



Dell™ Wireless 4350 Small Network Access Point

User's Guide

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Introduction: Dell™ Wireless 4350 Small Network Access Point User's Guide

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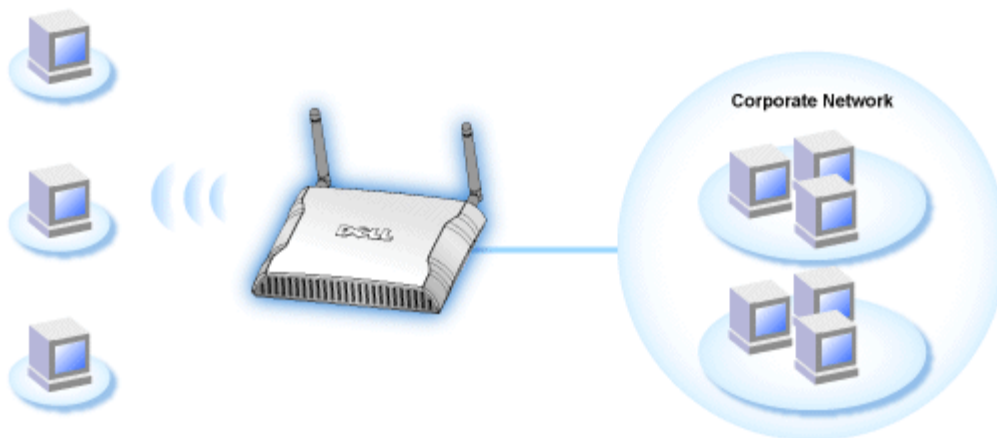
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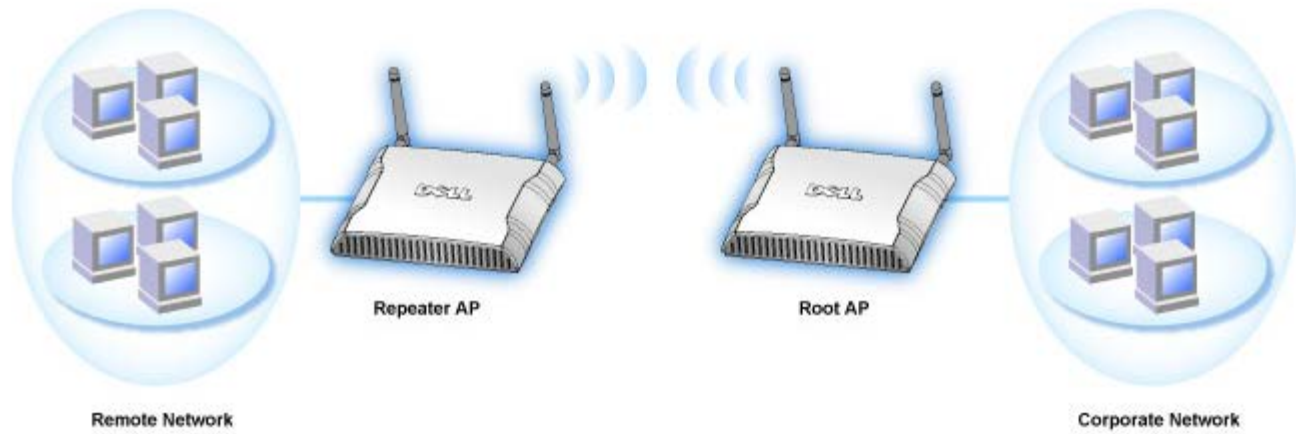
Overview

The Dell Wireless 4350 Small Network Access Point is an 802.11b/g wireless access point that allows wireless clients access to a corporate network. The Access Point can be configured in the following ways:

- **Wireless hub (Access Point):** In this mode the Access Point connects wireless computers to the corporate network.



- **Wireless repeater:** In this mode the Access Point is able to extend the wireless range of a root Access Point that is on the corporate network to remote wireless computers.



The Dell Wireless 4350 Small Network Access Point supports up to 64 wireless clients. It runs at speeds up to 54 **Megabits per second** (Mbps), and the LAN (wired) port runs at 10/100 Mbps. The maximum distance between the Access Point and each Wireless computer is 300 feet. This distance may be less depending on your environment.

By default, the Dell Wireless 4350 Small Network Access Point provides the following functionality:

- a wireless access point using **wireless** as the wireless network name.
- a bridge to an Ethernet hub.

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Wireless Networking Overview: Dell™ Wireless 4350 Small Network Access Point User's Guide

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Wireless Local Area Network (WLAN)

A **Local Area Network** (LAN) is a network in one location. Users at that location can share files, printers, and other services. In a LAN, a networked computer that requests services is called a client. A **Wireless Local Area Network** (WLAN) is a type of LAN that uses high frequency radio waves rather than wires to communicate and transmit data among the network clients and devices. It is a flexible data communication system implemented as an extension to, or as an alternative for, a wired LAN.

In a WLAN, wireless adapters are installed in clients, also called wireless clients. The adapter allows the wireless client to communicate with the WLAN without cables. Instead, wireless clients send and receive information through a path in the air called a channel.

The standards for a WLAN are based on the IEEE 802.11b standard and IEEE 802.11g standard. All Dell 802.11b/g-compliant devices interoperate with other 802.11b/g-compliant wireless devices from other vendors. The WiFi certification logo indicates that the wireless device has been tested by an independent organization.

A wireless client operates in either infrastructure mode or peer-to-peer mode.

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Identifying a WLAN

An ESSID and BSSID are both **Service Set Identifiers** (SSID) that identify and control the wireless client's access to a given WLAN. The SSID is sometimes referred to as the network name. The SSID indicates what WLAN you are referring to. In most cases, the user interface displays the SSID.

When installing an access point or wireless adapter in a wireless client, the installation program asks you to enter the SSID. Dell cannot provide you with this information, as it is specific to your network; but you may choose to use the default SSID, **wireless**, for your Dell Wireless 4350 Small Network Access Point. All wireless clients and access points in a WLAN must use the same network name.

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Encryption

In a WLAN, wireless clients and access points send and receive information through the air. Without implementing security, it is possible for an unauthorized person to intercept the information.


A common way of implementing security and protecting information is encryption. Encryption applies a set of instructions, called an algorithm, to information. The instructions combine the plain or clear text of information with a sequence of hexadecimal numbers, called an encryption key.

Before transmitting information over the airwaves, the wireless client or access point encrypts or scrambles the information. The access point or wireless client receiving the information uses the same key to decrypt or unscramble the information. The information is only readable to WLAN devices that have the correct encryption key. The longer the key is, the stronger the encryption.

The Dell Wireless 4350 Small Network Access Point supports both **Wired Equivalent Privacy (WEP)** and **Wi-Fi Protected Access (WPA)**.

WEP

WEP (Wired Equivalent Privacy) provides a way of creating an encrypted key that is shared between a wireless client (such as a notebook with a wireless PC card) and the router. In the Dell Wireless 4350 Small Network Access Point, WEP is an optional feature that can be enabled or disabled. When WEP encryption is enabled, you must set the WEP key in the client to match the WEP key used by the access point because you can **ONLY** connect to access points that have a matching WEP Key. The Dell Wireless 4350 Small Network Access Point Setup Wizard allows the user to gracefully configure WEP encryption on both the access point and wireless clients.

 **NOTE:** It is better to change keys frequently. The same algorithm is used for all the communications that should be protected. If the same key is used, the same message will give exactly the same cipher text. Then, it will be possible for an eavesdropper to break the encrypted data. For this reason, it is strongly recommended to change keys often.

There are two WEP encryption methods:

- 40(64)-bit Encryption
- 104(128)-bit Encryption

40-bit and 64-bit encryption are identical. Some vendors use the term 40-bit; others use 64-bit. A wireless device that claims to have 40-bit encryption interoperates with a device that claims to have 64-bit encryption; the same is true for the reverse. A 40(64)-bit key consists of 10 hexadecimal numbers, arrayed as follows:

Key #1: 1011121314

Key #2: 2021222324

Key #3: 3031323334

Key #4: 4041424344

A 104(128)-bit key has several trillion times as many possible combinations than a 40(64)-bit key. It consists of 26 hexadecimal numbers, arrayed as follows:

Key (#1): 101112131415161718191A1B1C


All wireless clients and access points in a WLAN must use the same encryption method and key. The following two examples stress how important this point is.

Example 1

The encryption method for an access point is 40(64)-bit. The method for a wireless client is 104(128)-bit encryption. The client and access point cannot communicate with each other, even though the selected key is the same. To resolve this problem, set the access point to use 104(128)-bit encryption.

Example 2

The encryption method is the same for the access point and wireless client. You select key 1 for the access point and key 2 for the wireless client. The wireless client cannot communicate with the WLAN. To resolve this problem, select key 1 for the wireless client.

 **NOTE:** Use the same key and encryption method for the wireless devices in the WLAN. Otherwise, they cannot communicate

with each other.

The Dell Wireless 4350 Small Network Access Point uses either hexadecimal digits or ASCII characters to create encryption keys. Hexadecimal digits include the numbers 0 to 9 and the letters A to F. For example, the decimal number 15 is represented as F in the hexadecimal numbering system.

ASCII is the acronym for the American Standard Code for Information Interchange. Pronounced *ask-ee*, ASCII is a code for representing English characters as numbers, with each letter assigned a number from 0 to 127. For example, the ASCII code for uppercase M is 77. Most computers use ASCII codes to represent text, which makes it possible to transfer data from one computer to another.

WPA

WPA (Wi-Fi Protected Access) is an upgrade to the WEP standard for securing your wireless network. WPA is derived from and will be forward-compatible with the future IEEE 802.11i standard. It provides improved data encryption and user authentication.

To enhance the level of security, WPA uses **Temporal Key Integrity Protocol** (TKIP) encryption to address the vulnerabilities of the static keys used in WEP. TKIP includes four algorithms: **message integrity check** (MIC), to protect packets from tampering; **Per-Packet Key** (PPK) hashing, to prevent weak key attacks; extended **initialization vector** (IV), to reduce IV reuse and the possibility that a hacker will collect sufficient packets to crack the encryption; and a re-keying mechanism, to change the temporal key dynamically. TKIP is the most commonly used encryption method; however, if your wireless clients do not support TKIP, the Wireless 4350 also supports **Advanced Encryption Security** (AES) encryption. AES will replace 802.11's RC4-based encryption under the 802.11i specification. AES, the gold-standard encryption algorithm, provides maximum security for wireless network.

For user authentication, WPA adopts an authentication scheme through 802.1x. 802.1x provides a framework for user authentication and a key distribution management method. 802.1x consists of three main elements: an Authentication Server (typically a RADIUS server), WPA-enabled router or AP (called Authenticator), and a WPA-enabled client (called Supplicant). 802.1x ensures only authorized users can access the network. The 802.1x protocols supported by the Dell Wireless 4350 Small Network Access Point are PEAP, TTLS & TLS.

In enterprises, WPA will be used in conjunction with both a wireless router and authentication server. In a **Small Office/Home Office** (SOHO) environment, where there is no authentication server, users can use **pre-shared key** (PSK) mode in place of the authentication server.

The Dell Wireless 4350 Small Network Access Point offers both WPA running in PSK mode and WPA with 802.1X authentication. The mutual authentication and improved encryption technology of WPA allows wireless communication to achieve greater security.

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Automatic Rate Selection and Rate Scaling

In 802.11g, wireless network adapters and access points can transmit data at one of the following rates: 54, 48, 36, 24, 18, 12, 9, or 6 Mbps. In 802.11b, the data can be transmitted at a rate of 11, 5.5, 2, or 1 Mbps. As the distance between an adapter and access point increases or decreases, the data rate automatically changes. Other factors, like interference, also affect the data rate. The Dell Wireless 4350 Small Network Access Point uses automatic rate selection and rate scaling to determine the most efficient rate of communication. Rate scaling maintains optimal communication between wireless clients and the WLAN.

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A Look at the Hardware: Dell™ Wireless 4350 Small Network Access Point

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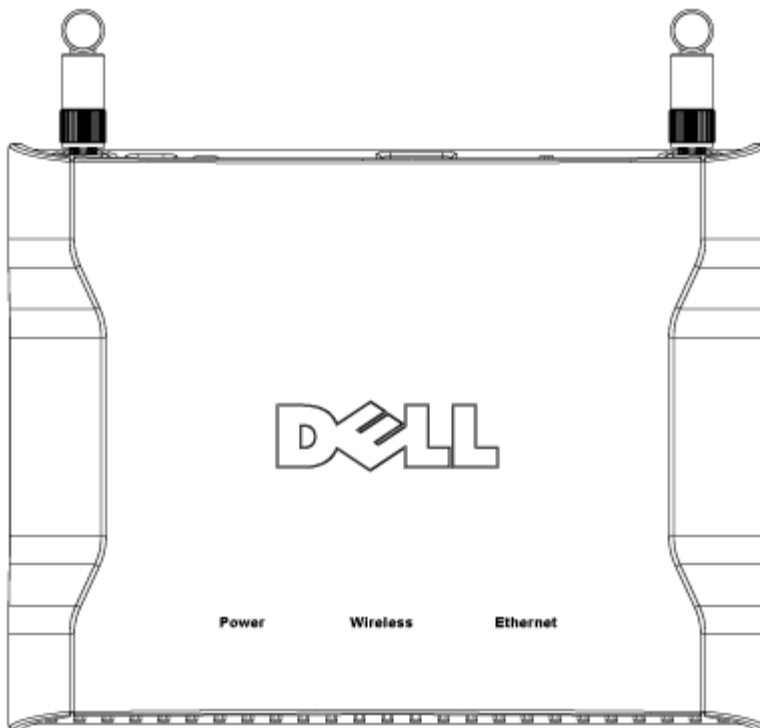
[▶ Front Panel](#)

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Front Panel

The Dell Wireless 4350 Small Network Access Point has three **Light Emitting Diodes** (LEDs), or link lights, on its front side. The following table defines the behaviour for each LED:

Front Panel

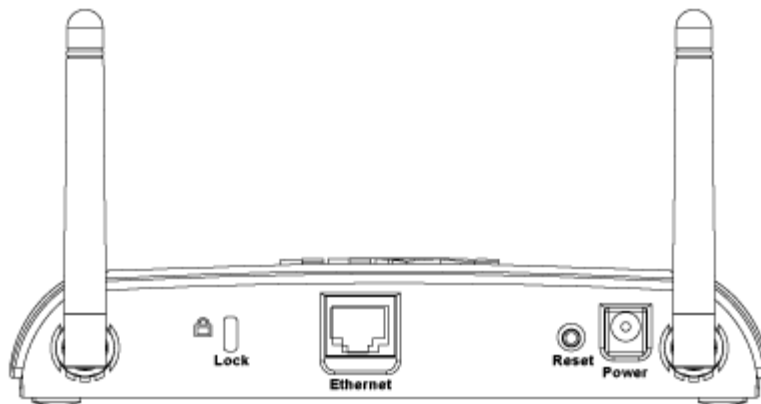


LED	Represents	Activity
Power	Power	The Power LED will light up green when the device is powered on and ready for use. It will blink when the device is powering up or when it is reset
Wireless	Wireless LAN	The LED alternates between on and off when wireless clients are attached. It will blink when there is data activity on the wireless network. The rate of blinking will vary with the rate of data transfer. It turns off when no wireless clients are associated with the Dell Wireless 4350 Small Network Access Point.
Ethernet	Intranet	A steady green light indicates the connection is active, and blinks with data activity.

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Connector	Description
Lock	This accepts locking devices for protecting the Dell Wireless 4350 from theft.
Reset	Use an object, such as a paper clip, to press the button for at least 5 seconds. The Power LED will be off for a short time and then light up again. You can then release the button to reset the device to its factory-default settings.
Ethernet	This accepts an RJ-45 connector for network cabling. *Also accepts power input from Ethernet port (Power Over Ethernet)
Power	Connect the power adapter to this Power port, and then plug the other end of the power cable into a power outlet.

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Configuration of the Access Point



NOTE: It is recommended that you configure the Dell Wireless 4350 Small Network Access Point with the Setup Wizard provided on the Dell Wireless 4350 Small Network Access Point CD.

NOTE: Advanced users can configure the Dell Wireless 4350 Small Network Access Point with the web-based configuration utility which can be accessed by browsing to the IP address of the access point.

The Setup Wizard allows the user to configure the following parameters on the Dell Wireless 4350 Small Network Access Point (a) SSID, (b) wireless channel of operation, (c) WEP encryption (WEP encryption is optional) and (d) Static IP address.

In order to use the Setup Wizard to configure the Dell Wireless 4350 Small Network Access Point, the access point must be directly connected via an ethernet cable to the computer that is running the Setup Wizard. In this configuration, the Dell Wireless 4350 Small Network Access Point will have a default static IP address of 192.168.2.2 and the computer will have to be assigned a static IP address in the same subnet.

[How to assign a static IP address to the network card of your computer](#)

This section contains information on how to assign a static IP address to the network card of your computer. This is required as part of the access point configuration.

How to assign a static IP address to the network card of your computer

1. On your computer, click **Start --> Settings --> Control Panel**.
2. Double click the **Network Connections** icon.
3. Right click the **Local Area Connection** icon.
4. Select **Properties** from the pull-down menu.
5. Click **Internet Protocol (TCP/IP)** and then **Properties**.

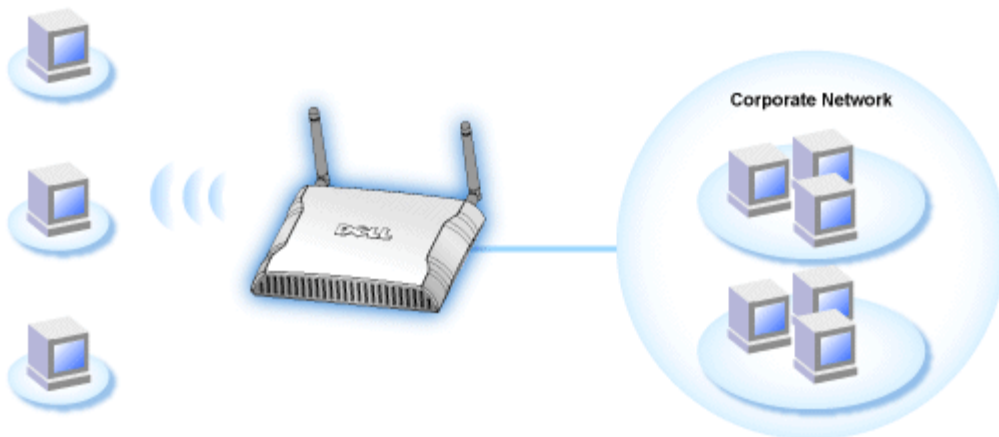
6. Select **Use the following IP address** in the **Internet Protocol (TCP/IP) Properties** window.
7. Input your **IP address** and **Subnet mask** in the appropriate fields. (The IP addresses on your network must be within the same range (e.g. 192.168.2.3 or 192.168.2.4). The subnet mask must be the same for all computers on the network (i.e. 255.255.255.0).
8. Click **OK**.

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Connecting the Access Point to the network



NOTE: It is recommended that you follow the instructions in the Quick Start Guide on connecting the Dell Wireless 4350 Small Network Access Point to the network.

The following are the relevant steps on connecting the access point to your network.

1. Find the optimum location for your Access Point. The Access Point should be located at the center of your wireless network, ideally with line of sight to all your mobile stations.
2. Fix the orientation of the antennas such that both antennas are perpendicular to the ground and parallel to each other.
3. Connect the included Ethernet cable to the Access Point and the other end of the Ethernet cable to a switch or hub.
4. Connect the power adapter to the Access Point's power port.

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How to obtain the IP Address of the Access Point

To browse to the Dell Wireless 4350 Small Network Access Point's web-based configuration tool, you must know the access point's IP address. The IP address of the access point can be either a static IP address or a dynamically assigned IP address. The default configuration for the access point is with a static IP address of 192.168.2.2.

If the access point has been configured as a DHCP client, it will be dynamically assigned a IP address. In order to determine what this IP address is, use the following method.

1. Find the Media Access Control (MAC) address of the wired port of the access point. This information can be derived from the product label which is located on the underside of the access point .
2. The product label contains the MAC address of the WLAN port of the access point. The MAC address of the wired port is calculated by subtracting 0x1H from this address (i.e. If the MAC address on the product label is 00:90:4b:3c:12:10, then the MAC address of the wired port is $00:90:4b:3c:12:10 - 0x1 = 00:90:4b:3c:12:0f$)
3. Provide your organisation's network administrator with your access point's wired port MAC address (calculated in step 2).
4. The network administrator will query the DHCP server using the MAC address to identify the IP address of the access point.

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Setting Wireless Encryption in Your Access Point

Without wireless security options configured in your network, an eavesdropper within your wireless range may be able to access the network and the data that is being transmitted over it. The Dell Wireless 4350 Small Network Access Point provides **Wired Equivalent Privacy (WEP)** and **Wi-Fi Protected Access (WPA)** encryption for wireless security.

WPA is an upgrade to the WEP standard for securing your wireless network.

If you would like to secure your wireless network using WPA, you must have WPA support for your wireless clients. If you are using a Dell Wireless client, you can check for the availability of a WPA-enabled software update for your wireless client at <http://support.dell.com>. The WPA-802.1x protocols supported by the Dell Wireless 4350 Small Network Access Point are PEAP, TTLS & TLS.

1. Log into the web configuration of your access point using its IP address (for information on obtaining the access point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
2. Type the following text in the **user name** and **password** fields: "admin".
3. Click **Basic Settings** and then select **Wireless Security** from the drop down menu.
4. Click to select **Enable Wireless Security**.
5. Select either **WEP** or **WPA** in the **Network Encryption** list.

WEP

1. Select hexadecimal or ASCII characters as the **Key Format**. You can use either as a string of hexadecimal digits (characters 0 through 9 and A through F) or as ASCII characters (any key on the keyboard).
2. Select an encryption level from the **Key Length** list.
3. Enter four different keys in the **Key1**, **Key2**, **Key3**, and **Key4** fields to store on your router. For 40(64)-bit encryption, enter a 5-character (or 10 hexadecimal digits) WEP key. For 104(128)-bit encryption, enter a 13-character (or 26 hexadecimal digits) WEP key.
4. Select only one key out of the four keys as the **Default Key** for encryption.
5. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
6. Set up the WEP on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help systems, for information on how to set up WEP.

WPA

There are two options for network authentication (a) Pre-shared key or (b) 802.1x. Typically, in enterprises, WPA will be used in conjunction with a RADIUS authentication server. In a Small Office/Home Office (SOHO) environment, where there is no authentication server, users can use **pre-shared key (PSK)** mode in place of the authentication server.


WPA-PSK

1. Choose a key format by selecting either Hexadecimal Digits or ASCII Characters in the **Key Format** field. Hexadecimal digits are numbers 0-9 and/or letters A-F. ASCII characters can be any key on the keyboard.
2. Enter your pre-shared key in the **WPA Pre-Shared Key** field. This key must match the key that is used by each wireless client computer associated to your Access Point

3. The **WPA Group Rekey Interval** value specifies how often the key “rotates” or changes.
4. WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.
5. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
6. Set up WPA-PSK on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help system, for information on how to setup WPA-PSK.

WPA-802.1x

1. WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.
2. The **Radius Server IP**, **Radius Server Port** and **Shared Secret** fields required to be populated with the relevant information. This information regarding the Radius authentication server can be obtained from the network administrator.
3. The **WPA Group Rekey Interval** value specifies how often the key “rotates” or changes.
4. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
5. Set up WPA-802.1x on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help system, for information on how to setup WPA with 802.1x authentication.

 **NOTE:** The Dell Wireless 4350 Small Network Access Point offers three ways to set the wireless encryption in your router. One is the Wireless Security feature in the web configuration tool mentioned here. The other two are either through the Windows-based [control utility](#) or the Setup Wizard.

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Turning Off Broadcast SSID

1. Log into the web configuration of your Access Point using its IP address (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
 2. Type the following text in the **user name** and **password** fields: "admin".
 3. Click **Advanced Settings** and then select **Advanced Wireless** from the drop down menu.
 4. Check **Yes** for **Hide my wireless network**
 5. Click **Submit**.
-

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Setting Up File & Printer Sharing

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Installing the File & Printer Sharing

Follow the instructions below to install the file and printer sharing service.

For Windows 2000 and XP

1. Right-click the **My Network Places** icon (on the desktop in Windows 2000 and in the Start button menu in Windows XP) and left-click to select **Properties** in menu.
 2. Right-click the **Local Area Connection** icon and select **Properties** in the menu.
 3. If you can see the **File and Printer Sharing for Microsoft Networks** item, you can skip this section. The file and printer sharing service had already been installed.
 4. If the **File and Printer Sharing for Microsoft Networks** item is not present, click the **Install** button.
 5. Click to select **Service**, and then click the **Add** button.
 6. Click to select **File and printer sharing for Microsoft Networks**, and then click the **OK** button.
-

Sharing a Printer

To share a printer, perform the following steps on the computer that has the printer you wish to share.

1. Click the **Start** button, click **Settings**, and then click **Printers**.
2. Click the printer you want to share to highlight it.
3. On the **File** menu, click **Properties**.
4. Click the **Sharing** tab, and then click **Shared As**.
5. Follow the on-screen instructions to complete.

The printer is now available for the other computers to use.

Perform the following steps on the other computers:

1. Click the **Start** button, click **Settings**, and then click **Printers**.
2. Double-click the **Add Printer** icon.
3. Click **Next** on the first screen.

4. On the next screen, select **Network printer**, and then click the **Next** button.
 5. Click the **Browse** button and click to select the shared printer.
 6. Follow the on-screen instructions to complete.
-

Sharing files

You can share files on your computer so that users on other computers on your network can view them.

1. In Microsoft Windows Explorer, right-click on the file, folder, or drive letter you wish to share and left-click **Sharing**.
 2. Click **Share As**.
 3. Type a name for the share and follow the on-screen instructions to complete.
-

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How to setup wireless clients to connect to the Access Point

NOTE: It is recommended that you connect wireless clients to the Dell Wireless 4350 Small Network Access Point using the Setup Wizard provided on the Dell Wireless 4350 Small Network Access Point CD.

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Overview

Factory Default Settings: Your Wireless 4350 Small Network Access Point came with [factory default settings](#) that should work for the majority of the network usage scenarios. However, there are cases where your network environment may require a different access point configuration.

Setup Wizard: Setup Wizard is a Windows-based software program included on your Dell Wireless 4350 Small Network Access Point CD. You can use this program to 1) configure the access point before connecting it to the network, 2) add wireless clients to the network, 3) install the Control Utility on your computer and 4) provide links to the user's guide and the [Dell support website](#).

Control Utility: Control Utility is a Windows-based software program included on your Dell Wireless 4350 Small Network Access Point CD. This utility can be installed on your computer by choosing the Install Control Utility option in the Setup Wizard. It provides you with a useful configuration tool to manage your Dell Wireless 4350 Small Network Access Point. Refer to the section [Control Utility](#) for detailed information.

Web-Based Configuration Tool: The web-based configuration tool is for advanced configuration of the Dell Wireless 4350 Small Network Access Point. It is a tool provided inside the access point which can be accessed via the web browser on your computer. This tool includes every basic and advanced configuration option for the Dell Wireless 4350 Small Network Access Point. For instance, you can enable multiple virtual AP's or disable your wireless network.

 **NOTE:** The **Setup Wizard** and **Control Utility** must be run on Windows 2000 or Windows XP computers. Microsoft Internet Explorer 4.0 or higher or Netscape 4.0 or higher must be used for the web-based configuration tool.

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Factory Default Settings: Dell™ Wireless 4350 Access Network Access Point User's Guide

Dell pre-configures the Dell Wireless 4350 Small Network Access Point with the following settings:

NOTE: If you lose track of the device settings, you can reset the router by pushing the reset button to restore these settings back to your router.

Setting	Default
User Name	admin
Password	admin
AP Host Name	Dell_4350_AP
IP Address	Static IP address of 192.168.2.2
Subnet Mask	255.255.255.0
ESSID (wireless network name)	wireless
Channel	auto
Encryption	No Encryption
Guest Mode	Disabled

NOTE: Your Dell Wireless 4350 Small Network Access Point comes with factory default settings that should work for the majority of the network usage scenarios. However, there are cases where your network environment may require a different configuration.

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Setup Wizard: Dell™ Wireless 4350 Small Network Access Point User's Guide

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Introduction

The Setup Wizard is an easy-to-use program included on your Dell Wireless 4350 Small Network Access Point CD. It provides simplified steps for configuring the Access Point. The Setup Wizard displays a series of graphical illustrations on how to connect the Access Point to your computer. It presents the user with the option of changing wireless parameters (such as SSID, channel number, IP address) and enabling WEP security. Finally it applies these settings to your access point and validates its configuration. At this point the access point is ready to be connected to the network. If the configuration cannot be completed successfully, the Setup Wizard will display troubleshooting instructions to guide you through the configuration process.

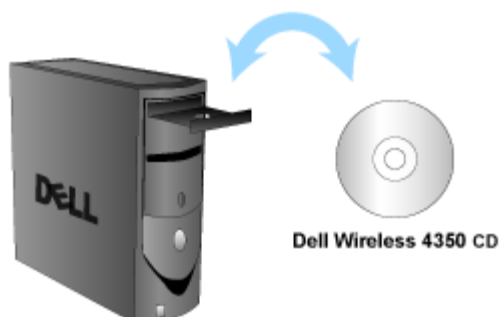
In addition, the Setup Wizard also supports the installation of the Control Utility and provides links to the user's guide on the Dell Wireless 4350 Small Network Access Point CD and the Dell support website.

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Launch the Setup Wizard

To run the Setup Wizard, perform the following steps:

Insert the CD



1. Insert the **Dell Wireless 4350 Small Network Access Point CD** into the CD drive of a computer. Your CD should automatically launch the Setup Wizard. If it does not, complete the following steps to start the Wizard.
 - a. Click the **Start** button, and then click **Run**.
 - b. Type the following text in the **Open:** field:

X:\setup.exe

where **X** is the drive letter of your CD drive.

Once the Setup Wizard has been launched, you will be guided through a series of windows. These windows are illustrated below along with an explanation on their functionalities.

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Setup Wizard Screens

Welcome Menu

This menu offers several options to select from.

- **AP Configuration**

Begin connecting your access point to the network, it's wireless and security parameters need to be configured.

- **Connect Wireless Computer**

Configure wireless computers to connect to the wireless network.

- **Install Control Utility**

Install the Control Utility on a computer

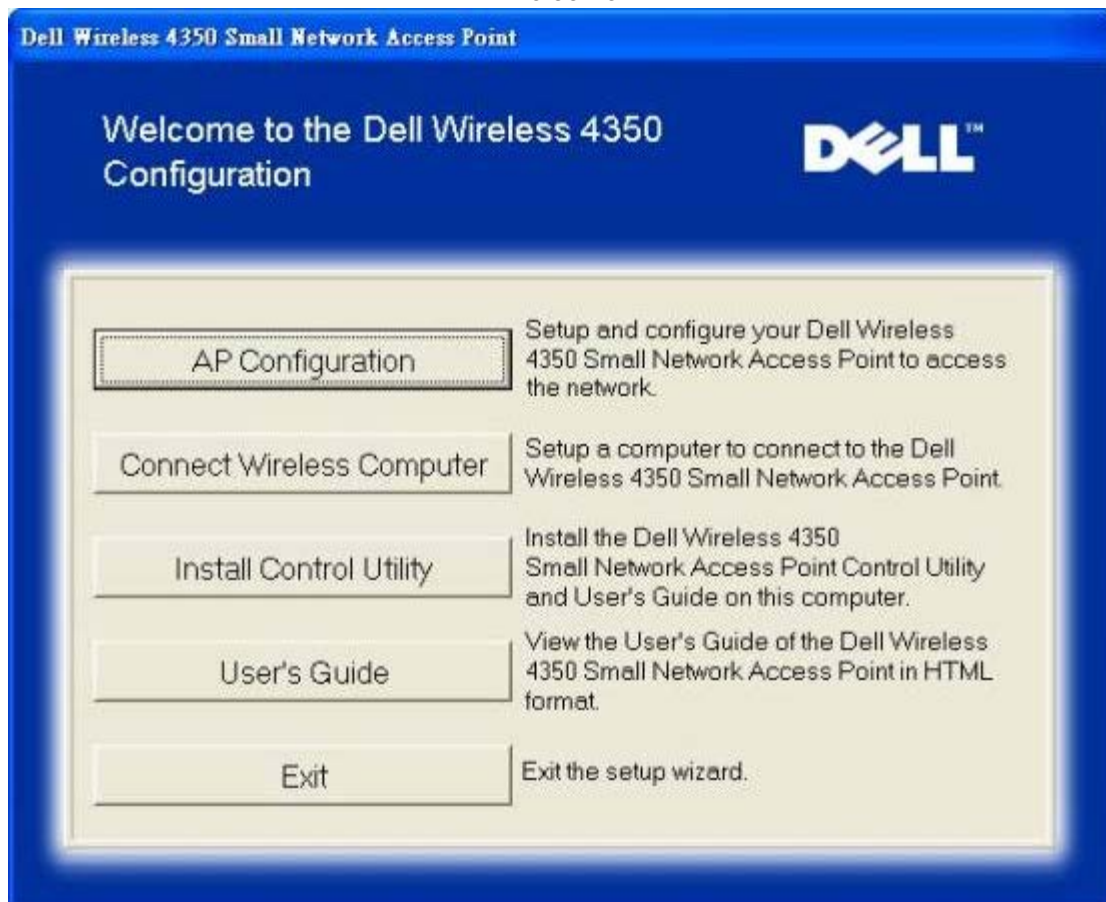
- **User's Guide**

View the user's guide (this document)

- **Exit**

End the Setup Wizard

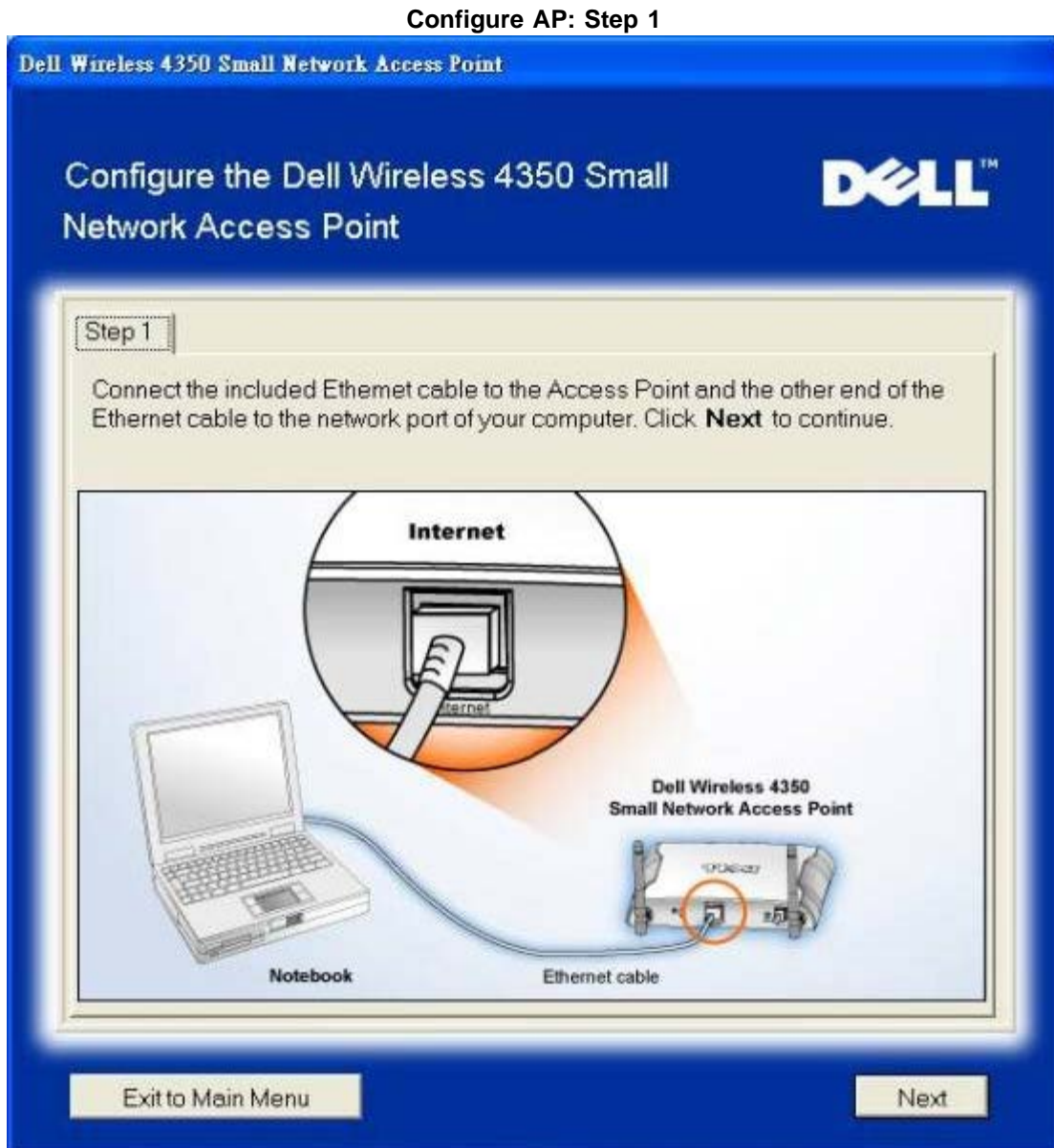
Welcome



AP Configuration

Click **AP Configuration** if you want to configure the access point before connecting it to the network and follow the steps described below.

Step 1 illustrates how the computer is to be connected to the Dell Wireless 4350 Small Network Access Point.



Step 2 illustrates how the Dell Wireless 4350 Small Network Access Point is connected to the power supply.

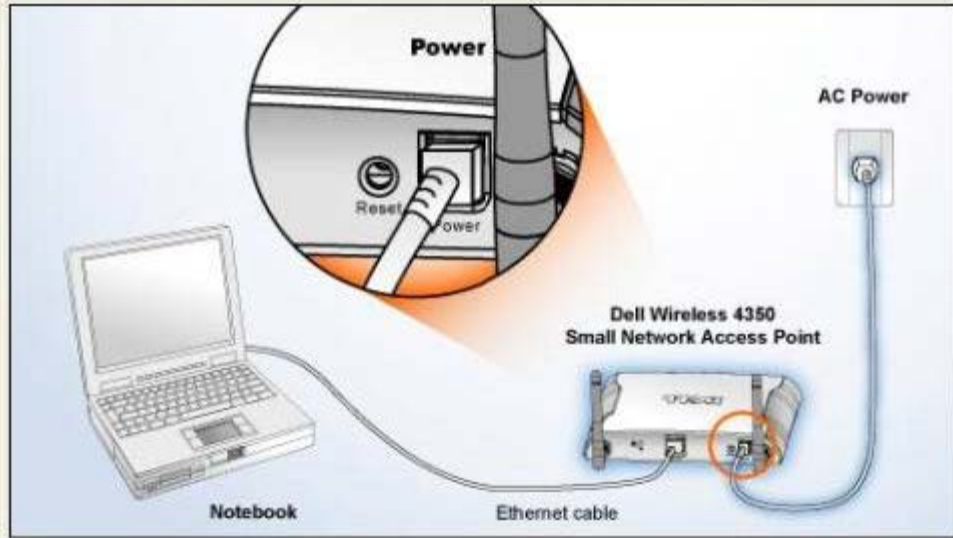
Configure AP: Step 2

Configure the Dell Wireless 4350 Small Network Access Point



Step 2

Connect the power adapter to the Access Point's power port. Click **Next** to continue.



Exit to Main Menu

Back

Next

Step 3 informs the user that you need to assign your computer a static IP address within the same range as the access point. .

Configure AP: Step 3

Configure the Dell Wireless 4350 Small Network Access Point



Step 3

The default IP address for the Dell Wireless 4350 Small Network Access Point is: 192.168.2.1 with a subnet mask of 255.255.255.0.

You will need to assign your computer a static IP address within the same range as the Dell Wireless 4350 Small business Access Point in order to configure the Access Point.

See the User Guide on the CD if you need assistance in assigning a static IP address to the network card of your computer.

Click **Next** to proceed when your computer has been configured with a static IP address.

Exit to Main Menu

Back

Next

Step 4 gives the user the option to change the wireless network's SSID and channel number.

Configure AP: Step 4

Configure the Dell Wireless 4350 Small Network Access Point



Step 4

Enter in the wireless network's SSID name and channel number to be used for the Access Point. Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

Channel:

This is the channel on which your wireless network is operating and should be the same for all Access Points on your network.

Exit to Main Menu

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Next

Step 5 gives the user the option to enable WEP wireless encryption and to specify the WEP encryption key values.

Configure AP: Step 5

Configure the Dell Wireless 4350 Small Network Access Point



Step 5

If you wish to use wireless encryption, enable it here and enter the WEP encryption key values. Click **Next** to continue.

WEP: Enabled Disabled

The options for WEP encryption are 64Bit and 128Bit. A higher level of encryption equals greater security.

WEP Encryption:

The value of the key can be entered using letters "A" through "F" and/or numbers "0" through "9".

Key:

Exit to Main Menu

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Next

Step 6 gives the user the option to either change the static IP address or set the access point as a DHCP client.

Configure AP: Step 6

Configure the Dell Wireless 4350 Small Network Access Point



Step 6

Select the appropriate option to change the static IP address of your Access Point or configure it as a DHCP client.

Static IP DHCP

Static IP Address . . .

Subnet Mask . . .

Exit to Main Menu

Back

Next

Step 7 informs the user to wait until the Access Point configuration is finished.

Configure AP: Step 7



Step 8 is a congratulations screen if the user has successfully configured the Dell Wireless 4350 Small Network Access Point.

Configure AP: Step 8

Congratulations



You have successfully configured the Dell Wireless 4350 Small Network Access Point.

To view your Access Point's configuration settings, click "View Configuration Settings" You must record these configuration settings as you will need them anytime you want to connect a wireless client to the network.

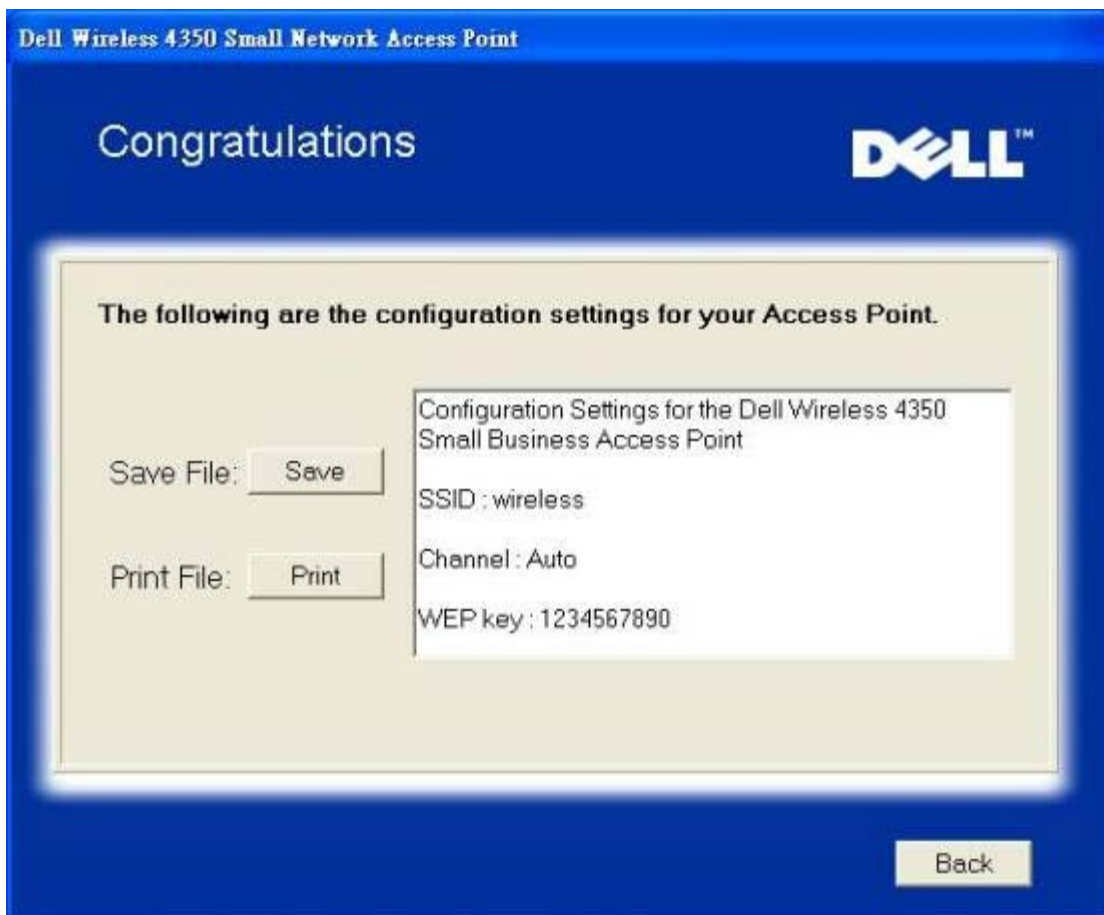
[View Configuration Settings](#)

Power down the Access Point and disconnect the Ethernet cable from your computer to the Access Point and then return to the Quick Start Guide for information on how to connect the Access Point to your network.

[Exit to Main Menu](#)

Step 9 is an optional screen that displays the configuration settings chosen by the user.

Configure AP: Step 9



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Connect Wireless Computer

To connect computers to your wireless network after you have successfully configured and installed the Access Point, place the Dell Wireless 4350 Small Network Access Point CD into each computer and run the Setup Wizard. Click **Connect Wireless Computer** to add each wireless computer to your network.

Setup Wireless Computer - Win XP (No Encryption)

Pressing the **Setup Wireless Computer** button displays instructions to connect computers to the network through a wireless connection.

Step 1 asks the user to enter the SSID of the wireless network that you wish to connect to.

Setup Wireless Computer: Step 1

Setup Wireless Computer



Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

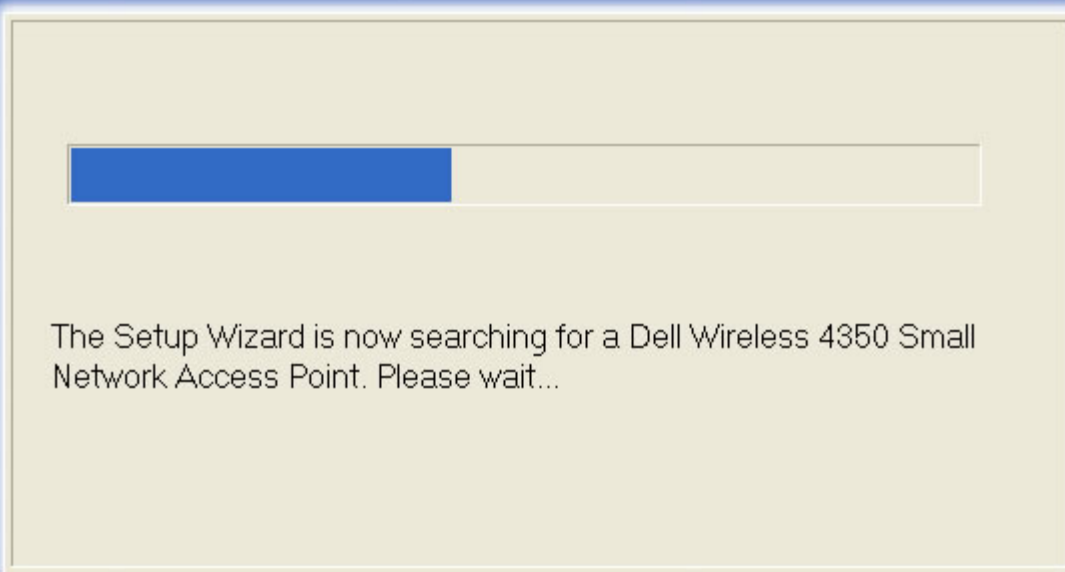
Exit to Main Menu

Next

Step 2 asks the user to wait while the Setup Wizard does a site survey scanning for the requested wireless network.

Setup Wireless Computer: Step 2

Setup Wireless Computer



Cancel

Step 3 guides the user through using the Windows wireless configuration utility to configure the wireless client.

Setup Wireless Computer: Step 3



Setup Wireless Computer

To establish wireless connection with your router, you have to configure the wireless client card on your computer with the same network name (SSID) and wireless security information of your router.

- a. Right-click the **wireless network connections** icon in the notification area (Located at the lower-right corner of the Windows desktop).
- b. Left-click **View Available Wireless Networks**.



Click **Next** to continue.

