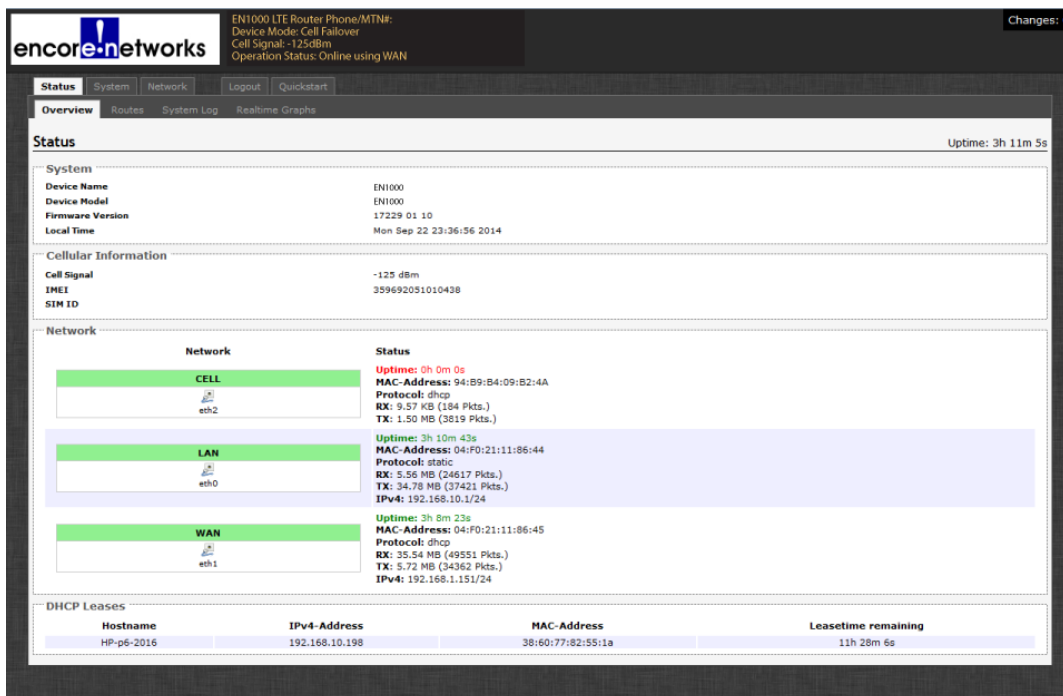


# EN-1000 System Administration

This chapter reviews screens for use by system administrators and network administrators.

- 1 Log into the EN-1000. (For log-in details, see [Logging In](#), on page 2 of the document [Using the EN-1000's Management System](#).)
  - ❖ The Status Overview Screen is displayed ([Figure C-1](#)). This screen provides a summary of the EN-1000's operation and its ports.

Figure C-1. Status Overview Screen



The screenshot shows the Status Overview screen for an EN1000 LTE Router. The top navigation bar includes 'Status', 'System', 'Network', 'Logout', and 'Quickstart'. The 'Overview' tab is selected, with sub-tabs for 'Routes', 'System Log', and 'Realtime Graphs'. The main content area is titled 'Status' and shows 'Uptime: 3h 11m 5s'. It 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, SIM ID: [redacted]), 'Network' (with sub-sections for CELL, LAN, and WAN), and 'DHCP Leases'.

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

See the following:

- [General System Administration](#)
- [Software Management](#)

## C.1 General System Administration

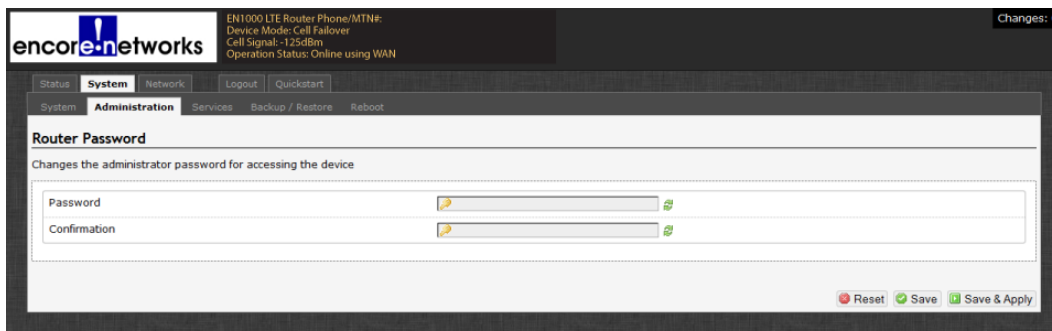
The following sections describe basic administrative configuration:

- [Changing the EN-1000's Password](#)
- [Configuring the EN-1000 for Recovery](#)

### C.1.1 Changing the EN-1000's Password

- 1 On the EN-1000 management screen, select the **System** tab; then select the **Administration** tab.
  - ❖ The Screen to Set a New Password is displayed ([Figure C-2](#)).

