XAV101 Powerline AV Ethernet Adapter User Guide

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Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the products described in this document without notice. NETGEAR does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

Maximum Wireless Signal Rate Derived from IEEE Standard 802.11 Specifications

Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.

Safety Instructions

Use the following safety guidelines to ensure your own personal safety and to help protect your system from potential damage.

To reduce the risk of bodily injury, electrical shock, fire, and damage to the equipment, observe the following precautions.

- Observe and follow service markings.
  - Do not service any product except as explained in your system documentation.
  - Opening or removing covers that are marked with the triangular symbol with a lightning bolt may expose you to electrical shock. Only a trained service technician should service components inside these compartments.
- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:
  - The power cable, extension cable, or plug is damaged.
  - An object has fallen into the product.
  - The product has been exposed to water.
  - The product has been dropped or damaged.
  - The product does not operate correctly when you follow the operating instructions.
- Keep your system away from radiators and heat sources. Also, do not block cooling vents.

- Do not spill food or liquids on your system components, and never operate the product in a wet environment. If the system gets wet, see the appropriate section in your troubleshooting guide or contact your trained service provider.
- Do not push any objects into the openings of your system. Doing so can cause fire or electric shock by shorting out interior components.
- Use the product only with approved equipment.
- Allow the product to cool before removing covers or touching internal components.
- Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.
- To help avoid damaging your system, be sure that the voltage selection switch (if provided) on the power supply is set to match the power available at your location:
  - 115 volts (V), 60 hertz (Hz) in most of North and South America and some Far Eastern countries such as South Korea and Taiwan
  - 100 V, 50 Hz in eastern Japan and 100 V, 60 Hz in western Japan
  - 230 V, 50 Hz in most of Europe, the Middle East, and the Far East
- Also, be sure that attached devices are electrically rated to operate with the power available in your location.
- Use only approved power cables. If you have not been provided with a power cable for your system or for any AC powered option intended for your system, purchase a power cable that is approved for use in your country. The power cable must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the product.
- To help prevent electric shock, plug the system and peripheral power cables into properly grounded electrical outlets.
- The peripheral power cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a three-wire cable with properly grounded plugs.
- Observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Position system cables and power cables carefully; route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.
- Do not modify power cables or plugs. Consult a licensed electrician or your power company for site modifications.
- Always follow your local and national wiring rules.
- Move products with care; ensure that all casters and stabilizers are firmly connected to the system. Avoid sudden stops and uneven surfaces.

Safety and Regulatory Notices

FCC Statement

The XAV101 has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient or relocate the receiving antenna
* Increase the separation between the equipment or devices
* Connect the equipment to an outlet other than the receiver's
* Consult a dealer or an experienced radio/TV technician for assistance

Canadian Department of Communications Industry Canada (IC) Notice

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Europe – EU Declaration of Conformity C E

A printed copy of the EU Declaration of Conformity certificate for this product is provided in the XAV101 product package.

Product and Publication Details

Model Number:	XAV101
Publication Date:	January 2009
Product Family:	Powerline AV Ethernet Adapter
Product Name:	XAV101 Powerline AV Ethernet Adapter
Home or Business Product:	Home
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About This Manual

The *NETGEAR® XAV101 Powerline AV Ethernet Adapter User Guide* describes how to install, configure and troubleshoot the XAV101 Powerline AV Ethernet Adapter. The information in this manual is intended for readers with intermediate computer and Internet skills.

Conventions, Formats, and Scope

The conventions, formats, and scope of this manual are described in the following paragraphs:

• **Typographical Conventions**. This manual uses the following typographical conventions:

Italic	Emphasis, books, CDs
Bold	User input, IP addresses, GUI screen text
italic	URL links

• **Formats**. This manual uses the following formats to highlight special messages:

Note: This format is used to highlight information of importance or special interest.

Tip: This format is used to highlight a procedure that will save time or resources.

Warning: Ignoring this type of note may result in a malfunction or damage to the equipment.

- **Scope**. This manual is written for the Powerline AV Ethernet Adapter according to these specifications:

Product Version	XAV101 Powerline AV Ethernet Adapter
Manual Publication Date	January 2009

> **Note:** Product updates are available on the NETGEAR, Inc. website at *http://www.netgear.com/support*.

Chapter 1
Installation and Basic Configuration

This chapter describes the XAV101 Powerline AV Ethernet Adapter and explains how to install it and to use the Security button to customize the encryption. For information about using the XAV101 configuration utility to configure Powerline security or to prioritize Powerline network traffic with Quality of Service (QoS) features, see Chapter 2, "Using the XAV101 Configuration Utility.

Package Contents

The product package should contain the following items:

- NETGEAR XAV101 Powerline AV Ethernet Adapter
- Installation Guide
- An Ethernet cable
- *Resource CD*, including:
  - The XAV101 Configuration Utility
  - This manual
- Warranty and Support information card

If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the Powerline AV Ethernet Adapter for repair.

