



Wireless-N Range Extender WL-330v2

Wireless-N Access Point WL-331v2



Full Manual

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Chapter I: Product Information

1-1 Product Introduction

Thank you for purchasing this wireless access point! With this highly cost-efficient wireless access point, computers and wireless devices which are compatible with 802.11 Draft-N can connect to an existing wired Ethernet network, at the speed of 300Mbps.

Easy install procedures allows any computer user to setup a network environment in a very short time - within minutes, even inexperienced users. Just follow the instructions given in this user manual, you can complete the setup procedure and release the power of this access point all by yourself!

Other features of this access point include:

- Compatible with IEEE 802.11b/g/Draft-N wireless network standard - works with other 802.11b/g/n wireless devices.
- High speed wireless network, six times faster than conventional 802.11g wireless network (up to 300Mbps).
- Allow wireless devices to connect to existing wired network and share network resources.
- Supports DHCP server function.
- Supports 64/128-bit WEP, WPA, and WPA2 wireless data encryption.
- Supports WPS (Wi-Fi Protected Setup), simplifies wireless client setup procedures. Even inexperienced user can setup wireless network without network technician's help! (*WL-331 only*)
- Easy to use web-based GUI (Graphical User Interface) for network configuration and management purposes.

1-2 Safety Information

In order to keep the safety of users and your properties, please follow the following safety instructions:

1. This access point is designed for indoor use only; DO NOT place this access point outdoor.
2. DO NOT put this access point at or near hot or humid places, like kitchen or bathroom. Also, do not left this access point in the car in summer.
3. DO NOT place this access point in between other devices; do not place it on top of other devices, or underneath other devices.
4. DO NOT pull any connected cable with force; disconnect it from the access point first.
5. If you want to place this access point at high places or hang on the wall, please make sure the access point is firmly secured. Falling from high places would damage the access point and its accessories, and warranty will be void.
6. Accessories of this access point, like antenna and power supply, are danger to small children under 3 years old. They may put the small parts in their nose or month and

it could cause serious damage to them. KEEP THIS ACCESS POINT OUT THE REACH OF CHILDREN!

7. The access point will become hot when being used for long time (***This is normal and is not a malfunction***). DO NOT put this access point on paper, cloth, or other flammable materials.
8. There's no user-serviceable part inside the access point. If you found that the access point is not working properly, please contact your dealer of purchase and ask for help. DO NOT disassemble the access point, warranty will be void.
9. If the access point falls into water when it's powered, DO NOT use your hand to pick it up. Switch the electrical power off before you do anything, or contact an experienced electrical technician for help.
10. If you smell something strange or even see some smoke coming out from the access point or power supply, remove the power supply or switch the electrical power off immediately, and call dealer of purchase for help.

1-3 System Requirements

- Computer or network devices with wired or wireless network interface card.
- Web browser (*Microsoft Internet Explorer 4.0 or above, Netscape Navigator 4.7 or above, Opera web browser, or Safari web browser*).
- An available AC power socket (100 – 240 V, 50/60Hz)

1-4 Package Contents

Before you starting to use this access point, please check if there's anything missing in the package, and contact your dealer of purchase to claim for missing items:

- Wireless Access point (main body, 1 pcs)
- User manual (1 pcs)
- A/C power adapter (1 pcs)

1-5 Access point description

Front Panel

LED	Status	Description
OPS	Flashing	Wireless OPS Mode is enabled (WL-331)
Power	On	The access point is switched on and correctly powered.
WLAN	On	
	Off	Wireless network is switched off.
	Flashing	Wireless LAN activity (transferring or receiving data).
LAN	On	LAN port is connected
	Off	LAN port is not connected
	Flashing	LAN activity (transferring or receiving data)



Rear Panel

Item	Description
Power	Power connector, connects to A/C power adapter.
Reset	Reset the router to factory default settings (clear all settings). Press this button and hold for 10 seconds to restore all settings to factory defaults.
OPS (WL-331 only)	Start OPS function. Press this button for less than 5 seconds to start the OPS function.
LAN	Local Area Network (LAN) port.

Chapter II: System and Network Setup

2-1 Installing the access point in your Network

Please follow the following instruction to build the network connection between your new wireless access point and your computers, network devices:

1. Connect the access point to ADSL modem, router, or switch/hub in your network through the LAN port of the access point by Ethernet cable.
2. Connect the A/C power adapter to the wall socket, and then connect it to the 'Power' socket of the access point.
3. Please check all LEDs on the front panel. 'Power' LED should be lit, LAN LEDs should be on if the access point is correctly connected to an ADSL modem, router or switch/hub. If the power-LED is not on, or any LED you expected is not on, please recheck the cables and power adapter.

2-2 Connecting to the access point via web browser

After the network connection is built, the next step you should do is setup the access point with proper network parameters, so it can work properly in your network environment.

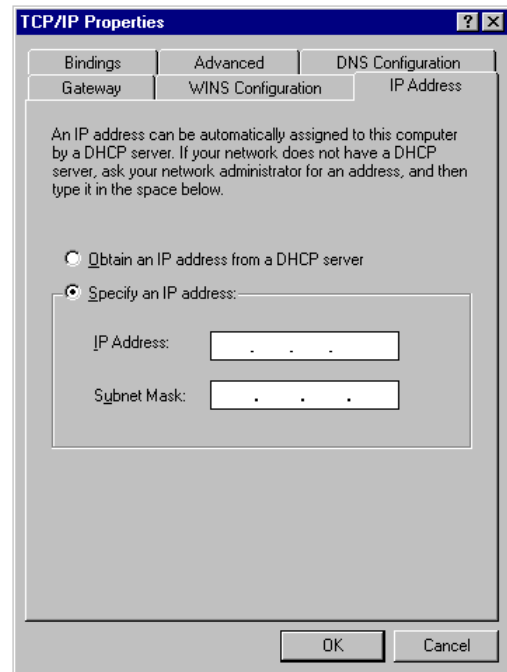
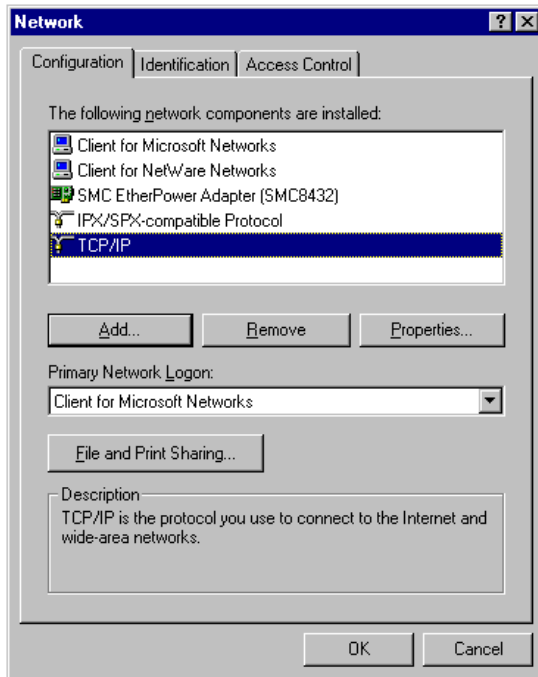
Before you can connect to the access point and start configuration procedures, your computer must be able to get an IP address automatically (use dynamic IP address). If it's set to use static IP address, or you're unsure, please follow the following instructions to configure your computer to use dynamic IP address:

If the operating system of your computer is:

Windows 95/98/Me	- please go to section 2-2-1
Windows 2000	- please go to section 2-2-2
Windows XP	- please go to section 2-2-3
Windows Vista/7	- please go to section 2-2-4

2-2-1 Windows 95/98/Me IP address setup

1. Click the 'Start' button (it should be located at the lower-left corner of your computer), then click control panel. Double-click the **Network** icon, and **Network** window will appear. Select 'TCP/IP', then click 'Properties'.