Figure C-2. Screen to Set a New Password



- 2 On that screen, type the EN-1000's new password in the **Password** field; then type the same password in the **Confirmation** field.

**Note:** The passwords typed must match exactly, including use of uppercase letters or lowercase letters or both.

We recommend use of strong passwords. Get all passwords from your network administrator.

- 3 Select the **Save & Apply** button.
  - ❖ The EN-1000 uses the new password.

### C.1.2 Configuring the EN-1000 for Recovery

This section describes steps to allow the EN-1000 to restart when certain criteria are met.

- 1 On the EN-1000 management screen, select the **System** tab; then select the **Services** tab.
  - ❖ The Screen to Configure System Services is displayed ([Figure C-3](#)).

Figure C-3. Screen to Configure System Services

The screenshot shows the 'Services' configuration page in the EN-1000 System Administration web interface. The page is titled 'Services' and contains two main sections: 'Ping Watchdog' and 'Auto Reboot'. The 'Ping Watchdog' section has fields for 'Enable Ping Watchdog' (checked), 'IP Address to Ping' (8.8.8.8), 'Ping Interval (secs)' (30), 'Startup Delay (secs)' (600), and 'Failure Count to Reboot' (10). The 'Auto Reboot' section has fields for 'Enable Auto Reboot' (checked), 'Mode' (By Time), and 'Time (HH:MM 24 Hours)' (12:41). At the bottom right, there are buttons for 'Reset', 'Save', and 'Save & Apply'.

**2** On that screen, configure the following fields to set up the **Ping Watchdog**:

- **Enable Ping Watchdog:** Select **Enable** only if you want the EN-1000 to restart when its connection to the network has been interrupted for a specified length of time.
- **IP Address to Ping:** Enter the IP address of the device to ping. (This is usually the gateway's IP address, but we recommend use of any reliable, persistent IP address.)
- **Ping Interval:** Number of seconds between pings.
- **Startup Delay:** Number of seconds to wait after restarting before resuming pings.
- **Failure Count to Reboot:** Number of successive pings that receive no response. When this number of failed pings is reached, the EN-1000 restarts.

**3** Then configure the following fields to set up **Auto Reboot**:

- **Enable Auto Reboot:** Select **Enable** only if you want the EN-1000 to restart on a regular basis.
- **Mode:** Select a time of day to restart, or select the number of hours to wait after the previous restart.
- **Time:**
  - ◆ If you selected **By Time** for the **Mode**, indicate the clock time (using a 24-hour clock).
  - ◆ If you selected **By Number of Hours** for the **Mode**, indicate the number of hours between restarts.

## C.2 Configuring the EN-1000's Background Elements

The EN-1000 learns most of its information from its environment, and sets other parameters to support the function you select for the EN-1000. It is unlikely that the EN-1000 will need more than a quick configuration. (To use quick configuration, see the [EN-1000™ Quick Configuration Guide](#).)

Background configuration includes assigning the EN-1000 its device name, and similar items. Confer with your network administrator for values to use in the configuration. See the following:

- [Configuring the Device Name and Time of Day](#)
- [Configuring System Logging](#)