Exit to Main Menu

Back

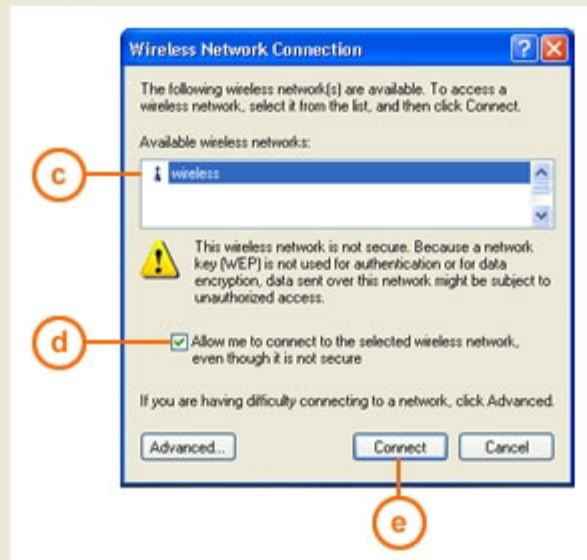
Next

Step 4 guides the user through the remaining steps in using the Windows wireless configuration utility to configure the wireless client.

Setup Wireless Computer: Step 4

Setup Wireless Computer

- c. In the **Available wireless networks** field, click to join the wireless network.
- d. Click **Allow me to connect to the selected wireless network, even though it is not secure.**
- e. Click **Connect.**



Click **Next** to continue.

Exit to Main Menu

Back

Next

Step 5 informs the user to wait while the wireless client configuration is being verified.

Setup Wireless Computer: Step 5

Setup Wireless Computer



The Setup Wizard is now configuring the wireless connection from this computer to the Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 6 informs the user that the wireless client is successfully configured and is now on the wireless network.

Setup Wireless Computer: Step 6

Congratulations



This computer is now successfully setup via a non secure wireless connection.

For information on setting up wireless security, see the Dell Wireless 4350 Small Network Access Point **User's Guide**.

To setup another computer to connect to the Dell Wireless 4350 Small Network Access Point, run the Setup Wizard again from the CD on the other computer and choose **Connect Wireless Computer**.

Exit to Main Menu

Setup Wireless Computer - Win XP (WEP Encryption)

Pressing the **Setup Wireless Computer** button displays instructions to connect computers to the network through a wireless connection.

Step 1 asks the user to enter the SSID of the wireless network that you wish to connect to.

Setup Wireless Computer: Step 1

Setup Wireless Computer



Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

Exit to Main Menu

Next

Step 2 asks the user to wait while the Setup Wizard does a site survey scanning for the requested wireless network.

Setup Wireless Computer: Step 2

Setup Wireless Computer



The Setup Wizard is now searching for a Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 3 asks the user to enter the WEP key of the wireless network that they wish to connect to.

Setup Wireless Computer: Step 3

Setup Wireless Computer



In order to configure a secure wireless connection, you must enter the WEP key of your wireless network.

If you do not know the WEP key of your wireless network, contact your network system administrator for this information.

WEP Key Information

Enter WEP key :

Re-enter WEP key :

Exit to Main Menu

Back

Next

Step 4 guides the user through using the Windows wireless configuration utility to configure the wireless client.

Setup Wireless Computer: Step 4



Setup Wireless Computer

To establish wireless connection with your router, you have to configure the wireless client card on your computer with the same network name (SSID) and network key of your AP. This network key is:

- a. Right-click the **wireless network connections** icon in the notification area (Located at the lower-right corner of the Windows desktop).
- b. Left-click **View Available Wireless Networks**.



Click **Next** to continue.

Exit to Main Menu

Back

Next

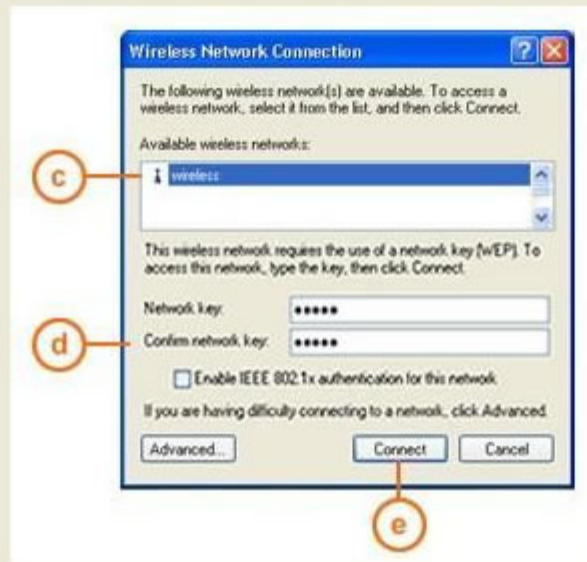
Step 5 guides the user through the remaining steps in using the Windows wireless configuration utility to configure the wireless client.

Setup Wireless Computer: Step 5



Setup Wireless Computer

- c. In the **Available wireless networks** field, click to join the wireless network.
- d. Enter the Network key into the **Network Key** and **Confirm Network Key**
Your Network key is:
- e. Click **Connect**.



Click **Next** to continue.

Exit to Main Menu

Back

Next

Step 6 informs the user to wait while the wireless client configuration is being verified.

Setup Wireless Computer: Step 6

Setup Wireless Computer



The Setup Wizard is now configuring the wireless connection from this computer to the Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 7 informs the user that the wireless client is successfully configured and is now on the wireless network.

Setup Wireless Computer: Step 7

Congratulations



This computer is now successfully setup via a secure wireless connection.

To setup another computer to connect to the Dell Wireless 4350 Small Network Access Point, run the Setup Wizard again from the CD on the other computer and choose **Connect Wireless Computer**.

To change the security settings of your AP, consult the HTML User Guide for information on how this can be done.

Exit to Main Menu

Setup Wireless Computer - Win XP SP2 (No Encryption)

Pressing the **Setup Wireless Computer** button displays instructions to connect computers to the network through a wireless connection.

Step 1 asks the user to enter the SSID of the wireless network that you wish to connect to.

Setup Wireless Computer: Step 1

Setup Wireless Computer



Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

Exit to Main Menu

Next

Step 2 asks the user to wait while the Setup Wizard does a site survey scanning for the requested wireless network.

Setup Wireless Computer: Step 2

Setup Wireless Computer



The Setup Wizard is now searching for a Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 3 informs the user to wait while the wireless client is being configured to join the network.

Setup Wireless Computer: Step 3

Setup Wireless Computer



The Setup Wizard is now configuring the wireless connection from this computer to the Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 4 informs the user that the wireless client is successfully configured and is now on the wireless network.

Setup Wireless Computer: Step 4

Congratulations



This computer is now successfully setup via a non secure wireless connection.

For information on setting up wireless security, see the Dell Wireless 4350 Small Network Access Point **User's Guide**.

To setup another computer to connect to the Dell Wireless 4350 Small Network Access Point, run the Setup Wizard again from the CD on the other computer and choose **Connect Wireless Computer**.

Exit to Main Menu

Setup Wireless Computer - Win XP SP2 (WEP Encryption)

Pressing the **Setup Wireless Computer** button displays instructions to connect computers to the network through a wireless connection.

Step 1 asks the user to enter the SSID of the wireless network that you wish to connect to.

Setup Wireless Computer: Step 1

Setup Wireless Computer



Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

Exit to Main Menu

Next

Step 2 asks the user to wait while the Setup Wizard does a site survey scanning for the requested wireless network.

Setup Wireless Computer: Step 2

Setup Wireless Computer



A progress bar is shown, consisting of a blue segment on the left and a white segment on the right, indicating the progress of the search process.

The Setup Wizard is now searching for a Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 3 asks the user to enter the WEP key of the wireless network that they wish to connect to.

Setup Wireless Computer: Step 3

Setup Wireless Computer



In order to configure a secure wireless connection, you must enter the WEP key of your wireless network.

If you do not know the WEP key of your wireless network, contact your network system administrator for this information.

WEP Key Information

Enter WEP key :

Re-enter WEP key :

Exit to Main Menu

Back

Next

Step 4 informs the user to wait while the wireless client is being configured to join the network.

Setup Wireless Computer: Step 4

Setup Wireless Computer



The Setup Wizard is now configuring the wireless connection from this computer to the Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 5 informs the user that the wireless client is successfully configured and is now on the wireless network.

Setup Wireless Computer: Step 5

Congratulations



This computer is now successfully setup via a secure wireless connection.

To setup another computer to connect to the Dell Wireless 4350 Small Network Access Point, run the Setup Wizard again from the CD on the other computer and choose **Connect Wireless Computer**.

To change the security settings of your AP, consult the HTML User Guide for information on how this can be done.

Exit to Main Menu

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Control Utility: Dell™ Wireless 4350 Small Network Access Point User's Guide

The Control Utility is Windows-based software that allows you to configure your Access Point and monitor the status of your Dell Wireless 4350 Small Network Access Point.

- ▶ [Install the Control Utility](#)
- ▶ [Uninstall the Control Utility](#)
- ▶ [Start the Control Utility](#)
- ▶ [Using the Control Utility to manage multiple Access Points](#)
- ▶ [Exit the Control Utility](#)
- ▶ [How to configure the Access Point via the Control Utility ?](#)

Install the Control Utility

You can install the Control Utility on your computer from your *Dell Wireless 4350 Small Network Access Point CD* .

1. Insert the *Dell Wireless 4350 Small Network Access Point CD* into the CD drive. Your CD should automatically launch the **Setup Wizard** program. If it does not, complete the following steps to start the Wizard.
 - a. Click the **Start** button, and then click **Run**.
 - b. Type the following text in the **Open:** field: X:\setup.exe (where **X** is the drive letter of your CD drive).
 - c. Click the **OK** button.
2. From the main menu, click the **Install Control Utility** button.
3. Follow the on-screen instructions.

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Uninstall the Control Utility



1. If the Dell Wireless 4350 Small Network Access Point icon is displayed in the system tray in the lower right corner of the screen, right-click the icon and click **Exit**.
2. Click the **Start** button.
3. Click **Control Panel**. The **Control Panel** window appears.
4. Click the **Add/Remove Programs** icon.
5. Click to select the **Control Utility** from the program list and remove it as instructed.

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Start the Control Utility

The control utility program will run automatically upon each computer startup by default. If the utility does not start automatically, run the **Dell Wireless 4350 Small Network Access Point Dell Control Utility** from the **Start** menu.

Once running, a access point icon is created in the system tray in the lower right corner of your screen. If you have a connection to the access point, the system tray icon looks gray and white . You can double-click the icon to open the utility panel.

 **NOTE:** If the icon is red , it indicates that the connection to the access point failed.

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Using the Control Utility to manage multiple Access Points

The control utility program can be used to manage multiple Dell Wireless 4350 Small Network Access Points. When the Control Utility launches it will connect to the last access point configured. If you wish to configure an alternative Dell Wireless 4350 Small Network Access Point on the network, then follow the instructions below.

1. Start the **Dell Wireless 4350 Small Network Access Point Control Utility**.
2. In the **My Network Overview** tab, enable the **Configure Alternative AP** checkbox.
3. Enter the IP address of the alternative Dell Wireless 4350 Small Network Access Point that you wish to configure in the **IP Address** field.
4. Click **Apply**
5. The Control Utility will then shutdown. After restarting the Control Utility, it will have connected to the alternative Dell Wireless 4350 Small Network Access Point.

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Exit the Control Utility

When you start the control utility program, it will place a small gray and white icon  in the system tray in the lower right corner of your screen. If you want to exit the program, right-click the icon, and then left-click **Exit** to quit the program.

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Web-based Configuration Tool: Dell™ Wireless 4350 Small Network Access Point User's Guide

[Overview](#)

[Basic Settings](#)

[Device Status](#)

[System Tools](#)

[Advanced Settings](#)

[Log Off](#)

Overview

The web-based configuration tool enables you to set up advanced network configuration for your Dell Wireless 4350 Small Network Access Point. Follow the instructions below to gain access to the web tool.

NOTE: Microsoft Internet Explorer 4.0 or higher or Netscape 4.0 or higher must be used for the web-based configuration tool.

1. Click the **Start** button, and then click **Run**.
2. Type the IP address of the Dell Wireless 4350 Small Network Access Point into the **Open** box: (for information on obtaining this IP address see [How to obtain the IP Address of the Access Point](#)).
3. If this is the first time configuring your Dell Wireless 4350 Small Network Access Point, or if the user name and password have not been changed, type **admin** in the **User Name** and **Password** fields.
4. Click the **OK** button. The **Configuration** screen appears.

NOTE: Dell technical support representatives do not support the configuration options in the **Advanced Settings** portion of the configuration program. These options are provided for your convenience only. However, the advanced settings are fully documented and explained in this guide.

Main Menu



Dell Wireless 4350 Small Network Access Point

Basic Settings

Use the basic settings to change the mode of your router, Wireless network name and channel, wireless security, and internet connection settings.

Advanced Settings

Use the advanced settings to change the IP address of the router, DHCP server options, Time zone, Advanced wireless settings, Parental control options, Access control options, and Administration options.

Device Status

Use the device status to check the status for each connection to your router.

System Tools

Use System tools to check the intruder log, display the routing table, perform system diagnostics, load default settings, upgrade firmware, and reset the router.

Help

Use the Help link to get on-screen help with the features of the router.

Log Off

Exit the Dell Wireless 4350 Small Network Access Point configuration.

Log Off

The Log Off button logs the user off the web based configuration tool. This configuration tool only allows access to one user at a time.



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Technical Specifications and Regulatory Information: Dell™ Wireless 4350 Small Network Access Point User's Guide

[▶ Technical Specifications](#)

[▶ Regulatory Information](#)

[▶ Limited Warranties and Return Policy](#)

Wireless Interoperability

The Dell Wireless 4350 Small Network Access Point products are designed to be interoperable with any wireless LAN product that is based on direct sequence spread spectrum (DSSS) and orthogonal frequency division multiplexing (OFDM) radio technology and to comply with the following standards:

- IEEE 802.11b Standard on Wireless LAN
- IEEE 802.11g Standard on Wireless LAN
- Wireless Fidelity (WiFi) certification, as defined by the WECA (Wireless Ethernet Compatibility Alliance)

Wireless 802.11 and Your Health

The Dell Wireless 4350 Small Network Access Point, like other radio devices, emits radio frequency electromagnetic energy. The level of energy emitted by this device, however, is less than the electromagnetic energy emitted by other wireless devices such as mobile phones. The Dell Wireless 4350 Small Network Access Point device operates within the guidelines found in radio frequency safety standards and recommendations. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature. In some situations or environments, the use of the Dell Wireless 4350 Small Network Access Point devices may be restricted by the proprietor of the building or responsible representatives of the applicable organization. Examples of such situations include the following:

- Using the Dell Wireless 4350 Small Network Access Point equipment on board airplanes, or
- Using the Dell Wireless 4350 Small Network Access Point equipment in any other environment where the risk of interference with other devices or services is perceived or identified as being harmful.

If you are uncertain of the policy that applies to the use of wireless devices in a specific organization or environment (an airport, for example), you are encouraged to ask for authorization to use the Dell Wireless 4350 Small Network Access Point device before you turn it on.

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Technical Specifications

Standards supported	IEEE 802.3, IEEE 802.3u, IEEE802.11b, 802.11g
Protocols	TCP/ IP, IPX, UDP, DHCP Client, DHCP Proxy
Environment	<ul style="list-style-type: none">• Operating Humidity 10% to 85% (Non-Condensing)• Storage Humidity 5% to 90% (Non-Condensing)

	<ul style="list-style-type: none"> · Operating Temperature 0° to 40° C (32° F to 104° F) · Storage Temperature 0° to 70° C (32° F to 158° F)
Power specification	<p><i>Receive Sensitivity</i></p> <ul style="list-style-type: none"> · 11Mbps: 10-5 BER @ -80 dBm, typical · 54Mbps: 10-5 BER @ -65 dBm, typical <p><i>Transmit Power</i></p> <ul style="list-style-type: none"> · Normal Temp Range: ±12 dBm <p><i>DC power supply</i></p> <ul style="list-style-type: none"> · Input: AC 100-250 50-60 Hz 1A · Output: 5V DC 2A · Power over Ethernet
Radio specification	<p>Range: "Up to 100m" indoors and "Up to 450m" outdoors (open range)</p> <p>Frequency range: 2.4 - 2.4835 GHz, direct sequence spread spectrum</p> <p>Number of Channels:</p> <ul style="list-style-type: none"> · Europe: 13 (1-13) · US: 11 (1-11) · France: 2 (10-11) · Japan: 11 (1-13) · Taiwan: 11 (1-11) <p>Mobility: Seamless roaming across cell boundaries with handover</p>
Specific features	<p>Supported bit rates:</p> <p><i>For 802.11g:</i></p> <ul style="list-style-type: none"> · 54 Mbps · 48 Mbps · 36 Mbps · 24 Mbps · 18 Mbps · 12 Mbps · 9 Mbps · 6 Mbps <p><i>For 802.11b:</i></p> <ul style="list-style-type: none"> · 11 Mbps · 5.5 Mbps · 2 Mbps

	<ul style="list-style-type: none"> · 1 Mbps Data Encryption: WEP (64/128 bit) and WPA
Utility Software	<ul style="list-style-type: none"> · Setup Wizard software · Control Utility software

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Regulatory Information

The Dell Wireless 4350 Small Network Access Point device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. For country-specific approvals, see Radio approvals. Dell Inc is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this Dell Wireless 4350 Small Network Access Point kit, or the substitution or attachment of connecting cables and equipment other than that specified by Dell Inc. The correction of interference caused by such unauthorized modification, substitution or attachment is the responsibility of the user. Dell Inc and its authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from the user failing to comply with these guidelines.

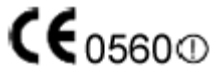
For the latest regulatory information, documentation, and other updates, please visit the Dell website at support.dell.com.

Canada -- Industry Canada (IC)

This device complies with RSS210 of Industry Canada.

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Europe -- EU Declaration of Conformity



This equipment complies with the essential requirements of the European Union directive 1999/5/EC.

Cet équipement est conforme aux principales caractéristiques définies dans la Directive européenne RTTE 1999/5/CE.

Die Geräte erfüllen die grundlegenden Anforderungen der RTTE-Richtlinie 1999/5/EG.

Questa apparecchiatura è conforme ai requisiti essenziali della Direttiva Europea R&TTE 1999/5/CE.

Este equipo cumple los requisitos principales de la Directiva 1999/5/CE de la UE, "Equipos de Terminales de Radio y Telecomunicaciones".

Este equipamento cumpre os requisitos essenciais da Directiva 1999/5/CE do Parlamento Europeu e do Conselho (Directiva RTT).

Deze apparatuur voldoet aan de noodzakelijke vereisten van EU-richtlijn betreffende radioapparatuur en telecommunicatie-eindapparatuur 1999/5/EG.

Dette udstyr opfylder de Væsentlige krav i EU's direktiv 1999/5/EC om Radio- og teleterminaludstyr.

Dette utstyret er i overensstemmelse med hovedkravene i R&TTE-direktivet (1999/5/EC) fra EU.

Utrustningen uppfyller kraven för EU-direktivet 1999/5/EC om ansluten teleutrustning och ömsesidigt erkännande av utrustningens överensstämmelse (R&TTE).

Tämä laite vastaa EU:n radio- ja telepäätelaitedirektiivin (EU R&TTE Directive 1999/5/EC) vaatimuksia.

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France

Some areas of France have a restricted frequency band. The worst-case maximum authorized power indoors is:

10 mW for the entire 2.4 GHz band (2400 MHz - 2483.5 MHz)

100 mW for frequencies between 2446.5 MHz and 2483.5 MHz (NOTE - Channels 10 through 13 inclusive operate in the band 2446.6 MHz - 2483.5 MHz)

There are few possibilities for outdoor use: On private property or on the private property of public persons, use is subject to a preliminary authorization procedure by the Ministry of Defence, with maximum authorized power of 100 mW in the 2446.5 - 2483.5 MHz band. Use outdoors on public property is not permitted.

In the departments listed below, for the entire 2.4 GHz band:

Maximum authorized power indoors is 100 mW

Maximum authorized power outdoors is 10 mW

Departements in which the use of the 2400 - 2483.5 MHz band is permitted with an EIRP of less than 100 mW indoors and less than 10 mW outdoors:

01	Ain Orientales	36	Indre	66	Pyrénées
02	Aisne	37	Indre et Loire	67	Bas Rhin
03	Allier	41	Loir et Cher	68	Haut Rhin
05	Hautes Alpes	42	Loire	70	Haute Saône
08	Ardennes	45	Loiret	71	Saône et Loire
09	Ariège	50	Manche	75	Paris
11	Aude	55	Meuse	82	Tarn et Garonne
12	Aveyron	58	Nièvre	84	Vaucluse
16	Charente	59	Nord	88	Vosges
24	Dordogne	60	Oise	89	Yonne
25	Doubs	61	Orne	90	Territoire de Belfort
26	Drôme	63	Puy du Dôme	94	Val de Marne
32	Gers	64	Pyrénées Atlantique		

This requirement is likely to change over time, allowing you to use your wireless LAN card in more areas within France. Please check with ART for the latest information (www.art-telecom.fr)

 **NOTE:** Your Dell Wireless 4350 Small Network Access Point transmits less than 100 mW, but more than 10 mW.

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Italia

A license is required for indoor use. Outdoor use is prohibited.

E' necessaria la concessione ministeriale anche per l'uso interno. Verificare con i rivenditori la procedura da seguire. L'uso per installazione in esterni non e' permessa.

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USA -- Federal Communications Commission (FCC)

This device complies with Part 15 of the FCC Rules. Operation of the device is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference that may cause undesired operation.

Dell declares that WAPA-118GD (FCC ID: MXF-A930909G) is limited in CH1~CH11 for 2.4GHz by specified firmware controlled in U.S.A.

Interference statement

This equipment 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 in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If the equipment is not installed and used in accordance with the instructions, the equipment may cause harmful interference to radio communications. There is no guarantee, however, that such


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 the equipment off and on), the user is encouraged to try to correct the interference by taking one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the distance between the equipment and the receiver.

Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

 **NOTE:** This Dell Wireless 4350 Small Network Access Point device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. Any other installation or use will violate FCC Part 15 regulations.

IMPORTANT NOTE

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radio approvals

To determine whether you are allowed to use your wireless network device in a specific country, please check to see if the radio type number that is printed on the identification label of your device is listed on the radio approval list posted on the general Dell support site at support.dell.com.

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Limited Warranties and Return Policy

Dell-branded hardware products purchased in the U.S. or Canada come with either a 90-day (U.S. only), one-year, two-year, three-year, or four-year limited warranty. To determine which warranty you purchased, see the invoice that accompanied your hardware product(s). The following sections describe the limited warranties and return policy for the U.S., the limited warranties and return policy for Canada, and the manufacturer guarantee for Latin America and the Caribbean.

Limited Warranty for the U.S.

What is covered by this limited warranty?

This limited warranty covers defects in materials and workmanship in your - our end-user customer's - Dell-branded hardware products, including Dell-branded peripheral products.

What is not covered by this limited warranty?

This limited warranty does not cover:

- Software, including the operating system and software added to the Dell-branded hardware products through our factory-integration system, third-party software, or the reloading of software
- Non-Dell-branded products and accessories
- Problems that result from:
 - External causes such as accident, abuse, misuse, or problems with electrical power
 - Servicing not authorized by us
 - Usage that is not in accordance with product instructions
 - Failure to follow the product instructions or failure to perform preventive maintenance

- Problems caused by using accessories, parts, or components not supplied by us
- Products with missing or altered service tags or serial numbers
- Products for which we have not received payment

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION). DELL'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN HARDWARE IS LIMITED TO REPAIR AND REPLACEMENT AS SET FORTH IN THIS WARRANTY STATEMENT. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN TIME TO THE TERM OF THE LIMITED WARRANTY PERIOD REFLECTED ON YOUR INVOICE. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY PERIOD HAS EXPIRED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THIS LIMITATION MAY NOT APPLY TO YOU.

WE DO NOT ACCEPT LIABILITY BEYOND THE REMEDIES PROVIDED FOR IN THIS LIMITED WARRANTY OR FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY LIABILITY FOR THIRD PARTY CLAIMS AGAINST YOU FOR DAMAGES, FOR PRODUCTS NOT BEING AVAILABLE FOR USE, OR FOR LOST DATA OR LOST SOFTWARE. OUR LIABILITY WILL BE NO MORE THAN THE AMOUNT YOU PAID FOR THE PRODUCT THAT IS THE SUBJECT OF A CLAIM. THIS IS THE MAXIMUM AMOUNT FOR WHICH WE ARE RESPONSIBLE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

How long does this limited warranty last?

This limited warranty lasts for the time period indicated on your invoice, except that the limited warranty on Dell-branded batteries lasts only one year and the limited warranty on the lamps for Dell-branded projectors lasts only ninety days. The limited warranty begins on the date of the invoice. The warranty period is not extended if we repair or replace a warranted product or any parts. Dell may change the availability of limited warranties, at its discretion, but any changes will not be retroactive.

What do I do if I need warranty service?

Before the warranty expires, please call us at the relevant number listed in the following table. Please also have your Dell service tag number or order number available.

Individual Home Consumers:

Technical Support	1-800-624-9896
Customer Service	1-800-624-9897

Individual Home Consumers who purchased through an Employee Purchase Program:

Technical Support and Customer Service	1-800-822-8965
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Home and Small Business Commercial Customers:

Technical Support and Customer Service	1-800-456-3355
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Medium, Large, or Global Commercial Customers, Healthcare Customers, and Value Added Resellers (VARs):

Technical Support and Customer Service	1-800-822-8965
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Government and Education Customers:

Technical Support and Customer Service	1-800-234-1490
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Dell-Branded Memory	1-888-363-5150
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What will Dell do?

During the first 90 days of the 90-day limited warranty and the first year of all other limited warranties: For the first 90 days of the 90-day limited warranty and the first year of all other limited warranties, we will repair any Dell-branded hardware products returned to us that prove to be defective in materials or workmanship. If we are not able to repair the product, we will replace it with a comparable product that is new or refurbished.


When you contact us, we will issue a Return Material Authorization Number for you to include with your return. You must return the products to us in their original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk if the product is lost or damaged in shipment. We will return the repaired or replacement products to you. We will pay to ship the repaired or replaced products to you if you use an address in the United States (excluding Puerto Rico and U.S. possessions and territories). Otherwise, we will ship the product to you freight collect.

If we determine that the product is not covered under this warranty, we will notify you and inform you of service alternatives that are available to you on a fee basis.

 **NOTE:** Before you ship the product(s) to us, make sure to back up the data on the hard drive(s) and any other storage device(s) in the product(s). Remove any confidential, proprietary, or personal information and removable media such as floppy disks, CDs, or PC Cards. We are not responsible for any of your confidential, proprietary, or personal information; lost or corrupted data; or damaged or lost removable media.

During the remaining years: For the remaining period of the limited warranty, we will replace any defective part with new or refurbished parts, if we agree that it needs to be replaced. When you contact us, we will require a valid credit card number at the time you request a replacement part, but we will not charge you for the replacement part as long as you return the original part to us within thirty days after we ship the replacement part to you. If we do not receive the original part within thirty days, we will charge to your credit card the then-current standard price for that part.

We will pay to ship the part to you if you use an address in the United States (excluding Puerto Rico and U.S. possessions and territories). Otherwise, we will ship the part freight collect. We will also include a prepaid shipping container with each replacement part for your use in returning the replaced part to us.

 **NOTE:** Before you replace parts, make sure to back up the data on the hard drive(s) and any other storage device(s) in the product(s). We are not responsible for lost or corrupted data.

What if I purchased a service contract?

If your on-site service contract is with Dell, on-site service will be provided to you under the terms of the on-site service agreement. Please refer to that contract for details on how to obtain service.

If you purchased through us a service contract with one of our third-party service providers, please refer to that contract for details on how to obtain service.

How will you fix my product?

We use new and refurbished parts made by various manufacturers in performing warranty repairs and in building replacement parts and systems. Refurbished parts and systems are parts or systems that have been returned to Dell, some of which were never used by a customer. All parts and systems are inspected and tested for quality.

Replacement parts and systems are covered for the remaining period of the limited warranty for the product you bought.

What do I do if I am not satisfied?

We pride ourselves on our great customer service. If you are not satisfied with the service you receive under this limited warranty, please let us know. We have found that the best way to resolve issues regarding our limited warranty is to work together. If, after those discussions, you are still not satisfied, we believe arbitration is the most expeditious way to resolve your concerns. Therefore, **ANY CLAIM, DISPUTE, OR CONTROVERSY**

(WHETHER IN CONTRACT, TORT, OR OTHERWISE, WHETHER PREEXISTING, PRESENT, OR FUTURE, AND INCLUDING STATUTORY, COMMON LAW, INTENTIONAL TORT, AND EQUITABLE CLAIMS) AGAINST DELL arising from or relating to this limited warranty, its interpretation, or the breach, termination, or validity thereof, the relationships which result from this limited warranty (including, to the full extent permitted by applicable law, relationships with third parties), Dell's advertising, or any related purchase **SHALL BE RESOLVED EXCLUSIVELY AND FINALLY BY BINDING ARBITRATION ADMINISTERED BY THE NATIONAL ARBITRATION FORUM (NAF)** under its Code of Procedure then in effect (available via the Internet at www.arb-forum.com or via telephone at 1-800-474-2371). The arbitration will be limited solely to the dispute or controversy between you and Dell. Any award of the arbitrator(s) shall be final and binding on each of the parties, and may be entered as a judgment in any court of competent jurisdiction. Information may be obtained and claims may be filed with the NAF at P.O. Box 50191, Minneapolis, MN 55405. This provision applies only to individual home consumers and consumers who purchased through an employee purchase program. It does not apply to small, medium, large, and global commercial customers or government, education, and healthcare customers.

May I transfer the limited warranty?

Limited warranties on systems may be transferred if the current owner transfers ownership of the system and records the transfer with us. The limited warranty on Dell-branded memory may not be transferred. You may record your transfer by going to Dell's website:

- If you are an Individual Home Consumer, go to www.dell.com/us/en/dhs/topics/sbtopic_015_ccare.htm
- If you are a Small, Medium, Large, or Global Commercial Customer, go to www.dell.com/us/en/biz/topics/sbtopic_ccare_nav_015_ccare.htm
- If you are a Government, Education, or Healthcare Customer, or an Individual Consumer who purchased through an employee purchase program, go to www.dell.com/us/en/pub/topics/sbtopic_015_ccare.htm

If you do not have Internet access, call your customer care representative or call 1-800-624-9897.

"Total Satisfaction" Return Policy (U.S. Only)

We value our relationship with you and want to make sure that you're satisfied with your purchases. That's why we offer a "Total Satisfaction" return policy for most products that you, the end-user customer, purchase directly from Dell. Under this policy, you may return to Dell products that you purchased directly from Dell for a credit or a refund of the purchase price paid, less shipping and handling and applicable return fees as follows:

New Hardware Products and Accessories: Unless you have a separate agreement with Dell, all hardware, accessories, peripherals, parts and unopened software still in its/their sealed package, excluding the products listed below, may be returned within twenty-one (21) days from the date on the packing slip or invoice.

Exclusions from the foregoing return policy:

- New PowerEdge™, PowerConnect™ and PowerVault™ products (excluding PowerVault 160T tape libraries) may be returned within thirty (30) days from the date on the packing slip or invoice, except that new PowerEdge™ SC servers and n series products purchased from the Small and Medium Business Sales Division may only be returned within fourteen (14) days from the date on the packing slip or invoice.
- Application software or an operating system that has been installed by Dell may not be returned unless you return the entire computer under the 21-day return policy, if applicable to your purchase (if not applicable to your purchase, you may not return application software or an operating system).
- Non-defective third party and Dell-branded software, peripheral, electronics and

accessory products (for example: televisions, printers, projectors, MP3 players, PDAs, battery chargers, un-preinstalled third party software, wireless cards/access points/routers), including but not limited to those sold by or through Dell's "Software & Peripherals" or "Electronics & Accessories" groups, may be returned within twenty-one (21) days from the date on the packing slip or invoice, but a fifteen percent (15%) return fee may be deducted from any refund or credit.

- Dell | EMC storage products, EMC-branded products, Unisys-branded products, PowerVault™ 160T tape libraries, enterprise software, non-Dell branded enterprise products, software and/or software licenses, or any non-Dell customized hardware and/or software product(s) may not be returned at any time.
- Reconditioned or Refurbished Dell - Branded Hardware Products and Parts - All reconditioned or refurbished PowerEdgeT , PowerConnectT and PowerVaultT products may be returned within thirty (30) days from the date on the packing slip or invoice. All other reconditioned or refurbished Dell-branded hardware products and parts may be returned within fourteen (14) days of the date on the packing slip or invoice.
- How to Return - To return products, e-mail or call Dell customer service to receive a Credit Return Authorization Number within the return policy period applicable to the product you want to return. You must obtain a Credit Return Authorization Number in order to return the product. See "Contacting Dell" or "Getting Help" in your customer documentation (or www.dell.com/us/en/gen/contact.htm) to find the appropriate contact information for obtaining customer assistance.

You must ship the products to Dell within five (5) days of the date that Dell issues the Credit Return Authorization Number. You must also return the products to Dell in their original packaging, in as-new condition along with any media, documentation, and all other items that were included in the original shipment, prepay shipping charges, and insure the shipment or accept the risk of loss or damage during shipment.

Limited Warranty Terms for Canada

What is covered by this limited warranty?

This limited warranty covers defects in materials and workmanship in your -- our end-user customer's -- Dell-branded hardware products, including Dell-branded peripheral products.

What is not covered by this limited warranty?

This limited warranty does not cover:

- Software, including the operating system and software added to the Dell-branded hardware products through our factory-integration system, or the reloading of the software
- Non-Dell branded products and accessories
- Problems that result from:
 - External causes such as accident, abuse, misuse, or problems with electrical power
 - Servicing not authorized by us
 - Usage that is not in accordance with product instructions
 - Failure to follow the product instructions or failure to perform preventive maintenance
 - Problems caused by using accessories, parts, or components not supplied by us
- Products with missing or altered service tags or serial numbers
- Products for which we have not received payment

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM PROVINCE TO PROVINCE. DELL'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN PRODUCT IS LIMITED TO REPAIR AND REPLACEMENT AS SET FORTH IN THIS WARRANTY STATEMENT, FOR THE TERM OF THE WARRANTY PERIOD REFLECTED ON YOUR INVOICE. EXCEPT FOR THE EXPRESS WARRANTIES CONTAINED IN THIS WARRANTY STATEMENT, DELL DISCLAIMS ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES AND

CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. SOME PROVINCES DO NOT ALLOW THE EXCLUSION OF CERTAIN IMPLIED WARRANTIES OR CONDITIONS, OR LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY OR CONDITION LASTS. THEREFORE, THE FOREGOING EXCLUSIONS AND LIMITATIONS MAY NOT APPLY TO YOU.

WE DO NOT ACCEPT LIABILITY BEYOND THE REMEDIES PROVIDED FOR IN THIS WARRANTY STATEMENT OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY LIABILITY FOR THIRD PARTY CLAIMS AGAINST YOU FOR DAMAGES, FOR PRODUCTS NOT BEING AVAILABLE FOR USE, OR FOR LOST DATA OR LOST SOFTWARE. OUR LIABILITY WILL BE NO MORE THAN THE AMOUNT YOU PAID FOR THE PRODUCT THAT IS THE SUBJECT OF A CLAIM. THIS IS THE MAXIMUM AMOUNT FOR WHICH WE ARE RESPONSIBLE.

SOME PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

How long does this limited warranty last?

This limited warranty lasts for the time period indicated on your invoice, except that the limited warranty on Dell-branded batteries lasts only one year and the limited warranty on the lamps for Dell-branded projectors lasts only ninety days. The limited warranty begins on the date of the invoice. The warranty period is not extended if we repair or replace a warranted product or any parts. Dell may change the terms and availability of limited warranties, at its discretion, but any changes will not be retroactive (that is, the warranty terms in place at the time of purchase will apply to your purchase).

What do I do if I need warranty service?

Before the warranty expires, please call us at the relevant number listed in the following table. Please also have your Dell service tag number or order number available.

Individual Home Consumers; Home Office and Small Business Customers:

Technical Support and Customer Service 1-800-847-4096

Medium, Large, and Global Commercial Customers; Government, Education, and Healthcare Customers; and Value Added Resellers (VARs):

Technical Support 1-800-387-5757

Customer Service 1-800-326-9463

Government or Education Customers, or Individual Home Consumers who purchased through an Employee Purchase Program:

Technical Support 1-800-387-5757

Customer Service 1-800-326-9463 (Extension 8221 for Individual Consumers)

Dell-Branded Memory 1-888-363-5150

What will Dell do?

During the first year of all limited warranties: During the first year of all limited warranties, we will repair any Dell-branded hardware products returned to us that prove to be defective in materials or workmanship. If we are not able to repair the product, we will replace it with a comparable product that is new or refurbished.

When you contact us, we will issue a Return Material Authorization Number for you to include with your return. You must return the products to us in their original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk if the product is lost or damaged in shipment. We will return the repaired or replacement products to you. We will pay to ship the repaired or replaced products to you if you use an address in Canada. Otherwise, we will ship the product to you freight collect.

If we determine that the problem is not covered under this warranty, we will notify you and inform you of service alternatives that are available to you on a fee basis

NOTE: Before you ship the product(s) to us, make sure to back up the data on the hard drive(s) and any other storage device(s) in the product(s). Remove any confidential, proprietary or personal information, removable media, such as floppy disks, CDs, or PC Cards. We are not responsible for any of your confidential, proprietary or personal information; lost or corrupted data; or damaged or lost removable media.

During the remaining years following the first year of all limited warranties : We will replace any defective part with new or refurbished parts, if we agree that it needs to be replaced. When you contact us, we will require a valid credit card number at the time you request a replacement part, but we will not charge you for the replacement part as long as you return the original part to us within thirty days after we ship the replacement part to you. If we do not receive the original part within thirty days, we will charge to your credit card the then-current standard price for that part.

We will pay to ship the part to you if you use an address in Canada. Otherwise, we will ship the part freight collect. We will also include a prepaid shipping container with each replacement part for your use in returning the replaced part to us.

NOTE: Before you replace parts, make sure to back up the data on the hard drive(s) and any other storage device(s) in the product(s). We are not responsible for lost or corrupted data.

What if I purchased an on-site service contract?

If your service contract is with Dell, service will be provided to you under the terms of the service contract. Please refer to that contract for details on how to obtain service. Dell's service contracts can be found online at www.dell.ca or by calling Customer Care at 1-800-847-4096. If you purchased through us a service contract with one of our third-party service providers, please refer to that contract (mailed to you with your invoice) for details on how to obtain service.

How will you fix my product?

We use new and refurbished parts made by various manufacturers in performing warranty repairs and in building replacement parts and systems. Refurbished parts and systems are parts or systems that have been returned to Dell, some of which were never used by a customer. All parts and systems are inspected and tested for quality.

Replacement parts and systems are covered for the remaining period of the limited warranty for the product you bought. Dell owns all parts removed from repaired products.

What do I do if I am not satisfied?

We pride ourselves on our great customer service. If you are not satisfied with the service you receive under this limited warranty, please let us know. We have found that the best way to resolve issues regarding our limited warranty is to work together. If, after those discussions, you are still not satisfied, we believe arbitration is the most expeditious way to resolve your concerns. Therefore, **ANY CLAIM, DISPUTE, OR CONTROVERSY (WHETHER IN CONTRACT, TORT, OR OTHERWISE, WHETHER PREEXISTING, PRESENT OR FUTURE, AND INCLUDING STATUTORY, COMMON LAW, INTENTIONAL TORT, AND EQUITABLE CLAIMS) AGAINST DELL** arising from or relating to this limited warranty, its interpretation, or the breach, termination or validity thereof, the relationships which result from this limited warranty (including, to the full extent permitted by applicable law, relationships with third parties), Dell's advertising, or any related purchase **SHALL BE RESOLVED EXCLUSIVELY AND FINALLY BY BINDING ARBITRATION ADMINISTERED BY THE NATIONAL ARBITRATION FORUM (NAF)** under its Code of Procedure then in effect (available via the Internet at www.arb-forum.com, or via telephone at 1-800-474-2371). The arbitration will be limited solely to the dispute or controversy between you and Dell. Any award of the arbitrator(s) shall be final and binding on each of the parties, and

may be entered as a judgment in any court of competent jurisdiction. Information may be obtained and claims may be filed with the NAF at P.O. Box 50191, Minneapolis, MN 55405.

May I transfer the limited warranty?

Limited warranties on systems may be transferred if the current owner transfers ownership of the system and records the transfer with us. The limited warranty on Dell-branded memory may not be transferred. You may record your transfer by going to our website:

- If you are an Individual Home Consumer, go to www.dell.com/us/en/dhs/topics/sbtopic_016_ccare.htm
- If you are a Home Office, Small, Medium, Large, or Global Commercial Customer, go to www.dell.com/us/en/biz/topics/sbtopic_ccare_nav_016_ccare.htm
- If you are a Government, Education, or Healthcare Customer, or an Individual Home Consumer who purchased through an Employee Purchase Program, go to www.dell.com/us/en/pub/topics/sbtopic_016_ccare.htm

If you do not have Internet access, please call Dell at 1-800-326-9463.

"Total Satisfaction" Return Policy

If you are an end-user customer who bought new products directly from Dell, you may return them to Dell up to 30 days after you receive them for a refund or credit of the product purchase price. If you are an end-user customer who bought reconditioned or refurbished products from Dell, you may return them to Dell within 14 days after the date of invoice for a refund or credit of the product purchase price. In either case, the refund or credit will not include any shipping and handling charges shown on your invoice and will be subject to a fifteen percent (15%) restocking fee, unless otherwise prohibited by law. If you are an organization that bought the products under a written agreement with Dell, the agreement may contain different terms for the return of products than specified by this policy.

To return products, you must call Dell Customer Service at 1-800-387-5759 to receive a Credit Return Authorization Number. To expedite the process of your refund or credit, Dell expects you to return the products to Dell in their original packaging within five days of the date that Dell issues the Credit Return Authorization Number. You must also prepay shipping charges and insure the shipment or accept the risk of loss or damage during shipment. You may return software for a refund or credit only if the sealed package containing the floppy disk(s) or CD(s) is unopened. Returned products must be in as-new condition, and all of the manuals, floppy disk(s), CD(s), power cables, and other items included with a product must be returned with it. For customers who want to return, for refund or credit only, either application or operating system software that has been installed by Dell, the whole system must be returned, along with any media and documentation that may have been included in the original shipment.

The "Total Satisfaction" Return Policy does not apply to Dell | EMC storage products. It also does not apply to products purchased through Dell's Software and Peripherals division. For those products, please instead refer to Dell's Software and Peripheral's then-current return policy (see the following section, "Dell Software and Peripherals (Canada Only)").

Dell Software and Peripherals (Canada Only)

Third-Party Software and Peripherals Products

Similar to other resellers of software and peripherals, Dell does not warrant third-party products. Third-party software and peripheral products are covered by the warranties provided by the original manufacturer or publisher only. Third party manufacturer warranties vary from product to product. Consult your product documentation for specific warranty information. More information may also be available from the manufacturer or publisher.

While Dell offers a wide selection of software and peripheral products, we do not specifically test or guarantee that all of the products we offer work with any or all of the various models of Dell computers, nor do we test or guarantee all of the products we sell on the hundreds of different brands of computers available today. If you have questions about compatibility,

we recommend and encourage you to contact the third-party software and peripheral product manufacturer or publisher directly.

Dell-Branded Peripheral Products

Dell does provide a limited warranty for new Dell-branded peripheral products (products for which Dell is listed as the manufacturer) such as monitors, batteries, memory, docking stations, and projectors). To determine which limited warranty applies to the product you purchased, see the Dell invoice and/or the product documentation that accompanied your product. Descriptions of Dell's limited warranties are described in preceding sections.

Return Policy

If you are an end-user customer who bought Dell Software and Peripherals products directly from a Dell company, you may return Dell Software and Peripherals products that are in as-new condition to Dell up to 30 days from the date of invoice for a refund of the product purchase price if already paid. This refund will not include any shipping and handling charges shown on your invoice; you are responsible for those.

To return products, you must call Dell Customer Service at 1-800-387-5759 to receive a Credit Return Authorization Number. You must ship the Dell Software and Peripherals products back to Dell in their original manufacturer's packaging (which must be in as-new condition), prepay shipping charges, and insure the shipment or accept the risk of loss or damage during shipment.

To qualify for refund or replacement, returned products must be in as-new condition, software products must be unopened, and all of the manuals, floppy disk(s), CD(s), power cables, and other items included with a product must be returned with it.

One-Year End-User Manufacturer Guarantee (Latin America and the Caribbean Only)

Guarantee

Dell Inc ("Dell") warrants to the end user in accordance with the following provisions that its branded hardware products, purchased by the end user from a Dell company or an authorized Dell distributor in Latin America or the Caribbean, will be free from defects in materials, workmanship, and design affecting normal use, for a period of one year from the original purchase date. Products for which proper claims are made will, at Dell's option, be repaired or replaced at Dell's expense. Dell owns all parts removed from repaired products. Dell uses new and reconditioned parts made by various manufacturers in performing repairs and building replacement products.

Exclusions

This Guarantee does not apply to defects resulting from: improper or inadequate installation, use, or maintenance; actions or modifications by unauthorized third parties or the end user; accidental or willful damage; or normal wear and tear.

Making a Claim

Claims must be made in Latin America or the Caribbean by contacting the Dell point of sale within the guarantee period. The end user must always supply proof of purchase, indicating name and address of the seller, date of purchase, model and serial number, name and address of the customer, and details of symptoms and configuration at the time of malfunction, including peripherals and software used. Otherwise, Dell may refuse the guarantee claim. Upon diagnosis of a warranted defect, Dell will make arrangements and pay for ground freight and insurance to and from Dell's repair/replacement center. The end user must ensure that the defective product is available for collection properly packed in original or equally protective packaging together with the details listed above and the return number provided to the end user by Dell.

Limitation and Statutory Rights

Dell makes no other warranty, guarantee or like statement other than as explicitly stated above, and this Guarantee is given in place of all other guarantees whatsoever, to the

fullest extent permitted by law. In the absence of applicable legislation, this Guarantee will be the end user's sole and exclusive remedy against Dell or any of its affiliates, and neither Dell nor any of its affiliates shall be liable for loss of profit or contracts, or any other indirect or consequential loss arising from negligence, breach of contract, or howsoever.

This Guarantee does not impair or affect mandatory statutory rights of the end user against and/or any rights resulting from other contracts concluded by the end user with Dell and/or any other seller.

Dell World Trade LP

One Dell Way, Round Rock, TX 78682, USA

**Dell Computadores do Brasil Ltda (CNPJ No. 72.381.189/0001-10) /
Dell Commercial do Brasil Ltda (CNPJ No. 03 405 822/0001-40)**

Avenida Industrial Belgraf, 400
92990-000 - Eldorado do Su - RS - Brasil

Dell Computer de Chile Ltda

Coyancura 2283, Piso 3- Of.302,
Providencia, Santiago - Chile

Dell Computer de Colombia Corporation

Carrera 7 #115-33 Oficina 603
Bogota, Colombia

Dell Computer de Mexico SA de CV

Paseo de la Reforma 2620 - 11° Piso
Col. Lomas Altas
11950 México, D.F.

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How do I install the Dell™ Wireless 4350 Small Network Access Point for optimal coverage?

Each Dell Wireless 4350 Small Network Access Point supports up to about a 150 to 200 foot radius, depending on obstacles and interference issues. For smaller installations a little experimentation provides good placement of the Dell Wireless 4350 Small Network Access Point.

Can the Dell Wireless 4350 Small Network Access Point attach to a hub, switch, or router?

Yes, via its LAN port, the Dell Wireless 4350 Small Network Access Point provides the flexibility for a wide variety of network configurations and connections.

What is the physical connection from the Dell Wireless 4350 Small Network Access Point to a wired network?

Each Dell Wireless 4350 Small Network Access Point has a 10/100 Ethernet (LAN port) connection, which allows communication with a 10 **megabit per second** (Mbps), 100 Mbps, or 10/100 Mbps hub or switch.

Access Point

An Access Point is a device on the wireless network that receives and retransmits data. It allows computers with wireless network adapters to be connected, typically, to an Ethernet network.

Client

A client is a computer on a network.

Domain Name System (or Service) (DNS)

DNS is an Internet service that translates domain names into [IP addresses](#). A DNS server keeps a database of host computers, their respective domain names, and IP addresses. When a domain name is requested, the DNS server uses this table to send the user to the proper IP address.

The DNS system is really its own network. If one DNS server doesn't know how to translate a particular domain name, it asks another one, and so on, until the correct IP address is returned.

Dynamic Host Configuration Protocol (DHCP)

DHCP is the process of automatically configuring the [TCP/IP](#) settings for every computer on a network.

Encryption

Encryption is a common way of implementing security and protecting information. Encryption applies a set of instructions, called an *algorithm*, to information. The instructions combine the *plain* or *clear* text of information with a sequence of hexadecimal numbers, called an *encryption key*.