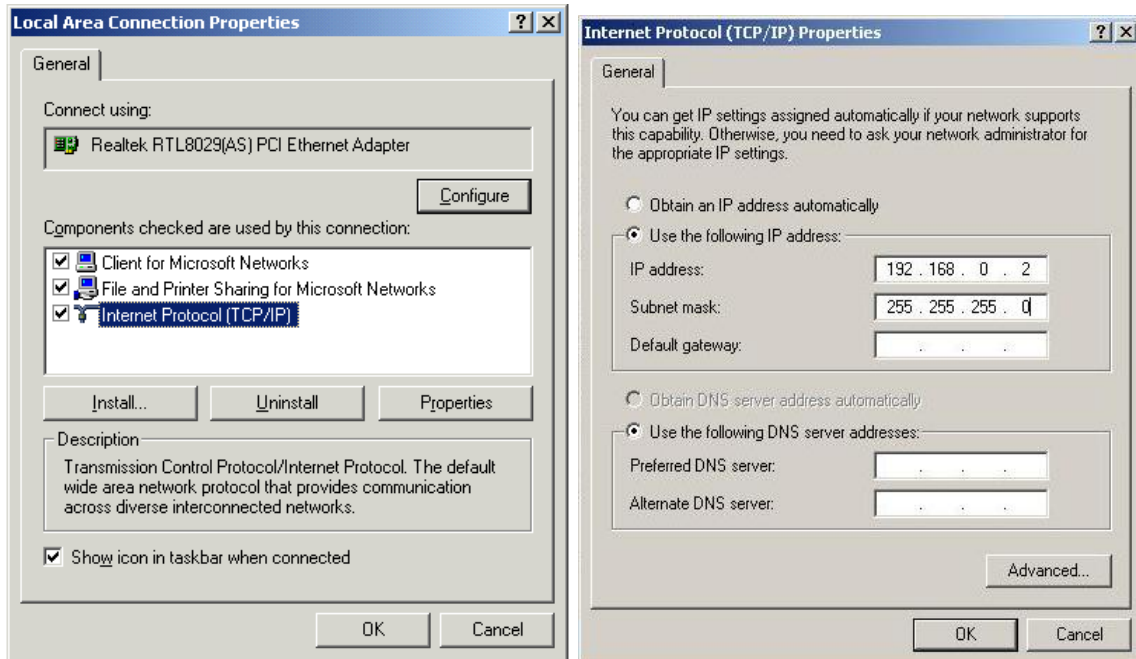
2. Select 'Specify an IP address', then input the following settings in respective field:

IP address: **192.168.0.2**
Subnet Mask: **255.255.255.0**

Click 'OK' when finished.

2-2-2 Windows 2000/XP IP address setup

1. Click 'Start' button (it should be located at lower-left corner of your computer), then click control panel. Double-click **Network and Dial-up Connections** icon, double click **Local Area Connection**, and **Local Area Connection Properties** window will appear. Select 'Internet Protocol (TCP/IP)', then click 'Properties'



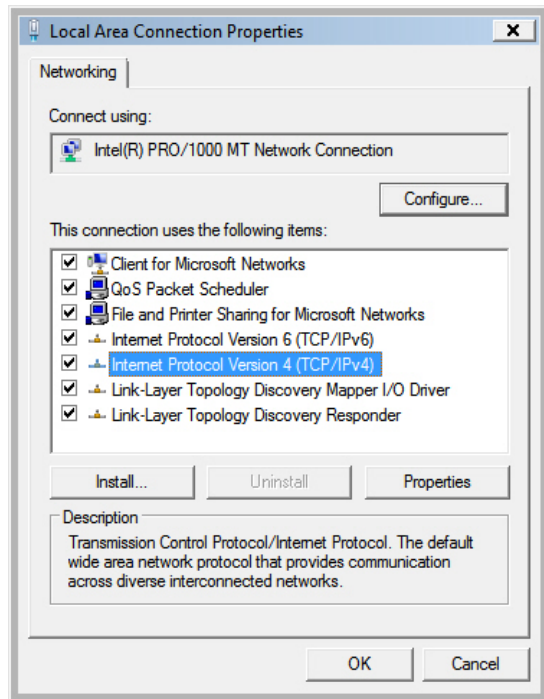
2. Select 'Use the following IP address', then input the following settings in respective field:

IP address: **192.168.0.2**
Subnet Mask: **255.255.255.0**

Click 'OK' when finish.

2-2-3 Windows Vista/7 IP address setup

1. Click the 'Start' button (it should be located at lower-left corner of your computer), then click control panel. Click **View Network Status and Tasks**, then click **Manage Network Connections**. Right-click **Local Area Network**, then select '**Properties**'. The **Local Area Connection Properties** window will appear, select '**Internet Protocol Version 4 (TCP / IPv4)**', and then click 'Properties'



2. Select 'Use the following IP address', then input the following settings in respective field:

IP address: **192.168.0.2**
Subnet Mask: **255.255.255.0**

Click 'OK' when finish.

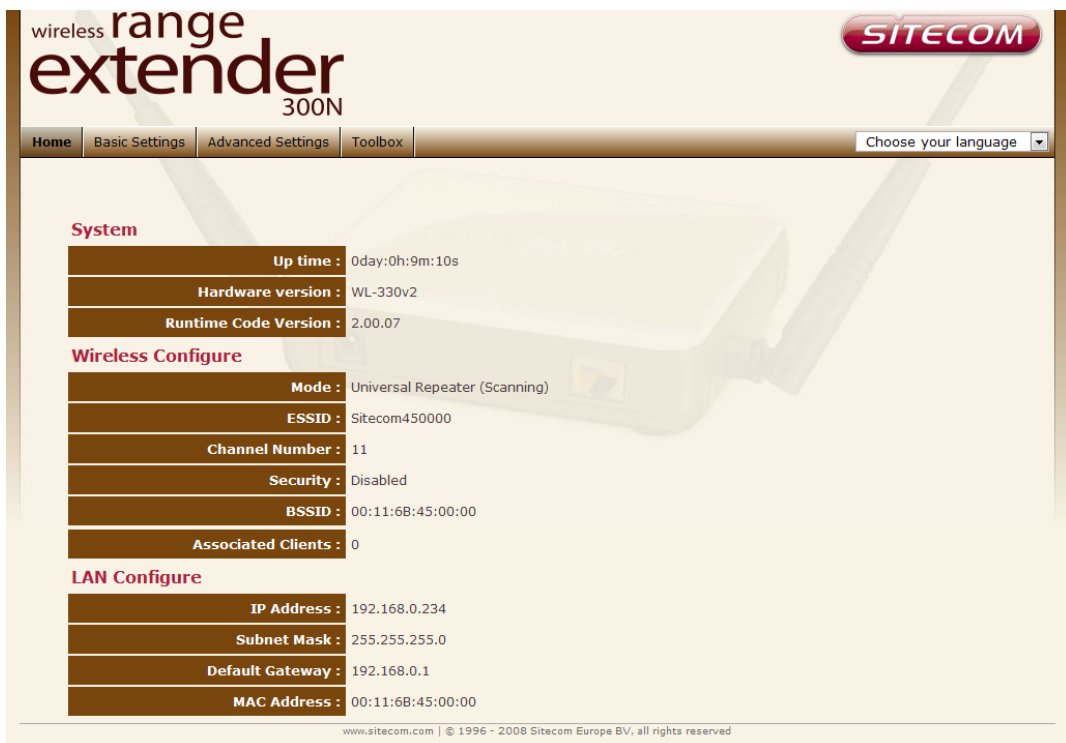
2-2-5 Connecting to Web Management Interface

