

Technical Specifications and Regulatory Information:

Dell™ Wireless 4350 Small Network Access Point

User's Guide

 [Technical Specifications](#)

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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.

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

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.

Canada (IC):

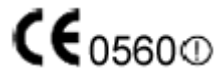
The device is certified to the requirements of RSS-210 for 2.4 GHz spread spectrum devices. To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding.

This device has been designed to operate with an antenna having a maximum gain of 2.0 dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The

required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.

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.

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.*

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.

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.

Introduction:

 [Overview](#)

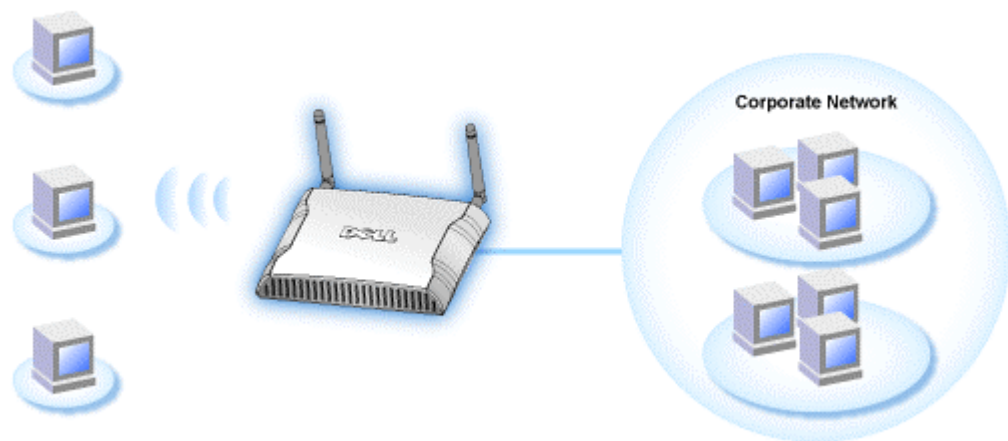
 [Wireless Networking Overview](#)

 [A Look at the Hardware](#)

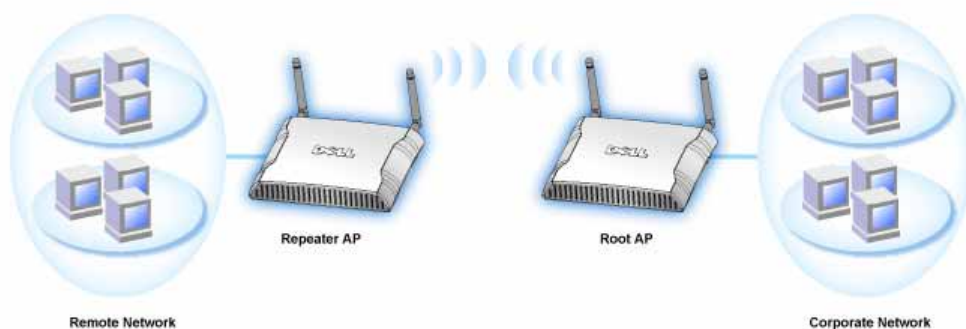
Overview

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.

Wireless Networking Overview:

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 [Identifying a WLAN](#)

 [Encryption](#)

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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.

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.

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.

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.

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.

A Look at the Hardware:

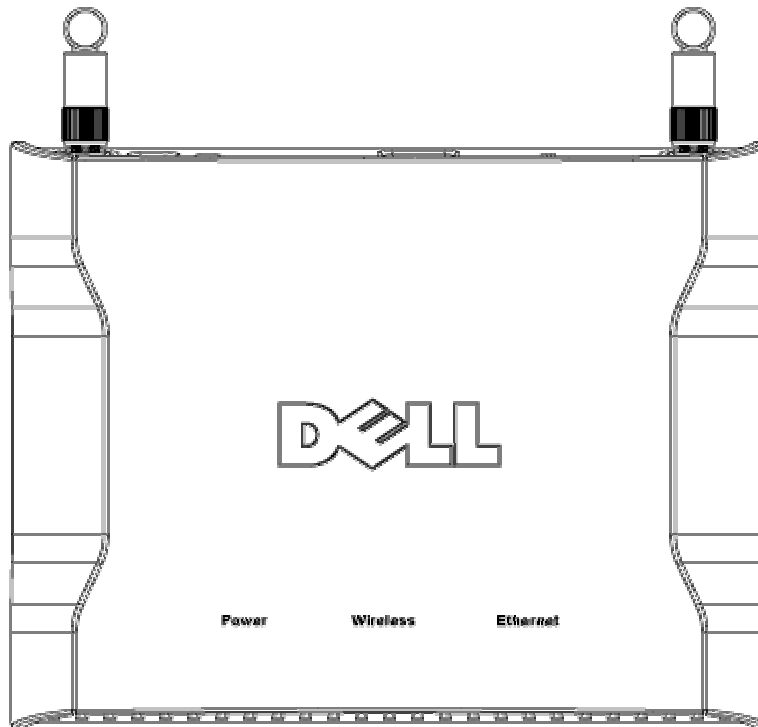
 [Front Panel](#)

 [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

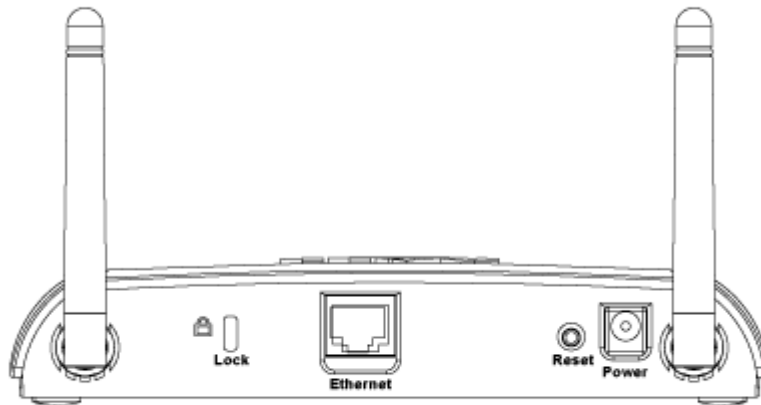


LED	Represents	Activity
Power	Power	The Power LED will light up green when the device is powered on and ready for use. It will blink when the device is powering up or when it is reset
Wireless	Wireless LAN	The LED alternates between on and off when wireless clients are attached. It will blink when there 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.
--	--	----------------------------

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.

Using Your Access Point:

▶ [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.

Factory Default Settings:

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.

Setup Wizard:

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 [Launch the Setup Wizard](#)

 [Setup Wizard Screens](#)

Introduction

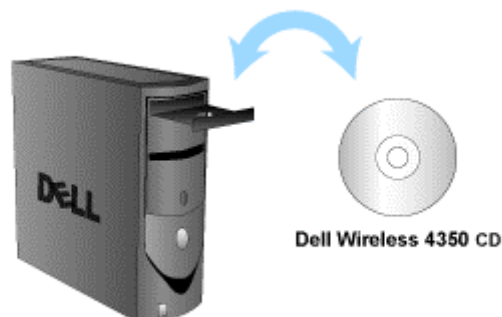
The Setup Wizard is an easy-to-use program included on your Dell Wireless 4350 Small Network Access Point CD. It provides simplified steps for configuring the Access Point. The Setup Wizard displays a series of graphical illustrations on how to connect the Access Point to your computer. It presents the 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.

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.

