Intel®
Wireless Gateway II

User's Guide

Share
Broadband
with
all your PCs

Copyright

Contents

Chapter 1
Overview

This chapter provides a basic overview of the features of the Intel® Wireless Gateway II, lists its system and service requirements, and explains where to find more information, if needed.

What's in this chapter:

- Decide how to set up the Intel® Wireless Gateway II
- Features of the Intel Wireless Gateway II
- A look at the gateway hardware
- Configuration software and settings
- Where to find more information

Decide how to set up the Intel® Wireless Gateway II

There are several ways to set up your Intel® Wireless Gateway II. The methods depend on whether you want to:

- Set up a new network
- Add the gateway to an existing network

Overview of a new network
The gateway lets you share an Internet connection among all PCs. You can connect up to sixteen wireless PCs and up to 4 Ethernet devices to share the Internet connection. Each PC must have either:

- An 802.11b (Wi-Fi*) adapter

  or

- An Ethernet adapter

The following diagram shows how such a network might look.
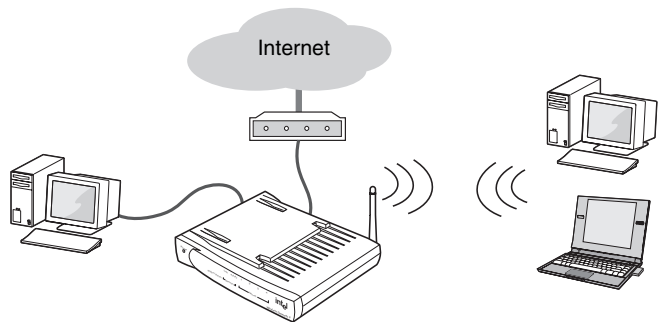
You can also create an entirely wireless network of desktop and laptop PCs. It is not a requirement to have an Ethernet-connected PC attached to the gateway. In the previous diagram, eliminate the wired PC. The gateway manages communication between all PCs and the Internet, as well as resource sharing (drives and printers) between PCs. This is an excellent way to create

a standalone wireless network in your home or small office.

The instructions for setting up a new network are covered in the *Installation Guide*.

Overview of an existing network

If your home or small business network already provides Internet access and you just want to add wireless capability to your existing Ethernet network (LAN), you can configure the gateway as an access point. In this configuration, the gateway connects wireless PCs to the wired network. The Internet is accessed through the wired network (if applicable).

The following diagram shows how such a network might look.

Existing Ethernet network with Internet access
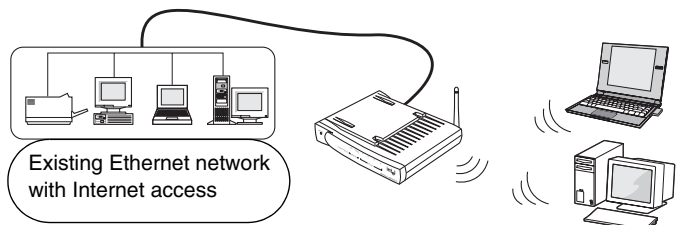
In the above scenario, the gateway is connected to a hub or switch through one of the Ethernet ports on the back of the gateway. The Internet port is not used.

More than four PCs with Ethernet adapters require a hub or switch and the appropriate cables, for up to 16 wired PCs.

See *Setting Up the Gateway on a Network* on page 13 to begin setting up the gateway on an existing network.

Features of the Intel Wireless Gateway II

Using the gateway, you can share Internet access seamlessly among all the computers on your network whether you are using Ethernet or 802.11b Wireless

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(Wi-Fi*) adapters or a combination of any of these technologies.

The Intel Wireless Gateway II has many benefits:

- **Internet sharing**. Up to 16 wireless plus 4 wired connections. More than 4 wired connections requires a network hub or switch which supports up to 32 connections. (16 wired and 16 wireless connections)
- **Firewall and data security**. Includes NAT firewall and 64-bit or 128-bit WEP data encryption.
- **Fast**. Up to 11 Mbps 802.11b wireless (Wi-Fi*) or 10/100 Mbps Ethernet communication speed.
- **Extensibility**. Can easily extend a wired network with wireless devices to create a seamless network.
- **Range**. The wireless communication range is up to 300 feet, depending on environmental conditions.
- **Easy-to-use**. You can set up the gateway easily with the configuration software.

See *Glossary* on page 76 for definitions of terms you are not familiar with.

Verify system and service requirements

The computer you use to configure the gateway must meet certain requirements.

System requirements

- Microsoft Windows* 98, Me, 2000 (Professional version), or XP (Professional or Home version)
- CD-ROM drive
- 800 x 600 resolution monitor (SVGA) or higher
- 10/100 Ethernet adapter
- Web browser (Microsoft Internet Explorer* 5.0 or later, Netscape Navigator* 4.78 or later, or equivalent)

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Non-Windows clients can access the Internet through the Intel Wireless Gateway II, but not configure the gateway. These PCs must meet the following system requirements:

- Macintosh* OS 9.2 or later, with Internet Explorer 5.x or higher
- Linux* system, with Netscape 4.75 or higher

All PCs and laptops connected to the gateway must have:

- For a wireless connection: a Wi-Fi* approved IEEE 802.11b-compatible adapter (we recommend the AnyPoint® Wireless II or Intel PRO/Wireless LAN network adapters).
- For a wired network: IEEE 802.3 10/100 Ethernet network adapter, or a hub or switch.

Service requirements   To use the Intel Wireless Gateway II to manage your broadband Internet access, you need:

- An Internet access account from your local telephone company or an Internet Service Provider (ISP).
- A broadband modem (cable or DSL) with an Ethernet connection.

A look at the gateway hardware

Front panel   The front panel of the Intel Wireless Gateway II has a series of nine lights that provide information about the

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gateway's operational status. The lights are described below, from left to right.

LED	Description
Power	On – The power cable is connected; the gateway has power.
	Off – Check that the power cable connectors are securely in place and plugged into a power source.
System	On – This means the gateway is operating.
	Off – If this LED is not on, push the **Reset** button on the back.
	Blinking – The Status light blinks whenever any of these reset situations occur:
	• You push the **Reset** button on the gateway's back panel. (Refer to Reset in the next table.)
	• You click **Reset** on the System Tools screen in the gateway configuration software.
Internet	On – If you have a broadband modem attached to the gateway's Internet port, the light blinks periodically. It blinks at a rate that corresponds to the amount of Internet traffic (slow with little traffic and increasingly faster as Internet traffic increases).
	Off – No Internet connection detected.
Wireless Link	Off – There are no wireless devices communicating with the gateway.
	Green solid – At least one wireless device is connected to the gateway.

LED	Description
Wireless Activity	Green blinking – Traffic is detected between at least one wireless device and the gateway.
	The Wireless Activity light blinks continually because the gateway is always checking whether other wireless devices are trying to connect to it. The more activity that occurs between wireless PCs and the gateway, the faster this indicator blinks.
Ethernet 1-4	Off – No PC is connected to the Ethernet port.
	Green solid – A valid link has been established at 10 Mbps.
	Green blinking – Traffic is being passed at 10 Mbps.
	Amber solid – A valid link has been established at 100 Mbps.
	Amber blinking – Traffic is being passed at 100 Mbps.

Back panel connectors   The gateway's back panel includes the cable connectors and Reset button.

Lock

Connector	Description
Reset	Use an object, such as an open paper clip, to press the reset switch. You can use the reset switch to either: • Reset the gateway without losing its current setup values. Press, then immediately release the reset switch. • Reset the gateway to its factory-default values. Press and hold the reset switch for at least 5 seconds before releasing it. When the reset operation is complete, the Status light on the front panel blinks and then stops. See *Resetting the gateway* on page 73.
Lock	Hardware locking feature. Accepts Kensington-type locking devices for anti-theft purposes.
Internet	Accepts an RJ-45 Ethernet-style connector for attaching the gateway to your broadband modem.
Ethernet	Accepts RJ-45 Ethernet-style connectors for connecting up to four PCs to the gateway's 4-port switch.
Power	Accepts the cylinder end of the supplied power cable. Plug the other end of the power cable into a standard electrical outlet. (We recommend using a surge protector.) See the Power light on the front panel in the previous table. **Important:** Use the power supply included with the Intel Wireless Gateway II.

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Configuration software and settings

The gateway has internal settings that control the wireless local area network (WLAN). The gateway also has settings to control the broadband modem, called ISP settings. It is important to correctly enter these settings.

Accessing the configuration software

To enter WLAN or ISP settings for the gateway, use the gateway configuration software. This software is in read-only memory (ROM) inside the gateway.

Step-by-step

1 Click **Start** > **Programs** > **Intel AnyPoint > Intel Wireless Gateway II 1210** > **Network Setup Utility**.

2 When prompted to change the gateway settings, click **Yes**.

or

• Open a browser (either Microsoft Internet Explorer* or Netscape Navigator*) and type the gateway's IP address, **192.168.0.10** (unless you changed the default gateway IP address).

If you have not filled out the **Install Information Worksheet,** do so now. The worksheet helps you gather and record wireless and ISP settings that you need to configure the gateway.

Following are brief descriptions of both types of settings and how they are used.

Wireless settings
Wireless settings determine which wireless devices can communicate with the gateway. The wireless settings on the PC's adapter must match the gateway's wireless settings before the two devices can communicate.

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The settings you must use are the following:

- **Network Name (SSID)**
- **Encryption Key**

You rarely need to change these settings. You can use the default values.

- **Transfer rate:** Automatic
- **Channel:** 11
- **Header Length:** Long (preamble)

Network Name (SSID)

The Network Name (also called SSID) determines which devices can communicate on your wireless network. To be on the same network, all devices must have the same Network Name. When a PC tries to join a wireless network, it sends its Network Name to the Intel Wireless Gateway. If the Network Names on both devices match, the PC is permitted to join. The Network Name is also called network ID code, SSID (service set identifier), or ESSID (extended service set identifier).

The gateway has a default Network Name of "Intel Gateway." The network name is case sensitive. For security purposes, we highly recommend you change the default name. If you have an existing wireless device, you can give the gateway the same Network Name as your existing wireless devices, or you can create a new Network Name and use it on all of your wireless devices. See *Changing Network Name (SSID)* on page 26.

Encryption

Encryption provides additional data security by converting all of the information that is transmitted over a wireless network into a form that can be read only by devices that have the same encryption key. Before sending information, the device encodes the information using the key. The receiving device uses the same key to decode the information. To be on the same network, all devices must have the same encryption key.

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There are two ways to set encryption:

- **Generate a key from text.** Enter the same text key you used on your existing wireless devices, or create a new one and use it on all of your wireless devices. The text you use can be any character but it must be exactly 5 characters or 13 characters long. Five characters provides 40(64)-bit encryption, while the 13 character string provides 104(128)-bit encryption. The software automatically generates a hexadecimal encryption key from the text you enter. To see the key that was generated, go to the Status screen and click Details. See *Generate an encryption key from text* on page 28.
- **Enter a key manually.** If the network you are connecting the gateway to was configured by manually entering a hexadecimal key (also called a WEP key), you must use this option. See *Manually enter encryption keys* on page 29.

Using data encryption may slightly affect wireless performance. You can choose an encryption security level of either 40(64)-bit or 104(128)-bit.

ISP settings   If you have already installed a modem, you should be familiar with these settings. ISP settings control your Internet connection between the gateway and your modem. If your modem requires any settings to be made, your ISP has provided them. For more information about the ISP settings, refer to the online Help or the Install Information Worksheet.

Where to find more information

For more information, go to the following sources for help.

- See *Troubleshooting* on page 55.
- Use the troubleshooting online Help, available on the gateway's status screen.