Before transmitting information over the airwaves, the wireless client or Access Point *encrypts* or scrambles the information. The Access Point or wireless client receiving the information uses the same key to *decrypt* or unscramble the information. The information is only readable to WLAN devices that have the correct encryption key. The longer the key is, the stronger the encryption. All wireless clients and Access Points in a WLAN must use the same encryption method and key. An 802.11-compliant wireless network has *Wired Equivalent Privacy* (WEP) and *Wi-Fi Protected Access* (WPA) technologies for wireless security.

Ethernet

Ethernet is the most widely used local area networking technology. It is an industry-wide standard originally developed by Xerox and formalized in 1980 by DEC, Intel, and Xerox. Ethernet networks transmit data at 10/100 Mbps using a specified [protocol](#).

Ethernet Address (MAC Address)

An Ethernet address is a unique, pre-programmed address, sometimes referred to as a *media access control* (MAC) address. Each computer on an Ethernet network has its own Ethernet 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.

Host

A host is any device that is connected to the network; for example, a computer, network printer, or router. Each host has a unique name (called "Host Name") or IP address (called "Host IP") for identification on the network.

Internet Protocol (IP)

IP is the protocol used to send data from one computer to another over the Internet. The IP protocol describes how Internet computers keep track of the [IP address](#) of each computer on the network and route packets of data from one IP address to another.

IP Address

An IP address provides unique identification for each computer on the Internet or on a local network. IP addresses are usually expressed as a group of four numbers separated by periods, for example, 169.254.10.2. None of the numbers can be greater than 255. Each Ethernet interface has an IP address. For the Dell Wireless 2350 Broadband Router, there is a [LAN](#) Ethernet interface and a [WAN](#) Ethernet interface; hence, there is a LAN IP address and a WAN IP address.

Link Light

A link light is a light on a network device that indicates a good network connection. Hubs typically have a link light for each port; although, they may not be labelled as such, and the lights may show other information. These lights often blink for network activity. Some hubs display different colored lights for 10 Mbps and 100 Mbps. For more information, see the documentation accompanying your product.

Local Area Network (LAN)

A LAN is a network in one location. The network lets users at that location share files, printers and other services. [See WAN](#).

Network Adapter

A network adapter is a device expansion card that provides the physical connection between a computer and the network. There are many types of adapters. They include PC cards for laptops (a card that fits into a slot on your computer, like you might install a sound card or modem card) and embedded cards, embedded USB adapters, USB dongle adapters, and USB desktop adapters. Some newer computers have a network adapter already built into the system. PC cards or cards that fit into a slot in the desktop are sometimes referred to as network interface cards, or NICs.

Network Name (SSID)

[Access Points](#) are grouped together by an identifier called an ESSID. The ESSID is also referred to as a Net ID. This identifier is a combination of any letters or numbers that are appropriate for the network environment. ESSID is specifically for Access Points. When you talk about peer-to-peer networks, you cannot use the term ESSID.

Service Set Identifier (SSID) is more generic and is a 32-character name that uniquely identifies all the computers and equipments that make up a wireless network. A type of SSID is ESSID. Another type of SSID is Basic Service Set Identifier (BSSID). The BSSID is the [MAC address](#) of a wireless [adapter](#) or Access Point.

Port

A port is a connector on a networking device used to attach the network cable. Hubs and switches have numerous ports that connect to computers on the network.

Protocol

Protocol refers to a set of rules for sending and receiving information on a network. The rules determine the format of the data that is transmitted and other aspects of networking, such as how errors are detected and corrected. The protocol driver in each computer is software that adheres to these rules when sending and receiving information. These drivers are also often called protocols.

Transmission Control Protocol/Internet Protocol (TCP/IP)

TCP/IP refers to 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. [See Internet Protocol.](#)

Virtual Local Area Network (VLAN)

A VLAN is a network of computers that behave as if they are connected to the same wire, even though they may be physically located on different segments of a LAN. VLANs are configured through software rather than hardware, which makes them extremely flexible. When a computer on a VLAN is physically moved to another location, it can stay on the same VLAN without any hardware reconfigurations.

Virtual Server

A virtual server is a device that performs Internet protocol (IP) mapping. IP mapping allows remote client access to your network via the Internet.

Wide Area Network (WAN)

A WAN is a communications network that uses devices such as telephone lines, satellite dishes, or radio waves to span a larger geographic area than can be covered by a [LAN](#).

Wireless Local Area Network (WLAN)

A WLAN is a type of [Local Area Network \(LAN\)](#) that uses high frequency radio waves rather than wires to communicate and transmit data among the network clients and devices. It is a flexible data communication system implemented as an extension to, or as an alternative for, a wired LAN. Just like a LAN, the network lets users at that location share files, printers and other services.



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Wireless Networking Overview: Dell™ Wireless 4350 Small Network Access Point User's Guide

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Wireless Local Area Network (WLAN)

A **Local Area Network** (LAN) is a network in one location. Users at that location can share files, printers, and other services. In a LAN, a networked computer that requests services is called a client. A **Wireless Local Area Network** (WLAN) is a type of LAN that uses high frequency radio waves rather than wires to communicate and transmit data among the network clients and devices. It is a flexible data communication system implemented as an extension to, or as an alternative for, a wired LAN.

In a WLAN, wireless adapters are installed in clients, also called wireless clients. The adapter allows the wireless client to communicate with the WLAN without cables. Instead, wireless clients send and receive information through a path in the air called a channel.

The standards for a WLAN are based on the IEEE 802.11b standard and IEEE 802.11g standard. All Dell 802.11b/g-compliant devices interoperate with other 802.11b/g -compliant wireless devices from other vendors. The WiFi certification logo indicates that the wireless device has been tested by an independent organization.

A wireless client operates in either infrastructure mode or peer-to-peer mode.

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Identifying a WLAN

An ESSID and BSSID are both **Service Set Identifiers** (SSID) that identify and control the wireless client's access to a given WLAN. The SSID is sometimes referred to as the network name. The SSID indicates what WLAN you are referring to. In most cases, the user interface displays the SSID.

When installing an access point or wireless adapter in a wireless client, the installation program asks you to enter the SSID. Dell cannot provide you with this information, as it is specific to your network; but you may choose to use the default SSID, **wireless**, for your Dell Wireless 4350 Small Network Access Point. All wireless clients and access points in a WLAN must use the same network name.

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Encryption

In a WLAN, wireless clients and access points send and receive information through the air. Without implementing security, it is possible for an unauthorized person to intercept the information.


A common way of implementing security and protecting information is encryption. Encryption applies a set of instructions, called an algorithm, to information. The instructions combine the plain or clear text of information with a sequence of hexadecimal numbers, called an encryption key.

Before transmitting information over the airwaves, the wireless client or access point encrypts or scrambles the information. The access point or wireless client receiving the information uses the same key to decrypt or unscramble the information. The information is only readable to WLAN devices that have the correct encryption key. The longer the key is, the stronger the encryption.

The Dell Wireless 4350 Small Network Access Point supports both **Wired Equivalent Privacy (WEP)** and **Wi-Fi Protected Access (WPA)**.

WEP

WEP (Wired Equivalent Privacy) provides a way of creating an encrypted key that is shared between a wireless client (such as a notebook with a wireless PC card) and the router. In the Dell Wireless 4350 Small Network Access Point, WEP is an optional feature that can be enabled or disabled. When WEP encryption is enabled, you must set the WEP key in the client to match the WEP key used by the access point because you can **ONLY** connect to access points that have a matching WEP Key. The Dell Wireless 4350 Small Network Access Point Setup Wizard allows the user to gracefully configure WEP encryption on both the access point and wireless clients.

 **NOTE:** It is better to change keys frequently. The same algorithm is used for all the communications that should be protected. If the same key is used, the same message will give exactly the same cipher text. Then, it will be possible for an eavesdropper to break the encrypted data. For this reason, it is strongly recommended to change keys often.

There are two WEP encryption methods:

- 40(64)-bit Encryption
- 104(128)-bit Encryption

40-bit and 64-bit encryption are identical. Some vendors use the term 40-bit; others use 64-bit. A wireless device that claims to have 40-bit encryption interoperates with a device that claims to have 64-bit encryption; the same is true for the reverse. A 40(64)-bit key consists of 10 hexadecimal numbers, arrayed as follows:

Key #1: 1011121314

Key #2: 2021222324

Key #3: 3031323334

Key #4: 4041424344

A 104(128)-bit key has several trillion times as many possible combinations than a 40(64)-bit key. It consists of 26 hexadecimal numbers, arrayed as follows:

Key (#1): 101112131415161718191A1B1C


All wireless clients and access points in a WLAN must use the same encryption method and key. The following two examples stress how important this point is.

Example 1

The encryption method for an access point is 40(64)-bit. The method for a wireless client is 104(128)-bit encryption. The client and access point cannot communicate with each other, even though the selected key is the same. To resolve this problem, set the access point to use 104(128)-bit encryption.

Example 2

The encryption method is the same for the access point and wireless client. You select key 1 for the access point and key 2 for the wireless client. The wireless client cannot communicate with the WLAN. To resolve this problem, select key 1 for the wireless client.

 **NOTE:** Use the same key and encryption method for the wireless devices in the WLAN. Otherwise, they cannot communicate

with each other.

The Dell Wireless 4350 Small Network Access Point uses either hexadecimal digits or ASCII characters to create encryption keys. Hexadecimal digits include the numbers 0 to 9 and the letters A to F. For example, the decimal number 15 is represented as F in the hexadecimal numbering system.

ASCII is the acronym for the American Standard Code for Information Interchange. Pronounced *ask-ee*, ASCII is a code for representing English characters as numbers, with each letter assigned a number from 0 to 127. For example, the ASCII code for uppercase M is 77. Most computers use ASCII codes to represent text, which makes it possible to transfer data from one computer to another.

WPA

WPA (Wi-Fi Protected Access) is an upgrade to the WEP standard for securing your wireless network. WPA is derived from and will be forward-compatible with the future IEEE 802.11i standard. It provides improved data encryption and user authentication.

To enhance the level of security, WPA uses **Temporal Key Integrity Protocol** (TKIP) encryption to address the vulnerabilities of the static keys used in WEP. TKIP includes four algorithms: **message integrity check** (MIC), to protect packets from tampering; **Per-Packet Key** (PPK) hashing, to prevent weak key attacks; extended **initialization vector** (IV), to reduce IV reuse and the possibility that a hacker will collect sufficient packets to crack the encryption; and a re-keying mechanism, to change the temporal key dynamically. TKIP is the most commonly used encryption method; however, if your wireless clients do not support TKIP, the Wireless 4350 also supports **Advanced Encryption Security** (AES) encryption. AES will replace 802.11's RC4-based encryption under the 802.11i specification. AES, the gold-standard encryption algorithm, provides maximum security for wireless network.

For user authentication, WPA adopts an authentication scheme through 802.1x. 802.1x provides a framework for user authentication and a key distribution management method. 802.1x consists of three main elements: an Authentication Server (typically a RADIUS server), WPA-enabled router or AP (called Authenticator), and a WPA-enabled client (called Supplicant). 802.1x ensures only authorized users can access the network. The 802.1x protocols supported by the Dell Wireless 4350 Small Network Access Point are PEAP, TTLS & TLS.

In enterprises, WPA will be used in conjunction with both a wireless router and authentication server. In a **Small Office/Home Office** (SOHO) environment, where there is no authentication server, users can use **pre-shared key** (PSK) mode in place of the authentication server.

The Dell Wireless 4350 Small Network Access Point offers both WPA running in PSK mode and WPA with 802.1X authentication. The mutual authentication and improved encryption technology of WPA allows wireless communication to achieve greater security.

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Automatic Rate Selection and Rate Scaling

In 802.11g, wireless network adapters and access points can transmit data at one of the following rates: 54, 48, 36, 24, 18, 12, 9, or 6 Mbps. In 802.11b, the data can be transmitted at a rate of 11, 5.5, 2, or 1 Mbps. As the distance between an adapter and access point increases or decreases, the data rate automatically changes. Other factors, like interference, also affect the data rate. The Dell Wireless 4350 Small Network Access Point uses automatic rate selection and rate scaling to determine the most efficient rate of communication. Rate scaling maintains optimal communication between wireless clients and the WLAN.

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A Look at the Hardware: Dell™ Wireless 4350 Small Network Access Point

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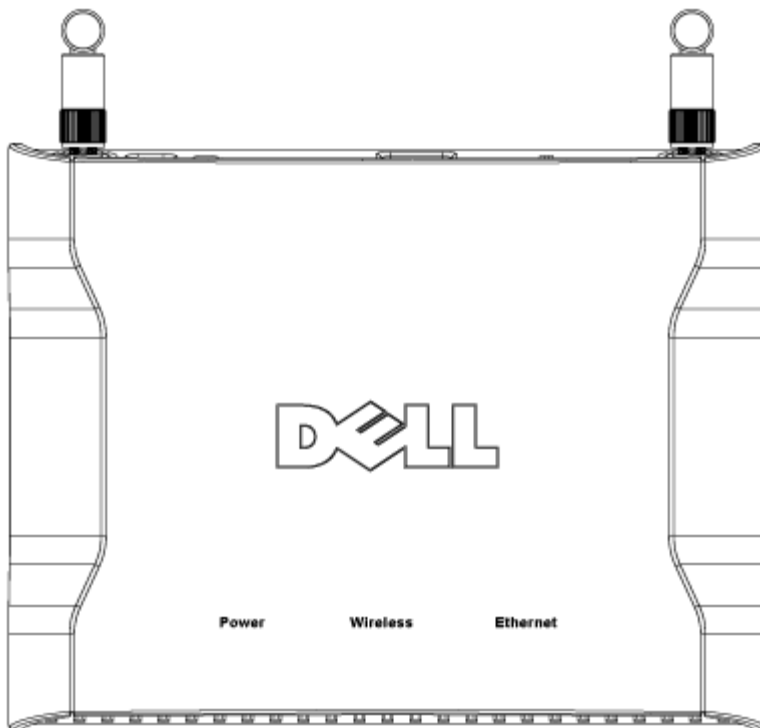
[▶ Front Panel](#)

[▶ Back Panel](#)

Front Panel

The Dell Wireless 4350 Small Network Access Point has three **Light Emitting Diodes (LEDs)**, or link lights, on its front side. The following table defines the behaviour for each LED:

Front Panel

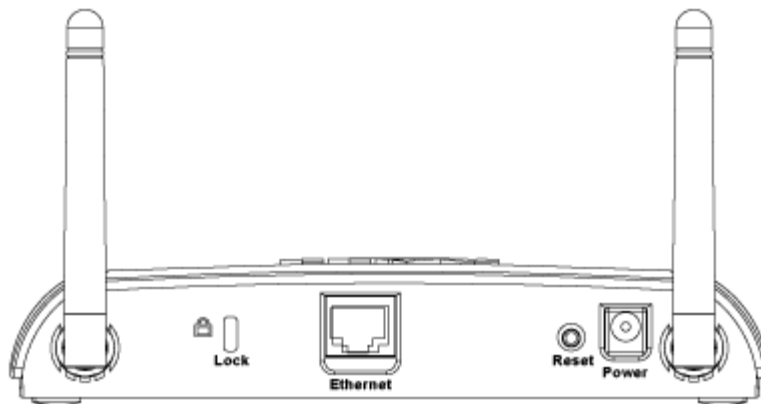


LED	Represents	Activity
Power	Power	The Power LED will light up green when the device is powered on and ready for use. It will blink when the device is powering up or when it is reset
Wireless	Wireless LAN	The LED alternates between on and off when wireless clients are attached. It will blink when there is data activity on the wireless network. The rate of blinking will vary with the rate of data transfer. It turns off when no wireless clients are associated with the Dell Wireless 4350 Small Network Access Point.
Ethernet	Intranet	A steady green light indicates the connection is active, and blinks with data activity.

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Back Panel

Back Panel



Connector	Description
Lock	This accepts locking devices for protecting the Dell Wireless 4350 from theft.
Reset	Use an object, such as a paper clip, to press the button for at least 5 seconds. The Power LED will be off for a short time and then light up again. You can then release the button to reset the device to its factory-default settings.
Ethernet	This accepts an RJ-45 connector for network cabling. *Also accepts power input from Ethernet port (Power Over Ethernet)
Power	Connect the power adapter to this Power port, and then plug the other end of the power cable into a power outlet.

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Introduction: Dell™ Wireless 4350 Small Network Access Point User's Guide

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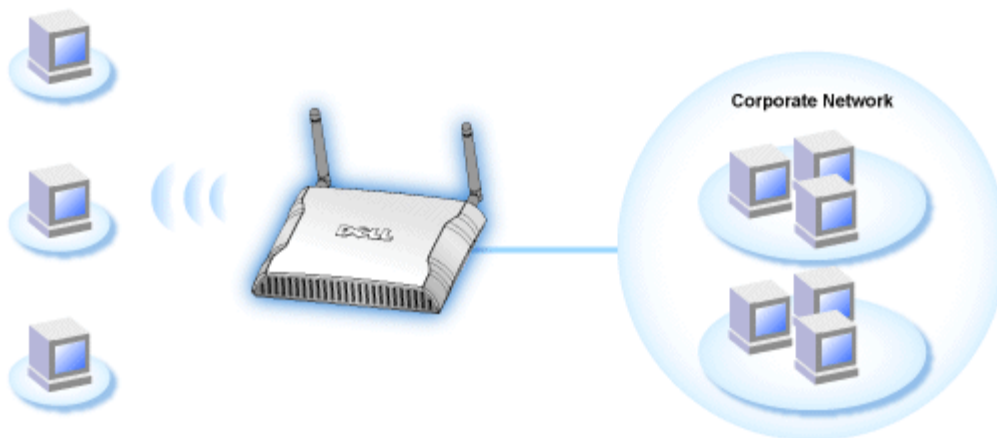
▶ [Wireless Networking Overview](#)

▶ [A Look at the Hardware](#)

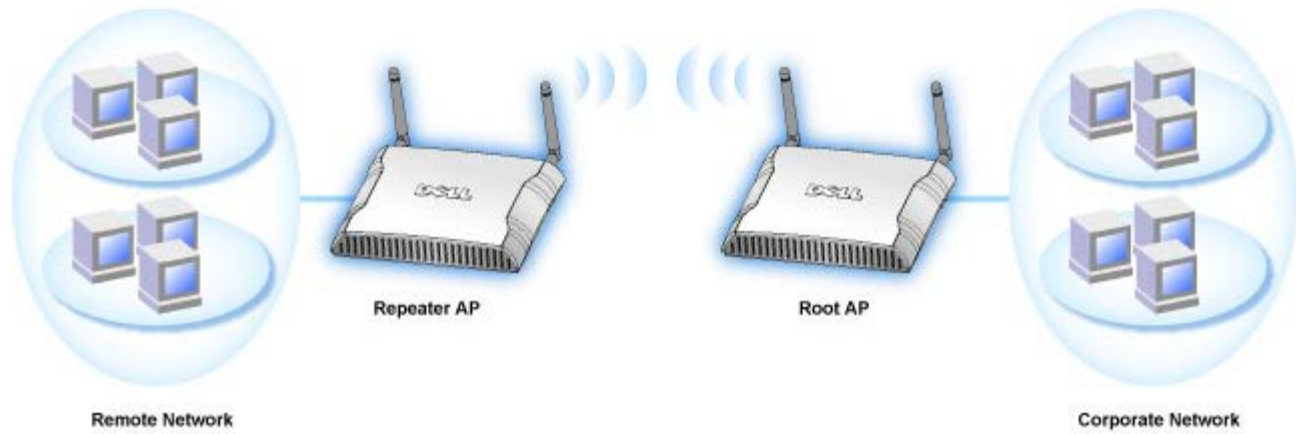
Overview

The Dell Wireless 4350 Small Network Access Point is an 802.11b/g wireless access point that allows wireless clients access to a corporate network. The Access Point can be configured in the following ways:

- **Wireless hub (Access Point):** In this mode the Access Point connects wireless computers to the corporate network.



- **Wireless repeater:** In this mode the Access Point is able to extend the wireless range of a root Access Point that is on the corporate network to remote wireless computers.



The Dell Wireless 4350 Small Network Access Point supports up to 64 wireless clients. It runs at speeds up to 54 **Megabits per second** (Mbps), and the LAN (wired) port runs at 10/100 Mbps. The maximum distance between the Access Point and each Wireless computer is 300 feet. This distance may be less depending on your environment.

By default, the Dell Wireless 4350 Small Network Access Point provides the following functionality:

- a wireless access point using **wireless** as the wireless network name.
- a bridge to an Ethernet hub.

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Configuration of the Access Point



NOTE: It is recommended that you configure the Dell Wireless 4350 Small Network Access Point with the Setup Wizard provided on the Dell Wireless 4350 Small Network Access Point CD.

NOTE: Advanced users can configure the Dell Wireless 4350 Small Network Access Point with the web-based configuration utility which can be accessed by browsing to the IP address of the access point.

The Setup Wizard allows the user to configure the following parameters on the Dell Wireless 4350 Small Network Access Point (a) SSID, (b) wireless channel of operation, (c) WEP encryption (WEP encryption is optional) and (d) Static IP address.

In order to use the Setup Wizard to configure the Dell Wireless 4350 Small Network Access Point, the access point must be directly connected via an ethernet cable to the computer that is running the Setup Wizard. In this configuration, the Dell Wireless 4350 Small Network Access Point will have a default static IP address of 192.168.2.2 and the computer will have to be assigned a static IP address in the same subnet.

[How to assign a static IP address to the network card of your computer](#)

This section contains information on how to assign a static IP address to the network card of your computer. This is required as part of the access point configuration.

How to assign a static IP address to the network card of your computer

1. On your computer, click **Start --> Settings --> Control Panel**.
2. Double click the **Network Connections** icon.
3. Right click the **Local Area Connection** icon.
4. Select **Properties** from the pull-down menu.
5. Click **Internet Protocol (TCP/IP)** and then **Properties**.

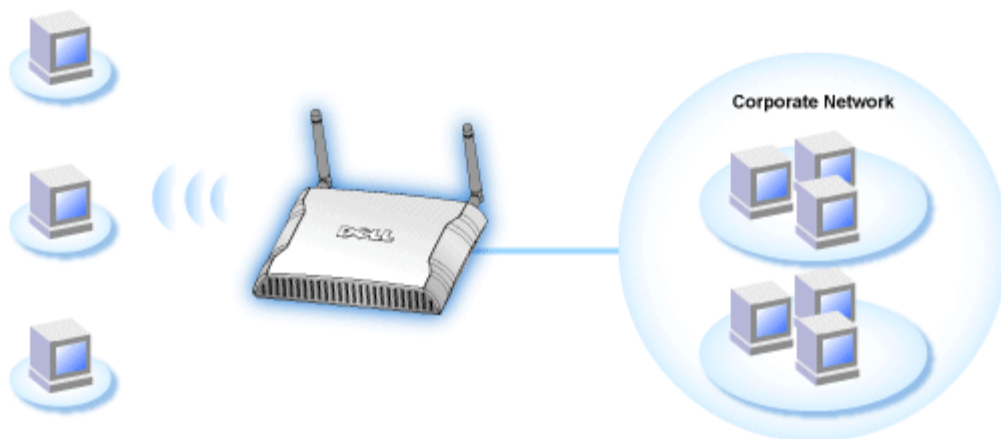
6. Select **Use the following IP address** in the **Internet Protocol (TCP/IP) Properties** window.
7. Input your **IP address** and **Subnet mask** in the appropriate fields. (The IP addresses on your network must be within the same range (e.g. 192.168.2.3 or 192.168.2.4). The subnet mask must be the same for all computers on the network (i.e. 255.255.255.0).
8. Click **OK**.

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Connecting the Access Point to the network



NOTE: It is recommended that you follow the instructions in the Quick Start Guide on connecting the Dell Wireless 4350 Small Network Access Point to the network.

The following are the relevant steps on connecting the access point to your network.

1. Find the optimum location for your Access Point. The Access Point should be located at the center of your wireless network, ideally with line of sight to all your mobile stations.
2. Fix the orientation of the antennas such that both antennas are perpendicular to the ground and parallel to each other
3. Connect the included Ethernet cable to the Access Point and the other end of the Ethernet cable to a switch or hub.
4. Connect the power adapter to the Access Point's power port.

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How to obtain the IP Address of the Access Point

To browse to the Dell Wireless 4350 Small Network Access Point's web-based configuration tool, you must know the access point's IP address. The IP address of the access point can be either a static IP address or a dynamically assigned IP address. The default configuration for the access point is with a static IP address of 192.168.2.2.

If the access point has been configured as a DHCP client, it will be dynamically assigned a IP address. In order to determine what this IP address is, use the following method.

1. Find the Media Access Control (MAC) address of the wired port of the access point. This information can be derived from the product label which is located on the underside of the access point .
2. The product label contains the MAC address of the WLAN port of the access point. The MAC address of the wired port is calculated by subtracting 0x1H from this address (i.e. If the MAC address on the product label is 00:90:4b:3c:12:10, then the MAC address of the wired port is $00:90:4b:3c:12:10 - 0x1 = 00:90:4b:3c:12:0f$)
3. Provide your organisation's network administrator with your access point's wired port MAC address (calculated in step 2).
4. The network administrator will query the DHCP server using the MAC address to identify the IP address of the access point.

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Setting Wireless Encryption in Your Access Point

Without wireless security options configured in your network, an eavesdropper within your wireless range may be able to access the network and the data that is being transmitted over it. The Dell Wireless 4350 Small Network Access Point provides **Wired Equivalent Privacy (WEP)** and **Wi-Fi Protected Access (WPA)** encryption for wireless security.

WPA is an upgrade to the WEP standard for securing your wireless network.

If you would like to secure your wireless network using WPA, you must have WPA support for your wireless clients. If you are using a Dell Wireless client, you can check for the availability of a WPA-enabled software update for your wireless client at <http://support.dell.com>. The WPA-802.1x protocols supported by the Dell Wireless 4350 Small Network Access Point are PEAP, TTLS & TLS.

1. Log into the web configuration of your access point using its IP address (for information on obtaining the access point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
2. Type the following text in the **user name** and **password** fields: "admin".
3. Click **Basic Settings** and then select **Wireless Security** from the drop down menu.
4. Click to select **Enable Wireless Security**.
5. Select either **WEP** or **WPA** in the **Network Encryption** list.

WEP

1. Select hexadecimal or ASCII characters as the **Key Format**. You can use either as a string of hexadecimal digits (characters 0 through 9 and A through F) or as ASCII characters (any key on the keyboard).
2. Select an encryption level from the **Key Length** list.
3. Enter four different keys in the **Key1**, **Key2**, **Key3**, and **Key4** fields to store on your router. For 40(64)-bit encryption, enter a 5-character (or 10 hexadecimal digits) WEP key. For 104(128)-bit encryption, enter a 13-character (or 26 hexadecimal digits) WEP key.
4. Select only one key out of the four keys as the **Default Key** for encryption.
5. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
6. Set up the WEP on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help systems, for information on how to set up WEP.

WPA

There are two options for network authentication (a) Pre-shared key or (b) 802.1x. Typically, in enterprises, WPA will be used in conjunction with a RADIUS authentication server. In a Small Office/Home Office (SOHO) environment, where there is no authentication server, users can use **pre-shared key (PSK)** mode in place of the authentication server.


WPA-PSK

1. Choose a key format by selecting either Hexadecimal Digits or ASCII Characters in the **Key Format** field. Hexadecimal digits are numbers 0-9 and/or letters A-F. ASCII characters can be any key on the keyboard.
2. Enter your pre-shared key in the **WPA Pre-Shared Key** field. This key must match the key that is used by each wireless client computer associated to your Access Point

3. The **WPA Group Rekey Interval** value specifies how often the key “rotates” or changes.
4. WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.
5. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
6. Set up WPA-PSK on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help system, for information on how to setup WPA-PSK.

WPA-802.1x

1. WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.
2. The **Radius Server IP**, **Radius Server Port** and **Shared Secret** fields required to be populated with the relevant information. This information regarding the Radius authentication server can be obtained from the network administrator.
3. The **WPA Group Rekey Interval** value specifies how often the key “rotates” or changes.
4. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
5. Set up WPA-802.1x on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help system, for information on how to setup WPA with 802.1x authentication.

 **NOTE:** The Dell Wireless 4350 Small Network Access Point offers three ways to set the wireless encryption in your router. One is the Wireless Security feature in the web configuration tool mentioned here. The other two are either through the Windows-based [control utility](#) or the Setup Wizard.

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Turning Off Broadcast SSID

1. Log into the web configuration of your Access Point using its IP address (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
 2. Type the following text in the **user name** and **password** fields: **"admin"**.
 3. Click **Advanced Settings** and then select **Advanced Wireless** from the drop down menu.
 4. Check **Yes** for **Hide my wireless network**
 5. Click **Submit**.
-

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Setting Up File & Printer Sharing

▶ [Installing File and Printer Sharing](#)

▶ [Sharing a printer](#)

▶ [Sharing files](#)

Installing the File & Printer Sharing

Follow the instructions below to install the file and printer sharing service.

For Windows 2000 and XP

1. Right-click the **My Network Places** icon (on the desktop in Windows 2000 and in the Start button menu in Windows XP) and left-click to select **Properties** in menu.
 2. Right-click the **Local Area Connection** icon and select **Properties** in the menu.
 3. If you can see the **File and Printer Sharing for Microsoft Networks** item, you can skip this section. The file and printer sharing service had already been installed.
 4. If the **File and Printer Sharing for Microsoft Networks** item is not present, click the **Install** button.
 5. Click to select **Service**, and then click the **Add** button.
 6. Click to select **File and printer sharing for Microsoft Networks**, and then click the **OK** button.
-

Sharing a Printer

To share a printer, perform the following steps on the computer that has the printer you wish to share.

1. Click the **Start** button, click **Settings**, and then click **Printers**.
2. Click the printer you want to share to highlight it.
3. On the **File** menu, click **Properties**.
4. Click the **Sharing** tab, and then click **Shared As**.
5. Follow the on-screen instructions to complete.

The printer is now available for the other computers to use.

Perform the following steps on the other computers:

1. Click the **Start** button, click **Settings**, and then click **Printers**.
2. Double-click the **Add Printer** icon.
3. Click **Next** on the first screen.

4. On the next screen, select **Network printer**, and then click the **Next** button.
 5. Click the **Browse** button and click to select the shared printer.
 6. Follow the on-screen instructions to complete.
-

Sharing files

You can share files on your computer so that users on other computers on your network can view them.

1. In Microsoft Windows Explorer, right-click on the file, folder, or drive letter you wish to share and left-click **Sharing**.
 2. Click **Share As**.
 3. Type a name for the share and follow the on-screen instructions to complete.
-

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How to setup wireless clients to connect to the Access Point

NOTE: It is recommended that you connect wireless clients to the Dell Wireless 4350 Small Network Access Point using the Setup Wizard provided on the Dell Wireless 4350 Small Network Access Point CD.

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Installation and Configuration: Dell™ Wireless 4350 Small Network Access Point User's Guide

- ▶ [Configuration of the Access Point](#)
 - ▶ [Connecting the Access Point to the network](#)
 - ▶ [How to obtain the IP address of the Access Point](#)
 - ▶ [Setting Wireless Encryption in Your Access Point](#)
 - ▶ [Turning Off Broadcast SSID](#)
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How to Configure the Access Point via the Control Utility:

Dell™ Wireless 4350 Small Network Access Point User's Guide

▶ [My Network Overview](#)

▶ [Wireless Settings](#)

▶ [Network Access Control](#)

▶ [Administration](#)

▶ [Diagnostics](#)

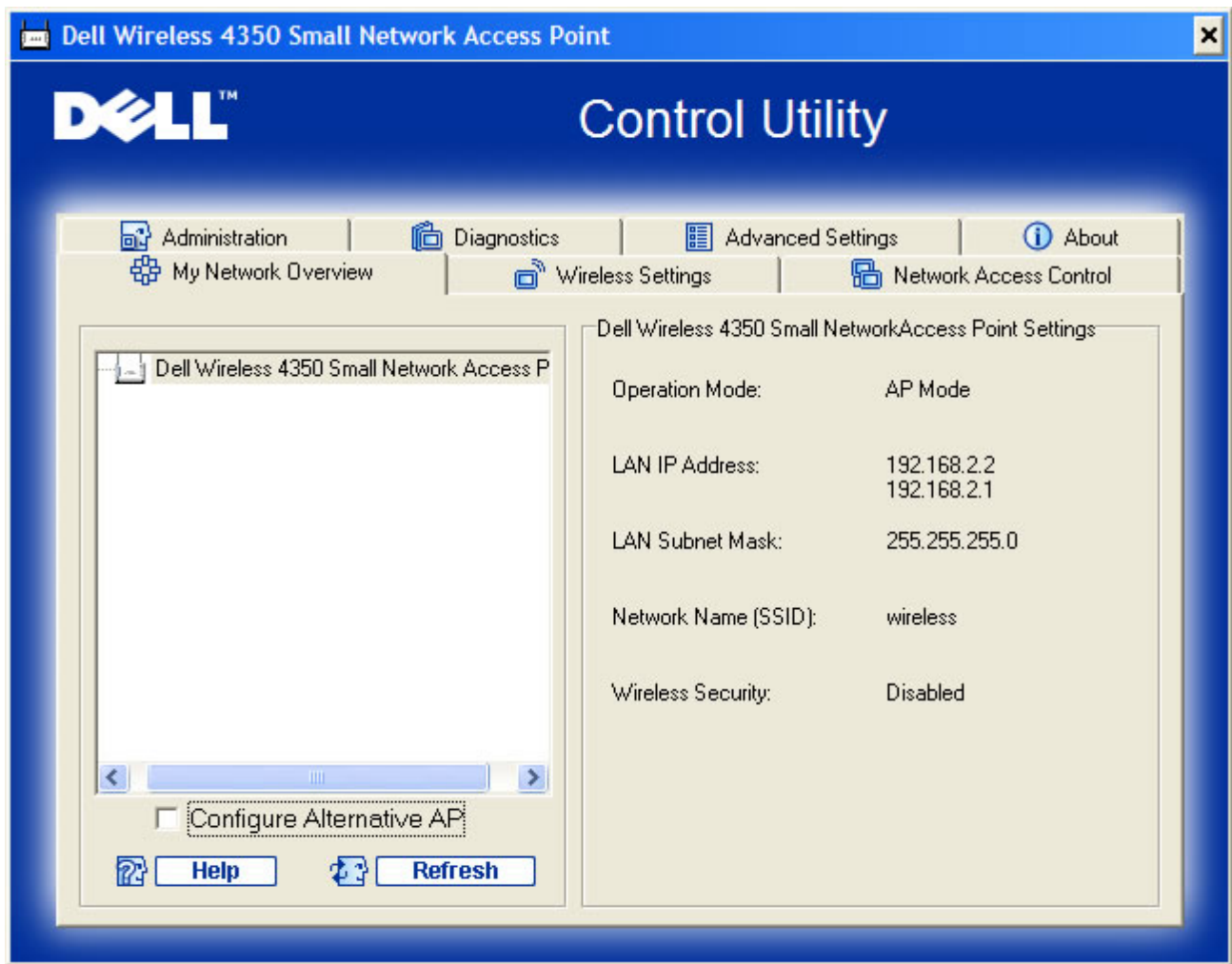
▶ [Advanced Settings](#)

My Network Overview

This screen provides information about your network connection and settings. The left pane displays your connection status. The right pane displays the following network settings:

- Operation Mode
- LAN IP Address
- LAN Subnet Mask
- Network Name (SSID)
- Wireless Security

My Network Overview



The Control Utility allows the user to manage multiple Dell Wireless 4350 Small Network Access Points on the network by allowing the user to configure an alternative access point to the default access point presented by the Control Utility.

To configure an alternative access point, perform the following steps:

1. Click to select **Configure Alternative AP**.
2. Enter the IP Address and Subnet Mask of the access point to be configured into the **IP Address** and **Subnet Mask** fields.
3. Click **Apply**, the Control Utility will shutdown and after restarting will have connected to the desired Dell Wireless 4350 Small Network Access Point.

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Wireless Settings

- **Network Name (SSID)**

The SSID is a unique network name. It is used to identify the wireless network. This name is used when connecting wireless clients to your wireless network.

- **Channel**

This is the radio channel over which a communication transmission occurs between the access point and a wireless client.

- **Default Settings**

Resets the wireless settings to its factory defaults.

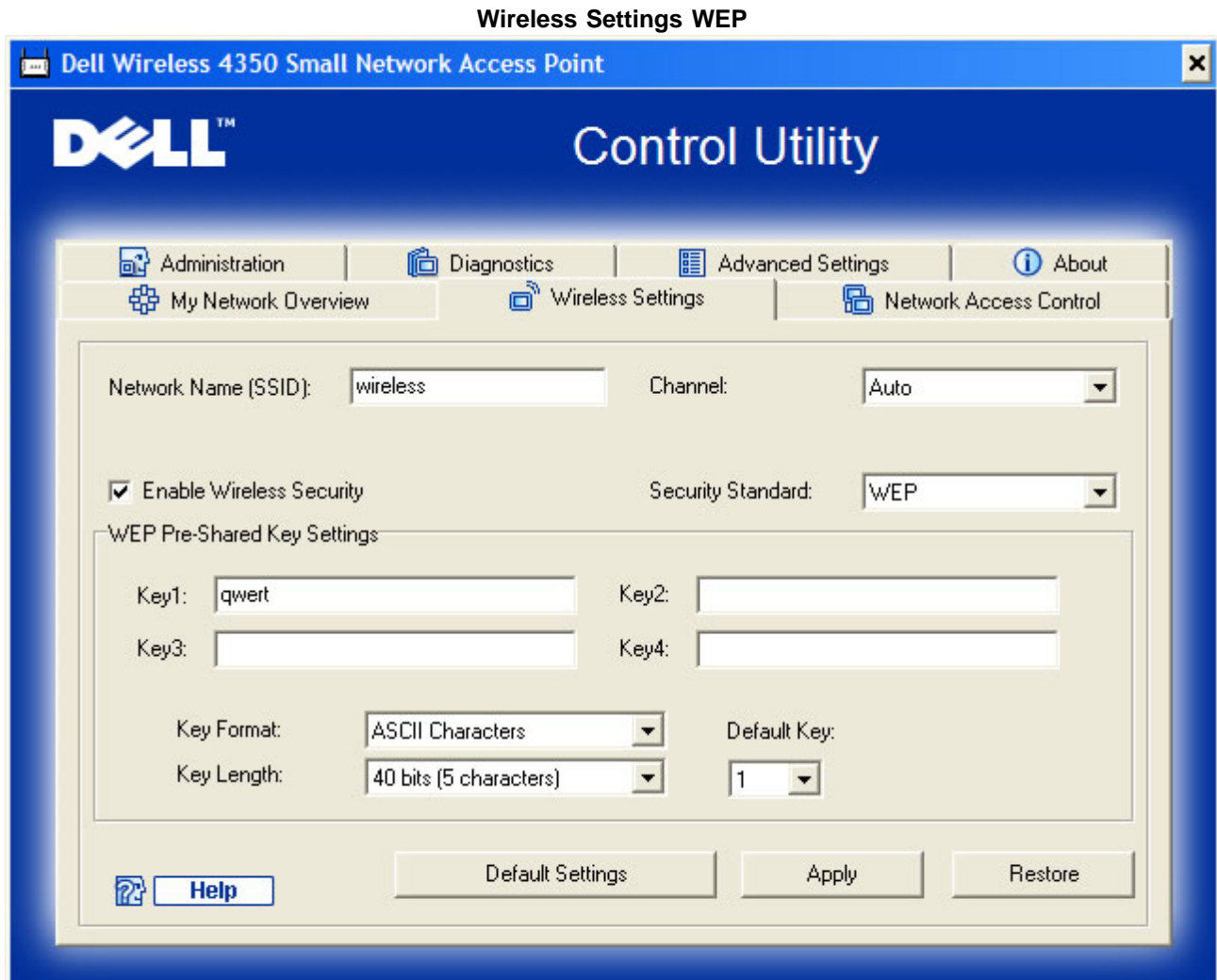
- **Apply**

Saves current settings.

- **Restore**

Restores previous settings.

Your Dell Wireless 4350 Small Network Access Point has an advanced security mechanism. It ensures the confidentiality of data, and also guards data against being modified. If you want to enable the security mechanism, click to select **Enable Wireless Security**.



WEP Settings

The **Wired Equivalent Privacy** (WEP) encryption defined in the 802.11 standard is used to protect wireless communication from eavesdropping. WEP provides a way of creating an encrypted key that is shared between a wireless client (such as a notebook with a wireless PC card) and the access point. This key encrypts data before it is transmitted. WEP can be implemented with a 40(64)-bit or 104(128)-bit key. For added security, change your key often. When you change the key on one wireless device, it must be changed for all wireless devices and access points in the network.

- **Key Format**

Can be ASCII or hexadecimal format. Hexadecimal format includes the numbers 0 through 9 and the letters A through F. ASCII format includes all alphanumeric characters.

- **Key Length**

Can be either 40(64)-bit or 104(128)-bit key length. Some wireless network cards are only able to use 40(64)-bit encryption. If all your clients are able to communicate at 104(128)-bit, then choose 104(128)-bit. If any client is only able to communicate at 40(64)-bit, choose 40(64)-bit.

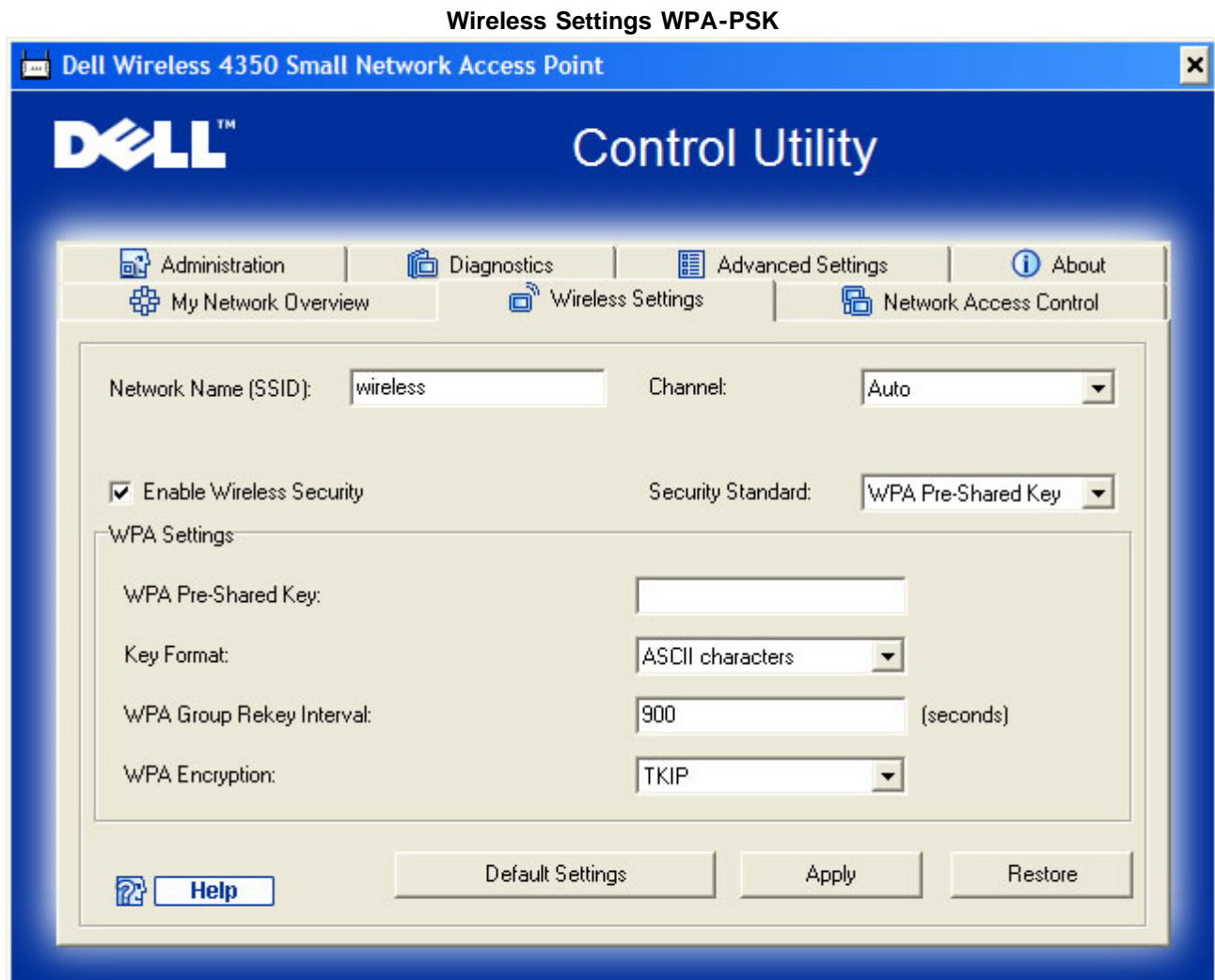
- **Key1, Key2, Key3, and Key4**

Type four different keys in the **Key** fields provided to store on the Wireless 2350. If you choose 40(64)-bit encryption, enter a 5-

character (or 10 hexadecimal digits). For 104(128)-bit encryption, enter a 13-character (or 26 hexadecimal digits) WEP key.

- **Default Key**

Select only one key out of the four provided in the **Default Key** field.



WPA-PSK Settings

Wi-Fi Protected Access (WPA) is an upgrade to the WEP standard for securing your wireless network.

If you would like to secure your wireless network using WPA, you must have WPA support for your wireless clients. If you are using a Dell wireless client, you can check for the availability of WPA-enabled software updates for your wireless client at <http://support.dell.com>.

- **WPA Pre-shared Key**

All wireless clients must use this key to gain access to the network. Note that the Key format must also match the setting for the wireless clients.

- **Key Format**

Can be ASCII or hexadecimal format. Hexadecimal format includes the numbers 0 through 9 and the letters A through F. ASCII format includes all alphanumeric characters.

- **WPA Group Rekey Interval**

WPA Group Rekey Interval is used to specify the frequency of encryption key rotations. The lower the number, the faster your encryption key will rotate; however, setting this number too low may cause your wireless network to slow down.

- **WPA Encryption**

TKIP (Temporal Key Integrity Protocol) is the most commonly used encryption method. **AES** (Advanced Encryption Standard) can be used if your wireless clients do not support TKIP.

Wireless Settings WPA 802.1x

The screenshot shows the 'Wireless Settings WPA 802.1x' window in the Dell Control Utility. The window title is 'Dell Wireless 4350 Small Network Access Point'. The interface includes a navigation bar with 'Administration', 'Diagnostics', 'Advanced Settings', and 'About'. Below this is a sub-menu with 'My Network Overview', 'Wireless Settings', and 'Network Access Control'. The main settings area includes: 'Network Name (SSID): wireless', 'Channel: Auto', 'Enable Wireless Security' (checked), 'Security Standard: WPA 802.1x', and a 'WPA 802.1x Settings' section with fields for 'Radius Server IP', 'Radius Server Port: 1812', 'Shared Secret', and 'WPA Encryption: TKIP'. At the bottom are buttons for 'Help', 'Default Settings', 'Apply', and 'Restore'.

WPA-802.1x Settings

- **Radius Server IP, Radius Server Port and Shared Secret.**

The **Radius Server IP**, **Radius Server Port** and **Shared Secret** fields required to be populated with the relevant information. This information regarding the Radius authentication server can be obtained from the network administrator.

- **WPA Encryption**

WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.

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Network Access Control

- **Add**
Adds a new entry to the list.
- **Edit**

Allows you to edit entries.

