pakedgedevice&software inc.

W7x - Wireless Access Point Family
W7, W7R, W7C

ENTERPRISE-CLASS, ULTRA HIGH POWER, CONCURRENT DUAL BAND WIRELESS-N ACCESS POINT- High Capacity, Stand-Alone and Controller Based Ready

User Guide – Version S

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:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into 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.

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.

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.

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

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

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.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

- EN60950-1
- Safety of Information Technology Equipment

- EN50385
- Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)

- EN 300 328
- Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

EN 301 893

Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive

EN 301 489-1

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

- EN 301 489-17
- Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

This device is a 5GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 – 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.

CE0560①

[cs] Česky [Czech]	*[Jméno výrobce]* tímto prohlašuje, že tento *[typ zařízení]* je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
[da] Dansk [Danish]	Undertegnede *[fabrikantens navn]* erklærer herved, at følgende udstyr *[udstyrets typebetegnelse]* overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
[de] Deutsch [German]	Hiermit erklärt *[Name des Herstellers]*, dass sich das Gerät *[Gerätetyp]* in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
[et] Eesti [Estonian]	Käesolevaga kinnitab *[tootja nimi = name of manufacturer]* seadme *[seadme tüüp = type of equipment]* vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
[en] English	Hereby, *[name of manufacturer]*, declares that this *[type of equipment]* is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
[es] Español [Spanish]	Por medio de la presente *[nombre del fabricante]* declara que el *[clase de equipo]* cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
[el] Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ *[name of manufacturer]* ΔΗΛΩΝΕΙ ΟΤΙ *[type of equipment]* ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
[fr] Français [French]	Par la présente *[nom du fabricant]* déclare que l'appareil *[type d'appareil]* est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
[it] Italiano [Italian]	Con la presente *[nome del costruttore]* dichiara che questo *[tipo di apparecchio]* è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo *[name of manufacturer / izgatavotāja nosaukums]* deklarē, ka *[type of equipment / iekārtas tips]* atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo *[manufacturer name]* deklaruoja, kad šis *[equipment type]* atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
[nl] Nederlands [Dutch]	Hierbij verklaart *[naam van de fabrikant]* dat het toestel *[type van toestel]* in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
[mt] Malti [Maltese]	Hawnhekk, *[isem tal-manifattur]*, jiddikjara li dan *[il-mudel tal-prodott]* jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
[hu] Magyar	Alulírott, *[gyártó neve]* nyilatkozom, hogy a *[... típus]* megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb

[Hungarian]	előírásainak.
Polski [Polish]	Niniejszym *[nazwa producenta]* oświadcza, że *[nazwa wyrobu]* jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]	*[Nome do fabricante]* declara que este *[tipo de equipamento]* está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovensko [Slovenian]	*[Ime proizvajalca]* izjavlja, da je ta *[tip opreme]* v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	*[Meno výrobcu]* týmto vyhlasuje, že *[typ zariadenia]* spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	*[Valmistaja = manufacturer]* vakuuttaa täten että *[type of equipment = laitteen tyyppimerkintä]* tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar *[företag]* att denna *[utrustningstyp]* står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

TABLE OF CONTENTS

INTRODUCTION

Thank you for purchasing the Pakedge W7x Concurrent Dual Band Wireless Access Point - the best Concurrent Dual Band Wireless Access Point for your wireless network.

As the central component of your wireless network, the W7x can connect multiple computers, allowing you to share files, audio, video, printers, a high-speed Internet connection, and other resources. You can easily connect devices that have a wireless adapter to the W7x to create a secure, high-speed link between your computers, PDAs, and other electronics; And with the W7x being able to broadcast both 2.4GHz and 5GHz signals simultaneously, 5GHz capable wireless devices are now free to choose the best signal with the least noise and interference, improving the overall stability, reliability and performance of the wireless network.

Each band (either 2.4GHz or 5GHz) of the W7x can operate in any one of three modes:

- *Access Point Mode*: This is the typical configuration for most Wi-Fi networks. In this mode, the W7x broadcasts two Wi-Fi signals (2.4 GHz and 5GHz) that clients can associate with, as shown in the figure below.

Wireless Access Point Mode

- *Client Bridge Mode*: In this mode, you can connect one W7x to a client by its Ethernet port, as shown below. In Client Bridge Mode, the W7x can receive a wireless signal from an Access Point and send the

signal through its Ethernet port to a client. This mode is used when you need to have network connectivity to hard wired device(s) but are unable to run cable to them.

Client Bridge Mode

- *Repeater Mode:* In this mode, the W7x will receive a wireless signal from another AP and then repeat it. This mode is useful in a situation where you need to extend the wireless coverage but are unable to run cable to the W7x from the network.
  NOTE: Setting the W7x in repeater mode will sacrifice half of the bandwidth available from the primary access point for devices wirelessly connected to the repeater.

Repeater Mode

Because the functionality of the W7x changes depending on its operating mode, this manual offers both general and mode-specific content.

PACKAGE CONTENTS

- Package contents depend on your W7x model. Please refer to the installation manual of your product.

SYSTEM REQUIREMENTS

The minimum system requirements for the W7x are:

- PC-compatible computer with an Ethernet interface

- Operating system that supports an HTTP Web browser

NETWORK CONFIGURATION

To help you understand how the W7x works with other LAN products to create a wireless network, we will describe several possible wireless network configurations.

The wireless LAN products can be configured as:

- An ad-hoc (peer-to-peer) network for departmental or a small office/home office (SOHO) network
- Infrastructure for enterprise LANs

AD-HOC (PEER-TO-PEER MODE)

This is the simplest network configuration with several computers equipped with PC Cards that form a wireless network whenever they are within range of one another. In ad-hoc mode, each client is peer-to-peer and only has access to the resources of the other client and does not require an access point. This is the easiest and least expensive way for the SOHO to set up a wireless network. The image below depicts a network in ad-hoc mode.
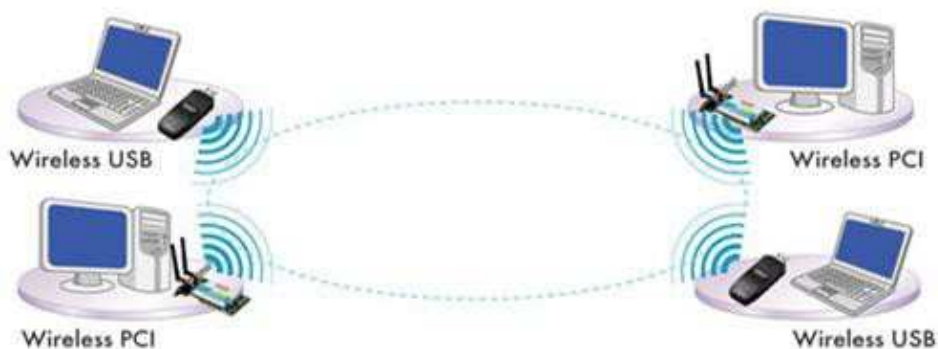
INFRASTRUCTURE MODE

