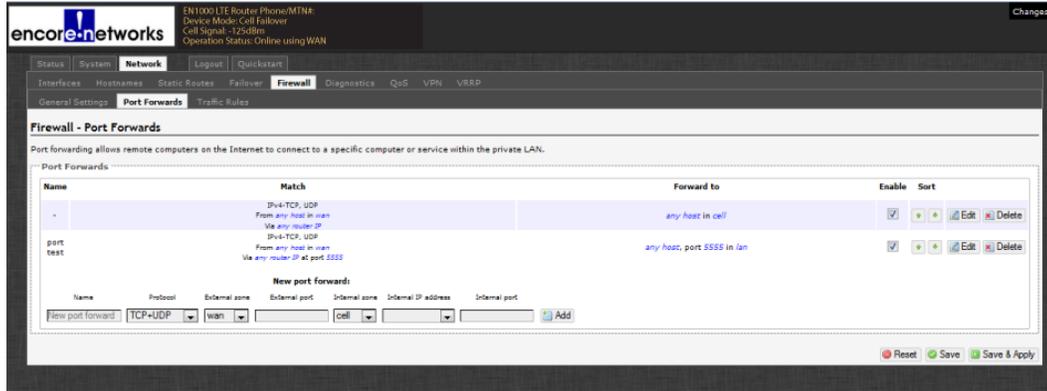
- 5 Under the heading **New Port Forwards**, add a **Name** for the forwarding rule. Then indicate the **Protocol** and the **External Port** number.

Note: The default value for the **External Zone** is **wan**. Confer with your network administrator about whether to change it to **cell**.

- 6 Change the **Internal Zone** from **cell** to **lan**.
- 7 Add the **Internal IP Address** of your EN-1000 router or of the device on the LAN you want to access.

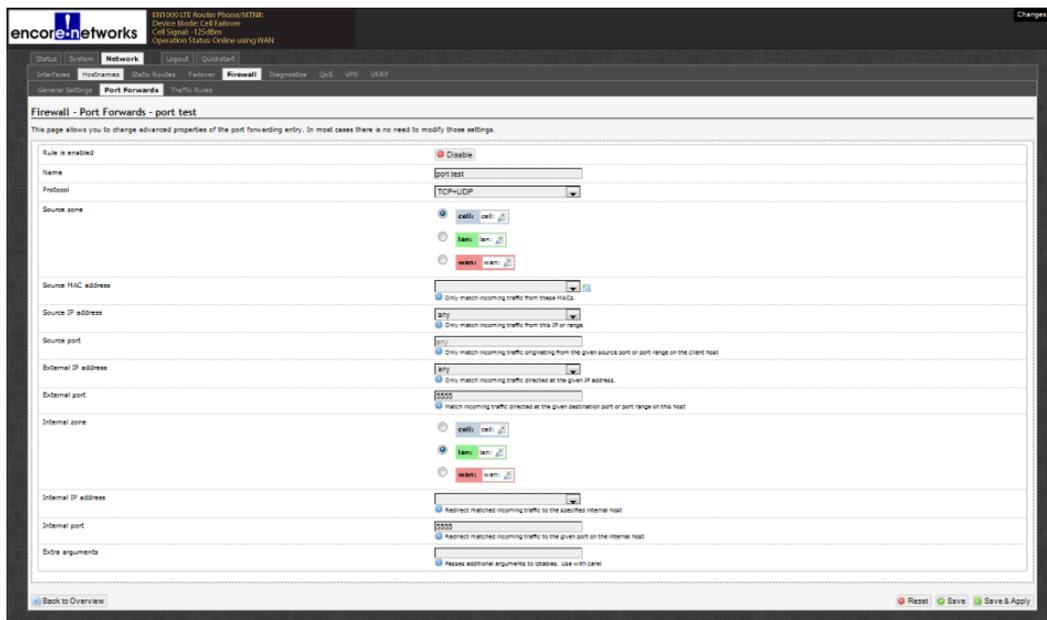
- 8 If the internal port number the EN-1000 will use for this port forwarding rule is different from the external port number it will use, indicate the **Internal Port** number.
- 9 Select the **Add** button at the righthand end of the entry row.
 - ❖ The new port forwarding rule is added to the Port Forwarding Table (Figure 3-13).