How the Powerline AV Ethernet Adapter Fits in Your Network

You can use Powerline AV Ethernet Adapters to extend your Ethernet network anywhere in your house using your existing electrical power line. The following figure shows an example of a Powerline network with two Powerline devices. The Powerline network connects to an Ethernet network:
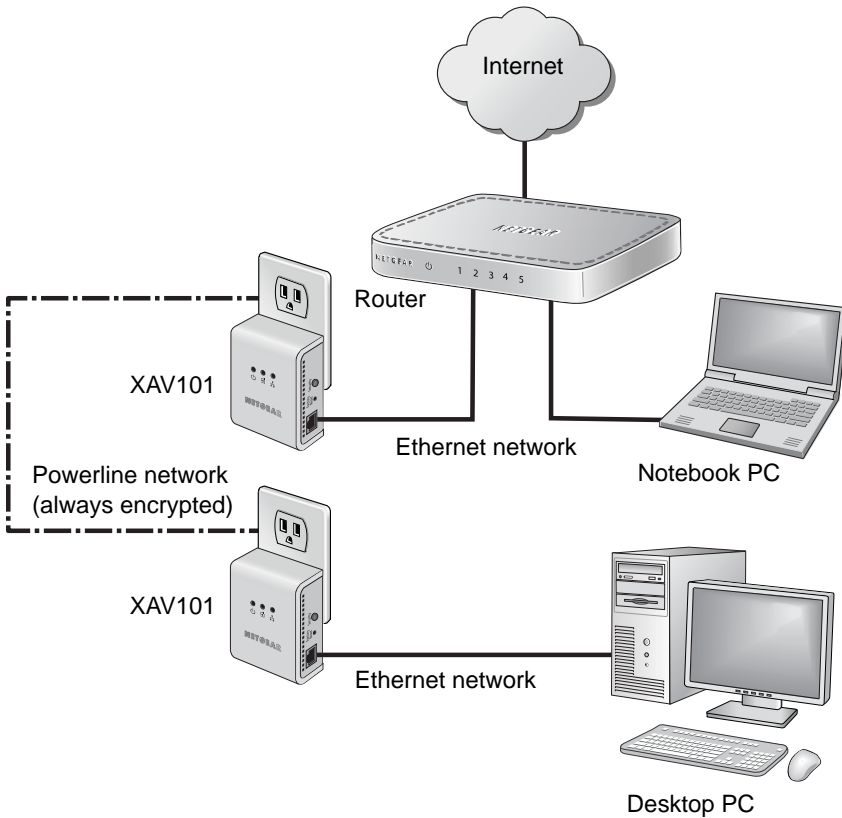

Figure 1-1

Powerline AV Ethernet Adapter

The following illustration shows the Powerline AV Ethernet Adapter front and side panels:
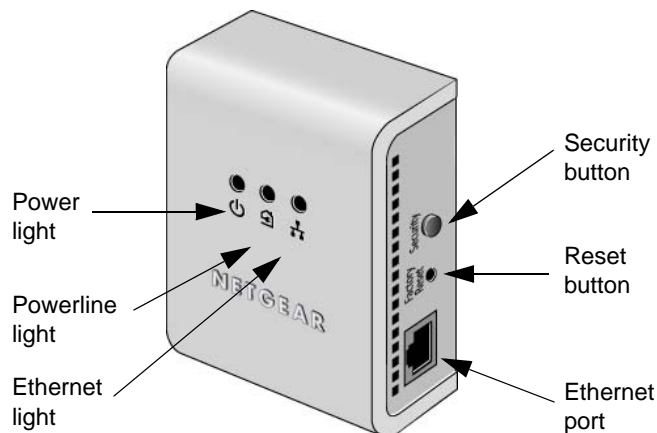

Figure 1-2

The following table describes the buttons, status lights, and port.

Table 1-1.   Powerline AV Ethernet Adapter Description

Item	Description
Power Light	• **Solid green**. The electrical power is on. • **Blinking green**. The adapter is setting itself up after the reset or Security button was pressed. • **Off**. There is no electrical power.
Powerline Light	• **Solid**. The adapter is connected to a Powerline network. • **Blinking**. The adapter is sending or receiving data. • **Off**. The adapter has not found any other compatible Powerline devices using the same Powerline network encryption key. The color indicates the speed of the Powerline link: • **Green**. The link is faster than 80 Mbps. • **Orange**. The link is 50 Mbps to 80 Mbps. • **Red**. The link is less than 50 Mbps.
Ethernet Light	• **Solid green**. The Ethernet port is linked, but there is no activity. • **Blinking green**. There is traffic between an Ethernet port and the Powerline network. • **Off**. There is no Ethernet connection.

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Table 1-1.   Powerline AV Ethernet Adapter Description (continued)

Item	Description (continued)
Security button	Configure security (see "Using the Security Button to Change the Default Encryption Key in Your Network" on page 1-7).
Reset button	To reset, use a sharp object such as a pen or a paper clip to briefly press this button (for 2 seconds). The adapter automatically returns to factory default settings, and then restarts. **Note**: Pressing the reset button longer than recommended might interfere with resetting the adapter.
10/100 Ethernet port	Use this port to connect the adapter to a router, computer, or other peripheral device.

The Label on the Rear Panel of the XAV101

The label on the rear panel of the XAV101 contains the items listed below.

- Model number

- MAC address

- Serial number

- Device password (PWD)

Preparing to Install Your Powerline AV Ethernet Adapter

To prepare for installation:

1. Before you begin, verify the following:

- Your Ethernet network is set up, and an Ethernet port is available on your router.

- Your Internet connection is working.

- Each computer that will use the Powerline AV Ethernet Adapter has an Ethernet port available and is configured to work on your network. Usually, the default configuration settings (TCP/IP and DHCP) are fine.

2. Familiarize yourself with the Powerline AV Ethernet Adapter. The front panel has three lights: Power, Powerline, and Ethernet. The side panel has a Security button, a Reset button, and an Ethernet port.