In this mode, an Access Point such as the W7x handles all wireless communication between two computers. It doesn't matter if the W7x is stand-alone, or wired to an Ethernet network. In stand-alone mode, the W7x can extend the range of your wireless LANs by acting as a repeater, increasing the connection distance between wireless stations. The figure below shows a network configured in infrastructure mode.
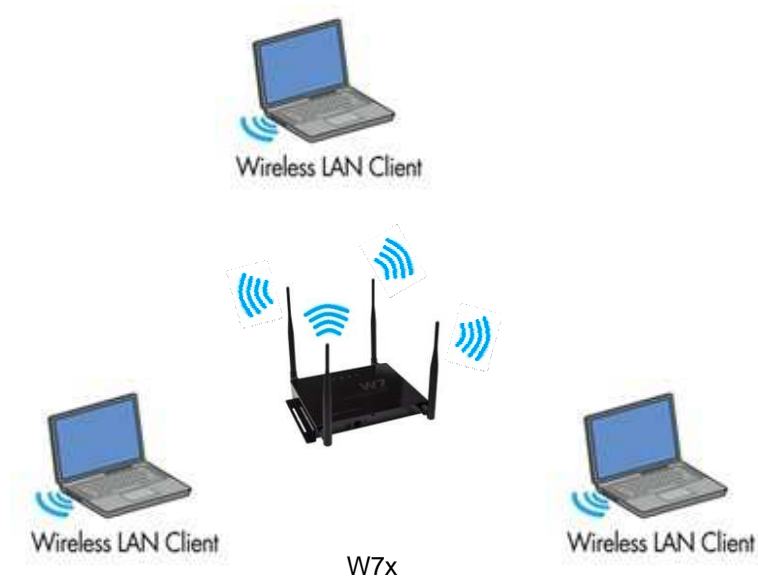
HARDWARE INSTALLATION

The diagrams below depict the configuration using a PoE injector or a PoE Switch to power the W7x.

Power using PoE Injector

Power using PoE Switch
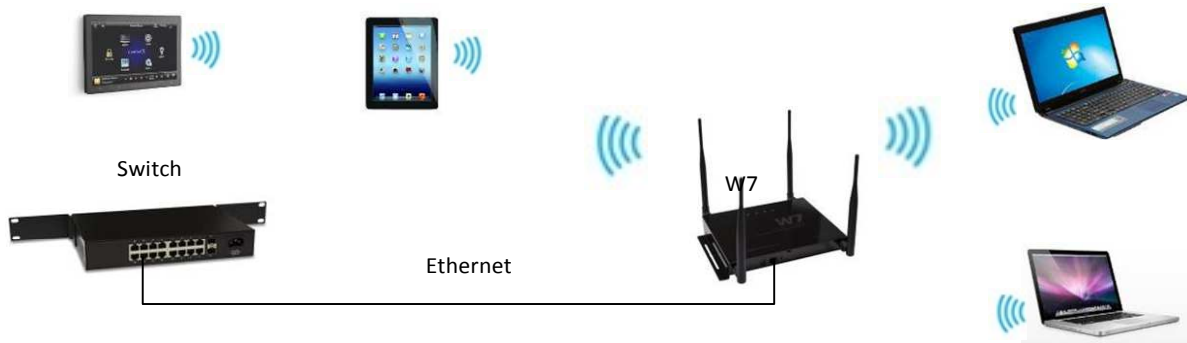
The W7x can be configured in Client Bridge, Repeater, or Access Point mode. When shipped from the factory, the W7x is set to Access Point mode. The default IP address of the W7x is **192.168.1.250** and username/password of **pakedge** / **pakedgea**

In order to log in to the W7x, you must first configure the TCP/IP settings of your PC/Notebook. Follow these steps:

1. Under **"Control Panel"**, double-click "**Network Connections"** and double-click the connection of your Network Interface Card (NIC). The Local Area Connection Properties dialog appears:
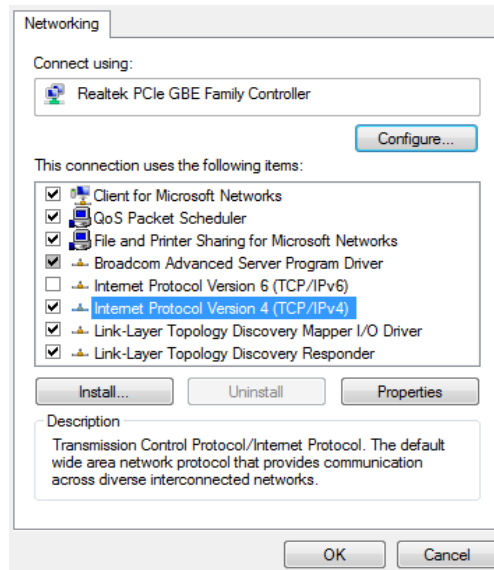
2. Select "**Internet Protocol (TCP/IP)**" and click "**Properties**". The Internet Protocol (TCP/IP) dialog appears where you can configure the TCP/IP settings of your PC.
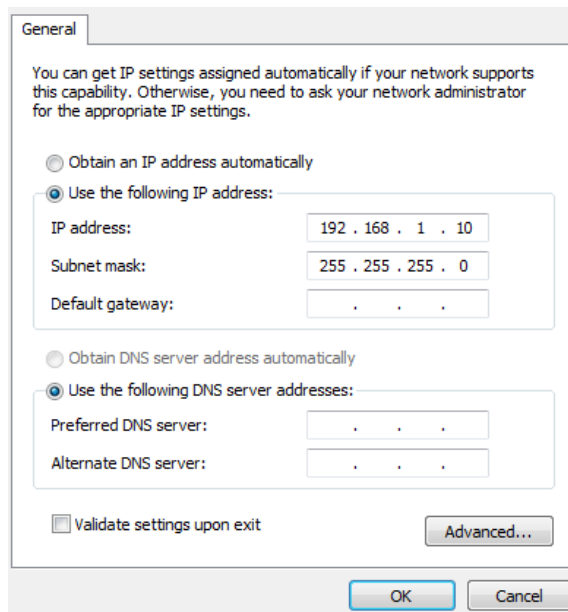
3. Select "**Use the following IP Address"** and type the IP address and subnet mask, as in the example below. (Be sure the IP address and subnet mask are on the same subnet as the W7x.)

