

PeP[®] wave

PePWave Surf Series

PePWave Surf Indoor Series:
Surf 200, AP 200, AP 400

PePWave Surf Outdoor Series:
Surf AP 200/400-X, PolePoint 400-X, Surf 400-DX

User Manual

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1 Copyright

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3 Product Description

PePWave Surf is a feature-rich Wi-Fi CPE with WPA, WPA2 and 802.1x supplicant support. It is designed to act as a Wireless router and connects LAN users with a Wireless Broadband Internet Service (such as Citywide Wi-Fi).

It associates to a service provider and authenticates using 802.1x (if needed) on start up. Upon successful association and authentication, it will acquire an IP address from the service provider using DHCP. A DHCP server is built-in on its LAN port. Network Address Translation is performed for all outbound connections. Thus it supports multiple terminals to access the Internet simultaneously.

3.1 Features

- 10/100 Ethernet interface with auto-crossover detection
- Reset button for restoring settings to factory defaults
- Signal strength LED for showing the current signal strength (PePWave indoor serials only)
- WPA/WPA2-Personal and WPA/WPA2-Enterprise support
- Network Address Translation (NAT) routing
- Built-in DHCP server
- Inbound port range forwarding
- Integrated Wi-Fi Access Point (Surf AP indoor and outdoor only)



Surf 200, AP 200, AP 400



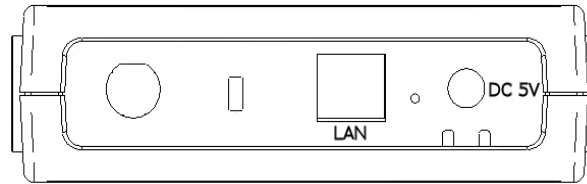
Surf AP 200/400-X, PolePoint 400-X



Surf 400-DX

3.2 Hardware Setup

3.2.1 Surf Indoor Series



1. Attach the provided antenna to the left most antenna connector
2. Connect the LAN port to the computer’s Ethernet port with an Ethernet cable.
3. Connect the end of the included power adapter to the power socket (labeled “DC 5V”) on PePWave Surf.
4. Power on the power adaptor.

3.2.1 Surf Outdoor Series

Please follow the installation guide to set up AP 200/400-X, PolePoint 400-X, Surf 400-DX

3.3 LED Description

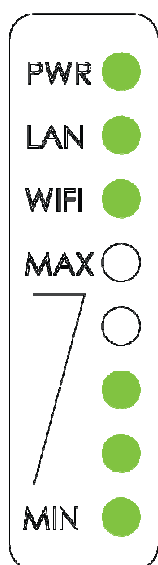
3.3.1 Surf Indoor Series



LED	Color	Status	Description	
Power	Green	On	Power is on	
		Off	Power is off	
Status	Green	Solid	Received signal is Excellent, Very Good and Good	
		Blinking	Received signal is Low	
		Amber	Blinking	Received signal is Very Low
		Amber	Solid	No wireless signal is detected
		Off	Booting up / Upgrading firmware	
LAN	Green	On	Ethernet is connected	
		Blinking	Sending/Receiving data	
		Off	Ethernet is not connected	

LED	Color	Status	Description
Wi-Fi	Green	On	Associated with an access point
	Green	Blinking	Sending/Receiving data
		Off	Not associated with any access point
Signal Bars	Green	N/A	The number of lit signal bars depends on the strength of the received signal. A larger number of lit signal bars indicate stronger signals.