3. Plan the location of your Powerline devices:

- Do not connect the Powerline AV Ethernet Adapter to a power strip, extension cord, or surge protector as this might prevent it from working correctly, or degrade the network performance.

- Use an electrical outlet that is not controlled by a wall switch to avoid someone unknowingly turning off the power to the outlet.

- Using the Powerline AV Ethernet Adapter plugged into an electrical outlet that is located near an appliance that uses a lot of power, such as a washer or dryer, might prevent the adapter from working correctly, or degrade the network performance.

Connecting a Powerline AV Ethernet Adapter to the Router

Follow these steps:

1. Plug a Powerline AV Ethernet Adapter into a power outlet near your router. Use the blue Ethernet cable from the XAV101 package to connect it to a LAN port on the router so that the Powerline network can gain access to the Internet.

It is *not* necessary to disconnect your router from your computer.

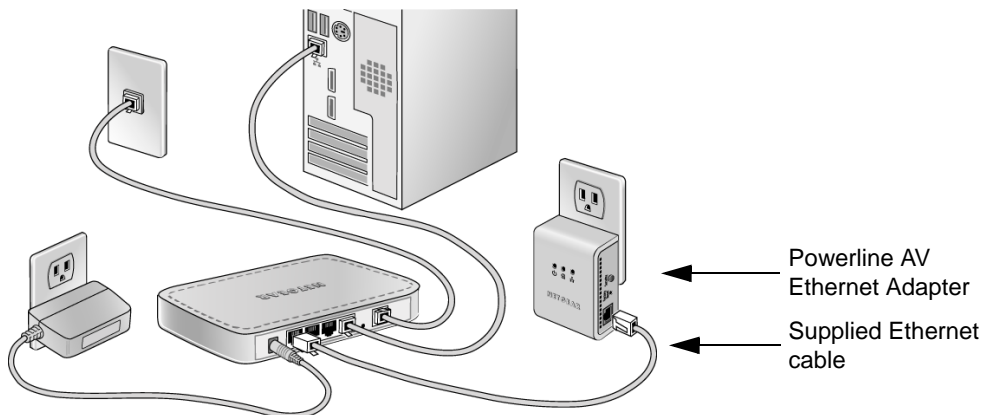**Figure 1-3**

The Power and Ethernet lights on the Powerline AV Ethernet Adapter should turn on.

2. Plug your other Powerline AV Ethernet Adapters into power outlets near the computers and peripherals to be included in your Powerline network.

3. Use the blue Ethernet cable from the XAV101 package to connect each Powerline AV Ethernet Adapter to an Ethernet port on a computer or peripheral.

4. Wait up to 80 seconds for each Powerline AV Ethernet Adapter to be recognized by the Powerline network.

The Power, Ethernet, and Powerline lights should turn on. For details about how the lights work, see Table 1-1 on page 1-3.

5. Make sure that each computer connected to a Powerline AV Ethernet Adapter can use the Powerline network. For example, access the Internet from a remote computer. If there is a problem, see "Basic Functioning" on page 3-1.

NETGEAR recommends that you secure your Powerline network from unauthorized access. This is especially relevant in settings like apartment buildings. See the following section, "Understanding Powerline Network Security.

Understanding Powerline Network Security

Powerline devices on the same network must use an identical encryption key. The Powerline AV Ethernet Adapter default encrypted password is **HomePlugAV**. If you do not set up security, anyone nearby with a Powerline network can use this to gain access to your network. Use the Security button on the Powerline AV Ethernet Adapter to change the Powerline encryption key.

> **→** **Note:** If you need to return the Powerline AV Ethernet Adapter to its factory default settings, use the Reset button or the NETGEAR XAV101 Configuration Utility on your *Resource CD*.

Encryption of the information you send over the Powerline AV Ethernet Adapter helps keep it secure. This is especially relevant in settings like apartment buildings.

A Powerline network consists of Powerline adapters with the same network encryption key. The security used by Powerline AV Ethernet Adapters is similar to the SSID and encryption keys used in wireless networks, but you do not need software to configure your Powerline AV Ethernet Adapters.

There are two ways to secure your Powerline network.

• Use the Powerline AV Ethernet Adapter Security buttons to automatically generate an encryption keys. See the following section, "Using the Security Button to Change the Default Encryption Key in Your Network."

- Use the XAV101 Configuration Utility, on your *Resource CD*, to configure your Powerline network with a network encryption key that you specify. If you are already using HomePlug devices then you might need to use this utility. See Chapter 2, "Using the XAV101 Configuration Utility.

Using the Security Button to Change the Default Encryption Key in Your Network

Follow these steps:

1. Verify that all the Powerline AV Ethernet Adapters to be configured are plugged in. The default encryption key is HomePlugAV.

2. To use a private encryption key instead of the default key, follow these steps:

   a. On the first Powerline AV Ethernet Adapter, press its security button for 2 seconds.

      The power LED will start blinking after you release the button.

      The adapter will produce a new, randomly generated network encryption key that each Powerline AV Ethernet Adapter will use. At this point, the other adapters in your network cannot communicate with each other.

   b. Within 2 minutes of pushing the security button of the first adapter, push the security button of the second adapter for 2 seconds.

      Both buttons must be pushed within 2 minutes.

      This securely configures your Powerline network with the same network encryption key. The adapters retain security settings even if they are unplugged.

      > **Note:** An adapter can only generate a private key once. To replace a private key, first reset the unit back to its factory defaults by pressing the reset button for 10 seconds, then follow the procedure above.