All functions and settings of this access point must be configured via the web management interface. Please start your web browser, and input '192.168.0.234' in the address bar, and press the 'Enter' key. The following dialog should be shown:



The image shows a 'Connect' dialog box with a blue header and a yellow body. It contains a 'Default: admin/admin' label, a 'User name:' field with a dropdown menu showing 'admin', a 'Password:' field with masked characters, and a 'Remember my password' checkbox. 'OK' and 'Cancel' buttons are at the bottom.

Please input user name and password in the field respectively. The default user name is 'admin', and the default password is 'admin'. Press the 'OK' button to see the web management interface of this access point:



The image shows the web management interface of a Sitecom wireless range extender 300N. The page has a yellow background and a blue header with the Sitecom logo. The main content area is divided into three sections: System, Wireless Configure, and LAN Configure. Each section contains a table of configuration parameters.

System	
Up time :	0day:0h:9m:10s
Hardware version :	WL-330v2
Runtime Code Version :	2.00.07

Wireless Configure	
Mode :	Universal Repeater (Scanning)
ESSID :	Sitecom450000
Channel Number :	11
Security :	Disabled
BSSID :	00:11:6B:45:00:00
Associated Clients :	0

LAN Configure	
IP Address :	192.168.0.234
Subnet Mask :	255.255.255.0
Default Gateway :	192.168.0.1
MAC Address :	00:11:6B:45:00:00

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NOTE: If you can't see the web management interface, and you're being prompted to input user name and password again, it means you didn't input username and password correctly. Please retype user name and password again. If you're certain about the user name and password you type are correct, please go to '4-2 Troubleshooting' to perform a factory reset, to set the password back to default value.

2-3 View System Status and Information

After you connected to the access point by web browser, the first thing you see is 'Status and Information' page. All system and network related information of this access point will be displayed here. The information is very helpful when you want to know the detailed information of your access point, and when you try to fix the communication problem between this access point and other wired / wireless computer / devices.

You can click '**Home**' on the left, and the system status and information will be displayed, as shown below:

The screenshot shows the web interface for a Sitecom wireless range extender 300N. The page has a navigation menu with 'Home', 'Basic Settings', 'Advanced Settings', and 'Toolbox'. A language selection dropdown is set to 'Choose your language'. The main content area is divided into three sections: System, Wireless Configure, and LAN Configure. Each section contains a list of configuration parameters and their values.

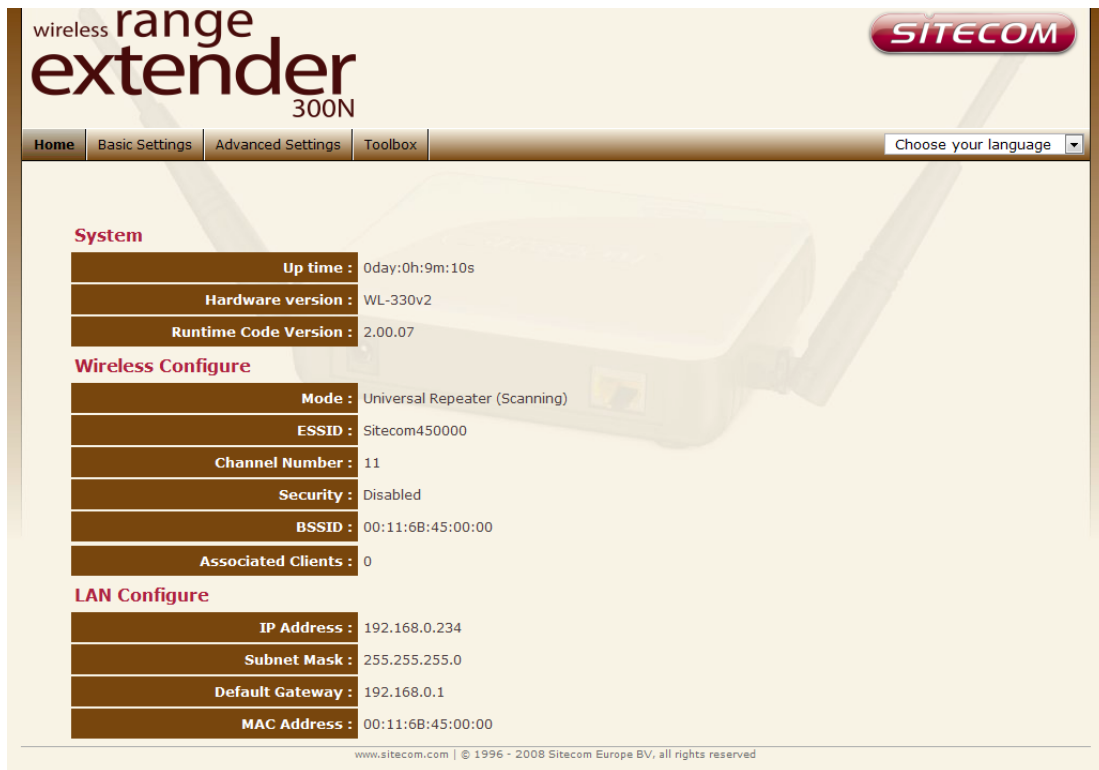
System	
Up time :	0day:0h:9m:10s
Hardware version :	WL-330v2
Runtime Code Version :	2.00.07
Wireless Configure	
Mode :	Universal Repeater (Scanning)
ESSID :	Sitecom450000
Channel Number :	11
Security :	Disabled
BSSID :	00:11:6B:45:00:00
Associated Clients :	0
LAN Configure	
IP Address :	192.168.0.234
Subnet Mask :	255.255.255.0
Default Gateway :	192.168.0.1
MAC Address :	00:11:6B:45:00:00

