Configuring General Settings for the EN-4000

The EN-4000 is the newest member of Encore Networks' family of routers. It provides wireless and cabled connections to a local area network (LAN) and to peripheral devices and remote devices.

Follow the procedures in this discussion to configure the EN-4000:

- Section 4.1, *Using the EN-4000's Management System*, on page 1
- Section 4.2, *Navigating the EN-4000's Management System*, on page 6
- Section 4.3, *Basic Configuration*, on page 8
- Section 4.4, *Configuration for the Network*, on page 16

Also see the following documents:

- *Configuring Chassis Ports in the EN-4000*
- *Configuring the EN-4000's Serial Ports*
- *Configuring a MultiWAN for the EN-4000*

4.1 Using the EN-4000's Management System

See the following discussions in this document:

- Section 4.1.1, *Connecting to the EN-4000*, on page 1
- Section 4.1.2, *Logging In*, on page 2
- Section 4.1.3, *Managing the Browser Display*, on page 5

4.1.1 Connecting to the EN-4000

The EN-4000's management system displays in a browser window. A management terminal (a computer) connects to the EN-4000. That management terminal can run on any platform (for example, a Windows, Mac, or Linux platform) that supports a web browser.

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Version A.5, October 2019
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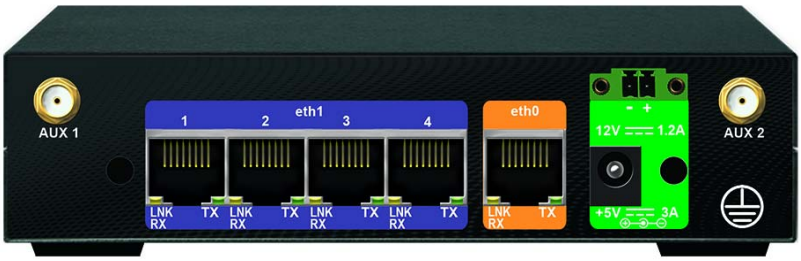
Note: You can also use a command line interface (CLI) to manage the EN-4000. However, we recommend using the web interface to manage the EN-4000.

Figure 4-1. EN-4000 Rear Panel



The LAN ports on the EN-4000's rear panel (Figure 4-1) are on a single private network. The EN-4000 software includes a DHCP server that assigns IP addresses to devices connected to those LAN ports. Devices connected to those LAN ports see the gateway address 192.168.10.1 representing the EN-4000.

The EN-4000's WAN port (also on the rear panel) is on a separate network from its LAN ports. The EN-4000's WAN port is a DHCP client, by default.

4.1.2 Logging In

1 Make sure you have a terminal available to manage the EN-4000, and make sure the terminal's power is on.

2 Connect the EN-4000 to an AC power adaptor or a DC power source.

❖ The EN-4000 powers on.

3 Use an Ethernet cable to connect your management terminal to an Ethernet LAN port (in the set labeled **eth1**) on the EN-4000's rear panel.

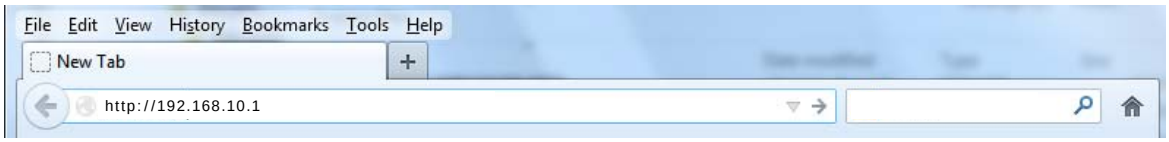
! **Caution:** Do not connect the management terminal to the EN-4000's WAN port (labeled **eth0**).

❖ The LAN port assigns an IP address to your management terminal.

4 On the management terminal, open a web browser.

5 In the browser's address field, type the EN-4000's gateway IP address **192.168.10.1** (or, if you prefer, type **http://192.168.10.1**), and press the console's **Enter** key (Figure 4-2).

Figure 4-2. Browser Address Field

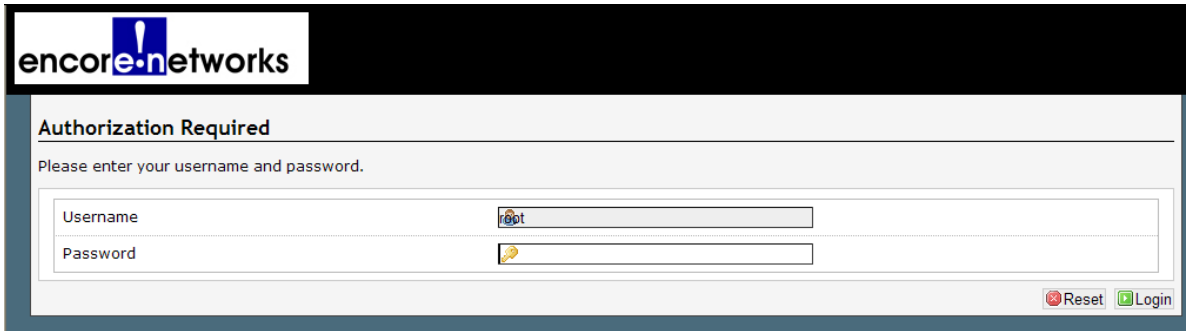


Note: If the browser asks whether the EN-4000 router (**192.168.10.1**) may set cookies, answer **Yes**, or **Yes for the Session**, or something similar.

! **Caution:** Do not block cookies for the EN-4000. Otherwise, you might not be able to manage the EN-4000.

❖ The browser navigates to the specified IP address and displays the EN-4000 Log-In Screen (Figure 4-3).

Figure 4-3. EN-4000 Log-In Screen



Note: The **Username** field might display the user name. (Figure 4-3 shows the default user name **root**.)

! **Caution:** The EN-4000 management system uses JavaScript in its browser-based display. A message to enable JavaScript (similar to the message in Figure 4-4) might display in your browser.

Figure 4-4. Message to Enable JavaScript

JavaScript required!

You must enable JavaScript in your browser or the management system will not work properly.

If you see the message in Figure 4-4, do the following:

- On the browser menu, open **Tools** or **Options** (or an equivalent menu item in your browser).
- In the browser's menu system, **Enable** JavaScript, and **Save** that setting.
- Right-click on the browser screen, and select **Refresh**, **Rewrite**, or **Reload** (or the equivalent for your browser).

❖ The EN-4000 Log-In Screen is redisplayed, without a message to enable JavaScript.

6 Type your user name and password in the appropriate fields of the EN-4000 Log-In Screen. Use the default log-in values.

Note: For EN-4000™ routers, the default user name is **root**. For all other EN™ routers, 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*.)

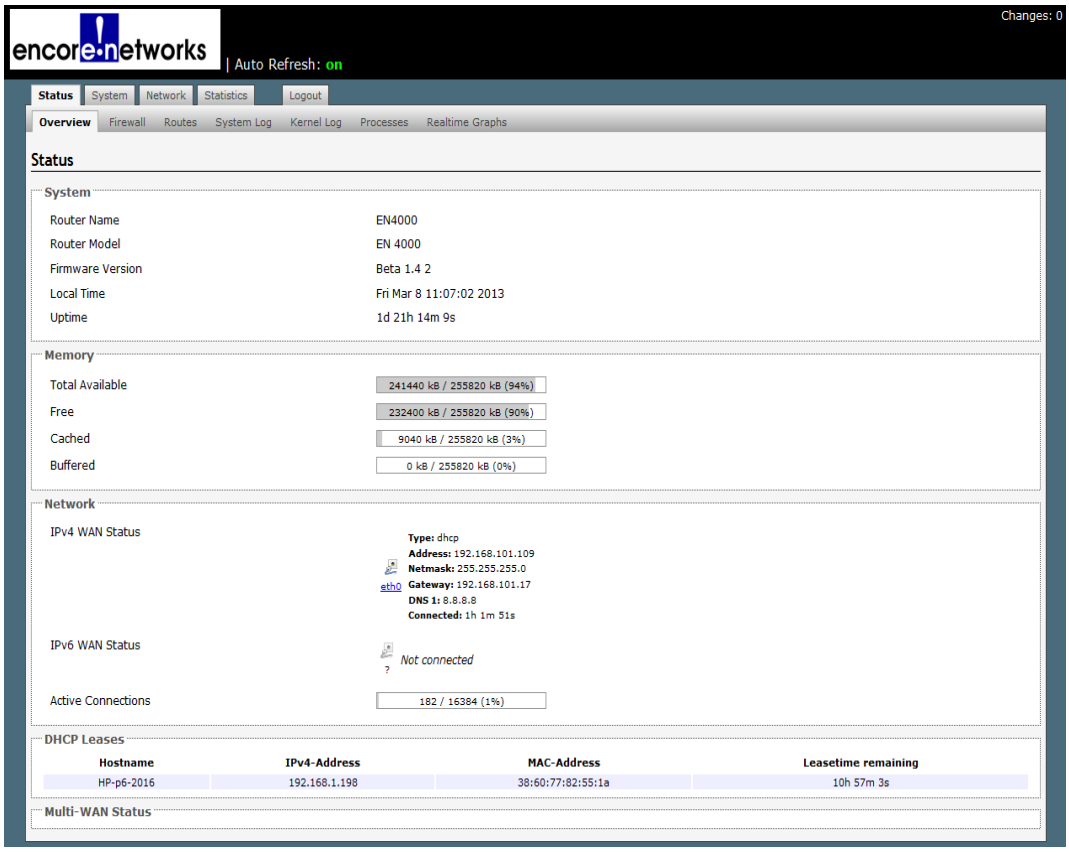
Note: Encore Networks, Inc., advises users to change a router's password upon first configuration of the router. Check with your network administrator for all names and passwords.

7 Then press the console's **Enter** key or select the screen's **Login** button (to the lower right of the Log-In Fields).

❖ The system accepts your log-in. Then the EN-4000 Status Overview Screen is displayed (Figure 4-5). This screen provides an overview of the EN-4000's status.

Note: If the EN-4000's WAN port is connected to a network, you may see the WAN port's assigned IP address. (The WAN port is a DHCP client.) In Figure 4-5, the IP address assigned to the WAN port is 192.168.101.109.

Figure 4-5. EN-4000 Status Overview Screen



On the EN-4000 management screens, the top row of tabs indicates the management areas.

- Status
- System
- Network
- Statistics
- Logout

There is a second row of tabs under each management area. The second row provides detail for the selected management area. (The EN-4000 senses its hardware configuration and displays tabs to represent that configuration.) In Figure 4-5, the **Status** management area shows the following detail tabs:

- Overview
- Firewall
- Routes
- System Log
- Kernel Log
- Processes
- Realtime Graphs

An **Auto Refresh** button (to the right of the Encore Networks logo) is displayed on several screens. You can select this button to turn automatic screen refreshment on or off.