W7x IP address:	192.168.1.250
PC IP address:	192.168.1.10
PC subnet mask:	255.255.255.0

4. Click "**OK"** to close the dialog, and click "**OK"** to close the Local Area Connection Properties dialog.

W7X CONFIGURATION

To configure the W7x through a Web Browser, in the address bar of the browser type the IP address of the W7x (default **192.168.1.250**) and press **Enter**.
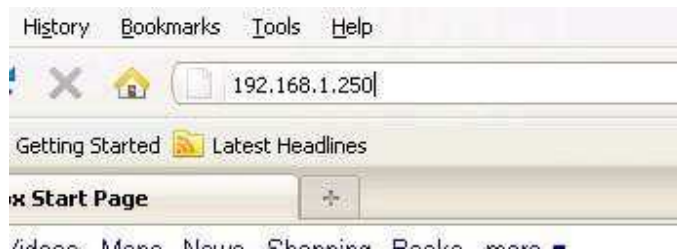
NOTE: Make sure the Access Point and your computer are configured on the same subnet. To configure the IP address of your computer, follow the steps in the previous section.

The W7x login dialog appears.
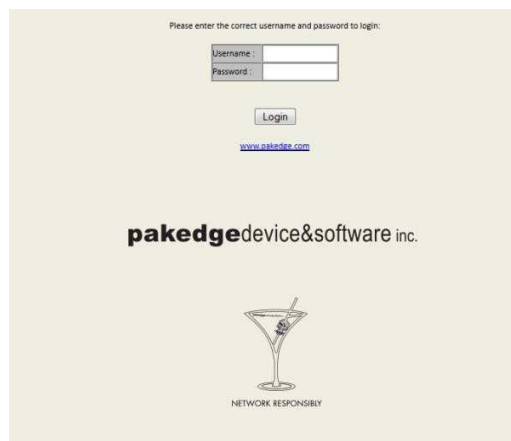
In the **User Name** box, type **pakedge**, and in the **Password** box type **pakedgea**, and click "**Login"**.

The W7x main menu appears (see figure below).

The area on the right displays current information about the system. To refresh the data to reflect the current state of the W7x, click **Refresh.**

The navigation bar on the left has five groups:

- **System**: Display and/or modify the W7x's status, system properties, administrative controls, maintenance, firmware options, and internal time settings.
- **Network**: Display and/or modify settings for the system LAN (including IP & gateway), spanning tree, and SNMP.

- **2.4GHz Wireless**: Display and/or modify settings for the wireless network, MAC filter, advanced system options and the client list for the 2.4GHz band.
- **5GHz Wireless**: Display and/or modify settings for the wireless network, MAC filter, advanced system options and the client list for the 5GHz band.

- **Log & Management**: Display and/or modify settings for diagnostics, VLAN management, wireless traffic shaping, system log, log settings and LED options.

NOTE: The main menu options change depending on the operating mode you set for your W7x. The main menu in the figure above shows the options available with the default login, which is Access Point mode. If you set the W7x to a different mode (e.g., Client Bridge mode), the options on the main menu will change. Sections of this manual that discuss settings for the diferent operating modes include screen shots that show the main menu options available in those modes.

MENU OPTIONS

SYSTEM
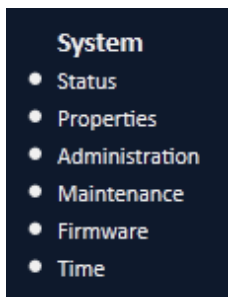
On the W7x main menu, the **System** group has six options:

- Status
- Properties
- Administration
- Maintenance
- Firmware
- Time

STATUS

In the System group under the W7x, click **"Status"**. The Main dialog appears and displays the current status of the W7x for the operating mode you've selected – see the figure below. The System section shows the W7x's Name, Firmware Version, Current Date/Time, MAC Network address, MAC Wireless address (for both 2.4GHz and 5GHz band) and the Management VLAN.

The Network section displays the access point's IP Address, Subnet Mask, Default Gateway, DHCP and Spanning Tree status.

The 2.4GHz/5GHz Wireless section displays the device operating mode, 802.11 mode, channel bandwidth, wireless Channel and Profile Settings.

Because the W7x supports multiple SSIDs, the Wireless section also displays the details of each SSID, and the security settings of each SSID.

Status

System

Name	W7x wireless A血ess Point
Firmwa間 Version	Pakedge_v1.2
Count时	united States
Oate andTime	Tue Aug 13 11:51:01PDT 2013
MAC (Network)	90:A7:C1:07:0E:E6

	1 90:A7:C1:07:0E:E6
	2 N/A
	3 N/A
MAC (2.4GHz Wireless)	4 N/A
	5 N/A
	6 N/A
	7 N/A
	8 N/A

	1 90:A7:C1:07:0E:E7
	2 N/A
	3 N/A
MAC (5GHz Wireless)	4 N/A
	5 N/A
	6 N/A
	7 N/A
	8 N/A

Management Vlan	Untagged

Net\vo时
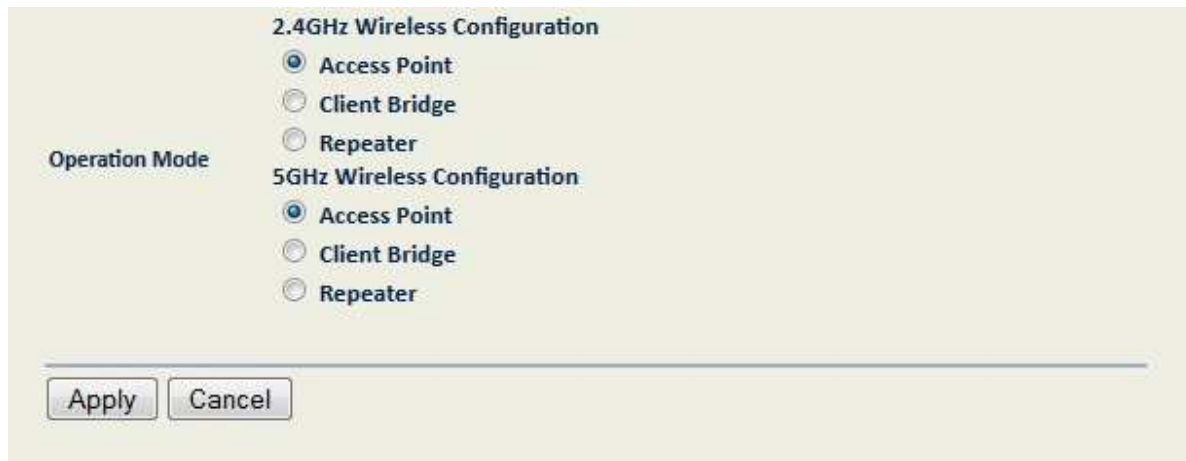
IPAd宙閒s	192.168.**1**.111
Subnet Mask	255.255.255.0
Default 6ateway	192.168.**1**.99
DHCP	Enabled
Spanning Tree Proto∞1	Disabled