Chapter 2
Setting Up the Gateway on a Network

> **Note** This chapter explains how to set up your Intel Wireless Gateway II as a wireless access point on an existing network.
> To set up the gateway for a new network, see the printed *Installation Guide*, or look for the Installation Guide PDF file on the CD. Double-click **My Computer > CD-ROM drive > DOCS > English > Gateway > 1210 > install_guide_gw1210.pdf**.

Do not attempt to connect multiple computers to form a network until you have configured the gateway to work with a single computer, as described in the *Installation Guide.*

In this chapter, you'll find information on the following:

- Planning your network
- Connecting the gateway to an Ethernet hub or switch
- Configuring the gateway as an access point
- Installing wireless adapters on other PCs
- Using Windows* XP Client Configuration Manager
- Configuring the adapter

A word about networks

This manual assumes that you are familiar with common network terms and concepts and that you understand how a basic network is set up. This manual is not meant to be a comprehensive explanation of networking.

Planning your network

Take some time to plan your network before you begin installation. If you are setting up a new network with several network devices, it's important that you start with the correct device.

1 Start with the Intel Wireless Gateway II

- To set up the gateway with a new network, see the *Installation Guide*.

- To set up the gateway with an existing Ethernet network, see *Connecting the gateway to an Ethernet hub or switch*.

2 Then install wireless network devices such as Intel AnyPoint® Wireless II Network adapters, Intel PRO/Wireless adapters or third-party 802.11b (Wi-Fi*) wireless adapters in each PC you want included on the network.

Instructions are provided with those devices.

Connecting the gateway to an Ethernet hub or switch

This configuration of the gateway assumes that you access the Internet through your wired network (not the gateway).

Existing Ethernet network with Internet access
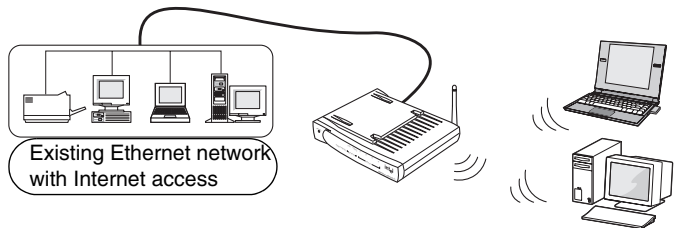
Instructions for connecting your broadband modem directly to the gateway for Internet access are in the *Installation Guide*.

Step-by-step   These instructions assume you have an existing network and it is functioning properly.

1 Connect one end of the Ethernet cable (included with the gateway) to any one of the four **Ethernet** ports on the gateway.

> **Note** The other three Ethernet ports on the gateway can be used for additional network devices.

Configuration PC

Internet port

Hub or switch

To Ethernet port

Standard Ethernet cable
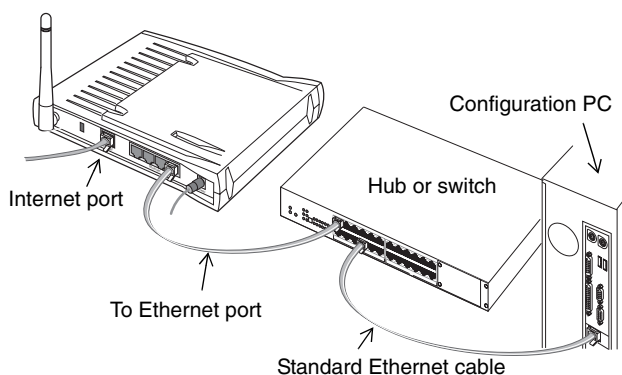
2 Connect the other end to the Ethernet cable to an available port on your hub or switch.

3 Connect the power cable to the power supply.

4 Connect the power cable to an electrical wall outlet.

5 Connect the power supply cable to the **Power** port on the gateway.

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Configuring the gateway as an access point

Configure the gateway as an access point if you are adding wireless connectivity to an existing wired (Ethernet) network.

Note If you are connecting the gateway directly to the modem that accesses the Internet, follow the connection instructions in the *Installation Guide* and use **Gateway Mode.**

In this step, you will use the installation CD to configure your PC-to-gateway connection.

To manually open the gateway configuration software, open your browser and type 192.168.0.10 in the address field. The configuration screens are located inside the gateway, not on the Internet.

1 Insert the CD and wait for the window to appear.

If the window does not appear, double-click the program icon for **Autorun.exe** on the CD.
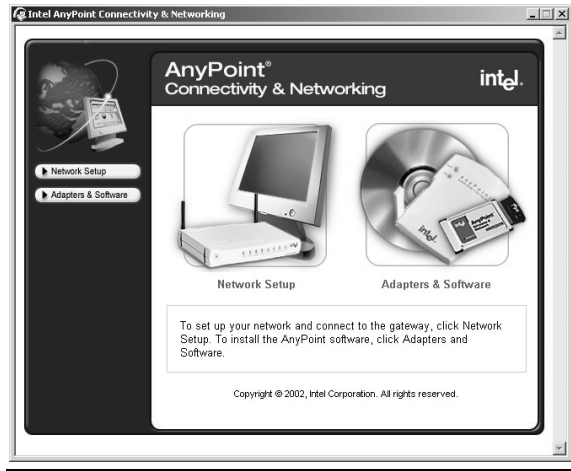
2 Click **Network Setup**.

The following appears.
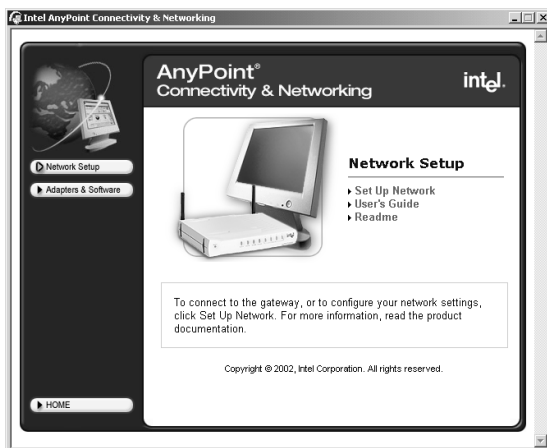
3 Click **Set Up Network**.

4 You must agree with the conditions of the license agreement and click **I Accept** to continue.

The Network Setup screen appears.

5 Click **OK** to continue.

The Network Setup utility begins looking for the gateway.

If you receive a message stating the AnyPoint Network Setup Utility was unable to detect the gateway, shut down then turn on your PC and start over with step 1. If that does not work, see Troubleshooting in the *Installation Guide*.

6 When you see the following Network Setup screen, click **Yes**.

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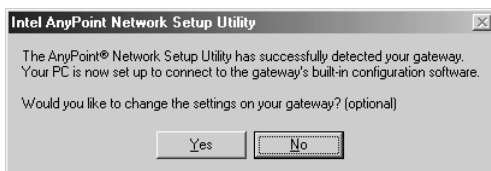
7 When prompted, type **admin** as the user name and password.

The user name and password are case sensitive.

type admin in both fields (case sensitive)
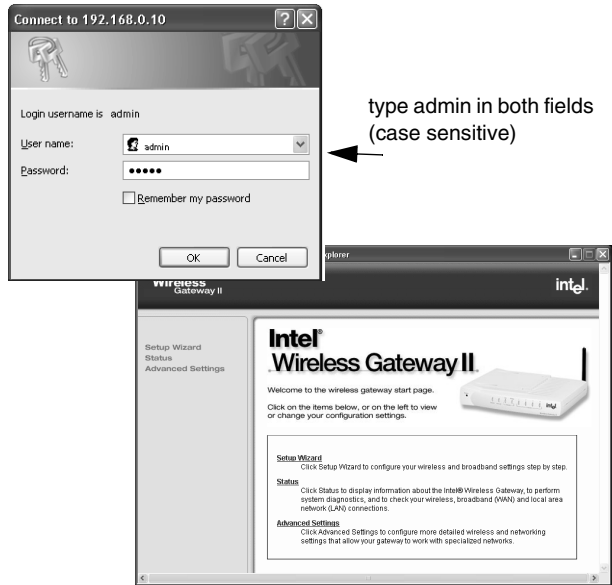
8 When prompted, select the country in which you are setting up, and then click **OK**.

9 Click **Setup Wizard**.

The following appears.
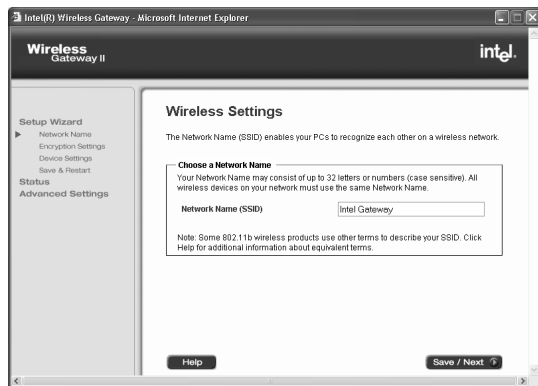
10 On the Wireless Settings screen, create a Network Name (SSID) to be used by all of your wireless devices, and then click **Save/Next**.

For security purposes, we strongly recommend you change the Network Name from the default name. Use any letters or numbers up to 32 characters (case sensitive).

11 On the Encryption Settings screen, type encryption settings to be used by all of your wireless devices (recommended for security purposes), and click **Save/Next**.

12 On the Device Settings screen, click **Access Point Mode.**

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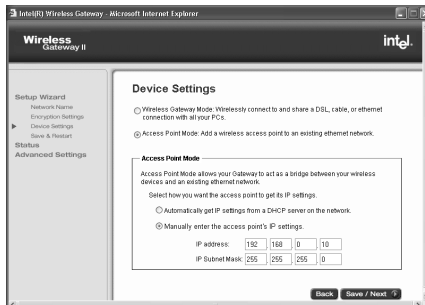
13 Choose how you want the gateway to get its IP address:

- If your wired network has a DHCP server, click **Automatically get IP settings from a DHCP server on the network**.

- If your wired network has IP addresses assigned to each device (no DHCP server), click **Manually enter the access point's IP settings**. Then enter a static IP address and subnet mask.

If you enter a static IP address (from your Internet Service Provider), change the default IP address of the gateway (192.168.0.10). **Be sure to write down the new address.** Use the new address when you access the configuration software using your browser. If you use the installation CD-ROM, it automatically detect the new IP address.

In Access Point mode, the gateway's DHCP server is turned off. There can be only one active DHCP server in your network. You do not enter ISP settings, and the gateway's Network Address Translation (NAT) protocol is disabled. You can enable the gateway to be your DHCP server by going to the Advanced Settings, DHCP Server Settings and clicking **Enable DHCP Server Functions**.

Installing wireless adapters on other PCs

Install other adapters in PCs as described in the user's guides that come with those adapters. Configure the wireless settings on all wireless PCs on the network to match the gateway's wireless settings.

Step-by-step 1 Refer to your **Install Information Worksheet** for the wireless settings you applied to the gateway.

2 Configure the wireless adapter this way:

- Network Name (network ID code or SSID) = same as you applied to the gateway

- Encryption = same encryption settings as gateway

- Mode = Infrastructure

3 Verify that you can access the gateway from this PC by inserting the gateway installation CD and clicking the **Configure the Gateway** button.

If you need help doing this, refer to the adapter's documentation.

Using Windows* XP Client Configuration Manager

Use the following steps to connect an 802.11b adapter that uses the Windows XP Client Configuration Manager to the Intel Wireless Gateway II.

If you are using Intel AnyPoint Wireless II network adapters, and the AnyPoint Connectivity Suite software, you must use version 2.30.01 or higher of the AnyPoint Connectivity Suite software to be fully compatible with the Windows XP Network Key.

If you are using a third-party adapter, follow the instructions below. Use these instructions from the **status** page on the gateway. See Viewing your connection status on page 16 to help you find the Status page.