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Up time	Displays the total passed time since the wireless access point is powered.
Hardware Version	Displays hardware version. This information is helpful when you need online help from the dealer of purchase.
Runtime Code Version	Displays current firmware version. If you want to perform firmware upgrade, this number will help you to determine if you need such upgrade.
Mode	Displays current wireless operating mode (see next Section)
ESSID	Displays current ESSID (the name used to identify this wireless access point)
Channel Number	Displays current wireless channel number
Security	Displays current wireless security setting
BSSID	Displays current BSSID (a set of unique identification name of this access point, it can not be modified by user)
Associated Clients	Displays the number of connected wireless client
IP Address	Displays the IP address of this wireless access point
Subnet Mask	Displays the net mask of IP address
Default Gateway	Displays the IP address of default gateway
MAC address	Displays the MAC address of LAN interface

2-4 Select an Operating Mode for Wireless Access Point

This access point can be operated in different modes; you can click '**Basic Setting**' to select an operating mode you want to meet for different needs:



You can click '**Mode**' dropdown menu to select operating mode, and there are 3 operating modes available:

AP	Access point mode, allows wireless clients to connect to access point and exchange data with the devices connected to the wired network.
Station-Infrastructure	Enable the Ethernet device such us TV and Game player connected to the access point to a wireless client.
Universal Repeater	This product can act as a wireless range extender that will help you to extend the networking wirelessly. The access point can act as Station and AP at the same time. It can use Station function to connect to a Root AP and use AP function to service all wireless clients within its coverage.

2-4-1 AP Mode

This is the most common mode. When in AP mode, this access point acts as a bridge between 802.11b/g/Draft-N wireless devices and wired Ethernet network, and exchange data between them. *The WL-331 Access Point uses "AP Mode" as default setting.*

When you select 'AP', the following options will be displayed:

The screenshot shows the configuration interface for a Sitecom wireless range extender 300N. The page title is "wireless range extender 300N" with the Sitecom logo. The navigation menu includes Home, Basic Settings (selected), Advanced Settings, and Toolbox. A language selection dropdown is set to "Choose your language". The main content area explains that the page is for defining ESSID and Channel. The configuration fields are as follows:

- Mode: Accesspoint (dropdown)
- Band: 2.4GHz (B+G+N) (dropdown)
- MAIN ESSID: Sitecom450000 (text input)
- Channel Number: 11 (dropdown)
- Associated Clients: Show Active Clients (button)

At the bottom right, there are "Apply" and "Cancel" buttons. The footer contains the copyright information: "www.sitecom.com | © 1996 - 2008 Sitecom Europe BV, all rights reserved".

Band	Please select the wireless band you wish to use. By selecting different band setting, you'll be able to allow or deny the wireless client of a certain band.
Main ESSID	Please input the ESSID (the name used to identify this wireless access point) here. You can input up to 32 alphanumerical characters. PLEASE NOTE THAT ESSID IS CASE SENSITIVE.
Channel Number	Please select a channel number you wish to use. If you know a certain channel number is being used by other wireless access points nearby, please refrain from using the same channel number
Associated Clients	Click 'Show Active Clients' button and a new popup window will appear which contains the information about all wireless clients connected to this access point. You can click 'Refresh' button in popup window to keep information up-to-date.

After you finish with setting, please click 'Apply'. Hereafter, you can click 'Continue' to go back to the previous page and continue configuring the Access Point, or click the 'Apply' button again to restart the wireless access point and save the current changes.

2-4-2 Station-Infrastructure

In this mode, you can connect the access point to Ethernet device such as TV and Game player to enable the Ethernet device be a wireless station and join to a wireless network through an access point or AP router.

Band	Please select the wireless band you wish to use. By selecting different band setting, you'll be able to allow or deny the wireless client of a certain band.
Main ESSID	Please input the ESSID (the name used to identify this wireless access point) here. You can input up to 32 alphanumeric characters. PLEASE NOTE THAT ESSID IS CASE SENSITIVE.
Site Survey	When you use this access point as a wireless station for Ethernet network device to have wireless capability, you have to associate it with a working access point. Click 'Select Site Survey' button, then a "Wireless Site Survey Table" will pop up. It will list all available access points near by. You can select one access point in the table and it will join wireless LAN through this access point. Please go to Section 2-4-2-1 for more information about the 'Wireless Site Survey Table'.
WLAN MAC	For some applications, you may need to designate a specific MAC address for the access point. Please enter the MAC address here. If you are connecting the access point to a computer, you can simply press 'Clone Mac address' button to fill the MAC address field with the MAC address of your computer.
Auto MAC Clone	If this function is enabled, the access point will automatically clone the MAC address of the wireless clients which is the first one to associate to the access point while the access point is powered on.

2-4-2-1 Wireless Site Survey

The table will list the access points nearby as the access point is set to Station mode; you can select one of the access points to associate.

Wireless Site Survey

This page provides a tool to scan the wireless network.

Select	Channel	SSID	BSSID	Encryption	Authentication Mode	Signal	Mode
<input type="radio"/>	11	iPhoneRemote	00:0c:f6:6e:f4:f8	AES	WPA2PSK	100	11b/g/n
<input type="radio"/>	11	Smartliving2	00:0c:f6:70:0f:2b	AES	WPA2PSK	29	11b/g/n
<input type="radio"/>	11	Sitecom700C4C	00:0c:f6:70:0c:4c	AES	WPA2PSK	15	11b/g/n
<input type="radio"/>	11	SitecomOffice	00:0c:f6:1e:84:c1	TKIP	WPAPSK	50	11b/g
<input type="radio"/>	11	SitecomOffice	00:0c:f6:1e:84:d5	TKIP	WPAPSK	65	11b/g

Select	Click the radio button to select the access point.
Channel	Display to channel number of the access point.
SSID	Display the SSID name of the access point.
BSSID	Display the BSSID (MAC Address) of the access point.
Encryption	Display the encryption setting of the access points. If you have selected the access point with security setting, you have to go to '2-7 Wireless Security' to set the same security with the access point you want to associate.
Authentication	Display the authentication type of the access point.
Signal	The signal strength of each access point will be displayed here. The signal strength is stronger, the connection quality is better.
Mode	Display the wireless modes include 11b, 11b/g or 11b/g/n or 11n only of the access points.
Refresh	Click this button to refresh the table.
Connection	Select an access point and click this button to choose the network. The SSID name of the access point you have selected will be displayed in the Main SSID in the Basic Setting page.

2-4-3 Universal Repeater

In this mode, the access point can act as a wireless repeater; it can be Station and AP at the same time. It can use Station function to connect to a Root AP and use AP function to service all wireless stations within its coverage. *The WL-330 Universal Repeater uses this mode as default setting.*

NOTE: For Repeater Mode, this access point will demodulate the received signal, checking if this signal is noise for the operating network then have the signal modulated and amplified again. The output power of this mode is the same as that of WDS and normal AP mode.

The screenshot shows the web interface for a Sitecom wireless range extender 300N. The page is titled "wireless range extender 300N" and features the Sitecom logo. The navigation menu includes "Home", "Basic Settings", "Advanced Settings", and "Toolbox". A language selection dropdown is set to "Choose your language".