8 To manage your EN-4000, do the following:

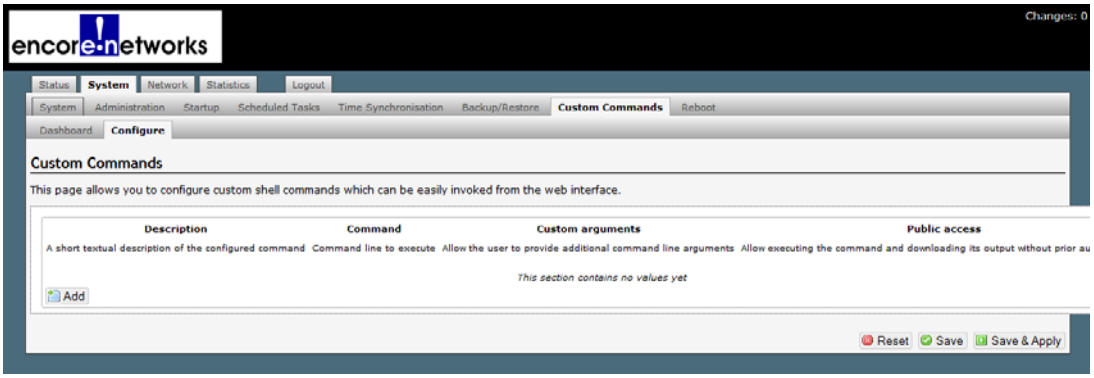
a To set values for the EN-4000's IP address and other parameters, see *Navigating the EN-4000's Management System*.

b To review the EN-4000's settings and performance, see the document *Monitoring the EN-4000*.

4.1.3 Managing the Browser Display

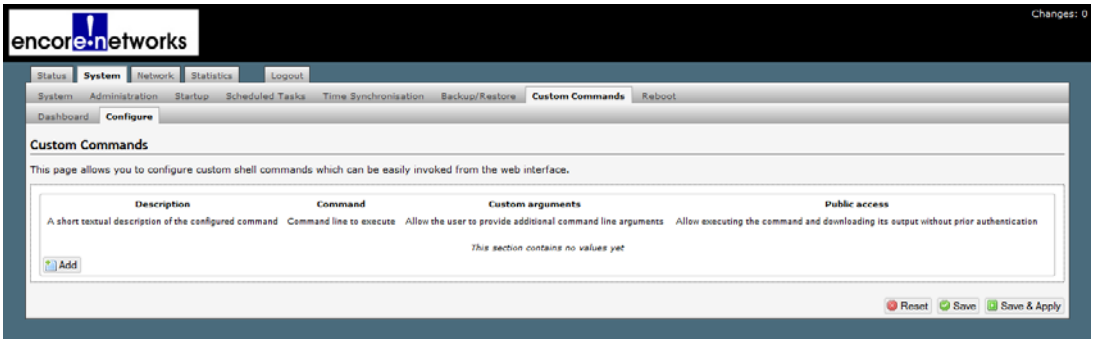
Sometimes a browser lets part of a display bleed off the screen (as in Figure 4-6).

Figure 4-6. Browser Display Bleeding off Screen
(Example shows Configure Custom Commands Screen)



In that case, hold down the **Control** key (sometimes marked **Ctrl**) and press the **Minus** key (**-**, also called the **Hyphen** key) until all the information displays within the browser (Figure 4-7).

Figure 4-7. Browser Display Contained on Screen
(Example shows Configure Custom Commands Screen)



4.2 Navigating the EN-4000's Management System

See the following:

- Section 4.2.1, *Saving or Discarding Changes*, on page 6
- Section 4.2.2, *Restarting (Rebooting) the EN-4000*, on page 7
- Section 4.2.3, *Ending the Session*, on page 8

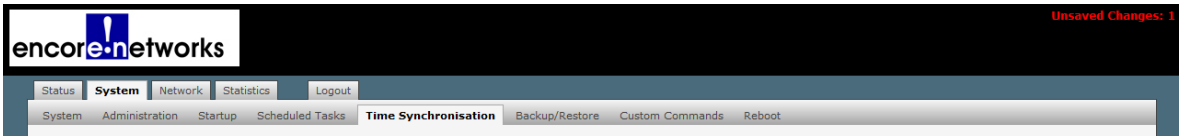
4.2.1 Saving or Discarding Changes

Buttons to **Reset**, **Save**, or **Save & Apply** are displayed in the lower righthand corner of EN-4000 configuration screens. You can use them as described below:

- Select the **Save & Apply** button to save changes that take effect immediately.
- Select the **Save** button to save changes that will take effect after the EN-4000 is rebooted.
- Select the **Reset** button to discard changes you have made but have not yet saved, and to see the screen with its values before you made those changes.

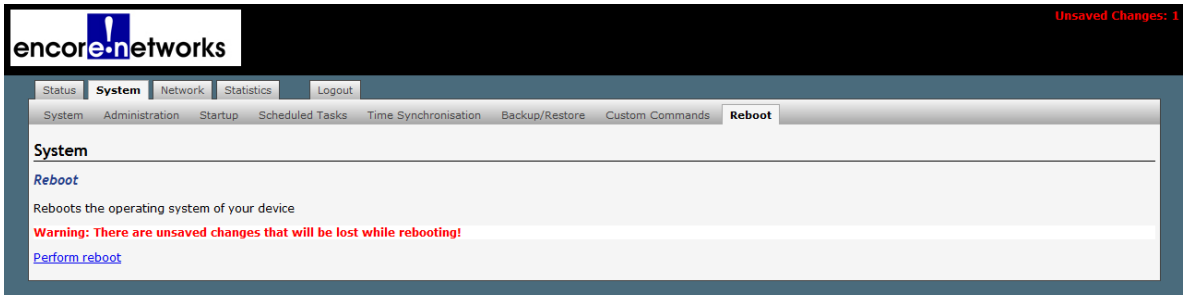
Note: If there are unsaved changes in the configuration, the browser will display a message in red in the upper right corner of its screen (Figure 4-8).

Figure 4-8. Message about Unsaved Changes



Note: The browser will also display a message if you use the EN-4000 screens to reboot the chassis before you have saved changes in the configuration (Figure 4-9).

Figure 4-9. Message to Save Configuration before Rebooting



Caution: If you use a rebooting process that is not under the control of the EN-4000 management system's screens—for example, if you close the browser or if you manually reboot the chassis—you will not see a message about unsaved changes in the configuration. If you wish to save changes, make sure you select the **Save** button or the **Save & Apply** button before you close the browser window, or manually reboot the chassis, or use the screens to reboot.

Note: If you close the browser without saving changes in the configuration, the previous configuration is used when you reopen the EN-4000 management system in the browser.

The most recently saved configuration will be used only after the EN-4000 chassis has been restarted (rebooted). For that reason, the message "Unsaved Changes" will persist in the upper right corner of the EN-4000 management system screens until the EN-4000 chassis has been restarted.

4.2.2 Restarting (Rebooting) the EN-4000

There may be times when the EN-4000 needs to be restarted. We recommend using the menu system to restart the EN-4000, because that provides a controlled approach to restarting. Any processes that are running will be shut down properly before the router restarts.

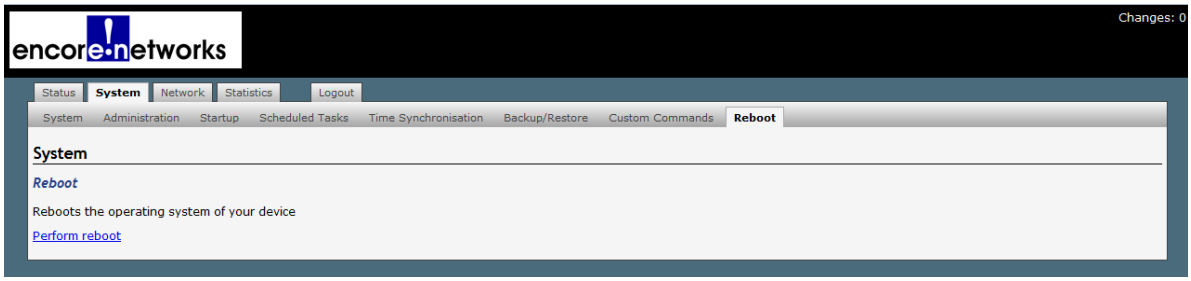
! **Caution:** In general, do not manually restart the EN-4000 by disconnecting it from its power source and then reconnecting it to power. That method of rebooting might interrupt processes running on the EN-4000.

1 To restart the EN-4000, select the **System** management area.

2 Then select the **Reboot** tab.

❖ The System Reboot screen is displayed (Figure 4-10).

Figure 4-10. EN-4000 System Reboot



3 On this screen, select **Perform Reboot**.

❖ The menu system restarts the EN-4000. During the reboot, a message similar to one of the messages in Figure 4-11 might be displayed.

Figure 4-11. Message while Rebooting

```
Waiting for 192.168.10.1...
```

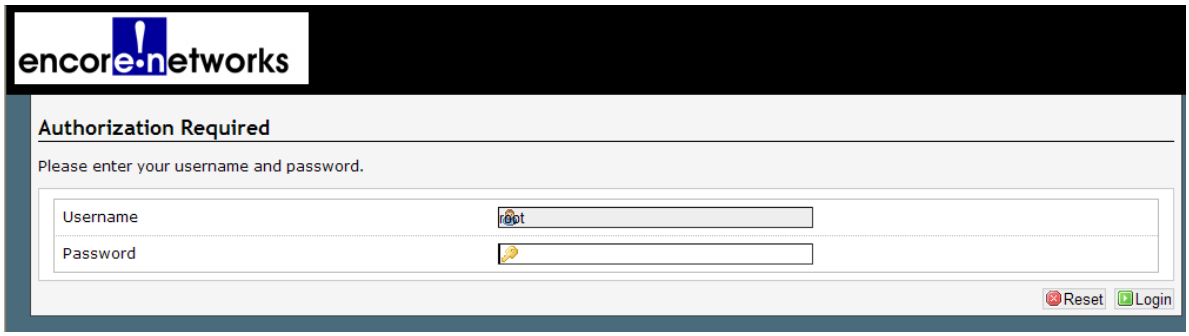
or

```
Please wait. Device rebooting.
```

4 After a few seconds, select the tab for the **Status** management area.

❖ The EN-4000 Log-In Screen is displayed (Figure 4-12).