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

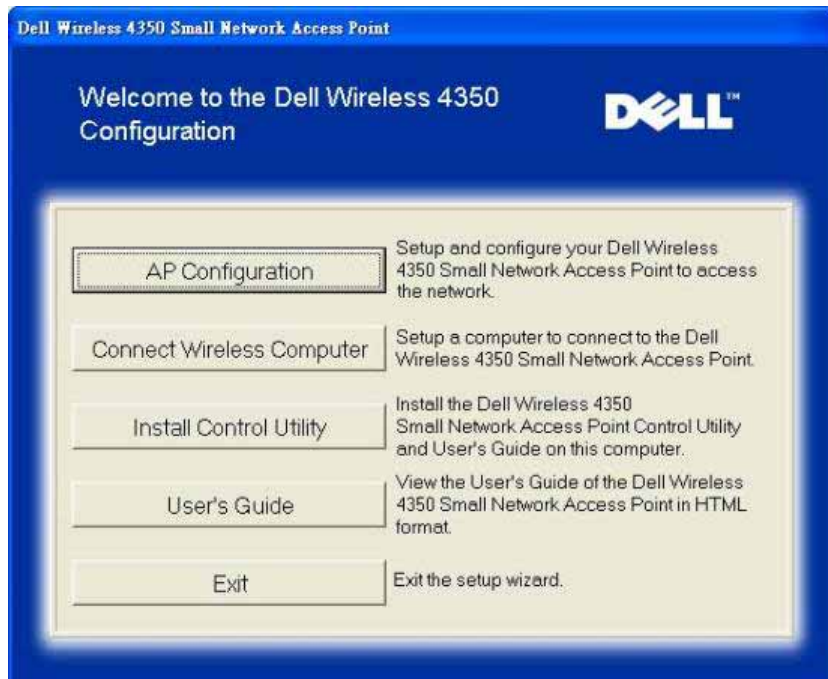
- **User's Guide**

View the user's guide (this document)

- **Exit**

End the Setup Wizard

Welcome

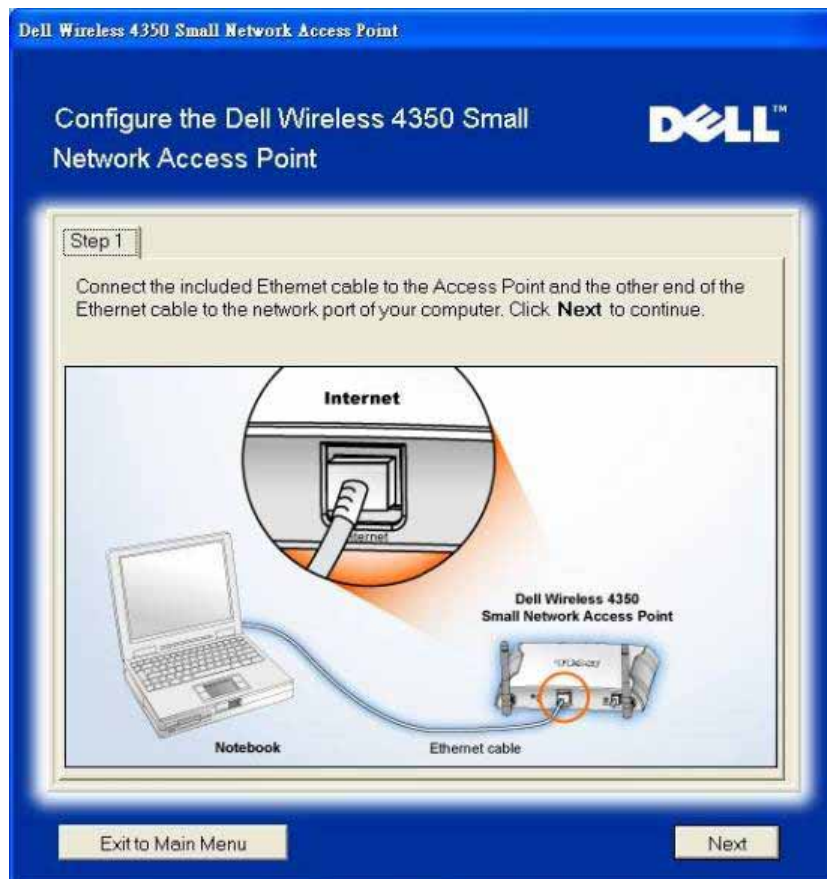


AP Configuration

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

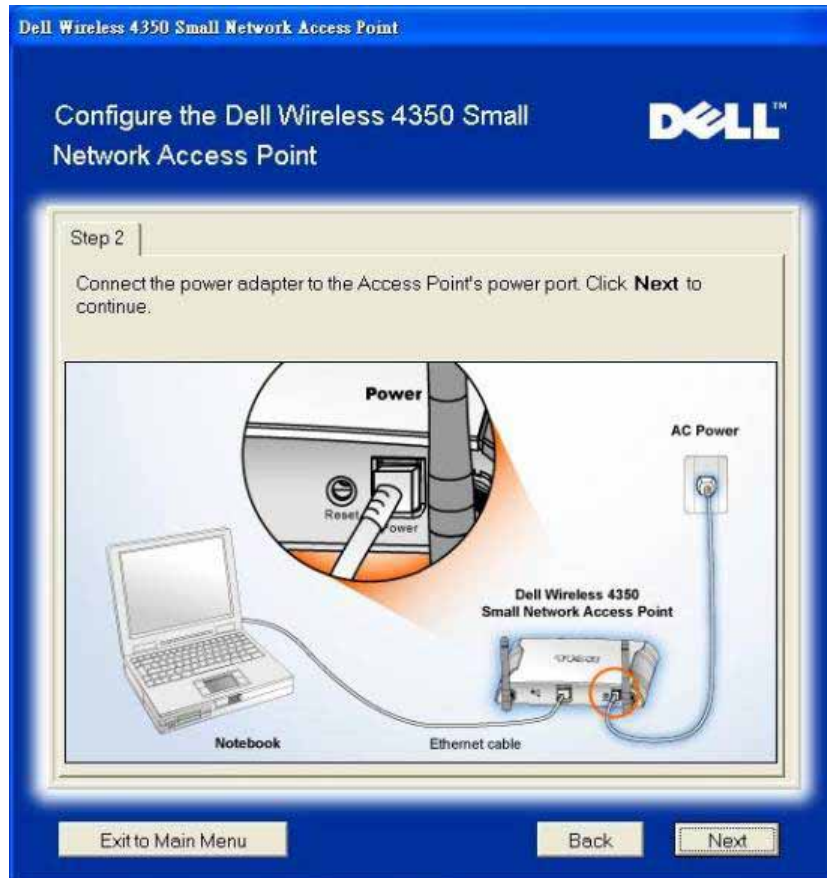
Step 1 illustrates how the computer is to be connected to the Dell Wireless 4350 Small Network Access Point.

Configure AP: Step 1



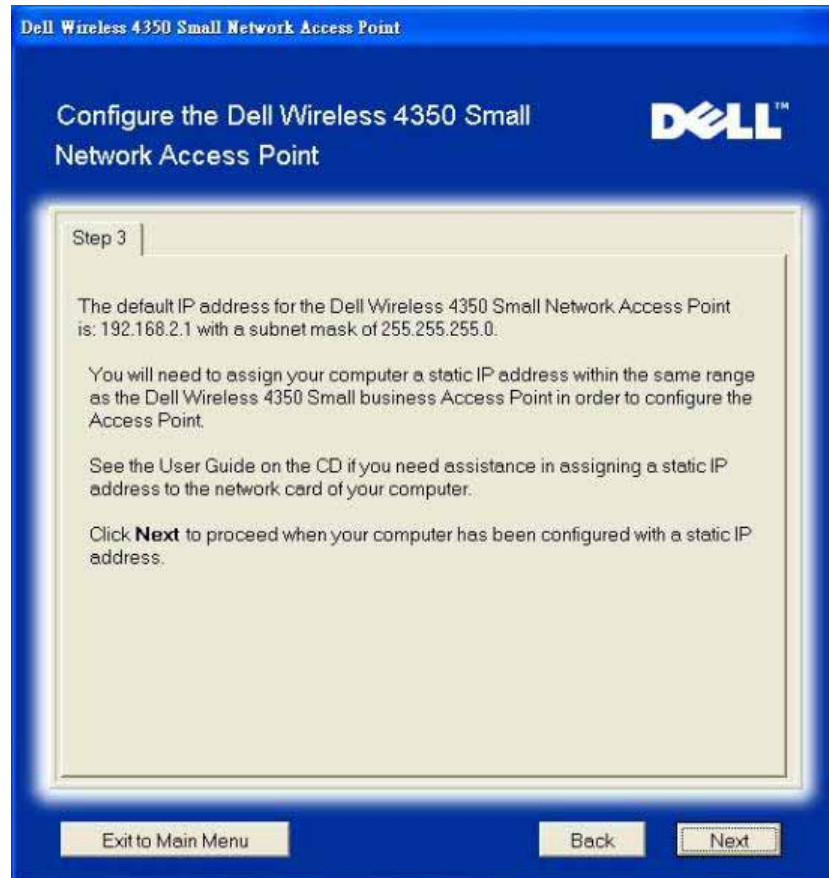
Step 2 illustrates how the Dell Wireless 4350 Small Network Access Point is connected to the power supply.