The main content area contains the following settings:

- Mode:** Universal Repeater (dropdown menu)
- Band:** 2.4GHz (B+G+N) (dropdown menu)
- MAIN ESSID:** Sitecom450000 (text input field)
- Channel Number:** 11 (dropdown menu)
- Associated Clients:** Show Active Clients (button)
- Root AP SSID:** (empty text input field)
- Site Survey:** Site Survey (button)

At the bottom right, there are "Apply" and "Cancel" buttons. The footer contains the text: "www.sitecom.com | © 1996 - 2008 Sitecom Europe BV, all rights reserved".

Band	Please select the wireless band you wish to use. By selecting different band setting, you'll be able to allow or deny the wireless client of a certain band.
MAIN ESSID	Please input the ESSID (the name used to identify this wireless access point) here. You can input up to 32 alphanumerical characters. PLEASE NOTE THAT ESSID IS CASE SENSITIVE.
Channel Number	Please select a channel number you wish to use. The channel number must be same with another wireless access point you wish to connect
Associated Clients	Click 'Show Active Clients' button and a new popup window will appear which contains the information about all wireless clients connected to this access point.
Root AP SSID	In 'Universal Repeater' mode, this device can act as a station to connect to a Root AP. You should assign the SSID of the Root AP here or click 'Select Site Survey' button to choose a Root AP.
Select Site Survey	Click 'Select Site Survey' button, then a "Wireless Site Survey Table" will pop up. It will list all available access points near by.

2-4-4 AP Bridge-Point to Point Mode

In this mode, this wireless access point will connect to another wireless access point which uses the same mode, and all wired Ethernet clients of both wireless access points will be connected together. You can use this mode to connect a network to another network which is physically isolated.

Please note that when you set your access point to this mode, it will not accept regular wireless clients anymore.

When you select 'AP Bridge-Point to Point', the following options will be displayed:

Band	<p>Please select the wireless band you wish to use. By selecting different band setting, you'll be able to allow or deny the wireless client of a certain band.</p> <p>If you select 2.4GHz (B), 2.4GHz (N), or 2.4GHz (G), only wireless clients using the wireless band you select (802.11b, 802.11 Draft-N, or 802.11g) will be able to connect to this access point.</p> <p>If you select 2.4GHz (B+G), then only wireless clients using 802.11b and 802.11g band will be able to connect to this access point.</p> <p>If you want to allow 802.11b, 802.11g, and 802.11 Draft-N clients to connect to this access point, select 2.4GHz (B+G+N).</p>
Channel Number	<p>Please select a channel number you wish to use. The channel number must be same with another wireless access point you wish to connect</p>
MAC address 1	<p>Please input the MAC address of the wireless access point you wish to connect</p>
Set Security	<p>Click this button to select an encryption mode for this wireless link, a new popup window will appear. Please refer to Section 2-7 for detailed descriptions.</p>

After you finish with setting, please click 'Apply'. Hereafter, the settings you made are successfully saved. You can click the 'Continue' button to go back to the previous page and continue changing other settings, or click the 'Apply' button to restart the wireless access point. The changes will take effect after about 30 seconds.

2-4-5 AP Bridge-Point to Multi-Point Mode

In this mode, this wireless access point will connect to up to four wireless access points which uses the same mode, and all wired Ethernet clients of every wireless access points will be connected together. You can use this mode to connect a network to other networks which is physically isolated.

Please note that when you set your access point to this mode, it will not accept regular wireless clients anymore.

When you select 'AP Bridge-Point to Multi-Point', the following options will be displayed:

Band	<p>Please select the wireless band you wish to use. By selecting different band setting, you'll be able to allow or deny the wireless client of a certain band.</p> <p>If you select 2.4GHz (B), 2.4GHz (N), or 2.4GHz (G), only wireless clients using the wireless band you select (802.11b, 802.11 Draft-N, or 802.11g) will be able to connect to this access point.</p> <p>If you select 2.4GHz (B+G), then only wireless clients using 802.11b and 802.11g band will be able to connect to this access point.</p> <p>If you want to allow 802.11b, 802.11g, and 802.11 Draft-N clients to connect to this access point, select 2.4GHz (B+G+N).</p>
Channel Number	<p>Please select a channel number you wish to use. The channel number must be same with another wireless access point you wish to connect</p>
MAC address 1-4	<p>Please input the MAC address of the wireless access point you wish to connect</p>
Set Security	<p>Click this button to select an encryption mode for this wireless link, a new popup window will appear. Please refer to Section 2-7 for detailed descriptions.</p>

After you finish with setting, please click 'Apply'. Hereafter, the settings you made are successfully saved. You can click the 'Continue' button to go back to the previous page and continue changing other settings, or click the 'Apply' button to restart the wireless access point. The changes will take effect after about 30 seconds.

2-4-6 AP Bridge-WDS Mode

In this mode, this wireless access point will connect to up to four wireless access points which uses the same mode, and all wired Ethernet clients of every wireless access points will be connected together. You can use this mode to connect a network to other networks which is physically isolated.

When you use this mode, this access point is still able to accept wireless clients.

When you select 'AP Bridge-WDS', the following options will be displayed:

Band	<p>Please select the wireless band you wish to use. By selecting different band setting, you'll be able to allow or deny the wireless client of a certain band.</p> <p>If you select 2.4GHz (B), 2.4GHz (N), or 2.4GHz (G), only wireless clients using the wireless band you select (802.11b, 802.11 Draft-N, or 802.11g) will be able to connect to this access point.</p> <p>If you select 2.4GHz (B+G), then only wireless clients using 802.11b and 802.11g band will be able to connect to this access point.</p> <p>If you want to allow 802.11b, 802.11g, and 802.11 Draft-N clients to connect to this access point, select 2.4GHz (B+G+N).</p>
MAIN ESSID	<p>Please input the ESSID (the name used to identify this wireless access point) here. You can input up to 32 alphanumeric characters. PLEASE NOTE THAT ESSID IS CASE SENSITIVE.</p>
Multiple ESSID	<p>The access point supports multiple SSID function; up to four SSIDs can be set. If you want to configure additional SSIDs, please click this button. For detailed descriptions of the function, please refer to Section 2-4-1-1.</p>
Channel Number	<p>Please select a channel number you wish to use. The channel number must be same with another wireless access point you wish to connect</p>
Associated Clients	<p>Click 'Show Active Clients' button and a new popup window will appear which contains the information about all wireless clients connected to this access point. You can click 'Refresh' button in popup window to keep information up-to-date.</p>
MAC address 1-4	<p>Please input the MAC address of the wireless access point you wish to connect</p>
Set Security	<p>Click this button to select an encryption mode for this wireless link, a new popup window will appear. Please refer to Section 2-7 for detailed descriptions.</p>

After you finish with setting, please click 'Apply'. Hereafter, the settings you made are successfully saved. You can click the 'Continue' button to go back to the previous page and continue changing other settings, or click the 'Apply' button to restart the wireless access point. The changes will take effect after about 30 seconds.

2-5 Wireless Security

This wireless access point provides many types of wireless security (wireless data encryption). When you use data encryption, data transferred by radio signals in the air will become unreadable for those people who don't know correct encryption key (encryption password).