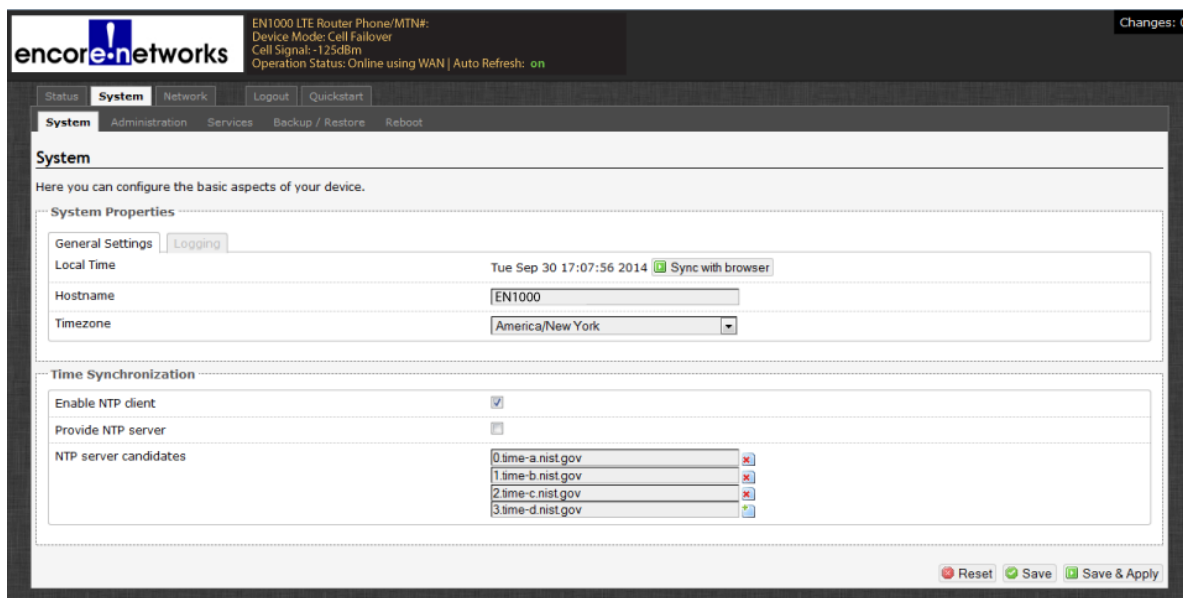
### C.2.1 Configuring the Device Name and Time of Day

- 1 To configure the EN-1000's identity within the network, and to configure time zone and time-of-day synchronization source for the EN-1000, 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 C-4](#)).

On the System Screen for General Settings, you can set a unique name for this EN-1000. You can also set its local time, and you can set a hierarchy of network time protocol (NTP) servers for synchronizing the EN-1000's time of day.

Figure C-4. System Screen for General Settings



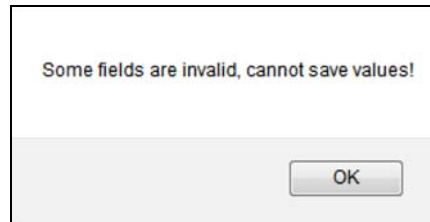
- 2 In the **Hostname** field, type a name for the EN-1000, to identify it in the network. Then click the **Save & Apply** button (in the lower right corner of the screen).

**Note:** Get all names and IP addresses from your network administrator.

❖ The EN-1000 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 C-5](#) is displayed.

Figure C-5. 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-1000 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-1000 will use (usually the closest city in your time zone). Then select the **Save & Apply** button.
    - ❖ The EN-1000's management system displays the selected city's time.

## C.2.2 Configuring System Logging

- 1 To set logging of system activities for the EN-1000, 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 C-6](#)).

Figure C-6. Screen to Set System Logging

EN1000 LTE Router Phone/MTN:  
Device Mode: Cell Failover  
Cell Signal: -125dBm  
Operation Status: Online using WAN | Auto Refresh: on

Changes: 0

System Administration Services Backup / Restore Reboot

### System

Here you can configure the basic aspects of your device.

#### System Properties

General Settings | Logging

System log buffer size: 16 kB

External system log server: 0.0.0.0

External system log server port: 514

Log output level: Debug

Cron Log Level: Normal

#### Time Synchronization

Enable NTP client:

Provide NTP server:

NTP server candidates:

- 0.time-a.nist.gov
- 1.time-b.nist.gov
- 2.time-c.nist.gov
- 3.time-d.nist.gov

Reset Save Save & Apply

- 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.