Gateway settings Gather the following gateway settings from the **Install Information Worksheet**:

- Encryption level
- Encryption password

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- Key number
- Value of the key

Configuring the adapter

Step-by-step

1 On your Windows XP PC, right-click the wireless adapter icon in the system tray.

2 Choose **View available wireless networks**.

3 When the **Connect to Wireless Network** screen appears, select the access point in the **Available Networks List** that displays your Intel Wireless Gateway. Do not enter a network key at this time.

4 Click **Advanced**.

You see a dialog box showing an **Available Networks list** and a **Preferred Networks list**.

5 From the Available Networks List, select the Gateway and then click the Configure button.

A **Wireless Network Properties** screen appears.

6 Check **Data encryption (WEP enabled)**. Also, clear the check box **The key is provided for me automatically**.

7 Using the setting from your **Install Information Worksheet**, enter the value for the key.

Make sure the key format is in hexadecimal characters (0-9 and A-F) and the key length is 10 digits (for 40-bit) or 26 digits (for 104-bit).

See *Manually enter encryption keys* on page 29 for examples.

8 Click **OK**.

Clicking **OK** from the Wireless Network Properties screen takes you back to the Wireless Network Connection Properties, where you can click **OK** again to exit and save changes.

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Chapter 3
Changing the Gateway Settings

When you installed your Intel Wireless Gateway II using the *Installation Guide* or Chapter 2 – Setting Up the Gateway on a Network, you were instructed to enter an address in your Web browser, which launched your Web-based **Wireless Gateway Configuration Software**. You used the wizard to enter initial wireless and device settings for your gateway.

This chapter explains the following:

■ Opening the gateway configuration software

■ Viewing your connection status

■ Changing your wireless settings

■ Changing Network Name (SSID)

■ Changing or disabling your encryption settings

■ Changing your device settings

■ Saving settings and restarting your gateway

Opening the gateway configuration software

The configuration software for the gateway resides inside the gateway, not on the Internet.

Step-by-step   **1**   Type the following Internet address into your Web browser: **http://192.168.0.10.**

or

Go to **Start > Programs > Intel AnyPoint > Intel Wireless Gateway 1210 > Network Setup**, and then click **Yes** when asked if you want to change the gateway settings.

The following appears.

2   Enter your user name and password and then click **OK**.

The following appears.
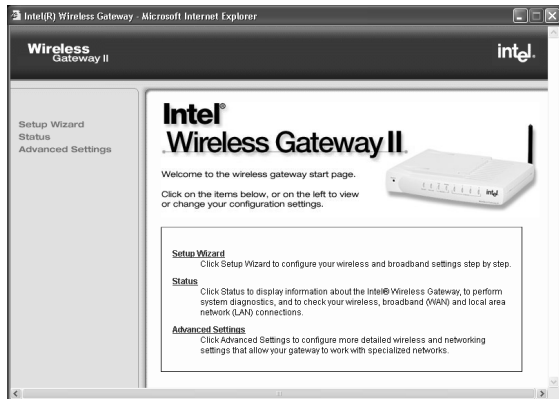
Viewing your connection status

Status provides information about the device connections (connected, not connected, connection active) for your broadband modem, your LAN, and your wireless adapters.

Step-by-step • On the left column of the **Wireless Gateway** screen, click **Status**.

The following appears.
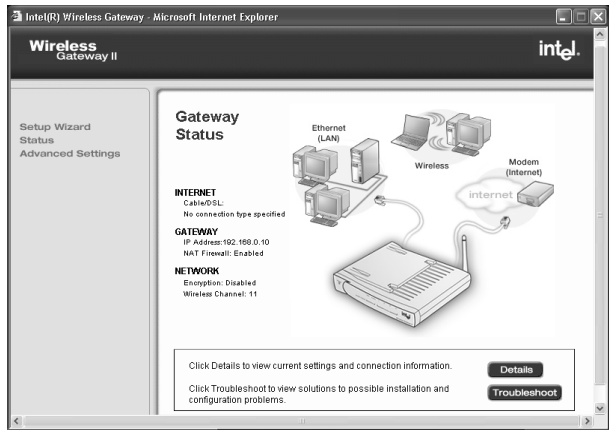
Viewing more status details

To see your current settings (wireless and device settings), click **Details** on the Status screen. The following information appears:

• Wireless
• Local Area Network (LAN)
• Internet Service Provider (ISP)

Printing your gateway settings

Click **Print** from the Status Details screen to print all your settings. Save the printed copy, especially if you intend to change values later.

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Changing your wireless settings

This section describes how to enter wireless settings in the gateway that match the settings in your wireless network. If you do not have wireless adapters for your PCs, you do not need to set the Network Name (SSID) or the Network encryption settings.

> **Important!**   Be sure to enter the same Network Name (SSID) and network encryption key on each adapter on your wireless network. If you are a Windows XP user, see *Using Windows* XP Client Configuration Manager* on page 18 for details.

Changing Network Name (SSID)

All wireless networks have an assigned Network Name (SSID) to the wireless network (SSID is sometimes called ESSID or many other possible naming conventions). As the network administrator for your network, you can create (or change) this name. When a computer tries to join a wireless network, its network adapter sends the SSID to the Intel Wireless Gateway. If the SSID of the wireless adapters and the Intel Wireless Gateway are the same, and the encryption settings match (if any), the computer is permitted to join.

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Step-by-step

1 Open the **Wireless Gateway** screen, and then click **Setup Wizard**.

2 From the **Setup Wizard**, click **Network Name**.

The Network Name (SSID) box appears.
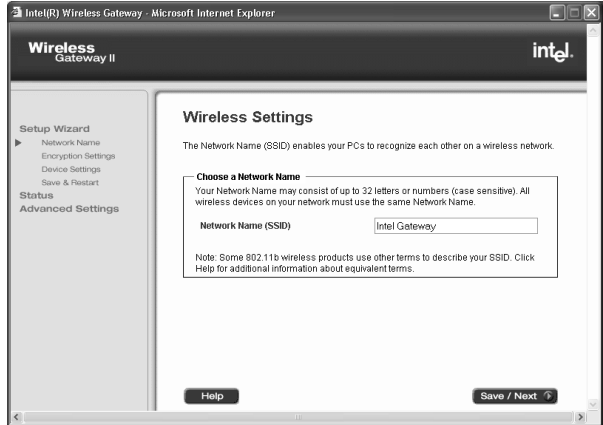
If you have already installed your gateway, the default name appears in the box (Intel Gateway).

3 Enter a new **Network Name**.

Use any letters or numbers up to 32 characters (case sensitive).

4 Click **Save/Next** to apply the change to the gateway. Click **Save/Next** until you see the **Save & Restart** button to activate and restart your gateway.

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Changing or disabling your encryption settings

In a Wireless Local Area Network (WLAN), use encryption to implement security and protect your information. Because wireless clients and access points send and receive information using radio waves, it is much easier for an unauthorized person to intercept the information unless you protect the information through encryption. Network Encryption does not provide absolute protection for your data, but it does make it more difficult for someone else to intercept that data. For conceptual information on encryption, see *Encryption* on page 10.

The longer the encryption key is, the stronger the encryption. The gateway uses either a 40(64)-bit key or a 104(128)-bit key. The 104(128)-bit key has several trillion times as many possible combinations as a 40(64)-bit key. For added security, periodically change the value of your keys.

> **Important!** The gateway and each adapter in the network must have the same settings for encryption.

Generate an encryption key from text

If you have all AnyPoint® adapters, or are using Windows XP to configure your adapters, you can create an encryption key from a 5 or 13 character string. Five characters provides 40(64)-bit encryption, while the 13 character string provides 104(128)-bit encryption. The string you enter must be exactly 5 or 13 characters.

Step-by-step

1 Open the **Wireless Gateway** screen, and then click **Setup Wizard**.

2 From the **Setup Wizard**, click **Network Encryption Settings**.

The **Network Encryption Settings** screen appears. Read the security warnings.

3 Select **Generate a key from text**.

The following appears.
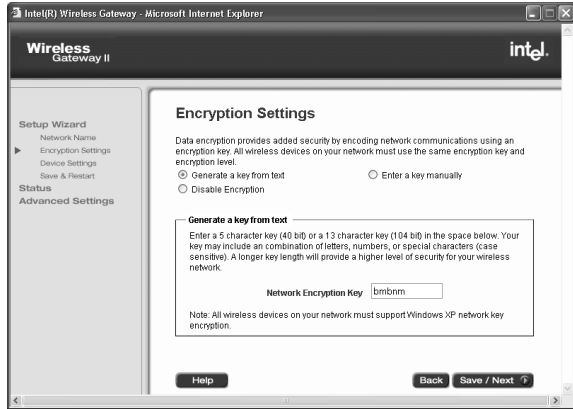
4 Type 5 letters, numbers, or special characters (case sensitive) in the box.

5 Click **Save/Next** to apply the change to the gateway. Click **Save/Next** until you see the **Save & Restart** button to activate and restart your gateway.

Manually enter encryption keys

If you have equipment other than AnyPoint network hardware, you can manually enter a key, either as a series of hexadecimal digits (characters 0 through 9 and A through E) or as ASCII characters (any character), case-sensitive. Encryption keys can be established for either 40(64)-bit or 104(128)-bit encryption. Longer keys provide greater security.

A 40(64)-bit key can consist of 10 hexadecimal digits or 5 case-sensitive ASCII characters:

- **Example Hex Key:** 1AC78 24DE5
- **Example ASCII Key:** Intel

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A 104(128)-bit key can consist of 26 hexadecimal digits or 13 case-sensitive ASCII characters:

- **Example Hex Key:** 10111 2EF14 1510 2453 6543 9991
- **Example ASCII Key:** IntelWireless

Step-by-step   To manually enter a 40(64)-bit ASCII encryption key:

1   Open the **Wireless Gateway** screen, and then click **Setup Wizard**.

2   From the **Setup Wizard**, click **Network Encryption Settings**.

   The Network Encryption Settings screen appears.

3   Click **Enter a key manually**.

   Although you can use only one encryption key at a time, having four sets of keys allows you to quickly change your encryption if necessary.

4   Select **40(64)-bit** encryption level.

5   Select **ASCII Characters** as the **Key Format**.

6   Enter any combination of 5 case-sensitive characters in the box.

7   Click **Save/Next** to apply the change to the gateway.

   In the wizard, click **Save/Next** until you see the **Save & Restart** button to activate and restart your gateway.

Disable encryption   If you are not worried about security and want to slightly improve data transmission, you can disable encryption.

Important!   Be sure to also disable encryption for each adapter in your wireless network. Refer to the documentation for your wireless adapter. If you are a Windows XP user, see *Using Windows* XP Client Configuration Manager* on page 18 for details.

**Step-by-step**
1 Open the **Wireless Gateway** screen, and then click **Setup Wizard**.

2 From the **Setup Wizard**, click **Network Encryption Settings**.

3 Click **Disable Network Encryption**.

4 Click **Save/Next** to apply the change to the gateway.

In the wizard, click **Save/Next** until you see the **Save & Restart** button to activate and restart your gateway.

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Changing your device settings

Change device settings to specify one of two gateway operating modes.

- **Wireless Gateway Mode** – Set the gateway to this mode if you are connecting the gateway directly to a broadband modem. See *Changing Wireless Gateway Mode settings* on page 33.

- **Access Point Mode** – Set the gateway to this mode if you are connecting the gateway to an existing network. See *Changing the access point setting* on page 35.

Step-by-step
1 From the main **Wireless Gateway** screen, click **Setup Wizard**.