Figure 4-12. EN-4000 Log-In Screen



4.2.3 Ending the Session

1 When you wish to log out, select the **Logout** tab.

❖ The system logs out, and the EN-4000 Log-In Screen is redisplayed (recall Figure 4-12).

4.3 Basic Configuration

Basic configuration includes assigning the EN-4000 its IP address, device name, and similar items. See the following:

- Section 4.3.1, *Revising Lists in the EN-4000's Management System*, on page 8
- Section 4.3.2, *Configuring the Management System Language*, on page 9
- Section 4.3.3, *Configuring the Device Name and Time of Day*, on page 9
- Section 4.3.4, *Configuring System Logging*, on page 11
- Section 4.3.5, *Synchronizing the EN-4000's Time of Day*, on page 12
- Section 4.3.6, *Overriding the MAC Information*, on page 15

4.3.1 Revising Lists in the EN-4000's Management System

For lists in the EN-4000 management system:

- To add an item to a list, click on **[+]** (the line-item add button).
- To delete an item from a list, highlight the item and press the **Delete** key on your keyboard.

  Note: Some items can be deleted by clicking on **[x]** (the line-item delete button).
- When you have finished modifying items, click the **Save & Apply** button on the screen.

4.3.2 Configuring the Management System Language

1 To set the language used for the EN-4000 management system, do the following:

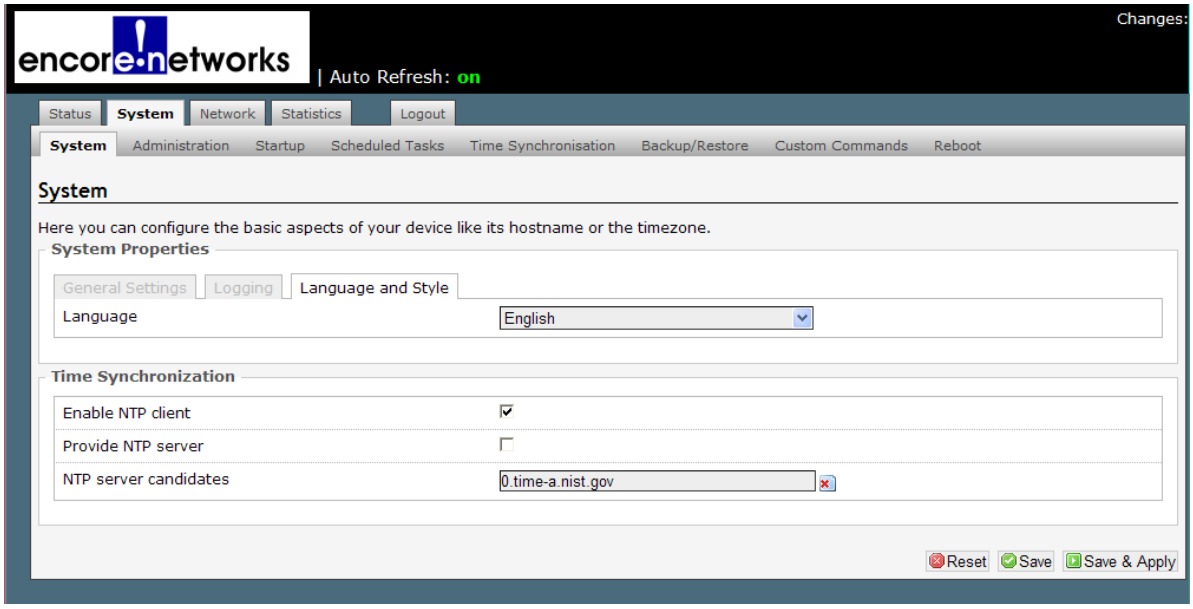
a Select the **System** management area tab.

b Then select the **System** configuration area tab.

c Then select the **Language and Style** detail tab.

❖ The Screen to Set the Management System Language is displayed (Figure 4-13).

Figure 4-13. Screen to Set the Management System Language



2 On the Screen to Set the Management System Language, select the **Language** pulldown menu and select your preferred language.

Note: Currently, the management system interface is available only in English.

To set time-of-day synchronization, see *Synchronizing the EN-4000's Time of Day*.

4.3.3 Configuring the Device Name and Time of Day

1 To configure the EN-4000's identity within the network, and to configure time zone and time-of-day synchronization source for the EN-4000, do the following:

a Select the **System** management area tab.

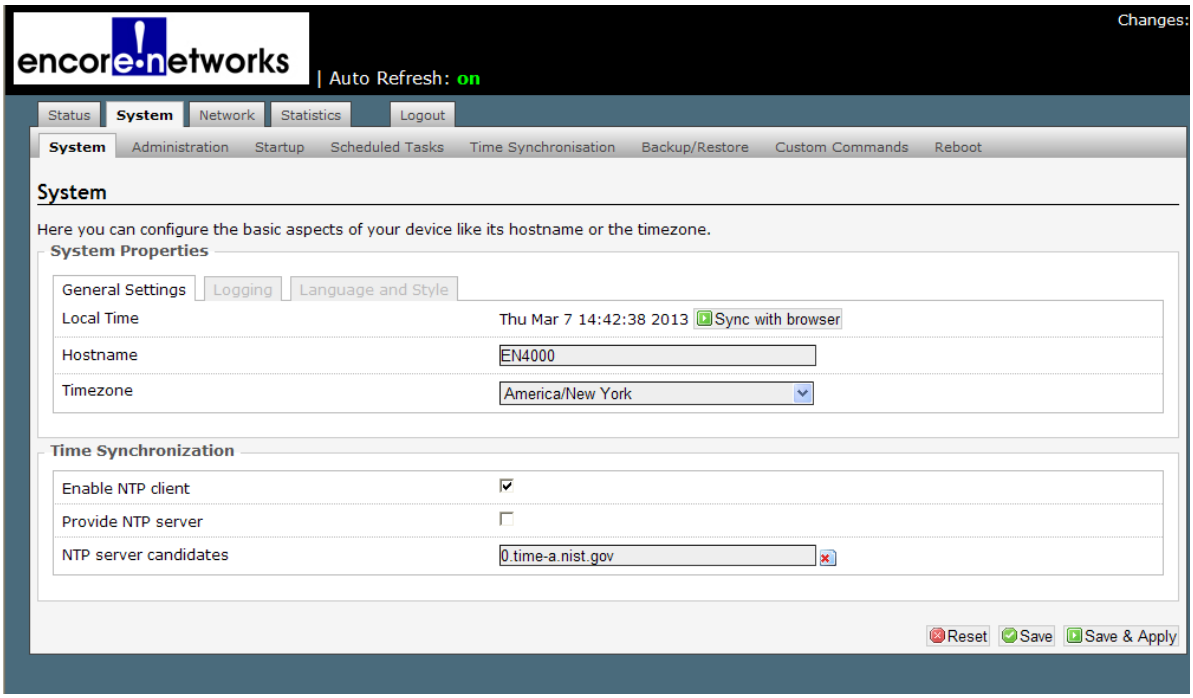
b Then select the **System** configuration area tab.

c If necessary, select the **General Settings** detail tab.

❖ The System Screen for General Settings is displayed (Figure 4-14).

On the System Screen for General Settings, you can set a unique name for this EN-4000. You can also set its local time, and you can set a hierarchy of network time protocol (NTP) servers for synchronizing the EN-4000's time of day.

Figure 4-14. System Screen for General Settings



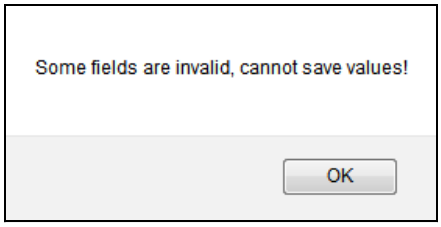
2 In the **Hostname** field, type a name for the EN-4000, to identify it in the network. Then click the **Save & Apply** button (in the lower right corner of the screen).

Note: The name must be unique within the network. Get all names and IP addresses from your network administrator.

❖ The EN-4000 saves its new name and uses the new name immediately.

! **Caution:** If you type a non-permitted character, the entire name displays in red. If you try to save a name with non-permitted characters, a message similar to the message in Figure 4-15 is displayed.

Figure 4-15. Message about Invalid Entry



In that case, click the **OK** button to close the message. Examine the name and remove special characters until the name display returns to black. Then save the name again.

Some quick guidelines for device names follow:

- Spaces are not permitted in a device name.
- The name cannot end with a hyphen (-), a period (.), or an underscore (_).
- Most other special characters are not permitted anywhere in the name.

3 To use the browser's date and time settings, click the button to **Sync with browser**.

❖ The EN-4000 management system adopts the browser's time-of-day settings.

4 Select the arrow on the right of the **Timezone** field to pull down a list of major cities in each time zone. In the pulldown menu, select the time zone the EN-4000 will use (usually the closest city in your time zone). Then select the **Save & Apply** button.

❖ The EN-4000's management system displays the selected city's time.

Note: To get the time of day for the EN-4000 at regular intervals, see *Synchronizing the EN-4000's Time of Day*.

4.3.4 Configuring System Logging

1 To set logging of system activities for the EN-4000, do the following:

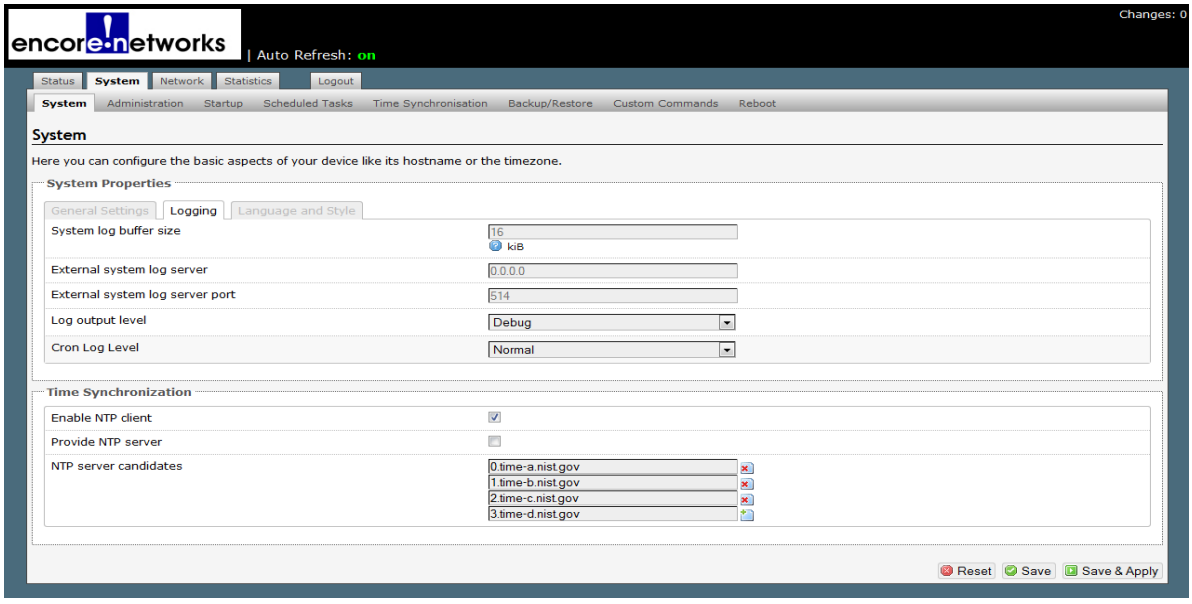
a Select the **System** management area tab.

b Select the **System** configuration area tab.

c Then select the **Logging** detail tab.