2.46Hz Wirdle品 Settings

Mode	A启 ess Point
802.**11**	802.11B/G/N Mixed
Olannel Bandwidth	20-40 MHz

PROPERTIES

Under the System section in the W7x main menu, click "**Properties**". The Properties page is where you can specify a name for the device, and switch the W7x's operating mode.
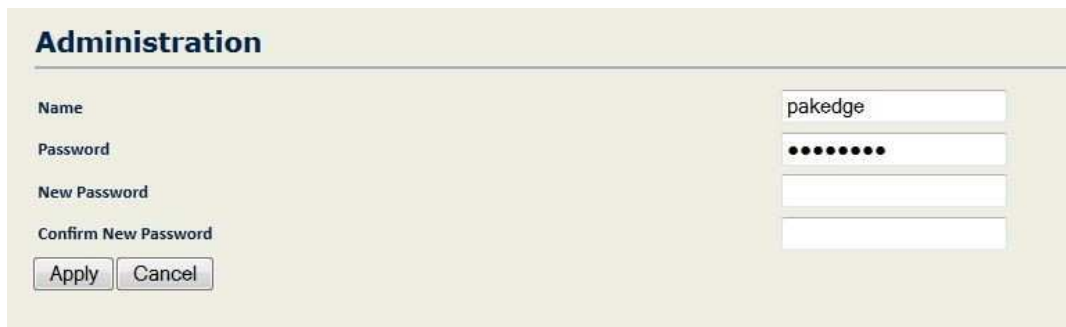
- **Name**: Type a name for the device. (**Note: This name is not used as the device SSID**.)
- **Mode**: Select an operating mode. (For detailed information on configuring operating modes, see the chapter on Mode-Specific Setup.)
- To save your changes, click "**Apply**."

NOTE: For any changes to take effect, you must click the "Save Changes" button on the lower left below the menu. This will reboot the access point, applying the configuration changes.

ADMINISTRATION

Click "**Administration**" under the System group in the W7x main menu. The Administration page allows you to specify a user name and password for the W7x. By default, the W7x is configured with a default name of **pakedge** and a default password of **pakedgea**. For security reasons, it is imperative to change the default user name and password.
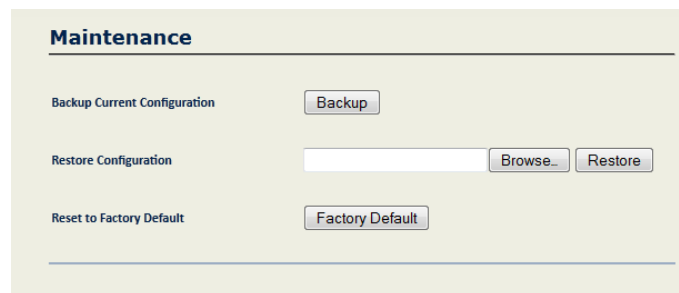
- **Name**: Type a user name.
- **Password**: Type the current password.
- **New Password**: Type the new password, maximum 12 characters.
- **Confirm New Password:** Type the password again.
- Click **Apply** to save your changes.

NOTE: For any changes to take effect, you must click the "**Save Changes**" button on the lower left below the menu. This will reboot the access point, applying the configuration changes.

MAINTENANCE

Under the System section in the W7x main menu, click "**Maintenance**". When The Maintenance page appears, you can save the current settings for the W7x. This is useful when, for example, you need to configure several devices with the same settings.

- **Backup Current Configuration**: Click "**Backup**" to save the current configuration.
- **Restore Configuration**: If you have already backed up your W7x configuration, you can quickly restore it. Click "**Browse**" and choose the backup file, then click "**Restore**".
- **Reset to Factory Default**: Click "**Factory Default**" to reset the W7x to the factory default settings. After the device restarts, you can access the W7x at the default IP address: **192.168.1.250** and login: **pakedge / pakedgea**

FIRMWARE

In the W7x main menu, in the **System** group, click "**Firmware**". In the Firmware page you can upgrade your W7x's firmware. To perform a firmware upgrade, you must first download the correct firmware from the Pakedge website under the Dealer Portal section.
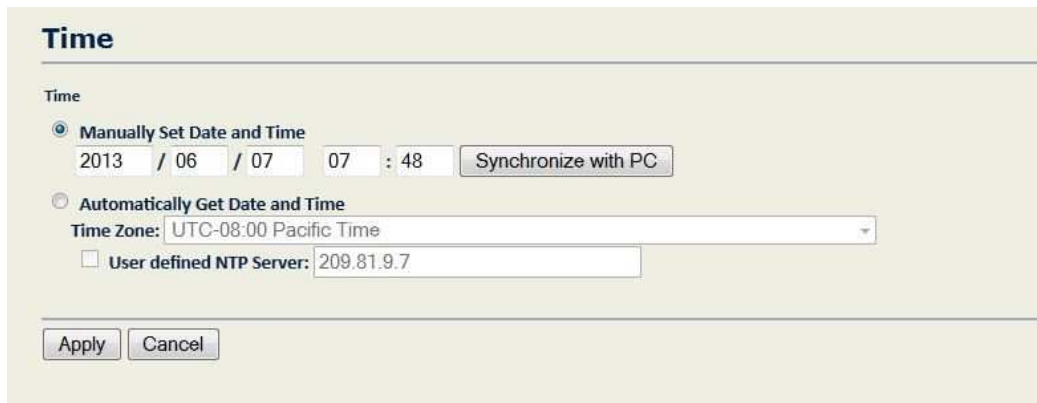
- Click "**Browse**" and choose the firmware file that you downloaded from the Pakedge site.
- Click "**Upgrade**."