3. If your network has more than 2 adapters, push the button on the additional adapter for 2 seconds, then push the button on any adapter in your existing network for 2 seconds. Both buttons must be pushed within 2 minutes.

Installation and Basic Configuration

This chapter explains how to use the XAV101 Configuration Utility. You can use this utility to configure encryption for your Powerline network and to use quality of service (QoS) features to prioritize Powerline network traffic.

Installing the XAV101 Configuration Utility (Recommended)

This utility provides you with the option of setting your own unique encryption Powerline network encryption key, and prioritizing traffic passing through the Powerline network.

To install the XAV101 Configuration Utility:

1. Insert the *Resource CD* into a CD drive on the computer that is connected to your router[1]. The CD automatically starts and displays the following screen:
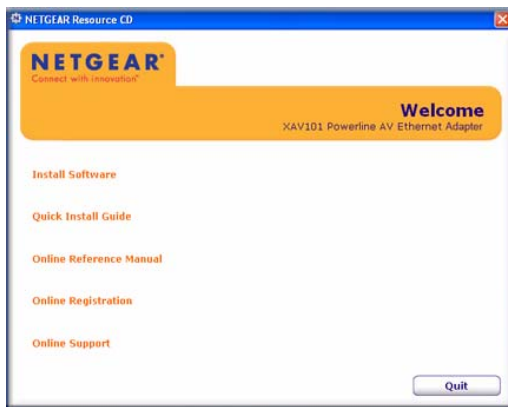

Figure 2-1

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1. All devices on a Powerline network can be managed from one computer. If you add another Powerline AV Ethernet Adapter to a Powerline network, you can install the Powerline configuration utility on the computer connected locally to the new adapter, or open the utility on the computer originally used to set up the Powerline network encryption key. You can use any computer to manage the network, but this procedure assumes that you are working from the computer that is connected to a powerline adapter.

If the CD does not start automatically:

• Go to My Computer on the Windows Start menu, and double-click the drive that represents the location of the *Resource CD* or

• Select the CD drive, and click the Autorun.exe executable file.

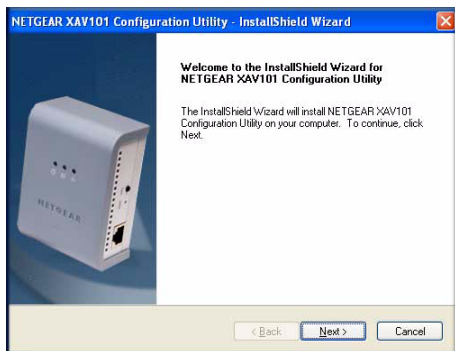**2.** Click **Install Software** to display the Welcome screen:

Figure 2-2

3. Click **Next**, and follow the wizard prompts. When the wizard is done, the following screen displays:

Figure 2-3

4. Click **Finish**. The XAV101 Configuration Utility icon appears on your desktop.

To use the XAV101 Configuration Utility, double-click the icon.

Main Tab

You can start the XAV101 Configuration Utility by clicking the XAV101 icon on your desktop, or from the Windows Program menu. The XAV101 Configuration Utility displays its Main tab:
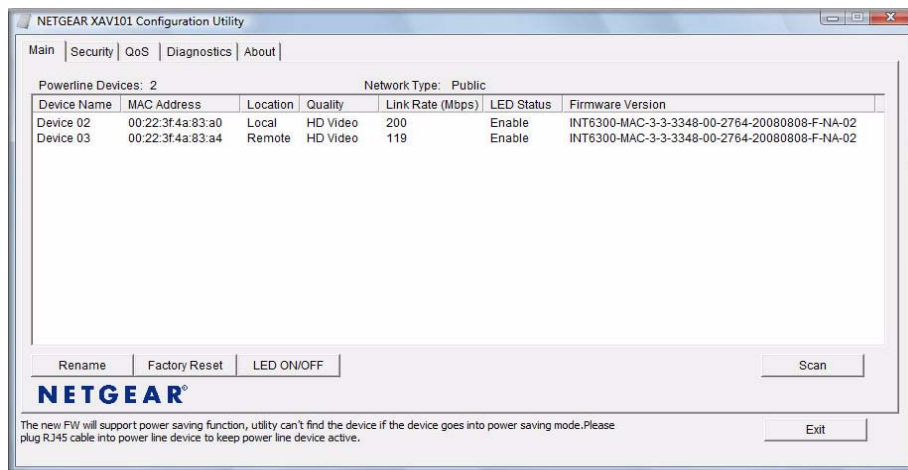

Figure 2-4

Note the message at the bottom of the screen regarding the power saving feature. If the unit goes into power saving mode, the configuration utility will not find it. Keeping an connected Ethernet cable plugged into the device will keep it active.

The following table describes the features in the Main Tab.

Table 2-1.   Configuration Utility Main Tab

Field or Button	Description
Powerline Devices	This shows whether the utility is currently scanning for Powerline devices, or the number of Powerline devices detected, after the scan has completed.
Network Type	The type of network for the local Powerline device. The default setting is Public.
Device Name	The device name is initially set by the utility.
MAC Address	The MAC address for the Powerline device. This is also on the product label, which might not be visible when the device is plugged in.
Location	This column shows whether the device is local or remote. The local device is the one connected with an Ethernet cable to the computer that you are using to run this utility.