❖ The Screen to Set System Logging is displayed (Figure 4-16).

Figure 4-16. Screen to Set System Logging



2 On the Screen to Set System Logging, enter information into the following fields:

Note: Consult your network administrator to set values for these parameters.

- **System Log Buffer Size** (kilobytes)
- **External System Log Server** (IP address)
- **External System Log Server Port** (port number)
- **Log Output Level** (select from pulldown menu):
  - **Debug**
  - **Info**
  - **Notice**
  - **Warning**
  - **Error**
  - **Critical**
  - **Alert**
  - **Emergency**
- **Cron Log Level** (select from pulldown menu):
  - **Debug**
  - **Normal**
  - **Warning**

Note: To set time-of-day synchronization, see *Synchronizing the EN-4000's Time of Day*.

4.3.5 Synchronizing the EN-4000's Time of Day

Do both of the following, in the order listed here:

- Configure the time-of-day options by *Configuring Time-of-Day Synchronization*.
- Select one of the configured options by *Selecting Time-of-Day Synchronization*.

Confer with your network administrator for values to use in the configuration.

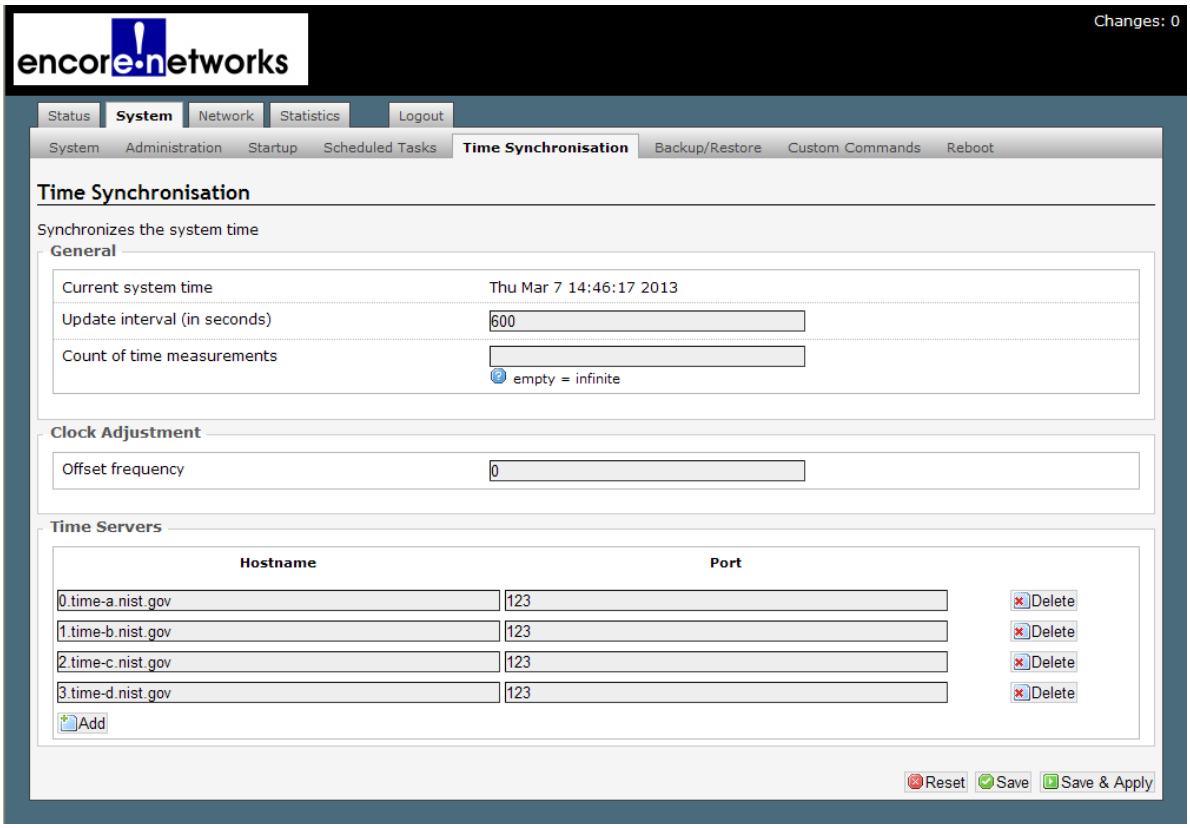
4.3.5.1 Configuring Time-of-Day Synchronization

1 Select the **System** management area.

2 Select the **Time Synchronization** detail tab.

❖ The Time Synchronization Screen is displayed (Figure 4-17)

Figure 4-17. Time Synchronization Screen



Note: The value for **Current System Time**, displayed on this screen, is configured in *Configuring the Device Name and Time of Day*.

3 In the **Update Interval** field, enter the number of seconds between time-of-day synchronization requests.

4 Enter the value for the **Count of Time Measurements.**

5 Enter the value for the **Offset Frequency**

6 Under the heading **Time Servers**, do the following:

a For each NTP server that the EN-4000 might follow to synchronize time of day, do the following:

i Under **Hostname**, type a name for an NTP server.

Note: This entry can be an IP address or a website URL.

ii Under **Port**, type the port number the EN-4000 will use to reach the NTP server.

b If you need to add an NTP server, click on the **Add** button.

❖ A row is displayed for another NTP server.

c If you wish to delete an NTP server entry, click on the **Delete** button for that row.

❖ The NTP server entry is deleted.

7 When you have finished configuring the fields on this screen, do one of the following:

a Select **Save & Apply** if you want the settings to take effect immediately.

b Select **Save** if you want the settings to take effect after the EN-4000 reboots.

c Select **Reset** if you want to discard the screen's configuration and use the previous settings.

8 Continue to *Selecting Time-of-Day Synchronization*.

4.3.5.2 Selecting Time-of-Day Synchronization

Note: To use this procedure, NTP servers must already be configured, as described in *Configuring Time-of-Day Synchronization*.

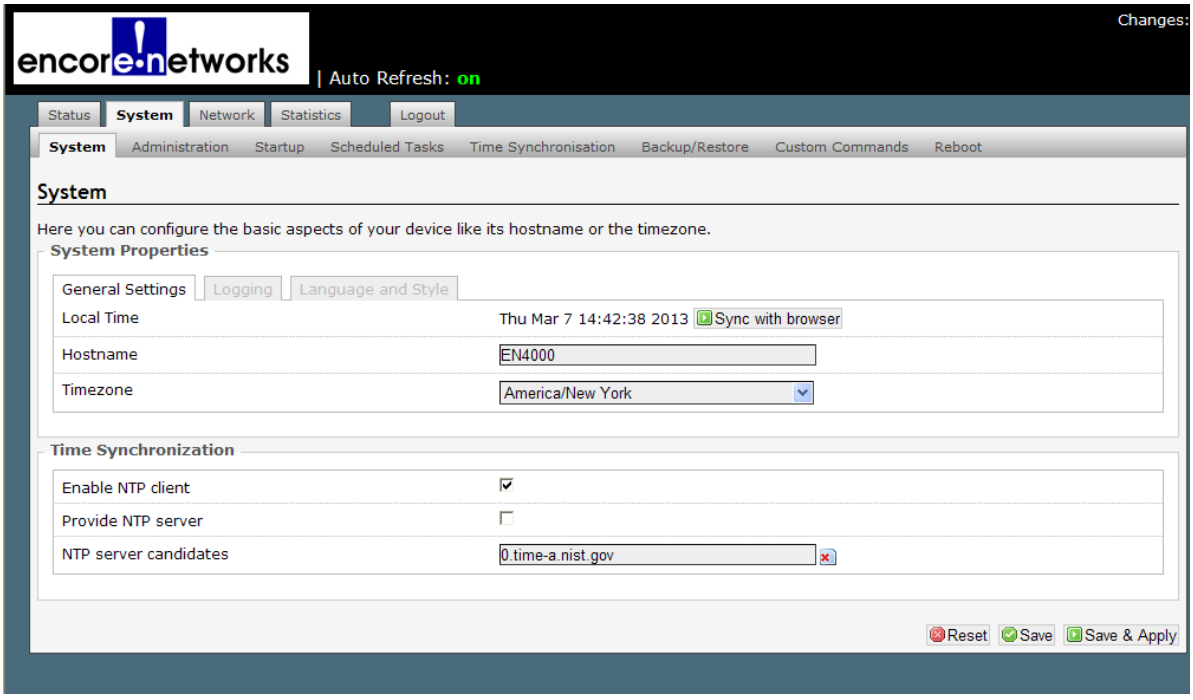
9 Do the following to navigate to any of the screens for system management.

a Select the **System** management area.

b Then select the **System** configuration area.

❖ The System Screen for General Settings is displayed (Figure 4-18).

Figure 4-18. System Screen for General Settings



Note: Time-of-day **Time Synchronization** parameters are listed in the lower portion of the System Screen, regardless of the tab selected in the upper part of the screen (**General Settings**, **Logging**, or **Language and Style**).

10 Consult your network administrator to determine whether the EN-4000 will receive time-of-day synchronization (substep b) or will provide that synchronization (substep a).

a If the EN-4000 will provide the time of day, select the box to **Provide NTP Server**.

b In most cases, the EN-4000 will receive the time of day. In those cases:

i Select the box to **Enable NTP Client**.

ii Then enter the name of the first NTP server the EN-4000 will look for.

iii In boxes below the principal NTP server field, enter names of additional NTP servers, in the order the EN-4000 will use.

iv Select the box to the right of each field for an NTP server to activate or inactivate that NTP server.

11 When you have selected your preferences for the parameters in this procedure, select the **Save & Apply** button.

❖ The changes are saved and are used immediately.