Figure 3-13. Port Forwarding Table
Configured with a New Rule



- 10 Select the **Save and Apply** button.
- 11 Select the **Edit** button for the port forwarding rule you just added.
 - ❖ The Port Forwarding Rule Configuration Screen is displayed (Figure 3-14).

Figure 3-14. Port Forwarding Rule Configuration Screen



12 Make sure the following parameter values are set:

- **Source Zone** wan (to match the setting in [step Note:](#) on page 8)
- **Source IP Address** any
Note: The source IP address is the IP address coming into the firewall.
- **External IP Address** any
Note: In this example, the external IP address is the WAN's IP address.
- **External Port** [number] Use the setting configured on the Port Forwarding Table (recall [Figure 3-12](#)).
- **Internal Zone** lan
- **Internal Port** [number] Use the setting configured on the Port Forwarding Table (recall [Figure 3-12](#)).

Note: For additional security, you can specify the **Source IP address** or the **External IP address** or both, instead of indicating **any**. (The source IP address is critical; typically, you would set it to allow connectivity only from a specific IP address or range of IP addresses.)

13 Select the **Save & Apply** button.

14 Then select the **Back to Overview** button.

- ❖ The Port Forwarding Table is redisplayed (recall [Figure 3-13](#)).

15 On that screen, select the **Save & Apply** button.

- ❖ Port forwarding has been configured.

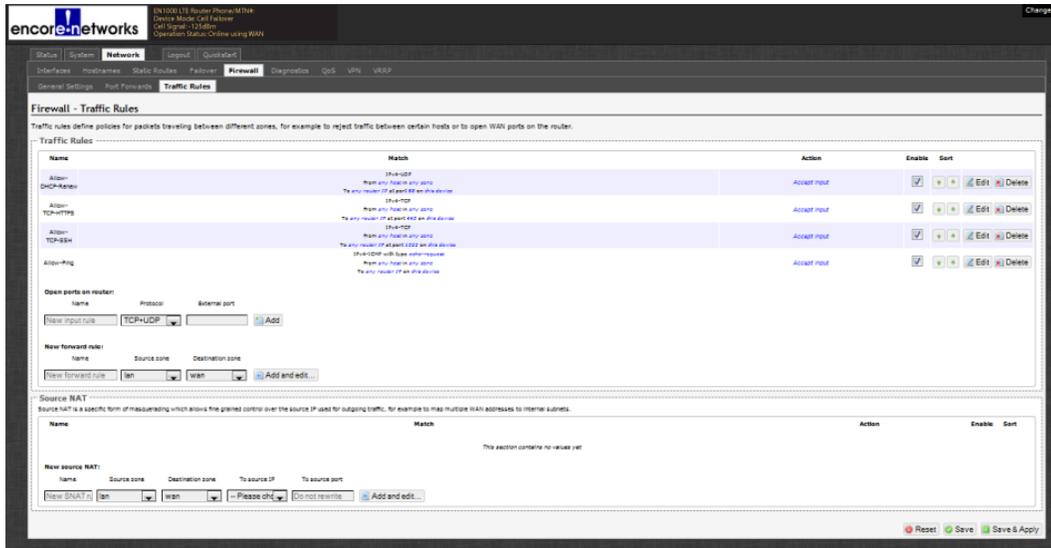
16 Perform the procedure in [Opening the Port for Use](#), on page 10.

3.5.2 Opening the Port for Use

This procedure creates a firewall rule that allows port forwarding to occur.