3.3.2 Surf DX Series LED Description

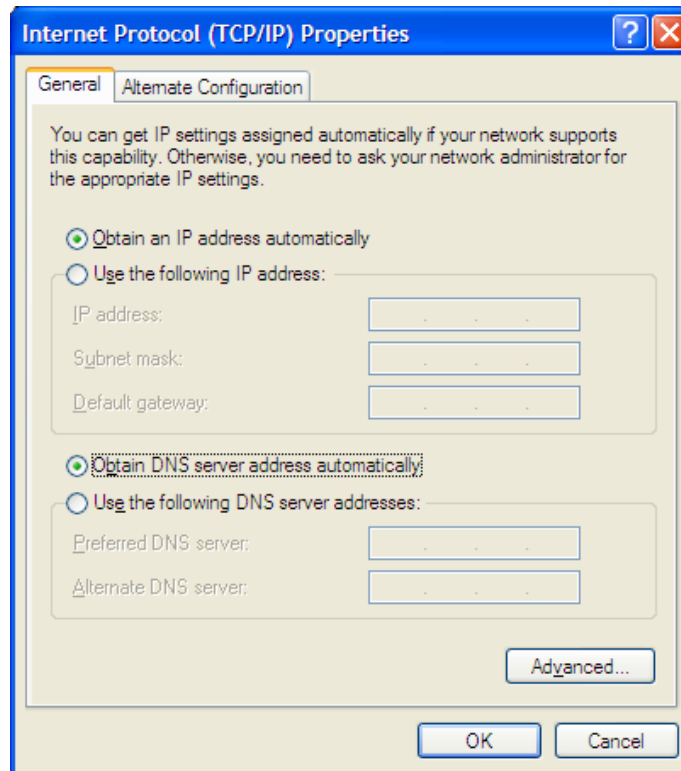


LED	Color	Status	Description
PWR	Green	On	Power is on
		Off	Power is off
LAN	Green	On	Ethernet is connected
		Off	Ethernet is not connected
Wi-Fi	Green	On	Associated with an access point. The number of LED lights from "MIN" to "MAX" indicates the received signal strength level.
		Off	Not associated with any access point

4 Using the PePWave Surf

You should set up your computer's LAN interface to obtain an IP address automatically. If you do so, you should have set it up correctly.

In order to do so, select the "Start" menu, "Control Panel" and then "Network Connections". Right click on the "Local Area Connection" icon, choose "Properties", double-click on the item "Internet Protocol (TCP/IP)" from the list. On the screen, just set it as follows:



Click the "OK" button to confirm the change.

4.1 First Time Setup

On your PC, start a web browser, e.g. Internet Explorer, Mozilla Firefox, etc. Visit an Internet web site. If you are not associated to an access point, you should be redirected to a logon page. Or you can also go to this URL

<http://192.168.20.1/>

The page will look like this.



Click the "Advanced Config" button to enter the parameters of the access point to associate to. You should see this screen:

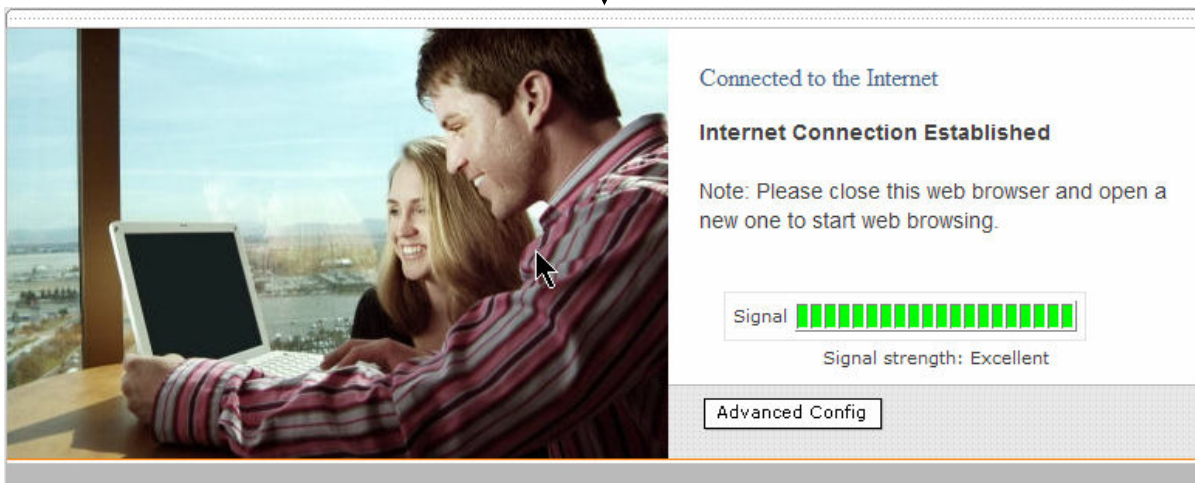
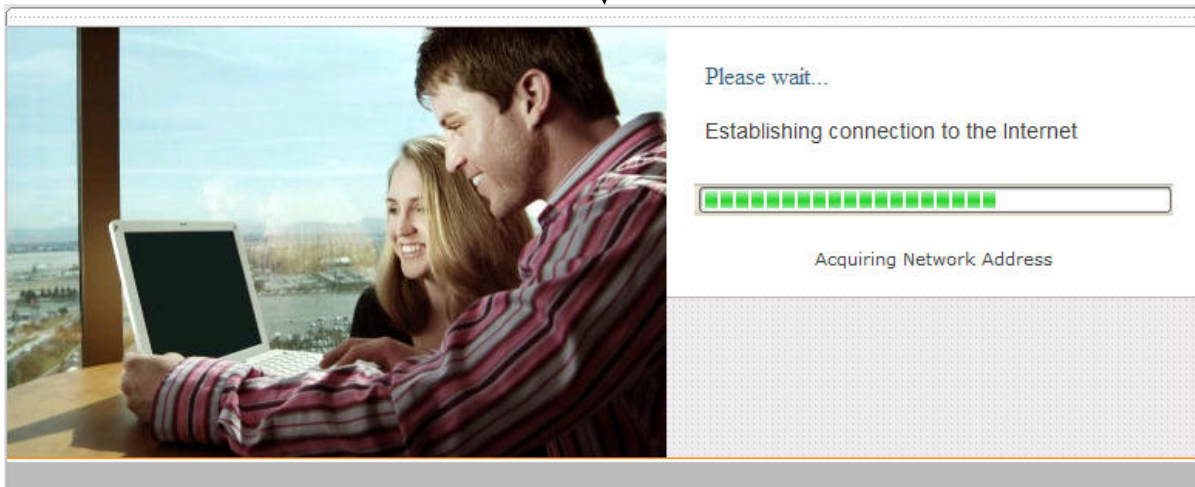
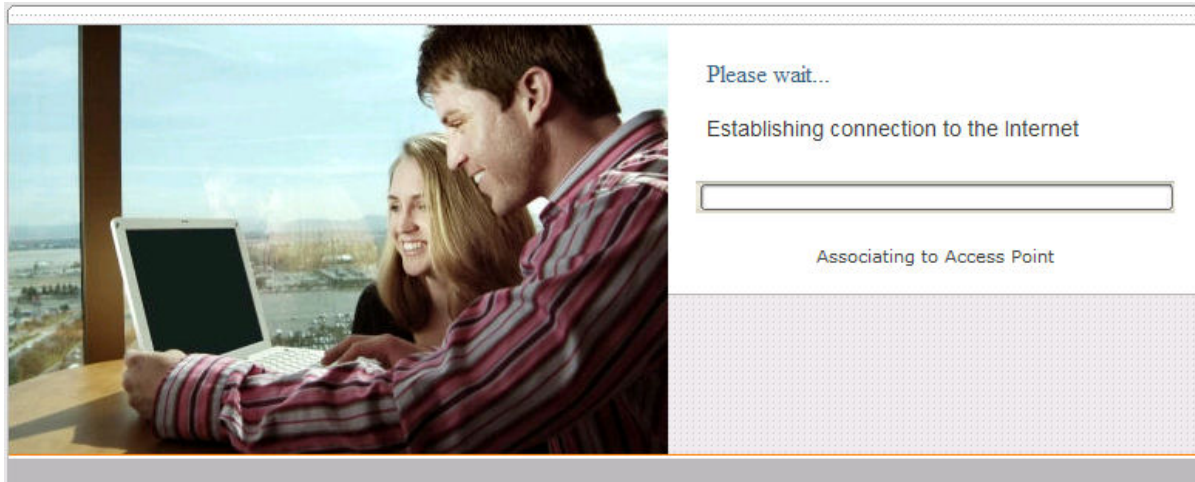
Section	Field	Value
LAN Interface	IP Address	192.168.20.1
	Subnet mask	255.255.255.0
DHCP Server	<input checked="" type="radio"/> Enable	
	Start IP address	192.168.20.10
	Stop IP address	192.168.20.250
	Subnet mask	255.255.255.0
Wireless Settings	<input type="radio"/> Disable	
	SSID	MySSID (MySSID)
	Radio Mode	802.11b/g
	Channel Scanning Mode	Full
	Bit Rate	auto Mbps (auto)
	Authentication	Open (open)
	Encryption Key	None
IP Settings	<input type="radio"/> Configure Manually	
	<input checked="" type="radio"/> Obtain an IP Address automatically	
MTU Size	1500	
AP Settings	<input checked="" type="radio"/> Disable	
	<input type="radio"/> Configure Manually	
	<input type="radio"/> Configure Automatically	
WAI Redirection	<input checked="" type="radio"/> Enable <input type="radio"/> Disable <small>(Note: you need to reboot CPE for this change to take effect)</small>	
Web Password Protection	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
Web Password Protection	Password: admin (admin) <small>(Note: login name is "root")</small>	
Restore Factory Settings	Restore & Reboot	
Reboot CPE	Reboot	
		Save

In the field "SSID" under Wireless Settings, input the access point's SSID (sometimes it is called the "network name"). According to the setting of the Access Point you are associating to, you may choose a different "Authentication setting".

If "Static WEP key" or "WPA/WPA2-Personal" is selected for Authentication, input the Encryption Key field as well. (There are also options of "802.1x with dynamic WEP key" and "WPA/WPA2-Enterprise". You do not need to use these settings unless instructed to do so by your ISP.)