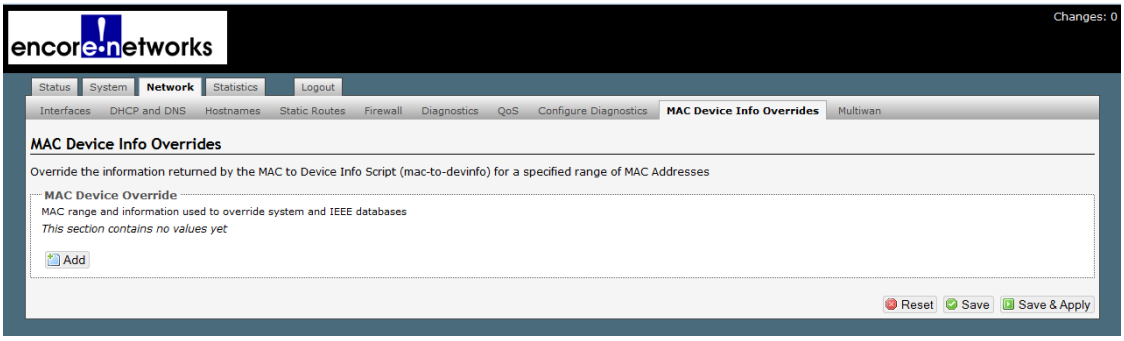
4.3.6 Overriding the MAC Information

You can override some MAC information.

1 Select **Network**, **MAC Device Info Overrides**.

❖ The MAC Device Overrides Initial Screen is displayed (Figure 4-19).

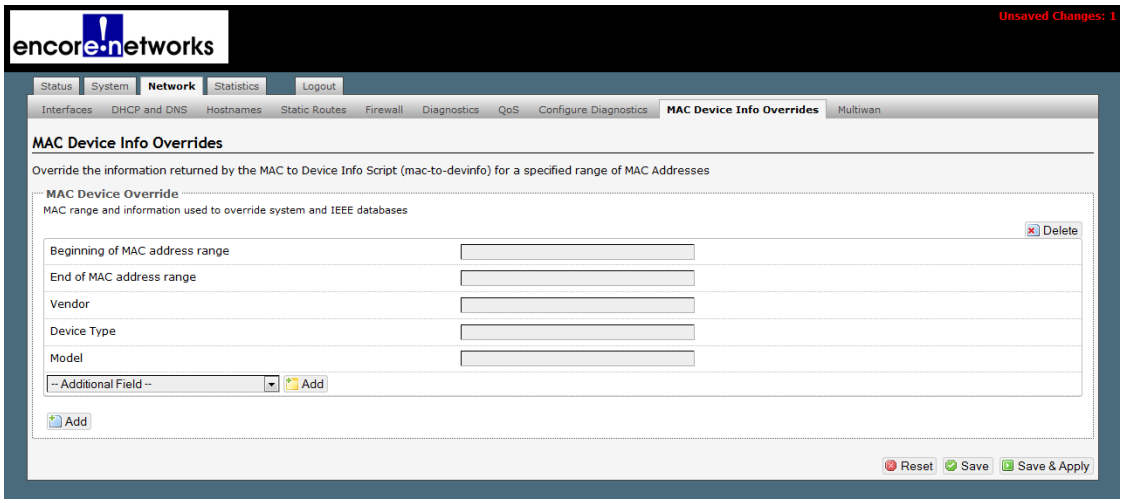
Figure 4-19. MAC Device Overrides Initial Screen



2 Click on the **Add** button.

❖ Fields are opened for a MAC device, as shown in the MAC Device Overrides Entry Screen (Figure 4-20).

Figure 4-20. MAC Device Overrides Entry Screen



3 Enter values in the fields shown to override MAC information sent by the EN-4000.

4 Then do one of the following:

a If you wish to configure overrides for another MAC device, return to step 2.

b When you have finished configuring overrides, 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-4000 is restarted, select **Save**.

iii If you wish to discard the configuration, select **Reset**.

4.4 Configuration for the Network

To configure network settings, see the following:

- Section 4.4.1, *Setting the APN*, on page 17
- Section 4.4.2, *DHCP and DNS*, on page 17
- Section 4.4.3, *Network Hosts*, on page 20
- Section 4.4.4, *Routing*, on page 21
- Section 4.4.5, *Firewall Configuration*, on page 23
- Section 4.4.6, *Configuring Traffic Priority*, on page 27

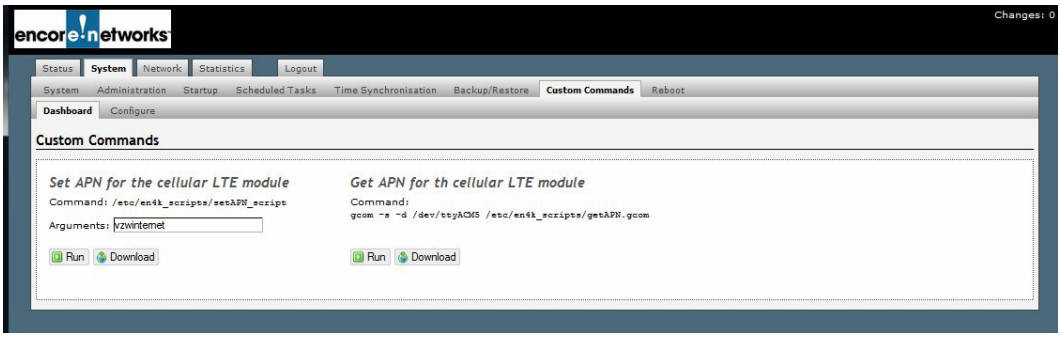
4.4.1 Setting the APN

A mobile device must have an access point number (APN) so that connecting devices can identify the device and its connection protocols. To set the APN for the cellular wireless interface, perform the following steps.

1. On the EN-4000 management system, select the **System** tab.
2. Then select the **Custom Commands** tab.
3. If necessary, select the **Dashboard** tab.

   ❖ The Custom Commands Screen is displayed (Figure 4-21).

Figure 4-21. Custom Commands Screen



4. In the **Arguments** field under the heading **Set APN for the Cellular LTE Module**, type the command string that your cellular wireless carrier provided for setting the APN. (In Figure 4-21, the command is **vzwinternet**.)
5. Then select the **Run** button under that field.

   ❖ The command is loaded into the EN-4000.
6. Then, under the heading **Get APN for the Cellular LTE Module**, select the **Run** button.

   ❖ The command runs, displaying a report that includes the cellular module's APN.

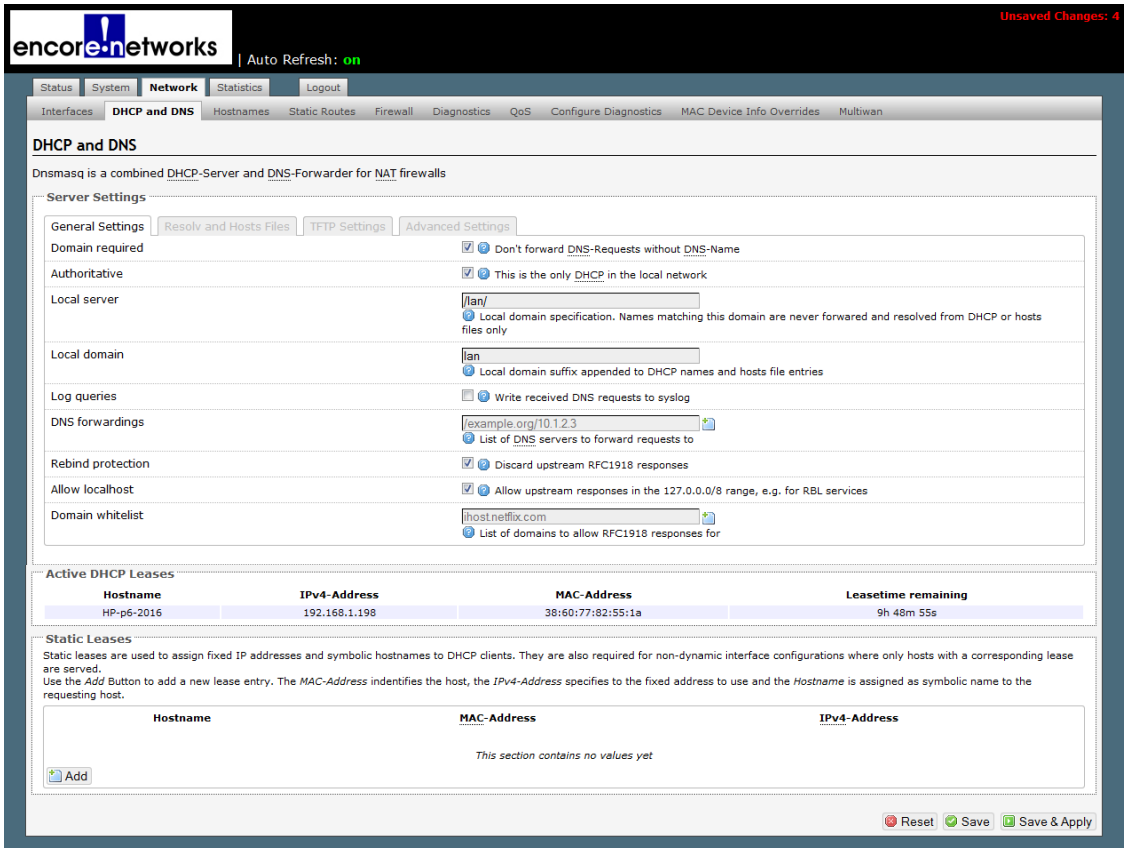
4.4.2 DHCP and DNS

You can configure the EN-4000's use of the Dynamic Host Configuration Protocol (DHCP) and the Domain Name System (DNS). Confer with your network administrator to determine values for fields in these configuration screens.

1. On any EN-4000 management system screen, select the **Network** tab. Then select the **DHCP and DNS** tab. (And, if necessary, select the **General Settings** tab.)

   ❖ The browser displays the DHCP and DNS General Settings Screen (Figure 4-22) for configuration.