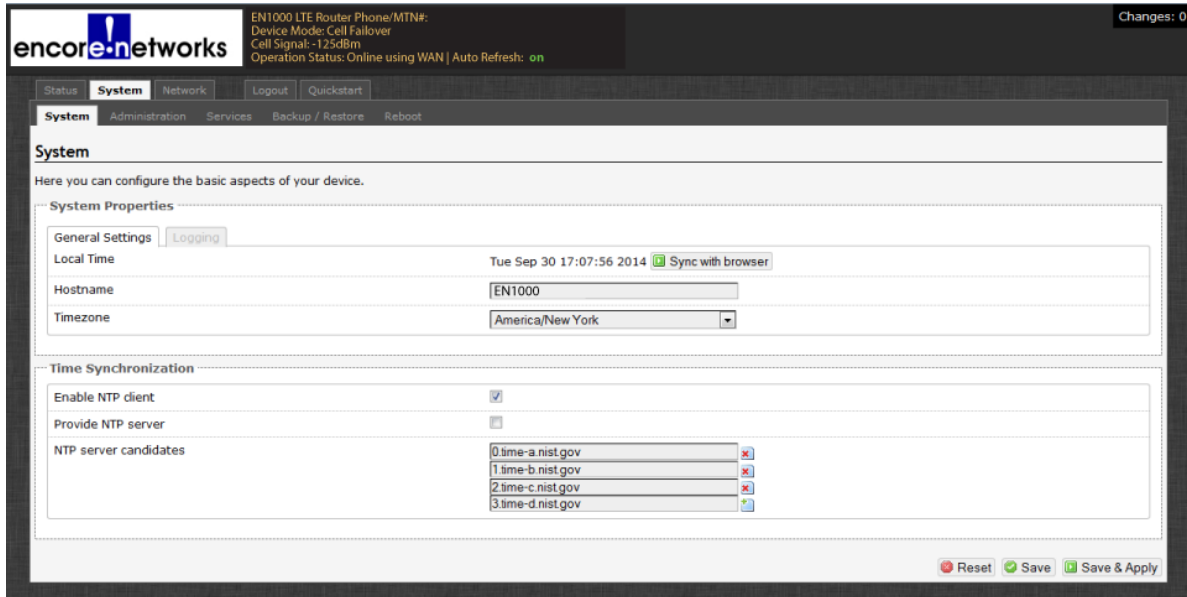
- **System Log Buffer Size** (kilobytes)
- **External System Log Server** (IP address)
- **External System Log Server Port** (port number)
- **Log Output Level** (select from pulldown menu):
  - ◆ Debug
  - ◆ Info
  - ◆ Notice
  - ◆ Warning
  - ◆ Error
  - ◆ Critical
  - ◆ Alert
  - ◆ Emergency
- **Cron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

**Note:** To set the time of day, see [Setting the Time of Day](#).

## C.2.3 Setting the Time of Day

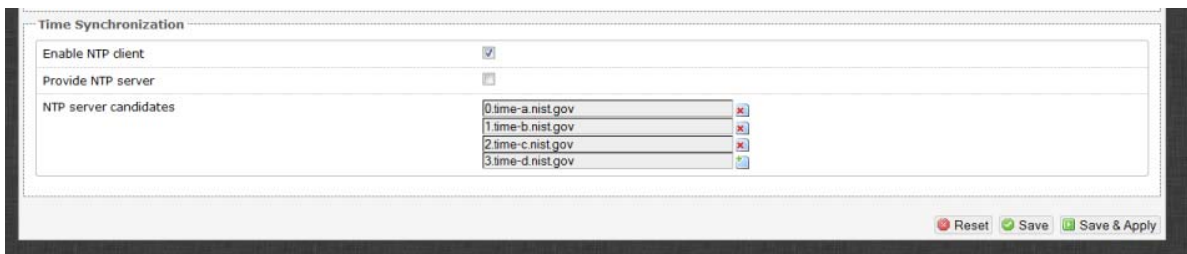
- 1 Do the following to navigate to any of the screens for system management.
  - a Select the **System** management area.
  - b Then select the **System** configuration area.
    - ❖ The System Screen for General Settings is displayed ([Figure C-7](#)).

Figure C-7. System Screen for General Settings



**Note:** Time-of-day **Time Synchronization** parameters are listed in the lower half of the screen (detail in [Figure C-8](#)). These parameters are listed regardless of the heading (**General Settings** or **Logging**) in the upper portion of the System Screen.

Figure C-8. System Screen, Time Synchronization Settings



- 2 Consult your network administrator to determine whether the EN-1000 will provide time-of-day synchronization ([Substep a](#)) or will receive that synchronization ([Substep b](#)).
  - a If the EN-1000 will provide the time of day, select the box to **Provide NTP Server**. Go to [step 3](#).
  - b In most cases, the EN-1000 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-1000 will look for.