Configure AP: Step 2



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



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

Configure AP: Step 4

Dell Wireless 4350 Small Network Access Point

Configure the Dell Wireless 4350 Small Network Access Point **DELL™**

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.

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

Configure AP: Step 5

Dell Wireless 4350 Small Network Access Point

Configure the Dell Wireless 4350 Small Network Access Point **DELL™**

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: 64 Bit

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

Key:

Exit to Main Menu Back 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

Dell Wireless 4350 Small Network Access Point

Configure the Dell Wireless 4350 Small Network Access Point

DELL™

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

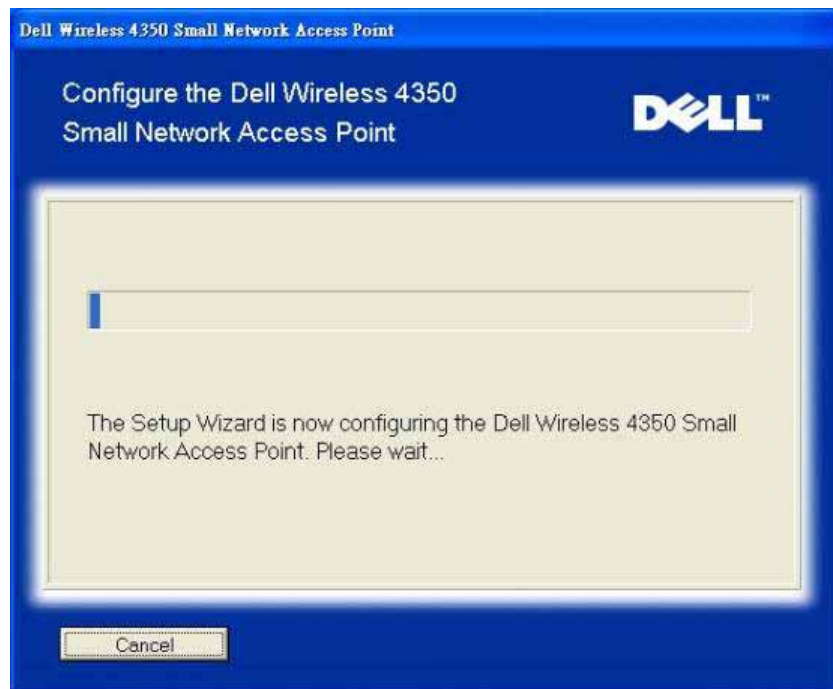
Static IP Address 192 . 168 . 2 . 2

Subnet Mask 255 . 255 . 255 . 0

Exit to Main Menu Back Next

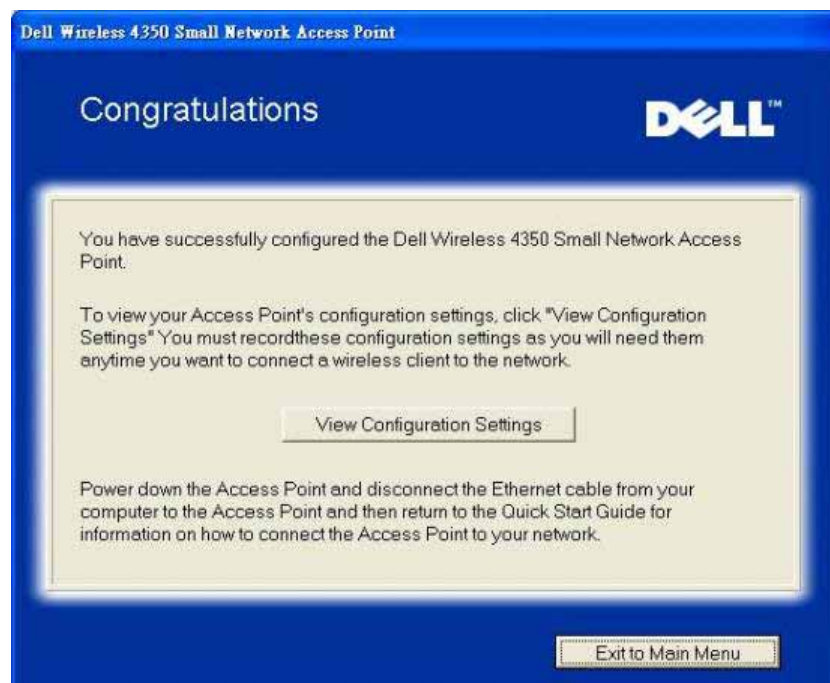
Step 7 informs the user to wait until the Access Point configuration is finished.

Configure AP: Step 7



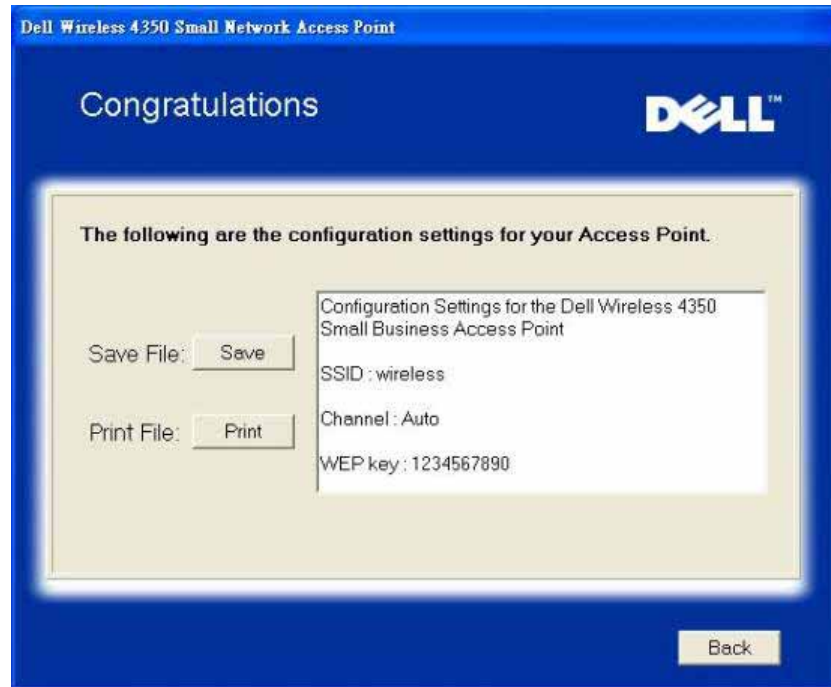
Step 8 is a congratulations screen if the user has successfully configured the Dell Wireless 4350 Small Network Access Point.