Figure 4-22. DHCP and DNS General Settings Screen



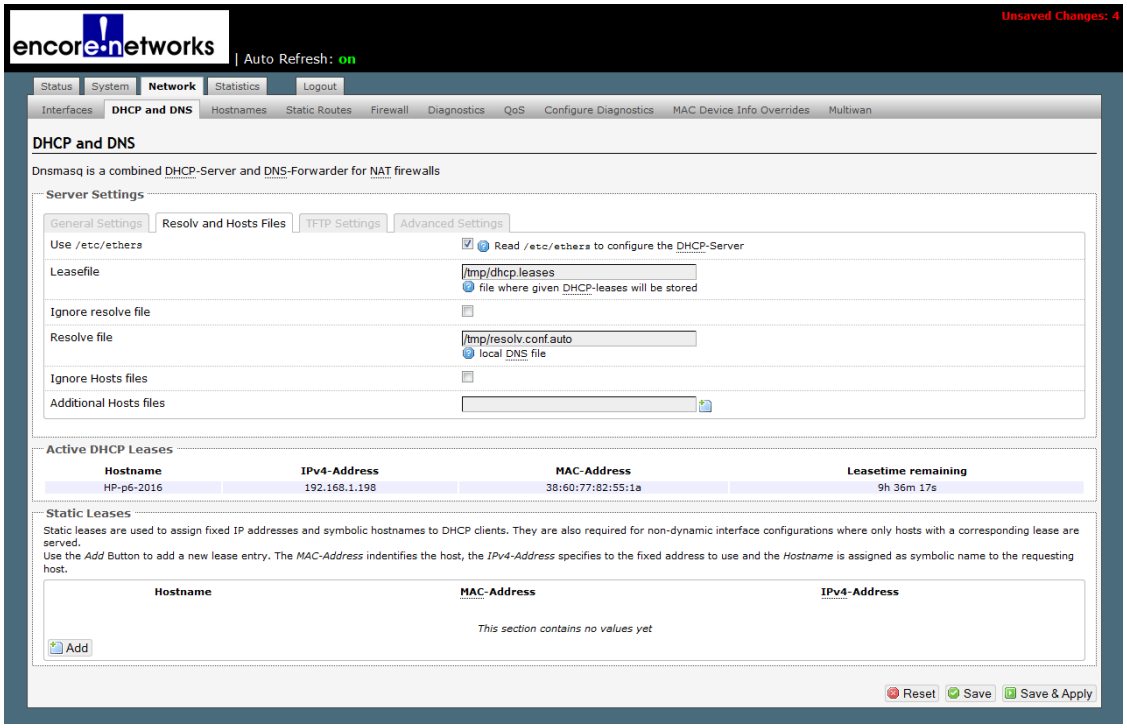
2 When you have finished configuring the fields on this screen, select the **Save** button.

3 Then select the tab for **Resolv and Hosts Files**.

Note: The spelling “resolv” reflects a filename.

❖ The Screen for DHCP and DNS Resolv and Hosts Files is displayed (Figure 4-23) for configuration.

Figure 4-23. Screen for DHCP and DNS Resolv and Hosts Files

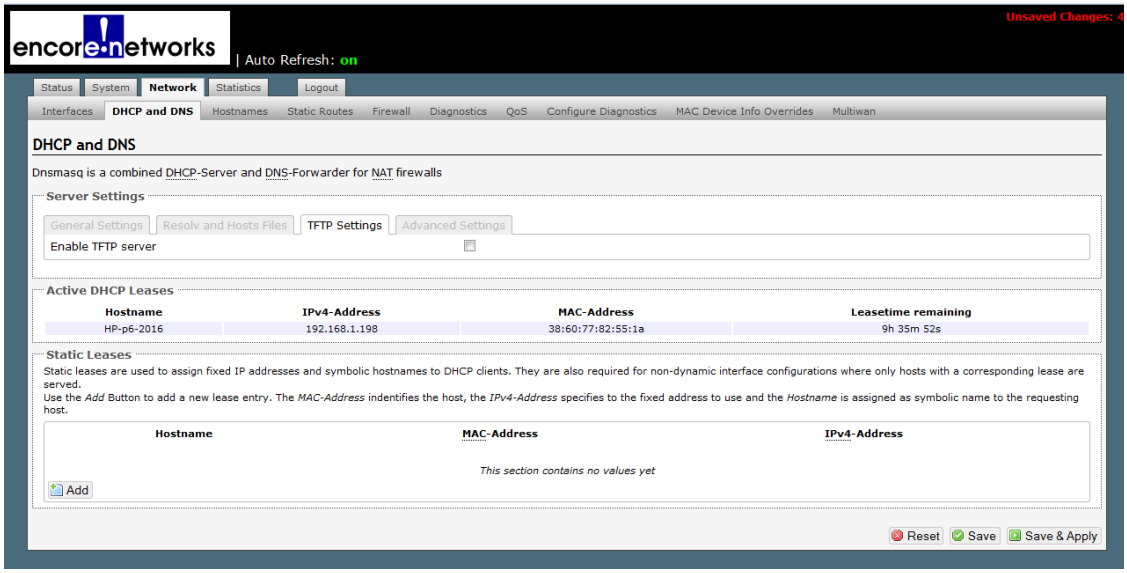


4 When you have finished configuring the fields on this screen, select the **Save** button.

5 Then select the tab for **TFTP Settings**.

❖ The DHCP and DNS TFTP Settings Screen is displayed (Figure 4-24) for configuration.

Figure 4-24. DHCP and DNS TFTP Settings Screen

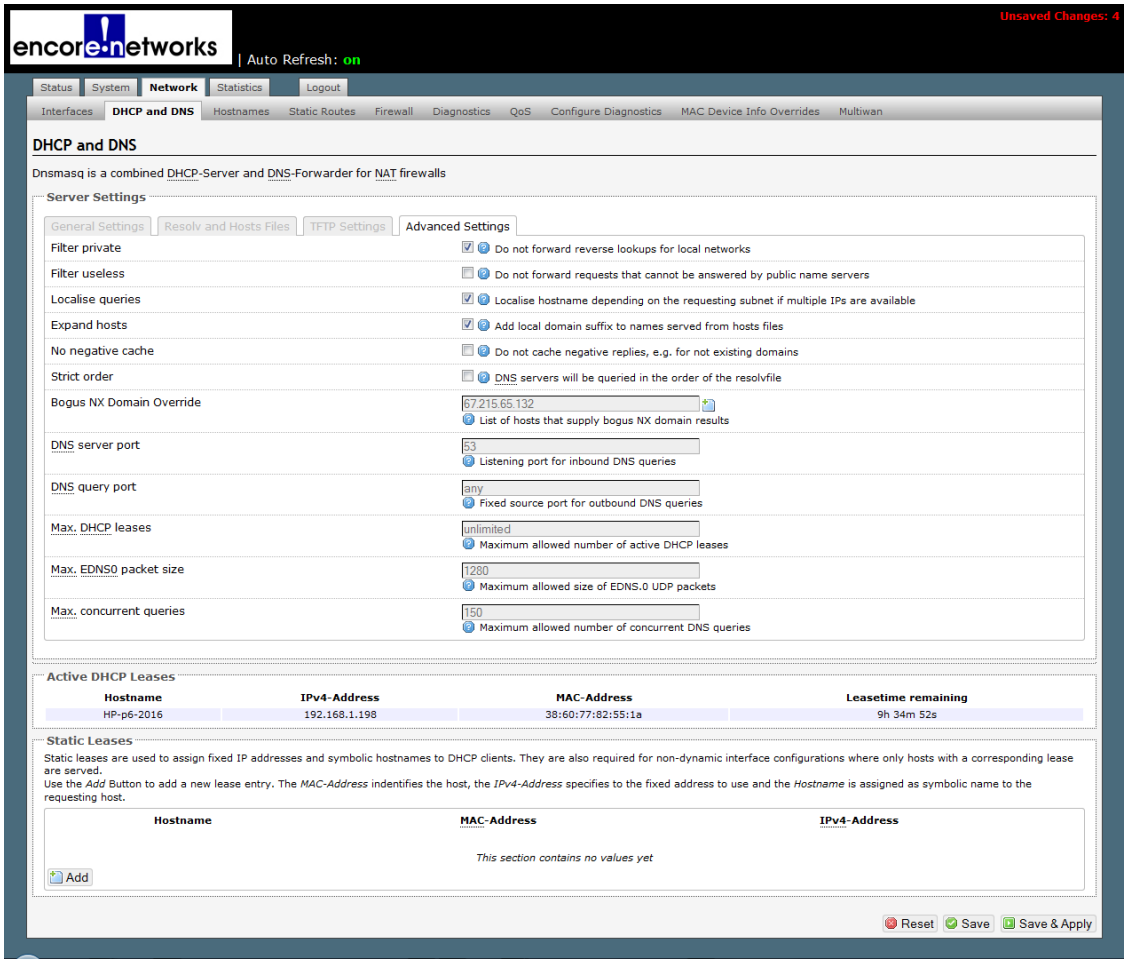


6 When you have finished configuring the fields on this screen, select the **Save** button.

7 Then select the tab for **Advanced Settings**.

❖ The DHCP and DNS Advanced Settings Screen is displayed (Figure 4-25) for configuration.

Figure 4-25. DHCP and DNS Advanced Settings Screen



8 When you have finished configuring the fields on this 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-4000 is restarted, select **Save**.

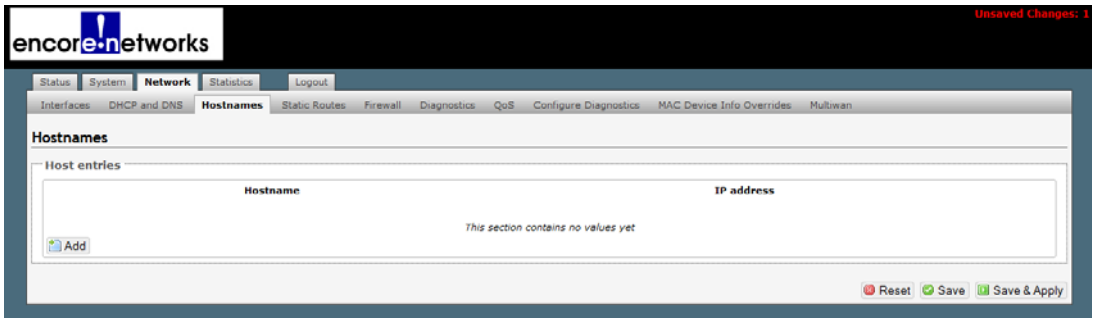
c If you wish to discard the configuration, select **Reset**.

4.4.3 Network Hosts

1 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 4-26).