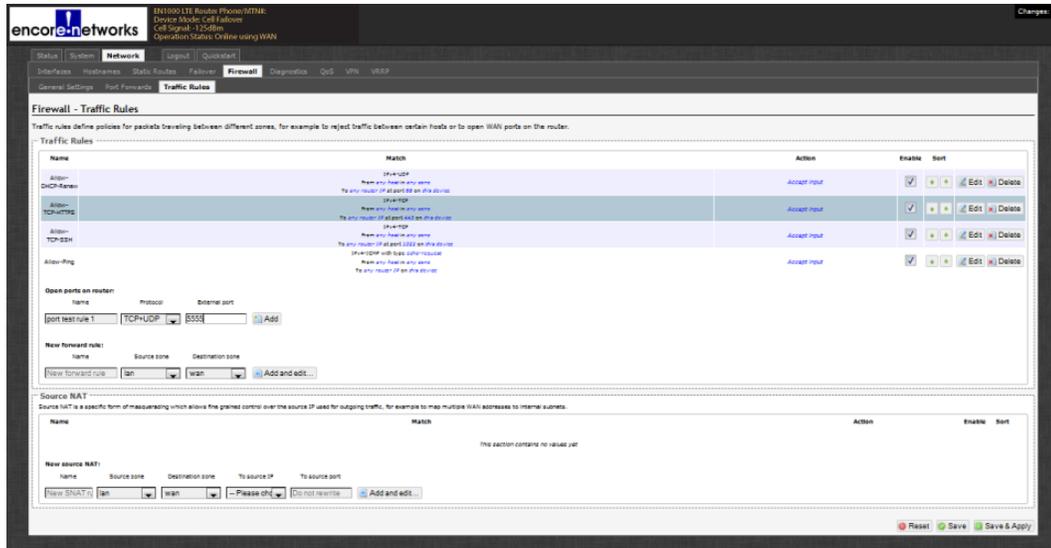
- 1** On the EN-1000 management system, select the **Firewall** tab; then select the **Traffic Rules** tab.
 - ❖ The Table of Firewall Traffic Rules is displayed ([Figure 3-15](#)).

Figure 3-15. Table of Firewall Traffic Rules



- 2 Under the heading **Open Ports on Router**, name the rule and add the port number, as shown in [Figure 3-16](#).

Figure 3-16. Table of Firewall Traffic Rules
Entering a Traffic Rule for a Port

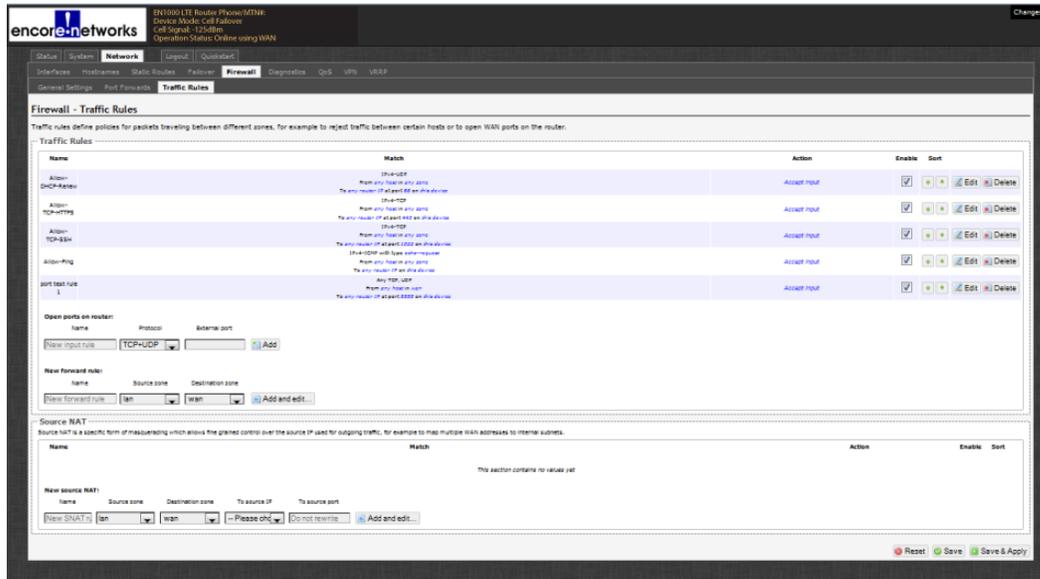


Note: In [Figure 3-16](#), the rule is named **port test rule 1**, and its port is the same as the port number entered in [step 5](#) on page 8. (Recall the Port Forwarding Table, [Figure 3-12](#).)

For good housekeeping, we recommend also using the same rule name as used in [step 5](#) on page 8 (or a name similar to that name).