Configure AP: Step 8



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

Configure AP: Step 9



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

Dell Wireless 4350 Small Network Access Point

Setup Wireless Computer 

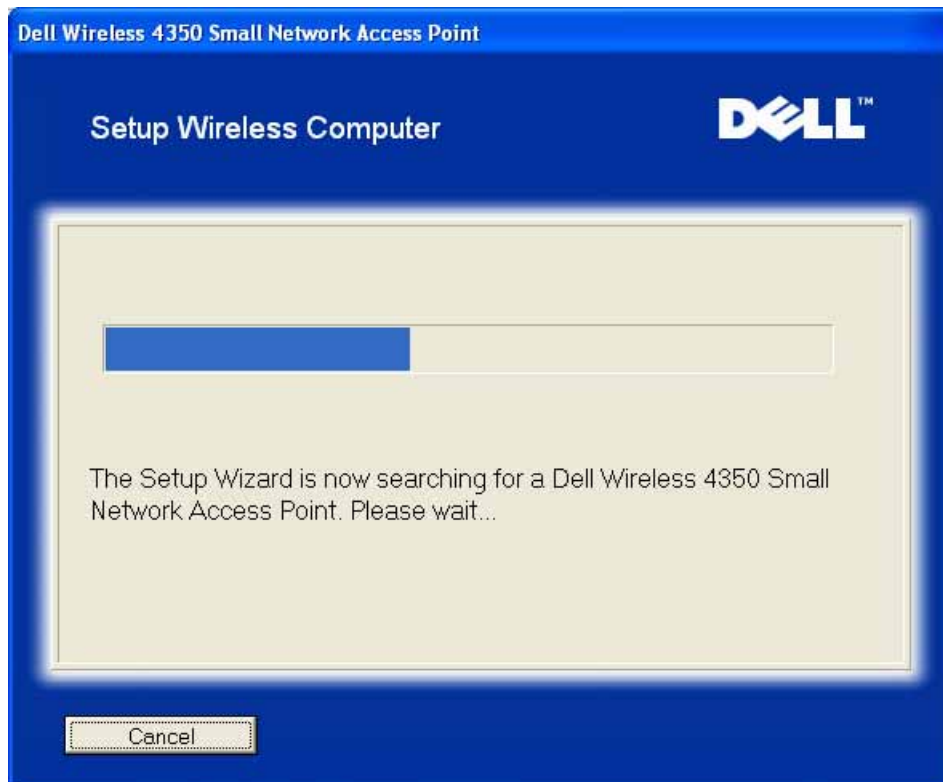
Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

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.

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**



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

Setup Wireless Computer: Step 3

Dell Wireless 4350 Small Network Access Point

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.

- Right-click the **wireless network connections** icon in the notification area (Located at the lower-right corner of the Windows desktop).
- 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

Dell Wireless 4350 Small Network Access Point

Setup Wireless Computer

DELL™

c. In the **Available wireless networks** field, click wireless. 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.**



The following wireless network(s) are available. To access a wireless network, select it from the list, and then click Connect.

Available wireless network(s):

- wireless.

This wireless network is not secure. Because a network key (WEP) is not used for authentication or for data encryption, data sent over this network might be subject to unauthorized access.

Allow me to connect to the selected wireless network, even though it is not secure.

If you are having difficulty connecting to a network, click Advanced.

Advanced... Connect Cancel

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



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

Setup Wireless Computer: Step 6



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.

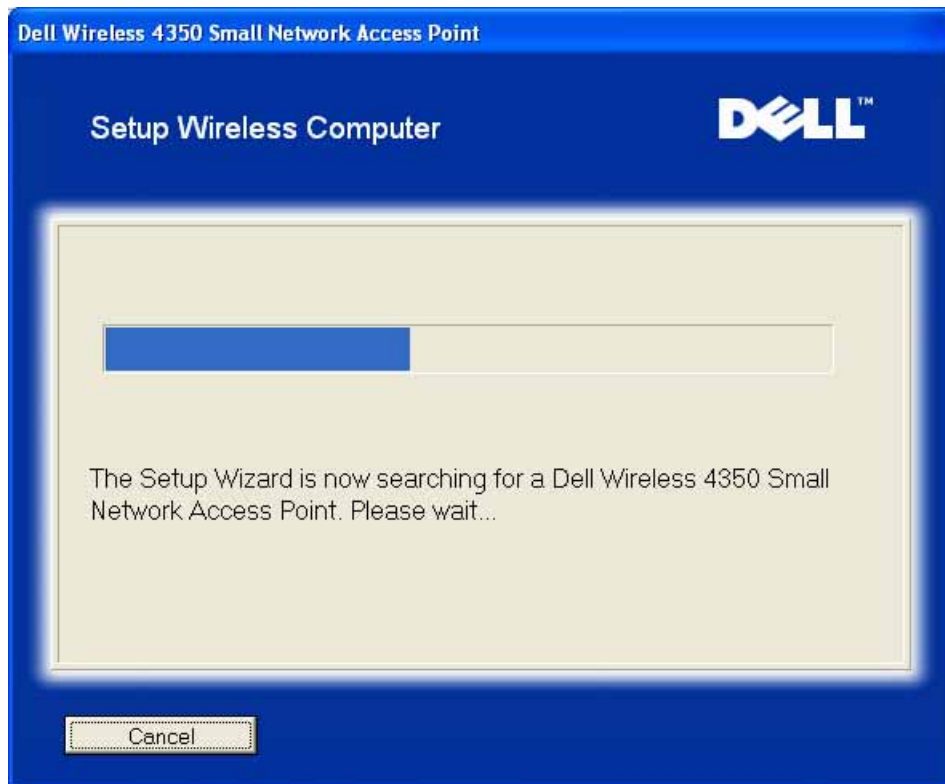
Setup Wireless Computer:

Step 1

The screenshot shows a blue-themed window titled "Dell Wireless 4350 Small Network Access Point" at the top left. Below the title bar, the text "Setup Wireless Computer" is displayed on the left, and the "DELL™" logo is on the right. The main content area is a light beige box with a thin border. Inside this box, the text reads: "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." Below this text is a text input field labeled "SSID:" containing the text "wireless". To the right of the input field, there is a note: "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." At the bottom of the window, there are two buttons: "Exit to Main Menu" on the left and "Next" on the right.

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**



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

Dell Wireless 4350 Small Network Access Point

Setup Wireless Computer **DELL™**

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

Dell Wireless 4350 Small Network Access Point

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:

- Right-click the **wireless network connections** icon in the notification area (Located at the lower-right corner of the Windows desktop).
- 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**

Dell Wireless 4350 Small Network Access Point

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.

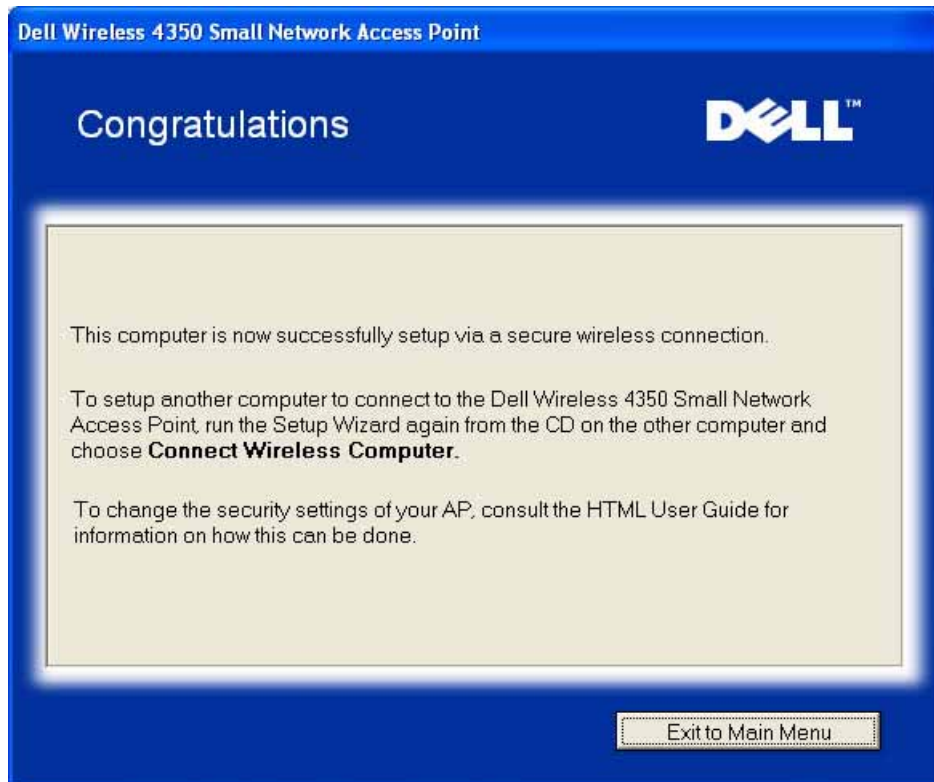
Step 6 informs the user to wait while the wireless client configuration is being verified.