- **Delete**

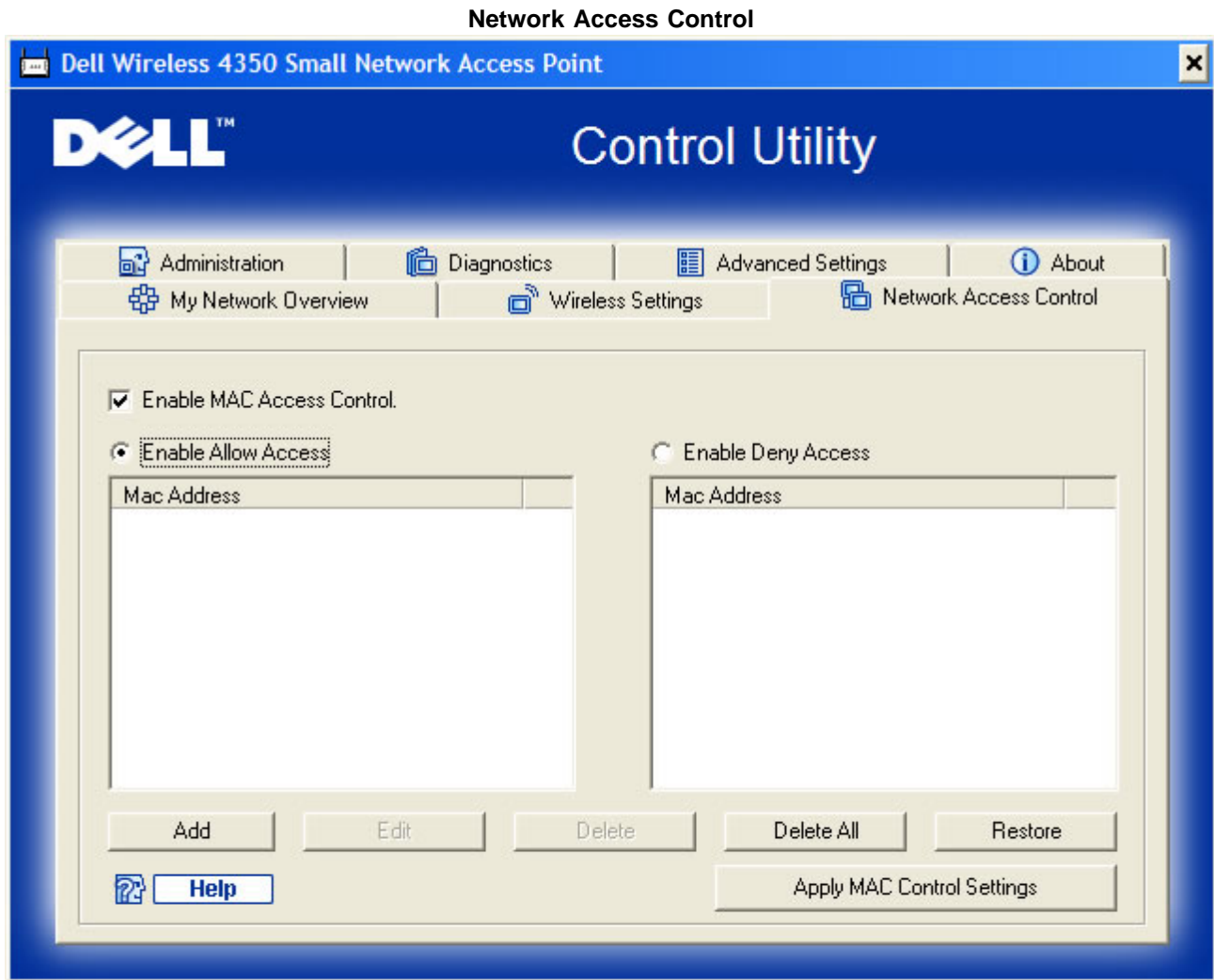
Deletes a record from the list.

- **Delete All**

Deletes all records from the list.

- **Restore**

Restores previous settings.



MAC Access Control

The MAC Access Control page allows you to control which local client computer is allowed to access the network through the Dell Wireless 4350 Small Network Access Point based on the client computer's MAC address. The default setting is to allow any client computer to access the network through the access point.

There are two options for the Access Control Settings, the Allow Access option and the Deny Access option. Each option is able to support up to 32 entries. Only one option can be active at any time. Selecting the checkbox for Enable Allow Access will disable Enable Deny Access and vice versa. The Enable Allow Access option will only allow clients that are listed in the table to access the network. The Enable Deny Access option will prevent any clients that are listed in the table from accessing the network.

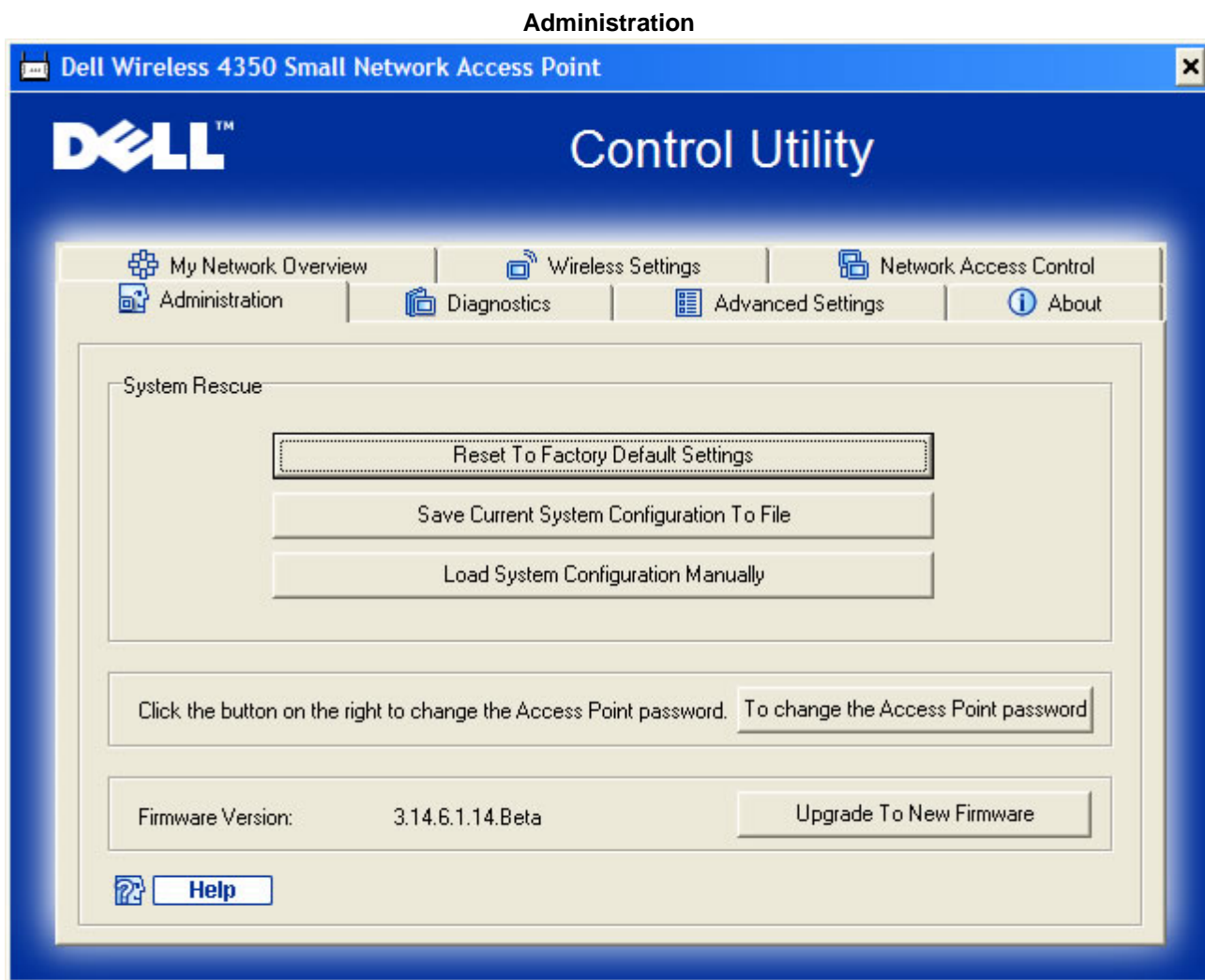
To enable MAC Access Control, perform the following steps:

1. Click to select **Enable MAC Access Control**.
2. Click the appropriate option, **Enable Allow Access** or **Enable Deny Access**.

3. Click the **Add** button. The **MAC Access Control: Add a Record** window appears.
4. Enter the hexadecimal MAC address (for example, 00:11:22:33:44:55) that you want to grant or deny access in the **Host MAC** box.
5. Click the **OK** button to apply, or click the **Cancel** button to exit without making any changes.
6. You can click on the selected record and click again on its **Host Name** to enter the desired name for this record.
7. Click the **Apply MAC Control Settings** button on the bottom of the screen to activate the new settings.

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Administration



System Rescue

System Rescue allows you to save a backup of your configuration settings.

- **Save Current System Configuration To File**


Saves the current settings as a **.pro** file.


- **Load System Configuration Manually**

Loads the backup file to restore previously saved settings.

- **Reset to Factory Default Settings**

Resets the router to its default configuration.

 **NOTE:** The system configuration files can only be used by the Control Utility on Dell Wireless 4350 Small Network Access Points.

 **NOTE:** Do not use the Control Utility to import configurations settings files created by the web based configuration tool.

Change Password

To prevent unauthorized administration changes to the access point, the access point is password protected. It is strongly recommended that you change the factory default password.

1. Click the **To Change the Access Point Password** button. The **Password Settings** window appears.
2. Type the original password in the **Original Password** field.
3. Type the new password in the **New Password** field, and then retype it in the **Confirm Password** field to verify.
4. Type the password hint message in the **Password Hint Message** field.
5. Click the **Submit** button when you finish the setting. If you want to clear any values you have entered in any field, click the **Cancel** button.

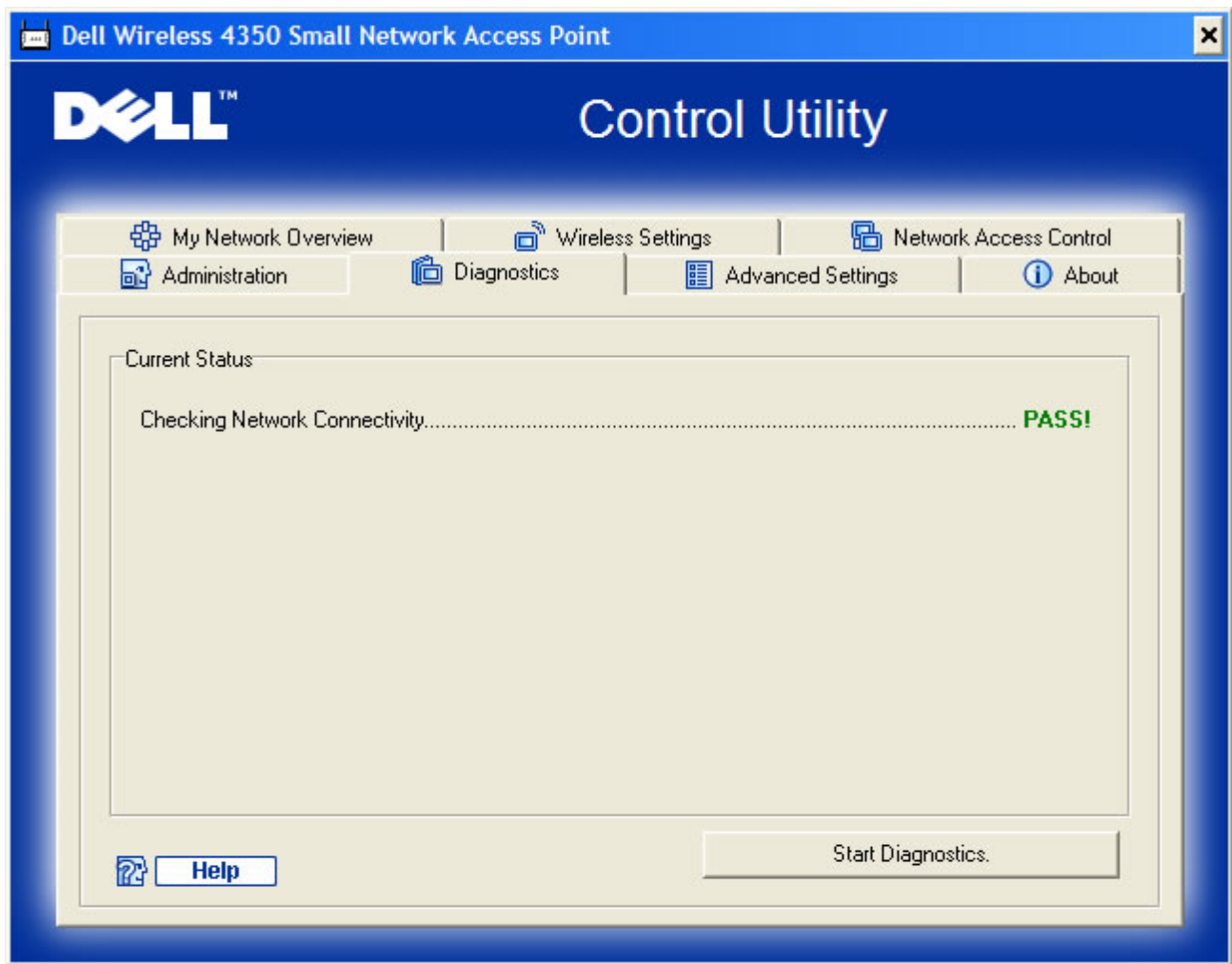
Upgrade to New Firmware

If you are instructed to upgrade the firmware, click the **Upgrade to New Firmware** button. It will connect to the Dell website to upgrade to the latest firmware release. It is unnecessary to upgrade the firmware if your access point is working properly.

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Diagnostics

Diagnostics



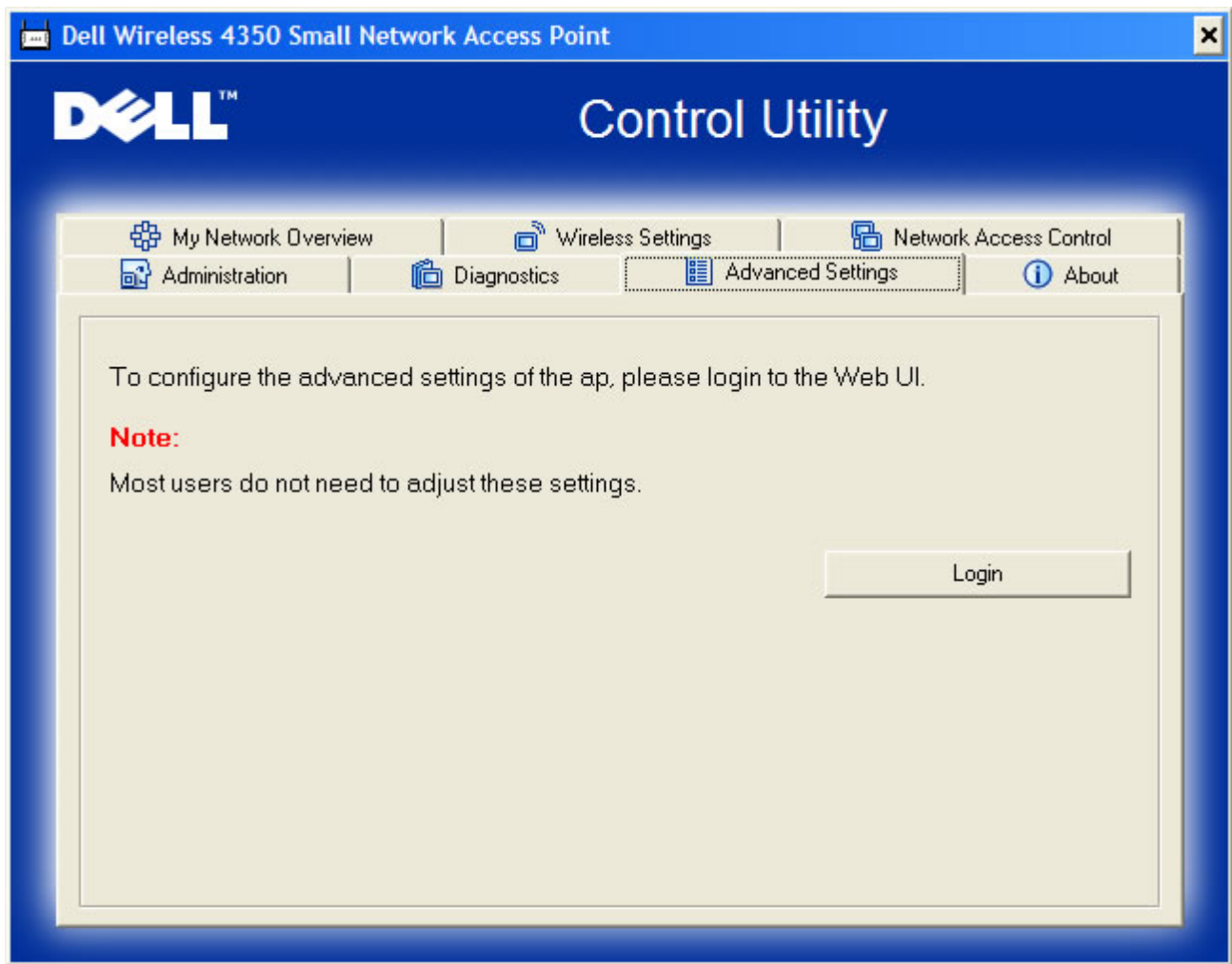
You can monitor the current status of your network connection in the **Diagnostics** menu. The network diagnostics can be activated by clicking the **Start Diagnostics** button on the bottom of the screen.

When the detection is done, the screen will display either a **PASS!** or **FAIL!** message indicating whether the access point is connected to a network or not.

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Advanced Settings

Advanced Settings



To configure the advanced settings of the access point, click the **Login** button to log in to the web-based configuration tool. The web-based configuration tool allows you to set up advanced network configurations for your Dell Wireless 4350 Small Network Access Point.

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Factory Default Settings: Dell™ Wireless 4350 Access Network Access Point User's Guide

Dell pre-configures the Dell Wireless 4350 Small Network Access Point with the following settings:

NOTE: If you lose track of the device settings, you can reset the router by pushing the reset button to restore these settings back to your router.

Setting	Default
User Name	admin
Password	admin
AP Host Name	Dell_4350_AP
IP Address	Static IP address of 192.168.2.2
Subnet Mask	255.255.255.0
ESSID (wireless network name)	wireless
Channel	auto
Encryption	No Encryption
Guest Mode	Disabled

NOTE: Your Dell Wireless 4350 Small Network Access Point comes with factory default settings that should work for the majority of the network usage scenarios. However, there are cases where your network environment may require a different configuration.

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Setup Wizard: Dell™ Wireless 4350 Small Network Access Point User's Guide

▶ [Introduction](#)

▶ [Launch the Setup Wizard](#)

▶ [Setup Wizard Screens](#)

Introduction

The Setup Wizard is an easy-to-use program included on your Dell Wireless 4350 Small Network Access Point CD. It provides simplified steps for configuring the Access Point. The Setup Wizard displays a series of graphical illustrations on how to connect the Access Point to your computer. It presents the user with the option of changing wireless parameters (such as SSID, channel number, IP address) and enabling WEP security. Finally it applies these settings to your access point and validates its configuration. At this point the access point is ready to be connected to the network. If the configuration cannot be completed successfully, the Setup Wizard will display troubleshooting instructions to guide you through the configuration process.

In addition, the Setup Wizard also supports the installation of the Control Utility and provides links to the user's guide on the Dell Wireless 4350 Small Network Access Point CD and the Dell support website.

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Launch the Setup Wizard

To run the Setup Wizard, perform the following steps:

Insert the CD



1. Insert the **Dell Wireless 4350 Small Network Access Point CD** into the CD drive of a computer. Your CD should automatically launch the Setup Wizard. If it does not, complete the following steps to start the Wizard.
 - a. Click the **Start** button, and then click **Run**.
 - b. Type the following text in the **Open:** field:

X:\setup.exe

where **X** is the drive letter of your CD drive.

Once the Setup Wizard has been launched, you will be guided through a series of windows. These windows are illustrated below along with an explanation on their functionalities.

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Setup Wizard Screens

Welcome Menu

This menu offers several options to select from.

- **AP Configuration**

Begin connecting your access point to the network, it's wireless and security parameters need to be configured.

- **Connect Wireless Computer**

Configure wireless computers to connect to the wireless network.

- **Install Control Utility**

Install the Control Utility on a computer

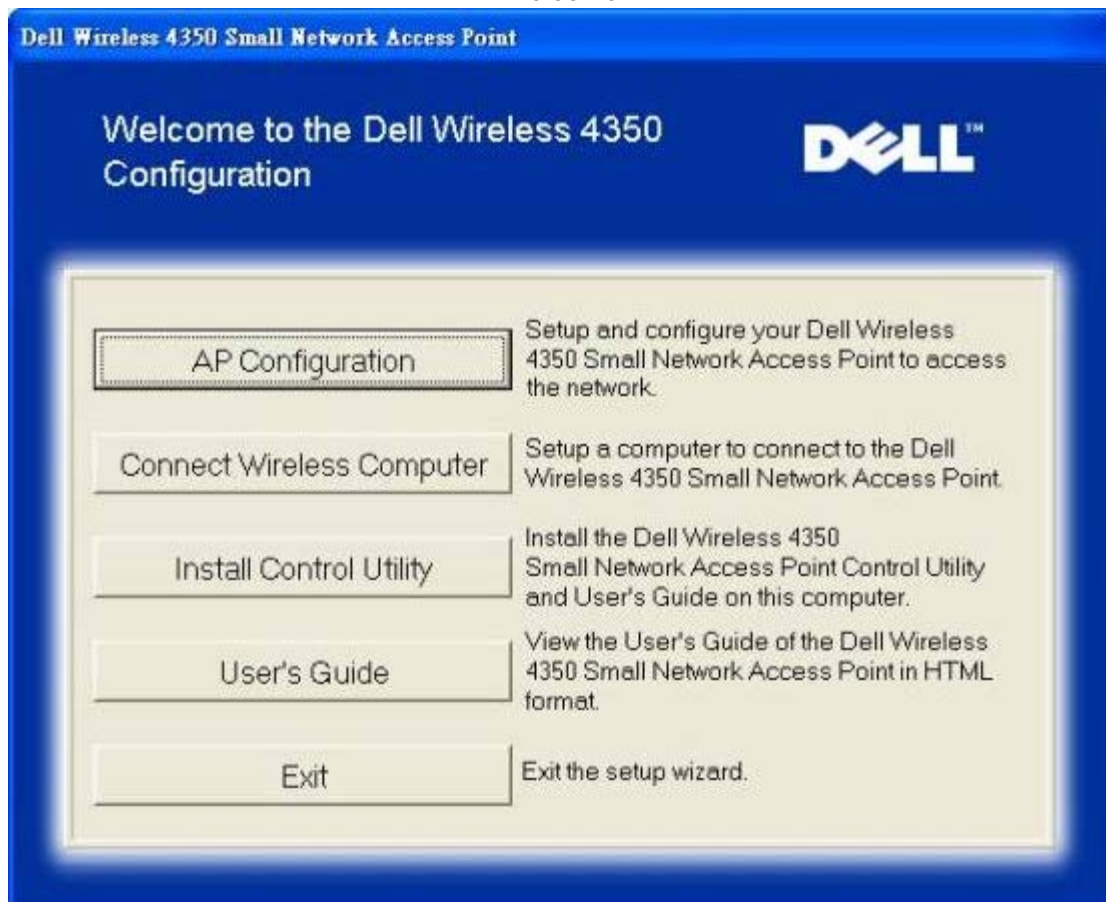
- **User's Guide**

View the user's guide (this document)

- **Exit**

End the Setup Wizard

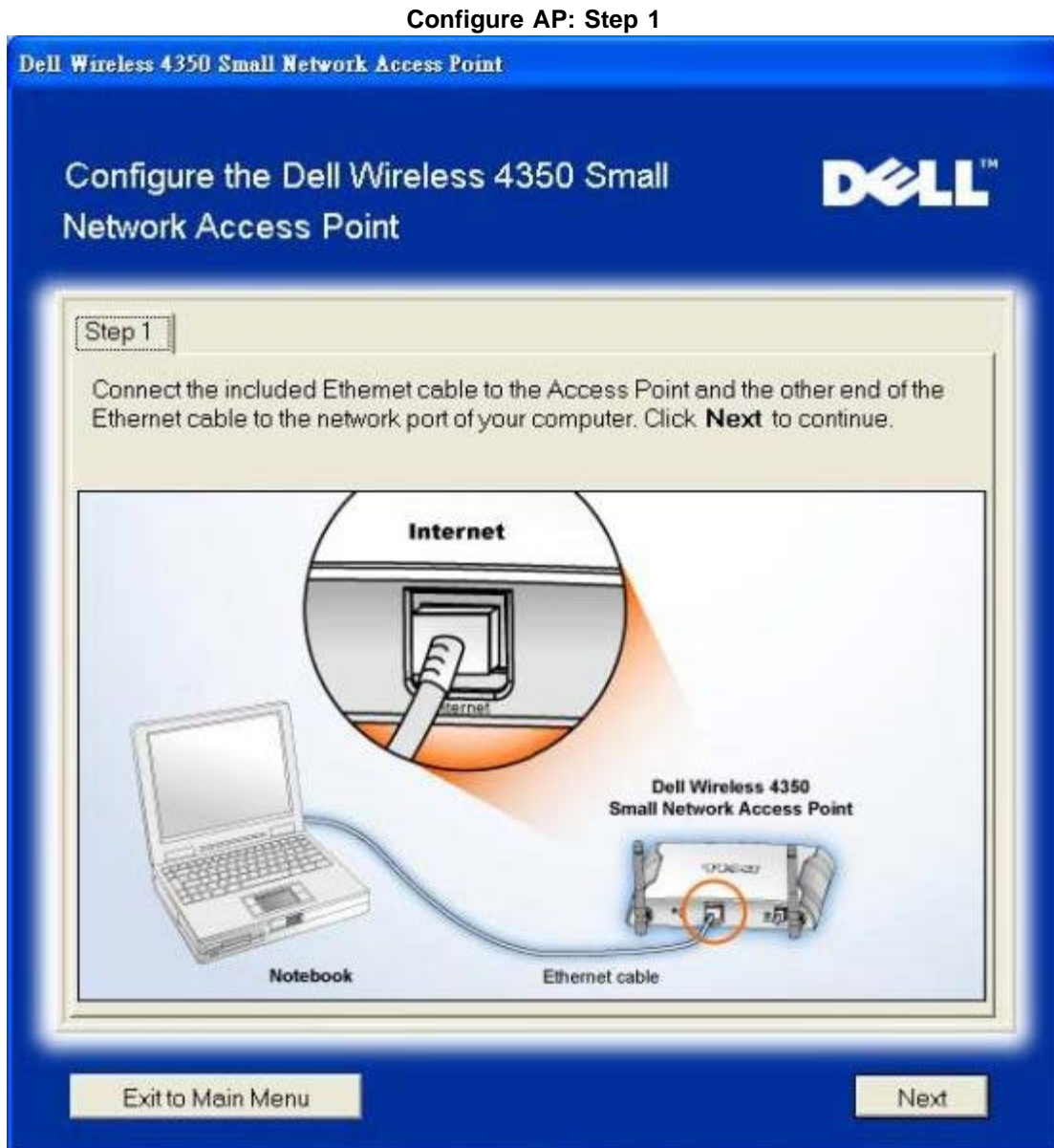
Welcome



AP Configuration

Click **AP Configuration** if you want to configure the access point before connecting it to the network and follow the steps described below.

Step 1 illustrates how the computer is to be connected to the Dell Wireless 4350 Small Network Access Point.



Step 2 illustrates how the Dell Wireless 4350 Small Network Access Point is connected to the power supply.

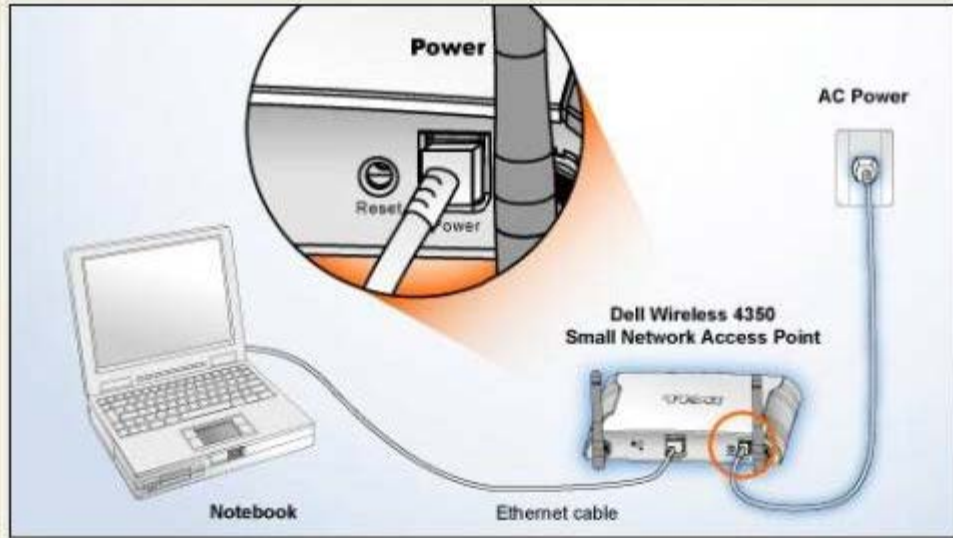
Configure AP: Step 2

Configure the Dell Wireless 4350 Small Network Access Point



Step 2

Connect the power adapter to the Access Point's power port. Click **Next** to continue.



Exit to Main Menu

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Next

Step 3 informs the user that you need to assign your computer a static IP address within the same range as the access point. .

Configure AP: Step 3

Configure the Dell Wireless 4350 Small Network Access Point



Step 3

The default IP address for the Dell Wireless 4350 Small Network Access Point is: 192.168.2.1 with a subnet mask of 255.255.255.0.

You will need to assign your computer a static IP address within the same range as the Dell Wireless 4350 Small business Access Point in order to configure the Access Point.

See the User Guide on the CD if you need assistance in assigning a static IP address to the network card of your computer.

Click **Next** to proceed when your computer has been configured with a static IP address.

Exit to Main Menu

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Next

Step 4 gives the user the option to change the wireless network's SSID and channel number.

Configure AP: Step 4

Configure the Dell Wireless 4350 Small Network Access Point



Step 4

Enter in the wireless network's SSID name and channel number to be used for the Access Point. Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

Channel:

This is the channel on which your wireless network is operating and should be the same for all Access Points on your network.

Exit to Main Menu

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Next

Step 5 gives the user the option to enable WEP wireless encryption and to specify the WEP encryption key values.

Configure AP: Step 5

Configure the Dell Wireless 4350 Small Network Access Point



Step 5

If you wish to use wireless encryption, enable it here and enter the WEP encryption key values. Click **Next** to continue.

WEP: Enabled Disabled

The options for WEP encryption are 64Bit and 128Bit. A higher level of encryption equals greater security.

WEP Encryption:

The value of the key can be entered using letters "A" through "F" and/or numbers "0" through "9".

Key:

Exit to Main Menu

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Next

Step 6 gives the user the option to either change the static IP address or set the access point as a DHCP client.

Configure AP: Step 6

Configure the Dell Wireless 4350 Small Network Access Point



Step 6

Select the appropriate option to change the static IP address of your Access Point or configure it as a DHCP client.

Static IP DHCP

Static IP Address . . .

Subnet Mask . . .

Exit to Main Menu

Back

Next

Step 7 informs the user to wait until the Access Point configuration is finished.

Configure AP: Step 7



Step 8 is a congratulations screen if the user has successfully configured the Dell Wireless 4350 Small Network Access Point.

Configure AP: Step 8

Congratulations



You have successfully configured the Dell Wireless 4350 Small Network Access Point.

To view your Access Point's configuration settings, click "View Configuration Settings" You must record these configuration settings as you will need them anytime you want to connect a wireless client to the network.

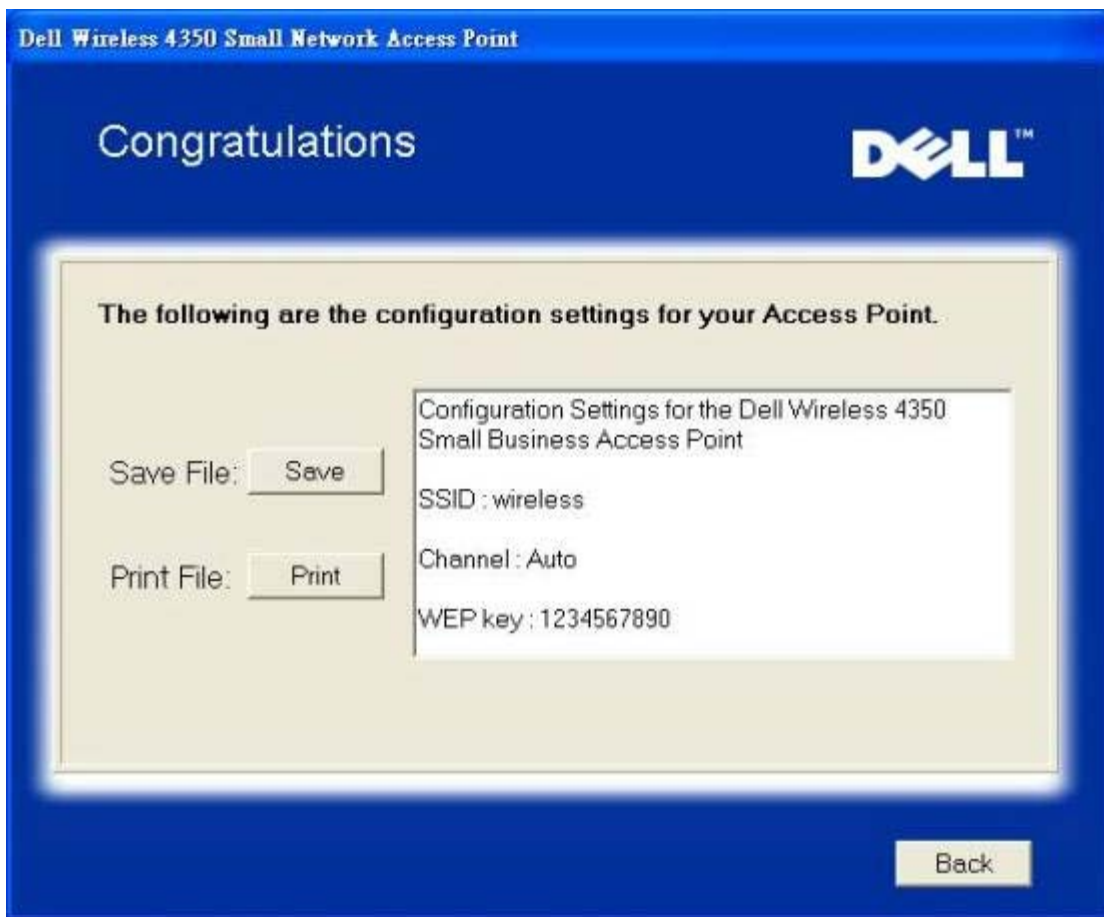
[View Configuration Settings](#)

Power down the Access Point and disconnect the Ethernet cable from your computer to the Access Point and then return to the Quick Start Guide for information on how to connect the Access Point to your network.

[Exit to Main Menu](#)

Step 9 is an optional screen that displays the configuration settings chosen by the user.

Configure AP: Step 9



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Connect Wireless Computer

To connect computers to your wireless network after you have successfully configured and installed the Access Point, place the Dell Wireless 4350 Small Network Access Point CD into each computer and run the Setup Wizard. Click **Connect Wireless Computer** to add each wireless computer to your network.

Setup Wireless Computer - Win XP (No Encryption)

Pressing the **Setup Wireless Computer** button displays instructions to connect computers to the network through a wireless connection.

Step 1 asks the user to enter the SSID of the wireless network that you wish to connect to.

Setup Wireless Computer: Step 1

Setup Wireless Computer



Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

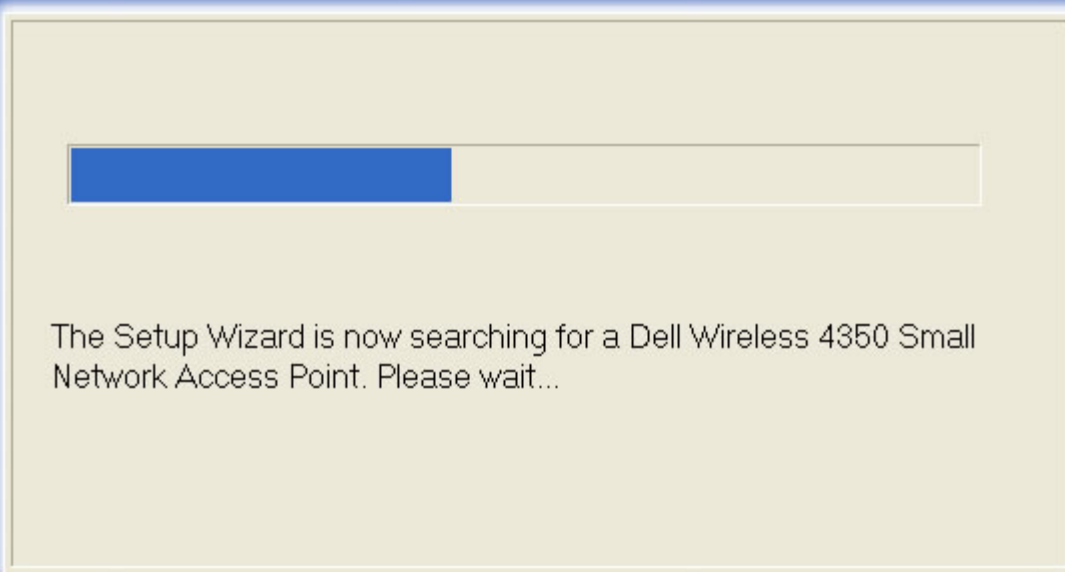
Exit to Main Menu

Next

Step 2 asks the user to wait while the Setup Wizard does a site survey scanning for the requested wireless network.

Setup Wireless Computer: Step 2

Setup Wireless Computer



Cancel

Step 3 guides the user through using the Windows wireless configuration utility to configure the wireless client.

Setup Wireless Computer: Step 3



Setup Wireless Computer

To establish wireless connection with your router, you have to configure the wireless client card on your computer with the same network name (SSID) and wireless security information of your router.

- a. Right-click the **wireless network connections** icon in the notification area (Located at the lower-right corner of the Windows desktop).
- b. Left-click **View Available Wireless Networks**.



Click **Next** to continue.

Exit to Main Menu

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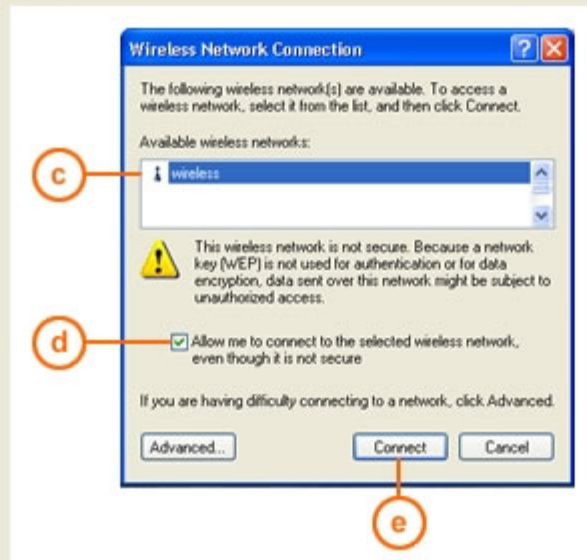
Next

Step 4 guides the user through the remaining steps in using the Windows wireless configuration utility to configure the wireless client.

Setup Wireless Computer: Step 4

Setup Wireless Computer

- c. In the **Available wireless networks** field, click to join the wireless network.
- d. Click **Allow me to connect to the selected wireless network, even though it is not secure.**
- e. Click **Connect.**



Click **Next** to continue.

Exit to Main Menu

Back

Next

Step 5 informs the user to wait while the wireless client configuration is being verified.

Setup Wireless Computer: Step 5

Setup Wireless Computer



The Setup Wizard is now configuring the wireless connection from this computer to the Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 6 informs the user that the wireless client is successfully configured and is now on the wireless network.

Setup Wireless Computer: Step 6

Congratulations



This computer is now successfully setup via a non secure wireless connection.

For information on setting up wireless security, see the Dell Wireless 4350 Small Network Access Point **User's Guide**.

To setup another computer to connect to the Dell Wireless 4350 Small Network Access Point, run the Setup Wizard again from the CD on the other computer and choose **Connect Wireless Computer**.

Exit to Main Menu

Setup Wireless Computer - Win XP (WEP Encryption)

Pressing the **Setup Wireless Computer** button displays instructions to connect computers to the network through a wireless connection.

Step 1 asks the user to enter the SSID of the wireless network that you wish to connect to.

Setup Wireless Computer: Step 1

Setup Wireless Computer



Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

Exit to Main Menu

Next

Step 2 asks the user to wait while the Setup Wizard does a site survey scanning for the requested wireless network.

Setup Wireless Computer: Step 2

Setup Wireless Computer



The Setup Wizard is now searching for a Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 3 asks the user to enter the WEP key of the wireless network that they wish to connect to.

Setup Wireless Computer: Step 3

Setup Wireless Computer



In order to configure a secure wireless connection, you must enter the WEP key of your wireless network.

If you do not know the WEP key of your wireless network, contact your network system administrator for this information.

WEP Key Information

Enter WEP key :

Re-enter WEP key :

Exit to Main Menu

Back

Next

Step 4 guides the user through using the Windows wireless configuration utility to configure the wireless client.

Setup Wireless Computer: Step 4



Setup Wireless Computer

To establish wireless connection with your router, you have to configure the wireless client card on your computer with the same network name (SSID) and network key of your AP. This network key is:

- a. Right-click the **wireless network connections** icon in the notification area (Located at the lower-right corner of the Windows desktop).
- b. Left-click **View Available Wireless Networks**.



Click **Next** to continue.

Exit to Main Menu

Back

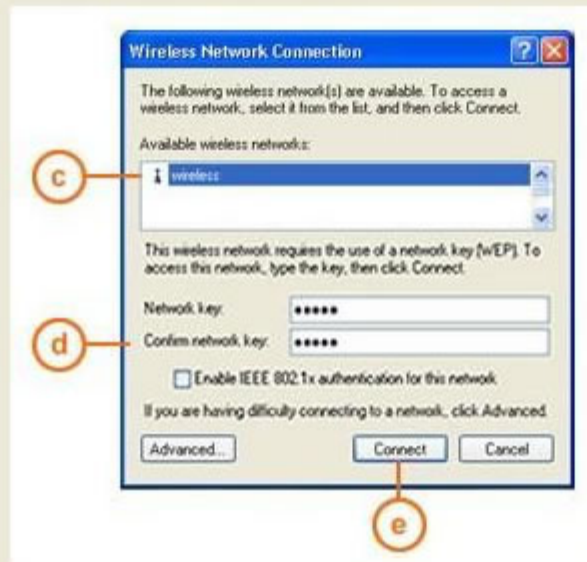
Next

Step 5 guides the user through the remaining steps in using the Windows wireless configuration utility to configure the wireless client.

Setup Wireless Computer: Step 5

Setup Wireless Computer

- c. In the **Available wireless networks** field, click to join the wireless network.
- d. Enter the Network key into the **Network Key** and **Confirm Network Key**
Your Network key is:
- e. Click **Connect**.



Click **Next** to continue.

Exit to Main Menu

Back

Next

Step 6 informs the user to wait while the wireless client configuration is being verified.

Setup Wireless Computer: Step 6

Setup Wireless Computer



The Setup Wizard is now configuring the wireless connection from this computer to the Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 7 informs the user that the wireless client is successfully configured and is now on the wireless network.

Setup Wireless Computer: Step 7

Congratulations



This computer is now successfully setup via a secure wireless connection.

To setup another computer to connect to the Dell Wireless 4350 Small Network Access Point, run the Setup Wizard again from the CD on the other computer and choose **Connect Wireless Computer**.

To change the security settings of your AP, consult the HTML User Guide for information on how this can be done.

Exit to Main Menu

Setup Wireless Computer - Win XP SP2 (No Encryption)

Pressing the **Setup Wireless Computer** button displays instructions to connect computers to the network through a wireless connection.

Step 1 asks the user to enter the SSID of the wireless network that you wish to connect to.

Setup Wireless Computer: Step 1

Setup Wireless Computer



Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

Exit to Main Menu

Next

Step 2 asks the user to wait while the Setup Wizard does a site survey scanning for the requested wireless network.

Setup Wireless Computer: Step 2

Setup Wireless Computer



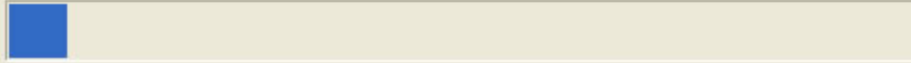
The Setup Wizard is now searching for a Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 3 informs the user to wait while the wireless client is being configured to join the network.

Setup Wireless Computer: Step 3

Setup Wireless Computer



The Setup Wizard is now configuring the wireless connection from this computer to the Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 4 informs the user that the wireless client is successfully configured and is now on the wireless network.

Setup Wireless Computer: Step 4

Congratulations



This computer is now successfully setup via a non secure wireless connection.

For information on setting up wireless security, see the Dell Wireless 4350 Small Network Access Point **User's Guide**.

To setup another computer to connect to the Dell Wireless 4350 Small Network Access Point, run the Setup Wizard again from the CD on the other computer and choose **Connect Wireless Computer**.

Exit to Main Menu

Setup Wireless Computer - Win XP SP2 (WEP Encryption)

Pressing the **Setup Wireless Computer** button displays instructions to connect computers to the network through a wireless connection.

Step 1 asks the user to enter the SSID of the wireless network that you wish to connect to.

Setup Wireless Computer: Step 1

Setup Wireless Computer



Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

SSID:

The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

Exit to Main Menu

Next

Step 2 asks the user to wait while the Setup Wizard does a site survey scanning for the requested wireless network.

Setup Wireless Computer: Step 2

Setup Wireless Computer



A large, light-colored rectangular area containing a progress bar at the top. The progress bar is a horizontal rectangle with a blue segment on the left side, indicating the current progress of the setup process. Below the progress bar, the text reads: "The Setup Wizard is now searching for a Dell Wireless 4350 Small Network Access Point. Please wait..."

Cancel

Step 3 asks the user to enter the WEP key of the wireless network that they wish to connect to.

Setup Wireless Computer: Step 3

Setup Wireless Computer



In order to configure a secure wireless connection, you must enter the WEP key of your wireless network.

If you do not know the WEP key of your wireless network, contact your network system administrator for this information.

WEP Key Information

Enter WEP key :

Re-enter WEP key :

Exit to Main Menu

Back

Next

Step 4 informs the user to wait while the wireless client is being configured to join the network.

Setup Wireless Computer: Step 4

Setup Wireless Computer



The Setup Wizard is now configuring the wireless connection from this computer to the Dell Wireless 4350 Small Network Access Point. Please wait...

Cancel

Step 5 informs the user that the wireless client is successfully configured and is now on the wireless network.

Setup Wireless Computer: Step 5

Congratulations



This computer is now successfully setup via a secure wireless connection.

To setup another computer to connect to the Dell Wireless 4350 Small Network Access Point, run the Setup Wizard again from the CD on the other computer and choose **Connect Wireless Computer**.

To change the security settings of your AP, consult the HTML User Guide for information on how this can be done.

Exit to Main Menu

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Control Utility: Dell™ Wireless 4350 Small Network Access Point User's Guide

The Control Utility is Windows-based software that allows you to configure your Access Point and monitor the status of your Dell Wireless 4350 Small Network Access Point.

- ▶ [Install the Control Utility](#)
- ▶ [Uninstall the Control Utility](#)
- ▶ [Start the Control Utility](#)
- ▶ [Using the Control Utility to manage multiple Access Points](#)
- ▶ [Exit the Control Utility](#)
- ▶ [How to configure the Access Point via the Control Utility ?](#)

Install the Control Utility

You can install the Control Utility on your computer from your *Dell Wireless 4350 Small Network Access Point CD* .

1. Insert the *Dell Wireless 4350 Small Network Access Point CD* into the CD drive. Your CD should automatically launch the **Setup Wizard** program. If it does not, complete the following steps to start the Wizard.
 - a. Click the **Start** button, and then click **Run**.
 - b. Type the following text in the **Open:** field: X:\setup.exe (where **X** is the drive letter of your CD drive).
 - c. Click the **OK** button.
2. From the main menu, click the **Install Control Utility** button.
3. Follow the on-screen instructions.

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Uninstall the Control Utility



1. If the Dell Wireless 4350 Small Network Access Point icon is displayed in the system tray in the lower right corner of the screen, right-click the icon and click **Exit**.
2. Click the **Start** button.
3. Click **Control Panel**. The **Control Panel** window appears.
4. Click the **Add/Remove Programs** icon.
5. Click to select the **Control Utility** from the program list and remove it as instructed.

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Start the Control Utility

The control utility program will run automatically upon each computer startup by default. If the utility does not start automatically, run the **Dell Wireless 4350 Small Network Access Point Dell Control Utility** from the **Start** menu.

Once running, a access point icon is created in the system tray in the lower right corner of your screen. If you have a connection to the access point, the system tray icon looks gray and white . You can double-click the icon to open the utility panel.

 **NOTE:** If the icon is red , it indicates that the connection to the access point failed.

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Using the Control Utility to manage multiple Access Points

The control utility program can be used to manage multiple Dell Wireless 4350 Small Network Access Points. When the Control Utility launches it will connect to the last access point configured. If you wish to configure an alternative Dell Wireless 4350 Small Network Access Point on the network, then follow the instructions below.

1. Start the **Dell Wireless 4350 Small Network Access Point Control Utility**.
2. In the **My Network Overview** tab, enable the **Configure Alternative AP** checkbox.
3. Enter the IP address of the alternative Dell Wireless 4350 Small Network Access Point that you wish to configure in the **IP Address** field.
4. Click **Apply**
5. The Control Utility will then shutdown. After restarting the Control Utility, it will have connected to the alternative Dell Wireless 4350 Small Network Access Point.