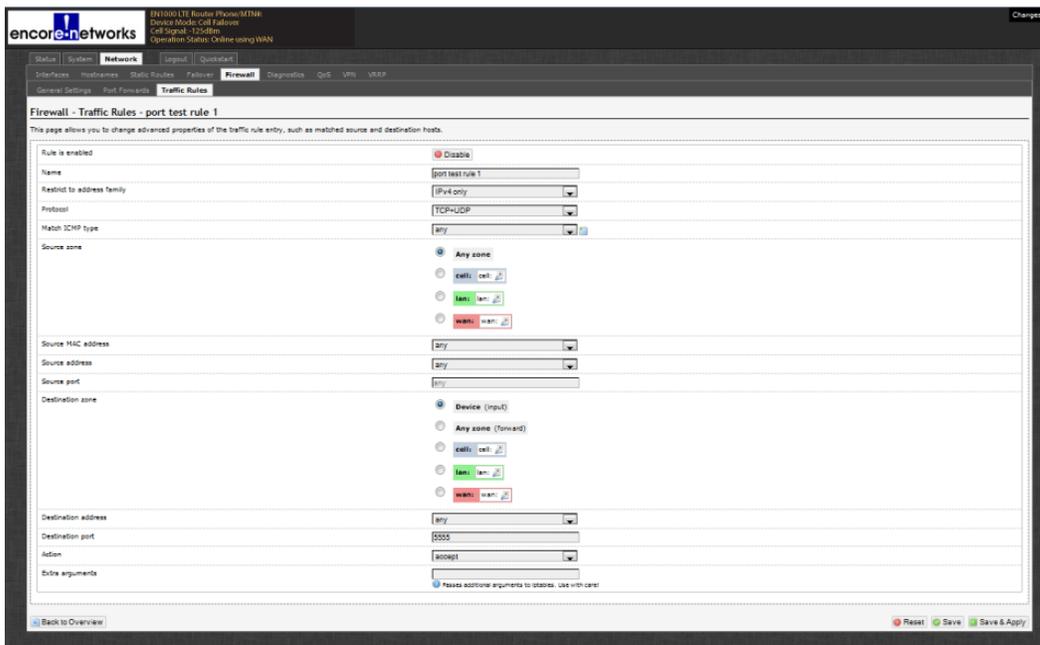
- 3 On the righthand side of the entry row, select the **Add** button.
 - ❖ The Table of Firewall Traffic Rules is redisplayed ([Figure 3-17](#)). It includes the new rule.

Figure 3-17. Table of Firewall Traffic Rules
Updated with New Rule



- 4 On the far right side of the new rule, select the **Edit** button.
 - ❖ The Screen to Edit a Traffic Rule is displayed (Figure 3-18).