Setup Wireless Computer: Step 6



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

Setup Wireless Computer: Step 7



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

Dell Wireless 4350 Small Network Access Point

Setup Wireless Computer **DELL™**

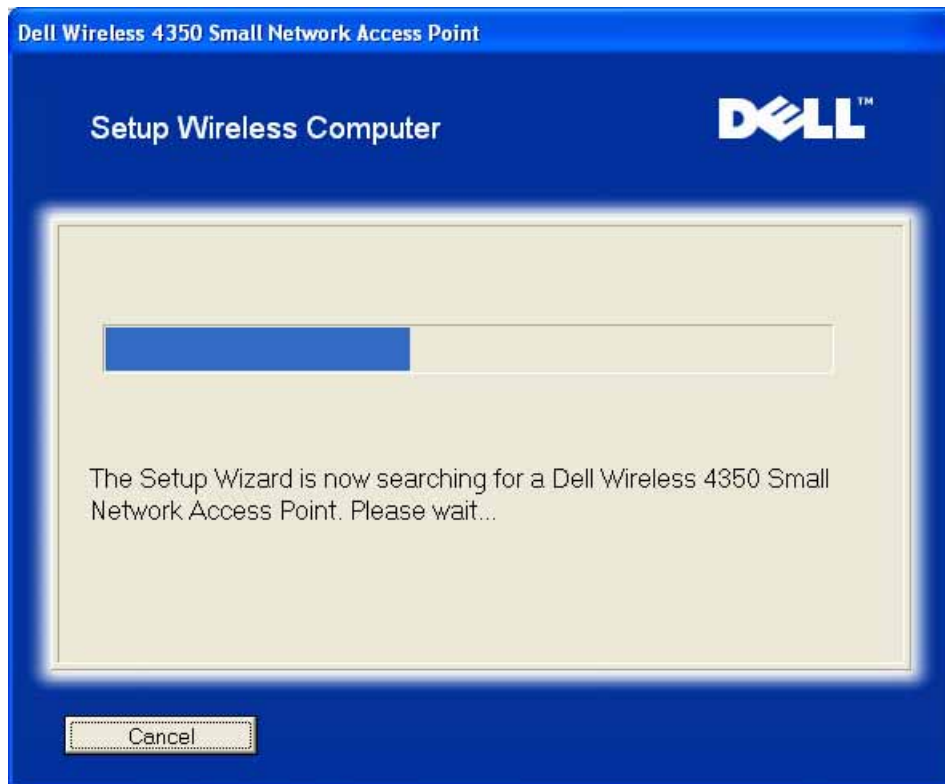
Enter in the SSID name of the DELL 4350 Small Network Access Point wireless network that you wish to connect to Click **Next** to continue.

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.

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**



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

Setup Wireless Computer: Step 3



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

Setup Wireless Computer: Step 4



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

The screenshot shows a blue-themed window titled "Dell Wireless 4350 Small Network Access Point" at the top left. Below the title bar, the text "Setup Wireless Computer" is displayed on the left, and the "DELL™" logo is on the right. The main content area is a light beige box with a thin border. Inside this box, the following text is present: "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." Below this instruction, there is a label "SSID:" followed by a text input field containing the word "wireless". To the right of the input field, there is a block of explanatory text: "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." At the bottom of the window, there are two buttons: "Exit to Main Menu" on the left and "Next" on the right.

Dell Wireless 4350 Small Network Access Point

Setup Wireless Computer

DELL™

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: wireless

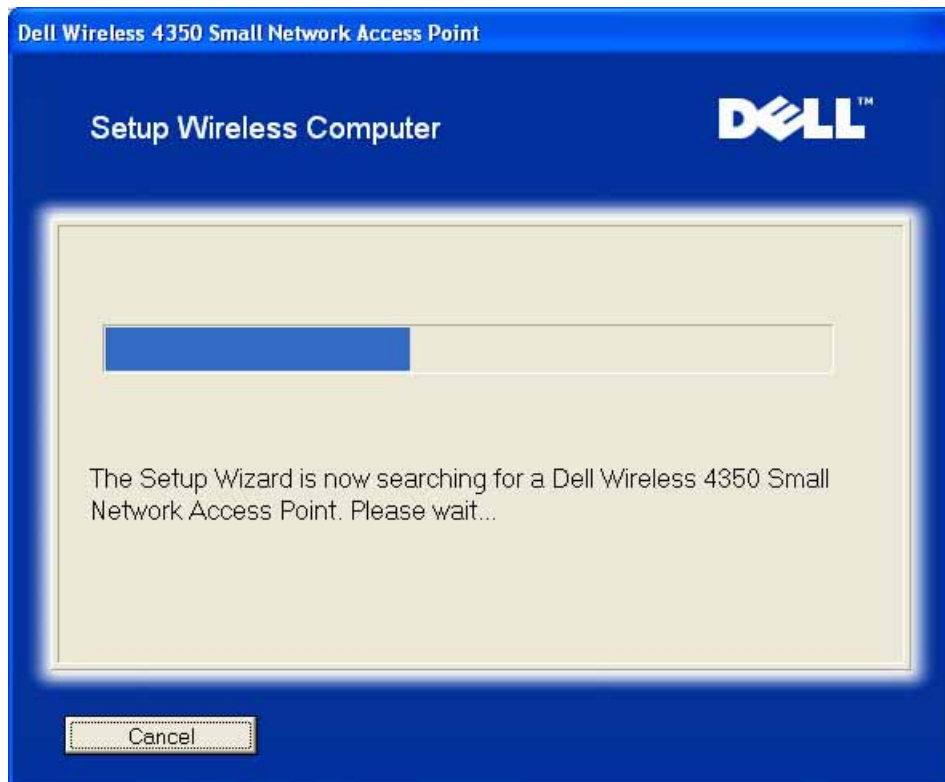
The SSID is similar to a network ID and is the same for all Access Points on your network. The SSID is case sensitive and should not exceed 32 characters.

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**



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

The screenshot shows a web-based configuration interface for a Dell Wireless 4350 Small Network Access Point. The title bar at the top reads "Dell Wireless 4350 Small Network Access Point". The main heading is "Setup Wireless Computer" with the Dell logo to the right. The central content area is a light beige box containing the following text:

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.

Below the text is a section titled "WEP Key Information" which contains two input fields:

Enter WEP key :

Re-enter WEP key :

At the bottom of the interface are three buttons: "Exit to Main Menu", "Back", and "Next".

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

Setup Wireless Computer: Step 4



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

Setup Wireless Computer: Step 5



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.
-



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.

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.

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.
-

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.