- iii In boxes below the principal NTP server field, enter names of additional NTP servers, in the order the EN-1000 will use.
  - iv Select the box to the right of each field for an NTP server to activate or inactivate that NTP server.
- 3 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.

## C.3 Software Management

The following sections describe management of the EN-1000 operating software:

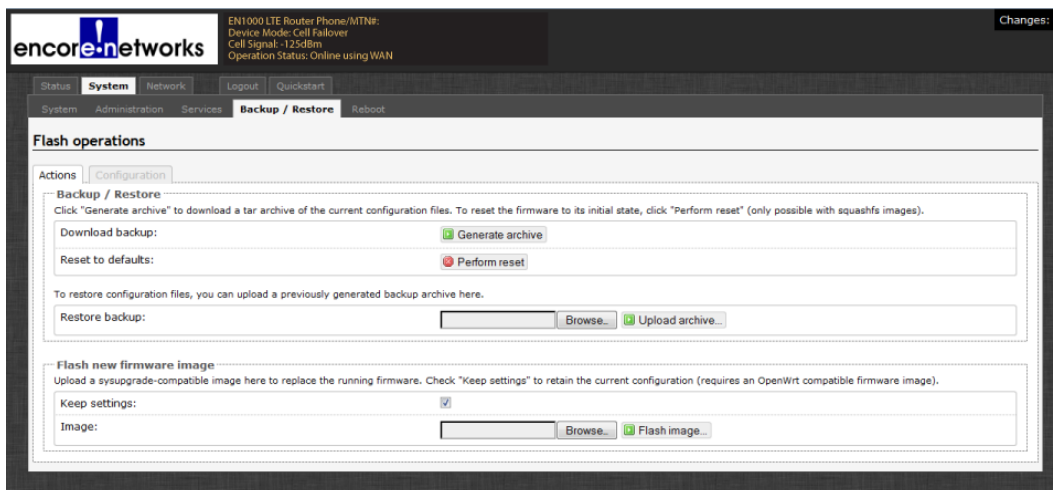
- [Saving or Retrieving the EN-1000's Configuration](#), on page 8
- [Upgrading the EN-1000's Operating Software](#), on page 10

### C.3.1 Saving or Retrieving the EN-1000's Configuration

To save or retrieve the EN-1000's configuration, do the following:

- 1 On the EN-1000 management screen, select the **System** tab; then select the **Backup/Restore** tab.
  - 2 If necessary, select the **Actions** panel.
- ❖ The Screen to Save or Retrieve Files is displayed ([Figure C-9](#)).

Figure C-9. Screen to Save or Retrieve Files



**Note:** This screen can be used for the following actions:

- To save a back-up of the EN-1000's current configuration
- To restore a previous configuration to the EN-1000
- To reset the EN-1000 to its default configuration

(For the items listed above, continue to [Step 3](#).)

or



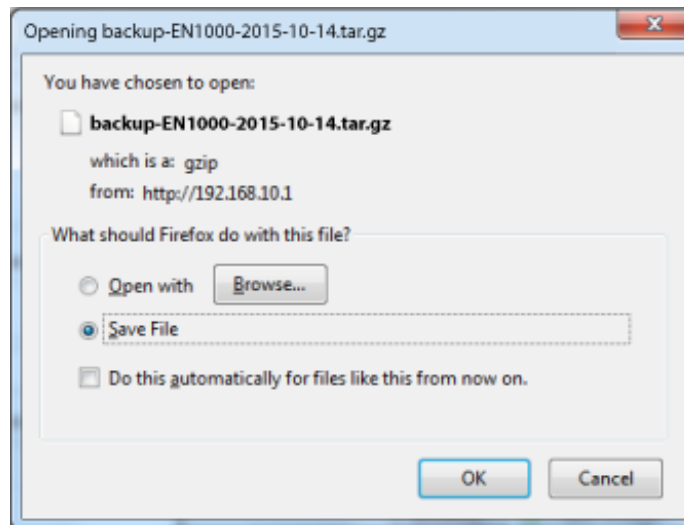
- To load new operating system software into the EN-1000 (For this item, see [Upgrading the EN-1000's Operating Software](#), on page 10.)
- 3 Select one of the following actions:
- To save the EN-1000's configuration, go to [Backing Up the EN-1000's Configuration](#), on page 9.
  - To restore an earlier configuration to the EN-1000, go to [Restoring a Previous Configuration to the EN-1000](#), on page 9.
  - To reset the EN-1000 to its default configuration, go to [Resetting the EN-1000 to its Default Configuration](#), on page 10.