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Table 2-1. Configuration Utility Main Tab (continued)

Field or Button	Description
Quality	This indicates the type of traffic that can be handled smoothly: HD Video, DVD Video, or Data. • HD Video. The device can handle high-definition video traffic smoothly. This status will be shown if the transmit and receive link speed is greater than 80 Mbps. • SD Video. The transmit and receive link speed is greater than 50 Mbps. • Data. The device cannot handle video data smoothly. This status will be shown if the transmit or receive link speed is less than 50 Mbps.
Link Rate (Mbps)	The link rate for each Powerline device.
LED Status	The LEDs are enabled by default.
Firmware Version	The firmware version for each Powerline device. **Note**: Use the provided stand alone firmware upgrade tool to update the firmware. See "Using the Firmware Upgrade Tool."
Rename button	Change a device name.
Factory Reset button	Reset a device to its factory defaults. See "Resetting to Factory Defaults" on page 2-6.
LED On/Off button	Enable or disable the LEDS for a Powerline device.
Scan button	Scan the network for Powerline devices.

Using the Firmware Upgrade Tool

When you install the configuration utility, it also installs the firmware upgrade tool. Be sure the adapter you will upgrade is plugged in to a power source, and connected to your computer with an Ethernet cable before you run the Upgrade Tool.

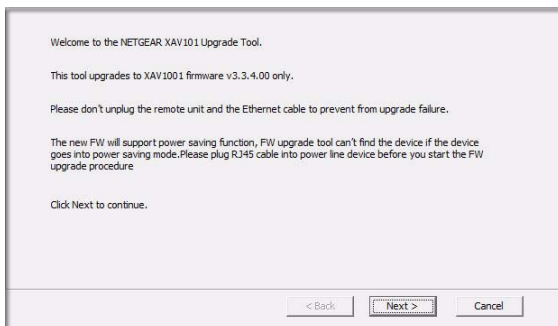1. Go to the XAV101 program group and select the Upgrade Tool.

Figure 2-5

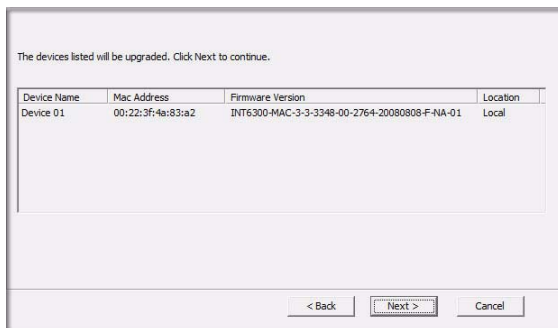2. Click **Next** to proceed.

Figure 2-6

The Upgrade Tool finds the adapter.

3. Follow the screen prompts to proceed with the upgrade.

> **Note:** If the firmware on the attached adapter is already up-to-date, the Upgrade Tool will notify you accordingly.

4. At the end, click **Finish** when done. Repeat this process to upgrade all the adapters in your network.

Resetting to Factory Defaults

This option returns the network encryption key to its default value of **HomePlugAV**. Only one device at a time can be reset.

> **Note:** If you customized your network encryption key, the local Powerline device will be disconnected from the network when you reset it to the factory default. To avoid this problem, reset all remote devices before you reset the local device.

To reset all the devices in your network to the factory defaults:

1. On the Main tab, click the device name for a remote Powerline device to highlight it.
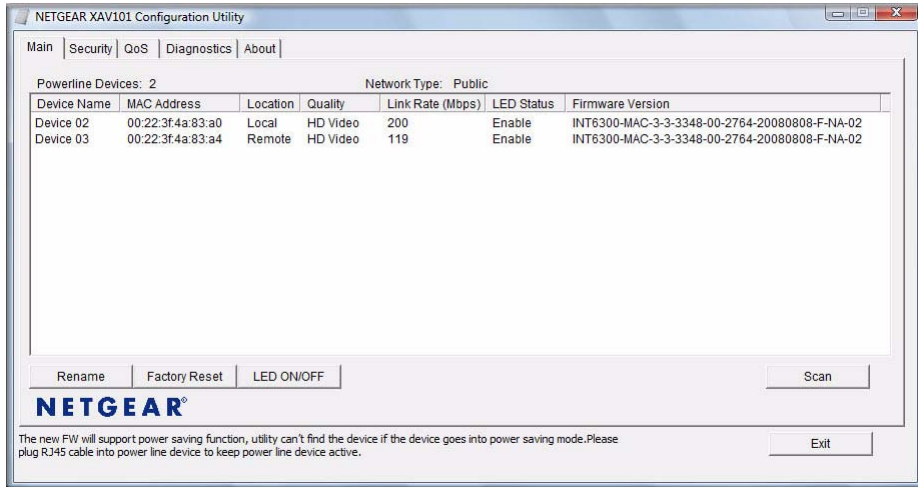

Figure 2-7

2. Click **Factory Reset**, and a confirmation message displays.

3. Click **OK** to reset the device. A message indicates whether or not the operation succeeded.

4. After you have reset each device, check that the Main tab lists all devices in the network.

Changing the Network Encryption Key

You can specify the network encryption key from the Security tab:

Figure 2-8
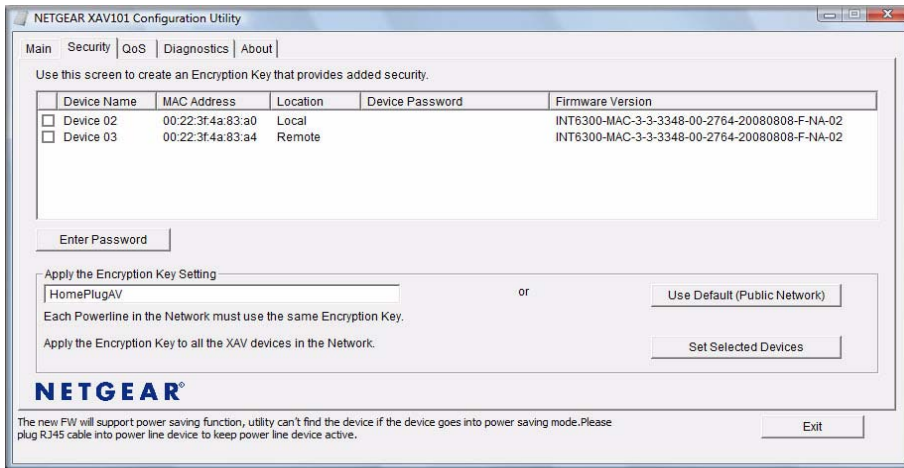
1. To change the encryption key for a remote device, you must enter the password for the device. The password is printed on the product label.

2. Click the device name for a remote Powerline device to highlight it in blue.

> → **Note:** Be sure to change the password of remote devices before changing it on the local device so that you can maintain connectivity throughout this process.

3. Click **Enter Password**, and the following message displays:

Figure 2-9

The device password is on the product label.

4. Enter the device password, and then click **OK**.

5. Select the check box next to the Device Name column.

6. Type the network encryption key into the **Apply the Encryption Key setting** field, and click **Set Selected Devices.**

7. Select the Main tab, and click **Scan**. Check that the devices in the Powerline network appear in the device list. It may take a minute or two for all devices in the network to be detected.

Adding a Device to a Powerline Network

If you are adding a device to a Powerline network, and the network encryption key has been left at its default setting, all you need to do is plug the new device into a power outlet.

If the network encryption key has been customized:

• You can use the Security button to add the new device to your network (see "Using the Security Button to Change the Default Encryption Key in Your Network" on page 1-7).

• You can use the XAV101 Configuration Utility to add the new device to the network, as described in the following sections.

The procedure for setting the network encryption key depends on whether the computer running the XAV101 Configuration Utility is connected directly to the new Powerline AV Ethernet Adapter (local) or is connected to a different device in the Powerline network (remote).

Adding a Device from a Locally Connected Computer

Follow these steps:

1. Plug the new Powerline AV Ethernet Adapter into an available AC power outlet. Connect the Ethernet cable that came with the adapter to the adapter's Ethernet port and an Ethernet port on the computer.

2. Start the XAV101 Configuration Utility, which displays its Main tab. Wait for the utility to detect the new device.
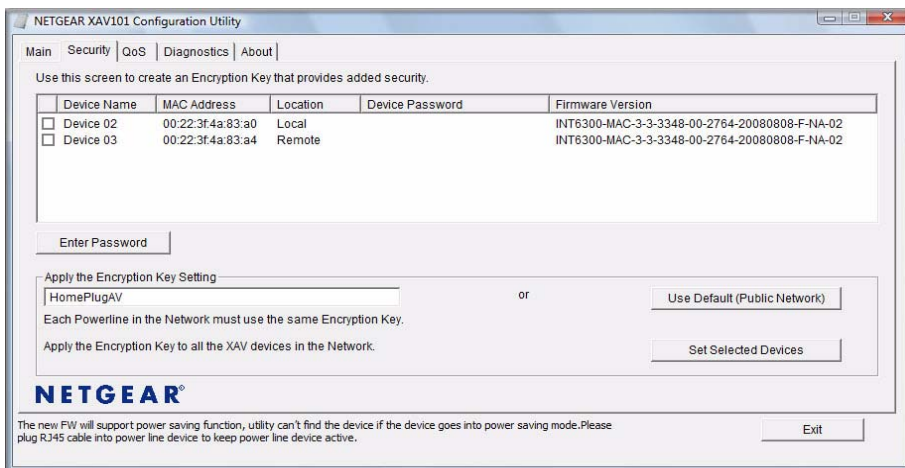
3. Click the **Security** tab.

Figure 2-10

4. Select the check box next to the Device Name column, for the device marked as Local in the Location column.

5. Type the network encryption key into the **Apply the Encryption Key setting** field, and click **Set Selected Devices**.

6. Select the Main tab, and click **Scan**. Check that the devices in the Powerline network appear in the device list. It may take a minute or two for all devices in the network to be detected.

Adding a Device from a Remotely Connected Computer

If you are using a custom network encryption key, first, set all the devices to the default network encryption key of **HomePlugAV** so that they can communicate with each other. Then set all the devices to the network encryption key that you want to use.

Returning to the Default Network Encryption Key

Follow these steps:

1. Plug the new device into an AC power outlet.

2. Start the XAV101 Configuration Utility and wait for the utility to detect the devices in your Powerline network. Check that all the devices in the established network are displayed on the Main tab.

> **Note:** Before you can reset a remote device, you must enter its password. The password is printed on the product label.

3. On the Security tab, select each check box next to the Device Name column to select every device.

4. Click **Use Default (Public Network)**. The **Apply the Encryption Key setting** field changes to the default, **HomePlugAV**.

5. Click **Set Selected Devices**.

Setting Up Your Custom Network Encryption Key

When all the devices are set to the default network encryption key and are plugged in, they are listed on the Main tab. Follow these steps to set up a custom network encryption key for all the Powerline devices:

1. On the Main tab, click **Scan**. Wait for the new device to be listed. The new device can be identified by its MAC address.

> **Note:** Before you can change the encryption key for a remote device, you must enter its password. The password is printed on the product label.