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Exit the Control Utility

When you start the control utility program, it will place a small gray and white icon  in the system tray in the lower right corner of your screen. If you want to exit the program, right-click the icon, and then left-click **Exit** to quit the program.

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Web-based Configuration Tool: Dell™ Wireless 4350 Small Network Access Point User's Guide

[Overview](#)

[Basic Settings](#)

[Device Status](#)

[System Tools](#)

[Advanced Settings](#)


[Log Off](#)

Overview

The web-based configuration tool enables you to set up advanced network configuration for your Dell Wireless 4350 Small Network Access Point. Follow the instructions below to gain access to the web tool.

 **NOTE:** Microsoft Internet Explorer 4.0 or higher or Netscape 4.0 or higher must be used for the web-based configuration tool.

1. Click the **Start** button, and then click **Run**.
2. Type the IP address of the Dell Wireless 4350 Small Network Access Point into the **Open** box: (for information on obtaining this IP address see [How to obtain the IP Address of the Access Point](#)).
3. If this is the first time configuring your Dell Wireless 4350 Small Network Access Point, or if the user name and password have not been changed, type **admin** in the **User Name** and **Password** fields.
4. Click the **OK** button. The **Configuration** screen appears.

 **NOTE:** Dell technical support representatives do not support the configuration options in the **Advanced Settings** portion of the configuration program. These options are provided for your convenience only. However, the advanced settings are fully documented and explained in this guide.

Main Menu



Dell Wireless 4350 Small Network Access Point

Basic Settings

Use the basic settings to change the mode of your router, Wireless network name and channel, wireless security, and internet connection settings.

Advanced Settings

Use the advanced settings to change the IP address of the router, DHCP server options, Time zone, Advanced wireless settings, Parental control options, Access control options, and Administration options.

Device Status

Use the device status to check the status for each connection to your router.

System Tools

Use System tools to check the intruder log, display the routing table, perform system diagnostics, load default settings, upgrade firmware, and reset the router.

Help

Use the Help link to get on-screen help with the features of the router.

Log Off

Exit the Dell Wireless 4350 Small Network Access Point configuration.

Log Off

The Log Off button logs the user off the web based configuration tool. This configuration tool only allows access to one user at a time.

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Using Your Access Point: Dell™ Wireless 4350 Small Network Access Point User's Guide

- ▶ [Overview](#)
 - ▶ [Factory Default Settings](#)
 - ▶ [Setup Wizard](#)
 - ▶ [Control Utility](#)
 - ▶ [Web-Based Configuration Tool](#)
-


Overview

Factory Default Settings: Your Wireless 4350 Small Network Access Point came with [factory default settings](#) that should work for the majority of the network usage scenarios. However, there are cases where your network environment may require a different access point configuration.

Setup Wizard: Setup Wizard is a Windows-based software program included on your Dell Wireless 4350 Small Network Access Point CD. You can use this program to 1) configure the access point before connecting it to the network, 2) add wireless clients to the network, 3) install the Control Utility on your computer and 4) provide links to the user's guide and the [Dell support website](#).

Control Utility: Control Utility is a Windows-based software program included on your Dell Wireless 4350 Small Network Access Point CD. This utility can be installed on your computer by choosing the Install Control Utility option in the Setup Wizard. It provides you with a useful configuration tool to manage your Dell Wireless 4350 Small Network Access Point. Refer to the section [Control Utility](#) for detailed information.

Web-Based Configuration Tool: The web-based configuration tool is for advanced configuration of the Dell Wireless 4350 Small Network Access Point. It is a tool provided inside the access point which can be accessed via the web browser on your computer. This tool includes every basic and advanced configuration option for the Dell Wireless 4350 Small Network Access Point. For instance, you can enable multiple virtual AP's or disable your wireless network.

 **NOTE:** The **Setup Wizard** and **Control Utility** must be run on Windows 2000 or Windows XP computers. Microsoft Internet Explorer 4.0 or higher or Netscape 4.0 or higher must be used for the web-based configuration tool.

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How to Configure the Access Point via the Control Utility:

Dell™ Wireless 4350 Small Network Access Point User's Guide

▶ [My Network Overview](#)

▶ [Wireless Settings](#)

▶ [Network Access Control](#)

▶ [Administration](#)

▶ [Diagnostics](#)

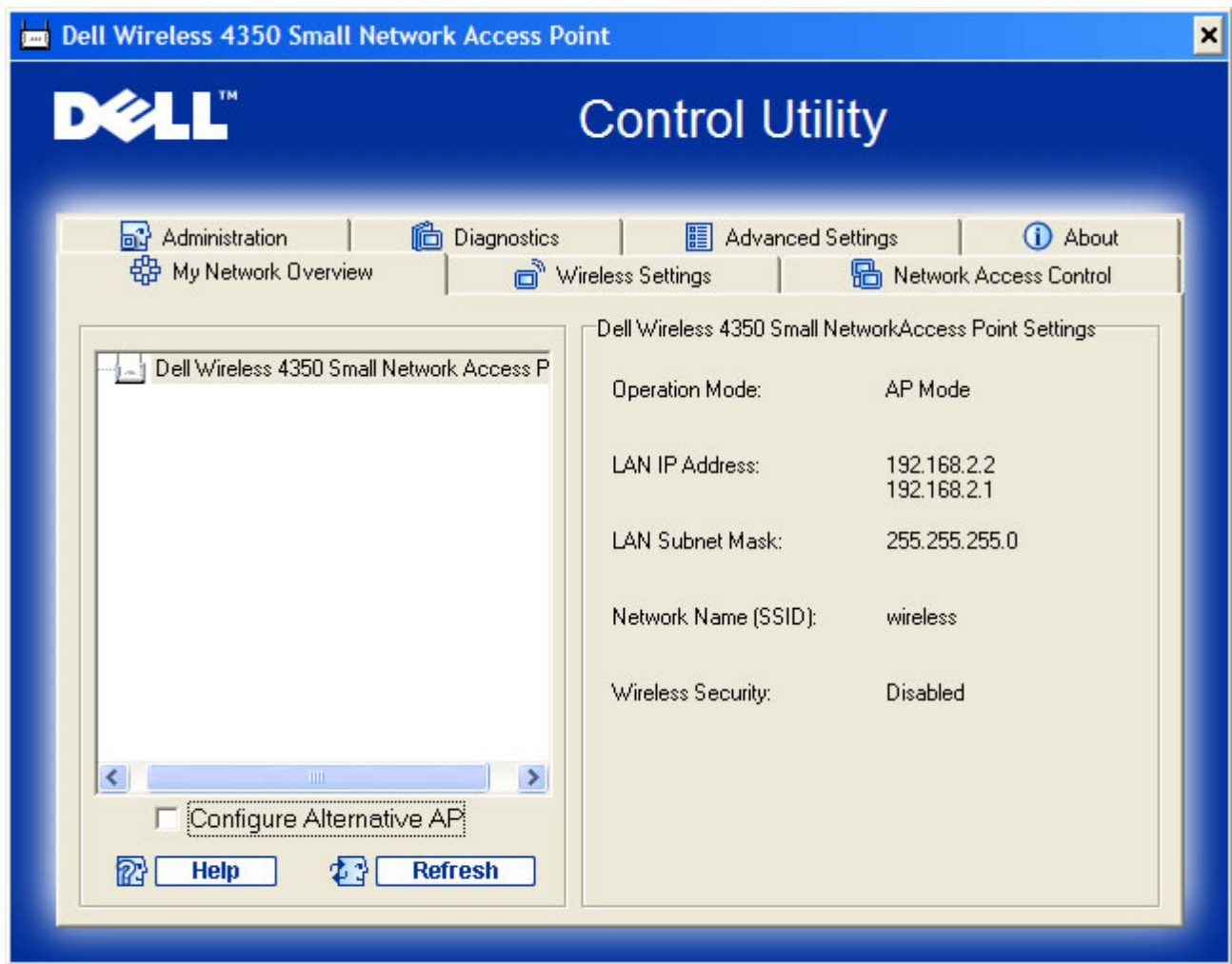
▶ [Advanced Settings](#)

My Network Overview

This screen provides information about your network connection and settings. The left pane displays your connection status. The right pane displays the following network settings:

- Operation Mode
- LAN IP Address
- LAN Subnet Mask
- Network Name (SSID)
- Wireless Security

My Network Overview



The Control Utility allows the user to manage multiple Dell Wireless 4350 Small Network Access Points on the network by allowing the user to configure an alternative access point to the default access point presented by the Control Utility.

To configure an alternative access point, perform the following steps:

1. Click to select **Configure Alternative AP**.
2. Enter the IP Address and Subnet Mask of the access point to be configured into the **IP Address** and **Subnet Mask** fields.
3. Click **Apply**, the Control Utility will shutdown and after restarting will have connected to the desired Dell Wireless 4350 Small Network Access Point.

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Wireless Settings

- **Network Name (SSID)**

The SSID is a unique network name. It is used to identify the wireless network. This name is used when connecting wireless clients to your wireless network.

- **Channel**

This is the radio channel over which a communication transmission occurs between the access point and a wireless client.

- **Default Settings**

Resets the wireless settings to its factory defaults.

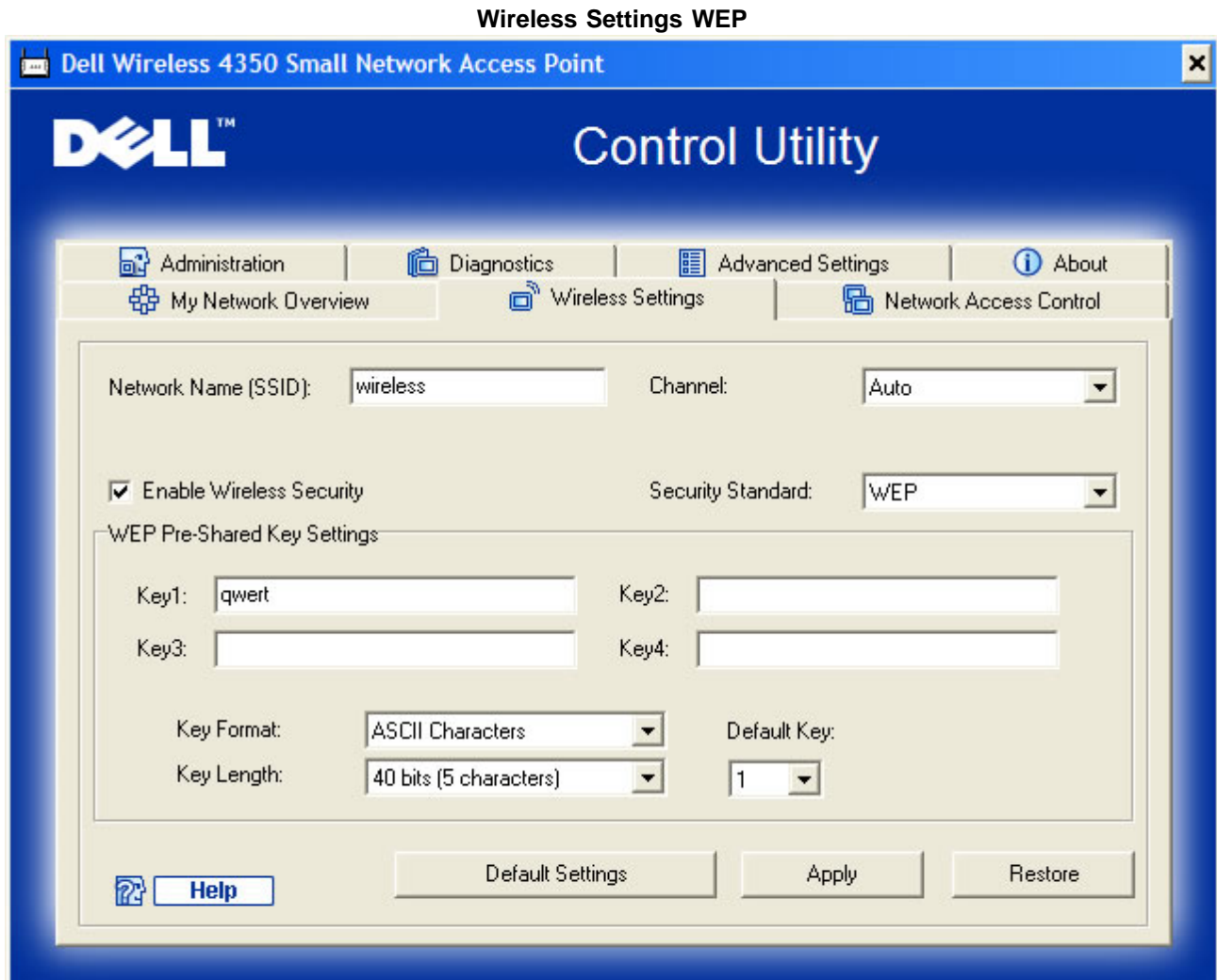
- **Apply**

Saves current settings.

- **Restore**

Restores previous settings.

Your Dell Wireless 4350 Small Network Access Point has an advanced security mechanism. It ensures the confidentiality of data, and also guards data against being modified. If you want to enable the security mechanism, click to select **Enable Wireless Security**.



WEP Settings

The **Wired Equivalent Privacy** (WEP) encryption defined in the 802.11 standard is used to protect wireless communication from eavesdropping. WEP provides a way of creating an encrypted key that is shared between a wireless client (such as a notebook with a wireless PC card) and the access point. This key encrypts data before it is transmitted. WEP can be implemented with a 40(64)-bit or 104(128)-bit key. For added security, change your key often. When you change the key on one wireless device, it must be changed for all wireless devices and access points in the network.

- **Key Format**

Can be ASCII or hexadecimal format. Hexadecimal format includes the numbers 0 through 9 and the letters A through F. ASCII format includes all alphanumeric characters.

- **Key Length**

Can be either 40(64)-bit or 104(128)-bit key length. Some wireless network cards are only able to use 40(64)-bit encryption. If all your clients are able to communicate at 104(128)-bit, then choose 104(128)-bit. If any client is only able to communicate at 40(64)-bit, choose 40(64)-bit.

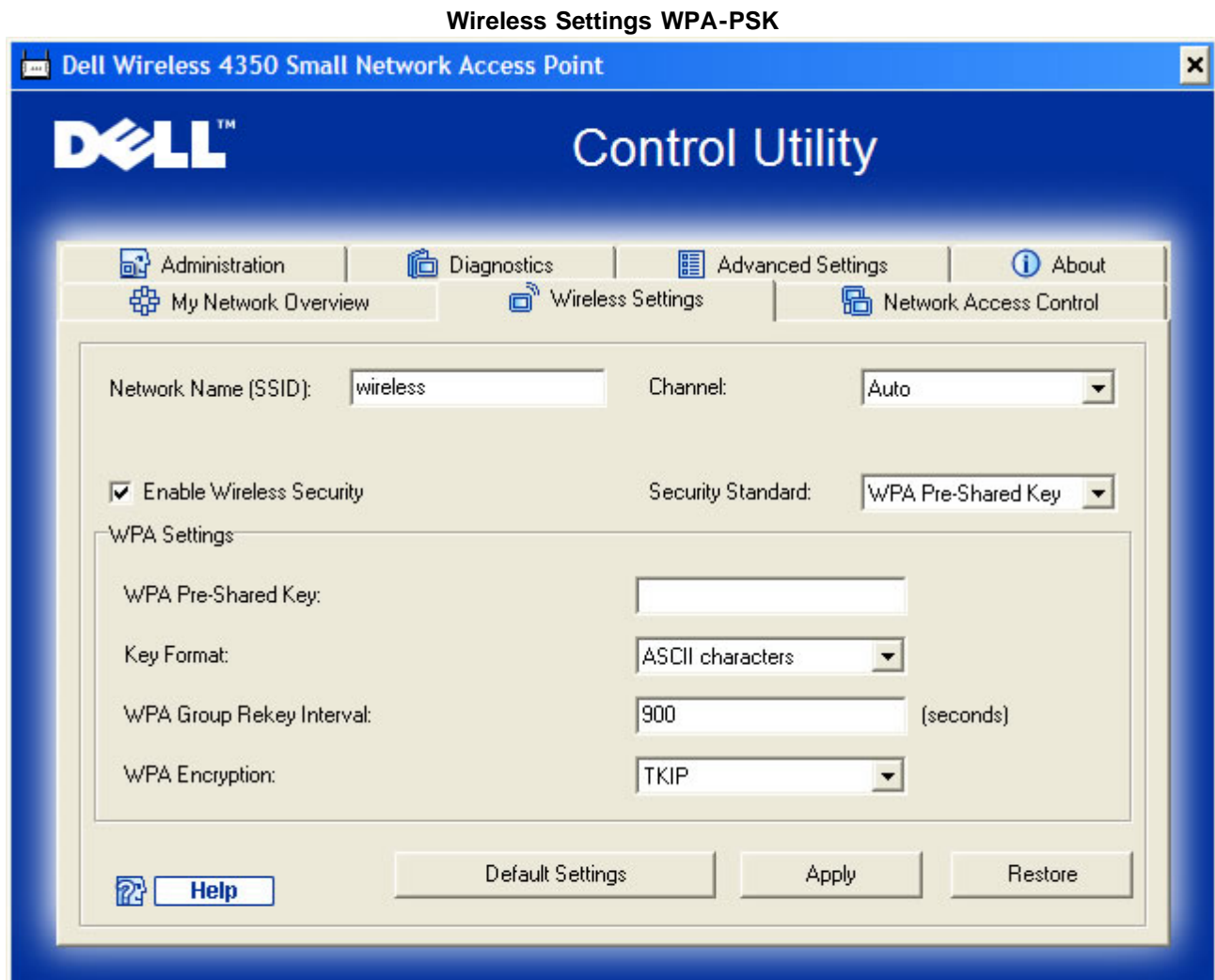
- **Key1, Key2, Key3, and Key4**

Type four different keys in the **Key** fields provided to store on the Wireless 2350. If you choose 40(64)-bit encryption, enter a 5-

character (or 10 hexadecimal digits). For 104(128)-bit encryption, enter a 13-character (or 26 hexadecimal digits) WEP key.

- **Default Key**

Select only one key out of the four provided in the **Default Key** field.



WPA-PSK Settings

Wi-Fi Protected Access (WPA) is an upgrade to the WEP standard for securing your wireless network.

If you would like to secure your wireless network using WPA, you must have WPA support for your wireless clients. If you are using a Dell wireless client, you can check for the availability of WPA-enabled software updates for your wireless client at <http://support.dell.com>.

- **WPA Pre-shared Key**

All wireless clients must use this key to gain access to the network. Note that the Key format must also match the setting for the wireless clients.

- **Key Format**

Can be ASCII or hexadecimal format. Hexadecimal format includes the numbers 0 through 9 and the letters A through F. ASCII format includes all alphanumeric characters.

- **WPA Group Rekey Interval**

WPA Group Rekey Interval is used to specify the frequency of encryption key rotations. The lower the number, the faster your encryption key will rotate; however, setting this number too low may cause your wireless network to slow down.

- **WPA Encryption**

TKIP (Temporal Key Integrity Protocol) is the most commonly used encryption method. **AES** (Advanced Encryption Standard) can be used if your wireless clients do not support TKIP.

Wireless Settings WPA 802.1x

The screenshot shows the 'Wireless Settings WPA 802.1x' window in the Dell Control Utility. The window title is 'Dell Wireless 4350 Small Network Access Point'. The interface includes a navigation bar with 'Administration', 'Diagnostics', 'Advanced Settings', and 'About'. Below this is a sub-menu with 'My Network Overview', 'Wireless Settings', and 'Network Access Control'. The main settings area contains the following fields and controls:

- Network Name (SSID):
- Channel:
- Enable Wireless Security
- Security Standard:
- WPA 802.1x Settings section:
 - Radius Server IP:
 - Radius Server Port:
 - Shared Secret:
 - WPA Encryption:

At the bottom, there are buttons for 'Help', 'Default Settings', 'Apply', and 'Restore'.

WPA-802.1x Settings

- **Radius Server IP, Radius Server Port and Shared Secret.**

The **Radius Server IP**, **Radius Server Port** and **Shared Secret** fields required to be populated with the relevant information. This information regarding the Radius authentication server can be obtained from the network administrator.

- **WPA Encryption**

WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.

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Network Access Control

- **Add**
Adds a new entry to the list.
- **Edit**

Allows you to edit entries.

- **Delete**

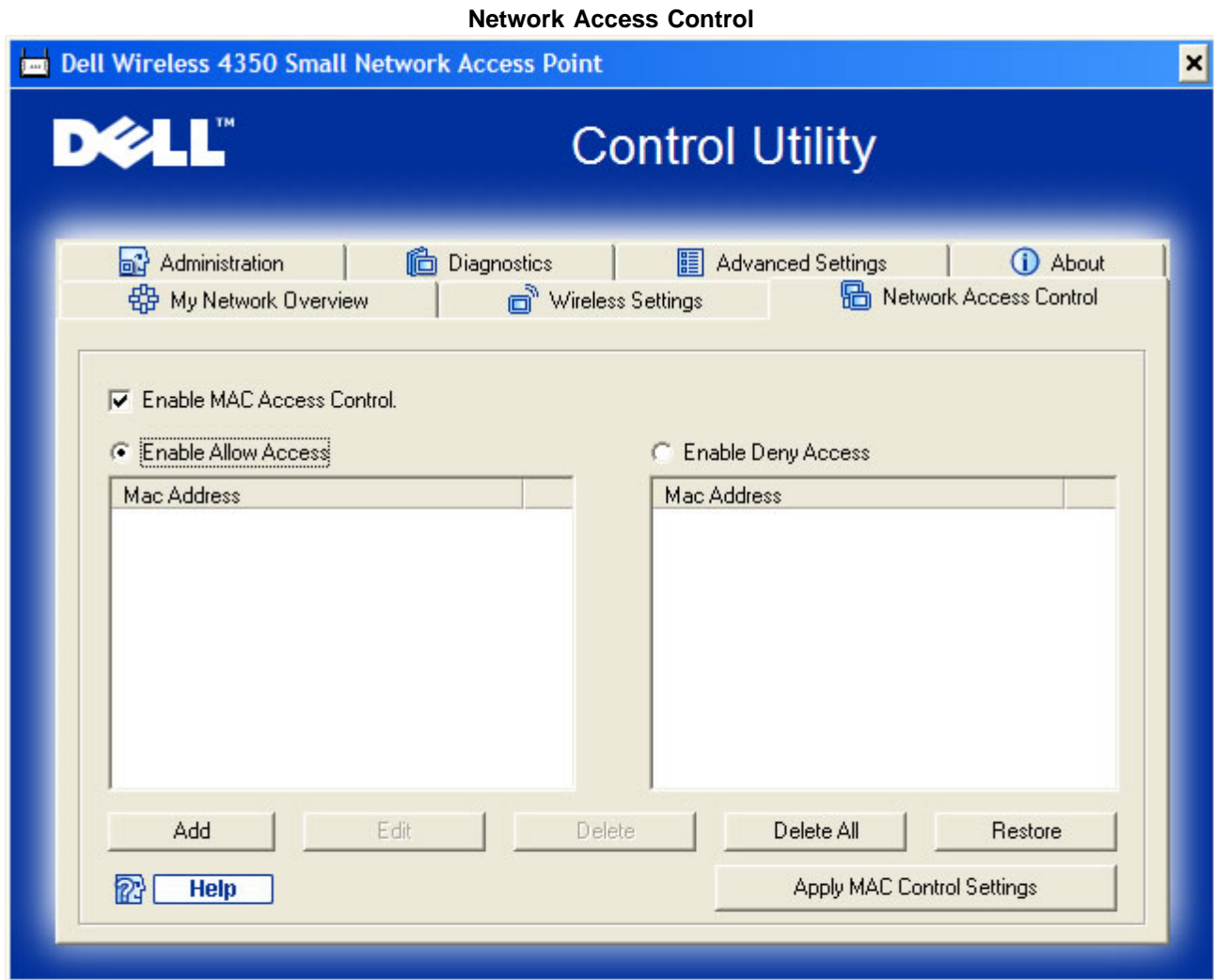
Deletes a record from the list.

- **Delete All**

Deletes all records from the list.

- **Restore**

Restores previous settings.



MAC Access Control

The MAC Access Control page allows you to control which local client computer is allowed to access the network through the Dell Wireless 4350 Small Network Access Point based on the client computer's MAC address. The default setting is to allow any client computer to access the network through the access point.

There are two options for the Access Control Settings, the Allow Access option and the Deny Access option. Each option is able to support up to 32 entries. Only one option can be active at any time. Selecting the checkbox for Enable Allow Access will disable Enable Deny Access and vice versa. The Enable Allow Access option will only allow clients that are listed in the table to access the network. The Enable Deny Access option will prevent any clients that are listed in the table from accessing the network.

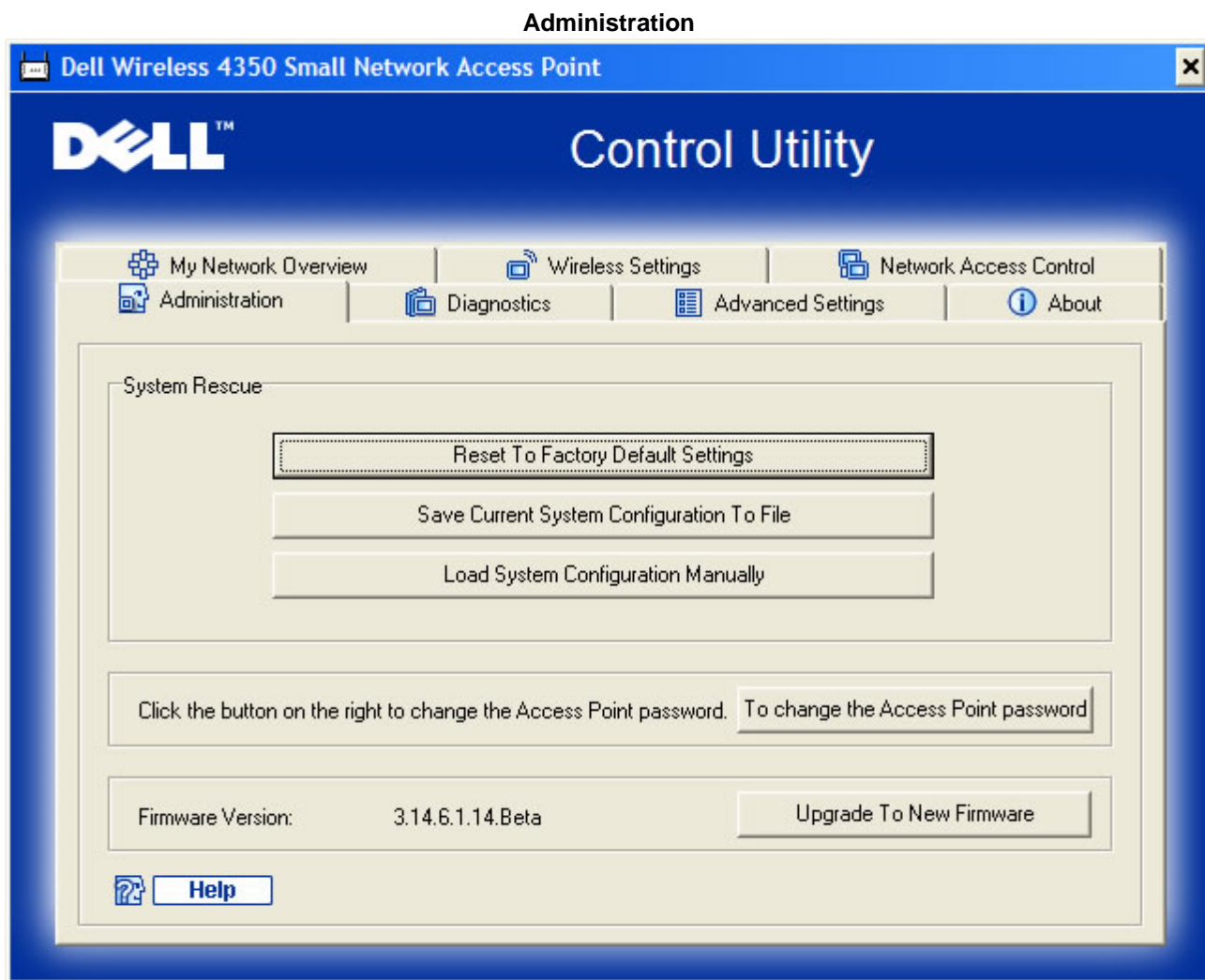
To enable MAC Access Control, perform the following steps:

1. Click to select **Enable MAC Access Control**.
2. Click the appropriate option, **Enable Allow Access** or **Enable Deny Access**.

3. Click the **Add** button. The **MAC Access Control: Add a Record** window appears.
4. Enter the hexadecimal MAC address (for example, 00:11:22:33:44:55) that you want to grant or deny access in the **Host MAC** box.
5. Click the **OK** button to apply, or click the **Cancel** button to exit without making any changes.
6. You can click on the selected record and click again on its **Host Name** to enter the desired name for this record.
7. Click the **Apply MAC Control Settings** button on the bottom of the screen to activate the new settings.

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Administration



System Rescue

System Rescue allows you to save a backup of your configuration settings.

- **Save Current System Configuration To File**


Saves the current settings as a **.pro** file.


- **Load System Configuration Manually**

Loads the backup file to restore previously saved settings.

- **Reset to Factory Default Settings**

Resets the router to its default configuration.

 **NOTE:** The system configuration files can only be used by the Control Utility on Dell Wireless 4350 Small Network Access Points.

 **NOTE:** Do not use the Control Utility to import configurations settings files created by the web based configuration tool.

Change Password

To prevent unauthorized administration changes to the access point, the access point is password protected. It is strongly recommended that you change the factory default password.

1. Click the **To Change the Access Point Password** button. The **Password Settings** window appears.
2. Type the original password in the **Original Password** field.
3. Type the new password in the **New Password** field, and then retype it in the **Confirm Password** field to verify.
4. Type the password hint message in the **Password Hint Message** field.
5. Click the **Submit** button when you finish the setting. If you want to clear any values you have entered in any field, click the **Cancel** button.

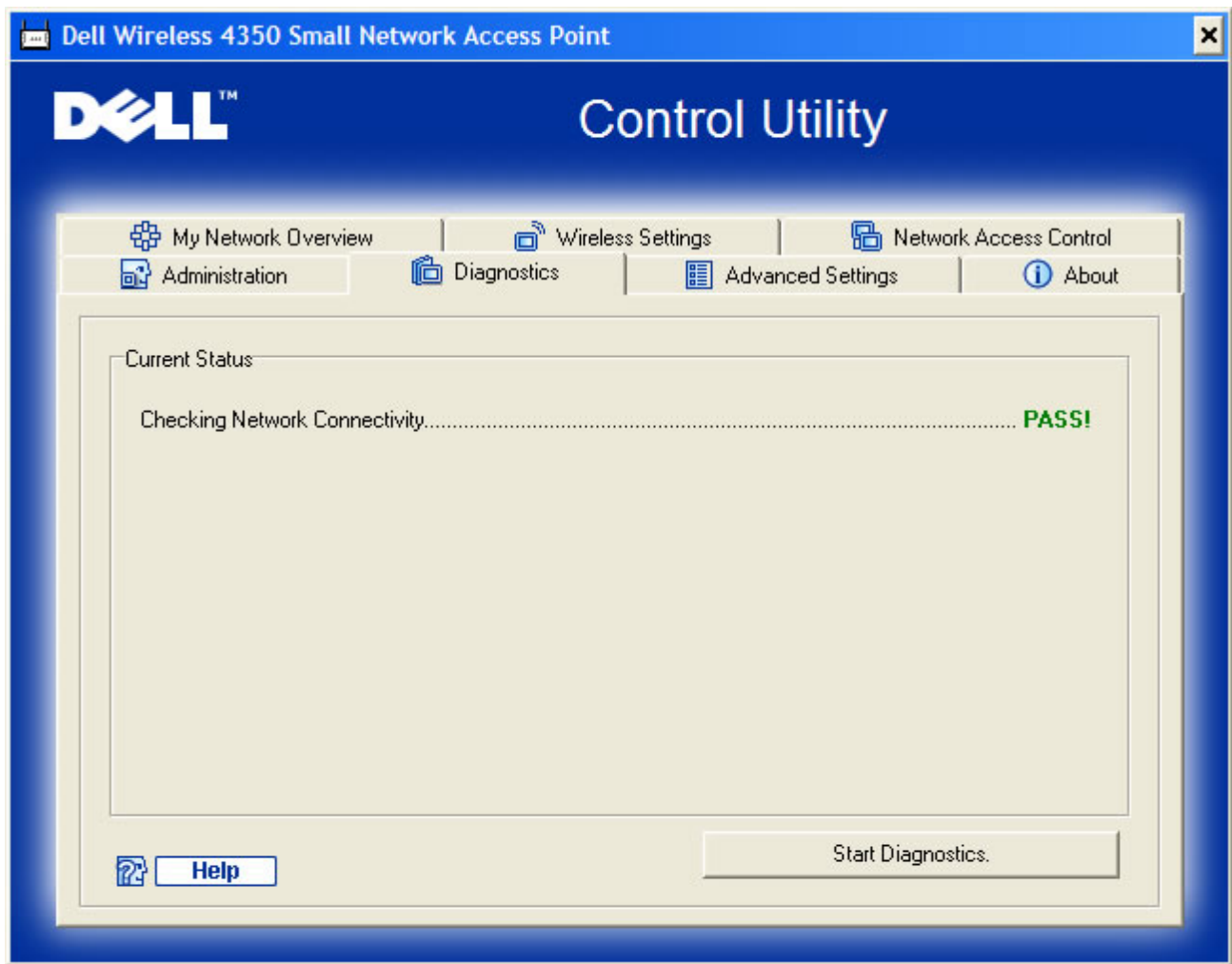
Upgrade to New Firmware

If you are instructed to upgrade the firmware, click the **Upgrade to New Firmware** button. It will connect to the Dell website to upgrade to the latest firmware release. It is unnecessary to upgrade the firmware if your access point is working properly.

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Diagnostics

Diagnostics



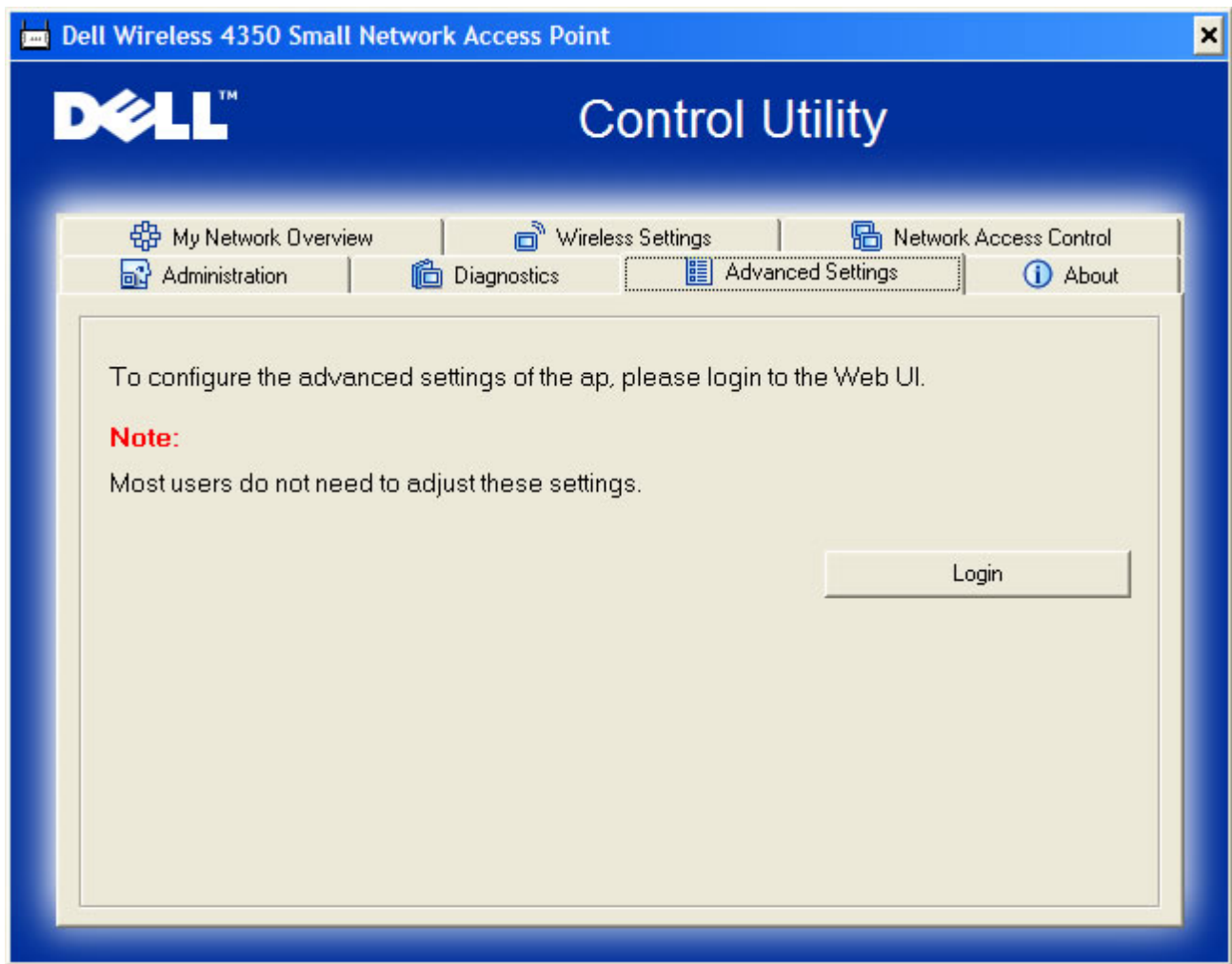
You can monitor the current status of your network connection in the **Diagnostics** menu. The network diagnostics can be activated by clicking the **Start Diagnostics** button on the bottom of the screen.

When the detection is done, the screen will display either a **PASS!** or **FAIL!** message indicating whether the access point is connected to a network or not.

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Advanced Settings

Advanced Settings



To configure the advanced settings of the access point, click the **Login** button to log in to the web-based configuration tool. The web-based configuration tool allows you to set up advanced network configurations for your Dell Wireless 4350 Small Network Access Point.

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Basic Settings: Dell™ Wireless 4350 Small Network Access Point User's Guide

The following configuration options are included in **Basic Settings**:

▶ [General Settings](#)

▶ [Wireless Settings](#)

▶ [Wireless Security](#)

▶ [Save & Apply](#)

NOTE: To implement the changes you make to the settings, you must save your settings and restart the access point. Otherwise, the access point uses the previous settings. If you are using the **BACK/NEXT** links to step through each screen in the **Basic Settings** portion of the web-configuration tool, you ultimately reach the **Save & Apply** page. Click **Save & Restart** button to commit the changes, and the access point will reboot automatically with the new settings in effect.

General Settings

The General Settings page allows the user to change the **AP host name**.

General Settings

The screenshot shows the top navigation bar of the web-configuration tool. It features the Dell logo on the left and the title 'Dell Wireless 4350 Small Network Access Point' on the right. Below the title is a horizontal menu with six items: 'Basic Settings', 'Advanced Settings', 'Device Status', 'System Tools', 'Help', and 'Log Off'. The 'Basic Settings' item is highlighted in a darker blue color.

General Settings

AP Host Name	<input type="text" value="Dell_4350_AP"/>
--------------	---

NOTE: Please click **Next** to save the settings.

AP Host Name

The AP Host Name is the network name that the Dell Wireless 4350 Small Network Access Point will have on a network.

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Wireless Settings

Wireless Settings

Dell Wireless 4350 Small Network Access Point

Basic Settings Advanced Settings Device Status System Tools Help Log Off

WIRELESS SETTINGS

Network Name (SSID)

Channel ▼

NOTE: Please click **Next** to save the settings.

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NOTE: You must change each client's wireless adapter settings to match the Dell Wireless 4350 Small Network Access Point settings. Use the factory defaults for the access point, unless the default settings have been changed. In this case, note the changes and use the new settings for each wireless network card. For assistance configuring a wireless network card, see the card's documentation.

Setting	Possible Values
Network Name (SSID)	(wireless by default)
Channel	(auto by default)

Network Name (SSID)

The network name is a value that identifies a collection of **wireless** devices found in a particular network. The default value for the Dell Wireless 4350 Small Network Access Point is **wireless**. All workstations and access points must use the same SSID to be able to communicate with one another.

The SSID is a 32-character field, and the value is case sensitive.

Channel

The Dell Wireless 4350 Small Network Access Point can operate on a variety of channels. Access points within close proximity to one another must be on different channels. If you have just one access point, then the default, auto, is probably adequate. If you have multiple access points in your network, it is suggested to stagger the channels for each access point. It is advisable to use the default unless there is a specific reason for changing the channel, such as interference from microwaves, cellular phone towers, or other access points in the area.

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Wireless Security

Data encryption provides added security by encoding network communications using an encryption key. Your Dell Wireless 4350 Small Network Access Point, in conjunction with wireless network adapters that support encryption, can scramble your transmitted data to make it difficult for someone to eavesdrop or intercept your information. Two methods of data encryption are available: **Wired Equivalent Privacy (WEP)** and **Wi-Fi Protected Access (WPA)**. If you wish to enable wireless security, click to select **Enable Wireless Security**.

Wireless Security


Dell Wireless 4350 Small Network Access Point

Basic Settings
Advanced Settings
Device Status
System Tools
Help
Log Off

WIRELESS SECURITY

Data encryption provides added security by encoding network communications using an encryption key. The longer the wep key is, the stronger the encryption.

Enable Wireless Security

NOTE: Please click **Next** to save the settings.

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WEP

If you wish to enable WEP encryption, click to select **WEP** in the **Network Encryption** list.

Setting	Possible Values
Key Format	Hexadecimal Digits / ASCII Characters
Key Length	40 bits (5 characters) / 104 bits (13 characters)
Key1, Key2, Key3, Key4	<user-defined>

There are two levels of WEP encryption: 40(64)-bit and 104(128)-bit, with 104(128)-bit being the more secure of the two. The WEP encryption keys are simply a set of hexadecimal numbers or ASCII characters that you choose. Each Dell Wireless 4350 Small Network Access Point and every wireless workstation must use the same WEP encryption key to communicate. For more information on encryption, see the [Wireless Networking Overview - Encryption](#) section of this user's guide.

- **Key Format**

Key format can be in ASCII or hexadecimal format. Hexadecimal digits include the numbers 0 through 9 and the letters A through F. If you select ASCII format, you can enter any character.

- **Key Length**

Key length can be either **40(64)-bit** or **104(128)-bit**. Larger key lengths are more secure. Some wireless network cards are only able to use 40(64)-bit encryption. If all your clients are able to communicate at 104(128)-bit, choose 104(128)-bit.

- **Key**

If you choose 40(64)-bit encryption, enter a 5-character (or 10 hexadecimal digits) WEP encryption **Key** in the fields provided. For 104(128)-bit encryption, enter a 13-character (or 26 hexadecimal digits) WEP key in the fields provided. You have the option of entering four different keys to store on the Wireless 4350. Select only one key out of the four provided in the **Default Key** drop-down list. For added security, change your key often. When you change the key on one wireless device, remember that it must be changed for all wireless devices and access points in the network.

NOTE: If you are adding the Dell Wireless 4350 Small Network Access Point to an existing network and will be using an existing encryption key for the wireless clients, contact the person in charge of the network. The same key must be used when configuring the encryption for the Dell Wireless 4350 Small Network Access Point. The administrator must make any changes to all access points and wireless clients on a network. Changing the key on just one access point or wireless client

disconnects it from the rest of the network.

Wireless Security



Dell Wireless 4350 Small Network Access Point

Basic Settings

Advanced Settings

Device Status

System Tools

Help

Log Off

WIRELESS SECURITY

Data encryption provides added security by encoding network communications using an encryption key. The longer the wep key is, the stronger the encryption.

Enable Wireless Security	<input checked="" type="checkbox"/>
Network Encryption	WEP ▾
WEP Settings	
Key1	<input type="text"/>
Key2	<input type="text"/>
Key3	<input type="text"/>
Key4	<input type="text"/>
Key Format	ASCII Characters ▾
Default Key	1 ▾
Key Length	40 bits(5 characters) ▾
<input type="button" value="Back"/> <input type="button" value="Next"/> <input type="button" value="Help"/>	

NOTE: Please click 'Next' to save the settings.

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WPA

If you wish to enable WPA encryption, select **WPA** from the **Network Encryption** list.

WPA is an upgrade to the WEP standard for securing your wireless network. If you would like to secure your wireless network using WPA, you must have WPA support for your wireless clients. If you are using a Dell Wireless wireless client, you can check for the availability of WPA-enabled software update for your wireless client at <http://support.dell.com>.

There are two options for network authentication (a) Pre-shared key or (b) 802.1x . Typically, in enterprises, WPA will be used in conjunction with a RADIUS authentication server. In a Small Office/Home Office (SOHO) environment, where there is no authentication server, users can use **pre-shared key** (PSK) mode in place of the authentication server

The Dell Wireless 4350 Small Network Access Point offers both WPA running in PSK mode and WPA with 802.1x authentication.

WPA Pre-shared Key

WPA Pre-Shared Key (PSK) is a field where the password is entered. All wireless clients must also use this password to gain access

to the network. Note that the Key format must also match the setting for the wireless clients.

- **Key Format**

Key Format is a box that lists 2 items: **Hexadecimal** Digits (numbers 0 through 9 and letters A through F) and **ASCII** Characters (any letter, number, or symbol). Select the proper format for your key. If your wireless client(s) only support one of the two formats, be sure to specify the correct one.

- **WPA Group Rekey Interval**

WPA Group Rekey Interval is used to specify the frequency of encryption key rotations. The lower the number, the faster your encryption key will rotate, however, setting this number too low may cause your wireless network to slow down.

- **WPA Encryption** WPA Encryption has 2 choices: **TKIP** (Temporal Key Integrity Protocol) is the most commonly used encryption method. **AES** (Advanced Encryption Standard) can be used if your wireless clients do not support TKIP.

WPA PSK



Data encryption provides added security by encoding network communications using an encryption key. The longer the wpa key is, the stronger the encryption.

Enable Wireless Security	<input checked="" type="checkbox"/>
Network Encryption	WPA
WPA Settings	
Network Authentication	Pre-Shared Key
WPA Pre-Shared Key	<input type="text"/>
Key Format	ASCII Characters
WPA Group Rekey Interval	900 (0-1000)
WPA Encryption	TKIP
<input type="button" value="Back"/> <input type="button" value="Next"/> <input type="button" value="Help"/>	

NOTE: Please click 'Next' to save the settings.

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WPA 802.1x

WPA-802.1x requires the network to have an authentication server. All wireless clients must have an authentication certificate in order to gain access to the network.

- **Radius Server IP, Radius Server Port and Shared Secret**

The **Radius Server IP**, **Radius Server Port** and **Shared Secret** fields are required to be populated with the relevant information. This information regarding the Radius authentication server can be obtained from the network administrator.

- **WPA Group Rekey Interval**

WPA Group Rekey Interval is used to specify the frequency of encryption key rotations. The lower the number, the faster your encryption key will rotate, however, setting this number too low may cause your wireless network to slow down.

- **WPA Encryption** WPA Encryption has 2 choices: **TKIP** (Temporal Key Integrity Protocol) is the most commonly used encryption method. **AES** (Advanced Encryption Standard) can be used if your wireless clients do not support TKIP.

WPA 802.1x

Dell Wireless 4350 Small Network Access Point

Basic SettingsAdvanced SettingsDevice StatusSystem ToolsHelpLog Off

WIRELESS SECURITY

Data encryption provides added security by encoding network communications using an encryption key. The longer the wpa key is, the stronger the encryption.

Enable Wireless Security	<input checked="" type="checkbox"/>
Network Encryption	WPA v
WPA Settings	
Network Authentication	802.1x v
WPA Encryption	TKIP v
Radius Server IP	<input style="width: 20px;" type="text"/> . <input style="width: 20px;" type="text"/> . <input style="width: 20px;" type="text"/> . <input style="width: 20px;" type="text"/>
Radius Server Port	<input style="width: 100%;" type="text"/>
Shared Secret	<input style="width: 100%;" type="text"/>
WPA Group Rekey Interval	<input style="width: 40px;" type="text"/> (0-1000)


NOTE: Please click 'Next' to save the settings.

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Save & Apply

Use the **Save & Apply** page to submit all the network setting changes you have made. Click the **Save & Restart** button to update the network configurations for your Dell Wireless 4350 Small Network Access Point.

The new settings are then written to the firmware, and the access point reboots automatically.

 **NOTE:** If you have wireless clients on your network, you must configure the clients' wireless network cards to match the settings for the Dell Wireless 4350 Small Network Access Point.

Save and Apply



SAVE & APPLY

You have successfully configured the settings for the device.