Click the "Save" button at the bottom to complete.

You can now click the "Connect" link on the top bar and then click the "Connect" button to associate with the access point.



At this point, you are associated with the access point. You may now close the web browser and open a new one to start web browsing.

4.2 Settings Details

LAN interface	IP Address	192.168.20.1
	Subnet mask	255.255.255.0
DHCP server	<input checked="" type="radio"/> Enable	
	Start IP address	192.168.20.10
	Stop IP address	192.168.20.250
	Subnet mask	255.255.255.0
	<input type="radio"/> Disable	

LAN Interface: To configure the LAN interface's IP address and subnet mask.

DHCP Server: To configure and enable the built-in DHCP server or not. If enabled, the IP address range can be configured.

Wireless settings	SSID	MySSID (MySSID)
	Radio Mode	802.11b/g
	Bit Rate	auto Mbps (auto)
	Authentication	WPA/WPA2-Personal
	Encryption Key	Open Static WEP Key 802.1x with dynamic WEP key WPA/WPA2-Enterprise WPA/WPA2-Personal
	Preferred AP	(e.g. 00110C101400) Min Signal Strength <input type="text"/> dBm (e.g. -75)

Wireless Settings:

SSID: To configure the SSID / ESSID / Network Name of the wireless network to associate to.

Radio Mode: It allows the user to choose between radio modulations support. E.g. 802.11b/g, 802.11g only, 802.11b, etc. The available settings depend on the Wi-Fi module installed on the device.

Bit Rate: To fix the 802.11 transmit bit rate. Available options depend on the Radio Mode chosen. If "auto" is chosen, the device will choose the best bit rate dynamically and automatically.

Authentication: Available options are Open, Static WEP Key, 802.1x with dynamic WEP key, WPA/WPA2-Enterprise and WPA/WPA2-Personal. The selection should be according to the setting of the access point you are associating to. Data transferred are encrypted under all modes except in Open mode. When Static WEP Key or WPA/WPA2-Personal is chosen, you should enter an encryption key in the Encryption Key field. (You do not need to use 802.1x and WPA/WPA2-Enterprise unless instructed to do so by your ISP.)

Preferred AP: The MAC address of a preferred access point can be entered here. When the preferred access point is found and its signal strength is higher than the "Min Signal Strength", it will connect to this preferred access point, no matter the other access points are found even they have higher signal strength or the same SSID.

IP Settings	<input checked="" type="radio"/> Configure Manually	
	IP Address	<input type="text" value="0.0.0.0"/>
	Subnet Mask	<input type="text" value="0.0.0.0"/>
	Default Gateway	<input type="text" value="0.0.0.0"/>
	Preferred DNS Server	<input type="text" value="0.0.0.0"/>
	Alternate DNS Server	<input type="text" value="0.0.0.0"/>
	<input type="radio"/> Obtain an IP Address automatically	
MTU Size		<input type="text" value="1500"/>

IP Settings: The IP address can be obtained automatically or configured manually. If you choose to manually configure the IP address for your unit, enter the fields "IP Address", "Subnet Mask", "Default Gateway", "Preferred DNS Server" and "Alternate DNS Server".

MTU Size: You may also set the MTU Size to increase the data packet size your Surf can handle at one time.

AP Settings: These settings apply only to the PePWave Surf AP model, and configure the properties of the Integrated Wi-Fi Access Point. The AP Settings will be covered in detail in the subsequent section **Integrated Wi-Fi Access Point Configuration**.

WAI redirection	<input checked="" type="radio"/> Enable <input type="radio"/> Disable <small>(Note: you need to reboot CPE for this change to take effect)</small>
Restore factory settings	<input type="button" value="Restore & Reboot"/>
Reboot CPE	<input type="button" value="Reboot"/>
<input type="button" value="Save"/>	

WAI redirection: If the device is not connected to an access point, and the user is accessing an Internet web site, the settings control whether to redirect the web access to the web admin interface page or not. If this is disabled and the device is not connected, the browser will show a web access error message. The user can still access the web admin interface by accessing to the device's LAN IP address. By default, the LAN IP address is set as http://192.168.20.1 .

Web Password Protection: Sets the password to protect the web user interface.

Restore default settings: To restore the device to default settings. When this option is clicked, default settings will be restored and the unit will be restarted.

Reboot: To restart the device.

4.3 Integrated Wi-Fi Access Point Configuration

Integrated Wi-Fi Access Point is configured via the **CPE Setup** tab. The following sections will provide information as a guide through the configuration. This session is not applicable for PePWave Surf DX series.