### C.3.1.1 Backing Up the EN-1000's Configuration

To back up the EN-1000's configuration, do the following

- 1 On the Screen to Save or Retrieve Files (recall [Figure C-9](#)), select the **Generate Archive** button.
  - ❖ The EN-1000 names the file and stamps the file with the date and time ([Figure C-10](#)).

Figure C-10. Screen to Verify Disposition of File



- 2 If your web browser lets you choose the folder that will hold the file, do so. (Otherwise, later you can move the file from the web browser's default folder to a configuration archive folder.)
  - 3 Select the **OK** button.
- ! **Caution:** After you save the file, you can change the archive file's name or timestamp, but do not change the extension "tar.gz."

### C.3.1.2 Restoring a Previous Configuration to the EN-1000

To restore a previous configuration, do the following:

- 1 On the Screen to Save or Retrieve Files (recall [Figure C-9](#)), in the row for **Restore Backup**, select the **Browse** button.

- ❖ A window allows you to select the directory and file.
- 2 Browse to the directory and select the configuration file to upload. (The file must have the extension “tar.gz.”)
    - ❖ The names of the selected path and file are displayed in the **Restore Backup** field.
  - 3 Then select the **Upload Archive** button.

**Note:** During the upload, the EN-1000’s management system might display information similar to the message in [Figure C-11](#).

Figure C-11. Information during Upload



- ❖ After the upload, the management system displays the Log-In Screen.
- 4 On the Log-In Screen, type the user name and password; then select the button to **Log In**.
    - ❖ The EN-1000 software management screens open.

### C.3.1.3 Resetting the EN-1000 to its Default Configuration

**Note:** The **Perform Reset** button on this screen has the same effect as the Reset button on the front of the EN-1000 chassis: It restores the factory defaults.

- 1 To reset the EN-1000 to its default configuration, select the **Perform Reset** button on the Screen to Save or Retrieve Files (recall [Figure C-9](#)).

**!** **Caution:** If you set the router to its default configuration, all parameters will lose the values you have configured for them, and the parameters will resume their default values. Select this button only if you cannot recover the EN-1000’s configuration in any other way.

## C.3.2 Upgrading the EN-1000’s Operating Software

See the following:

- [Preserving the EN-1000’s Configuration during a Software Upgrade](#)
- [Loading a Software Upgrade](#)

### C.3.2.1 Preserving the EN-1000’s Configuration during a Software Upgrade

The EN-1000 generates internal files when you configure its parameters. It uses these files to retain its configuration when its software is upgraded. The process is automatic; it does not require action from the user.

### C.3.2.2 Loading a Software Upgrade

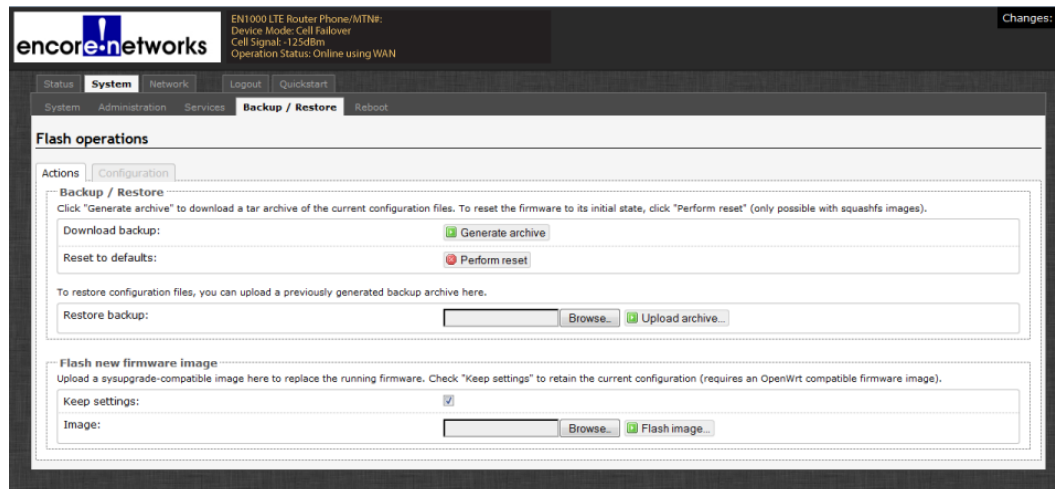
**Note:** You will need to get the software upgrade file (with the extension “img”) from your network administrator before you can complete this procedure. As an alternative, you might also be able to download the software upgrade file to your local computer from your EN-1000 distributor’s FTP server or website.