NOTE: After you have finished making all the changes on the various pages, please click Save & Apply to save the settings and restart the device. After the apply, the device will function according to the saved settings.

Click Save & Restart to save the settings and restart the device!

SAVE & RESTART

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Device Status: Dell™ Wireless 4350 Small Network Access Point User's Guide

The Device Status screen displays the basic network settings for your Dell Wireless 4350 Small Network Access Point. When changes are made to the network settings, those changes are updated on this screen. In addition, it graphically displays the current connection status for the access point and other devices in your network. Connections between network devices are shown with a yellow arrow. Inoperative connections are represented by one red X through the yellow connection line.

NOTE: The Dell Wireless 4350 Small Network Access Point offers two ways to check the status of your network. One is the **Device Status** feature in the web configuration tool mentioned here. The other is through the Windows-based [Control Utility](#).

Device Status

Device Status

The following connections are displayed on the Device Status page:

Device	Indication
Dell Wireless 4350 Small Network Access Point	Shown as an active connection when the Dell Wireless 4350 Small Network Access Point is configured and physically connected to your network, and inactive when the Ethernet cable is disconnected from the network.
Wireless Client	Shown as an active connection when a wireless client is connected to your access point, and inactive when there is no wireless client connected to your access point.

Ethernet Settings

Refer to the left side of the screen for the following LAN Ethernet settings and the Internet protocol (IP) settings for the Dell Wireless 4350 Small Network Access Point:

Setting/Device	Information Displayed
AP IP	The IP address assigned to the Dell Wireless 4350 Small Network Access Point
LAN MAC	The MAC address for the LAN (Ethernet) interface
AP Host Name	The host name for the Dell Wireless 4350 Small Network Access Point (the default is Del_4350_AP)
Firmware Version	The version number of the firmware currently installed on the Dell Wireless 4350 Small Network Access Point
Wireless Channel	The radio channel on which the Dell Wireless 4350 Small Network Access Point is communicating on the air
Network Name	A unique network name that identifies the wireless network. It is also known as SSID (Service Set Identifier). When a client station tries to connect to the access point, the user must know the access point's SSID first.

The following buttons appear on the left navigation bar:

Button	Action
Release	Releases the IP address that the Dell Wireless 4350 Small Network Access Point has been assigned from your network's DHCP server. If the access point has been configured to have a static IP address, clicking Release does not release this IP address.
Renew	Renews the IP address from your network's DHCP server. If the access point has been configured to have a static IP address, clicking Renew does not renew the IP address.

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System Tools: Dell™ Wireless 4350 Small Network Access Point User's Guide

Use the System Tools section to view the intruder detection log, the network activity log, system statistics and system diagnostics regarding the device. The System Tools section also includes features to import/export the device's configuration settings, restore the default settings, upgrade the firmware and reset the device.

Use the following pages in the web-based configuration tool to access these features in the System Tools:

- ▶ [Intruder Detection Log](#)
- ▶ [Network Activity Log](#)
- ▶ [Import/Export Settings](#)
- ▶ [System Statistics](#)
- ▶ [System Diagnostic](#)
- ▶ [Load Default Settings](#)
- ▶ [Upgrade Firmware](#)
- ▶ [Reset Device](#)

Intruder Detection Log

Indicator	Description
Time	Based on the timestamp of the IP packet, plus or minus the time offset
Event	Type of attack that the access point detects
Event-Type	Type of attack that the access point detects
Details	Shows detailed information about the event

The system can be enabled to alert an administrator via e-mail of any attempted intrusion.

1. Click to select **Email Alert Enable**.
2. Type the e-mail address that you want the alert sent to in the **Email Address** field.
3. Click the **Submit** button.

Intrusion

INTRUDER DETECTION LOG

Email Alert Enable

Intruder Log

Click clear button to clear the intruder log buffer

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Network Activity Log

Network Activity Log

Dell Wireless 4350 Small Network Access Point

Basic SettingsAdvanced SettingsDevice StatusSystem ToolsHelpLog Off

Network Activity log

Enable Network Activity log

Network Receive Traffic

Connection Type	Status	Packets	Bytes	Errors	Dropped Packets	Timespan
DHCP	Connected	50	11257	0	0	10

Network Transmit Traffic

Connection Type	Status	Packets	Bytes	Timespan
DHCP	Connected	70	32159	10

RESET

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Click to select **Enable Network Activity Log** to allow the user to see transmitted and received traffic from the Dell Wireless 4350 Small Network Access Point to the network.

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Import/Export Settings

Import/Export Settings

Dell Wireless 4350 Small Network Access Point

Basic SettingsAdvanced SettingsDevice StatusSystem ToolsHelpLog Off

Import & Export Settings

Export Current Settings File:

Import New Settings File:

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The Dell Wireless 4350 Small Network Access Point allows the user to save the current configurations settings into a file on the computer and to load previously saved settings into the access point.

Export Current Settings File:

1. Click **Export** to save the current configurations settings into a file on the computer. The default file name for the configuration settings file is dell4350conf.txt

Import New Settings File:

1. Click **Browse** to locate a previously saved configuration file to load into the access point.
2. Click **Import** to load the configuration file. The access point will automatically restart after loading the imported settings.

NOTE:The configuration settings files can only be used by a web browser utility on Dell Wireless 4350 Small Network Access Points.
NOTE:Do not use the web browser utility to import configurations settings files created by the windows-based Control Utility.

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System Statistics

System Statistics

 Dell Wireless 4350 Small Network Access Point					
Basic Settings	Advanced Settings	Device Status	System Tools	Help	Log Off

System Statistics

Wireless Stations

MAC Address	Authentication Type	Encryption	Client Status	Transmit			Receive			
				Packets	Bytes	Errors	Packets	Bytes	Errors	

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The System Statistics table displays diagnostic information on all the wireless stations currently connected to the Dell Wireless 4350 Small Network Access Point.

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System Diagnostic

The Systems Diagnostic page is for your information only. This page displays both the configuration settings and diagnostic information for the Dell Wireless 4350 Small Network Access Point. The configuration settings include firmware version and device settings that have been configured for your network. The Diagnostic section shows the status of the wireless and Ethernet connections for your Dell Wireless 4350 Small Network Access Point.

System Diagnostic



System Diagnostic

Configuration

Firmware version: AR531x version 3.14.6.1.14.5.0

Network Settings DHCP

IP Address: 192.168.2.1

Gateway IP Address:

Domain Name Server(DNS) IP Address:

Host Name: Dell_4350_AP

Diagnosis

Link Status

Ethernet

Connected

Wireless

Disconnected

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Load Default Settings

The Load Default Settings page allows you to reload the factory default configurations that came with the device. When this option is used, all settings are reset to the factory default value. This is equivalent to pressing and holding the **Reset** button on the back panel of the device for more than 5 seconds (for more details, refer to [Look at the Hardware](#)).

NOTICE: Loading the default settings option will cause the current settings for your Dell Wireless 4350 Small Network Access Point to be lost.

Load Default Settings



LOAD DEFAULT SETTINGS

Load Default Settings will load the factory default settings for the device. Please click on the **START** button to proceed.

Note. The Device IP Address will be reset to 192.168.2.1 after Load Default.

START

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Click the **Start** button to reload the default settings.

Upgrade Firmware

Dell periodically releases firmware updates to provide improved performance or capabilities. Use the firmware upgrade feature to easily upgrade the firmware on your Dell Wireless 4350 Small Network Access Point.

The Upgrade firmware page supports two methods for upgrading the firmware onto the access point (a) local file upgrade (b) Internet file upgrade.

NOTE: Make sure the file you choose is an actual Dell Wireless 4350 Small Network Access Point firmware file.

Upgrade the Firmware

Dell Wireless 4350 Small Network Access Point

Basic Settings

Advanced Settings

Device Status

System Tools

Help

Log Off

FIRMWARE UPGRADE

Enter the firmware file path into the box and click **START** to proceed with the new firmware upgrade.

Firmware Upgrade File:

Browse...

Start

WARNING: Dell does not recommend upgrading the Dell Wireless 4350 Small Network Access Point from a wireless client. Dell recommends connecting to your Dell TrueMobile router with a LAN cable connection to perform your firmware upgrades.

Upgrade From the Internet

Automatically Check for New Versions

Check every

24 hours

At URL

http://update.jungo.cor

Check Internet Now

Firmware Upgrade File:

Internet Version: No new version av

Start

Upgrade Firmware – Local File

You can check the Dell support website, support.dell.com, to see if there are any new upgrades. Download the new firmware first before upgrading and save it to one of the clients in your network. To upgrade the firmware:

1. Type the firmware file path into the **Firmware Upgrade File:** box, or click the **Browse** button to choose a firmware file to upgrade to.
2. Click the **Start** button when you have chosen a file. After the firmware is written to the Dell Wireless 4350 Small Network Access Point, the home page will be loaded automatically. While the access point is resetting, the **Power** light on the front panel of the device blinks.

Upgrade Firmware – Internet File

The other option to upgrade firmware is through the Internet.

The Dell Wireless 4350 Small Network Access Point can be configured to automatically check the internet for upgrades by entering the URL <ftp.us.dell.com/network> in the URL field and the number of hours to automatically check for upgrades into the hours field. The user can also click **Check Internet Now** to see if there is new firmware available for upgrading.

The drop-down menu gives the user the option to enable automatic checking of the Internet. These options are:

1. **Automatic Check for New Versions:** The access point automatically checks the Internet to determine if a new a firmware file is available.
2. **Automatic Check Disabled:** The Internet firmware checking function is disabled.

Click the **Start** button when a new firmware file is available for upgrading the access point. After the firmware is written to the Dell Wireless 4350 Small Network Access Point, the home page will be loaded automatically. While the access point is resetting, the **Power** light on the front panel of the device blinks

NOTE: Make sure the file you choose is an actual Dell Wireless 4350 Small Network Access Point firmware file.
NOTE: Dell does not recommend upgrading the Dell Wireless 4350 Small Network Access Point from a wireless client. Dell recommends connecting to your Dell Wireless access point with a wired network connection to perform firmware upgrades.

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Reset Device

Use the Reset Device function if a system failure occurs. This feature does **not** reload the factory default settings. It simply resets the device to the network settings that existed on the device before the system failure occurred. This is equivalent to unplugging the device and plugging it back in or pressing the reset button for less than 3 seconds until the **Power** light starts to blink. No configuration settings are lost.



RESET THE DEVICE

Resetting the device will restart it. Please click on the **START** button to proceed.

START

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NOTICE: If you were in the process of updating the network settings, those changes are lost when the device is reset.

Click the **Start** button to reset the Dell Wireless 4350 Small Network Access Point to its **current firmware settings**. While the access point is resetting, the **Power** light on the front of the device blinks.

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Advanced Settings: Dell™ Wireless 4350 Small Network Access Point User's Guide

- ▶ [Time Zone](#)
- ▶ [Advanced Wireless](#)
- ▶ [Access Control Settings](#)
- ▶ [Administration Settings](#)
- ▶ [Wired Settings](#)
- ▶ [SSID Manager](#)
- ▶ [SNMP](#)
- ▶ [Rogue AP Detection](#)

NOTE: Dell technical support representatives do not support the configuration options in the Advanced Settings portion of the configuration program. These options are provided for your convenience only. However, the advanced settings are fully documented and explained in this guide.

Time Zone

Time Zone

		Dell Wireless 4350 Small Network Access Point			
Basic Settings	Advanced Settings	Device Status	System Tools	Help	Log Off

TIME ZONE SELECTION

Current Day	Wed
Current Date	1 Jan 2003
Current Time	03:23:22
Enable Daylight Saving	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Please choose your local time zone	(GMT) GMT <input type="button" value="v"/>
<input type="button" value="Submit"/> <input type="button" value="Help"/>	

NOTE: Please click 'Submit' to save the settings.

Select your local time zone from the pull-down list, **Please choose your local time zone**. During the summer months, the clock will move one or several hours ahead (depending on geographical location). Different countries have different change dates, in most of the U.S and Canada, daylight saving time begins on the last Sunday of October and reverts back to standard time on the first Sunday of April. To enable daylight saving, click **Yes** for **Enable Daylight Saving**.

The Time Zone settings will affect the time stamp on IP packets in the Intruder Detection Log. The time setting overrides the time stamp on IP packets that are in Greenwich Mean Time (GMT).

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Advanced Wireless

Advanced Wireless

Dell Wireless 4350 Small Network Access Point

Basic Settings	Advanced Settings	Device Status	System Tools	Help	Log Off
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ADVANCED WIRELESS

Enable Wireless	<input checked="" type="radio"/> Yes <input type="radio"/> No
Hide my wireless network	<input type="radio"/> Yes <input checked="" type="radio"/> No
Mode:	802.11b and 802.11g <input type="button" value="v"/>
Network Name (SSID)	wireless <input type="text"/>
Transfer Rate	Auto <input type="button" value="v"/> (Default: Auto)
Channel	Auto <input type="button" value="v"/>
Transmit Power Level	<input type="checkbox"/> 8 dBm (min) <input type="checkbox"/> 11 dBm <input type="checkbox"/> 14 dBm <input type="checkbox"/> 17 dBm <input checked="" type="checkbox"/> 20 dBm (max)
Advanced options	<input type="checkbox"/>
Enable this AP as a root AP	<input checked="" type="checkbox"/>
Enable this AP as a Wireless Repeater	<input type="checkbox"/>

The **Advanced Wireless** page is used to configure advanced wireless features in the Dell Wireless 4350 Small Network Access Point.

Enable Wireless

This setting enables radio transmission and reception on the Dell Wireless 4350 Small Network Access Point allowing wireless clients to connect to the access point.

Click **Yes** to allow wireless clients to connect to the access point (default setting).

Click **No** to prevent wireless clients connecting to the access point.

Hide my wireless network

This setting enables the transmission of beacon packets from the Dell Wireless 4350 Small Network Access Point to the wireless network. The beacon packets are transmitted by default allowing other wireless clients to easily find and connect to the access point with

the use of a site survey tool. If you want to increase wireless network security, you can disable the transmission of the beacon packets.

Click **No** to allow transmission of beacon packets from the access point.

Click **Yes** to disable the transmission of beacon packets from the access point.

Mode

The setting allows the user to select the 802.11 mode that the Dell Wireless 4350 Small Network Access Point will use when communicating with wireless clients.

Select **802.11b and 802.11g** if the access point is to support both 802.11g and 802.11b compatible wireless clients (default setting).

Select **802.11b** if the access point is to support only 802.11b compatible wireless clients.

Select **802.11g** if the access point is to support only 802.11g compatible wireless clients.

Network Name(SSID)

This setting allows the user to change the Network Name (SSID) of the Dell Wireless 4350 Small Network Access Point. The Service Set Identifier (SSID) is a 32-character name that uniquely identifies all the computers and equipment that make up the wireless network. The default value is "wireless".

Transfer Rate

This setting allows the user to set the wireless throughput rate from the Dell Wireless 4350 Small Network Access Point to the wireless clients. The transfer rate can be set to automatic or some other fixed value. It is recommended that you set the transfer rate to automatic (Auto) to allow the wireless network devices to transmit at a rate they deem optimum.

Channel


This setting allows the user to set the radio channel that the Dell Wireless 4350 Small Network Access Point will operate on. The range of available radio channels depends on the regulatory domain (e.g. 11 channels for U.S. and Canada & 13 channels for Europe). It is recommended that you set the channel setting to Auto to allow the access point to locate the most suitable radio channel for operation.

Transmit Power Level

This setting allows the user to select the transmit radio power level of the Dell Wireless 4350 Small Network Access Point. The access point supports five different transmit power levels and these are 8 dBm, 11 dBm, 14 dBm, 17 dBm and 20 dBm.

Advanced Options

This setting allows the user to configure specific radio transmission parameters for the Dell Wireless 4350 Small Network Access Point.

 **NOTE:** If you want to configure the settings of Beacon Interval, RTS Threshold, Fragmentation Threshold, DTIM Interval and CTS Protection, ensure that **Advanced Options** is selected first.

Beacon Interval

The Beacon Interval is the amount of time in Kusecs (one Kusec equals 1,024 microseconds) between radio beacons from the Dell Wireless 4350 Small Network Access Point to its client stations. The available range is from 1 to 65535, with the default value being 100.

RTS Threshold

The RTS Threshold is the maximum packet size that the Dell Wireless 4350 Small Network Access Point will transmit without prior transmission of a RTS (Request To Send) signalling packet. The available range is from 1 to 2346, with the default value being 2346.

The RTS (Request to Send) mechanism prevents the **Hidden Node** problem. A hidden node occurs when two stations are within range of the same Access Point (AP) but are not within range of each other, they are "hidden" from each other. The packets from these two stations may collide if they arrive at the AP at the same time. To prevent data collision with the hidden node, you can activate the RTS mechanism. If the RTS mechanism is activated, the station will send a RTS first to inform the AP that it is going to transmit the data. Then, the AP will reply with a CTS (Clear to Send) to all stations within its range to notify all other stations and reserve the bandwidth for your data.

The RTS threshold controls what size data packet will cause an RTS to be transmitted. Only when the packet exceeds the RTS threshold will the device send a RTS before sending the packet. There is a trade-off to consider when choosing a value for the RTS threshold. Low values will cause the RTS to be sent more often which would waste the bandwidth. However, the more often RTS packets are sent, the quicker the system can recover from data collisions. It is recommended to use the default value or only minor reductions of this default value.

Fragmentation Threshold

The fragmentation threshold determines the size of data packets that will be fragmented before transmission. The available range is from 1 to 2346, with the default value being 2346 (Note: The fragmentation threshold is specified in bytes).

Data packets that are smaller than the specified fragmentation threshold value will not be fragmented. Data packets that are larger than the fragmentation threshold will be fragmented into smaller packets and transmitted one at a time instead of all at once. The purpose of fragmentation is to reduce the need for retransmission and improve overall network performance. Fragmentation is normally activated when there is heavy traffic on the wireless network or the network is operating in a high interference environment. It is recommended to use the default value or only minor reductions of this default value.

DTIM Interval

The DTIM (Delivery Traffic Indication Message) Interval setting determines how often a beacon contains a traffic indicator map (TIM). The TIM is used to alert stations in sleep mode that data is available for reception. The DTIM Interval is always a multiple of the beacon period and the available range is from 1 to 255, with the default value being 1.

CTS Protection mode

The CTS Protection mechanism allows interoperability of 802.11b & 802.11g devices in the same location. When the CTS Protection mechanism is enabled, 802.11g devices will inform 802.11b devices (using either a CTS/RTS or CTS-Self broadcast message) whenever a 802.11g data transmission is to occur. Enabling CTS Protection will reduce the throughput performance of your access point.

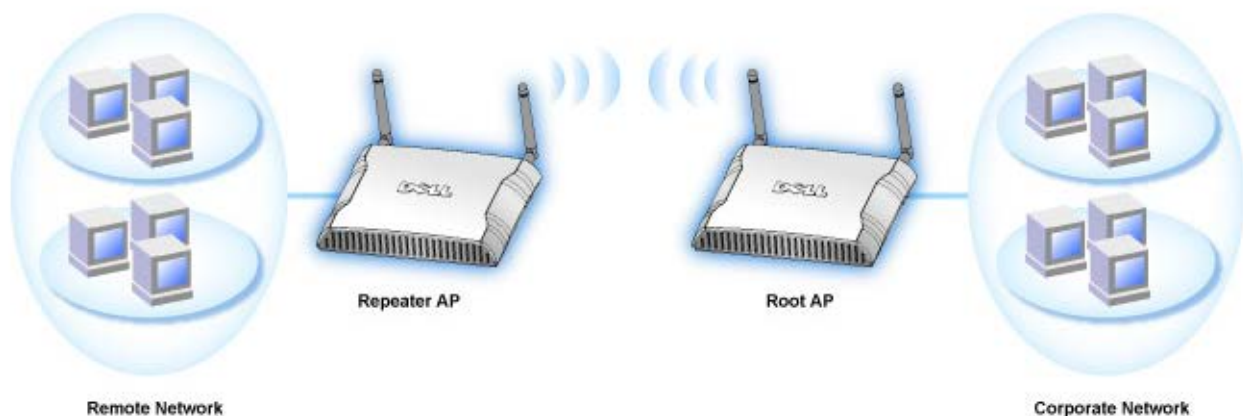
The options available for CTS Protection mode are **none**, **always** and **auto** (with the default being auto). In Auto mode, the Dell Wireless 4350 Small Network Access Point will only enable CTS Protection if any 802.11b devices exist within its wireless range. If the mode is set to none, CTS Protection is disabled. If the mode is set to always, the CTS protection mode is always on.

The options available for CTS Protection Type are **CTS/RTS** and **CTS-Self** (with the default being CTS-Self). The CTS/RTS mechanism results in a lower throughput performance than the CTS-Self mechanism.

Wireless Repeater

The Wireless Repeater setting can be used to increase the coverage of your wireless network. You need two or more Dell Wireless 4350 Small Network Access Point to set up wireless repeating. The access point that is connected to the network is known as the “root AP”, the access points that extend the coverage of this root AP are known as “repeater AP’s”.

Wireless Repeater Link



To Configure your Access Point as a Wireless Repeater:

1. Click the option **Enable this AP as a Wireless Repeater**.
2. Type the wireless network name (SSID) of the root AP in the **SSID of root AP** field.
3. Set the “Network Encryption” mode as **None**, If the root AP does not provide wireless security.
4. set the “Network Encryption” mode as **WEP**, If the wireless security mode of the root AP is WEP. Then, set the proper key value, key length, key format, and default key.
5. Click the **Submit** button.

The repeater AP must be located within the coverage of your root AP in order to associate with the root AP and extend its coverage. The repeater AP should not be connected into the wired network.

NOTE: Ensure all Dell Wireless 4350 Small Network Access Points are set to same wireless settings.

To Configure your Access Point back as a root AP:

There are 2 options available to configure your access point back as a root AP (a) reset the device back to its defaults by pressing the reset button on the device for at least 5 seconds or (b) connect a computer to the repeater AP via an ethernet cable and browse to the AP's default IP address of 192.168.2.1 and perform the following steps.

1. Click the option **Enable this AP as a Root AP**
2. Click the **Submit** button.

Restore Defaults

If you have customized your wireless system configuration, you can restore the wireless settings to factory defaults by clicking the **Restore Defaults** button.

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Access Control Settings

The Access Control Settings page allows you to control which local client computer is allowed to access the network through the Dell Wireless 4350 Small Network Access Point based on the client computer's MAC address. The default setting is to allow any client computer to access the network through the access point.

There are two tables for the Access Control Settings, the Grant Access Table and the Deny Access Table. Each table is able to support up to 32 entries. Only one table can be active at any time. Selecting the checkbox for the Grant Access Table will disable the Deny Access Table and vice versa. The Grant Access Table will only allow clients that are listed in the table to access the network. The Deny Access table will prevent any clients that are listed in the table from accessing the network.

Access Control Settings

ACCESS CONTROL SETTINGS

Enable MAC Access Control Yes NoGrant Access Table Yes No

Grant Access Table		Add
Mac Address		EDIT


Deny Access Table Yes No

Deny Access Table		Add
Mac Address		EDIT

NOTE: Please click **Submit** to save the settings.

To enable access control in the access point, perform the following steps:

1. Click **Yes** to enable **Enable MAC Access Control**.
2. Click **Yes** to enable the appropriate table, the **Grant Access Table** or the **Deny Access Table**.
3. Click the **Add** button, a pop-up window will open, then enter the MAC address of the network card on the computer that you wish to add to the table.
4. Click **Submit** to enter the MAC address into the table.
5. Click **Submit** to enable the new table's entries.
6. To remove an existing rule, click to select **edit** beside **MAC address**.
7. A pop-up window will open and click the **DEL** button to remove it.

 **NOTE:** The Access Control Settings apply to wireless client computers.

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Administration Settings

The Administration Settings page allows the user to change the password settings for administrator access to the Dell Wireless 4350 Small Network Access Point.

Administration Settings

PASSWORD SETTINGS

The new password will be used to authenticate the user when configuring the device.

user name

Change Your Password

New Password

Retype Password

NOTE: Please click **Submit** to save the settings.

Password Settings

The Dell Wireless 4350 Small Network Access Point uses a password to authenticate the user before allowing the user access to the web configuration tool or Control Utility.

If you would like to change the current password, click to select **Change Your Password** and enter the new password in both **New Password** and **Retype Password** fields. Write down the password and keep it in a secure location for future reference.

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Wired Settings

The Wired Settings page allows the user to configure the IP and DNS settings for the network port of the Dell Wireless 4350 Small Network Access Point.

Wired Settings

Wired Settings

Connection Type:	<input type="text" value="DHCP"/>
Static IP Address	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Subnet Mask	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Default Gateway	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Domain Name Server (DNS):	<input checked="" type="radio"/> Dynamic <input type="radio"/> Manual
IP Address# 1 :	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
IP Address# 2 :	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>

NOTE: Please click 'Submit' to save the settings.

If the access point will obtain an IP address automatically from a DHCP server, select the **Connection Type** as **DHCP**. If you would like to assign the access point a static IP address, select the **Connection Type** as **Static IP** and enter an IP address, Subnet Mask and Default Gateway in the corresponding fields.

If the access point will obtain DNS server information automatically from the network, select the **Domain Name Server (DNS)** as **Dynamic**. If you would like to assign the DNS server addresses, select the **Domain Name Server (DNS)** as **Manual** and enter either one or two DNS server IP addresses in the corresponding fields.

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SSID Manager

The SSID Manager page allows the user to configure up to a maximum of three different SSID's that the Dell Wireless 4350 Small Network Access Point supports. One of these three SSID's is the Guest Access SSID, which will allow guest users to connect to the network with controlled access to network resources.

NOTE: In order to support multiple SSID's, the Dell Wireless 4350 Small Network Access Point must be part of a VLAN-aware network, as the VLAN aware router will control the network access of the multiple wireless networks.

SSID Manager

SSID Manager

I'm on a VLAN aware network

SSID Manager Rules

SSID	VLAN ID	VLAN Priority	Authentication	Encryption	EDIT
wireless			Open System	WEP	

NOTE: Please click **Submit** to save the settings.

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To configure multiple SSID's (VLAN-aware network):

In a VLAN-aware network, the Dell Wireless 4350 Small Network Access Point can support three SSID's (one of which is the Guest Access SSID). In this network, the user has the option of configuring VLAN tags to be associated with wireless traffic from each SSID. To add an extra SSID:

1. Click to select **I'm on a VLAN aware network**.
2. Click the **Submit** button.
3. A warning message appears informing the user that the network must be a VLAN aware network. Click **OK**.
4. Click the **Add** button in the SSID Manager Rules table.
5. A pop-up window is displayed to the user. Populate the following fields with the appropriate information (a) Network Name (SSID) (b) VLAN ID (c) VLAN Priority (d) Hide my wireless Network (e) Enable Intra-AP traffic blocking and (f) Network Encryption.
6. Click **Submit** to save the settings for the new SSID.
7. Click **Save & Restart** to enable the new SSID.

NOTE: If the VLAN ID of an SSID is different from the default SSID, then wireless clients associated with this SSID network will not be able to manage the Dell Wireless 4350 Small Network Access Point.

NOTE: The following are the rules that must be followed when configuring security levels in a multiple SSID environment where the VLAN ID's of each SSID are unique.

- (1) All SSID's will support no encryption.
- (2) Only one SSID can support WEP, this can be any SSID (primary or secondary or guest).
- (3) Only one SSID can support WPA-PSK and this must be the primary SSID.
- (4) Only one SSID can support WPA-802.1x and this must be the primary SSID.


Therefore, a possible security configuration would be the primary SSID supporting WPA-PSK or WPA-802.1x, the secondary

SSID supporting WEP and the guest SSID supporting no encryption.

To enable the Guest Access SSID (VLAN-aware network):

To enable Guest Access mode, the Dell Wireless 4350 Small Network Access Point must be part of a VLAN-aware network. Perform the following steps to enable the feature.

1. Click to select **I'm on a VLAN-aware network**.
2. Click to select **Enable Guest Access**.
3. Click the **Submit** button.
4. A pre-configured Guest Access SSID is created with the following default values (a) SSID = Guest Wireless 4350 (b) Network Encryption = None (c) VLAN ID = 4094 (d) VLAN Priority = 0 (e) Intra-AP blocking = off. These values can be altered by selecting the **Edit** button and changing the appropriate fields.
5. Click **Save & Restart** to enable the Guest Access SSID

 **NOTE:** In order to support Guest Access mode, the Dell Wireless 4350 Small Network Access Point must be part of a VLAN-aware network. The VLAN aware router must implement the appropriate restrictions that are applicable to a guest user (e.g. the router will only allow the user access to the Internet and prevent access to any network resource).

To disable the Guest Access SSID (VLAN-aware network):

The Guest Access SSID cannot be deleted, to disable Guest Access, Click to unselect **Enable Guest Access** and click **Submit**.

A brief description of the SSID configuration parameters is as follows:

SSID:	The Service Set Identifier (SSID) is a 32-character name that uniquely identifies all the computers and equipment that make up the wireless Network.
VLAN ID:	The VLAN ID is a tag that is used to identify each VLAN on the network.
VLAN Priority:	The VLAN priority is a tag that is used to perform QoS between VLANs on a network.
Hide my wireless network:	This setting will disable the transmission of beacon packets (i.e. The AP will no longer broadcast its SSID).
Enable Intra-AP Traffic Blocking:	This setting will prevent clients on the same wireless network from communicating with each other.
Network Encryption:	The access point supports the following methods of data encryption (a) WEP (b) WPA-PSK & (c) WPA-802.1x.

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SNMP

The Dell Wireless 4350 Small Network Access Point also supports the SNMP protocol for remote management of the access point. Simple Network Management Protocol (SNMP) is a popular network protocol for remotely configuring and monitoring devices. This feature requires an external SNMP management station to control and access the device. The SNMP protocol versions supported by the access point are v1, v2c and v3.

SNMP

Simple Network Management Protocol (SNMP)

Enable SNMP	<input checked="" type="checkbox"/>
SNMP Community Name (Read-Only)	<input type="text" value="public"/>
SNMP Community Name (Read-Write)	<input type="text" value="private"/>
Trusted Peer	<input type="text" value="Specify a Subnet"/> <input type="button" value="v"/>
IP Address	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Subnet Mask	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Enable SNMP Traps	<input type="checkbox"/>
SNMP Version	<input type="text" value="SNMP v1"/> <input type="button" value="v"/>
SNMP Trap Destination	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
SNMP Trap Community	<input type="text"/>
<input type="button" value="Submit"/> <input type="button" value="Help"/>	

NOTE: Please click **Next** to save the settings.

To enable SNMP protocol support:

1. Click to select **Enable SNMP**.
2. The **SNMP Community Names** are passwords used in SNMP messages between the access point and the SNMP management system. A **Read-Only** community allows the management system to monitor the device, while a **Read-Write** community can both monitor and configure the device. Enter the Get and Set community names in the appropriate fields.
3. The **Trusted Peer** identifies which remote managements stations are allowed to perform SNMP operations on the device. The options available for a trusted peer are (a) Any Address (b) Specify an IP Address & (c) Specify a Subnet. Select the appropriate option and enter the **IP Address** and **Subnet Mask** into the appropriate fields.

To enable SNMP Trap support:

1. **SNMP Traps** are messages sent by the access point to a SNMP management station in order to notify it about the occurrence of important events or conditions on the device. To enable SNMP Traps, click **Enable SNMP Traps**.
2. The access point supports SNMP version 1, version 2c and version 3 traps. Select the appropriate version for your management station in the **SNMP Version** list.
3. Enter the appropriate information on your management station into the **SNMP Trap Destination** and **SNMP Trap Community** fields.

Rogue AP Detection

The Rogue AP Detection feature is an advanced feature that is used by network administrators to scan for adjacent access points. A table of detected access points is presented to the administrator and a determination if any rogue access points are present on the network can be made by verifying the SSID and MAC addresses.

Rogue AP Detection

Dell Wireless 4350 Small Network Access Point

Basic SettingsAdvanced SettingsDevice StatusSystem ToolsHelpLog Off

Rogue AP Detection

Enable Rogue AP Detection (Always-On)

Schedule Rogue AP Detection

Configure Rogue AP Detection parameters

Table filtering options

- List all AP's
- List all known AP's
- List all rogue AP's

Known AP	SSID	MAC Addr	Channel #	Signal Strength	Last Beacon	Supported Modes
----------	------	----------	-----------	-----------------	-------------	-----------------

NOTE: Please click **Submit** to save the settings.

There are three modes of operation for Rogue AP detection (a) Background scan (always-on), (b) Background scan (scheduled) & (c) Foreground scan.


When the background scan is enabled, the access point will periodically scan the wireless channels (a single channel at a time for 400 ms) if and only if certain load conditions are met. Any wireless stations that are associated to the AP may experience a loss of the AP during the scan interval. The background scan can either be running continuously or scheduled to run during specific periods. If scheduled, the background scan should run during periods of inactivity (e.g. during the night or at weekends).

When a foreground scan occurs, the AP will immediately reset and upon reboot will scan all the available wireless channels for an extended period. A foreground scan will cause immediate termination of all and any wireless clients.

Enable Rogue AP Detection - Background Scan (always-on):

To enable the background scan (always-on) mode of Rogue AP detection, perform the following steps:


1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click **Save & Restart**.

 **NOTE:** Any wireless stations that are associated to the Dell Wireless 4350 Small Network Access Point may experience a loss of connection to the access point during the scan interval.

Enable Rogue AP Detection - Background Scan (Scheduled):

To enable the background scan mode of Rogue AP detection, perform the following steps:


1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click to select **Schedule Rogue AP Detection** and populate the relevant fields (i.e. Start time, Stop time and specific day of the week).
3. Click **Save & Restart**.

 **NOTE:** Any wireless stations that are associated to the Dell Wireless 4350 Small Network Access Point may experience a loss of connection to the access point during the scan interval.

Enable Rogue AP Detection - Foreground Scan:

To enable the foreground scan mode of Rogue AP detection, the user must:

1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click the **Scan Now** button.

 **NOTE:** Any wireless stations that are associated to the Dell Wireless 4350 Small Network Access Point will loss connection to the access point during the scan interval.

The Rogue AP detection parameters can be varied from their default values. The default values are (a) Rogue AP Detection Scan Interval = 1 minute. (b) Table Entry Removal of Absent Access Points = 1440 minutes (i.e. 24 hours). The Rogue AP Detection Scan Interval parameter determines how often a background scan may be performed by the access point. The Table Entry Removal of Absent Access Points parameter determines how long an entry will appear in the table before it is removed.

To configure the Rogue AP Detection Parameters:

1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click to select **Configure Rogue AP Detection Parameters**.
3. Change the appropriate parameter(s) to the desired value(s).
4. Click **Save & Restart**.

The Table filtering options available are (a) List all AP's (b) List all known AP's & (c) List all rogue AP's. The table of detected AP's contains a column "Known AP" that allows the user to select whether this AP is either a known or rogue AP (this would normally be based on information such as SSID & MAC Address). The option "List all AP's" lists all the AP's detected. The option "List all known AP's" lists all the known AP's detected. The option "List all rogue AP's" lists all the rogue AP's detected.

To change the Table Filtering Options:

1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click to select the appropriate table filtering option.
3. Click **Save & Restart**.

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How do I install the Dell™ Wireless 4350 Small Network Access Point for optimal coverage?

Each Dell Wireless 4350 Small Network Access Point supports up to about a 150 to 200 foot radius, depending on obstacles and interference issues. For smaller installations a little experimentation provides good placement of the Dell Wireless 4350 Small Network Access Point.

Can the Dell Wireless 4350 Small Network Access Point attach to a hub, switch, or router?

Yes, via its LAN port, the Dell Wireless 4350 Small Network Access Point provides the flexibility for a wide variety of network configurations and connections.

What is the physical connection from the Dell Wireless 4350 Small Network Access Point to a wired network?

Each Dell Wireless 4350 Small Network Access Point has a 10/100 Ethernet (LAN port) connection, which allows communication with a 10 **megabit per second** (Mbps), 100 Mbps, or 10/100 Mbps hub or switch.

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- [How do I locate the MAC address for the Dell Wireless 4350 Small Network Access Point?](#)

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- ▶ [Does the Dell Wireless 4350 Small Network Access Point support multiple SSID's?](#)
- ▶ [Does the Dell Wireless 4350 Small Network Access Point support rogue AP detection?](#)
- ▶ [Does the Dell Wireless 4350 Small Network Access Point support notebook computers with integrated wireless adapters and wireless adapters from vendors other than Dell?](#)
- ▶ [Does the Dell Wireless 4350 Small Network Access Point support alternative antennae?](#)
- ▶ [Does the Dell Wireless 4350 Small Network Access Point support Virtual Private Networking \(VPN\)?](#)
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- ▶ [My browser does not display the web-based configuration tool. What should I do?](#)
- ▶ [The Dell Wireless 4350 Small Network Access Point CD Setup Wizard program does not run automatically after placing the CD-ROM into the CD-ROM drive. What should I do?](#)
- ▶ [How do I restart or reset the Dell Wireless 4350 Small Network Access Point ?](#)
- ▶ [I cannot hide my wireless network, what should I do?](#)

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Configuration of the Access Point



NOTE: It is recommended that you configure the Dell Wireless 4350 Small Network Access Point with the Setup Wizard provided on the Dell Wireless 4350 Small Network Access Point CD.

NOTE: Advanced users can configure the Dell Wireless 4350 Small Network Access Point with the web-based configuration utility which can be accessed by browsing to the IP address of the access point.

The Setup Wizard allows the user to configure the following parameters on the Dell Wireless 4350 Small Network Access Point (a) SSID, (b) wireless channel of operation, (c) WEP encryption (WEP encryption is optional) and (d) Static IP address.

In order to use the Setup Wizard to configure the Dell Wireless 4350 Small Network Access Point, the access point must be directly connected via an ethernet cable to the computer that is running the Setup Wizard. In this configuration, the Dell Wireless 4350 Small Network Access Point will have a default static IP address of 192.168.2.2 and the computer will have to be assigned a static IP address in the same subnet.

[How to assign a static IP address to the network card of your computer](#)

This section contains information on how to assign a static IP address to the network card of your computer. This is required as part of the access point configuration.

How to assign a static IP address to the network card of your computer

1. On your computer, click **Start --> Settings --> Control Panel**.
2. Double click the **Network Connections** icon.
3. Right click the **Local Area Connection** icon.
4. Select **Properties** from the pull-down menu.
5. Click **Internet Protocol (TCP/IP)** and then **Properties**.

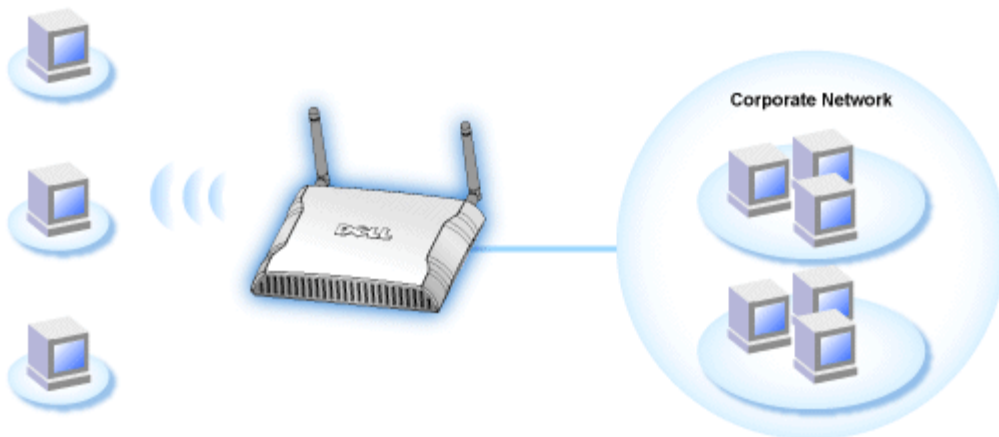
6. Select **Use the following IP address** in the **Internet Protocol (TCP/IP) Properties** window.
7. Input your **IP address** and **Subnet mask** in the appropriate fields. (The IP addresses on your network must be within the same range (e.g. 192.168.2.3 or 192.168.2.4). The subnet mask must be the same for all computers on the network (i.e. 255.255.255.0).
8. Click **OK**.

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Connecting the Access Point to the network



NOTE: It is recommended that you follow the instructions in the Quick Start Guide on connecting the Dell Wireless 4350 Small Network Access Point to the network.

The following are the relevant steps on connecting the access point to your network.

1. Find the optimum location for your Access Point. The Access Point should be located at the center of your wireless network, ideally with line of sight to all your mobile stations.
2. Fix the orientation of the antennas such that both antennas are perpendicular to the ground and parallel to each other
3. Connect the included Ethernet cable to the Access Point and the other end of the Ethernet cable to a switch or hub.
4. Connect the power adapter to the Access Point's power port.

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Setting Wireless Encryption in Your Access Point

Without wireless security options configured in your network, an eavesdropper within your wireless range may be able to access the network and the data that is being transmitted over it. The Dell Wireless 4350 Small Network Access Point provides **Wired Equivalent Privacy (WEP)** and **Wi-Fi Protected Access (WPA)** encryption for wireless security.

WPA is an upgrade to the WEP standard for securing your wireless network.

If you would like to secure your wireless network using WPA, you must have WPA support for your wireless clients. If you are using a Dell Wireless client, you can check for the availability of a WPA-enabled software update for your wireless client at <http://support.dell.com>. The WPA-802.1x protocols supported by the Dell Wireless 4350 Small Network Access Point are PEAP, TTLS & TLS.

1. Log into the web configuration of your access point using its IP address (for information on obtaining the access point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
2. Type the following text in the **user name** and **password** fields: "admin".
3. Click **Basic Settings** and then select **Wireless Security** from the drop down menu.
4. Click to select **Enable Wireless Security**.
5. Select either **WEP** or **WPA** in the **Network Encryption** list.

WEP

1. Select hexadecimal or ASCII characters as the **Key Format**. You can use either as a string of hexadecimal digits (characters 0 through 9 and A through F) or as ASCII characters (any key on the keyboard).
2. Select an encryption level from the **Key Length** list.
3. Enter four different keys in the **Key1**, **Key2**, **Key3**, and **Key4** fields to store on your router. For 40(64)-bit encryption, enter a 5-character (or 10 hexadecimal digits) WEP key. For 104(128)-bit encryption, enter a 13-character (or 26 hexadecimal digits) WEP key.
4. Select only one key out of the four keys as the **Default Key** for encryption.
5. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
6. Set up the WEP on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help systems, for information on how to set up WEP.

WPA

There are two options for network authentication (a) Pre-shared key or (b) 802.1x. Typically, in enterprises, WPA will be used in conjunction with a RADIUS authentication server. In a Small Office/Home Office (SOHO) environment, where there is no authentication server, users can use **pre-shared key (PSK)** mode in place of the authentication server.


WPA-PSK

1. Choose a key format by selecting either Hexadecimal Digits or ASCII Characters in the **Key Format** field. Hexadecimal digits are numbers 0-9 and/or letters A-F. ASCII characters can be any key on the keyboard.
2. Enter your pre-shared key in the **WPA Pre-Shared Key** field. This key must match the key that is used by each wireless client computer associated to your Access Point

3. The **WPA Group Rekey Interval** value specifies how often the key “rotates” or changes.
4. WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.
5. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
6. Set up WPA-PSK on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help system, for information on how to setup WPA-PSK.

WPA-802.1x

1. WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.
2. The **Radius Server IP**, **Radius Server Port** and **Shared Secret** fields required to be populated with the relevant information. This information regarding the Radius authentication server can be obtained from the network administrator.
3. The **WPA Group Rekey Interval** value specifies how often the key “rotates” or changes.
4. Click the **NEXT** button, and then click **Save and Restart** to apply the changes.
5. Set up WPA-802.1x on your wireless clients. Refer to the documentation that accompanied your wireless clients, or your wireless clients' on-line help system, for information on how to setup WPA with 802.1x authentication.

 **NOTE:** The Dell Wireless 4350 Small Network Access Point offers three ways to set the wireless encryption in your router. One is the Wireless Security feature in the web configuration tool mentioned here. The other two are either through the Windows-based [control utility](#) or the Setup Wizard.

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Turning Off Broadcast SSID

1. Log into the web configuration of your Access Point using its IP address (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
 2. Type the following text in the **user name** and **password** fields: "admin".
 3. Click **Advanced Settings** and then select **Advanced Wireless** from the drop down menu.
 4. Check **Yes** for **Hide my wireless network**
 5. Click **Submit**.
-

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Setting Up File & Printer Sharing

▶ [Installing File and Printer Sharing](#)

▶ [Sharing a printer](#)

▶ [Sharing files](#)

Installing the File & Printer Sharing

Follow the instructions below to install the file and printer sharing service.

For Windows 2000 and XP

1. Right-click the **My Network Places** icon (on the desktop in Windows 2000 and in the Start button menu in Windows XP) and left-click to select **Properties** in menu.
 2. Right-click the **Local Area Connection** icon and select **Properties** in the menu.
 3. If you can see the **File and Printer Sharing for Microsoft Networks** item, you can skip this section. The file and printer sharing service had already been installed.
 4. If the **File and Printer Sharing for Microsoft Networks** item is not present, click the **Install** button.
 5. Click to select **Service**, and then click the **Add** button.
 6. Click to select **File and printer sharing for Microsoft Networks**, and then click the **OK** button.
-

Sharing a Printer

To share a printer, perform the following steps on the computer that has the printer you wish to share.

1. Click the **Start** button, click **Settings**, and then click **Printers**.
2. Click the printer you want to share to highlight it.
3. On the **File** menu, click **Properties**.
4. Click the **Sharing** tab, and then click **Shared As**.
5. Follow the on-screen instructions to complete.

The printer is now available for the other computers to use.

Perform the following steps on the other computers:

1. Click the **Start** button, click **Settings**, and then click **Printers**.
2. Double-click the **Add Printer** icon.
3. Click **Next** on the first screen.

4. On the next screen, select **Network printer**, and then click the **Next** button.
 5. Click the **Browse** button and click to select the shared printer.
 6. Follow the on-screen instructions to complete.
-

Sharing files

You can share files on your computer so that users on other computers on your network can view them.

1. In Microsoft Windows Explorer, right-click on the file, folder, or drive letter you wish to share and left-click **Sharing**.
 2. Click **Share As**.
 3. Type a name for the share and follow the on-screen instructions to complete.
-

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How to setup wireless clients to connect to the Access Point

NOTE: It is recommended that you connect wireless clients to the Dell Wireless 4350 Small Network Access Point using the Setup Wizard provided on the Dell Wireless 4350 Small Network Access Point CD.

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How to Configure the Access Point via the Control Utility:

Dell™ Wireless 4350 Small Network Access Point User's Guide

▶ [My Network Overview](#)

▶ [Wireless Settings](#)

▶ [Network Access Control](#)

▶ [Administration](#)

▶ [Diagnostics](#)

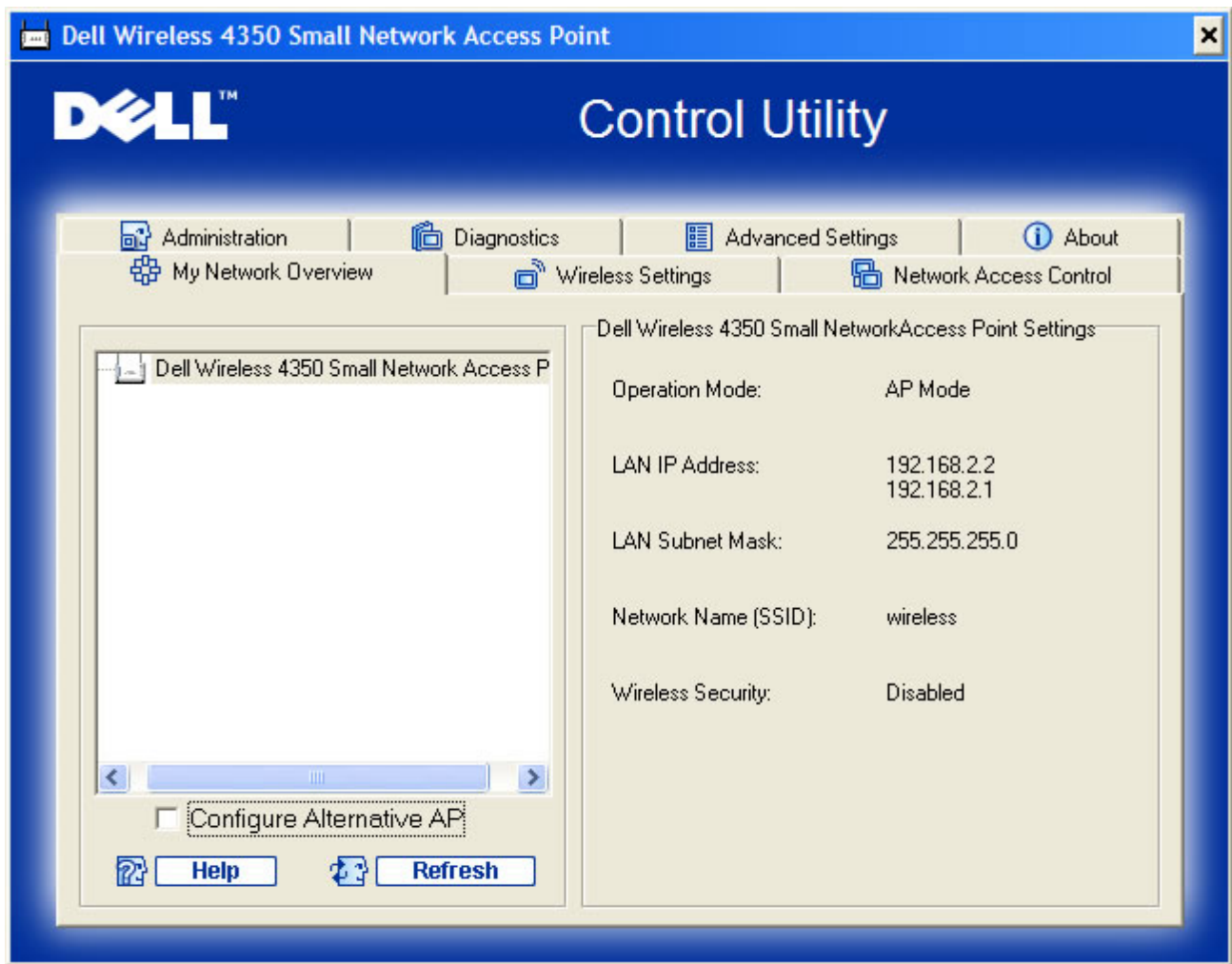
▶ [Advanced Settings](#)

My Network Overview

This screen provides information about your network connection and settings. The left pane displays your connection status. The right pane displays the following network settings:

- Operation Mode
- LAN IP Address
- LAN Subnet Mask
- Network Name (SSID)
- Wireless Security

My Network Overview



The Control Utility allows the user to manage multiple Dell Wireless 4350 Small Network Access Points on the network by allowing the user to configure an alternative access point to the default access point presented by the Control Utility.