Note: The upgrade usually takes at least 1 minute. **During the firmware upgrade process, do not turn off the device – doing so can damage the W7x.** Once the upgrade completes, the device will restart automatically.

TIME

Click **"Time"**, under the System group in the W7x main menu. The Time page is used for configuring the time on your W7x unit. You can configure the time manually, synchronizing with your PC or by using an NTP time server.

- **Manually Set Date and Time**: Type the date and time or synch it with your PC's clock.
- **Automatically Get Date and Time**: Choose the time zone of your location from the drop-down list.
- **User Defined NTP Server**: Type the IP address of the NTP server.

- Click "**Apply**" to save your changes.

NOTE: For any changes to take effect, you must click the "**Save Changes**" button on the lower left below the menu. This will reboot the access point, applying the configuration changes.

NETWORK
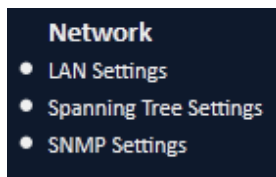
On the W7x main menu, the **Network** group has three options:

- LAN Settings
- Spanning Tree Settings
- SNMP Settings

LAN SETTINGS

To configure the IP address of your W7x, in the Network section of the W7x main menu, click "**LAN Settings**". In the LAN Settings page, you can configure the W7x with a static IP address, or obtain an IP address automatically using a DHCP client.
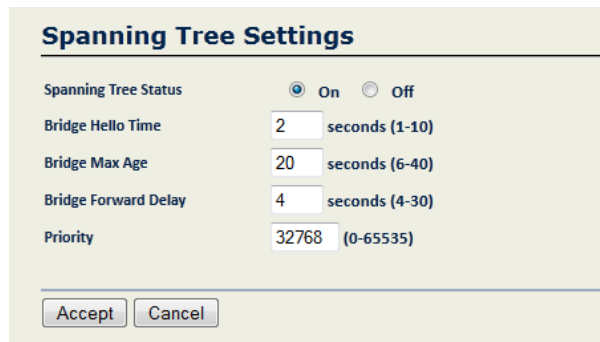
- **Network Setting**: If your W7x is connected to a DHCP server (such as a router), choose "**Obtain an IP address automatically**". Your W7x will be assigned an IP address from the DHCP pool (**Not recommended**).
- **Specify an IP address (default):** Select this option if you want to use a static IP address. Type the appropriate entries in the text boxes for **IP Address**, **IP Subnet Mask**, **Default Gateway, Primary** and **Secondary DNS**.
- Click "**Accept**" to apply the changes.

SPANNING TREE SETTINGS

To configure Spanning Tree protocol for your W7x, in the main menu, in the Network section, click "**Spanning Tree Settings**".

- **Spanning Tree Status**: Disabled by default; to turn it on, select "**On**".
- **Bridge Hello Time**: The hello time is the interval between sending one bridge protocol data unit (BPDU) and the next unit on a port. Type an entry between 1-10 seconds (recommend using the default "**2**").
- **Bridge Max Age**: Specify the maximum time the W7x can wait before saving its configuration BPDU information. Type an entry between 6-40 seconds (recommend using the default "**20**").
- **Bridge Forward Delay**: The forward delay is the amount of time the W7x will spend in listening and learning states. Type an entry between 4-30 seconds (recommend using the default "**4**").
- **Priority**: Assign a priority for the W7x in the Spanning Tree Protocol hierarchy. Type a number between 0-65535 (recommend using the default "**32768**" unless you have Spanning Tree enabled on any switches in the path between the W7x and the router, then you would want the W7x's Priority to be larger than any of the switches).

SNMP SETTINGS

In the main menu of the W7x, in the Network section, click "**SNMP Settings**". The SNMP Settings page appears, where you can enter a community name and password to manage the W7x device remotely, using an SNMP client.

SNMP Settings

SNMP	⦿ Enable ◯ Disable
Contact	
Location	
Community Name (Read Only)	public
Community Name (Read/Write)	private
Trap Destination Address	0.0.0.0
Trap Destination Community Name	public
SNMPv3	◯ v3Enable ⦿ v3Disable
User Name (1-31 Characters)	pakedge
Authorization Protocol	MD5 ▾
Authorization Key (8-32 Characters)	pakedgea
Privacy Protocol	DES ▾
Privacy Key (8-32 Characters)	pakedgea
Engine ID	

[Apply] [Cancel]

- **Enable/Disable:** To manage the W7x remotely using an SNMP manager, select "**Enable**".
- **Contact:** Enter the contact information for the SNMP manager.
- **Location:** Enter the location of the W7x for reference by the SNMP manager.
- **Community Name (Read only)**: Type the password for read-only access to the SNMP community.
- **Community Name (Read/Write)**: Type the password for read/write access to the SNMP community.
- **Trap Destination Address**: Type the IP address to receive SNMP traps.
- **Trap Destination Community Name**: Type the password of the SNMP trap community.
- **SNMPv3**: Select **v3Enable** for added encryption, if your manager supports SNMPv3.
- **User Name**: Enter the user name for the SNMP manager with permission to access the W7x.
- **Authorization Protocol**: Select the encryption type that the SNMP manager is using for the login information.
- **Authorization Key**: Enter the pass key that the SNMP manager will use to login to the W7x's SNMP agent.
- Click "**Apply**" to save your settings.

MODE-SPECIFIC SETUP

This section describes the settings for your W7x in the three available modes:

- Access Point
- Client Bridge
- Repeater

ACCESS POINT MODE

The options in the main menu of the W7x change depending on the current operating mode of the W7x. The main menu options discussed in this chapter are those available in Access Point mode.

In this mode, the W7x simultaneously broadcasts a Wi-Fi signal on both a 2.4GHz and 5GHz that clients can associate with. As shown in the figure below.