Figure 3-18. Screen to Edit a Traffic Rule

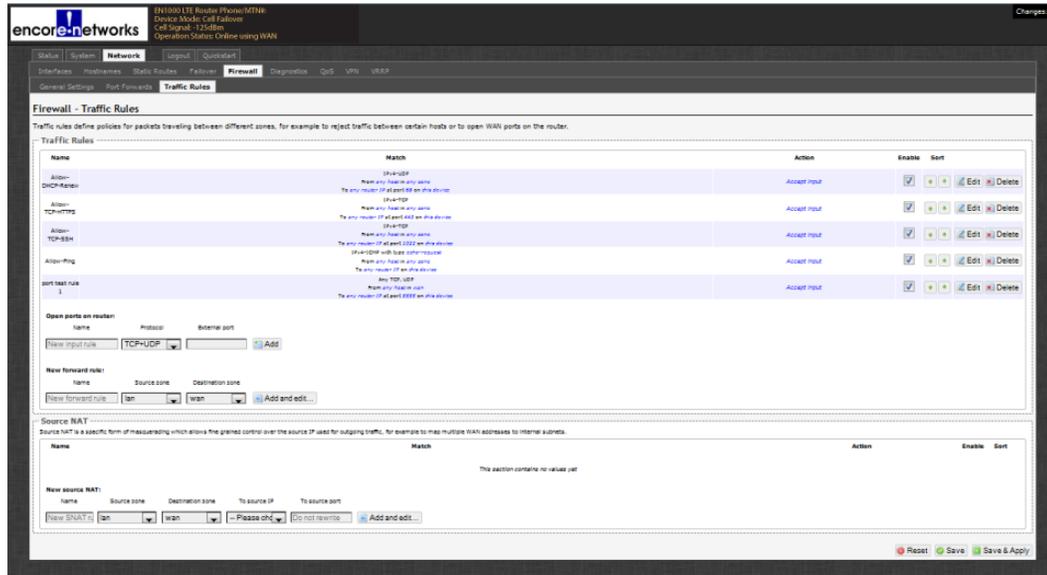


- 5 On the Screen to Edit a Traffic Rule, make sure the following values are indicated:
 - **Source Zone** wan
 - **Destination Port** same as the port number entered in [step 5](#) on page 8

Note: Also recall the Port Forwarding Table, [Figure 3-12](#) on page 8.

- 6 Select the **Save & Apply** button.
 - 7 Select the **Back to Overview** button.
- ❖ The Table of Firewall Traffic Rules is redisplayed ([Figure 3-19](#)).

Figure 3-19. Table of Firewall Traffic Rules



- 8 On the Table of Firewall Traffic Rules, select the **Save & Apply** button.
- ❖ The firewall rule has been configured. The port has been opened.

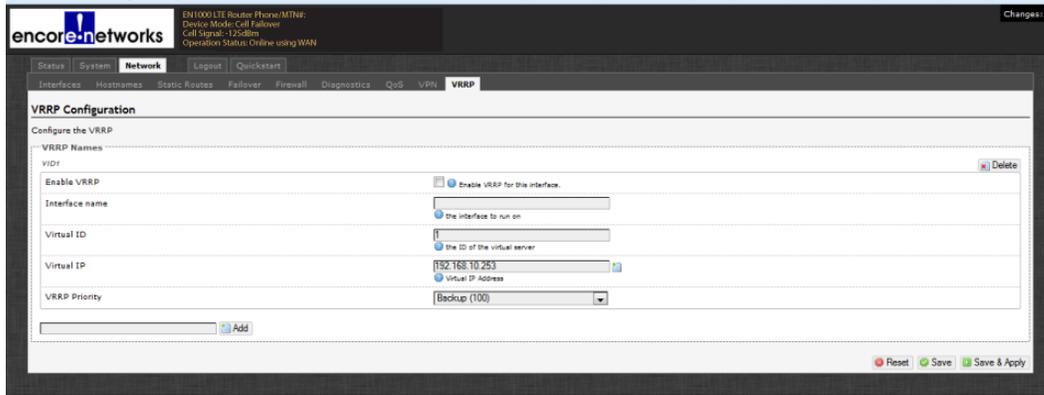
3.6 Configuring the EN-1000 for VRRP

When you install the EN-1000, you can configure VRRP back-up as the EN-1000's principal use. If you wish to do that, see the [EN-1000™ Quick Configuration Guide](#).

However, if you wish to use the EN-1000 for another principal purpose, yet support VRRP, follow the steps in this section.

- 1 On the EN-1000's management screen, select the **Network** tab; then select the **VRRP** tab.
- ❖ The VRRP Configuration Screen is displayed ([Figure 3-20](#)).

Figure 3-20. VRRP Configuration Screen



2 On the VRRP Configuration Screen, do the following:

- Select the box to **Enable VRRP**.
- Type the **Interface Name**. Use the EN-1000's network interface (**Cell** or **WAN**) that your network administrator specifies.

Note: Your EN-1000's network interfaces are listed on the EN-1000 Status Overview Screen (Figure 3-1, on page 2).

- Type the **Virtual ID**. The default value is **01**.
- Type the **Virtual IP** (the IP address) for the VRRP set. Get this address from your network administrator.
- Indicate the **VRRP Priority** for this EN-1000. **Primary** (value 255) means that this EN-1000 is the principal router in the VRRP set. **Back-Up** (value 100) means that this router is a back-up in case the primary router fails.

When the primary VRRP router fails, a back-up router in the VRRP set assumes responsibility and control/priority. If there is more than one back-up VRRP router, the back-up router with the highest value assumes priority until the primary router recovers.

The EN-1000 uses asymmetric parameters for VRRP, so when the primary router recovers, it automatically resumes the primary role in the VRRP set.