4.3.1 Available Access Point Settings

The available Access Point (AP) settings for the Integrated Wi-Fi Access Point functionality are as follows:

- **Disable**
Integrated Home Wi-Fi Access Point functionality is disabled
- **Configure Manually**
Manual configuration of the SSID, Authentication, and Encryption Key values corresponding to the Access Point.
- **Configure Automatically**
The SSID, Authentication, and Encryption Key values corresponding to the Access Point are automatically configured to be the same as the respective values that correspond to Citywide Wi-Fi.

4.3.2 Access Point Disabled

[Connect](#) | [CPE Setup](#) | [Port Forward](#) | [Firmware Upgrade](#) | [Debug](#)

LAN Interface	IP Address	<input type="text" value="192.168.20.1"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
DHCP Server	<input checked="" type="radio"/> Enable	
	Start IP address	<input type="text" value="192.168.20.10"/>
	Stop IP address	<input type="text" value="192.168.20.250"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
	<input type="radio"/> Disable	
Wireless Settings	SSID	<input type="text" value="MySSID"/> (MySSID)
	Radio Mode	<input type="text" value="802.11b/g"/>
	Channel Scanning Mode	<input type="text" value="Full"/>
	Bit Rate	<input type="text" value="auto"/> Mbps (auto)
	Authentication	<input type="text" value="Open"/> (open)
	Encryption Key	None
	Preferred AP	MAC <input type="text"/> (e.g. 00116E1014A0) Min Signal Strength <input type="text"/> dBm (e.g. -75)
IP Settings	<input type="radio"/> Configure Manually	
	<input checked="" type="radio"/> Obtain an IP Address automatically	
MTU Size		<input type="text" value="1500"/>
AP Settings	<input checked="" type="radio"/> Disable	
	<input type="radio"/> Configure Manually	
	<input type="radio"/> Configure Automatically	
WAI Redirection	<input checked="" type="radio"/> Enable <input type="radio"/> Disable (Note: you need to reboot CPE for this change to take effect)	
Web Password Protection	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
	Password	<input type="text" value="admin"/> (admin) (Note: login name is "root")
Restore Factory Settings	<input type="button" value="Restore & Reboot"/>	
Reboot CPE	<input type="button" value="Reboot"/>	
<input type="button" value="Save"/>		

Access Point Disabled, as shown with the red marker box

4.3.3 Manual Access Point configuration

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LAN Interface	IP Address	<input type="text" value="192.168.20.1"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
DHCP Server	<input checked="" type="radio"/> Enable	
	Start IP address	<input type="text" value="192.168.20.10"/>
	Stop IP address	<input type="text" value="192.168.20.250"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
	<input type="radio"/> Disable	
Wireless Settings	SSID	<input type="text" value="MySSID"/> (MySSID)
	Radio Mode	<input type="text" value="802.11b/g"/>
	Channel Scanning Mode	<input type="text" value="Full"/>
	Bit Rate	<input type="text" value="auto"/> Mbps (auto)
	Authentication	<input type="text" value="Open"/> (open)
	Encryption Key	None
	Preferred AP	MAC <input type="text"/> (e.g. 00116E1014A0) Min Signal Strength <input type="text"/> dBm (e.g. -75)
IP Settings	<input type="radio"/> Configure Manually	
	<input checked="" type="radio"/> Obtain an IP Address automatically	
MTU Size		<input type="text" value="1500"/>
AP Settings	<input type="radio"/> Disable	
	<input checked="" type="radio"/> Configure Manually	
	AP SSID	<input type="text" value="MySSID@home"/> (MySSID@home)
	Authentication	<input type="text" value="Open"/> (open)
	Encryption Key	None
	Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
	<input type="radio"/> Configure Automatically	
WAI Redirection	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	(Note: you need to reboot CPE for this change to take effect)
Web Password Protection	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
	Password	<input type="text" value="admin"/> (admin) (Note: login name is "root")
Restore Factory Settings	<input type="button" value="Restore & Reboot"/>	
Reboot CPE	<input type="button" value="Reboot"/>	
<input type="button" value="Save"/>		

Manual Access Point Configuration, as shown with the red marker box

In Manual Configuration mode, the **SSID** is manually entered.

Authentication can be one of three configurable values:

- **Open**

For **Open** Authentication Mode, no Encryption Key is necessary.

- **Static WEP Key**

For **Static WEP Key** Authentication Mode, a 64- or 128-bit Encryption Key is required, and can be entered in either an ASCII or HEX representation.