**Note:** As indicated in [Preserving the EN-1000’s Configuration during a Software Upgrade](#), the EN-1000 retains its configuration when its software is upgraded.

To upgrade the EN-1000’s software, do the following:

- 1 On the EN-1000 management screen, select the **System** tab; then select the **Backup/Restore** tab.
- 2 If necessary, select the **Actions** panel.
  - ❖ The Screen to Save or Retrieve Files is displayed ([Figure C-12](#)).

Figure C-12. Screen to Save or Retrieve Files



**Note:** This screen can be used for the following actions:

- To save a back-up of the EN-1000’s current configuration
- To restore a previous configuration to the EN-1000
- To reset the EN-1000 to its default configuration

(For the items listed above, see [Saving or Retrieving the EN-1000’s Configuration](#), on page 8.)

or

- To load new operating system software into the EN-1000 (For this item, continue to [Step 3](#).)

- 3 Select the **Status**, **Overview** tabs to see the firmware version currently in use.

❖ The Status Overview Screen is displayed ([Figure C-13](#)). The firmware information is listed in the third line from the top.

Figure C-13. Status Overview Screen

The screenshot displays the 'Status Overview' page for an EN1000 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: EN1000, Device Model: EN 1000, Firmware Version: 17322 03 12, Local Time: Mon Mar 9 19:41:49 2015.
- Cellular Information:** Cell Signal: -125 dBm, IMEI: 359692051021120, SIM ID, APN: ne01.VZWSTATIC.
- Network:**
  - CELL (eth2):** Uptime: 0h 0m 0s, MAC-Address: 94:B9:B4:18:BF:21, Protocol: dhcp, RX: 224.33 KB (4314 Pkts.), TX: 35.41 MB (90108 Pkts.).
  - LAN (br-lan):** Uptime: 3d 3h 5m 57s, MAC-Address: 00:A0:EB:03:00:55, Protocol: static, RX: 146.05 MB (642604 Pkts.), TX: 1.68 GB (1217939 Pkts.), IPv4: 192.168.10.1/24.
  - WAN (eth1):** Uptime: 3d 3h 9m 53s, MAC-Address: 00:A0:EB:03:00:56, Protocol: dhcp, RX: 1.69 GB (1274296 Pkts.), TX: 157.08 MB (684445 Pkts.), IPv4: 192.168.1.204/24.
- DHCP Leases:**

Hostname	IPv4-Address	MAC-Address	Leasetime remaining
android-7b5fda72778e491	192.168.10.216	84:7e:88:27:33:16	11h 21m 34s
HP-p6-2016	192.168.10.198	38:60:77:82:55:1a	6h 54m 43s

**Note:** The firmware version might read as something similar to the following:

- 17322 03 12

- 4 For detailed firmware information, select the **Network**, **Failover**, and **Advanced** tabs.
- ❖ The Troubleshooting Screen is displayed (Figure C-14, partial display of the screen). The detailed firmware information is listed as the top line.

Figure C-14. Troubleshooting Screen

The screenshot displays the 'Troubleshooting' page under the 'Network' > 'Failover' > 'Advanced' navigation path. The main content area shows the following information:

- Software versions:** 17322 03 12 (130)
- Firewall default output policy (must be ACCEPT):** ACCEPT
- Output of "ip route show":**

```
default via 192.168.1.1 dev eth1 proto static metric 10
192.168.1.0/24 dev eth1 proto static scope link metric 10
192.168.10.0/24 dev br-lan proto kernel scope link src 192.168.10.1
```
- Output of "ip rule show":**

```
0: from all lookup local
1001: from all fwmark 0x100/0xff00 lookup 1001
1016: from all fwmark 0x1000/0xffff00 lookup 1016
32766: from all lookup main
32767: from all lookup default
```
- Output of "ip route list table 1001-1099" [1001-1015 = interface tables, 1016-1099 = policy tables]:**

```
1001
default via 192.168.1.1 dev eth1
1016
default via 192.168.1.1 dev eth1 metric 1
```
- Output of "iptables -L -t mangle -v -n | awk '/mwan3/ {RS=""}":**

```
Chain PREROUTING (policy ACCEPT 1900K packets, 1813M bytes)
pkts bytes target prot opt in out source destination
1900K 1813M mwan3_pre all -- * * 0.0.0.0/0 0.0.0.0/0

Chain INPUT (policy ACCEPT 80647 packets, 7276K bytes)
pkts bytes target prot opt in out source destination
80823 7294K mwan3_post all -- * * 0.0.0.0/0 0.0.0.0/0

Chain OUTPUT (policy ACCEPT 72419 packets, 7000K bytes)
pkts bytes target prot opt in out source destination
72505 7008K mwan3_pre all -- * * 0.0.0.0/0 0.0.0.0/0
```

**Note:** The firmware version detail might read as something similar to the following:

- 17322 03 12 (130)

- 5 Then select the **System**, **Backup/Restore**, and **Action** tabs to return to the Screen to Save or Retrieve Files (recall [Figure C-12](#)).
- 6 On the Screen to Save or Retrieve Files, if you want to retain the EN-1000's configuration, make sure the box to **Keep Settings** is checked.
- 7 On the Screen to Save or Retrieve Files, under the heading **Flash New Firmware Image**, in the row for **Image** (at the bottom of the screen), select the **Browse** button.

❖ A window opens so that you can locate the \*.img file.

- 8 Browse to the directory that contains the \*.img file.

Figure C-15. Screen to Select the \*.img File for a Software Upgrade

- 9 Highlight the \*.img file to load. Then click on the **Open** button to select that \*.img file.

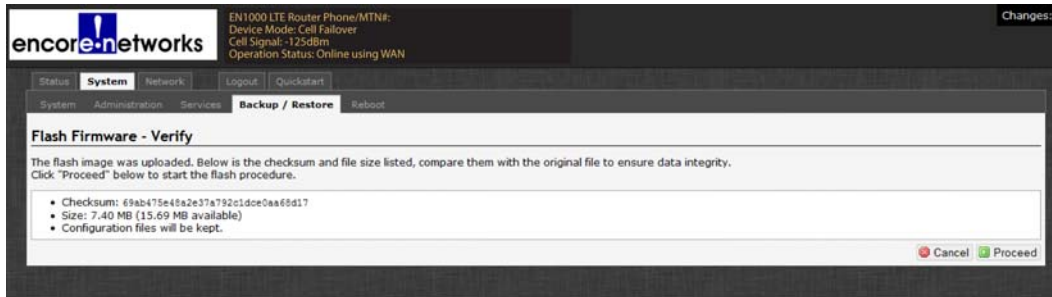
❖ The names of the selected path and file are displayed in the **Image** field at the bottom of the Screen to Save or Retrieve Files ([Figure C-16](#)).

Figure C-16. Screen to Save or Retrieve Files

- 10 In the **Image** row at the bottom of the Screen to Save or Retrieve Files, select the **Flash Image** button.

❖ The EN-1000 calculates information for the upload and generates a Screen to Verify Loading the Software Upgrade ([Figure C-17](#)).

Figure C-17. Screen to Verify Loading the Software Upgrade



- 11 After you review the information on that screen, do one of the following:
  - a Select the button to **Proceed** with the software upgrade.

**Note:** The upgrade takes a few minutes. Go to [Step 12](#).

The files discussed in [Preserving the EN-1000's Configuration during a Software Upgrade](#) allow the software upgrade to retain the EN-1000's configuration.
  - b Select the button to **Cancel** the software upgrade.
    - ❖ The upgrade is not performed. If you wish to try again, repeat [Step 3](#).
- 12 Watch the LEDs on the front of the EN-1000 chassis. When the LEDs flash to indicate normal activity, use the browser to open the EN-1000's Log-In Screen.
- 13 On the Log-In Screen, type the user name and password; then select the button to **Log In**.
  - ❖ The EN-1000 software management screens open.

**Note:** If you wish to verify use of the upgraded software, you can view the firmware version again (as described in [Step 3](#)).