There are four types of security level you can select: Disable (no security - data encryption disabled), WEP, WPA Pre-shared Key, and WPA Radius. Please refer to the following sections for detailed instructions.

Please remember it's very important to set wireless security settings properly! Without a proper setting, hackers and intruders may gain access to your local network and do something bad to your computers and servers, which could cause serious problem.

There are several things you can do to improve wireless security:

1. Always enable data encryption. Only disable it when you want to open your wireless access point to the public.
2. Never use simple words as encryption password. Use the random combination of symbols, numbers, and alphabets will greatly improve security.
3. Use WPA when possible - it's much safer than WEP.
4. Change encryption password when you've used it for too long time.

2-5-1 Disable Security

When you select 'Disabled', wireless encryption for the network is disabled.



After you finish with setting, please click 'Apply'.

2-5-2 WPA Pre-shared Key

WPA Pre-shared key is the safest encryption method currently, and it's recommended to use this encryption method to ensure the safety of your data.

When you select 'WPA pre-shared key' as encryption type, the following messages will be displayed:

The screenshot shows the 'Advanced Settings' page for a Sitecom wireless range extender 300N. The 'Security' tab is active, and the 'WPA Pre-Shared Key' encryption method is selected. The 'WPA Unicast Cipher Suite' is set to 'WPA2(AES)'. The 'Pre-Shared Key Format' is set to 'Passphrase Key'. A text input field for the 'Pre-Shared Key' is present but empty. 'Apply' and 'Cancel' buttons are at the bottom right. The footer contains the text: 'www.sitecom.com | © 1996 - 2008 Sitecom Europe BV, all rights reserved'.

WPA Unicast Cipher Suite	Available options are: WPA (TKIP), WPA2 (AES), and WPA2 Mixed. You can select one of them, but you have to make sure your wireless client support the cipher you selected.
Pre-shared Key Format	Please select the format of pre-shared key here, available options are 'Passphrase' (8 to 63 alphanumerical characters) and 'Hex' (64 hexadecimal characters - 0 to 9 and a to f).
Pre-shared Key	Please input pre-shared key according to the key format you selected here. For security reason, don't use simple words).

After you finish with setting, please click 'Apply'.

2-5-3 WEP

WEP (Wired Equivalent Privacy) is a common encryption mode, it's safe enough for home and personal use. But if you need higher level of security, please consider using WPA encryption (see next Section).

However, some wireless clients don't support WPA, but only support WEP, so WEP is still a good choice for you if you have such kind of client in your network environment.

When you select 'WEP' as encryption type, the following page will be displayed:

Key Length	There are two types of WEP key length: 64-bit and 128-bit. Using '128-bit' is safer than '64-bit', but will reduce some data transfer performance.
Key Format	There are two types of key format: ASCII and Hex. When you select a key format, the number of characters of key will be displayed. For example, if you select '64-bit' as key length, and 'Hex' as key format, you'll see the message at the right side of 'Key Format' is 'Hex (10 characters)', which means the length of WEP key is 10 characters.
Default Tx Key	You can set up to four sets of WEP key, and you can decide which key is being used by default here. If you don't know which one you should use, select 'Key 1'.
Encryption Key 1 to 4	Input WEP key characters here, the number of characters must be the same as the number displayed at 'Key Format' field. You can use any alphanumerical characters (0-9, a-z, and A-Z) if you select 'ASCII' key format, and if you select 'Hex' as key format, you can use characters 0-9, a-f, and A-F. You must enter at least one encryption key here.
Enable 802.1x Authentication	Check this box to enable 802.1x user authentication.

2-6 Advanced Wireless Settings

This wireless access point has many advanced wireless features. Please note that all settings listed here are for experienced users only, if you're not sure about the meaning and function of these settings, please don't modify them, or the wireless performance will be reduced.

You can click 'Advanced Setting' on the left to enter advanced settings menu, and the following message will be displayed:

wireless range extender 300N

SITECOM

Home Basic Settings **Advanced Settings** Toolbox Choose your language

Security **Advanced**

These settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your WL-330.

Fragment Threshold : 2346 (256-2346)

RTS Threshold : 2347 (0-2347)

Beacon Interval : 100 (20-1024 ms)

DTIM Period : 1 (1-10)

Data rate : Auto

N Data rate : Auto

Channel Bandwidth : Auto 20/40 MHz 20 MHz

Preamble Type : Short Preamble Long Preamble

Broadcast ESSID : Enable Disable

CTS Protection : Auto Always None

Tx Power : 100%

Apply Cancel

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Fragment Threshold	Set the Fragment threshold of wireless radio. Do not modify default value if you don't know what it is, default value is 2346
RTS Threshold	Set the RTS threshold of wireless radio. Do not modify default value if you don't know what it is, default value is 2347
Beacon Interval	Set the beacon interval of wireless radio. Do not modify default value if you don't know what it is, default value is 100
DTIM Period	Set the DTIM period of wireless radio. Do not modify default value if you don't know what it is, default value is 3
Data Rate	Set the wireless data transfer rate to a certain value. Since most of wireless devices will negotiate with each other and pick a proper data transfer rate automatically, it's not necessary to change this value unless you know what will happen after modification.
N Data Rate	Set the data rate of 802.11 Draft-N clients, available options are MCS 0 to MCS 15, it's safe to set this option to 'Auto' and it's not necessary to change this value unless you know what will happen after modification.
Channel	Select wireless channel width (bandwidth taken by wireless

Bandwidth	signals of this access point). It's suggested to select 'Auto 20/40MHz'. Do not change to '20 MHz' unless you know what it is.
Preamble Type	Set the type of preamble of wireless radio, Do not modify default value if you don't know what it is, default setting is 'Short Preamble' .
Broadcast ESSID	Decide if the wireless access point will broadcast its own ESSID or not. You can hide the ESSID of your wireless access point (set the option to 'Disable'), so only people those who know the ESSID of your wireless access point can get connected.
WMM	WMM (Wi-Fi Multimedia) technology, which can improve the performance of certain network applications, like audio/video streaming, network telephony (VoIP), and others. When you enable WMM function, the access point will define the priority of different kinds of data, to give higher priority to applications which require instant responding. Therefore you can improve the performance of such network applications.
CTS Protect	Enabling this setting will reduce the chance of radio signal collisions between 802.11b and 802.11g wireless access points. It's recommended to set this option to 'Auto'.
TX Power	You can set the output power of wireless radio. Unless you're using this wireless access point in a really big space, you may not have to set output power to 100%. This will enhance security (malicious / unknown users in distance will not be able to reach your wireless access point).

After you finish with setting, please click 'Apply'.

2-8 WPS Setting (WL-331 only)

Wi-Fi Protected Setup (WPS) is the simplest way to build connection between wireless network clients and this access point. You don't have to select encryption mode and input a long encryption passphrase every time when you need to setup a wireless client, you only have to press a button on wireless client and this access point, and the WPS will do the setup for you.