2. On the Security tab, select each check box next to the Device Name column to select every device.

3. Type your network encryption key in the **Apply the Encryption Key setting** field.

4. Click **Set Selected Devices**.

The utility displays a message indicating that the operation was successful.

5. Select the Main tab, and then click **Scan**. Check that all devices are detected with your network encryption key.

Prioritizing Traffic on the Powerline Network

By default, all types of traffic on the Powerline network are assigned the same priority. For most applications, this works fine. However, there are situations where performance improves if you assign a higher priority to certain types of traffic, such as multimedia files.

Prioritizing by General Application Type

If your network traffic is a mix of multimedia and document/database traffic you might want to give priority to a particular traffic type. If it is important that your multimedia playback is smooth, even while document files are being transferred over the network, then give priority to multimedia traffic. Conversely, if it is more important for your network to be responsive to database applications, give priority to this type of application over multimedia applications.

The Powerline AV Ethernet Adapter supports the following:

• MAC address
• IP port
• VLAN tags
• ToS (Type of Service routing)

To set the priority of data transfers by the type of protocol:

1. Start the XAV101 Configuration Utility and wait for the utility to detect the Powerline AV Ethernet Adapters connected to the network.

Using the XAV101 Configuration Utility

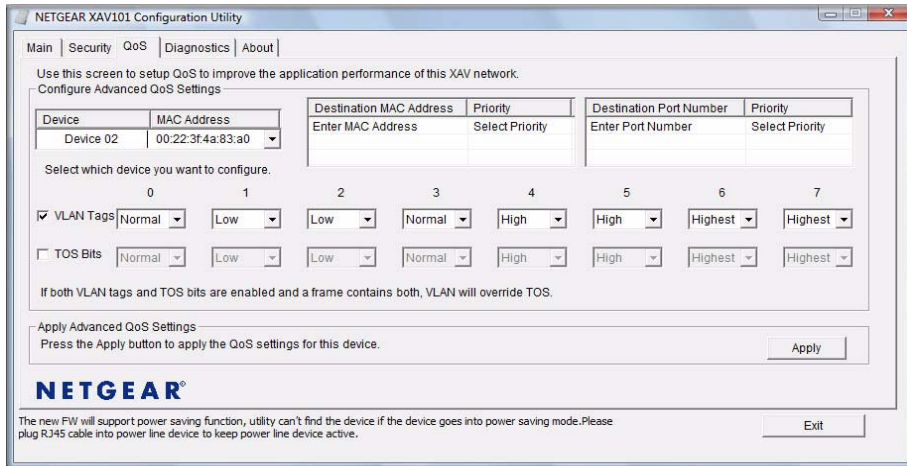**2.** Select the **QoS** (Quality of Service) tab.

Figure 2-11

> **Note:** QoS settings are applied to only the device that is selected on the QoS tab.

3. Specify the priority in the Configure Advanced QoS Settings section of the screen:

4. To set the traffic prioritization rule into the selected Powerline AV Ethernet Adapter device, click **Apply**.

These options only apply to QoS-configured business networks. IEEE 802.1p uses prioritization bits in Layer-2 frames. Type of Service routing (ToS) uses prioritization bits in Layer-3 IP packets. The deprecated ToS values range from 0 to 7.

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Diagnostics Tab

The Diagnostics tab shows system information and a device history table:
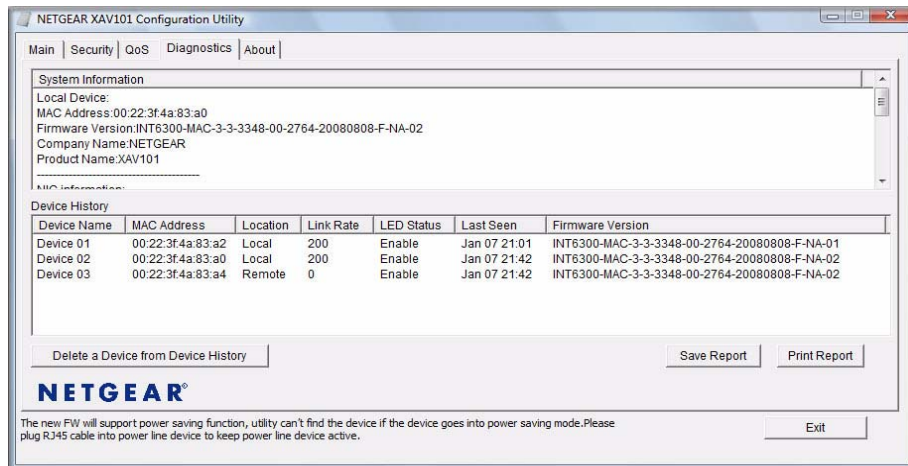

Figure 2-12

You can delete a device from the device history, save a report, or print a report.

Chapter 3
Troubleshooting

This chapter gives information about troubleshooting your XAV101 Powerline AV Ethernet Adapter.

Product Registration, Support, and Documentation

Register your product at *http://www.netgear.com/register*. Registration is required before you can use our telephone support service.

Product updates and Web support are always available by going to:
http://www.netgear.com/support.

When the Powerline AV Ethernet Adapter is connected to the Internet, click the Knowledge Base or the Documentation link under the Web Support menu to view support information or the documentation for the Powerline AV Ethernet Adapter.