How to Configure the Access Point via the Control

Utility:

 [My Network Overview](#)

 [Wireless Settings](#)

 [Network Access Control](#)

 [Administration](#)

 [Diagnostics](#)

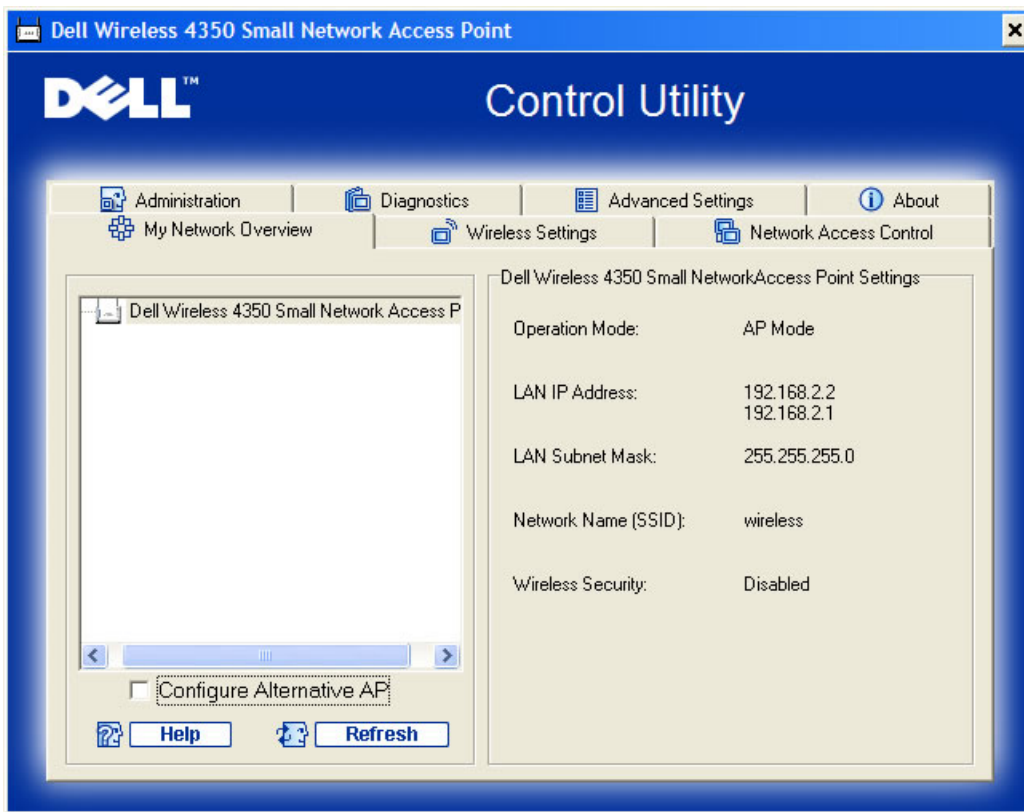
 [Advanced Settings](#)

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.

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**.

Wireless Settings WEP

The screenshot shows the 'Wireless Settings WEP' 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, there are tabs for 'My Network Overview', 'Wireless Settings', and 'Network Access Control'. The main content area is divided into sections: 'Network Name (SSID): wireless' and 'Channel: Auto'; a checked 'Enable Wireless Security' checkbox and 'Security Standard: WEP'; a 'WEP Pre-Shared Key Settings' section with four key input fields (Key1: qwert, Key2, Key3, Key4); 'Key Format: ASCII Characters' and 'Default Key: 1'; and 'Key Length: 40 bits (5 characters)'. At the bottom, there are buttons for 'Help', 'Default Settings', 'Apply', and 'Restore'.

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.

Wireless Settings WPA-PSK

The screenshot shows the 'Control Utility' window for a Dell Wireless 4350 Small Network Access Point. The window title is 'Dell Wireless 4350 Small Network Access Point'. The interface includes a navigation bar with tabs for Administration, Diagnostics, Advanced Settings, and About. Below this, there are sub-tabs for My Network Overview, Wireless Settings (which is active), and Network Access Control. The main settings area is titled 'Wireless Settings' and contains the following fields:

- Network Name (SSID): wireless
- Channel: Auto
- Enable Wireless Security
- Security Standard: WPA Pre-Shared Key
- WPA Settings section:
 - WPA Pre-Shared Key: [Empty text box]
 - Key Format: ASCII characters
 - WPA Group Rekey Interval: 900 (seconds)
 - WPA Encryption: TKIP

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

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**

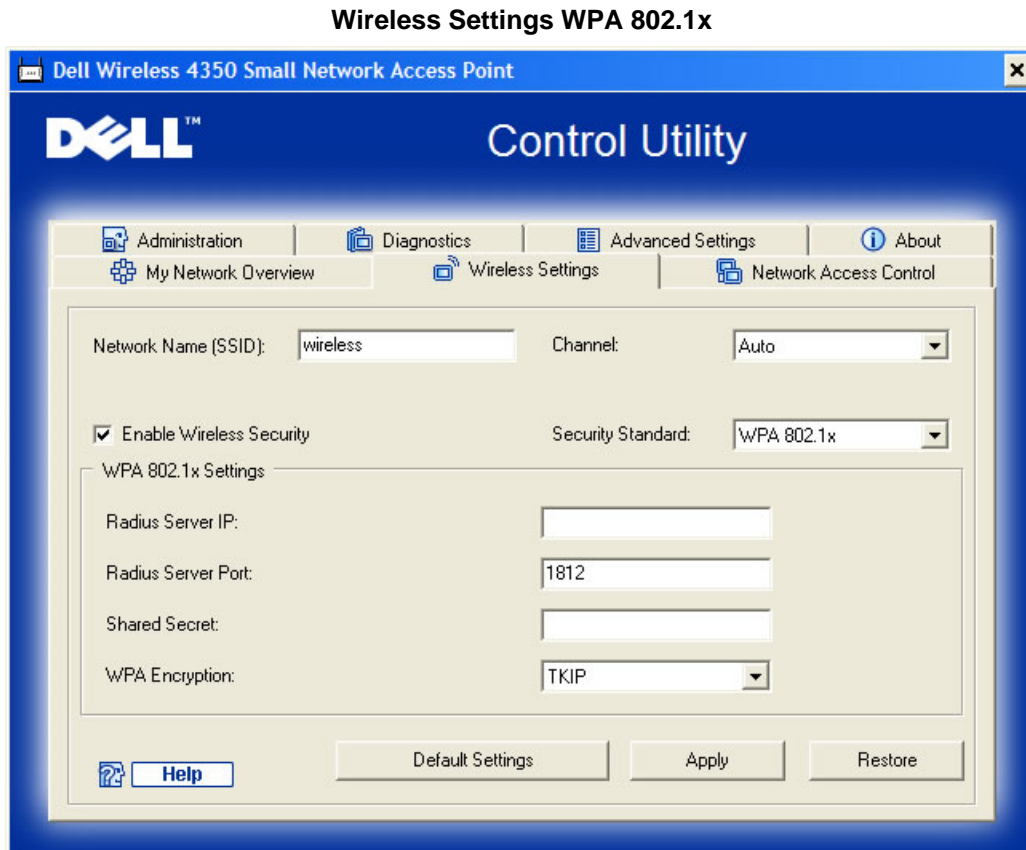
Can be ASCII or hexadecimal format. Hexadecimal format includes the numbers 0 through 9 and the letters A through F. ASCII format includes all alphanumeric characters.

- **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.



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.

Network Access Control

- **Add**

Adds a new entry to the list.

- **Edit**

Allows you to edit entries.