This access point supports two types of WPS: Push-Button Configuration (PBC), and PIN code. If you want to use PBC, you have to switch this access point to WPS mode and push a specific button on the wireless client to start WPS mode. You can push Reset/WPS button of this access point, or click 'Start PBC' button in the web configuration interface to do this; if you want to use PIN code, you have to provide the PIN code of the wireless client you wish to connect to this access point and then switch the wireless client to WPS mode. The detailed instructions are listed follow:

Note: WPS function of this access point will not work for those wireless clients do not support WPS.

Note (2): The WPS function is only present in the WL-331 Access Point. The WL-330 Universal Repeater doesn't support WPS.

To use WPS function to set encrypted connection between this access point and WPS-enabled wireless client by WPS, click 'WPS Setting' on the left of web management menu, and the following information will be displayed:



Wi-Fi Protected Setup Information

WPS Current Status: Unconfigured

Self Pin Code: 00660518

SSID: Sitecom010203

Authentication Mode: Disable

Passphrase Key:

Device Configure

Mode: Registrar

WPS Via Push Button:

WPS via PIN:

Enable WPS	Check this box to enable or disable WPS function
Wi-Fi Protected Setup Information	<p>All information related to WPS will be displayed here, they're helpful when you're setting up connections by WPS.</p> <p>WPS Status: Displays WPS status. If data encryption settings of this access point has never been set, 'unConfigured' message will be displayed her. (see Section 2-7 for detailed information); if data encryption settings has been set before, 'Configured' message will be displayed here.</p> <p>Self PinCode: This is the WPS PIN code of this access point. This code is useful when you need to build wireless connection by WPS with other WPS-enabled wireless devices.</p>

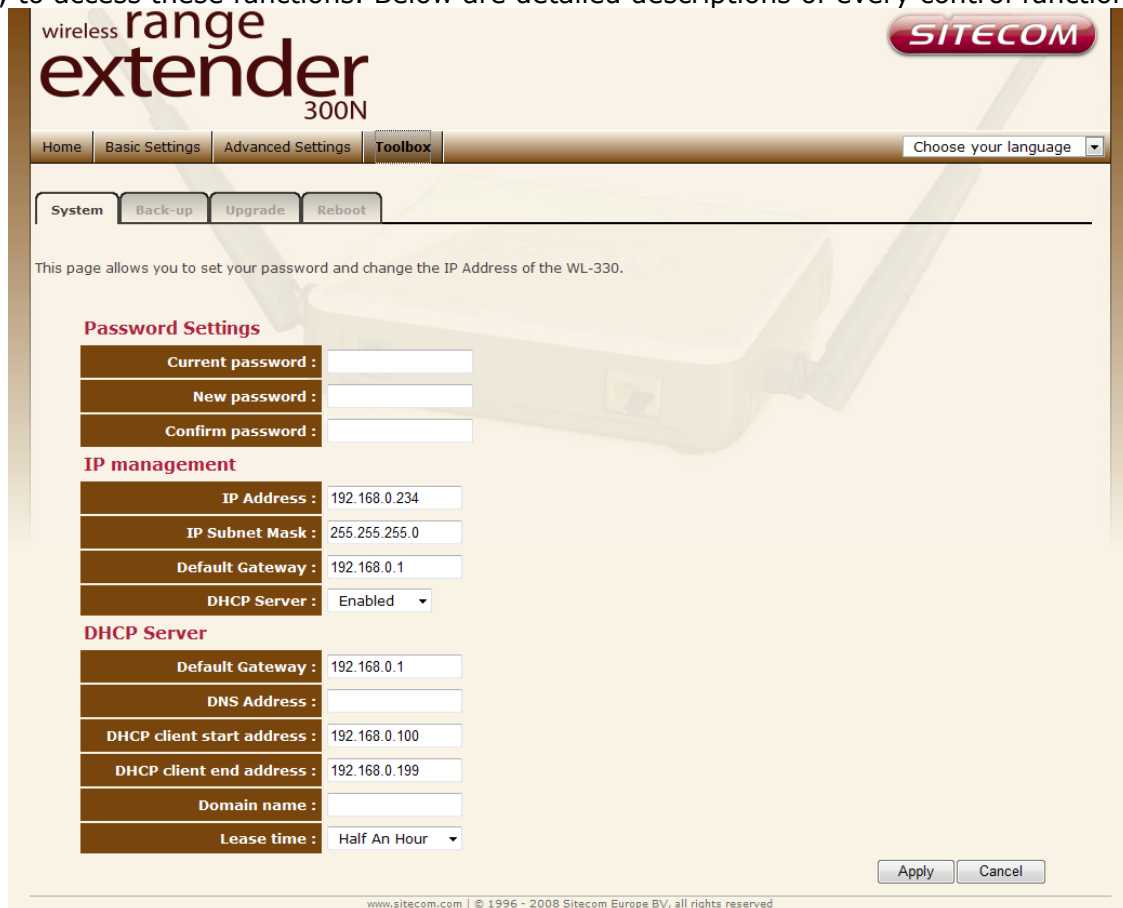
	<p>SSID: Displays the SSID (ESSID) of this access point.</p> <p>Authentication Mode: The wireless security authentication mode of this access point will be displayed here. If you don't enable security function of the access point before WPS is activated, the access point will auto set the security to WPA (AES) and generate a set of passphrase key for WPS connection.</p> <p>Passphrase Key: Displays the WPA passphrase here, all characters will be replaced by asterisk for security reason. If encryption is not set on this access point, nothing will be displayed here.</p>
Config Mode	<p>There are 'Registrar' and 'Enrollee' modes for the WPS connection. When 'Registrar' is enabled, the wireless clients will follow the access point's wireless settings for WPS connection. When 'Enrollee' mode is enabled, the access point will follow the wireless settings of wireless client for WPS connection.</p>
Start PBC	<p>Click 'Start PBC' to start Push-Button style WPS setup procedure. This access point will wait for WPS requests from wireless clients for 2 minutes. The 'WLAN' LED on the access point will be steady on for 2 minutes when this access point is waiting for incoming WPS request.</p>
Start PIN	<p>Please input the PIN code of the wireless client you wish to connect, and click 'Start PIN' button. The 'WLAN' LED on the access point will be steady on when this access point is waiting for incoming WPS request.</p>

NOTE: When you're using PBC type WPS setup, you must press 'PBC' button (hardware or software) of wireless client within 120 seconds; if you didn't press PBC button of wireless client within this time period, please press 'PBC' button (hardware or software) of this access point again.

Chapter III: Toolbox

3-1 System Utilities

This access point provides some control functions including password, IP address management, and DHCP server function. Please go to **Toolbox**, and open the **'System'** tab, to access these functions. Below are detailed descriptions of every control function.



3-1-1 Change Password

You can change the password used to enter the web configuration menu of this wireless access point.

Please input current password in 'Current Password' field, then input new password in both 'New Password' and 'Re-Enter Password' field. After you finish, please go to the bottom of this page and click 'Apply'

3-1-2 IP Address of the Wireless Access Point

You can change the IP address of this wireless access point, so it can become a part of your local network. Please remember this address or you will not be able to connect the configuration menu of this wireless access point.

Default IP address is: 192.168.0.234 / Subnet Mask 255.255.255.0, you can press and hold 'Reset/WPS' button over 10 seconds to change the IP address back to default value if you forget the IP address you set.