2 In the left column under the Setup Wizard, click **Device Settings**.

The following appears.
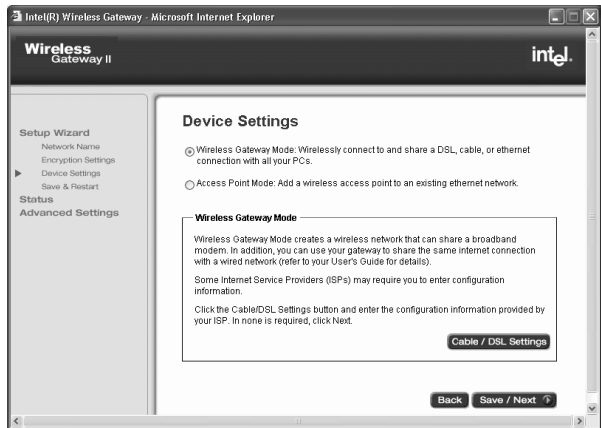
3 Select the mode you want to use.

> **Note** You will lose your connection if you are not already connected to a DHCP server.

4 Click **Save/Next** to apply the change to the gateway.

In the wizard, you need to click **Save/Next** until you see the **Save & Restart** button to activate and restart your gateway.

Changing Wireless Gateway Mode settings

If your Internet Service Provider has assigned settings to access the Internet, the following sections help you find the information you need to connect your gateway.

Step-by-step

1 From the Wireless Gateway Mode screen, click **Cable/DSL Settings**.

The following appears.

2 See *Changing IP settings* on page 34, or see *Changing cable or DSL settings* on page 34 for specific information on changing any setting on the screen.

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You can also obtain this information from your modem documentation or instructions in the Install Information Worksheet that came with your gateway.

Changing IP settings

In the **IP Settings** portion of the Cable/DSL screen, you can change the following settings:

- **IP address assigned by your ISP** – A unique numeric address that identifies each computer on a local network as well as on the Internet.
- **IP Subnet Mask** – Resembles an IP address and helps route Internet traffic to a particular local network or "subnet."
- **ISP Gateway Address** – The IP address of your Internet service provider's device that routes data traffic to the Internet.
- **Domain Name Server (DNS) IP Address** – The IP address of your Internet service provider's computer with a DNS Server. A DNS Server translates a human-readable address such as www.intel.com into a numeric IP address such as 192.168.0.10.

Note Change these settings using the instructions supplied by your broadband provider.

Changing cable or DSL settings

In the **Additional Cable/DSL Settings** portion of the Cable/DSL screen, you can change the following settings:

- **Username (PPPoE)** – A user name that applies only if you have a DSL modem that uses the point-to-point over Ethernet (PPPoE or PPP) protocol. Type the user name your ISP provided you.
- **Password (PPPoE)** – A password that applies only if you have a DSL modem that uses the point-to-point over Ethernet (PPPoE or PPP) protocol. Type the

password your ISP provided you, then retype it to verify.

- **Host Name** – Applies only if you have a cable modem. If your ISP requires you to enter a host name, enter it exactly as it was given to you

- **Domain Name** – Applies only if you have a cable modem. If your ISP requires you to enter a domain name, enter it exactly as it was given to you.

- **WAN Ethernet MAC Address** – The WAN Ethernet Media Access Control (MAC) address uniquely identifies every device in the network. If your ISP requires you to enter a MAC address, enter it exactly as it was given to you.

Note   Do not change these settings unless you are instructed to do so by your broadband provider.

Changing the access point setting

If you are not using the Intel Wireless Gateway to access the Internet, but you want to extend your wired network with wireless capability, choose the Access Point Mode. This mode allows you to bridge your wireless PCs to your Ethernet.

Step-by-step

1 From the main **Wireless Gateway** screen, click **Setup Wizard**.

2 In the left column under the **Setup Wizard**, click **Device Settings**.

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3 Click **Access Point Mode**.

The following appears.
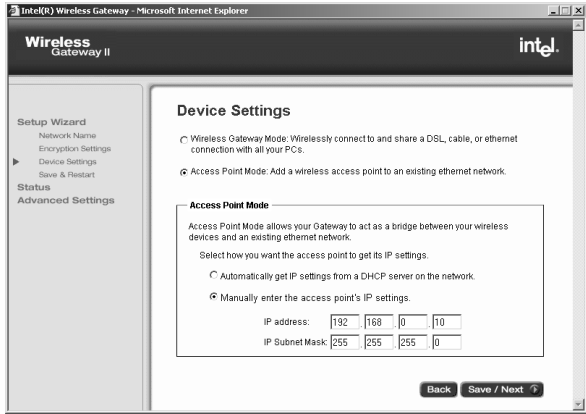
4 Obtain your IP settings:

- Automatically: Click **Automatically get IP settings from a DHCP server on the network**

- Manually: Click **Manually enter the access point's IP settings**

If you are not connected to a DHCP server when you change to Access Point Mode, you can lose your connection. If you do not have a DHCP server, you may need to specify an IP address. See *Refining DHCP server addressing* on page 45.

The **IP Address** is a unique numeric address that identifies each computer on a local network as well as the Internet. The **IP Subnet Mask** resembles an IP address and helps route Internet traffic to a particular local network or "subnet." You can get these values from your Install Information Worksheet.

5 Click **Save/Next** to apply the change to the gateway. In the wizard, you need to click **Save/Next** until you see the **Save & Restart** button to activate and restart your gateway.

Saving settings and restarting your gateway

It's a good idea to print your new settings and keep them handy for reference. For details, see *Printing your gateway settings* on page 25.

Each time you click Save/Next after making a change in any of the Setup Wizard screens, the change is instantly applied to the gateway firmware in Read Only Memory (ROM). But when you click Save & Restart, your gateway mode (Gateway Mode or Access Point Mode) hardware is restarted and all changed values in ROM are transmitted to the network. Only then is your gateway fully operational.

Step-by-step

1 From your main **Wireless Gateway** screen, click **Setup Wizard**.

2 In the left column under the Setup Wizard, click **Save & Restart**.

The following appears.
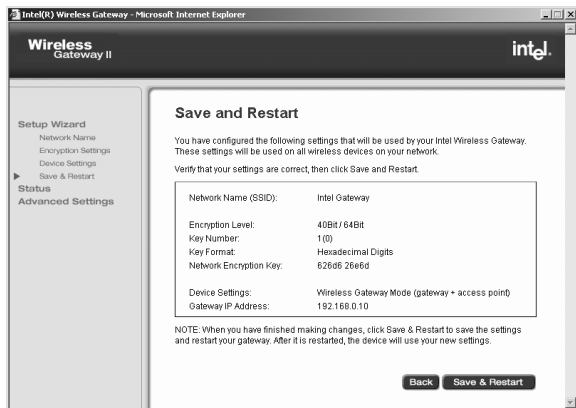
3 Click **Apply**.

You'll see a message telling you that your system is resetting. After the gateway sends the values to the network, you see the main Wireless Settings screen, and your new settings are applied.

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Chapter 4
Using the Advanced Feature Set

This chapter describes the advanced feature set of the Intel Wireless Gateway II. It provides instructions for changing the following advanced settings:

- Changing your gateway password
- Changing your advanced wireless settings
- Using system tools
- Establishing routing protocols
- Refining DHCP server addressing
- Assigning virtual server settings
- Using access control features
- Changing your gateway IP address
- Universal Plug and Play

Not all users should use the advanced features. It is advisable to use some features only if you have system administrator experience.

Accessing advanced features

Step-by-step **1** From the main **Wireless Gateway** screen, click **Advanced Settings**.

The first advanced feature, **Change the Gateway** password, appears.

2 From the left navigation column, select the advanced setting you want to change.

Unlike the Setup Wizard, as soon as you click **Apply** in the Advanced Settings screens, the changed value is immediately saved and stored in the gateway. You do not need to click Save and Restart.

Changing your gateway password

To prevent network users from gaining access and changing settings, the gateway is password protected.

Step-by-step **1** From the main **Wireless Gateway** screen, click **Advanced Settings**.

2 From the Advanced Settings screen, click **Change Password**.

The following appears.
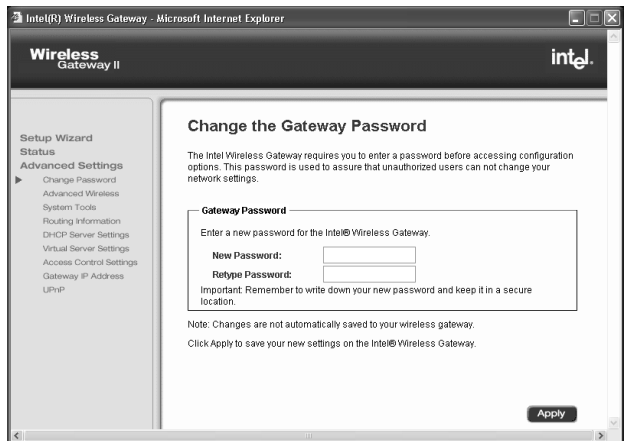
3 Type your new password, then retype it to verify.

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4 Click **Apply**.

The password is immediately saved and stored in the configuration software. Write down your password and store it in a safe place.

Changing your advanced wireless settings

Note Do not change default values unless you are experiencing problems.

Use the Advanced Settings screen to quickly change your wireless settings. The settings include:

• Network Name (SSID)
• Transfer Rate
• Header Length (Preamble)
• Channel

You can change any or all values, then click **Apply** to save the new settings.

Step-by-step **1** From the main Wireless Gateway screen, click **Advanced Settings**.

The following appears.

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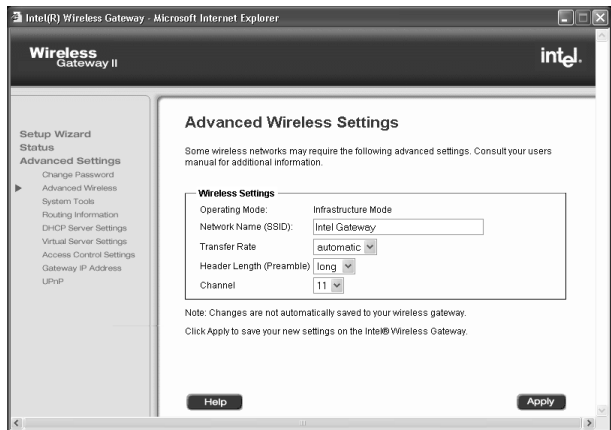
 2 Type the Network Name (SSID).

 3 Make sure all the wireless adapters for your PCs have the same SSID.

 4 Use the menus to select the correct Transfer Rate, Header Length (preamble) and operating Channel.

 5 Click **Apply**.

 The values are saved and stored in the configuration software.

Setting your transfer rate

Ignore this setting unless *all* your devices have an option to set a short header length.

 • Select **auto** to automatically select the best transfer rate (recommended).

Setting your operating channel

When selecting your channel:

 • Ensure each wireless adapter in the network can operate on the same channel.

 • Only switch channels when interference is preventing a good connection. You might first try channels 1, 6, and 11 (since these channels do not overlap).

Using system tools

The **System Tools** screen provides tools for troubleshooting. See *Using the system tools on your gateway* on page 71.

 • **Upgrade your configuration software** – You can periodically check the Web to see if there are any new upgrades to the configuration software. Once

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you've downloaded the file to your computer, click **Browse** to find and install the upgrade.

- **Reset your gateway** – When you click **Reset**, you restart your gateway using the current settings.
- **Load default settings** – When you click **default**, your gateway restores the factory settings and returns you to the initial **Wireless Gateway** screen.

Establishing routing protocols

Changing your routing protocols is only applicable when you are connecting your gateway to an existing network that already uses routing protocols. It may be necessary to route protocols if you have more than one gateway in your system. Your gateway allows two types of routing protocols: Dynamic and Static. With Dynamic routing, your gateway uses an internal algorithm to automatically adjust the best routing protocol to other gateways (if there are any) in your network. With Static routing, you can set an explicit route when you set the destination IP address, subnet mask, and gateway IP address.