- **Delete**

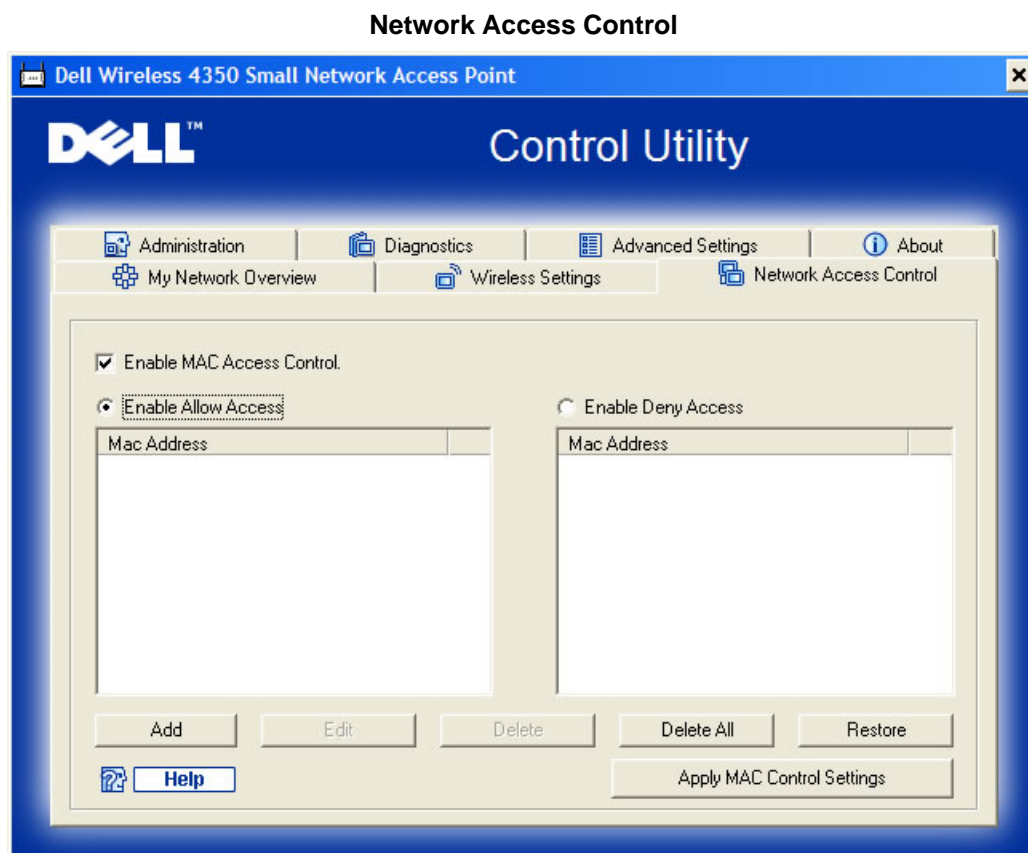
Deletes a record from the list.

- **Delete All**

Deletes all records from the list.

- **Restore**

Restores previous settings.



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.

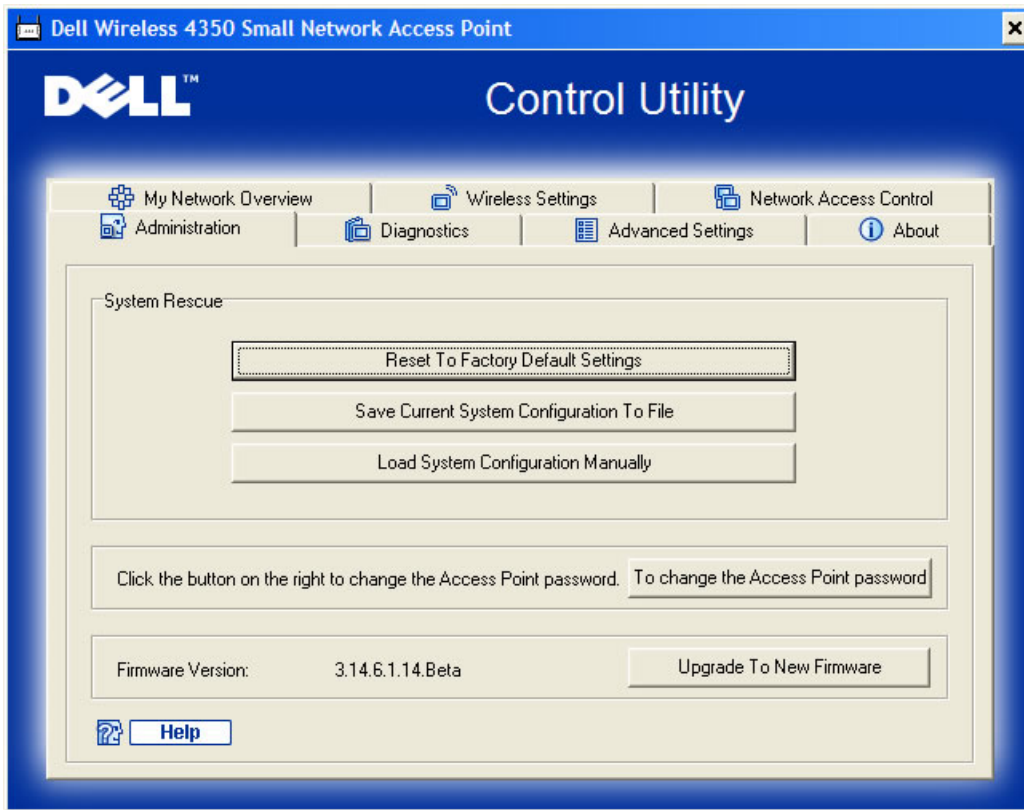
There are two options for the Access Control Settings, the Allow Access option and the Deny Access option. Each option is able to support up to 32 entries. Only one option can be active at any time. Selecting the checkbox for Enable Allow Access will disable Enable Deny Access and vice versa. The Enable 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.

Administration

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.

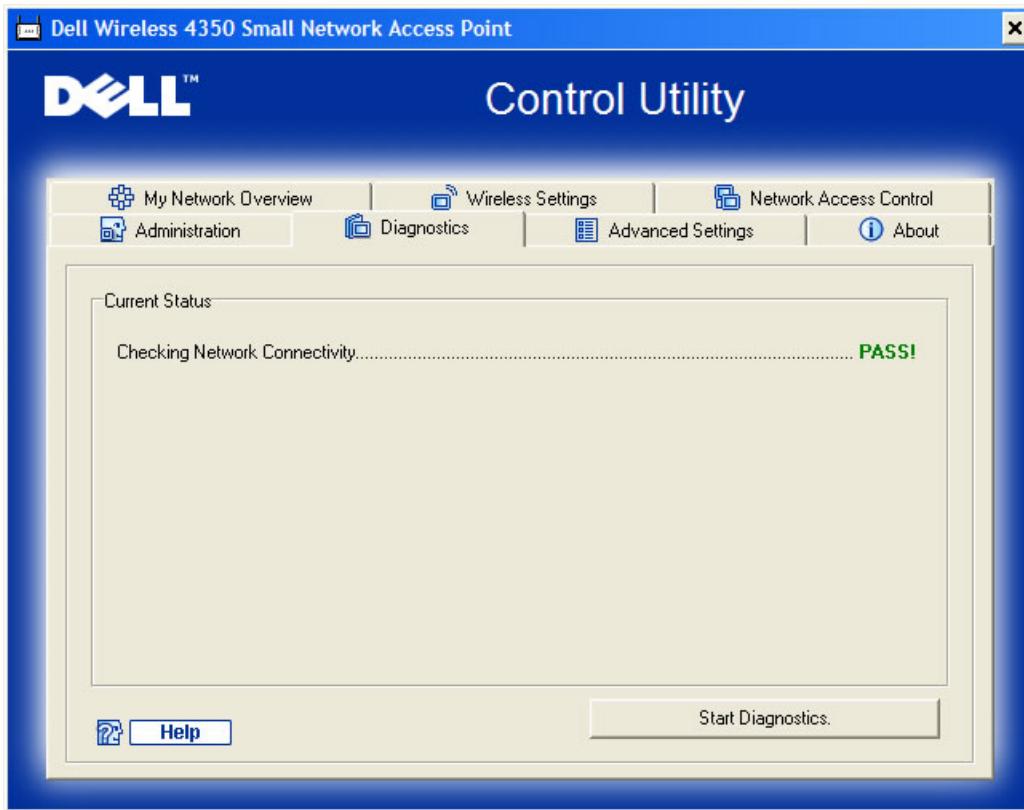
1. Click the **To Change the Access Point Password** button. The **Password Settings** window appears.
2. Type the original password in the **Original Password** field.
3. Type the new password in the **New Password** field, and then retype it in the **Confirm Password** field to verify.
4. Type the 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.