If you want to activate the DHCP server function of this wireless access point, please select '**Enabled**' in '**DHCP Server**' option, and see next Section for detailed instructions; if you don't want to use DHCP server function of this wireless access point, or there's another DHCP server on the network this access point connects to, please select '**Disable**'.

After you finish, please go to the bottom of this page and click 'Apply'.

3-1-3 DHCP Server

This wireless access point is capable to act as a DHCP server for your network, and it's enabled by default. If you want to deactivate this function, please open the '**System**' tab, via **Toolbox**.

Default Gateway IP	Please input the IP address of default gateway of your network here.
Domain Name Server IP	Please input the IP address of domain name server (DNS) here.
Start IP	Please input the start IP address of the IP range.
End IP	Please input the end IP address of the IP range.
Domain Name	If you wish, you can also optionally input the domain name for your network. This is optional.
Lease Time	Please choose a lease time (the duration that every computer can keep a specific IP address) of every IP address assigned by this access point from dropdown menu.

After you finish, please click 'Apply'.

3-2 Configuration Backup and Restore

You can backup all configurations of this access point to a file, so you can make several copied of access point configuration for security reason.

To backup or restore access point configuration, please follow the following instructions:

Please click 'Configuration Tool' on the left of web management interface, and the following message will be displayed on your web browser:



Backup Settings	Press 'Save...' button, and you'll be prompted to download the configuration as a file, default filename is 'config.bin', you can save it as another filename for different versions, and keep it in a safe place.
Restore Settings	Press 'Browse...' to pick a previously-saved configuration file from your computer, and then click 'Upload' to transfer the configuration file to access point. After the configuration is uploaded, the access point's configuration will be replaced by the file you just uploaded.
Restore to Factory Default	Click this button to remove all settings you made, and restore the configuration of this access point back to factory default settings.

3-3 Firmware Upgrade

If there are new firmware of this wireless access point available, you can upload the firmware to the access point to change the firmware with new one, to get extra functions or problem fixes.

To perform firmware upgrade, please click 'Upgrade', and the following page will be displayed:



The screenshot shows the web interface for a Sitecom wireless range extender 300N. The page has a header with the product name and the Sitecom logo. Below the header is a navigation menu with tabs for Home, Basic Settings, Advanced Settings, and Toolbox. A language selection dropdown is also present. The main content area features a sub-menu with tabs for System, Back-up, Upgrade, and Reboot. The Upgrade tab is active, displaying instructions: "This page allows you to upgrade the WL-330 firmware. It is recommended to upgrade the firmware from a wired PC." Below this text is a file selection interface consisting of a text input field, a "Browse..." button, and "Apply" and "Cancel" buttons. A faint image of the device is visible in the background. At the bottom, there is a copyright notice: "www.sitecom.com | © 1996 - 2008 Sitecom Europe BV, all rights reserved".

Click 'Browse' button first, you'll be prompted to provide the filename of firmware upgrade file. Please download the latest firmware file from our website, and use it to upgrade your access point.

After a firmware upgrade file is selected, click the '**Apply**' button, and the access point will start the firmware upgrade procedure automatically. The procedure may take several minutes, please be patient.

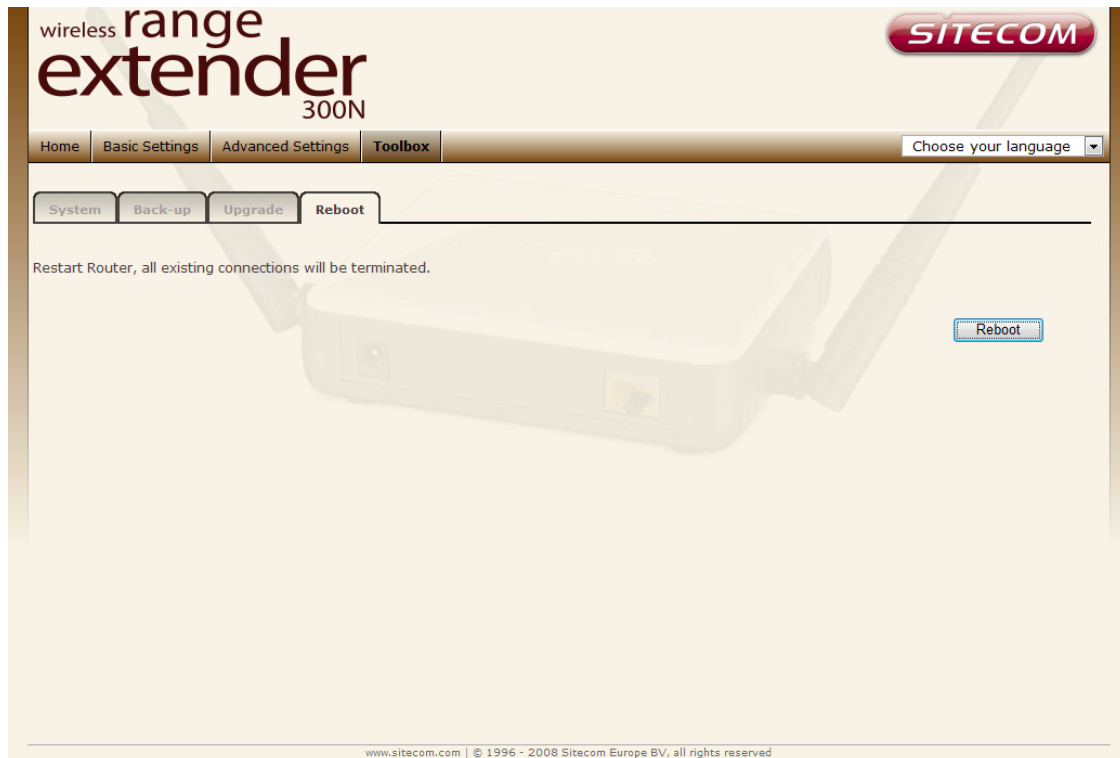
NOTE: Never interrupt the upgrade procedure by closing the web browser or physically disconnect your computer from the access point. If the firmware you uploaded is corrupt, the firmware upgrade will fail, and you may have to return this access point to the dealer of purchase to ask for help. (Warranty voids if you interrupted the upgrade procedure).

3-4 System Reset

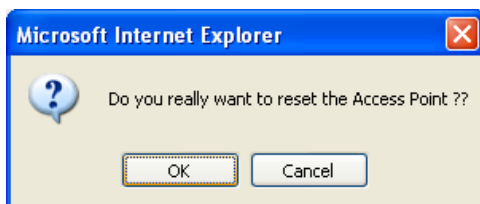
When you think the access point is not working properly, you can use this function to restart the access point; this may help and solve the problem.

This function is useful when the access point is far from you or unreachable. However, if the access point is not responding, you may have to switch it off by unplugging the power plug and plug it back again after 10 seconds.

To reset your access point, please click '**Reset**' on the left, and the following message will be displayed:



Please click '**Apply**', and a popup message will ask you again, to make sure you really want to reset the access point:



Click '**OK**' to reset the access point, or click '**Cancel**' to abort. Please remember all connections between wireless client and this access point will be disconnected.