AP Settings	<input type="radio"/> Disable	
	<input checked="" type="radio"/> Configure Manually	
	AP SSID	MySSID@home (MySSID@home)
	Authentication	Static WEP Key (open)
	Encryption Key	empty (empty) ASCII: 5 characters for 64-bit, 13 characters for 128-bit HEX: 10 characters for 64-bit, 26 characters for 128-bit [0-F]
	Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
	<input type="radio"/> Configure Automatically	

Static WEP Key Authentication Configuration

- **WPA/WPA2-Personal**

For **WPA/WPA2-Personal** Authentication Mode, an Encryption Key, of at least 8 characters, is required.

AP Settings	<input type="radio"/> Disable	
	<input checked="" type="radio"/> Configure Manually	
	AP SSID	MySSID@home (MySSID@home)
	Authentication	WPA/WPA2-Personal (open)
	Encryption Key	emptykey (empty) (at least 8 characters)
	Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
	<input type="radio"/> Configure Automatically	

WPA/WPA2-Personal Authentication Configuration

Broadcast SSID can be one of two configurable values:

- **Enable**

The configured SSID will be broadcast such that it can be detected by an SSID scan.

- **Disable**

The configured SSID will not be broadcast such that it cannot be detected by an SSID scan. In order to connect with the access point, the SSID needs to be known by the client.

A.1.1 Automatic Access Point Configuration

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LAN Interface	IP Address	<input type="text" value="192.168.20.1"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
DHCP Server	<input checked="" type="radio"/> Enable	
	Start IP address	<input type="text" value="192.168.20.10"/>
	Stop IP address	<input type="text" value="192.168.20.250"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
	<input type="radio"/> Disable	
Wireless Settings	SSID	<input type="text" value="MySSID"/> (MySSID)
	Radio Mode	<input type="text" value="802.11b/g"/>
	Channel Scanning Mode	<input type="text" value="Full"/>
	Bit Rate	<input type="text" value="auto"/> Mbps (auto)
	Authentication	<input type="text" value="Open"/> (open)
	Encryption Key	None
	Preferred AP	MAC <input type="text" value=""/> (e.g. 00116E1014A0) Min Signal Strength <input type="text" value=""/> dBm (e.g. -75)
IP Settings	<input type="radio"/> Configure Manually	
	<input checked="" type="radio"/> Obtain an IP Address automatically	
MTU Size		<input type="text" value="1500"/>
AP Settings	<input type="radio"/> Disable	
	<input type="radio"/> Configure Manually	
	<input checked="" type="radio"/> Configure Automatically	
WAI Redirection	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	(Note: you need to reboot CPE for this change to take effect)
Web Password Protection	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
	Password	<input type="text" value="admin"/> (admin) (Note: login name is "root")
Restore Factory Settings	<input type="button" value="Restore & Reboot"/>	
Reboot CPE	<input type="button" value="Reboot"/>	
<input type="button" value="Save"/>		

Auto. Access Point Configuration, as shown with the red marker box

With the Access Point Configuration set to **Configure Automatically**, the **SSID**, **Authentication**, and **Encryption Key** values of the Integrated Home Wi-Fi Access Point will be configured to be the same as in the **Wireless Settings** section.

This configuration mode is effectively equivalent to directly connecting 802.11b/g devices on the customers' premises with Citywide Wi-Fi.

Important Note:

In the **Wireless Settings** section, if **Authentication** is set to either **802.1x with dynamic WEP key** or **WPA/WPA2-Enterprise**, then the **Configure Automatically** option of the Access Point Configuration becomes unavailable, because the Integrated Home Wi-Fi Access Point functionality currently does not support authentication via the 802.1x with dynamic WEP key and WPA/WPA2-Enterprise methods.

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LAN Interface	IP Address	<input type="text" value="192.168.20.1"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
DHCP Server	<input checked="" type="radio"/> Enable	
	Start IP address	<input type="text" value="192.168.20.10"/>
	Stop IP address	<input type="text" value="192.168.20.250"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
	<input type="radio"/> Disable	
Wireless Settings	SSID	<input type="text" value="MySSID"/> (MySSID)
	Radio Mode	<input type="text" value="802.11b/g"/>
	Channel Scanning Mode	<input type="text" value="Full"/>
	Bit Rate	<input type="text" value="auto"/> Mbps (auto)
	Authentication	<input type="text" value="802.1x with dynamic WEP key"/> (open)
	Encryption Key	Automatic
	Preferred AP	<input type="text" value="MAC"/> (e.g. 00116E1014A0) Min Signal Strength <input type="text" value=""/> dBm (e.g. -75)
IP Settings	<input type="radio"/> Configure Manually	
	<input checked="" type="radio"/> Obtain an IP Address automatically	
MTU Size	<input type="text" value="1500"/>	
AP Settings	<input type="radio"/> Disable	
	<input checked="" type="radio"/> Configure Manually	
	AP SSID	<input type="text" value="MySSID@home"/> (MySSID@home)
	Authentication	<input type="text" value="Open"/> (open)
	Encryption Key	None
	Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
	<input type="radio"/> Configure Automatically	
WAI Redirection	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	(Note: you need to reboot CPE for this change to take effect)
Web Password Protection	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
	Password	<input type="text" value="admin"/> (admin) (Note: login name is "root")
Restore Factory Settings	<input type="button" value="Restore & Reboot"/>	
Reboot CPE	<input type="button" value="Reboot"/>	
<input type="button" value="Save"/>		