Basic Functioning

After you turn on power to the XAV101 devices, the following sequence of events should occur:

1. When power is first applied, verify that the Power light is on.

2. After approximately 10 seconds, verify that:

    a. The power light is solid green.

    b. The Powerline LED is lit.

    c. The Ethernet light on the Powerline AV Ethernet Adapter lights or blinks.

If any of these conditions does not occur, refer to the appropriate following section.

Troubleshooting Tips

The following table lists problems and recommendations.

Problem	Recommendation
Power light is off.	Make sure that power is supplied to the electrical outlet, and the Powerline device is not plugged into an extension cord, power strip, or surge protector.
Powerline light is off.	The devices cannot find each other. Make sure that the Powerline devices are plugged into outlets with power, and that they use the same network encryption key. • If you did not change the network encryption key, move the Powerline device to a closer location. • If the problem occurred after you changed the network encryption key using the XAV101 Configuration Utility on the CD, press the Reset button to return the Powerline AV Ethernet Adapters to their default settings. If this fixes the problem, see the *User Manual* for instructions about setting the network encryption key.
Ethernet light is not blinking.	There is no data traffic. Make sure that: • Your router and modem are switched on and that the Ethernet cable that came in the box is connected to the Powerline adapter port and a router LAN port. • The PC connected directly to the router can access the Internet.
Problem using the reset or Security button.	The reset and Security buttons are located on the side panel of the Powerline AV Ethernet Adapter. • Pressing the reset button longer than 2 seconds will not reset the device. • Pressing the Security button longer than 2 seconds will not activate security.

Problems After Changing Network Encryption Key

If your Powerline devices stopped communicating after you used the NETGEAR XAV101 Configuration Utility to change the network encryption key, proceed as follows:

v2.0, January 2009

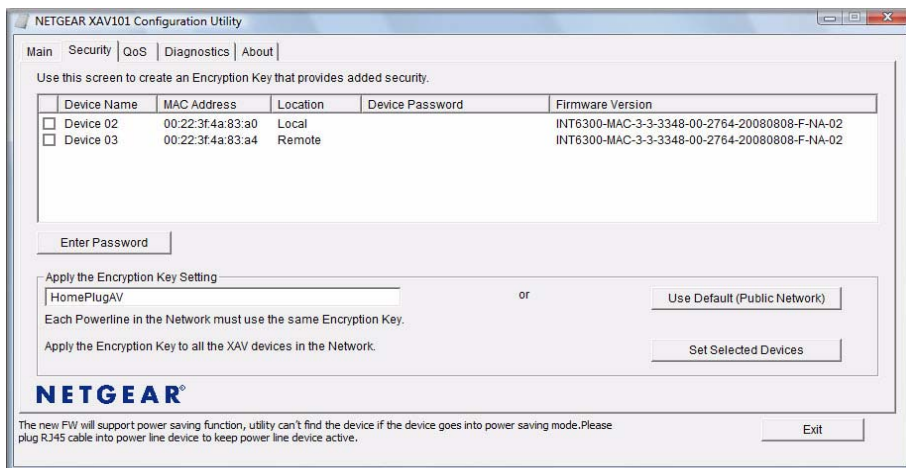**1.** Open the XAV101 Configuration Utility and select the Security tab.

Figure 3-1

2. Select the local device.

3. For each remote device, enter its password (printed on the product label), and then select it.

4. Click the **Use Default (Public Network)** button, and then click the **Set Selected Devices** button.

5. Select the Main tab, and check that the utility detects all the Powerline AV Ethernet Adapters in your Powerline network.

If the utility detects all your Powerline devices, you can specify a new network encryption key as described in "Changing the Network Encryption Key" in Chapter 2. If the utility does not detect them all, see the following section, "Changing the Network Encryption Key for 1 Unit at a Time.

Changing the Network Encryption Key for 1 Unit at a Time

If the utility does not detect all the devices, you must connect your computer to each Powerline device and set up the network encryption key one at a time, as follows:

1. Select the Security tab in the XAV101 Configuration Utility.

2. Type the network encryption key that you want to assign in the **Apply the Encryption Key setting** field, and then click **Set Selected Devices**.

3. Select the Main tab, and then click **Scan**. Check that the utility detects all the devices that have been individually set to the same network encryption key.

Appendix A
Technical Specifications

This appendix provides technical specifications for the XAV101 Powerline AV Ethernet Adapter.

Network Protocol and Standards Compatibility

Data and Routing Protocols:	IEEE 802.3 (10BASE-T), IEEE 802.3u (100BASE-Tx)

Power

Power Consumption:	4W

Physical Specifications

Dimensions:	Height: 98 mm Width: 72 mm Depth: 40 mm
Weight:	0.4 lbs (0.18 kg)

Environmental Specifications

Operating temperature:	0° to 40° C (32º to 104º F)
Operating humidity:	10-90% maximum relative humidity, noncondensing
Storage humidity	5-95% maximum relative humidity, noncondensing

Security

Encryption type:	128-bit AES

Bridge Performance

MAC addresses:	64
Bandwidth	200 Mbps

Powerline Performance

Compatibility:	Not HomePlug v1.0 or HomePlug v1.0 Turbo compatible
Data Transfer Rate:	Up to 200 Mbps with real throughput greater than 80 Mbps
Frequency band:	2-30 Mbps
Modulation type:	OFDM symbol modulation

Electromagnetic Emissions

Meets requirements of: FCC Part 15 Class B; CE-EMC Class B; 3-home FCC Certificate

Safety Agency Approvals

Meets requirements of: UL Listed (UL 1950) /cUL IEC950; CE LVD; TUV CB