To configure an alternative access point, perform the following steps:

1. Click to select **Configure Alternative AP**.
2. Enter the IP Address and Subnet Mask of the access point to be configured into the **IP Address** and **Subnet Mask** fields.
3. Click **Apply**, the Control Utility will shutdown and after restarting will have connected to the desired Dell Wireless 4350 Small Network Access Point.

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Wireless Settings

- **Network Name (SSID)**

The SSID is a unique network name. It is used to identify the wireless network. This name is used when connecting wireless clients to your wireless network.

- **Channel**

This is the radio channel over which a communication transmission occurs between the access point and a wireless client.

- **Default Settings**

Resets the wireless settings to its factory defaults.

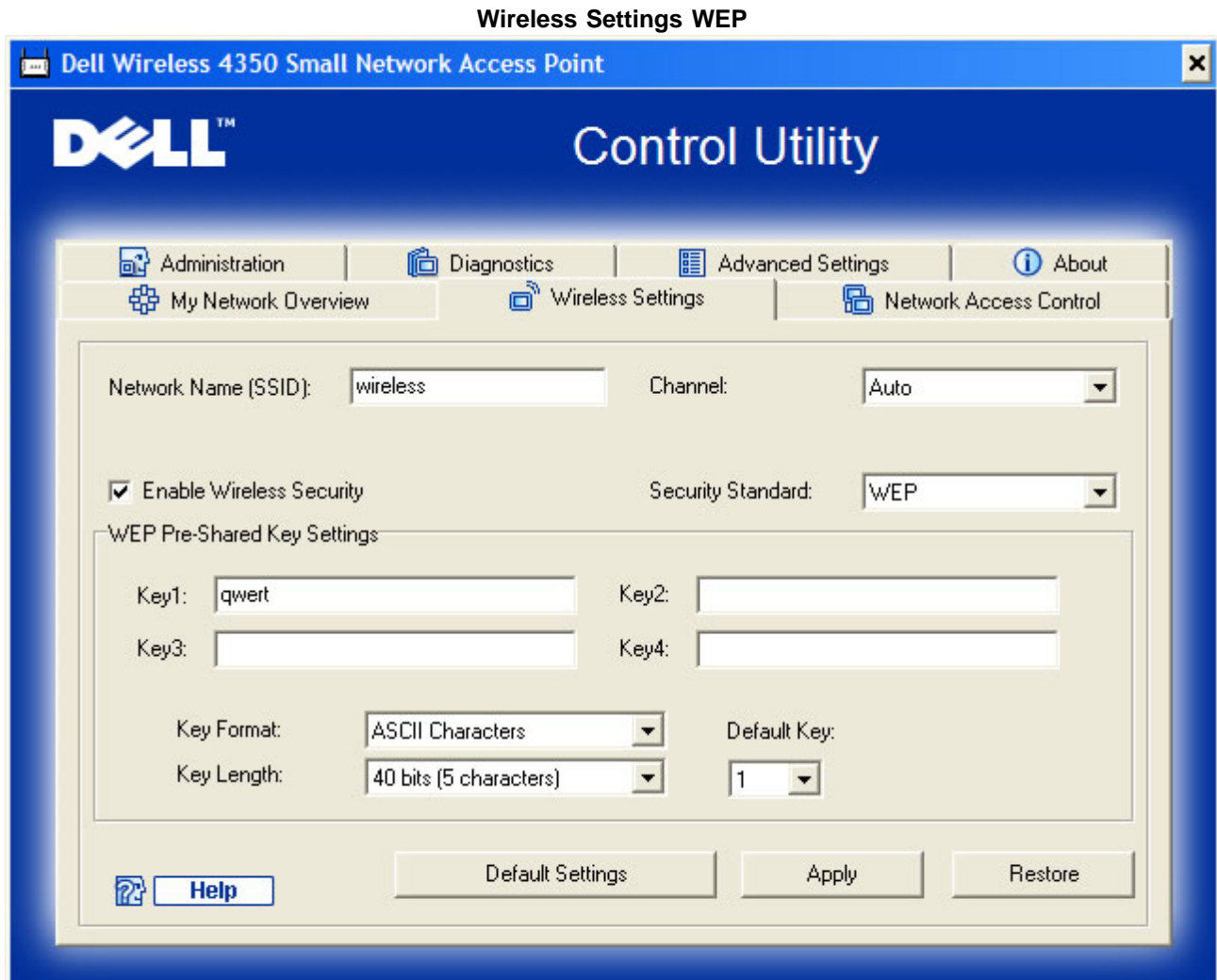
- **Apply**

Saves current settings.

- **Restore**

Restores previous settings.

Your Dell Wireless 4350 Small Network Access Point has an advanced security mechanism. It ensures the confidentiality of data, and also guards data against being modified. If you want to enable the security mechanism, click to select **Enable Wireless Security**.



WEP Settings

The **Wired Equivalent Privacy** (WEP) encryption defined in the 802.11 standard is used to protect wireless communication from eavesdropping. WEP provides a way of creating an encrypted key that is shared between a wireless client (such as a notebook with a wireless PC card) and the access point. This key encrypts data before it is transmitted. WEP can be implemented with a 40(64)-bit or 104(128)-bit key. For added security, change your key often. When you change the key on one wireless device, it must be changed for all wireless devices and access points in the network.

- **Key Format**

Can be ASCII or hexadecimal format. Hexadecimal format includes the numbers 0 through 9 and the letters A through F. ASCII format includes all alphanumeric characters.

- **Key Length**

Can be either 40(64)-bit or 104(128)-bit key length. Some wireless network cards are only able to use 40(64)-bit encryption. If all your clients are able to communicate at 104(128)-bit, then choose 104(128)-bit. If any client is only able to communicate at 40(64)-bit, choose 40(64)-bit.

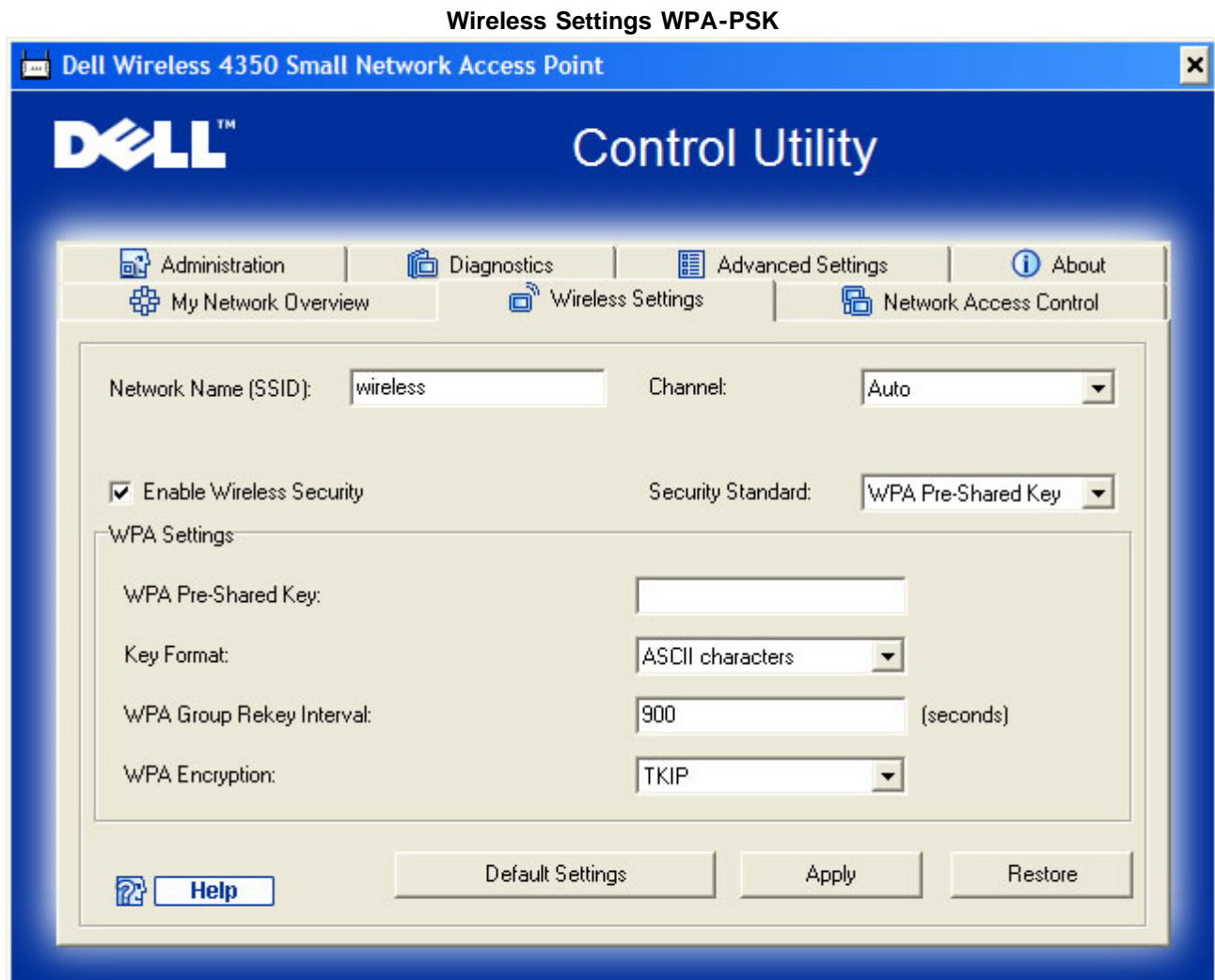
- **Key1, Key2, Key3, and Key4**

Type four different keys in the **Key** fields provided to store on the Wireless 2350. If you choose 40(64)-bit encryption, enter a 5-

character (or 10 hexadecimal digits). For 104(128)-bit encryption, enter a 13-character (or 26 hexadecimal digits) WEP key.

- **Default Key**

Select only one key out of the four provided in the **Default Key** field.



WPA-PSK Settings

Wi-Fi Protected Access (WPA) is an upgrade to the WEP standard for securing your wireless network.

If you would like to secure your wireless network using WPA, you must have WPA support for your wireless clients. If you are using a Dell wireless client, you can check for the availability of WPA-enabled software updates for your wireless client at <http://support.dell.com>.

- **WPA Pre-shared Key**

All wireless clients must use this key to gain access to the network. Note that the Key format must also match the setting for the wireless clients.

- **Key Format**

Can be ASCII or hexadecimal format. Hexadecimal format includes the numbers 0 through 9 and the letters A through F. ASCII format includes all alphanumeric characters.

- **WPA Group Rekey Interval**

WPA Group Rekey Interval is used to specify the frequency of encryption key rotations. The lower the number, the faster your encryption key will rotate; however, setting this number too low may cause your wireless network to slow down.

- **WPA Encryption**

TKIP (Temporal Key Integrity Protocol) is the most commonly used encryption method. **AES** (Advanced Encryption Standard) can be used if your wireless clients do not support TKIP.

Wireless Settings WPA 802.1x

The screenshot shows the 'Wireless Settings WPA 802.1x' window in the Dell Control Utility. The window title is 'Dell Wireless 4350 Small Network Access Point'. The interface includes a navigation bar with 'Administration', 'Diagnostics', 'Advanced Settings', and 'About'. Below this is a sub-menu with 'My Network Overview', 'Wireless Settings', and 'Network Access Control'. The main settings area includes: 'Network Name (SSID): wireless', 'Channel: Auto', 'Enable Wireless Security' (checked), 'Security Standard: WPA 802.1x', and a 'WPA 802.1x Settings' section with fields for 'Radius Server IP', 'Radius Server Port: 1812', 'Shared Secret', and 'WPA Encryption: TKIP'. At the bottom are 'Help', 'Default Settings', 'Apply', and 'Restore' buttons.

WPA-802.1x Settings

- **Radius Server IP, Radius Server Port and Shared Secret.**

The **Radius Server IP**, **Radius Server Port** and **Shared Secret** fields required to be populated with the relevant information. This information regarding the Radius authentication server can be obtained from the network administrator.

- **WPA Encryption**

WPA Encryption allows you to select one of two possible encryption methods—**TKIP** and **AES**. Choose one that your wireless clients support.

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Network Access Control

- **Add**
Adds a new entry to the list.
- **Edit**

Allows you to edit entries.

- **Delete**

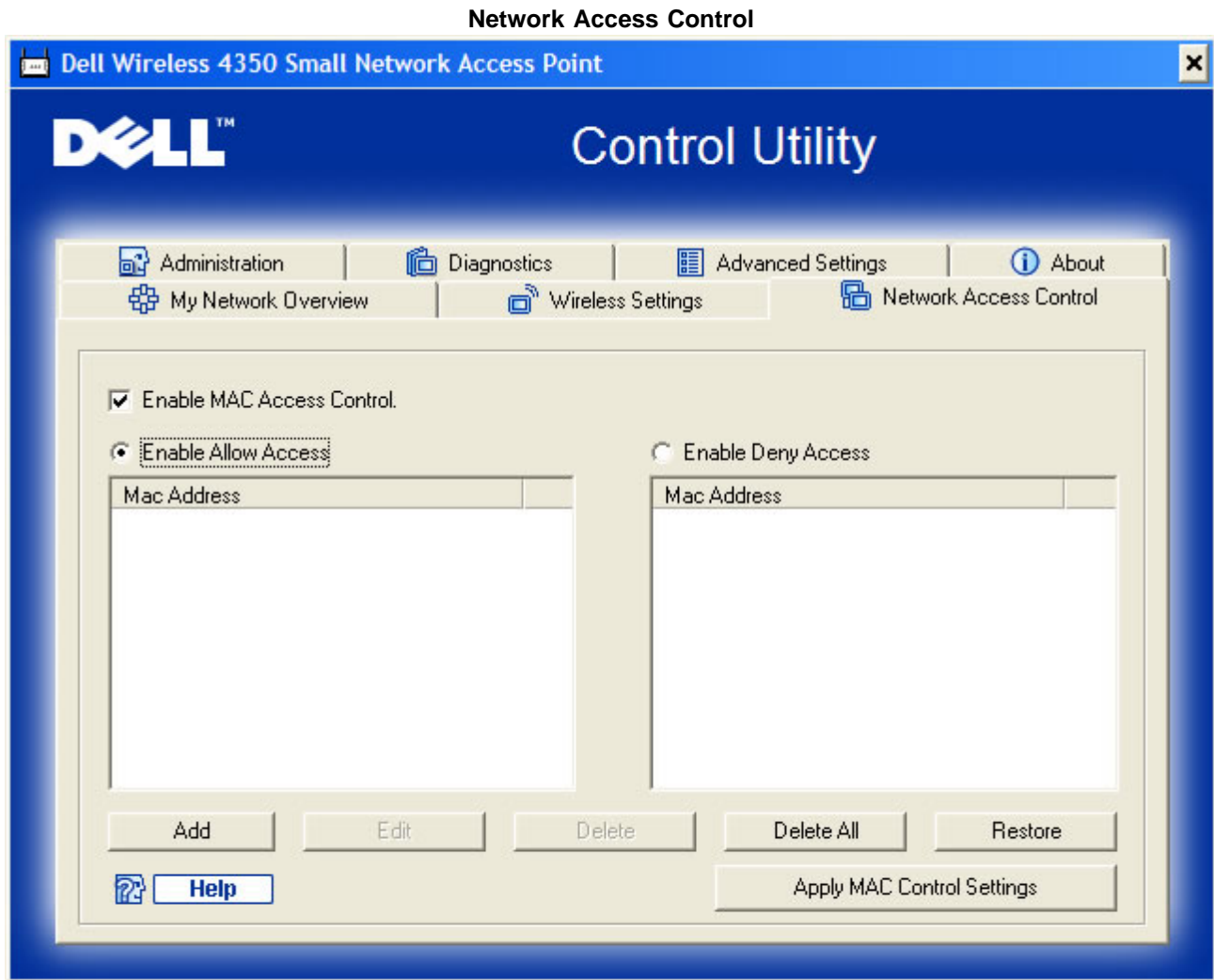
Deletes a record from the list.

- **Delete All**

Deletes all records from the list.

- **Restore**

Restores previous settings.



MAC Access Control

The MAC Access Control page allows you to control which local client computer is allowed to access the network through the Dell Wireless 4350 Small Network Access Point based on the client computer's MAC address. The default setting is to allow any client computer to access the network through the access point.

There are two options for the Access Control Settings, the Allow Access option and the Deny Access option. Each option is able to support up to 32 entries. Only one option can be active at any time. Selecting the checkbox for Enable Allow Access will disable Enable Deny Access and vice versa. The Enable Allow Access option will only allow clients that are listed in the table to access the network. The Enable Deny Access option will prevent any clients that are listed in the table from accessing the network.

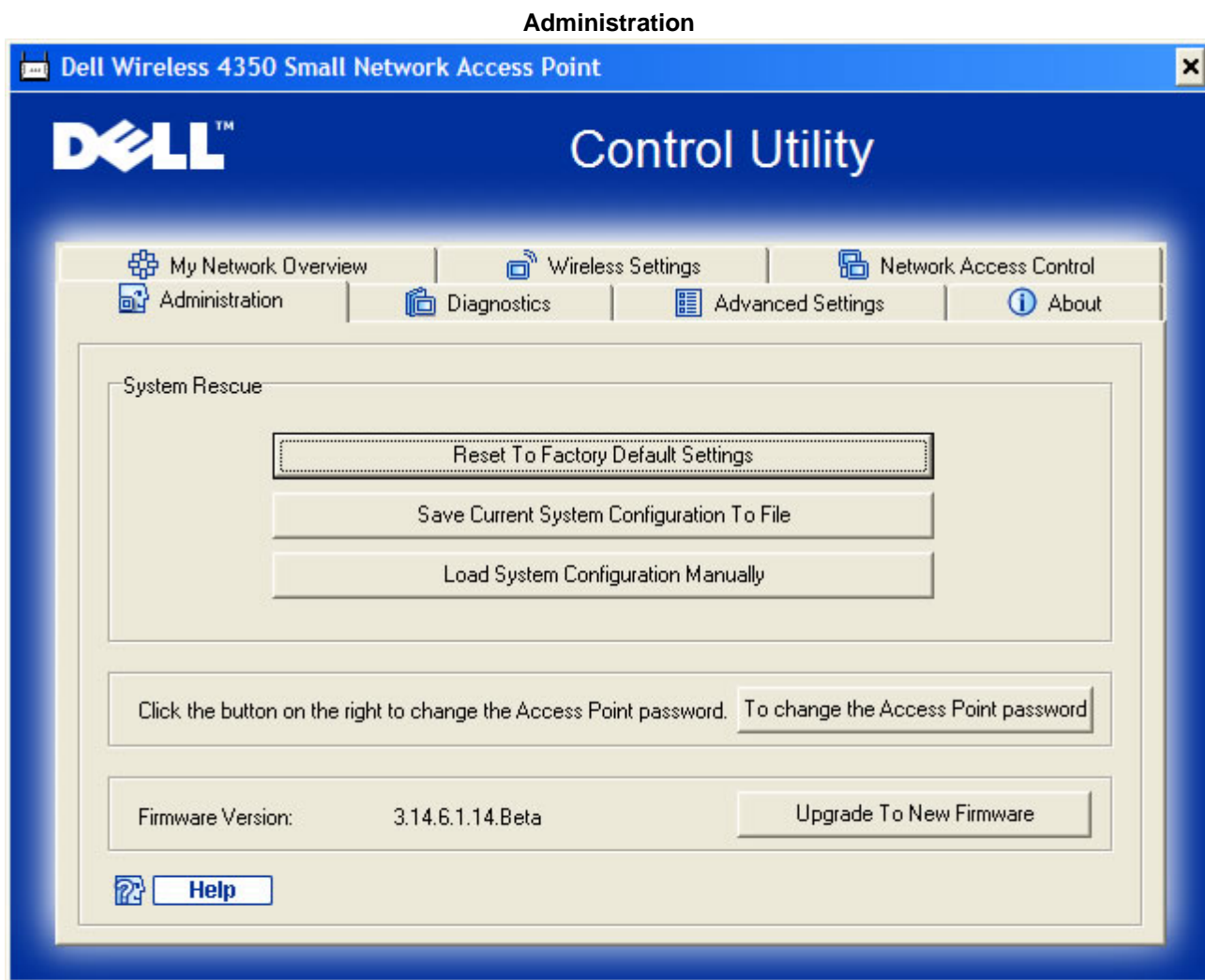
To enable MAC Access Control, perform the following steps:

1. Click to select **Enable MAC Access Control**.
2. Click the appropriate option, **Enable Allow Access** or **Enable Deny Access**.

3. Click the **Add** button. The **MAC Access Control: Add a Record** window appears.
4. Enter the hexadecimal MAC address (for example, 00:11:22:33:44:55) that you want to grant or deny access in the **Host MAC** box.
5. Click the **OK** button to apply, or click the **Cancel** button to exit without making any changes.
6. You can click on the selected record and click again on its **Host Name** to enter the desired name for this record.
7. Click the **Apply MAC Control Settings** button on the bottom of the screen to activate the new settings.

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Administration



System Rescue

System Rescue allows you to save a backup of your configuration settings.

- **Save Current System Configuration To File**


Saves the current settings as a .pro file.


- **Load System Configuration Manually**

Loads the backup file to restore previously saved settings.

- **Reset to Factory Default Settings**

Resets the router to its default configuration.

 **NOTE:** The system configuration files can only be used by the Control Utility on Dell Wireless 4350 Small Network Access Points.

 **NOTE:** Do not use the Control Utility to import configurations settings files created by the web based configuration tool.

Change Password

To prevent unauthorized administration changes to the access point, the access point is password protected. It is strongly recommended that you change the factory default password.

1. Click the **To Change the Access Point Password** button. The **Password Settings** window appears.
2. Type the original password in the **Original Password** field.
3. Type the new password in the **New Password** field, and then retype it in the **Confirm Password** field to verify.
4. Type the password hint message in the **Password Hint Message** field.
5. Click the **Submit** button when you finish the setting. If you want to clear any values you have entered in any field, click the **Cancel** button.

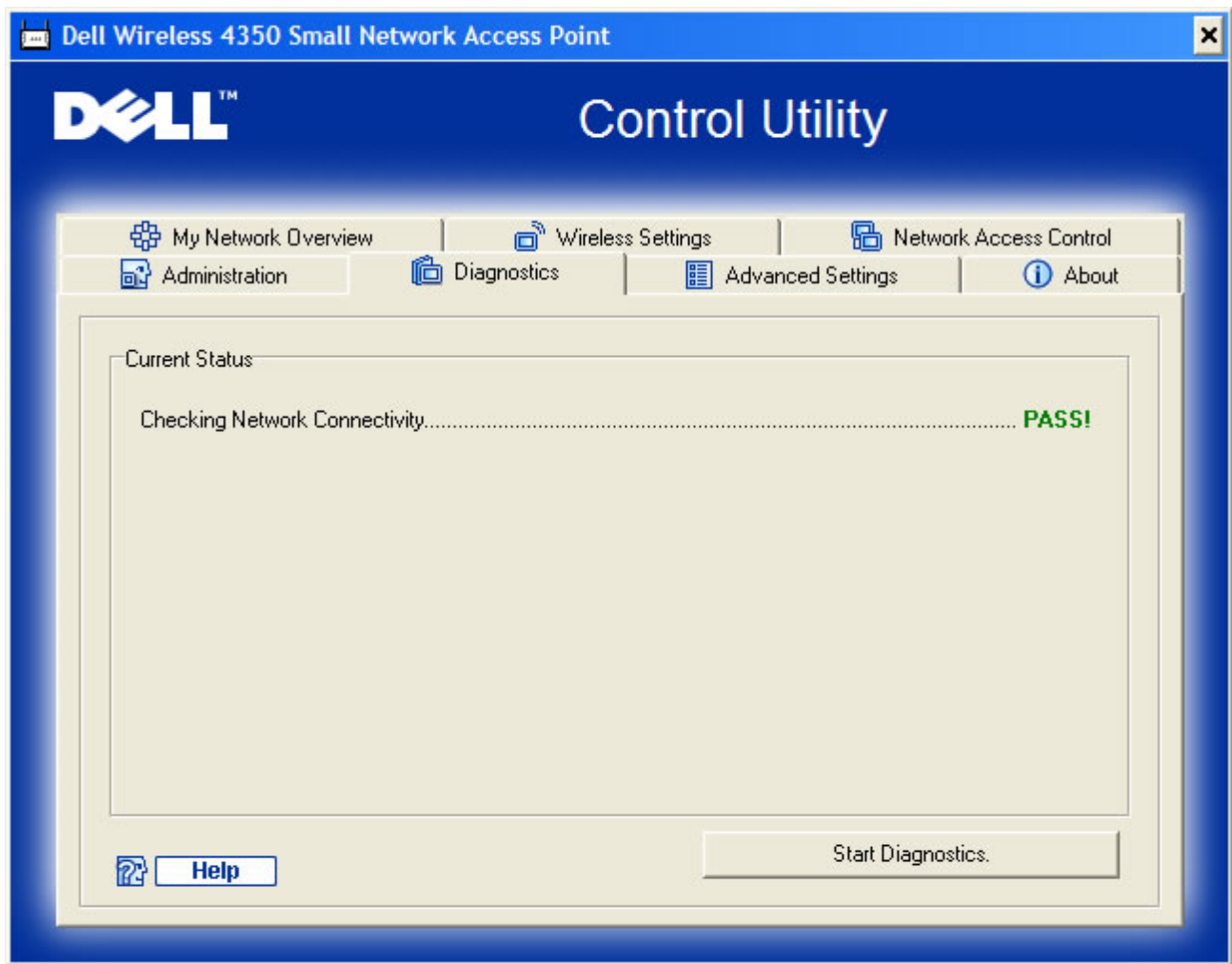
Upgrade to New Firmware

If you are instructed to upgrade the firmware, click the **Upgrade to New Firmware** button. It will connect to the Dell website to upgrade to the latest firmware release. It is unnecessary to upgrade the firmware if your access point is working properly.

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Diagnostics

Diagnostics



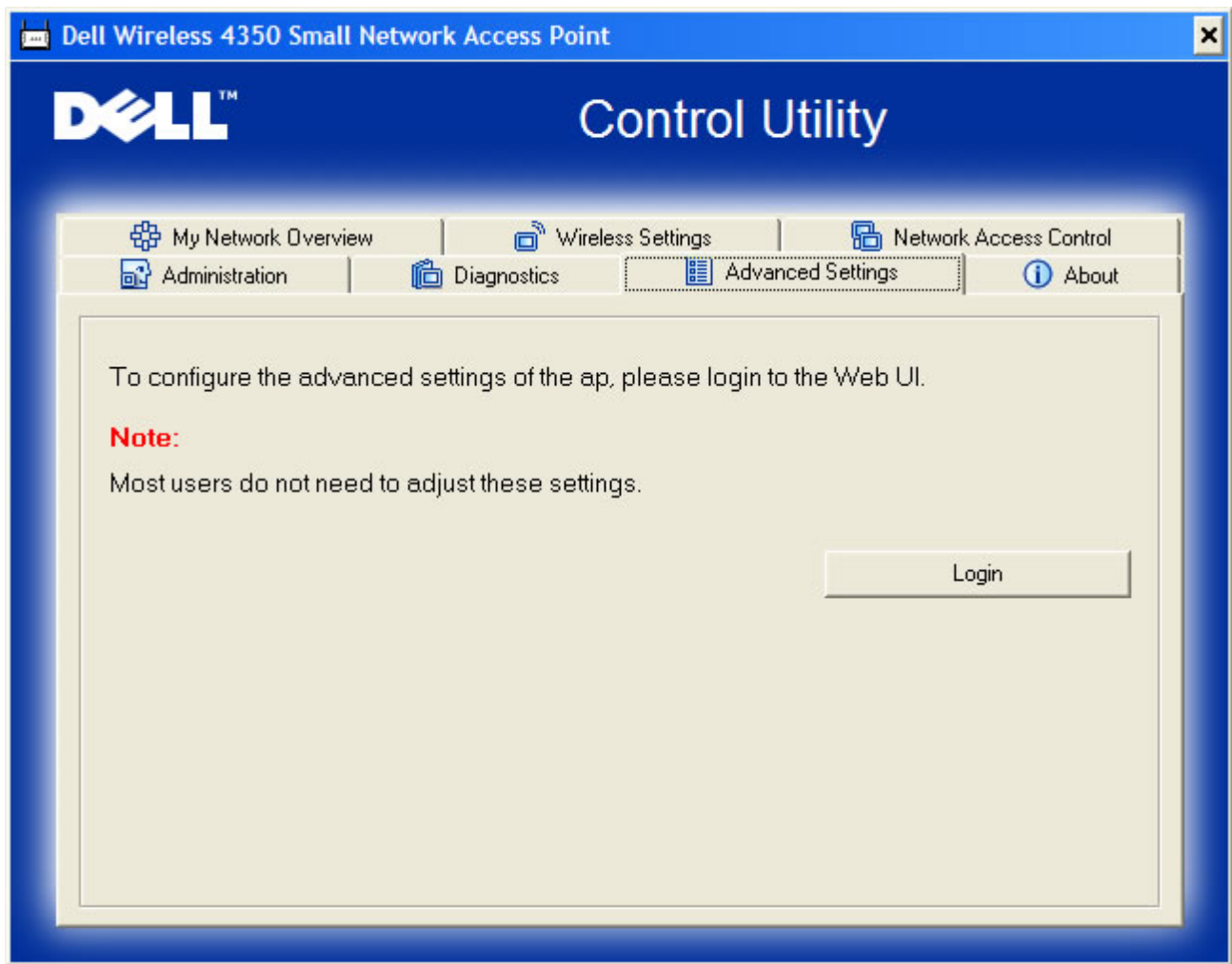
You can monitor the current status of your network connection in the **Diagnostics** menu. The network diagnostics can be activated by clicking the **Start Diagnostics** button on the bottom of the screen.

When the detection is done, the screen will display either a **PASS!** or **FAIL!** message indicating whether the access point is connected to a network or not.

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Advanced Settings

Advanced Settings



To configure the advanced settings of the access point, click the **Login** button to log in to the web-based configuration tool. The web-based configuration tool allows you to set up advanced network configurations for your Dell Wireless 4350 Small Network Access Point.

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Basic Settings: Dell™ Wireless 4350 Small Network Access Point User's Guide

The following configuration options are included in **Basic Settings**:

▶ [General Settings](#)

▶ [Wireless Settings](#)

▶ [Wireless Security](#)


▶ [Save & Apply](#)

NOTE: To implement the changes you make to the settings, you must save your settings and restart the access point. Otherwise, the access point uses the previous settings. If you are using the **BACK/NEXT** links to step through each screen in the **Basic Settings** portion of the web-configuration tool, you ultimately reach the **Save & Apply** page. Click **Save & Restart** button to commit the changes, and the access point will reboot automatically with the new settings in effect.

General Settings

The General Settings page allows the user to change the **AP host name**.

General Settings

Dell Wireless 4350 Small Network Access Point

Basic Settings	Advanced Settings	Device Status	System Tools	Help	Log Off
----------------	-------------------	---------------	--------------	------	---------

General Settings

AP Host Name	<input type="text" value="Dell_4350_AP"/>
--------------	---

NOTE: Please click **Next** to save the settings.

AP Host Name

The AP Host Name is the network name that the Dell Wireless 4350 Small Network Access Point will have on a network.

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Wireless Settings

Wireless Settings

Dell Wireless 4350 Small Network Access Point

Basic Settings	Advanced Settings	Device Status	System Tools	Help	Log Off
----------------	-------------------	---------------	--------------	------	---------

WIRELESS SETTINGS

Network Name (SSID)

Channel

NOTE: Please click 'Next' to save the settings.

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NOTE: You must change each client's wireless adapter settings to match the Dell Wireless 4350 Small Network Access Point settings. Use the factory defaults for the access point, unless the default settings have been changed. In this case, note the changes and use the new settings for each wireless network card. For assistance configuring a wireless network card, see the card's documentation.

Setting	Possible Values
Network Name (SSID)	(wireless by default)
Channel	(auto by default)

Network Name (SSID)

The network name is a value that identifies a collection of **wireless** devices found in a particular network. The default value for the Dell Wireless 4350 Small Network Access Point is **wireless**. All workstations and access points must use the same SSID to be able to communicate with one another.

The SSID is a 32-character field, and the value is case sensitive.

Channel

The Dell Wireless 4350 Small Network Access Point can operate on a variety of channels. Access points within close proximity to one another must be on different channels. If you have just one access point, then the default, auto, is probably adequate. If you have multiple access points in your network, it is suggested to stagger the channels for each access point. It is advisable to use the default unless there is a specific reason for changing the channel, such as interference from microwaves, cellular phone towers, or other access points in the area.

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Wireless Security

Data encryption provides added security by encoding network communications using an encryption key. Your Dell Wireless 4350 Small Network Access Point, in conjunction with wireless network adapters that support encryption, can scramble your transmitted data to make it difficult for someone to eavesdrop or intercept your information. Two methods of data encryption are available: **Wired Equivalent Privacy (WEP)** and **Wi-Fi Protected Access (WPA)**. If you wish to enable wireless security, click to select **Enable Wireless Security**.

Wireless Security


Dell Wireless 4350 Small Network Access Point

Basic Settings
Advanced Settings
Device Status
System Tools
Help
Log Off

WIRELESS SECURITY

Data encryption provides added security by encoding network communications using an encryption key. The longer the wep key is, the stronger the encryption.

Enable Wireless Security

NOTE: Please click **Next** to save the settings.

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WEP

If you wish to enable WEP encryption, click to select **WEP** in the **Network Encryption** list.

Setting	Possible Values
Key Format	Hexadecimal Digits / ASCII Characters
Key Length	40 bits (5 characters) / 104 bits (13 characters)
Key1, Key2, Key3, Key4	<user-defined>

There are two levels of WEP encryption: 40(64)-bit and 104(128)-bit, with 104(128)-bit being the more secure of the two. The WEP encryption keys are simply a set of hexadecimal numbers or ASCII characters that you choose. Each Dell Wireless 4350 Small Network Access Point and every wireless workstation must use the same WEP encryption key to communicate. For more information on encryption, see the [Wireless Networking Overview - Encryption](#) section of this user's guide.

- **Key Format**

Key format can be in ASCII or hexadecimal format. Hexadecimal digits include the numbers 0 through 9 and the letters A through F. If you select ASCII format, you can enter any character.

- **Key Length**

Key length can be either **40(64)-bit** or **104(128)-bit**. Larger key lengths are more secure. Some wireless network cards are only able to use 40(64)-bit encryption. If all your clients are able to communicate at 104(128)-bit, choose 104(128)-bit.

- **Key**

If you choose 40(64)-bit encryption, enter a 5-character (or 10 hexadecimal digits) WEP encryption **Key** in the fields provided. For 104(128)-bit encryption, enter a 13-character (or 26 hexadecimal digits) WEP key in the fields provided. You have the option of entering four different keys to store on the Wireless 4350. Select only one key out of the four provided in the **Default Key** drop-down list. For added security, change your key often. When you change the key on one wireless device, remember that it must be changed for all wireless devices and access points in the network.

NOTE: If you are adding the Dell Wireless 4350 Small Network Access Point to an existing network and will be using an existing encryption key for the wireless clients, contact the person in charge of the network. The same key must be used when configuring the encryption for the Dell Wireless 4350 Small Network Access Point. The administrator must make any changes to all access points and wireless clients on a network. Changing the key on just one access point or wireless client

disconnects it from the rest of the network.

Wireless Security



Dell Wireless 4350 Small Network Access Point

Basic Settings

Advanced Settings

Device Status

System Tools

Help

Log Off

WIRELESS SECURITY

Data encryption provides added security by encoding network communications using an encryption key. The longer the wep key is, the stronger the encryption.

Enable Wireless Security	<input checked="" type="checkbox"/>
Network Encryption	WEP ▾
WEP Settings	
Key1	<input type="text"/>
Key2	<input type="text"/>
Key3	<input type="text"/>
Key4	<input type="text"/>
Key Format	ASCII Characters ▾
Default Key	1 ▾
Key Length	40 bits(5 characters) ▾
<input type="button" value="Back"/> <input type="button" value="Next"/> <input type="button" value="Help"/>	

NOTE: Please click 'Next' to save the settings.

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WPA

If you wish to enable WPA encryption, select **WPA** from the **Network Encryption** list.

WPA is an upgrade to the WEP standard for securing your wireless network. If you would like to secure your wireless network using WPA, you must have WPA support for your wireless clients. If you are using a Dell Wireless wireless client, you can check for the availability of WPA-enabled software update for your wireless client at <http://support.dell.com>.

There are two options for network authentication (a) Pre-shared key or (b) 802.1x . Typically, in enterprises, WPA will be used in conjunction with a RADIUS authentication server. In a Small Office/Home Office (SOHO) environment, where there is no authentication server, users can use **pre-shared key** (PSK) mode in place of the authentication server

The Dell Wireless 4350 Small Network Access Point offers both WPA running in PSK mode and WPA with 802.1x authentication.

WPA Pre-shared Key

WPA Pre-Shared Key (PSK) is a field where the password is entered. All wireless clients must also use this password to gain access

to the network. Note that the Key format must also match the setting for the wireless clients.

- **Key Format**

Key Format is a box that lists 2 items: **Hexadecimal** Digits (numbers 0 through 9 and letters A through F) and **ASCII** Characters (any letter, number, or symbol). Select the proper format for your key. If your wireless client(s) only support one of the two formats, be sure to specify the correct one.

- **WPA Group Rekey Interval**

WPA Group Rekey Interval is used to specify the frequency of encryption key rotations. The lower the number, the faster your encryption key will rotate, however, setting this number too low may cause your wireless network to slow down.

- **WPA Encryption** WPA Encryption has 2 choices: **TKIP** (Temporal Key Integrity Protocol) is the most commonly used encryption method. **AES** (Advanced Encryption Standard) can be used if your wireless clients do not support TKIP.

WPA PSK



Data encryption provides added security by encoding network communications using an encryption key. The longer the wpa key is, the stronger the encryption.

Enable Wireless Security	<input checked="" type="checkbox"/>
Network Encryption	WPA ▾
WPA Settings	
Network Authentication	Pre-Shared Key ▾
WPA Pre-Shared Key	<input type="text"/>
Key Format	ASCII Characters ▾
WPA Group Rekey Interval	900 (0-1000)
WPA Encryption	TKIP ▾
<input type="button" value="Back"/> <input type="button" value="Next"/> <input type="button" value="Help"/>	

NOTE: Please click 'Next' to save the settings.

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WPA 802.1x

WPA-802.1x requires the network to have an authentication server. All wireless clients must have an authentication certificate in order to gain access to the network.

- **Radius Server IP, Radius Server Port and Shared Secret**

The **Radius Server IP**, **Radius Server Port** and **Shared Secret** fields are required to be populated with the relevant information. This information regarding the Radius authentication server can be obtained from the network administrator.

- **WPA Group Rekey Interval**

WPA Group Rekey Interval is used to specify the frequency of encryption key rotations. The lower the number, the faster your encryption key will rotate, however, setting this number too low may cause your wireless network to slow down.

- **WPA Encryption** WPA Encryption has 2 choices: **TKIP** (Temporal Key Integrity Protocol) is the most commonly used encryption method. **AES** (Advanced Encryption Standard) can be used if your wireless clients do not support TKIP.

WPA 802.1x

Dell Wireless 4350 Small Network Access Point

Basic SettingsAdvanced SettingsDevice StatusSystem ToolsHelpLog Off

WIRELESS SECURITY

Data encryption provides added security by encoding network communications using an encryption key. The longer the wpa key is, the stronger the encryption.

Enable Wireless Security	<input checked="" type="checkbox"/>
Network Encryption	WPA ▼
WPA Settings	
Network Authentication	802.1x ▼
WPA Encryption	TKIP ▼
Radius Server IP	<input style="width: 20px;" type="text"/> . <input style="width: 20px;" type="text"/> . <input style="width: 20px;" type="text"/> . <input style="width: 20px;" type="text"/>
Radius Server Port	<input style="width: 100%;" type="text"/>
Shared Secret	<input style="width: 100%;" type="text"/>
WPA Group Rekey Interval	<input style="width: 40px;" type="text"/> (0-1000)


NOTE: Please click 'Next' to save the settings.

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Save & Apply

Use the **Save & Apply** page to submit all the network setting changes you have made. Click the **Save & Restart** button to update the network configurations for your Dell Wireless 4350 Small Network Access Point.

The new settings are then written to the firmware, and the access point reboots automatically.

 **NOTE:** If you have wireless clients on your network, you must configure the clients' wireless network cards to match the settings for the Dell Wireless 4350 Small Network Access Point.

Save and Apply



SAVE & APPLY

You have successfully configured the settings for the device.

NOTE: After you have finished making all the changes on the various pages, please click Save & Apply to save the settings and restart the device. After the apply, the device will function according to the saved settings.

Click Save & Restart to save the settings and restart the device!

SAVE & RESTART

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Device Status: Dell™ Wireless 4350 Small Network Access Point User's Guide

The Device Status screen displays the basic network settings for your Dell Wireless 4350 Small Network Access Point. When changes are made to the network settings, those changes are updated on this screen. In addition, it graphically displays the current connection status for the access point and other devices in your network. Connections between network devices are shown with a yellow arrow. Inoperative connections are represented by one red X through the yellow connection line.

NOTE: The Dell Wireless 4350 Small Network Access Point offers two ways to check the status of your network. One is the **Device Status** feature in the web configuration tool mentioned here. The other is through the Windows-based [Control Utility](#).

Device Status

Device Status

The following connections are displayed on the Device Status page:

Device	Indication
Dell Wireless 4350 Small Network Access Point	Shown as an active connection when the Dell Wireless 4350 Small Network Access Point is configured and physically connected to your network, and inactive when the Ethernet cable is disconnected from the network.
Wireless Client	Shown as an active connection when a wireless client is connected to your access point, and inactive when there is no wireless client connected to your access point.

Ethernet Settings

Refer to the left side of the screen for the following LAN Ethernet settings and the Internet protocol (IP) settings for the Dell Wireless 4350 Small Network Access Point:

Setting/Device	Information Displayed
AP IP	The IP address assigned to the Dell Wireless 4350 Small Network Access Point
LAN MAC	The MAC address for the LAN (Ethernet) interface
AP Host Name	The host name for the Dell Wireless 4350 Small Network Access Point (the default is Del_4350_AP)
Firmware Version	The version number of the firmware currently installed on the Dell Wireless 4350 Small Network Access Point
Wireless Channel	The radio channel on which the Dell Wireless 4350 Small Network Access Point is communicating on the air
Network Name	A unique network name that identifies the wireless network. It is also known as SSID (Service Set Identifier). When a client station tries to connect to the access point, the user must know the access point's SSID first.

The following buttons appear on the left navigation bar:

Button	Action
Release	Releases the IP address that the Dell Wireless 4350 Small Network Access Point has been assigned from your network's DHCP server. If the access point has been configured to have a static IP address, clicking Release does not release this IP address.
Renew	Renews the IP address from your network's DHCP server. If the access point has been configured to have a static IP address, clicking Renew does not renew the IP address.

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System Tools: Dell™ Wireless 4350 Small Network Access Point User's Guide

Use the System Tools section to view the intruder detection log, the network activity log, system statistics and system diagnostics regarding the device. The System Tools section also includes features to import/export the device's configuration settings, restore the default settings, upgrade the firmware and reset the device.

Use the following pages in the web-based configuration tool to access these features in the System Tools:

- ▶ [Intruder Detection Log](#)
- ▶ [Network Activity Log](#)
- ▶ [Import/Export Settings](#)
- ▶ [System Statistics](#)
- ▶ [System Diagnostic](#)
- ▶ [Load Default Settings](#)
- ▶ [Upgrade Firmware](#)
- ▶ [Reset Device](#)

Intruder Detection Log

Indicator	Description
Time	Based on the timestamp of the IP packet, plus or minus the time offset
Event	Type of attack that the access point detects
Event-Type	Type of attack that the access point detects
Details	Shows detailed information about the event

The system can be enabled to alert an administrator via e-mail of any attempted intrusion.

1. Click to select **Email Alert Enable**.
2. Type the e-mail address that you want the alert sent to in the **Email Address** field.
3. Click the **Submit** button.

Intrusion

INTRUDER DETECTION LOG

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Network Activity Log

Network Activity Log

DELL™Dell Wireless 4350 Small Network Access Point

Basic SettingsAdvanced SettingsDevice StatusSystem ToolsHelpLog Off

Network Activity log

Enable Network Activity log

Network Receive Traffic

Connection Type	Status	Packets	Bytes	Errors	Dropped Packets	Timespan
DHCP	Connected	50	11257	0	0	10

Network Transmit Traffic

Connection Type	Status	Packets	Bytes	Timespan
DHCP	Connected	70	32159	10

RESET

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Click to select **Enable Network Activity Log** to allow the user to see transmitted and received traffic from the Dell Wireless 4350 Small Network Access Point to the network.

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Import/Export Settings

Import/Export Settings

DELL™Dell Wireless 4350 Small Network Access Point

Basic SettingsAdvanced SettingsDevice StatusSystem ToolsHelpLog Off

Import & Export Settings

Export Current Settings File:

Import New Settings File:

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The Dell Wireless 4350 Small Network Access Point allows the user to save the current configurations settings into a file on the computer and to load previously saved settings into the access point.

Export Current Settings File:

1. Click **Export** to save the current configurations settings into a file on the computer. The default file name for the configuration settings file is dell4350conf.txt

Import New Settings File:

1. Click **Browse** to locate a previously saved configuration file to load into the access point.
2. Click **Import** to load the configuration file. The access point will automatically restart after loading the imported settings.

NOTE:The configuration settings files can only be used by a web browser utility on Dell Wireless 4350 Small Network Access Points.
NOTE:Do not use the web browser utility to import configurations settings files created by the windows-based Control Utility.

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System Statistics

System Statistics

 Dell Wireless 4350 Small Network Access Point					
Basic Settings	Advanced Settings	Device Status	System Tools	Help	Log Off

System Statistics

Wireless Stations

MAC Address	Authentication Type	Encryption	Client Status	Transmit			Receive			
				Packets	Bytes	Errors	Packets	Bytes	Errors	

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The System Statistics table displays diagnostic information on all the wireless stations currently connected to the Dell Wireless 4350 Small Network Access Point.

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System Diagnostic

The Systems Diagnostic page is for your information only. This page displays both the configuration settings and diagnostic information for the Dell Wireless 4350 Small Network Access Point. The configuration settings include firmware version and device settings that have been configured for your network. The Diagnostic section shows the status of the wireless and Ethernet connections for your Dell Wireless 4350 Small Network Access Point.

System Diagnostic



System Diagnostic

Configuration

Firmware version: AR531x version 3.14.6.1.14.5.0

Network Settings DHCP

IP Address: 192.168.2.1

Gateway IP Address:

Domain Name Server(DNS) IP Address:

Host Name: Dell_4350_AP

Diagnosis

Link Status

Ethernet

Connected

Wireless

Disconnected

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Load Default Settings

The Load Default Settings page allows you to reload the factory default configurations that came with the device. When this option is used, all settings are reset to the factory default value. This is equivalent to pressing and holding the **Reset** button on the back panel of the device for more than 5 seconds (for more details, refer to [Look at the Hardware](#)).