Automatic Access Point Configuration is unavailable with 802.1 with Dynamic WEP Key Authentication

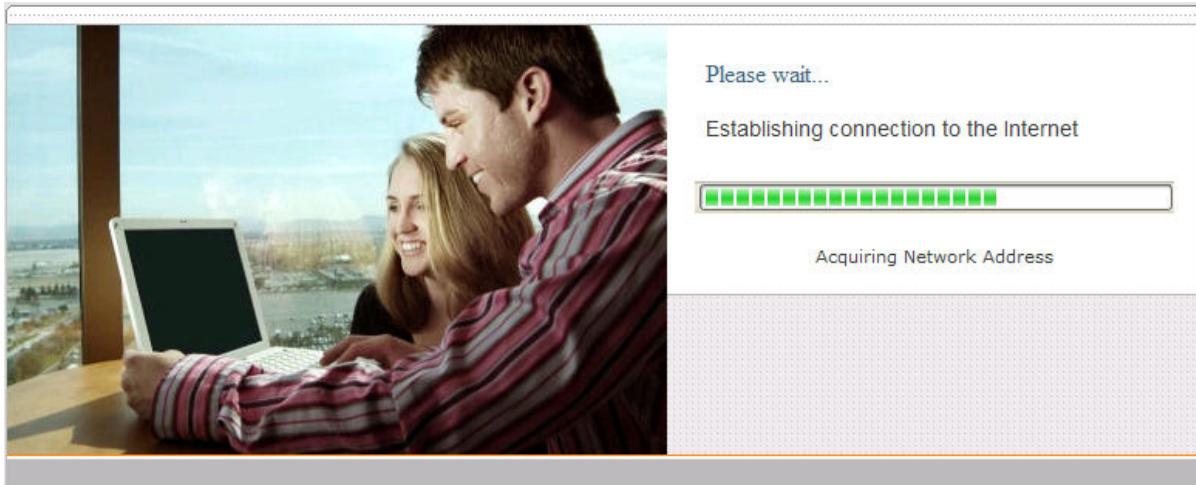
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LAN Interface	IP Address	<input type="text" value="192.168.20.1"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
DHCP Server	<input checked="" type="radio"/> Enable	
	Start IP address	<input type="text" value="192.168.20.10"/>
	Stop IP address	<input type="text" value="192.168.20.250"/>
	Subnet mask	<input type="text" value="255.255.255.0"/>
	<input type="radio"/> Disable	
Wireless Settings	SSID	<input type="text" value="MySSID"/> (MySSID)
	Radio Mode	<input type="text" value="802.11b/g"/>
	Channel Scanning Mode	<input type="text" value="Full"/>
	Bit Rate	<input type="text" value="auto"/> Mbps (auto)
	Authentication	<input type="text" value="WPA/WPA2-Enterprise (open)"/>
	Encryption Key	Automatic
	Preferred AP	<input type="text" value="MAC"/> (e.g. 00116E1014A0) Min Signal Strength <input type="text"/> dBm (e.g. -75)
IP Settings	<input type="radio"/> Configure Manually	
	<input checked="" type="radio"/> Obtain an IP Address automatically	
MTU Size		<input type="text" value="1500"/>
AP Settings	<input type="radio"/> Disable	
	<input checked="" type="radio"/> Configure Manually	
	AP SSID	<input type="text" value="MySSID@home"/> (MySSID@home)
	Authentication	<input type="text" value="Open"/> (open)
	Encryption Key	None
	Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
	<input type="radio"/> Configure Automatically	
WAI Redirection	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	(Note: you need to reboot CPE for this change to take effect)
Web Password Protection	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
	Password	<input type="text" value="admin"/> (admin) (Note: login name is "root")
Restore Factory Settings	<input type="button" value="Restore & Reboot"/>	
Reboot CPE	<input type="button" value="Reboot"/>	
<input type="button" value="Save"/>		