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Dynamic routing

1 From the main Wireless Gateway screen, click **Advanced Settings**.

2 In the left column under Advanced Settings, click **Routing Information**.

The following appears.
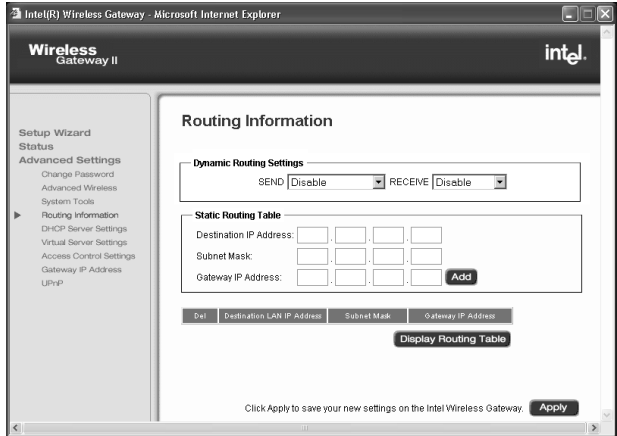
3 In the **SEND** field, select the same protocol you use to transmit data to the network.

4 In the **RECEIVE** field, select the same protocol you use to receive data from the network.

5 Click **Apply**.

The values are saved and stored in the configuration software.

Static routing

1 From the main Wireless Gateway screen, click **Advanced Settings**.

2 In the left column under Advanced Settings, click **Routing Information**.

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3   When the Static Routing Table fields appear, type in the values for:

- **Destination IP Address:** The address of the remote network or host.

- **Subnet Mask:** Assigns the portions of the IP address that are assigned for the network and the host.

- **Gateway IP Address:** The IP address of the gateway.

4   Click **Add** to send the values to the Static Routing Table.

5   Click **Apply** to save your changes in the gateway.

Refining DHCP server addressing

> **Note**   DHCP is automatically disabled when your gateway is set in **Access Point Mode**.

The Dynamic Host Configuration Protocol (DHCP) server can select and configure TCP/IP settings automatically for every computer in your network. The DHCP Server Settings screen lets you enable or disable DHCP services. If you enable the server, you can use the default IP address range that the server selects, or select a specified range. You can also select a specific address for specialized servers in your network, such as for e-mail, the Web, and FTP (as long as the addresses are in an acceptable range).

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Step-by-step   **1** From the main Wireless Gateway screen, click **Advanced Settings**.

2 In the left column under Advanced settings, click **DHCP Server Settings**.

The following appears.
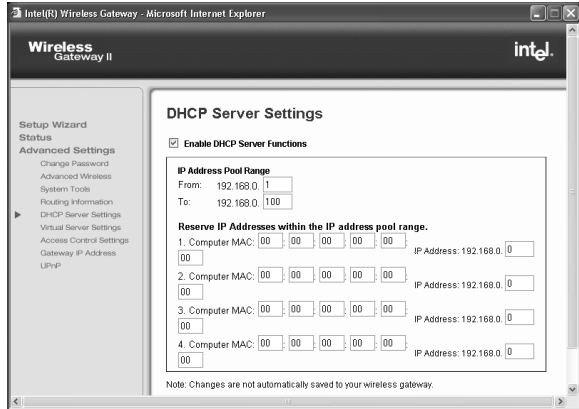
3 Select **Enable DHCP Server Functions** if you want to enable the DHCP server. Otherwise, clear this check box and click **Apply**.

4 If you enabled the server, review the default settings (if any). Type any new IP addresses in the reserved boxes for local network facilities such as e-mail, the Web, or an FTP server.

5 Click **Apply**.

Your changes are sent to the other adapters in the network immediately.

Assigning virtual server settings

The Virtual Server settings (sometimes called port mapping) allow you to specify virtual addresses for special services such as telnet, HTTP, FTP, IRC, SMTP, POP3, and others.

Your Intel Wireless Gateway II has an integrated Network Address Translation (NAT) firewall that prevents any

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unrequested data from entering your network. Most applications (like Web browsing or e-mail) are unaffected by the NAT firewall because the information that is returned has been requested by a PC on your network. However, some applications (such as games and Internet messaging) experience problems because the NAT firewall blocks data that is needed for them to function correctly.

The settings listed on the Virtual Server menu correct the problems experienced by some applications by allowing unrequested data to pass through commonly used services to the PC with the IP Address that was entered.

In addition, you can select All (DMZ) to allow unrequested data to pass through all parts of your NAT Firewall to that PC. This disables the NAT firewall for that PC and should only be done if you experience connection problems, or if you have additional firewall software installed on that PC.

Note If you add a third-party firewall to a PC, you may be required to configure it to allow internal network communication. Refer to the third-party documentation for assistance.

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Step-by-step   **1** From the main Wireless Gateway screen, click **Advanced Settings**.

2 In the left column under Advanced Settings, click **Virtual Server Settings**.

The following appears.
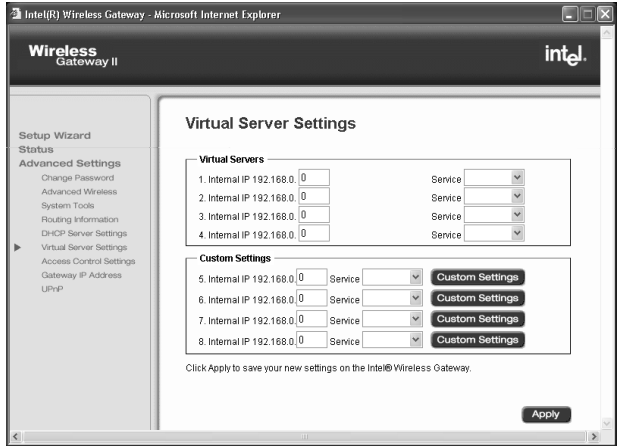
3 Select a service, then type the address for that service.

4 Click **Apply** to save the addresses in the gateway.

Custom Virtual Server Settings   Port forwarding is useful if you have a Web server running on a computer on your local network. It allows you to direct traffic to a specific computer on your network automatically.

You may also need port forwarding to host some multi-player games, for video phone applications, and for other interactive applications.

Port forwarding only applies to unsolicited inbound traffic. If you enter an address to access a Web page on the Internet, the Web page is displayed on your browser.

This is known as solicited traffic.

If you don't use port forwarding, then all unsolicited inbound traffic is blocked by the gateway's internal firewall.

Depending on the application or game that requires port forwarding, you may find configuration information in its documentation or on the Web.

You can create a custom rule that defines a specific port and protocol for unsolicited inbound traffic.

To create a custom rule

1 From the main Wireless Gateway screen, click **Advanced Settings**.

2 In the left column under Advanced Settings, click **Virtual Server Settings**.

3 Under Custom Settings, type an address, and then click **Custom Settings**.

4 Enter a port number or range of ports in the Firewall Port field.

5 Select a transport layer protocol from the Protocol list.

6 For increased security purposes, optionally enter a Source IP Address as one of the criteria for the port forward packet to satisfy. You must also specify a Source IP Address to forward certain transport layer protocols like ICMP, GRE, and so on from a client on the Internet to one of the local clients. (If you select such a transport protocol and do not specify a Source IP Address, you will be prompted to do so when you click Apply.)

Ports can be forwarded individually or as a range separated by a dash (for example, 23 or 24-1023).

The port numbers can be entered in the table in any order.

A range may be specified and then individual numbers within that range may be directed to a different IP address. For example, you may enter a range of 1-1024

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in the Port field and an IP address of 192.168.0.251. You can then designate Ports 23, 80, and 53 to IP address 192.168.0.252. Traffic destined for Ports 23, 80, and 53 only go to IP address 192.168.0.252.

Using access control features

Using access control provides additional security beyond encryption. You can create a list of users that are granted access to your network based on their device ID, the Media Access Control (MAC) address. With access control, you can also create a list of users that are denied access. In normal operation, the access control features are disabled.

Step-by-step

1 From the main Wireless Gateway screen, click **Advanced Settings**.

2 In the left column under Advanced Settings, click **Access Control**.

3 To create a list of users that you want to grant access to your gateway, click **Enable the Grant Access List**.

If you are creating a list of users you want to deny access to, click the **Enable the Deny Access List**.

The following screen appears.

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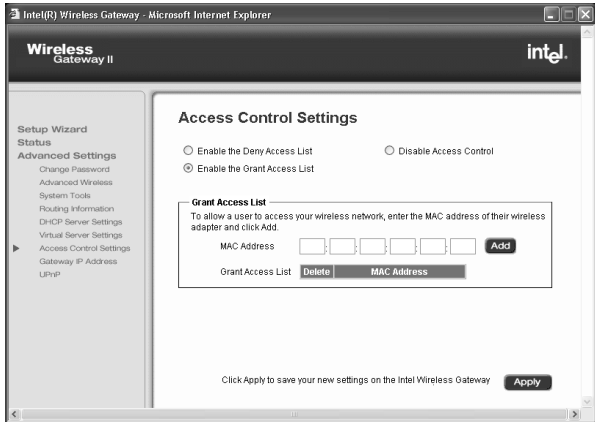
4 Type two hexadecimal characters in each box of the MAC address until are boxes are filled.

5 Click **Add** to add the device MAC address to the list.

If you want to delete addresses from the list, click the check box beside the specified MAC address and then click **Delete** to remove it from the list.

6 Click **Apply** to save your settings in the gateway.

Changing your gateway IP address

You might need to change your gateway IP address when setting up the gateway on an existing network.

> **Note** If you change your gateway IP address, you also need to change the IP addresses of each network adapter in the same network.

Step-by-step

1 From the main Wireless Gateway screen, click **Advanced Settings**.

2 In the left column under Advanced Settings, click **Gateway IP Address**.

The following appears.
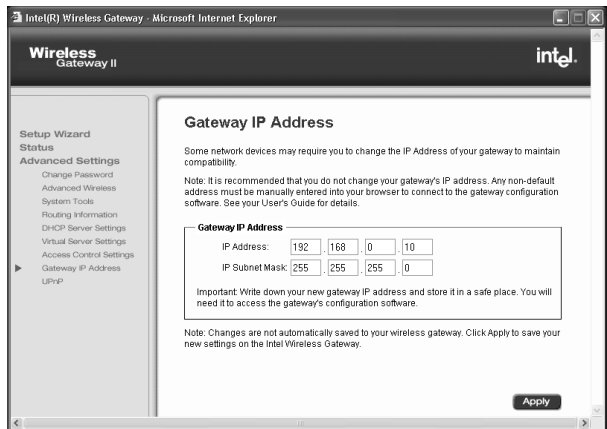
3   Type the new gateway address into the address
boxes.

4   Click **Apply** to save the new address in the gateway.

IP addressing in network adapters

Make sure **IP addressing** is set correctly on the network
adapter you are using to connect to the Wireless
Gateway. When the Wireless Gateway is installed as
shown in the Installation Guide, your network adapter
must be set to **obtain an IP address** and a **DNS
address automatically (DHCP enabled)**.

Windows* XP

1   Click **Start > Control Panel**.

2   Double-click **Network Connections**.

3   Right-click the network connection and select
Properties.

4   On the scroll down list, double-click **Internet
Protocol (TCP/IP)**.

5   On the General tab, select **Obtain an IP address
automatically**.

6   Then select **Obtain DNS server address
automatically**, and click **OK**.

Windows 2000

1   Click **Start > Settings > Control Panel**.

2   Double-click **Network and Dial-up Connections**.

3   Double-click the icon representing your network
adapter and select the **Properties** button.

4   On the scroll list, double-click **Internet Protocol
(TCP/IP)**.

5   Select **Obtain an IP address automatically**.

6   On the General tab, select **Obtain DNS server
address automatically** and click **OK**.

**Windows ME
and 98**

1   Click **Start > Settings > Control Panel**.

2   Double-click **Network**.

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3 Double-click the TCP/IP protocol associated with your network adapter.