NOTICE: Loading the default settings option will cause the current settings for your Dell Wireless 4350 Small Network Access Point to be lost.

Load Default Settings



LOAD DEFAULT SETTINGS

Load Default Settings will load the factory default settings for the device. Please click on the **START** button to proceed.

Note. The Device IP Address will be reset to 192.168.2.1 after Load Default.

START

Click the **Start** button to reload the default settings.

Upgrade Firmware

Dell periodically releases firmware updates to provide improved performance or capabilities. Use the firmware upgrade feature to easily upgrade the firmware on your Dell Wireless 4350 Small Network Access Point.

The Upgrade firmware page supports two methods for upgrading the firmware onto the access point (a) local file upgrade (b) Internet file upgrade.

NOTE: Make sure the file you choose is an actual Dell Wireless 4350 Small Network Access Point firmware file.

Upgrade the Firmware

Dell Wireless 4350 Small Network Access Point

Basic Settings

Advanced Settings

Device Status

System Tools

Help

Log Off

FIRMWARE UPGRADE

Enter the firmware file path into the box and click **START** to proceed with the new firmware upgrade.

Firmware Upgrade File:

Browse...

Start

WARNING: Dell does not recommend upgrading the Dell Wireless 4350 Small Network Access Point from a wireless client. Dell recommends connecting to your Dell TrueMobile router with a LAN cable connection to perform your firmware upgrades.

Upgrade From the Internet

Automatically Check for New Versions

Check every

24 hours

At URL

http://update.jungo.cor

Check Internet Now

Firmware Upgrade File:

Internet Version: No new version av

Start

Upgrade Firmware – Local File

You can check the Dell support website, support.dell.com, to see if there are any new upgrades. Download the new firmware first before upgrading and save it to one of the clients in your network. To upgrade the firmware:

1. Type the firmware file path into the **Firmware Upgrade File:** box, or click the **Browse** button to choose a firmware file to upgrade to.
2. Click the **Start** button when you have chosen a file. After the firmware is written to the Dell Wireless 4350 Small Network Access Point, the home page will be loaded automatically. While the access point is resetting, the **Power** light on the front panel of the device blinks.

Upgrade Firmware – Internet File

The other option to upgrade firmware is through the Internet.

The Dell Wireless 4350 Small Network Access Point can be configured to automatically check the internet for upgrades by entering the URL <ftp.us.dell.com/network> in the URL field and the number of hours to automatically check for upgrades into the hours field. The user can also click **Check Internet Now** to see if there is new firmware available for upgrading.

The drop-down menu gives the user the option to enable automatic checking of the Internet. These options are:

1. **Automatic Check for New Versions:** The access point automatically checks the Internet to determine if a new a firmware file is available.
2. **Automatic Check Disabled:** The Internet firmware checking function is disabled.

Click the **Start** button when a new firmware file is available for upgrading the access point. After the firmware is written to the Dell Wireless 4350 Small Network Access Point, the home page will be loaded automatically. While the access point is resetting, the **Power** light on the front panel of the device blinks

NOTE: Make sure the file you choose is an actual Dell Wireless 4350 Small Network Access Point firmware file.
NOTE: Dell does not recommend upgrading the Dell Wireless 4350 Small Network Access Point from a wireless client. Dell recommends connecting to your Dell Wireless access point with a wired network connection to perform firmware upgrades.

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Reset Device

Use the Reset Device function if a system failure occurs. This feature does **not** reload the factory default settings. It simply resets the device to the network settings that existed on the device before the system failure occurred. This is equivalent to unplugging the device and plugging it back in or pressing the reset button for less than 3 seconds until the **Power** light starts to blink. No configuration settings are lost.



RESET THE DEVICE

Resetting the device will restart it. Please click on the **START** button to proceed.

START

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NOTICE: If you were in the process of updating the network settings, those changes are lost when the device is reset.

Click the **Start** button to reset the Dell Wireless 4350 Small Network Access Point to its **current firmware settings**. While the access point is resetting, the **Power** light on the front of the device blinks.

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Advanced Settings: Dell™ Wireless 4350 Small Network Access Point User's Guide

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- ▶ [Advanced Wireless](#)
- ▶ [Access Control Settings](#)
- ▶ [Administration Settings](#)
- ▶ [Wired Settings](#)
- ▶ [SSID Manager](#)
- ▶ [SNMP](#)
- ▶ [Rogue AP Detection](#)

NOTE: Dell technical support representatives do not support the configuration options in the Advanced Settings portion of the configuration program. These options are provided for your convenience only. However, the advanced settings are fully documented and explained in this guide.

Time Zone

Time Zone

		Dell Wireless 4350 Small Network Access Point			
Basic Settings	Advanced Settings	Device Status	System Tools	Help	Log Off

TIME ZONE SELECTION

Current Day	Wed
Current Date	1 Jan 2003
Current Time	03:23:22
Enable Daylight Saving	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Please choose your local time zone	(GMT) GMT <input type="button" value="v"/>
<input type="button" value="Submit"/> <input type="button" value="Help"/>	

NOTE: Please click 'Submit' to save the settings.


Select your local time zone from the pull-down list, **Please choose your local time zone**. During the summer months, the clock will move one or several hours ahead (depending on geographical location). Different countries have different change dates, in most of the U.S and Canada, daylight saving time begins on the last Sunday of October and reverts back to standard time on the first Sunday of April. To enable daylight saving, click **Yes** for **Enable Daylight Saving**.

The Time Zone settings will affect the time stamp on IP packets in the Intruder Detection Log. The time setting overrides the time stamp on IP packets that are in Greenwich Mean Time (GMT).

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Advanced Wireless

Advanced Wireless

Dell Wireless 4350 Small Network Access Point

Basic Settings	Advanced Settings	Device Status	System Tools	Help	Log Off
----------------	-------------------	---------------	--------------	------	---------

ADVANCED WIRELESS

Enable Wireless	<input checked="" type="radio"/> Yes <input type="radio"/> No
Hide my wireless network	<input type="radio"/> Yes <input checked="" type="radio"/> No
Mode:	802.11b and 802.11g <input type="button" value="v"/>
Network Name (SSID)	wireless <input type="text"/>
Transfer Rate	Auto <input type="button" value="v"/> (Default: Auto)
Channel	Auto <input type="button" value="v"/>
Transmit Power Level	<input type="checkbox"/> 8 dBm (min) <input type="checkbox"/> 11 dBm <input type="checkbox"/> 14 dBm <input type="checkbox"/> 17 dBm <input checked="" type="checkbox"/> 20 dBm (max)
Advanced options	<input type="checkbox"/>
Enable this AP as a root AP	<input checked="" type="checkbox"/>
Enable this AP as a Wireless Repeater	<input type="checkbox"/>

The **Advanced Wireless** page is used to configure advanced wireless features in the Dell Wireless 4350 Small Network Access Point.

Enable Wireless

This setting enables radio transmission and reception on the Dell Wireless 4350 Small Network Access Point allowing wireless clients to connect to the access point.

Click **Yes** to allow wireless clients to connect to the access point (default setting).

Click **No** to prevent wireless clients connecting to the access point.

Hide my wireless network

This setting enables the transmission of beacon packets from the Dell Wireless 4350 Small Network Access Point to the wireless network. The beacon packets are transmitted by default allowing other wireless clients to easily find and connect to the access point with

the use of a site survey tool. If you want to increase wireless network security, you can disable the transmission of the beacon packets.

Click **No** to allow transmission of beacon packets from the access point.

Click **Yes** to disable the transmission of beacon packets from the access point.

Mode

The setting allows the user to select the 802.11 mode that the Dell Wireless 4350 Small Network Access Point will use when communicating with wireless clients.

Select **802.11b and 802.11g** if the access point is to support both 802.11g and 802.11b compatible wireless clients (default setting).

Select **802.11b** if the access point is to support only 802.11b compatible wireless clients.

Select **802.11g** if the access point is to support only 802.11g compatible wireless clients.

Network Name(SSID)

This setting allows the user to change the Network Name (SSID) of the Dell Wireless 4350 Small Network Access Point. The Service Set Identifier (SSID) is a 32-character name that uniquely identifies all the computers and equipment that make up the wireless network. The default value is "wireless".

Transfer Rate

This setting allows the user to set the wireless throughput rate from the Dell Wireless 4350 Small Network Access Point to the wireless clients. The transfer rate can be set to automatic or some other fixed value. It is recommended that you set the transfer rate to automatic (Auto) to allow the wireless network devices to transmit at a rate they deem optimum.

Channel


This setting allows the user to set the radio channel that the Dell Wireless 4350 Small Network Access Point will operate on. The range of available radio channels depends on the regulatory domain (e.g. 11 channels for U.S. and Canada & 13 channels for Europe). It is recommended that you set the channel setting to Auto to allow the access point to locate the most suitable radio channel for operation.

Transmit Power Level

This setting allows the user to select the transmit radio power level of the Dell Wireless 4350 Small Network Access Point. The access point supports five different transmit power levels and these are 8 dBm, 11 dBm, 14 dBm, 17 dBm and 20 dBm.

Advanced Options

This setting allows the user to configure specific radio transmission parameters for the Dell Wireless 4350 Small Network Access Point.

 **NOTE:** If you want to configure the settings of Beacon Interval, RTS Threshold, Fragmentation Threshold, DTIM Interval and CTS Protection, ensure that **Advanced Options** is selected first.

Beacon Interval

The Beacon Interval is the amount of time in Kusecs (one Kusec equals 1,024 microseconds) between radio beacons from the Dell Wireless 4350 Small Network Access Point to its client stations. The available range is from 1 to 65535, with the default value being 100.

RTS Threshold

The RTS Threshold is the maximum packet size that the Dell Wireless 4350 Small Network Access Point will transmit without prior transmission of a RTS (Request To Send) signalling packet. The available range is from 1 to 2346, with the default value being 2346.

The RTS (Request to Send) mechanism prevents the **Hidden Node** problem. A hidden node occurs when two stations are within range of the same Access Point (AP) but are not within range of each other, they are "hidden" from each other. The packets from these two stations may collide if they arrive at the AP at the same time. To prevent data collision with the hidden node, you can activate the RTS mechanism. If the RTS mechanism is activated, the station will send a RTS first to inform the AP that it is going to transmit the data. Then, the AP will reply with a CTS (Clear to Send) to all stations within its range to notify all other stations and reserve the bandwidth for your data.

The RTS threshold controls what size data packet will cause an RTS to be transmitted. Only when the packet exceeds the RTS threshold will the device send a RTS before sending the packet. There is a trade-off to consider when choosing a value for the RTS threshold. Low values will cause the RTS to be sent more often which would waste the bandwidth. However, the more often RTS packets are sent, the quicker the system can recover from data collisions. It is recommended to use the default value or only minor reductions of this default value.

Fragmentation Threshold

The fragmentation threshold determines the size of data packets that will be fragmented before transmission. The available range is from 1 to 2346, with the default value being 2346 (Note: The fragmentation threshold is specified in bytes).

Data packets that are smaller than the specified fragmentation threshold value will not be fragmented. Data packets that are larger than the fragmentation threshold will be fragmented into smaller packets and transmitted one at a time instead of all at once. The purpose of fragmentation is to reduce the need for retransmission and improve overall network performance. Fragmentation is normally activated when there is heavy traffic on the wireless network or the network is operating in a high interference environment. It is recommended to use the default value or only minor reductions of this default value.

DTIM Interval

The DTIM (Delivery Traffic Indication Message) Interval setting determines how often a beacon contains a traffic indicator map (TIM). The TIM is used to alert stations in sleep mode that data is available for reception. The DTIM Interval is always a multiple of the beacon period and the available range is from 1 to 255, with the default value being 1.

CTS Protection mode

The CTS Protection mechanism allows interoperability of 802.11b & 802.11g devices in the same location. When the CTS Protection mechanism is enabled, 802.11g devices will inform 802.11b devices (using either a CTS/RTS or CTS-Self broadcast message) whenever a 802.11g data transmission is to occur. Enabling CTS Protection will reduce the throughput performance of your access point.

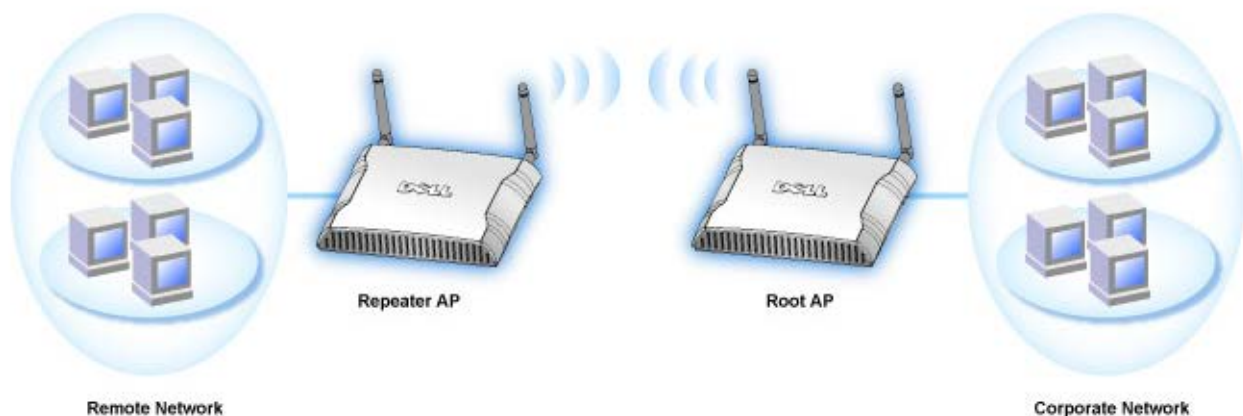
The options available for CTS Protection mode are **none**, **always** and **auto** (with the default being auto). In Auto mode, the Dell Wireless 4350 Small Network Access Point will only enable CTS Protection if any 802.11b devices exist within its wireless range. If the mode is set to none, CTS Protection is disabled. If the mode is set to always, the CTS protection mode is always on.

The options available for CTS Protection Type are **CTS/RTS** and **CTS-Self** (with the default being CTS-Self). The CTS/RTS mechanism results in a lower throughput performance than the CTS-Self mechanism.

Wireless Repeater

The Wireless Repeater setting can be used to increase the coverage of your wireless network. You need two or more Dell Wireless 4350 Small Network Access Point to set up wireless repeating. The access point that is connected to the network is known as the “root AP”, the access points that extend the coverage of this root AP are known as “repeater AP’s”.

Wireless Repeater Link



To Configure your Access Point as a Wireless Repeater:

1. Click the option **Enable this AP as a Wireless Repeater**.
2. Type the wireless network name (SSID) of the root AP in the **SSID of root AP** field.
3. Set the “Network Encryption” mode as **None**, If the root AP does not provide wireless security.
4. set the “Network Encryption” mode as **WEP**, If the wireless security mode of the root AP is WEP. Then, set the proper key value, key length, key format, and default key.
5. Click the **Submit** button.

The repeater AP must be located within the coverage of your root AP in order to associate with the root AP and extend its coverage. The repeater AP should not be connected into the wired network.

NOTE: Ensure all Dell Wireless 4350 Small Network Access Points are set to same wireless settings.

To Configure your Access Point back as a root AP:

There are 2 options available to configure your access point back as a root AP (a) reset the device back to its defaults by pressing the reset button on the device for at least 5 seconds or (b) connect a computer to the repeater AP via an ethernet cable and browse to the AP's default IP address of 192.168.2.1 and perform the following steps.

1. Click the option **Enable this AP as a Root AP**
2. Click the **Submit** button.

Restore Defaults

If you have customized your wireless system configuration, you can restore the wireless settings to factory defaults by clicking the **Restore Defaults** button.

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Access Control Settings

The Access Control Settings page allows you to control which local client computer is allowed to access the network through the Dell Wireless 4350 Small Network Access Point based on the client computer's MAC address. The default setting is to allow any client computer to access the network through the access point.

There are two tables for the Access Control Settings, the Grant Access Table and the Deny Access Table. Each table is able to support up to 32 entries. Only one table can be active at any time. Selecting the checkbox for the Grant Access Table will disable the Deny Access Table and vice versa. The Grant Access Table will only allow clients that are listed in the table to access the network. The Deny Access table will prevent any clients that are listed in the table from accessing the network.

Access Control Settings

ACCESS CONTROL SETTINGS

Enable MAC Access Control Yes NoGrant Access Table Yes No

Grant Access Table		Add
Mac Address		EDIT


Deny Access Table Yes No

Deny Access Table		Add
Mac Address		EDIT

NOTE: Please click **Submit** to save the settings.

To enable access control in the access point, perform the following steps:

1. Click **Yes** to enable **Enable MAC Access Control**.
2. Click **Yes** to enable the appropriate table, the **Grant Access Table** or the **Deny Access Table**.
3. Click the **Add** button, a pop-up window will open, then enter the MAC address of the network card on the computer that you wish to add to the table.
4. Click **Submit** to enter the MAC address into the table.
5. Click **Submit** to enable the new table's entries.
6. To remove an existing rule, click to select **edit** beside **MAC address**.
7. A pop-up window will open and click the **DEL** button to remove it.

 **NOTE:** The Access Control Settings apply to wireless client computers.

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Administration Settings

The Administration Settings page allows the user to change the password settings for administrator access to the Dell Wireless 4350 Small Network Access Point.

Administration Settings

PASSWORD SETTINGS

The new password will be used to authenticate the user when configuring the device.

user name

Change Your Password

New Password

Retype Password

NOTE: Please click **Submit** to save the settings.

Password Settings

The Dell Wireless 4350 Small Network Access Point uses a password to authenticate the user before allowing the user access to the web configuration tool or Control Utility.

If you would like to change the current password, click to select **Change Your Password** and enter the new password in both **New Password** and **Retype Password** fields. Write down the password and keep it in a secure location for future reference.

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Wired Settings

The Wired Settings page allows the user to configure the IP and DNS settings for the network port of the Dell Wireless 4350 Small Network Access Point.

Wired Settings

Wired Settings

Connection Type:	<input type="text" value="DHCP"/>
Static IP Address	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Subnet Mask	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Default Gateway	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Domain Name Server (DNS):	<input checked="" type="radio"/> Dynamic <input type="radio"/> Manual
IP Address# 1 :	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
IP Address# 2 :	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>

NOTE: Please click 'Submit' to save the settings.

If the access point will obtain an IP address automatically from a DHCP server, select the **Connection Type** as **DHCP**. If you would like to assign the access point a static IP address, select the **Connection Type** as **Static IP** and enter an IP address, Subnet Mask and Default Gateway in the corresponding fields.

If the access point will obtain DNS server information automatically from the network, select the **Domain Name Server (DNS)** as **Dynamic**. If you would like to assign the DNS server addresses, select the **Domain Name Server (DNS)** as **Manual** and enter either one or two DNS server IP addresses in the corresponding fields.

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SSID Manager

The SSID Manager page allows the user to configure up to a maximum of three different SSID's that the Dell Wireless 4350 Small Network Access Point supports. One of these three SSID's is the Guest Access SSID, which will allow guest users to connect to the network with controlled access to network resources.

NOTE: In order to support multiple SSID's, the Dell Wireless 4350 Small Network Access Point must be part of a VLAN-aware network, as the VLAN aware router will control the network access of the multiple wireless networks.

SSID Manager

SSID Manager

I'm on a VLAN aware network

SSID Manager Rules

SSID	VLAN ID	VLAN Priority	Authentication	Encryption	EDIT
wireless			Open System	WEP	

NOTE: Please click **Submit** to save the settings.

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To configure multiple SSID's (VLAN-aware network):

In a VLAN-aware network, the Dell Wireless 4350 Small Network Access Point can support three SSID's (one of which is the Guest Access SSID). In this network, the user has the option of configuring VLAN tags to be associated with wireless traffic from each SSID. To add an extra SSID:

1. Click to select **I'm on a VLAN aware network**.
2. Click the **Submit** button.
3. A warning message appears informing the user that the network must be a VLAN aware network. Click **OK**.
4. Click the **Add** button in the SSID Manager Rules table.
5. A pop-up window is displayed to the user. Populate the following fields with the appropriate information (a) Network Name (SSID) (b) VLAN ID (c) VLAN Priority (d) Hide my wireless Network (e) Enable Intra-AP traffic blocking and (f) Network Encryption.
6. Click **Submit** to save the settings for the new SSID.
7. Click **Save & Restart** to enable the new SSID.

NOTE: If the VLAN ID of an SSID is different from the default SSID, then wireless clients associated with this SSID network will not be able to manage the Dell Wireless 4350 Small Network Access Point.

NOTE: The following are the rules that must be followed when configuring security levels in a multiple SSID environment where the VLAN ID's of each SSID are unique.

- (1) All SSID's will support no encryption.
- (2) Only one SSID can support WEP, this can be any SSID (primary or secondary or guest).
- (3) Only one SSID can support WPA-PSK and this must be the primary SSID.
- (4) Only one SSID can support WPA-802.1x and this must be the primary SSID.


Therefore, a possible security configuration would be the primary SSID supporting WPA-PSK or WPA-802.1x, the secondary

SSID supporting WEP and the guest SSID supporting no encryption.

To enable the Guest Access SSID (VLAN-aware network):

To enable Guest Access mode, the Dell Wireless 4350 Small Network Access Point must be part of a VLAN-aware network. Perform the following steps to enable the feature.

1. Click to select **I'm on a VLAN-aware network**.
2. Click to select **Enable Guest Access**.
3. Click the **Submit** button.
4. A pre-configured Guest Access SSID is created with the following default values (a) SSID = Guest Wireless 4350 (b) Network Encryption = None (c) VLAN ID = 4094 (d) VLAN Priority = 0 (e) Intra-AP blocking = off. These values can be altered by selecting the **Edit** button and changing the appropriate fields.
5. Click **Save & Restart** to enable the Guest Access SSID

 **NOTE:** In order to support Guest Access mode, the Dell Wireless 4350 Small Network Access Point must be part of a VLAN-aware network. The VLAN aware router must implement the appropriate restrictions that are applicable to a guest user (e.g. the router will only allow the user access to the Internet and prevent access to any network resource).

To disable the Guest Access SSID (VLAN-aware network):

The Guest Access SSID cannot be deleted, to disable Guest Access, Click to unselect **Enable Guest Access** and click **Submit**.

A brief description of the SSID configuration parameters is as follows:

SSID:	The Service Set Identifier (SSID) is a 32-character name that uniquely identifies all the computers and equipment that make up the wireless Network.
VLAN ID:	The VLAN ID is a tag that is used to identify each VLAN on the network.
VLAN Priority:	The VLAN priority is a tag that is used to perform QoS between VLANs on a network.
Hide my wireless network:	This setting will disable the transmission of beacon packets (i.e. The AP will no longer broadcast it's SSID).
Enable Intra-AP Traffic Blocking:	This setting will prevent clients on the same wireless network from communicating with each other.
Network Encryption:	The access point supports the following methods of data encryption (a) WEP (b) WPA-PSK & (c) WPA-802.1x.

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SNMP

The Dell Wireless 4350 Small Network Access Point also supports the SNMP protocol for remote management of the access point. Simple Network Management Protocol (SNMP) is a popular network protocol for remotely configuring and monitoring devices. This feature requires an external SNMP management station to control and access the device. The SNMP protocol versions supported by the access point are v1, v2c and v3.

SNMP

Simple Network Management Protocol (SNMP)

Enable SNMP	<input checked="" type="checkbox"/>
SNMP Community Name (Read-Only)	<input type="text" value="public"/>
SNMP Community Name (Read-Write)	<input type="text" value="private"/>
Trusted Peer	<input type="text" value="Specify a Subnet"/> <input type="button" value="v"/>
IP Address	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Subnet Mask	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Enable SNMP Traps	<input type="checkbox"/>
SNMP Version	<input type="text" value="SNMP v1"/> <input type="button" value="v"/>
SNMP Trap Destination	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
SNMP Trap Community	<input type="text"/>
<input type="button" value="Submit"/> <input type="button" value="Help"/>	

NOTE: Please click **Next** to save the settings.

To enable SNMP protocol support:

1. Click to select **Enable SNMP**.
2. The **SNMP Community Names** are passwords used in SNMP messages between the access point and the SNMP management system. A **Read-Only** community allows the management system to monitor the device, while a **Read-Write** community can both monitor and configure the device. Enter the Get and Set community names in the appropriate fields.
3. The **Trusted Peer** identifies which remote managements stations are allowed to perform SNMP operations on the device. The options available for a trusted peer are (a) Any Address (b) Specify an IP Address & (c) Specify a Subnet. Select the appropriate option and enter the **IP Address** and **Subnet Mask** into the appropriate fields.

To enable SNMP Trap support:

1. **SNMP Traps** are messages sent by the access point to a SNMP management station in order to notify it about the occurrence of important events or conditions on the device. To enable SNMP Traps, click **Enable SNMP Traps**.
2. The access point supports SNMP version 1, version 2c and version 3 traps. Select the appropriate version for your management station in the **SNMP Version** list.
3. Enter the appropriate information on your management station into the **SNMP Trap Destination** and **SNMP Trap Community** fields.

Rogue AP Detection

The Rogue AP Detection feature is an advanced feature that is used by network administrators to scan for adjacent access points. A table of detected access points is presented to the administrator and a determination if any rogue access points are present on the network can be made by verifying the SSID and MAC addresses.

Rogue AP Detection

Dell Wireless 4350 Small Network Access Point

Basic SettingsAdvanced SettingsDevice StatusSystem ToolsHelpLog Off

Rogue AP Detection

Enable Rogue AP Detection (Always-On)

Schedule Rogue AP Detection

Configure Rogue AP Detection parameters

Table filtering options

- List all AP's
- List all known AP's
- List all rogue AP's

SAVE&RESTART

Known AP	SSID	MAC Addr	Channel #	Signal Strength	Last Beacon	Supported Modes
----------	------	----------	-----------	-----------------	-------------	-----------------

Help

NOTE: Please click **Submit** to save the settings.

There are three modes of operation for Rogue AP detection (a) Background scan (always-on), (b) Background scan (scheduled) & (c) Foreground scan.


When the background scan is enabled, the access point will periodically scan the wireless channels (a single channel at a time for 400 ms) if and only if certain load conditions are met. Any wireless stations that are associated to the AP may experience a loss of the AP during the scan interval. The background scan can either be running continuously or scheduled to run during specific periods. If scheduled, the background scan should run during periods of inactivity (e.g. during the night or at weekends).

When a foreground scan occurs, the AP will immediately reset and upon reboot will scan all the available wireless channels for an extended period. A foreground scan will cause immediate termination of all and any wireless clients.

Enable Rogue AP Detection - Background Scan (always-on):

To enable the background scan (always-on) mode of Rogue AP detection, perform the following steps:


1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click **Save & Restart**.

 **NOTE:** Any wireless stations that are associated to the Dell Wireless 4350 Small Network Access Point may experience a loss of connection to the access point during the scan interval.

Enable Rogue AP Detection - Background Scan (Scheduled):

To enable the background scan mode of Rogue AP detection, perform the following steps:


1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click to select **Schedule Rogue AP Detection** and populate the relevant fields (i.e. Start time, Stop time and specific day of the week).
3. Click **Save & Restart**.

 **NOTE:** Any wireless stations that are associated to the Dell Wireless 4350 Small Network Access Point may experience a loss of connection to the access point during the scan interval.

Enable Rogue AP Detection - Foreground Scan:

To enable the foreground scan mode of Rogue AP detection, the user must:

1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click the **Scan Now** button.

 **NOTE:** Any wireless stations that are associated to the Dell Wireless 4350 Small Network Access Point will lose connection to the access point during the scan interval.

The Rogue AP detection parameters can be varied from their default values. The default values are (a) Rogue AP Detection Scan Interval = 1 minute. (b) Table Entry Removal of Absent Access Points = 1440 minutes (i.e. 24 hours). The Rogue AP Detection Scan Interval parameter determines how often a background scan may be performed by the access point. The Table Entry Removal of Absent Access Points parameter determines how long an entry will appear in the table before it is removed.

To configure the Rogue AP Detection Parameters:

1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click to select **Configure Rogue AP Detection Parameters**.
3. Change the appropriate parameter(s) to the desired value(s).
4. Click **Save & Restart**.

The Table filtering options available are (a) List all AP's (b) List all known AP's & (c) List all rogue AP's. The table of detected AP's contains a column "Known AP" that allows the user to select whether this AP is either a known or rogue AP (this would normally be based on information such as SSID & MAC Address). The option "List all AP's" lists all the AP's detected. The option "List all known AP's" lists all the known AP's detected. The option "List all rogue AP's" lists all the rogue AP's detected.

To change the Table Filtering Options:

1. Click to select **Enable Rogue AP Detection (Always-On)**.
2. Click to select the appropriate table filtering option.
3. Click **Save & Restart**.

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A Look at the Hardware: Dell™ Wireless 4350 Small Network Access Point

User's Guide

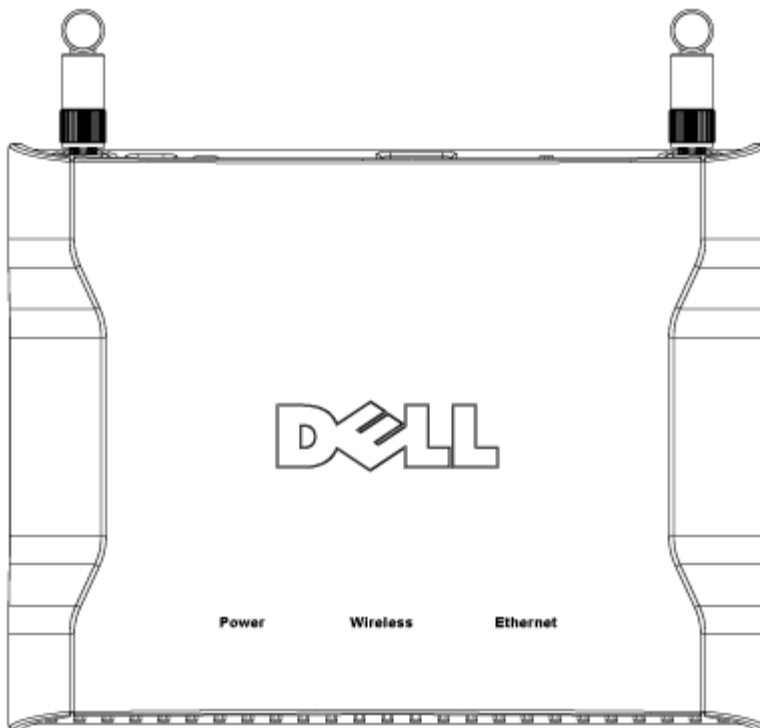
[▶ Front Panel](#)

[▶ Back Panel](#)

Front Panel

The Dell Wireless 4350 Small Network Access Point has three **Light Emitting Diodes (LEDs)**, or link lights, on its front side. The following table defines the behaviour for each LED:

Front Panel

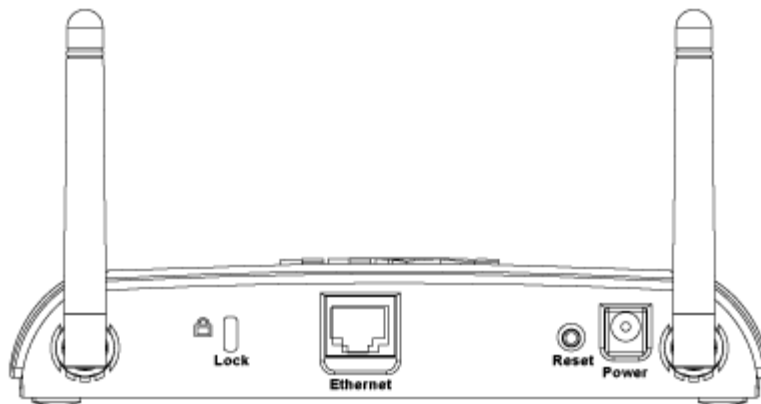


LED	Represents	Activity
Power	Power	The Power LED will light up green when the device is powered on and ready for use. It will blink when the device is powering up or when it is reset
Wireless	Wireless LAN	The LED alternates between on and off when wireless clients are attached. It will blink when there is data activity on the wireless network. The rate of blinking will vary with the rate of data transfer. It turns off when no wireless clients are associated with the Dell Wireless 4350 Small Network Access Point.
Ethernet	Intranet	A steady green light indicates the connection is active, and blinks with data activity.

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Back Panel

Back Panel



Connector	Description
Lock	This accepts locking devices for protecting the Dell Wireless 4350 from theft.
Reset	Use an object, such as a paper clip, to press the button for at least 5 seconds. The Power LED will be off for a short time and then light up again. You can then release the button to reset the device to its factory-default settings.
Ethernet	This accepts an RJ-45 connector for network cabling. *Also accepts power input from Ethernet port (Power Over Ethernet)
Power	Connect the power adapter to this Power port, and then plug the other end of the power cable into a power outlet.

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FAQs

Hardware Installation:

- ▶ [How do I install the Dell Wireless 4350 Small Network Access Point for optimal coverage?](#)
- ▶ [Can the Dell Wireless 4350 Small Network Access Point attach to a hub, switch, or router?](#)
- ▶ [What is the physical connection from the Dell Wireless 4350 Small Network Access Point to a wired network?](#)

[Software Configuration](#)

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How can I manage the Dell Wireless 4350 Small Network Access Point?

The Dell Wireless 4350 Small Network Access Point can be managed on your computer using the Windows-based Setup Wizard, Control Utility programs, or a web-based configuration tool. For detailed information, refer to the [Managing your Access Point](#) section of the User's Guide.

How do I locate the MAC address for the Dell Wireless 4350 Small Network Access Point?

There are two methods of determining the MAC address of the LAN/Ethernet port of the Dell Wireless 4350 Small Network Access Point.

(1) Click the **Device Status** option in the web-based configuration tool. The **LAN MAC** entry is the LAN/Ethernet MAC address of the device.

(2) The MAC address information can be derived from the product label which is located on the underside of the access point. The product label contains the MAC address of the WLAN port of the access point. The MAC address of the LAN/Ethernetport is calculated by subtracting 0x1H from this address (e.g. If the MAC address on the product label is 00:90:4b:3c:12:10, then the MAC address of the wired port is $00:90:4b:3c:12:10 - 0x1 = 00:90:4b:3c:12:0f$)



What is the practical coverage of the Dell Wireless 4350 Small Network Access Point?

The coverage of each Dell Wireless 4350 Small Network Access Point micro cell varies with physical objects and interference in the coverage area. The rated coverage is 1500 feet for line of site, open area, optimal conditions, and minimal throughput. Realistically, in a common home, office, or business environment, each Dell Wireless 4350 Small Network Access Point micro cell has approximately 150 to 250 foot coverage while maintaining optimal throughput.

The coverage of the system is virtually unlimited. By design, the coverage of the system is extended via multiple Access Points (Dell Wireless 4350 Small Network Access Points) arranged into an overlapping micro cell coverage arrangement, similar to the cellular telephone system. This allows for virtually unlimited range via roaming, maximum throughput, redundancy, minimized interference issues, and increased communication reliability.

Does the signal travel through walls?

Yes, the signal travels through many barriers including glass, cement, wood and brick.

What devices cause interference?

The Dell Wireless 4350 Small Network Access Point and workstation adapters operate in the unlicensed 2.4 **gigahertz** (GHz) band. Other items operating in this frequency range that may cause interference include microwave ovens and 2.4 GHz portable phones. PCS or analog cellular phones do not operate at 2.4 GHz and do not cause interference. Proper placement of access points usually eliminates interference problems created by other 2.4 GHz devices.

Can I roam to another subnet with the Dell Wireless 4350 Small Network Access Point?

In order to roam to another subnet, consider implementing a **Virtual Local Area Network** (VLAN) and have all access points located on the same VLAN.

How to turn Off Broadcast SSID?

The SSID is the name of the network. By default this name is continually broadcasted. If you have a security concern about it. Follow the steps below to turn off Broadcast SSID.

1. Open your web browser and log into your access point using it's IP address (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
 2. Type the following text in the **user name** and **password** fields: "admin".
 3. Click **Advanced Settings** and then click **Advanced Wireless** from the drop-down menu.
 4. Click "Yes" for **Hide my wireless network**.
 5. Click the **Submit** button.
-

Does the Dell Wireless 4350 Small Network Access Point support wireless repeating?

Yes, you can use the Dell Wireless 4350 Small Network Access Point as a repeater to extend the coverage range beyond the limits imposed by a single access point.

1. Open your web browser and log into your access point using its IP address (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
2. Type the following text in the **user name** and **password** fields: "admin".
3. Click **Advanced Settings** and then click **Advanced Wireless** from the drop-down menu.
4. Click the option **Enable this AP as a Wireless Repeater**.
5. Type the wireless network name (SSID) of the root AP in the **SSID of root AP** field.
6. Set the "Network Encryption" mode as **None**, if the root AP does not provide wireless security.
7. Set the "Network Encryption" mode as **WEP**, if the wireless security mode of the root AP is WEP. Then, set the proper key value, key length, key format, and default key.
8. Click the **Submit** button.

The repeater AP must be located within the coverage of your root AP in order to associate with the root AP and extend its coverage. The repeater AP should not be connected into the wired network.

Does the Dell Wireless 4350 Small Network Access Point support multiple SSID's?

Yes, you can use the Dell Wireless 4350 Small Network Access Point to support multiple wireless networks on a single access point. However, in order to support multiple SSID's, the Dell Wireless 4350 Small Network Access Point must be part of a VLAN-aware network, as the VLAN aware router will control the network access of the multiple wireless networks.

1. Open your web browser and log into your access point using its IP address (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
2. Type the following text in the **user name** and **password** fields: "admin".
3. Click **Advanced Settings** and then click **SSID Manager** from the drop-down menu.
4. Click to select **I'm on a VLAN aware network**.
5. Click the **Submit** button.
6. A warning message appears informing the user that the network must be a VLAN aware network. Click **OK**.
7. Click the **Add** button in the SSID Manager Rules table.
8. A pop-up window is displayed to the user. Populate the following fields with the appropriate information (a) Network Name (SSID) (b) VLAN ID (c) VLAN Priority (d) Hide my wireless Network (e) Enable Intra-AP traffic blocking and (f) Network Encryption.
9. Click **Submit** to save the settings for the new SSID.
10. Click **Save & Restart** to enable the new SSID.

Note: If the VLAN ID of an SSID is different from the default SSID, then wireless clients associated with this SSID network will not be able to manage the Dell Wireless 4350 Small Network Access Point

Does the Dell Wireless 4350 Small Network Access Point support rogue AP detection?

Yes, you can use the Dell Wireless 4350 Small Network Access Point to support rogue AP detection.

There are three modes of operation for Rogue AP detection (a) Background scan (always-on), (b) Background scan (scheduled) & (c) Foreground scan.

When the background scan is enabled, the access point will periodically scan the wireless channels if and only if certain load

conditions are met. Any wireless stations that are associated to the AP may experience a loss of the AP during the scan interval.

When a foreground scan occurs, the AP will immediately reset and upon reboot will scan all the available wireless channels for an extended period. A foreground scan will cause immediate termination of all and any connected wireless clients.

1. Open your web browser and log into your access point using it's IP address (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
2. Type the following text in the **user name** and **password** fields: "admin".
3. Click **Advanced Settings** and then click **Rogue AP Detection** from the drop-down menu.
4. To enable the background scan (always-on) mode of Rogue AP detection: Click to select **Enable Rogue AP Detection (Always-On)**. Click **Save & Restart**.
5. To enable the scheduled background scan mode of Rogue AP detection: Click to select **Enable Rogue AP Detection (Always-On)**. Click to select **Schedule Rogue AP Detection** and populate the relevant fields (i.e. Start time, Stop time and specific day of the week) & Click **Save & Restart**.
6. To enable the foreground scan mode of Rogue AP detection: Click to select **Enable Rogue AP Detection (Always-On)** & Click the **Scan Now** button.

Does the Dell Wireless 4350 Small Network Access Point support notebook computers with integrated wireless adapters and wireless adapters from vendors other than Dell?

Several computer manufacturers are offering integrated 802.11b/g wireless adapters as an add-on option. Additionally, there are several manufacturers of 802.11b/g wireless adapters. If the adapter is WiFi™ certified, the adapter should interoperate with the Dell Wireless 4350 Small Network Access Point.

Does the Dell Wireless 4350 Small Network Access Point support alternative antennae?

Yes, the Dell Wireless 4350 Small Network Access Point has the capability to support alternative antennas as the existing antennas are removable and are based on an industry standard connector.

Does the Dell Wireless 4350 Small Network Access Point support Virtual Private Networking (VPN)?

No, VPN support is not applicable to a device that is already part of a corporate network.

Does the Dell Wireless 4350 Small Network Access Point support MAC address filtering?

Yes, the Dell Wireless 4350 Small Network Access Point supports MAC address filtering.

Does the Dell Wireless 4350 Small Network Access Point support Routing Information Protocol (RIP)?

No, the Dell Wireless 4350 Small Network Access Point currently does not support **Routing Information Protocol (RIP)**.

Can I operate the Dell Wireless 4350 Small Network Access Point in a Macintosh environment?

The Dell Wireless 4350 Small Network Access Point can operate in a Macintosh environment; however, the web-based configuration tool typically only functions with **Microsoft Internet Explorer** or **Netscape Navigator**, both version 4.0 or higher. Dell does not provide support for Macintosh environments.

My computer is not connected to the Dell Wireless 4350 Small Network Access Point. What should I do?

1. Make sure that you have the same SSID (network name) and security settings on your computer as the Dell Wireless 4350 Small Network Access Point. The default SSID (network name) is **wireless** (the name is case-sensitive).
 2. Unplug the power cable from the rear of the access point. Wait 5 seconds. Plug the power cable back in.
-

My browser does not display the web-based configuration tool. What should I do?

Use Microsoft Internet Explorer or Netscape Navigator, both version 4.0 or higher, as your browser.

Check the browser's proxy server settings:

1. Open the **Control Panel** on your computer, and double-click the **Internet** icon from the **Control Panel** window. This opens the **Internet Properties** window.
2. From the **Internet Properties** window, click the **Connection** tab.
3. Click the **LAN Settings** button.
4. Under the heading **Proxy server**, click the **Access the Internet using a proxy server** option.
5. Click the **Advanced** button. This opens the **Proxy Settings** window.
6. Disable the proxy server setting or set it to auto-detect.

Remove or disable any firewall software on the client. See the documentation included with the firewall software.


Remove any dialup settings in the browser:

1. Open a browser. For Internet Explorer, follow the next two steps.
2. Click the **Tools** menu, click **Internet Options**, and then click the **Connections** tab.
3. Click to select the **Never dial a connection** option.

Enter the IP address of the access point (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)).

Make sure the wireless client is set to obtain an IP address automatically. To obtain an IP address automatically, perform the following steps:

1. Open the **Control Panel** on your computer, and double-click the **Network and Dial-up Connections** icon.
2. Right-click your local area connection.
3. Left-click **Properties**.
4. Click to select the **TCP/IP** option.

 **NOTE:** Some systems may require you to select the **Networking** tab before selecting the **TCP/IP** option.

5. Click the **Properties** button.

6. Check the **Obtain an IP address automatically** option.

If you are using a manually assigned IP address for the client, the IP address for the client must be on the same subnet as the Dell Wireless 4350 Small Network Access Point:

1. Follow the instructions above to access the **Internet Protocol (TCP/IP) Properties** window.
2. Ensure the option **Use the following IP address** is selected.
3. Ensure the value in the **Subnet mask** field matches that for the Dell Wireless 4350 Small Network Access Point.

If you are using a DHCP server to provide an IP address to the Dell Wireless 4350 Small Network Access Point, you must determine the address that was provided by the DHCP server. For assistance on getting the IP address from the DHCP server, see the documentation for your server or contact your network administrator.

Make sure that the Dell Wireless 4350 Small Network Access Point is properly installed and configured:

1. Make sure that the **Power** light on the front of the Access Point is lit.
2. Make sure that the **LAN** light on the front of the Access Point is lit. The LAN LED indicates a network connection.
3. Check the computer's network settings. Verify that the TCP/IP settings are correct.
 - a. Open an MS-DOS command prompt window.
 - b. Type **ipconfig** and press the <Enter> key.
4. Compare the network portion of the address for the computer with that of the Access Point. The first three octets of the address should be the same. For example, if the Access Point's IP address is the default, 192.168.2.2, the computer's IP address should be in the range from 192.168.2.3 to 192.168.2.254; thus, it should appear as 192.168.2.xxx.

Reset the Dell Wireless 4350 Small Network Access Point to its default settings. See [How do I restart or reset the Access Point?](#)


The Dell Wireless 4350 Small Network Access Point CD Setup Wizard program does not run automatically after inserting the Installation CD into the CD-ROM drive. What should I do?

1. Click the **Start** button.
 2. Click **Run**. The **Open:** window appears.
 3. Type the following text in the **Open:** field:
X:\setup.exe where **X** is the drive letter of your CD drive.
 4. Click the **OK** button.
-

How do I restart or reset the Dell Wireless 4350 Small Network Access Point ?

To restart the Dell Wireless 4350 Small Network Access Point, unplug the power connector and plug it back in.

To load the Dell Wireless 4350 Small Network Access Point's default settings, hold down the reset button on the router for at least five seconds. When the unit resets, the **Power** light will blink.

 **NOTE:** When you reset the Dell Wireless 4350 Small Network Access Point via the reset button, press it for at least five seconds, the current configurations will be erased and the [factory default settings](#) will be loaded on the unit.

For customer support, go to support.dell.com.

I cannot hide my wireless network, what should I do?

1. Open your web browser and log into your access point using its IP address (for information on obtaining the Access Point's IP address see [How to obtain the IP Address of the Access Point](#)). The **Enter Network Password** login prompt appears.
 2. Type the following text in the **user name** and **password** fields: "admin".
 3. Click **Advanced Settings** and then click **Advanced Wireless** from the drop-down menu.
 4. Click "Yes" for **Hide my wireless network**.
 5. Click the **Submit** button.
-



How do I find out about firmware upgrades?

All new firmware upgrades are posted on the Web. To download the latest firmware, go to the Dell support website: support.dell.com.

NOTE: You can only use firmware designed specifically for the Dell Wireless 4350 Small Network Access Point.

Use the Upgrade Firmware page on the web-based configuration tool once you have downloaded the firmware. Click the **System Tools** tab, and then click the **Upgrade Firmware** option. Enter the file name and path for the new firmware. Click the **Start** button to load the file on your Dell Wireless 4350 Small Network Access Point.

What is the actual speed throughput for the Dell Wireless 4350 Small Network Access Point ?

In 802.11g, wireless network adapters and access points provide up to 54 Mbps data transmission rate. In 802.11b, the data can be transmitted at the rate up to 11 Mbps. Actual throughput, however, may be less, just as 10 Mbps-cabled Ethernet does not always provide 10 Mbps performance. Transmission speeds vary with files size, number of users, and distance from the access point. A properly designed system provides Ethernet-like performance for users. As signal strength decreases, the automatic data rate of 802.11g decreases from 54 Mbps to 48, 36, 24, 18, 12, 9, or 6 Mbps in order to maintain the connection. The data rate of 802.11b may decrease from 11 Mbps to 5.5, 2, or 1 Mbps.

Are there any known health issues caused by Radio Frequency (RF) transmission from the Dell Wireless 4350 Small Network Access Point?

There is no conclusive evidence, to date, that RF waves from the 2.4 gigahertz (GHz) range pose any health issues. Although wireless LAN devices operate at the same frequency as microwave ovens, wireless access points and adapters at 2.4 GHz emit a power signal of 100 milliwatts (mW), less than other 2.4 GHz products, such as microwave ovens or cordless phones.

Is this a shared or switched technology medium?

The wireless access point of the Dell Wireless 4350 Small Network Access Point is similar to a hub, which is a shared medium.

What is the difference between Bluetooth™ and 802.11?

These technologies are aimed at different situations. Bluetooth is a 1 Mbps technology designed for the interconnection of devices that are in close proximity to one another. You use Bluetooth when you have two or more devices requiring direct connectivity in short distances of about 30 feet. Some examples include PDAs or handheld computers to computers; notebooks to printers; and phones to headsets. The 802.11 products are a full LAN connectivity solution, designed to provide network transmissions at high data rates and at a greater distance. You use 802.11 products when you want to access the Internet or a local area network.

Does the Dell Wireless 4350 Small Network Access Point prevent hacker attacks?

The Dell Wireless 4350 Small Network Access Point attempts to prevent unauthorized access by restricting permissions to specified users on your wireless network.

The web-based configuration tool also contains an intruder detection log which records any attempted break-ins by unidentified users. To view the log, start the web-based configuration tool. Click the **System Tools** tab, and then click the **Intruder Detection Log** option.

How can I find additional information?

For additional information, including international telecommunication certificates and customer support, visit support.dell.com.