Wireless Access Point Mode

2.4GHZ AND 5GHZ WIRELESS

2.4GHz Wireless
- Network Settings
- Wireless MAC Filter
- Advanced
- Client List

On the W7x main menu, the Wireless section includes the following four options, which will be described in detail in the sections that follow:

- Network Settings
- Wireless MAC filter
- Advanced
- Client List

NETWORK SETTINGS

In the W7x main menu, click "**Network Settings"** to begin configuring your W7x network settings, including the following options: wireless mode, channel, channel width, VLAN Tagging, SSID name and Security. The Network Settings screen appears:

2.4GHz / Wireless Network Settings

802.11 Mode	802.11 B/G/N Mixed ▾
Channel Mode	20/40MHz ▾
Channel	Ch1 ▾ ☑ Auto
Detect Best Channel	Scan

Current Profiles

SSID	Security	VLAN ID	Enable	Edit
Pakedge1-2.4GHz	None	1	☑	Edit
Pakedge2-2.4GHz	None	2	☐	Edit
Pakedge3-2.4GHz	None	3	☐	Edit
Pakedge4-2.4GHz	None	4	☐	Edit
Pakedge5-2.4GHz	None	5	☐	Edit
Pakedge6-2.4GHz	None	6	☐	Edit
Pakedge7-2.4GHz	None	7	☐	Edit
Pakedge8-2.4GHz	None	8	☐	Edit

5GHz / Wireless Network Settings

802.11 Mode	802.11 A/N Mixed ▾
Channel Mode	20/40MHz ▾
Channel	Ch36 ▾ ☑ Auto
Detect Best Channel	Scan

Current Profiles

SSID	Security	VLAN ID	Enable	Edit
Pakedge1-5GHz	None	1	☑	Edit
Pakedge2-5GHz	None	2	☐	Edit
Pakedge3-5GHz	None	3	☐	Edit
Pakedge4-5GHz	None	4	☐	Edit
Pakedge5-5GHz	None	5	☐	Edit
Pakedge6-5GHz	None	6	☐	Edit
Pakedge7-5GHz	None	7	☐	Edit
Pakedge8-5GHz	None	8	☐	Edit

- **802.11 Mode**: Choose the setting that corresponds to the type of wireless clients connected to your network: **B, G, N, B/G or B/G/N** (on the 2.4GHz) or **A, N or A/N** (on the 5GHz). If you aren't sure which type(s) of clients will access the wireless networks, it's recommended to choose **B/G/N Mixed** (on the 2.4GHz) or **A/N Mixed** (on the 5GHz) for best performance.
  NOTE: When set to a mixed mode ALL devices connected to the wireless will use the mode that is compatible for ALL devices. Example – If you have the 2.4GHz Wireless set to B/G/N Mixed and a devices connects using G, all devices will be connected at G speed.
- **Channel Mode**: By default, the "**Channel Mode"** is set to 20/40MHZ (when using N). Selecting the 40MHz channel mode will allow for a greater overall throughput of data but it will also increase the size of the channel.
  NOTE: When using 20MHz channel width on the 2.4GHz radio, channel 6 would bleed into channels 4, 5, 7 and 8 giving you three non-overlapping channels (1, 6 and 11). When using 40MHz channel width on the 2.4GHz radio, channel 6 would bleed into channels 2, 3, 4, 5, 7, 8, 9, and 10 giving you only one channel without overlap.
- **Channel**: In the default setting (**Auto**), the W7x automatically associates to the channel with best performance for the wireless network. To select a channel manually, uncheck the "**Auto"** box and select a channel from the drop-down list.
- **Detect Best Channel:** Click "**Scan"** to perform an automatic site survey. A new window will open and display the site survey utility. The W7x will scan the frequency for devices currently broadcasting their SSID, and then will display them in the table.
- **Current Profiles**: You can configure up to eight wireless profiles, per band, each with its own VLAN ID. To modify and activate a profile check "**Enable"** and then click "**Edit"** to configure the settings.
- **SSID**: The SSID is the name associated with the W7x WIFI network. By default, the SSID is broadcast on the network for easy association by clients. An SSID cannot exceed 32 characters.
- **VLAN ID**: Type the VLAN ID associated with this profile if the SSID will be broadcasting a VLAN other than 1.
- **802.1Q Tagging**: Check if you are using any VLAN other than 1 on this SSID.

- **Suppressed SSID**: If you don't want the SSID to be broadcast, check this box. With the SSID suppressed, wireless clients will not be able to scan for this network in a site survey and will need to manually enter the information to connect.

- **Station Separation**: If you enable this option, clients that connect to this access point will no longer be able to communicate directly with each other. (This is also known as layer 2 isolation.)
- **Wireless Security – Type**: Security is disabled by default. To enable wireless security, select an option from the drop-down menu. For detailed information on configuring the security features of the W7x, such as WPA, WPA-PSK, WPA Mixed, WPA-PSK Mixed, WPA2, and WPA2-PSK, see the next section. When you select a wireless security option from the drop-down menu, the configuration options for that mode appear on the page. (For details on setting the security options, see the next section.)
- Click "**Save**" to update your changes. The **SSID profile** window will close and you need to click on "**Accept**" under the **Network Settings** to update the configuration.
  NOTE: For any changes to take effect, you must click the "**Save Changes**" button on the lower left below the menu. This will reboot the access point, applying the configuration changes.

WIRELESS SECURITY

When you select a wireless security **Type**, as described at the end of the previous section, the configuration options for that mode appear (See the figure below). The following sections describe the available options, depending on the type of security you have chosen.

WEP

In the SSID Profile page, under **Wireless Security**, choose a wireless security protocol **Type** from the drop-down list. For example, if your wireless network uses WEP encryption, choose **WEP** from the drop-down list. (WEP is an acronym for Wired Equivalent Privacy, a protocol that offers the same level of security for wireless networks as for wired networks.)

- **Auth Type:** In the drop-down list, choose an authentication method. The options are **Open System** or **Shared Key**.
    - If you choose **Open System**, any client will be able to authenticate, as long as it conforms to any MAC address filter policies you have set. In an open system, authentication packets are sent without encryption.
    - If you choose **Shared Key**, the W7x sends a challenge text string (unencrypted) to devices that try to communicate with the access point. The device that requests authentication encrypts the challenge text and returns it to the access point. If the challenge text is correctly encrypted, the access point authenticates the requesting device.

If you don't know which authentication type will be used, it's recommended to select **Auto**.

- **Input Type**: Select **Hex** or **ASCII**.
- **Key Length**: Choose a key length. 64-bit hex keys require 10 characters, and 128-bit keys require 26 characters. (A hexadecimal key is in the format of a number between 0 through 9, and a letter between A and F.)
- **Default Key**: You can specify 1-4 keys for up to four networks. Type the number of the key to be used by default.
- **Keys 1-4**: You can enter up to four unique WEP keys.
- Click **Save** to apply the changes. The **SSID profile** window will close and you need to click on **Accept,** under the **Network Settings** window, for the changes to take effect.

WPA-PSK, WPA2-PSK

When you select a wireless security **Type**, the configuration options for that mode appear.