4 On the IP Address tab, select **Obtain an IP address automatically**.

5 On the DNS Configuration tab, select **Disable DNS** and click **OK**.

Universal Plug and Play

Universal Plug and Play (UPnP*) allows supported operating systems and application software to automatically configure a connection to the Internet. With UPnP enabled, the device configures itself for Internet access when you add the gateway into the network.

You can disable Universal Plug and Play (enabled, by default).

To learn how to enable Universal Plug and Play in Windows XP and ME, see *I'm trying to use UPnP. How do I enable it?* on page 68.

Note Windows* XP and ME editions support UPnP. Other versions of Windows require a third-party product to use UPnP.

To disable Universal Plug and Play on the gateway

Universal Plug and Play must be installed and enabled on all computers on which you want to view and control devices. This is usually done through the operating system or configuration software of each device. UPnP

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can be found in newer operating systems (Windows XP and ME editions), but is not installed by default.

1   From the main Wireless Gateway screen, click **Advanced Settings**.

2   In the left column under Advanced Settings, click **UPnP**.

The following appears.
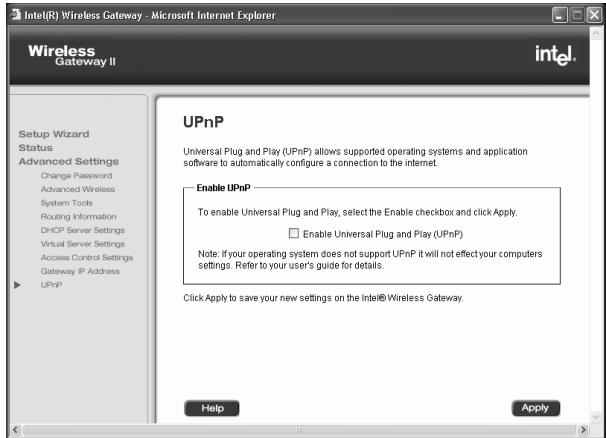
3   Click **Enable Universal Plug and Plan (UPnP)** to remove the check mark.

4   Click **Apply** to save your settings.

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Chapter 5
Troubleshooting

Refer to the README and Late Breaking News for additional troubleshooting issues and information. The README is on the CD and the Late Breaking News is a paper insert.

This chapter presents rudimentary troubleshooting techniques to help you locate operating problems with your gateway and device connections. It provides the following troubleshooting assistance:

■ Problems and solutions

■ Reading settings and device status

■ Using firmware troubleshooting tips

■ Using the system tools on your gateway

Problems and solutions

The problems and solutions presented in this chapter assume that you are operating the gateway in wireless gateway mode.

Problem   **I can't connect to the gateway**

If you can access the Wireless Configuration Software, then you **are** connected to the gateway.

Solution A   **Wired Network**

- Verify that the gateway power is turned ON – the gateway's Power LED (far left LED – separate from the bank of eight LEDs) should be illuminated.

    See *A look at the gateway hardware* on page 5 for a description of the LEDs and their location.

- Verify that the System LED (far left in the bank of eight LEDs) is steady green, indicating the gateway is operating correctly.

- Check your connections – see the diagrams in the *Installation Guide.* You may need to replace the cable associated with the connection if the LED differs from the description below:

    - Verify that the Ethernet LED (one of four LEDs on the right) is solid or blinking, green or amber (indicating link at 10 or 100 Mbps)

- Power down your PC, then power it back on. Run the Network Setup Utility (go to **Start > Programs > Intel AnyPoint > Intel Wireless Gateway 1210 > Network Setup**). If there are errors, follow the instructions on screen.

- Can you access the Wireless Gateway configuration software? – From your Web browser, enter the Internet address, http://192.168.0.10 (this is the default value – assumes it has not been changed in the Wireless Gateway configuration software). If the

welcome screen does not appear, then make sure the "IP addressing" on the network adapter to which the gateway is connected is set as follows:

- The adapter is set to obtain an IP address automatically.

  You can verify the PC adapter is set correctly by going to an MS-DOS or command prompt. At the command prompt type:

  ```
  ipconfig /all
  ```

  (leave a space before /all)

  If information scrolls off the screen, use

  ```
  | more
  ```

  (| is shift-1)

- Verify the adapter that is connecting to the gateway has an IP address range of 192.168.100.X (where X is between 1 and 254) and the default Gateway address is 192.168.0.10.

  If the IP address is not correct, verify cables (or wireless settings) are correct and securely attached, remove (or configure a trusted IP range for) software firewalls you've installed on the PC, then restart your PC and check the IP address again.

- In your Web browser, specify to not use a proxy server when connecting to the Internet (refer to your browser's help pages for information).

- The adapter is set to obtain a DNS address automatically for Windows* 2000 and Windows XP

- The adapter has DNS disabled for Windows 98, Windows 98SE, and Windows ME.

Solution B   **Wireless Network**

- Follow the above solutions for a wired network

- Verify that there is a wireless client connected – the gateway's Wireless Link LED (third from the right in the bank of eight LEDs) blinks green when it detects traffic.

- Verify that your wireless adapter is set to operate in **Infrastructure** mode and uses the same Network ID (SSID) code and encryption settings as the gateway. See *Setting or checking your IP address* on page 18.

Problem   **I can't share files and printers among the PCs on my network**

Solution   •   Verify that each PC on the network can connect to the gateway (See *I can't connect to the gateway* on page 56).

- Verify that each PC can "see" every other PC on the network. For instance, on Windows 2000 you would click "My Network Places" to locate each PC by its system name (on Windows 9x, click "Network Neighborhood").

- If you add a third-party firewall to a PC, you may be required to configure it to allow internal network communication. Refer to the firewall documentation for assistance.

- Because the operating system network browser can take up to 15 minutes to refresh using TCP/IP, make sure that all PCs have the Microsoft IPX/SPX

protocol properly installed with "Frame type" set to 802.3 on the protocol's Advanced tab.

• Also make sure that Client for Microsoft Networking and File and Print Sharing are properly installed, as described below:

> **Note**   If you are using AnyPoint adapters, this is all taken care of automatically.

Windows 98 or ME

1   Click **Start > Settings > Control Panel > Network.**

2   To add file and print sharing, click **File and Print Sharing** and then click **OK**.

3   Follow the onscreen prompts to insert your Windows CD and allow your PC to copy the necessary files.

4   To add a client such as Client for Microsoft Networks or a network protocol, click **Add**.

5   Choose from among the subsequent dialog boxes according to what you want to add and then click **OK**.

6   Follow the screen prompts to insert your Windows CD, and your PC copies the necessary files.

Windows 2000

1   Click **Start > Settings > Control Panel > Network and Dial-up Connections.**

2   To add file and print sharing or a client or protocol, right-click the icon representing the network connection your changes should apply to.

3   Click **Properties**.

4   Click the **Install** button and select either **client**, **service** or **protocol** according to what you want to add.

5   Choose from among the dialog boxes that follow, and then click **OK**.

6   Follow the screen prompts to insert your Windows CD, and your PC copies the necessary files.

Windows XP

1   Click **Start > Control Panel > Network Connections**.

2   To add file and print sharing or a client or protocol, right-click the icon representing the network connection your changes should apply to.

3   Click **Properties**.

4   Click the **Install** button and select either **client**, **service** or **protocol** according to what you want to add.

5   Choose from among the dialog boxes that follow, then click **OK**.

• Try again to see that each PC can "see" every other PC on the network. For instance, on Windows 2000 you would click "My Network Places" to locate each PC by its system name (on Windows 9x, you would click "Network Neighborhood").

• When other PCs become visible, use standard procedures to share and map drives and printers.

Problem   **I can't connect to the Internet through my gateway**

The assumption for the solution below is that you *were* able to connect to the Internet before you inserted the gateway into your network.

Solution   • Verify that each PC on the network can connect to the gateway (see *I can't connect to the gateway* on page 56).

• Verify that the gateway Internet LED is solid green. If the Internet light is off, be sure the Ethernet cable is

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the proper type for your modem and that it is connected to the modem.

• Verify all your modem connections are securely attached.

• Turn off the power to your modem, wait at least 5 seconds, then turn off the power to the gateway. Turn power back on in the following order:

  • Attach power to the broadband modem, and allow the modem to fully initialize as indicated by the modem LEDs (see modem documentation).

  • Attach power to the gateway. Confirm the Internet LED is solid or blinking green.

  • If the Internet LED on the gateway is off, unplug power from the gateway, and attach a new cable between the broadband modem and gateway. Turn power back on to the gateway, and verify the Internet LED is solid green.

• Verify that the Cable/DSL Settings in the wireless gateway configuration software are correct. See *Changing your device settings* on page 32.

Problem   **I can't connect to the gateway's configuration Web page**

Solution   Check that you have disabled your proxy settings in your browser (refer to your browser's help pages for information).

Make sure your temporary Internet files are deleted. Refer to the browser documentation for how to do this.

Problem   **I've made changes to the gateway, clicked Save and Restart, and now can't connect to the gateway**

Solution   There are several possible solutions:

• You've changed a setting on the gateway, such as the Gateway IP address, disabled the DHCP server,

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or changed mode or wireless settings. Restart your PC and try connecting to the gateway again. If you still cannot connect to the gateway, reset the gateway to factory defaults. Locate the reset switch (next to the antenna on the rear panel). Press the reset switch, using an open paper clip, for 5 seconds.

- Verify you can connect to the gateway from a wired connection. If you changed wireless settings, you can verify the settings you've changed from a wired PC. See *Viewing more status details* on page 25.

- See *I can't connect to the gateway* on page 56. Consult the solution that applies to your network (wired or wireless network).

Problem **I'm experiencing intermittent connections**

Solution You are likely experiencing interference from other wireless devices (such as your microwave oven or cordless phone).

- Make sure the antenna on the gateway is extended (and on your USB adapters, if applicable).

- Increase the distance between wireless devices (for instance, don't position your gateway or adapters near your cordless phone's base).

- If you live in a multi-level dwelling, change the direction of the antenna on the gateway to point directly toward you (when facing the rear panel). This provides better coverage for multi-level buildings.

- Switch to another channel on your cordless phone, if possible.

- Change the channel on the gateway to channel 1, 6, or 11 (these channels do not overlap each other).

See *Setting your operating channel* on page 42 for more information.

> **Note** If you change the channel on your gateway, you need to reboot all your wireless connected PCs.

Problem **I'm having trouble connecting to my Internet game server**

Solution Consult your documentation for your game to determine the correct ports to open for your game to operate correctly behind a firewall. See *Assigning virtual server settings* on page 46.

Problem **I'm having trouble getting AOL* working**

Solution • Configure the AOL software connection setup for a TCP/IP (direct) or LAN connection. Save your settings then try again.

You may not be able to have more than one instance of the AOL software open at the same time, for a given account. That is, if you are currently accessing the Internet on a PC using the AOL software, you may need to use another browser or another AOL account to access the Internet on another PC.

• If you still cannot connect, then verify that you can access the Internet in general through another Web browser (Netscape, Internet Explorer).

• If you are able to access the Internet, but cannot access AOL, then refer to your AOL documentation for help and technical support information.

Problem **I'm having trouble getting my e-mail working**

Solution • Verify that you have entered the correct Domain Name (DNS entry) from your Install Information

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Worksheet. If it is correct, you should be able to browse the Internet.