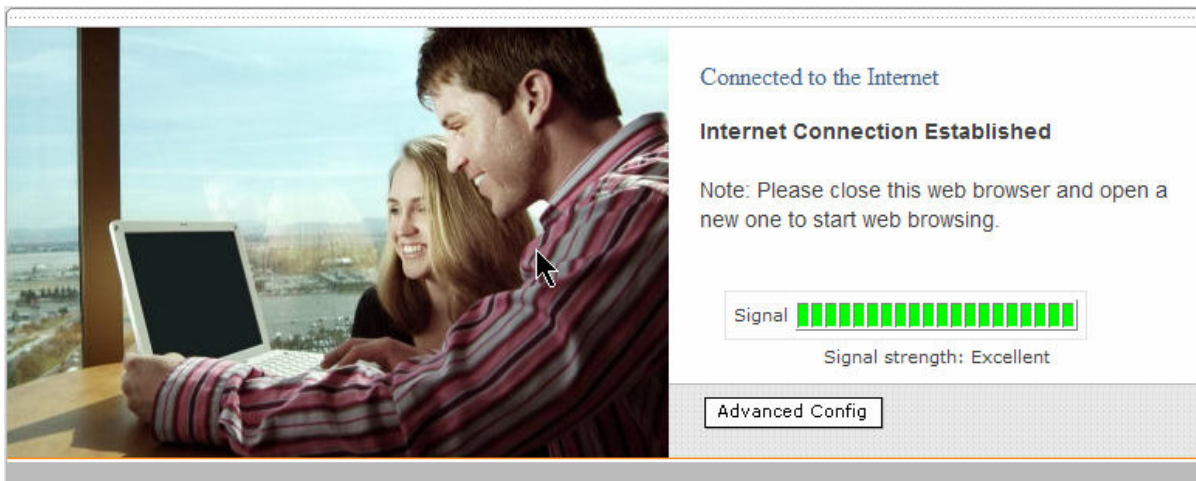
Automatic Access Point Configuration is unavailable with WPA/WPA1-Enterprise Authentication

4.4 Test the Setup

To test to setup, you can now go to the PePWave Surf's Main page, enter the user name and password. The realm (the text box next to the "@" sign) value can be left empty. Then click the Connect button.



After connected, you should see:



4.5 Firmware Upgrade

The PePWave Surf is able to check whether a newer firmware (the software running on the PePWave Surf) is available. This can be done in the Firmware Upgrade section.

However, it is recommended that you do not update the firmware unless specifically instructed by your ISP to do so. When a firmware upgrade is needed, your ISP will either give you instructions or upgrade the firmware remotely.

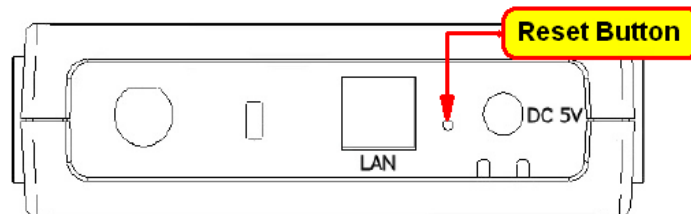
4.6 Restore to Default Settings

4.6.1 Surf Indoor Series

There are two ways to restore the PePWave Surf to default settings.

If you are able to access the web admin interface, go to the "CPE Setup" page, and click the "Restore and Reboot" button.

Otherwise, you can also power up the unit and wait for about 1 min. Then press the Reset button at the rear side of the unit using a pin and then hold it for 5 seconds. The unit will restore the settings to factory default and reboot.



4.6.2 Surf DX Series

There are two ways to restore the PePWave Surf DX to default settings.

If you are able to access the web admin interface, go to the "CPE Setup" page, and click the "Restore and Reboot" button.

Otherwise, you can also power up the Surf DX unit and wait for about 1 min. Then push the Reset button at the bottom side of the unit and then hold it for 5 seconds. The unit will restore the settings to factory default and reboot.



Appendix:

Federal Communication Commission 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 and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- 1) Reorient or relocate the receiving antenna.
- 2) Increase the separation between the equipment and receiver.
- 3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- 4) Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

SUPPORT

Email: support@pepwave.com

SALES

Email: sales@pepwave.com

BUSINESS DEVELOPMENT AND PARTNERS

Email: partners@pepwave.com

CORPORATE ADDRESS & PHONE

www.pepwave.com

US Address:

PePWave Ltd.
800 West
El Camino Real
Mountain View
CA 94040
United States

Tel: +1-650-331-0641

Fax: +1-866-625-4664

Hong Kong Address:

PePWave Ltd.
17/F, Park Building
476 Castle Peak Road
Cheung Sha Wan
Hong Kong

Tel: +852-2786-9228

Fax: +852-3007-0588