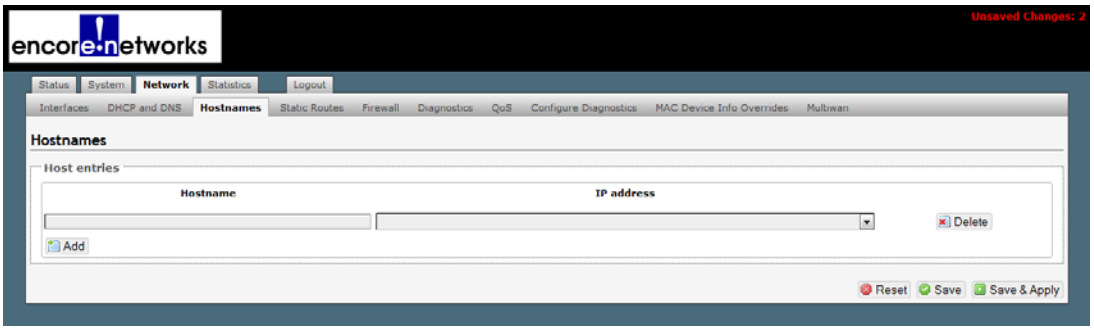
Figure 4-26. Network Host Names Screen



2 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 4-27).

Figure 4-27. 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 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-4000 is restarted, select **Save**.

iii If you wish to discard the configuration, select **Reset**.

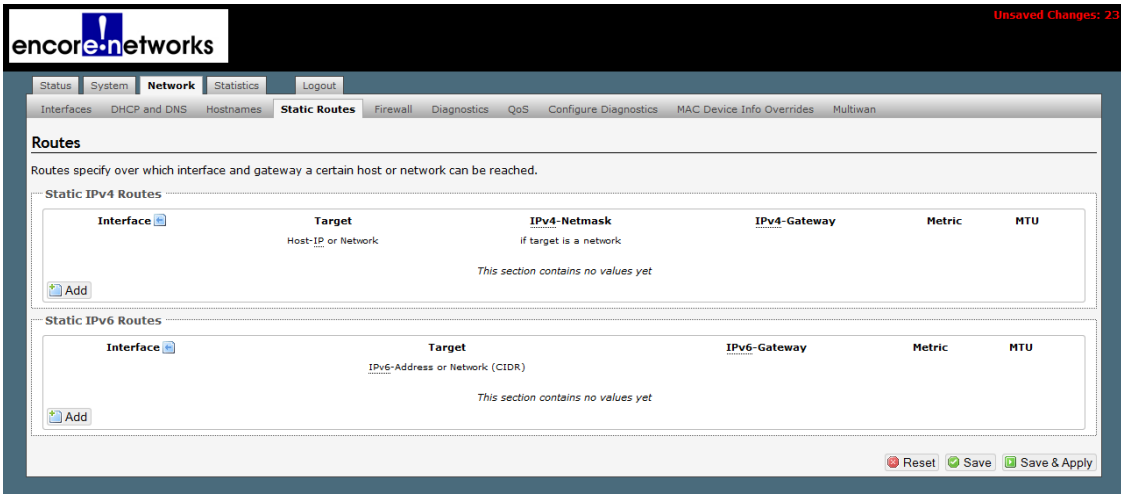
4.4.4 Routing

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 4-28).

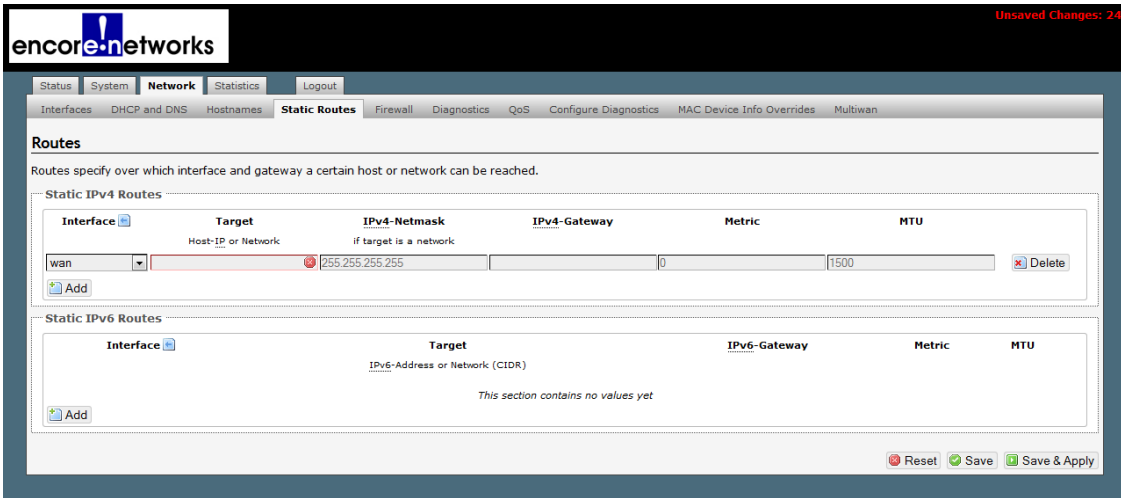
Figure 4-28. Static Routes Configuration Screen



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 4-29).

Figure 4-29. Static Routes Table



3 When you have finished configuring this screen, select the **Save & Apply** button.

❖ The Static Routes Configuration Screen is redisplayed (Figure 4-28).

4 On that 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-4000 is restarted, select **Save**.

c If you wish to discard the configuration, select **Reset**.

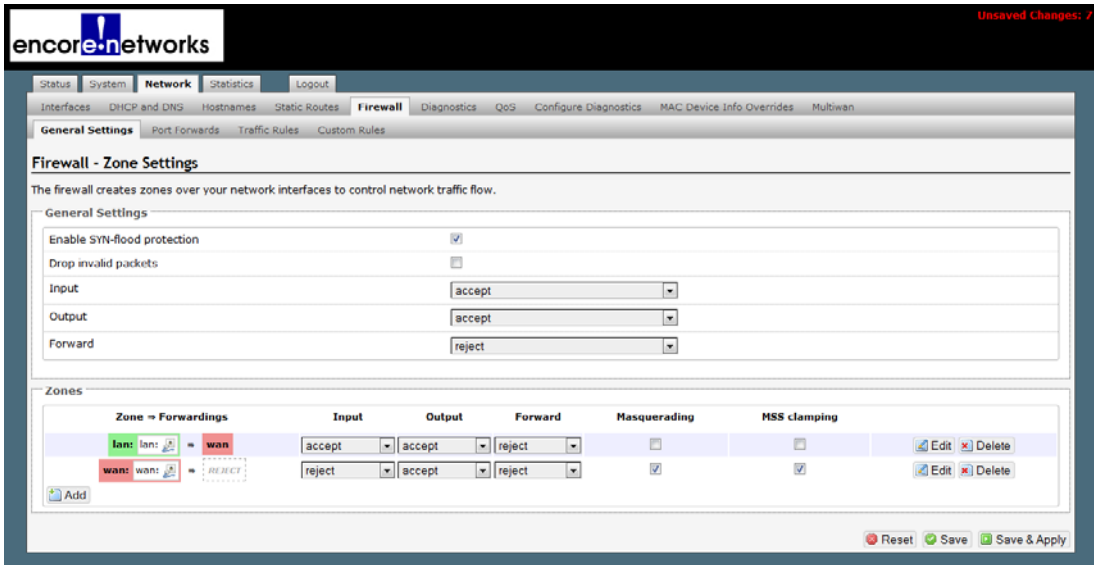
4.4.5 Firewall Configuration

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 4-30).

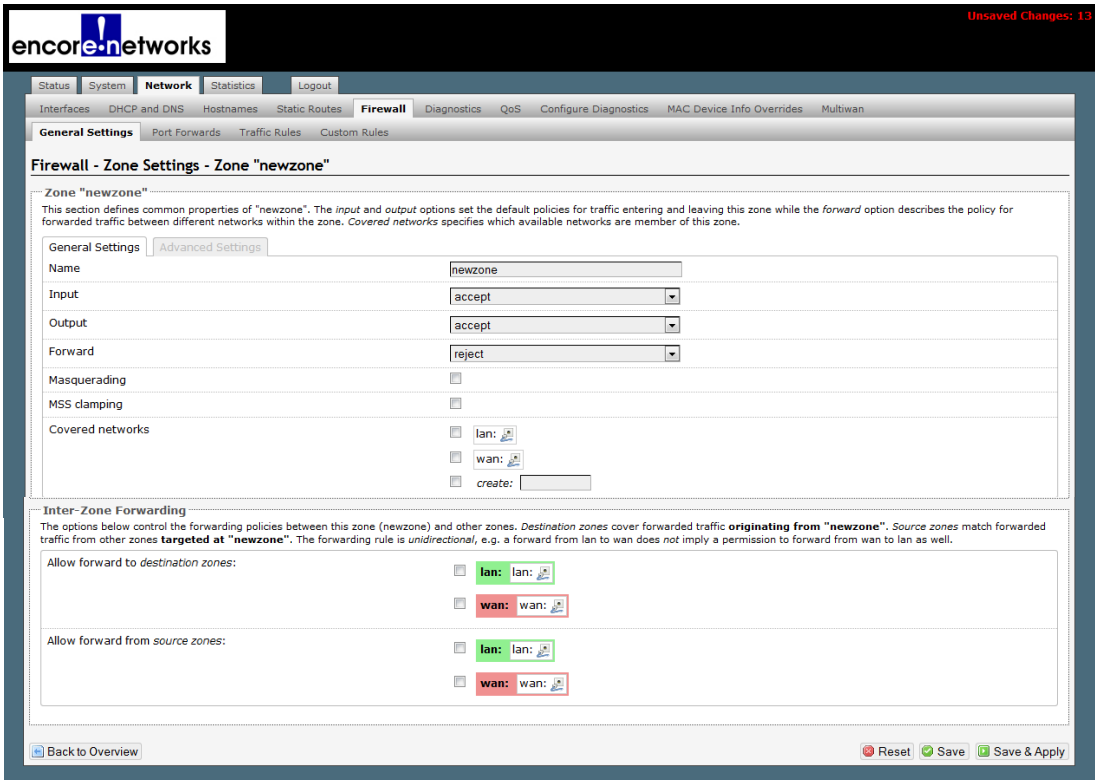
Figure 4-30. Firewall General Settings Screen



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 4-31).