- Verify that each PC connected to the gateway can access the Internet. See *I can't connect to the Internet through my gateway* on page 60.

- Check the e-mail settings provided by your ISP on each PC.

> **Note** If you can access the Internet, the problem is NOT in the gateway.

Problem **I'm using a third-party adapter and I cannot access the gateway or the Internet**

Solution Use the following instructions to make sure the network properties are set correctly for obtaining an IP address.

Setting or checking your IP address

Depending on your operating system, follow the appropriate set of instructions.

Windows 98 and ME

1 Click **Start > Settings > Control Panel > Network**.
2 Select the **TCP/IP -->** [the name of the Network Adapter]. For example, Intel® AnyPoint® Wireless II Adapter.
3 Click **Properties**.
4 Click the **IP Address** tab.
5 Make sure that the **Obtain an IP address automatically** option is selected.
6 On the **DNS Configuration** tab, make sure **Disable DNS** is selected.
7 If one or both are not selected, select them, and then restart the PC.

Windows 2000

1 Click **Start > Settings > Network and Dial-up Connections**.
2 Right-click [the name of the Network Adapter], for example, Intel AnyPoint Wireless II Adapter, and select **Properties**.
3 In the Local Area Connection Properties dialog box, click **Internet Protocol (TCP/IP)**.
4 Click **Properties**.
5 Make sure that the **Obtain an IP address automatically** option is selected.
6 Make sure that the **Obtain DNS server address automatically** option is selected.
7 If one or both are not selected, select them and restart the PC after you make the change.

Windows XP

1 Click **Start > Control Panel > Network Connections**, and then click **Network Connections**.
2 Right-click [the name of the Network Adapter], for example, Intel AnyPoint Wireless II Adapter, and select **Properties**.
3 In the Local Area Connection Properties dialog box, click **Internet Protocol (TCP/IP)**.
4 Click **Properties**.
5 Make sure that the **Obtain an IP address automatically** option is selected.
6 Make sure that the **Obtain DNS server address automatically** option is selected.
7 If one or both are not selected, select them and restart the PC after you make the change.

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Problem **I'm using Internet Connection Sharing (ICS) and don't know how to remove it**

Solution Internet Connection Sharing is a software method for sharing an Internet connection. The gateway provides this method now. To manually remove ICS, use the following instructions for your operating system.

Windows 98

1 Click **Start > Settings > Control Panel > Add/ Remove Programs.**

2 Click the **Windows Setup** tab.

3 Click **Internet Tools** and then click **Details**.

4 Select **Internet Connection Sharing** to remove the check mark, and then click **OK**.

5 Click **Apply** to save your changes.

Windows removes the components and prompts you to restart your PC.

6 Click **Yes** to restart.

Windows ME

1 Click **Start > Settings > Control Panel > Add/ Remove Programs**.

2 Click the **Windows Setup** tab, click **Communications**, and then click **Details**.

3 Select **Internet Connection Sharing** to remove the check mark, and then click **OK**.

4 Click **OK**.

Windows removes the components and prompts you to restart your PC.

5 Click **Yes** to restart.

Windows 2000

1 Click **Start > Control Panel > Network and Dial-Up Connections**.
2 Right-click the dial-up, VPN, or incoming connection you have shared, and then click **Properties**.
3 On the **Sharing** tab, remove the **Enable Internet connection sharing for this connection** check box, and click **OK**.

Windows XP

1 Click **Start > Control Panel > Network Connections**.
2 Click the connection you have shared, and then under **Network Tasks**, click **Change settings of this connection**.
3 On the **Advanced** tab, remove the **Allow other network users to connect through this computer's Internet connection** check box, and click **OK**.

Problem	**My Internet game, which is Universal Plug and Play aware, does not work**
Solution	Make sure Universal Plug and Play is enabled on the gateway. See *Universal Plug and Play* on page 53. You also may need to enable UPnP on your Windows system. See the following problem and solution.

> **Note** Windows XP and Me editions support UPnP. Other versions of Windows will require a third-party product to use UPnP.

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Problem   **I'm trying to use UPnP. How do I enable it?**

Solution   Instructions for installing UPnP on Windows XP and Windows ME follows. Other versions of Windows will require a third-party product to use UPnP.

Windows ME

1. Click **Start** > **Settings** > **Control Panel** > **Add/ Remove Programs**.
2. Click the **Windows Setup** tab.
3. In the **Components** list, select the **Communications** check box, and then click **Details**.
4. Make sure the **Universal Plug and Play** check box is selected and then click OK.
5. Click **Apply** to save your changes.

   Windows installs the components. You are prompted to restart your PC.
6. Click **Yes** to restart.

Windows XP

1. Click **Start** > **Control Panel** > **Add or Remove Programs**, and then in the left channel, click **Add/ Remove Windows Components**.
2. In the **Components** list, select the **Networking Services** check box, and then click **Details**.
3. Select **Universal Plug and Play**, and then click **OK**.
4. Click **Next** and then **Finish**.

Problem   **My Internet game does not work**

Solution   You may need to enable a custom rule on the gateway. See *To create a custom rule* on page 49. Also, see *I'm having trouble connecting to my Internet game server* on page 63.

Problem   **I can't take my laptop and roam between access points**

Solution   The Intel Wireless Gateway II is not specifically designed to be used in this kind of environment; however, to locate an access point, your wireless adapter might need to be reset to find the gateway. To do so,

Go to an MS-DOS or command prompt and type:

```
ipconfig /renew
```

If you are using an AnyPoint Wireless II network adapter and AnyPoint software:

1   Open the AnyPoint Connection Manager and click the **Profile Manager** tab.

2   Click **Scan**.

Your adapter automatically finds the gateway and displays its Network Name in a dialog box.

3   Select the gateway's Network Name and click **Connect**.

4   Verify that you can connect to the Internet by opening your Web browser and navigating to a familiar Web site.

If you are using a third-party network adapter, see the adapter documentation for how to configure the adapter to connect with an access point.

If all else fails

If none of the previous problems and solutions seem to match your situation, try the following:

• Turn off the power to your modem, wait at least 5 seconds, then turn it back on.

• Reset the gateway. See *Resetting the gateway* on page 73.

- If you cannot get to the system tools screen to perform this reset, then unplug the power cord from the gateway, wait at least 5 seconds, then plug the power cord back in.
- Restore the gateway to its original factory defaults. See *Loading default settings* on page 73.

Reconfigure the gateway using the gateway configuration software. See *Resetting the gateway* on page 73.

Reading the gateway indicator lights

As an initial operational check of your gateway, check the indicator lights. The indicators are:

- **System** – Normally on. Blinks during reset or when applying new gateway configuration information.
- **Ethernet** – Blinks at a rate that corresponds to the amount of Ethernet traffic on the Ethernet ports.
- **Internet** – Blinks at a rate that corresponds to the amount of Internet traffic on the Internet port.
- **Wireless** – The Wireless Activity and Link lights blink at a rate that corresponds to the amount of traffic that occurs between wireless PCs and the gateway. These lights always have some activity because the gateway is constantly attempting to receive data.
- **Power** – Normally on. If off, check that the power cable connectors are securely in place.

See *A look at the gateway hardware* on page 5 for a description of the LEDs and their location.

Reading settings and device status

If you are having connection problems with your broadband modem, or the wired or wireless network, check the Status screen. From this screen, you can see if your connections are active or not connected. You can

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also perform diagnostics and troubleshooting to test the gateway operation.

1 From the **Wireless Gateway** screen, click **Status.** The following appears.
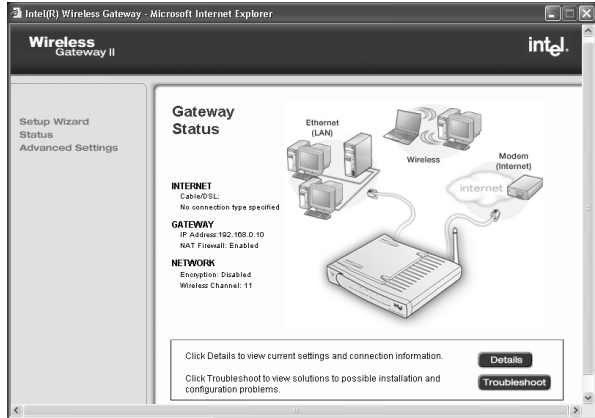
2 Click **Details**.

You will see the status of all your connections.

Using firmware troubleshooting tips

From the **Status** table, you can also use troubleshooting tips to help you isolate connection problems. From the **Status** screen, click **Troubleshooting** to see the troubleshooting checklist. It provides information and tips for two connection conditions:

• Your PC cannot connect to the Internet through the gateway.

• You have one PC working, but you cannot wirelessly connect other PCs to the gateway.

Using the system tools on your gateway

The **System Tools** screen provides easy-to-use tools for troubleshooting. You can quickly reset your gateway,

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load default settings, or upgrade your configuration software.

1 From the main **Wireless Gateway** screen, click **Advanced Settings**.

The following appears.

2 From the left column under **Advanced Settings**, click **System Tools**.

3 For additional information, see the following sections:

- Upgrading your firmware
- Loading default settings
- Resetting the gateway

Upgrading your firmware

You can periodically check the Web to see if there are any new upgrades to the configuration software. Using the latest firmware upgrades can solve some troubleshooting issues.

- For residential or small office applications when using Intel AnyPoint Wireless II Network adapters, or third-party adapters, check for a gateway firmware upgrade and instructions at:

  ```
  www.apsupport.intel.com
  ```

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Loading default settings

When you click Default, your gateway restores the factory settings and returns you to the initial Wireless Gateway screen. Use the default settings if you want to create a new configuration or start from known settings.

1 From the main **Wireless Gateway** screen, click **Advanced Settings**.

2 Click **System tools**.

3 Click **Default**.

Your gateway now has the initial factory settings, but any firmware upgrades remain.

> **Note** The device IP address will be reset to 192.168.0.10

Resetting the gateway

When you click Reset, you restart the gateway using the current settings. The gateway shows the initial Wireless Gateway screen. Click Reset from the System Tools screen if you have mounted the unit on the wall or ceiling and cannot physically access the Reset button.

1 From the main **Wireless Gateway** screen, click **Advanced Settings**.

2 Click **System tools**.

3 Click **Reset**.

Your gateway restarts with your current settings.

Chapter 6
Glossary

This section contains a list of network and computer related terms with definitions.

Glossary

802.11b   A specific networking standard created by IEEE that defines engineering design parameters for high-speed wireless data transmission. The 802.11b standard allows different manufacturers to create wireless products that are compatible with each other.

Ad Hoc Mode   Also called Peer-to-Peer mode

A software setting for 802.11b wireless adapters.

Adapter   Also network adapter or NIC

A hardware device that allows your PC to connect to a network.

Access Point (AP)   A hardware device that serves as a communications "hub" for 802.11b wireless PCs and can also provide a connection to a wired network. An AP can double the range of wireless client PCs and provide enhanced security.

ASCII characters   Any printable alpha-numeric character.

DHCP   Dynamic Host Configuration Protocol. A TCP/IP protocol that defines a way to automatically assign IP addresses to computers on a network. IP addresses are managed by a DHCP server on the network. When a computer starts, it requests an IP address from the server. The server leases an address for a set time. After that time, the computer makes a new request. When a Windows* computer is configured to obtain an IP address automatically, it attempts to get an address from a DHCP server. Windows 2000 and Windows NT* servers include DHCP server software that can provide this service. Network appliances that rely on TCP/IP often include a DHCP server.