WPA (Wi-Fi Protected Access) improves on the security features of WEP (Wired Equivalent Privacy). WPA technology can work with existing Wi-Fi products that are enabled with WEP. WPA improves data encryption using the Temporal Key Integrity Protocol (TKIP), which scrambles the encryption keys using a hashing algorithm, and adds integrity checking to ensure that keys haven't been tampered with.

If your wireless network uses WPA security **with a pre-shared key (PSK)**, select **WPA-PSK** or **WPA2-PSK** from the **Type** drop-down list. If your network doesn't use a PSK, see the following section.

- **Encryption**: In the drop-down list, select the type of encryption your wireless network uses: **TKIP**, **AES** or both. For Apple products, **AES** works best.
- **Passphrase**: In the text box, type a passphrase of 8-63 characters to be shared by the Access Points and clients in your network.
- **Group Key Update Interval**: In the text box, type the number of seconds the Access Point will wait to probe the client for a passphrase.
- Click "**Save"** to apply the changes. The **SSID profile** window will close and you need to click on "**Accept"**, under the **Network Settings** window, for the changes to take effect.
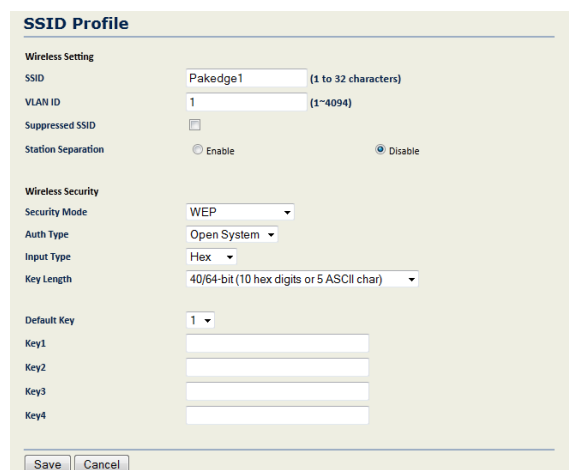
WPA, WPA2

When you select a wireless security **Type** in the SSID Profile page, the configuration options for the security mode you chose appear at the bottom of the page.

If your wireless network uses WPA security ***without* a pre-shared key (PSK) (*also known as Enterprise)***, select **WPA** or **WPA2** from the **Type** drop-down list. The options for WPA and WPA2 appear at the bottom of SSID Profile page.

- **Encryption**: In the drop-down list, select the type of encryption your wireless network uses: **TKIP**, **AES** or both. For Apple products, **AES** works best.
- **RADIUS Server:** Type the IP address of the RADIUS server.
- **RADIUS Port: T**ype the port number of the RADIUS server. (The most common default is 1812.)
- **RADIUS Secret:** Type the shared password of the RADIUS server.
- **Group Key Update Interval**: Type the number of seconds (between 30-3600) that the Access Point should wait before probing the client for the secret group key.
- Click **Save** to apply the changes. The **SSID profile** window will close and you need to click on **Accept** under the **Network Settings** window for the changes to take effect.

WIRELESS MAC FILTER

Under the W7x main menu, in the Wireless section, click **MAC Filter**. The Wireless MAC Filter page appears for you to allow or block access to the network by clients with specific MAC addresses.

- **ACL Mode:** To block a client from associating with the W7x, select **Disabled** from the drop-down list. Or to deny or allow access by clients with a MAC that you type in a list, select **Allow MAC in the List** or **Deny MAC in the List** in the drop-down list.
    o   If you select **Allow MAC in the List**, only clients whose MAC addresses are on the list in the table will be able to access the network, and other clients will be blocked.
    o   If you select **Deny MAC in the List**, clients whose MAC addresses are on the list will be unable to access the network, but all other clients will be granted access.
- **MAC Address:** In the text box, type a client's MAC address and click "**Add**" to add the client to the list.
- The table at the bottom of the page lists MAC addresses you have blocked or allowed. To delete selected MAC addresses, or delete all the addresses in the table, select the address (es) in the list and click **Delete**.
- Click **Accept** to save your changes.

ADVANCED

You can configure the performance of your wireless network by changing the **Data Rate**, **Transmit Power**, and **RTS/CTS Threshold**.

- **Data Rate**: From the drop-down list, choose the data transmission rate for the device (It is set to Auto by default.)
- **Transmit Power**: The power needed depends on the distance of the devices in your wireless network. From the drop-down list, select the desired power. You can use this feature to limit the coverage area of the wireless network.
- **RTS/CTS Threshold**: Type the packet size threshold for RTS/CTS (Request to Send/Clear to send) to occur.

CLIENT LIST

The **Client List** menu appears only when the W7x is operating under Access Point mode or repeater mode. This menu will show all the devices connected to the W7x. From the **Client List**, you can click on **"Block"** and this will prevent the device from connecting.

NOTE: If you want to block a device from connecting on both the 2.4GHz and 5GHz band, then you must click on **"Block"** under both the 2.4GHz and 5GHz client list.

CLIENT BRIDGE MODE

NOTE: The options in the main menu of the W7x change depending on the current operating mode of the W7x. The main menu options discussed in this section are those available in Client Bridge mode.

In this mode, you can connect one W7x to a client by its Ethernet port, as shown below. In Client Bridge Mode, the W7x can receive a wireless signal from an Access Point and send the signal through its Ethernet port to a client.

Client Bridge Mode

Ethernet

Laptop
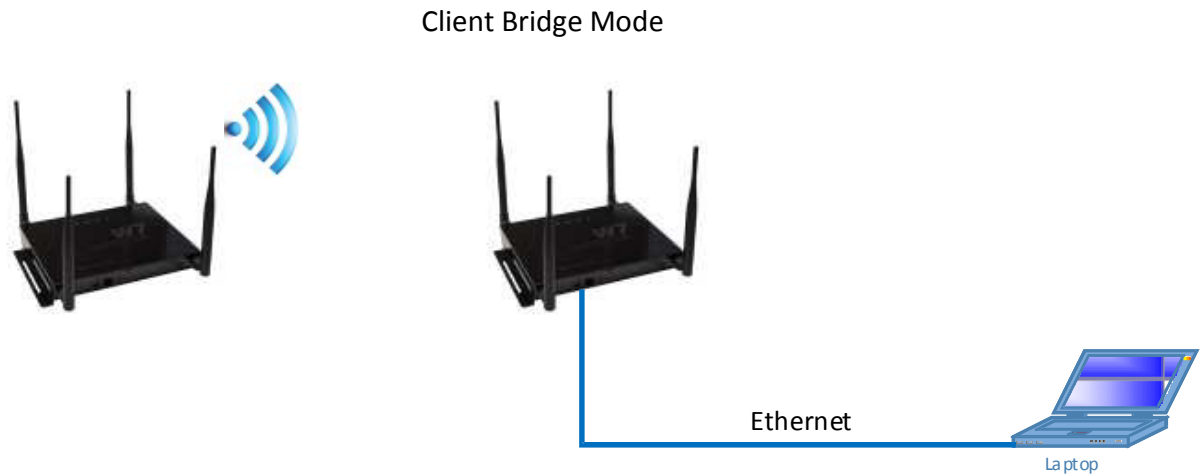
Summary of configuration for Client Bridge Mode

1. First setup the Wireless Access Point that that will be broadcasting to the Client Bridge. This Wireless Access Point is the one broadcasting the Wireless Network you wish to connect the client device to. Setup as usual- i.e. SSID, IP Address, Channel, Security, etc.