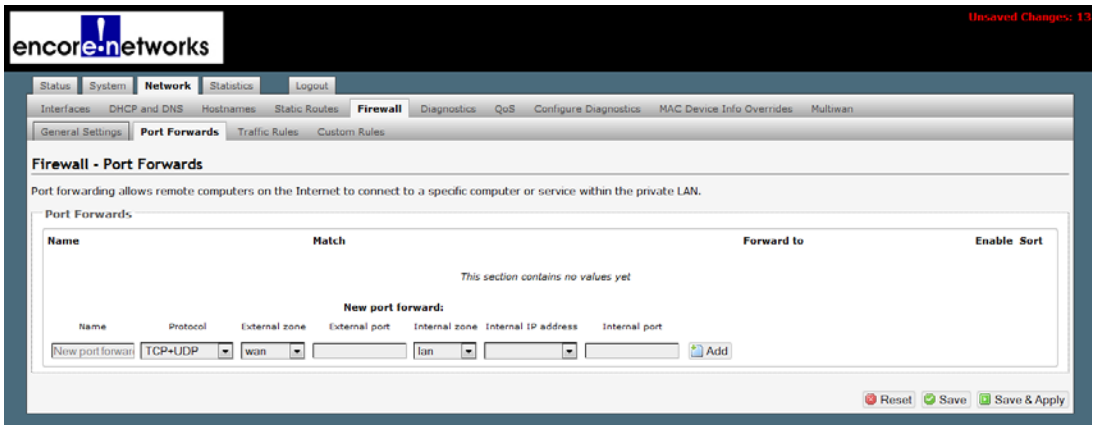
Figure 4-31. Firewall General Settings Screen to Add Record



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

❖ The Firewall Port Forwards Screen is displayed (Figure 4-32).

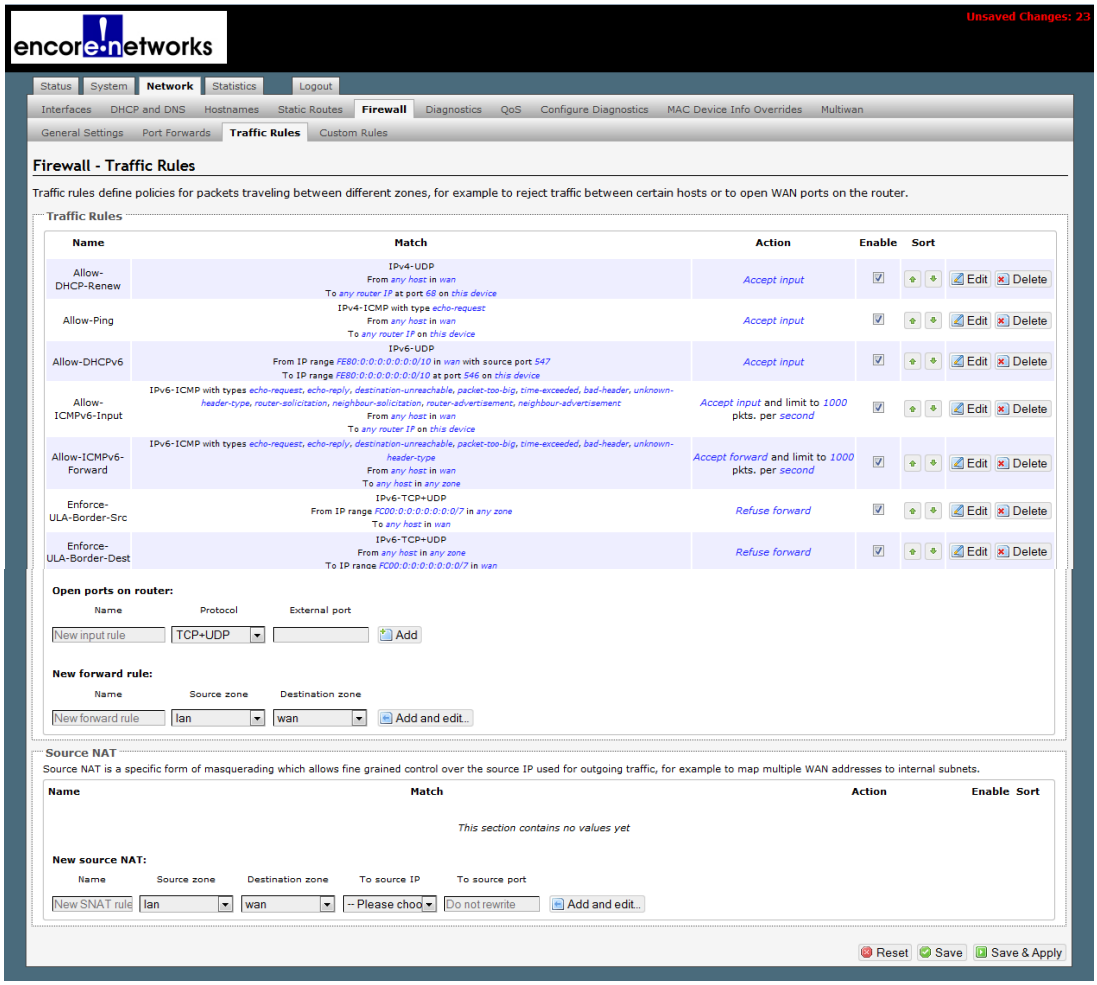
Figure 4-32. Firewall Port Forwards Screen



4 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 4-33).

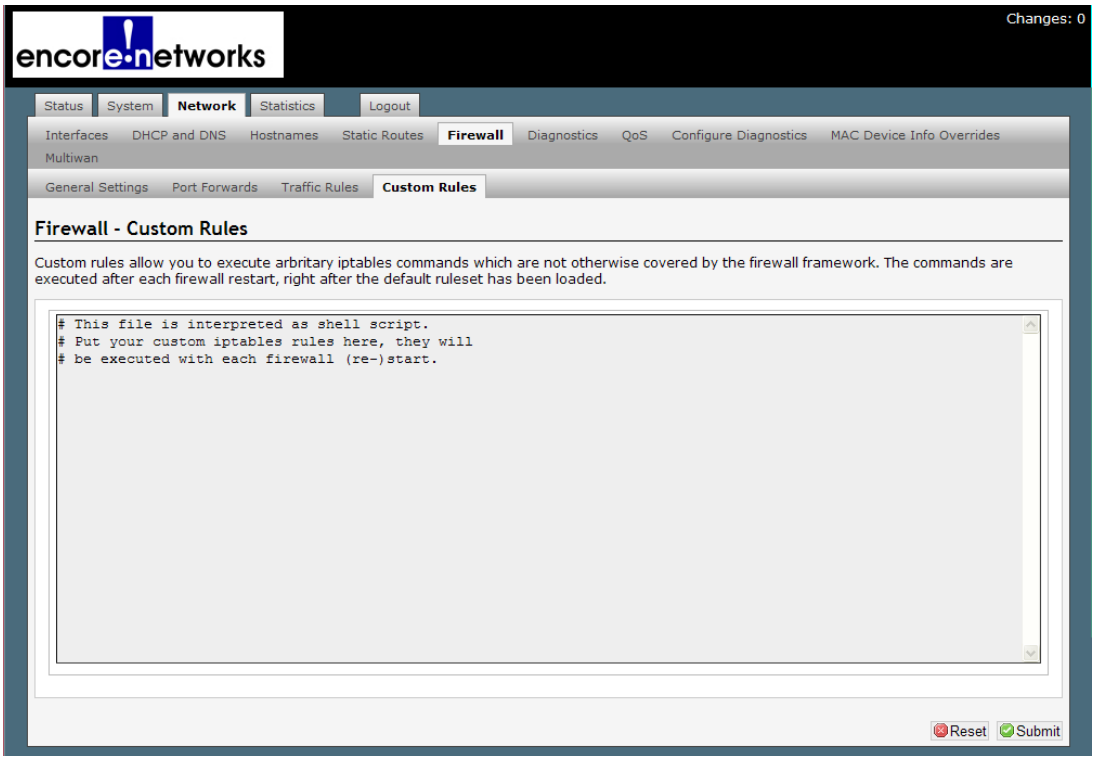
Figure 4-33. Firewall Traffic Rules Screen



5 After configuring the fields on the screen, select the **Save & Apply** button. Then select the tab for **Custom Rules**.

❖ The Firewall Custom Rules Screen is displayed (Figure 4-34).

Figure 4-34. Firewall Custom Rules Screen



6 After listing custom rules for the firewall, do one of the following:

a If you wish to save the configuration and use it immediately, select **Save and Apply**.

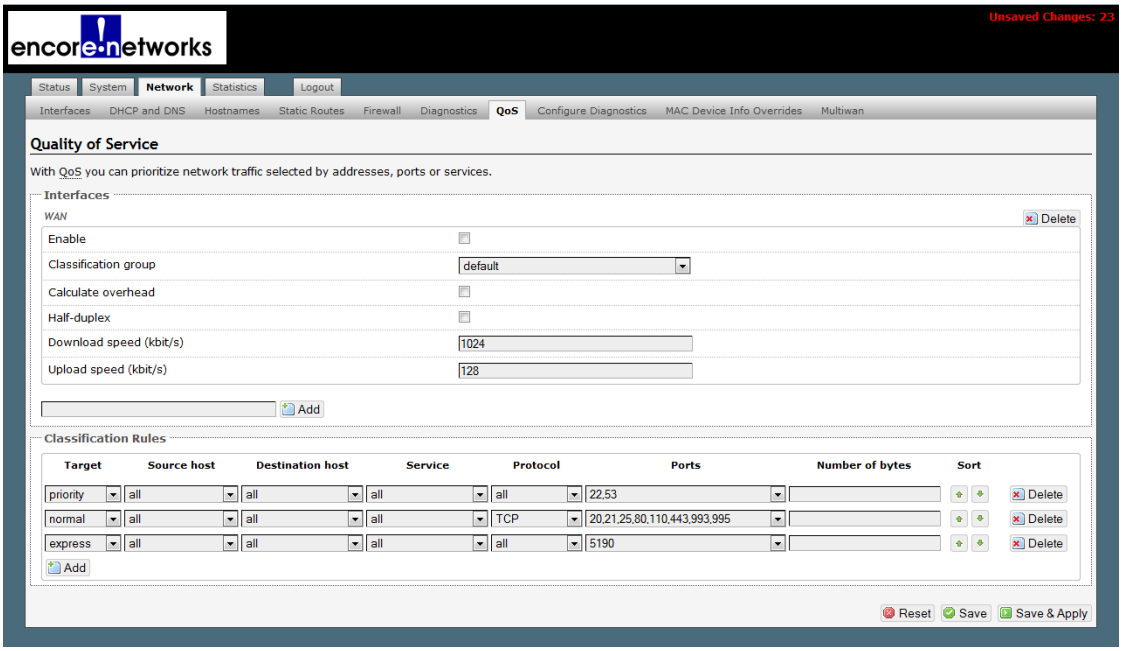
b If you wish to save the configuration, but not to use it until the EN-4000 is restarted, select **Save**.

c If you wish to discard the configuration, select **Reset**.

4.4.6 Configuring Traffic Priority

Use the fields in Figure 4-35 to configure Quality of Service (QoS) settings for network traffic. Consult your network administrator for the settings to use.

Figure 4-35. 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-4000 is restarted, select **Save**.

c If you wish to discard the configuration, select **Reset**.