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Driver (Device Driver)	Special software programs required for any device to install properly on a PC. Devices include network adapters, printers, scanners, modems, audio cards, CD drives, monitors, and so on. Drivers enable the device to coordinate its activities with the PC to which it is attached.
DNS	Domain Name System. A naming service used to identify servers connected to the Internet. Every domain name is unique. DNS servers maintain a database of names and associated IP addresses, so Web users can browse to a domain name and reach the server at the associated IP address.
Encryption	A method of converting all of the information that is transmitted over a wireless network into a form that cannot be read by unauthorized persons. Encryption provides additional data security in 802.11b wireless networks.
Ethernet	Ethernet is defined by the IEEE 802.3 standard. Ethernet networks operate at 10 Mbps using CSMA/CD (Carrier-Sense Multiple Access with Collision Detection) to run over 10BaseT cables.
Ethernet address (MAC address)	Each computer on an Ethernet network has its own unique, pre-programmed Media Access Control (MAC) address. This 12-digit hexadecimal address is encoded into the circuitry of the computer's network adapter when it is manufactured. Other devices on the network use this address to identify the computer. This address is not the same as the IP address that is assigned to computers on TCP/IP networks. On these networks, the IP address is associated with the MAC address to enable network communication.
Firewall	Software on a network gateway server that protects the computers on a private network from the Internet. The

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firewall can also control what Internet resources local network computers can access.

Gateway A network device that provides a bridge or entrance to another network. For example, a residential gateway can allow a wireless network to connect to an Ethernet network.

Hexadecimal A base-16 number system. That is, a numbering system that counts 16 base unit numbers before adding a new digit. Hexadecimal numbers use 0-9 and then the letters A-F. For example, the letter A in hexadecimal represents 10 in decimal, F is 15 in decimal, and the hexadecimal number 10 is 16 in decimal.

Hub The central connection point for network cables that connect to computers or other devices on a network. With an 8-port hub, you can connect cables to 8 computers

Infrastructure Mode A software setting for 802.11b wireless adapters allowing connectivity to a central device, either a gateway or an access point. The gateway or access point handles the communication between PCs and often manages the Internet connection. See Ad Hoc and Access Point.

IEEE The Institute of Electrical and Electronics Engineers.

ISP Internet Service Provider

An organization that provides access to the Internet. Users connect with the ISP using a conventional or broadband modem.

LAN Local Area Network

A computer network that serves users within a defined location. The benefits include the sharing of Internet access, files and equipment like printers and storage devices. LANs use Ethernet cabling (10BaseT), existing

phone lines or radio waves to transmit data between the PCs. LANs include home and small-business networks.

Mbps   Megabits per second, a measure of data transmission speed.

NAT   Network Address Translation. A service that translates your local private IP addresses to a public Internet address so your privately addressed network can connect to the public Internet. NAT simplifies network setup and adds a measure of security to your network because your private network addresses are never seen on the Internet.

Peer-to-Peer Mode   See Ad Hoc Mode.

Profiles (Network Profiles)   A collection of software settings and network identification information that is unique for each network.

Protocols (Network Protocols)   Define the rules for all aspects of data communication, just like a written language uses rules for spelling, sentence structure, and so on. Protocols describe the way data is organized, transmitted and received. The TCP/IP protocol is one of the most common.

Resources (Network resources)   Software or hardware shared by the users of a network. Resources can include software applications, documents, digital pictures and music, games, numeric data, and devices such as printers, modems and disk drives.

Roaming   Moving seamlessly from one access point coverage area to another with no loss in connectivity.

SSID   Service Set Identifier. To communicate with each other, all wireless devices on the same network must use the same SSID. The SSID allows two or more wireless

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networks to function in the same vicinity without interfering with each other. The SSID can be a word or a combination of letters and numbers.

Subnet   A distinct separate part of a computer network. Often, computers in one building or location form a subnet. Dividing a large network into subnets isolates network traffic, enhances network performance, and provides a mechanism for organizing the network in a logical manner. You divide a network into subnets by connecting network segments with a router. On a TCP/IP network, IP routers connect subnets together.

Subnet mask   A mask used to determine the subnet for an IP address. IP addresses have two parts: a subnet address and the computer address. The subnet mask determines what part of the IP address is the subnet address. For example, if you have a subnet mask of 255.255.0.0, the first two numbers in your IP address are the subnet address. The last two numbers are your computer's address on the local network. Your computer uses the subnet mask to decide whether to send data to another computer on the local network, or to send the data to the address specified by your default gateway. If the subnet part of the address you are sending data to matches your IP address, then your computer tries to send the data on the local network. If these do not match, then the computer you are sending data to is on another subnet (probably on the Internet), so your computer sends the data to your default gateway, and the gateway forwards it on to the Internet.

Switch   Similar to a hub, a switch is a central connection point for network cables that connect to computers or other network devices. However, when two devices communicate through a switch, it sends signals directly from one port to the other port, instead of transmitting to all ports, like a hub does. You can connect a computer or a hub to each port on a switch.

TCP/IP Transmission Control Protocol/Internet Protocol. The protocol that computers use to communicate over the Internet. TCP determines how a computer breaks up data into small units, called packets, to be sent to another computer, and how the receiving computer reassembles the packets into a single file. IP determines how the packets are routed across the Internet.

UPnP Universal Plug and Play (UPnP) is a standard that uses Internet and Web protocols to enable devices such as PCs, peripherals, and wireless devices to be plugged into a network and automatically detect each other. With UPnP enabled, when you add the gateway into the network, the device configures itself for Internet access.

USB Universal Serial Bus

A peripheral bus standard that enables external devices to attach to a PC while the PC is powered on. The flat-shaped USB connector plugs into a similarly shaped socket on the PC.

VPN Virtual Private Network. A VPN is a type of computer network that functions like a private network but uses public phone lines to carry data. VPNs use special communication protocols and security techniques to maintain privacy at a lower cost than is possible with dedicated phone lines. The VPN software encrypts data before sending it across the Internet to the other local network. This keeps the data and the two local networks secure, but lets them form a virtual network that includes computers in two separate locations.

Chapter 7
Specifications

The following technical specifications are for reference purposes only.

Technical specifications

Actual product performance and compliance with local telecommunications regulations may vary from country to country. Intel Corporation only ships products that are type approved in the destination country.

Specification	Description
Interoperability	Wireless: IEEE 802.11b, Wi-Fi* certified
	Wired: IEEE 802.3 (Ethernet)
Data rate	Up to 11 Mbps wireless
	Up to 100 Mbps wired
Wireless Frequency	2.400 ~ 2.4835 GHz (subject to local regulations)
	Direct Sequence Spread Spectrum
Security	64-bit and 128-bit (WEP) encryption
	NAT firewall
	Access Control Lists
	Kensington Lock capabilities
Connections	Supports up to 254 unique addresses.
	Up to 32 simultaneous connections (16 wireless and 16 wired)
Range	Open space: up to 600 feet
	Indoors: up to 300 feet
Ports	Internet port: One 10 Mbps RJ-45 connection for broadband modem
	LAN ports: Four 10/100 Mbps RJ-45 connections with auto-crossover
Antennas (two)	External, adjustable, high -gain (1.5dBm) with swivel neck adjustment
	Internal, integrated F-type
LED Indicators	Power, System status, Broadband (Internet) Link, Wireless Link and Activity, Ethernet (four)

Specification	Description
Roaming Functions	Gateway and Access Point configurations NAT, DHCP server and client, PPPoE Client, VPN pass-through
Network Protocol	TCP/IP, IPX/SPX, NetBEUI
Mounting	Back panel allows mounting to ceiling
Power adapter	Input: AC 100-240V 50-60 Hz, 0.35A

Output: CD 5V, 2.0A |

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Chapter 8
Regulatory Compliance Statements

This chapter contains the following agency notices:

- Safety compliance statement
- Emissions compliance statements
- Canadian compliance statements
- European Union compliance statements

Safety compliance statement

This product complies with the safety requirements for Information Technology Equipment, and is Listed by Underwriters Laboratories, Inc. to UL 60950 and CSA C22.2 No. 950 for the U.S. and Canada.

Emissions compliance statements

This product has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment.

This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, 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 can be determined by turning this equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Change the direction of the radio or TV antenna.
• To the extent possible, relocate the radio, TV, or other receiver away from the product.
• Plug the host computer into a different electrical outlet so that the computer and the radio or TV are on different electrical branch circuits.

This device complies with 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.

⚠ **CAUTION**

IF YOU MAKE ANY MODIFICATION TO THE EQUIPMENT NOT EXPRESSLY APPROVED BY INTEL, YOU COULD VOID YOUR AUTHORITY TO OPERATE THE EQUIPMENT.

RF exposure compliance statements

Notice: Install or position the Intel® Wireless Gateway II Model 1210 so that the antenna is at least 8 inches (20 cm.) from the user or other persons. Failure to locate the antenna at this minimum distance may result in exceeding the FCC limits for human exposure to RF (radio frequency) energy. Also, do not operate in conjunction with any other antenna or transmitters.

Canadian compliance statements

This Class B digital apparatus complies with Canadian ICES-003.

[French] Cet appereil numérique de la classe B est conforme à la norme NMB-003 du Canada.

This equipment complies with Canada 210. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

European Union compliance statements

We, Intel Corporation, declare under our sole responsibility that the product:

Intel Wireless Gateway II Model 1210

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is in conformity with all applicable essential requirements necessary for CE marking, following the provisions of the European Council Directive 89/336/EEC (EMC), Council Directive 73/23/EEC (Safety/Low Voltage Directive), and Council Directive 1999/5/EC (Radio Equipment and Telecommunications Terminal Equipment).

The product is for distribution within all member states of the EU with the following restriction:

France limited to 2446.5-2483.5 MHz indoor use.

CE ⚠

The product is properly CE marked demonstrating this conformity.

English This product follows the provisions of the European Directive 1999/5/EC.

Dansk Dette produkt er i overensstemmelse med det europæiske direktiv 1999/5/EC

Dutch Dit product is in navolging van de bepalingen van Europees Directief 1999/5/EC.

Suomi Tämä tuote noudattaa EU-direktiivin 1999/5/EC määräyksiä.

Français Ce produit est conforme aux exigences de la Directive Européenne 1999/5/EC.

Deutsch Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 1999/5/EC

Icelandic Þessi vara stenst reglugerð Evrópska Efnahags Bandalagsins númer 1999/5/EC

Italiano Questo prodotto è conforme alla Direttiva Europea 1999/5/EC.

Norsk Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 1999/5/EC.

Portuguese Este produto cumpre com as normas da Diretiva Européia 1999/5/EC.

Español Este producto cumple con las normas del Directivo Europeo 1999/5/EC.

Svenska Denna produkt har tillverkats i enlighet med EG-direktiv 1999/5/EC.

Product Ecology Statements

The following information is provided to address worldwide product ecology concerns and regulations.

Disposal Considerations This product contains the following materials that may be regulated upon disposal: lead solder on the printed wiring board assemblies.

Intel encourages its customers to recycle its products and their components (e.g. batteries, circuit boards, plastic enclosures, etc.) whenever possible. In the U.S., a list of recyclers in your area can be found at: http://www.eiae.org. In the absence of a viable recycling option, products and their components must be disposed of in accordance with all applicable local environmental regulations.

Disassembly Instructions This section is provided to aid in the disassembly and recycling of this Intel product. Only technically qualified persons should disassemble this product. Notice, no user serviceable parts inside.

Tools needed:

- Small flathead screwdriver
- Small phillips head screwdriver

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Disassembly steps:

1. Remove the label located at the bottom of the unit – to access the single phillips head screw.
2. Remove the single phillips head screw located at the bottom of the unit.
3. Locate two slots on the right-side of the unit.
4. By inserting a small flathead screwdriver first into one of the slots then the other, slowly pry the top cover off the unit.
5. You can now recycle the plastic case as well as the internal circuit boards.

Chapter 9
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