Diagnostics

Diagnostics

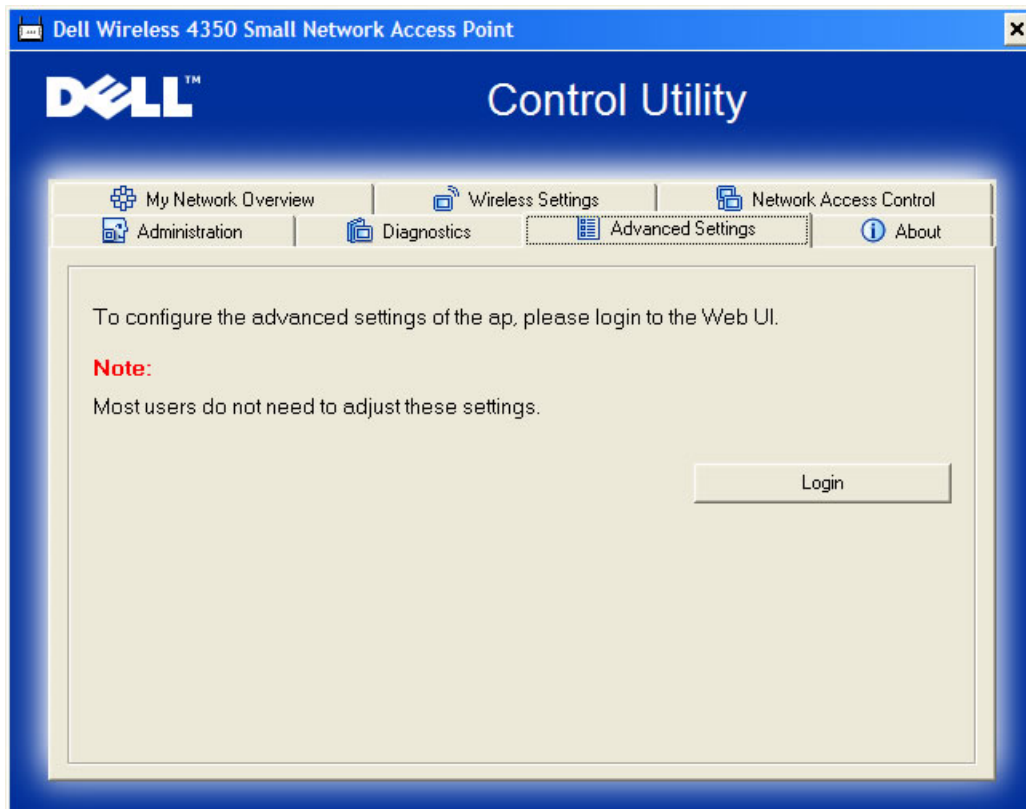


You can monitor the current status of your network connection in the **Diagnostics** menu. The network diagnostics can be activated by clicking the **Start Diagnostics** button on the bottom of the screen.

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.

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.

Web-based Configuration Tool:

▶ [Overview](#)

▶ [Basic Settings](#)

▶ [Device Status](#)

▶ [System Tools](#)

▶ [Advanced Settings](#)

▶ [Log Off](#)

Overview

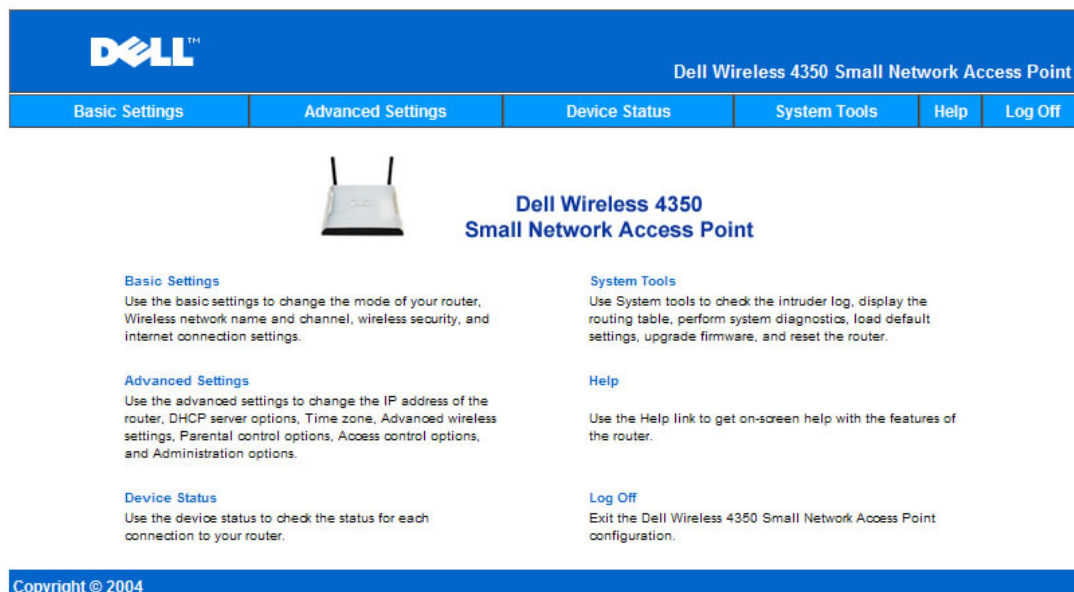
The web-based configuration tool enables you to set up advanced network configuration for your Dell Wireless 4350 Small Network Access Point. Follow the instructions below to gain access to the web tool.

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™ Dell Wireless 4350 Small Network Access Point

Basic Settings Advanced Settings Device Status System Tools Help Log Off



**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.

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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.

Basic Settings:

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

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

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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.

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.

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™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 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

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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

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	Pre-Shared Key ▾
WPA Pre-Shared Key	<input type="text"/>
Key Format	ASCII Characters ▾
WPA Group Rekey Interval	900 (0-1000)
WPA Encryption	TKIP ▾

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



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	WPA ▾
WPA Settings	
Network Authentication	802.1x ▾
WPA Encryption	TKIP ▾
Radius Server IP	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
Radius Server Port	<input type="text"/>
Shared Secret	<input type="text"/>
WPA Group Rekey Interval	<input 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

						Dell Wireless 4350 Small Network Access Point					
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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:

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

DELL™
Dell Wireless 4350 Small Network Access Point

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Main menu

Release

Renew

AP IP:
192.168.2.1

LAN MAC:
32:b7:5b:94:ea:12


AP Name:
Dell_4350_AP

Firmware version:
AR531x version
3.14.6.1.14.5.0

Wireless Channel:
Auto

Network Name
wireless

Device Status



Mid-Atlantic Wed, 1 Jan 2003 02:27:02

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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.

System Tools:

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

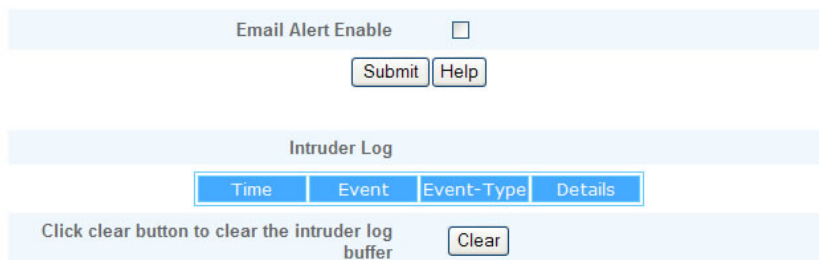
The system can be enabled to alert an administrator via e-mail of any attempted intrusion.

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.

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.

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.