2. Connect the W7x to the client and login via your Web Browser.

3. Configure the W7x by selecting **Client Bridge Mode** from the Properties page under the System header.

   NOTE: Either the 2.4GHz or the 5GHz band can be in Client Bridge mode. They cannot both be in Client-Bridge mode. That's why when you set one of the Bands to Client Bridge, the only available option for the other is **Access Point** mode only.

4. Under **Wireless (2.4GHz or 5GHz, depending on which band was selected to be in Client Bridge)**, click on **Network Settings.** If you know the SSID you want the client-bridge to associate with, you can type it under "**Specify the static SSID".** For easier setup, click on "**Site Survey"** and a list of available SSID's will show up and you can select the appropriate one.

5. Configure the **"Wireless Security"** to match those on the SSID the client bridge is associated with.

6. Click **Accept** to apply the changes.

2.4GHz / Wireless Network Settings

802.11 Mode	802.11 B/G/N Mixed ▾
	Specify the static SSID :
	AP SSID (1 to 32 characters)
SSID	Or press the button to search for any available WLAN Service.
	[Site Survey]
Prefered BSSID	☐ [ ] : [ ] : [ ] : [ ] : [ ] : [ ]

Wireless Security

Changing the wireless security settings may cause this wireless client to associate with a different one. This may temporarily disrupt your configuration session.

Security Mode	Disabled ▾

[Apply] [Cancel]

7. Finish the configuration of the W7x in Client Bridge Mode by assigning it a unique IP address if it is not connected to a DHCP server.

8. You should be able to verify performance from the client device by sending a ping request to the IP address of the Wireless Access Point or by accessing the GUI through your Web Browser at the same address.

For more detailed setup information on setting up the W7x in Client-Bridge mode see below.

2.4GHZ AND 5GHZ WIRELESS

2.4GHz Wireless
- Network Settings
- Advanced
- Connection Status

With the W7x operating in Client Bridge mode, the main menu shows two options under the Wireless section:

- Network Settings
- Advanced
- Connection Status

2.4GHz / Wireless Network Settings

802.11 Mode	802.11 B/G/N Mixed ▾
SSID	Specify the static SSID : AP SSID (1 to 32 characters) Or press the button to search for any available WLAN Service. [Site Survey]
Prefered BSSID	☐ [ ] : [ ] : [ ] : [ ] : [ ] : [ ]

Wireless Security

Changing the wireless security settings may cause this wireless client to associate with a different one. This may temporarily disrupt your configuration session.

Security Mode	Disabled ▾

[Apply] [Cancel]

- **802.11 Mode**: Choose the setting that corresponds to the type of wireless clients connected to your network: **B, G, N, B/G or B/G/N** (on the 2.4GHz) or **A, N or A/N** (on the 5GHz). If you aren't sure which type(s) of clients will access the wireless networks, it's recommended to choose **B/G/N Mixed** (on the 2.4GHz) or **A/N Mixed** (on the 5GHz) for best performance.
  NOTE: When set to a mixed mode ALL devices connected to the wireless will use the mode that is compatible for ALL devices. Example – If you have the 2.4GHz Wireless set to B/G/N Mixed and a devices connects using G, all devices will be connected at G speed.
- **SSID**: If you know the SSID you want the client bridge to associate with, you can type it under **Specify the static SSID.** For easier setup, click on "**Site Survey**" and a list of available SSID's will show up and you can select the appropriate one.
- **Site Survey**: Click "**Site Survey**" to perform an automatic site survey. A new window will display the results of the site survey. (See the figure below.) The W7x will scan the 2.4GHz frequency for devices currently broadcasting their SSIDs, and display them in the 2.4GHz Site Survey table shown below. In the table, click the **BSSID** of the Access Point you wish to connect to.
- Click "**Refresh**" to re-scan the frequency.

2.4GHz / Site Survey

2GHz Site Survey						:Infrastructure :Ad_hoc
BSSID	SSID	Channel	Signal Level	Type	Security	Mode
90:A7:C1:07:0E:F8	C3612-1-2.4GHz	1	-50 dBm	11g/n	WPA-PSK	i
12:A7:C1:07:0E:FA	C36-Guest-2.4GHzJaber	6	-49 dBm	11g/n	WPA2-PSK	i
00:1D:7E:E2:E5:76	Meritage	1	-72 dBm	11g/n	WPA/WPA2-PSK	i
00:02:6F:54:B2:35	Pakedge	3	-58 dBm	11b/g	WPA-PSK	i
C0:3F:0E:A7:A4:64	Ricoh	1	-87 dBm	11b/g	WPA/WPA2-PSK	i
1C:AF:F7:2F:3D:F8	OMInternal	1	-79 dBm	11g/n	WPA/WPA2-PSK	i
30:85:A9:39:E4:70	socalreps	1	-70 dBm	11g/n	WPA/WPA2-PSK	i
A2:A7:C1:07:0E:F8	C36-Guest-2.4GHzJaber	1	-51 dBm	11g/n	WPA2-PSK	i
92:A7:C1:07:0E:F8	C3612-2-2.4GHz	1	-50 dBm	11g/n	WPA2-PSK	i
A2:A7:C1:07:0E:E2	C36-Guest-2.4GHz	6	-72 dBm	11g/n	WPA2-PSK	i
92:A7:C1:07:0E:DC	15012W72.4-1	6	-60 dBm	11g/n	WPA2-PSK	i

- **Preferred BSSID:** If you want the W7x to associate based on MAC Address instead of SSID, select the "**Preferred BSSID**" checkbox.
- **Wireless Security:** Configure the security settings to match those on the SSID the client bridge is associated with.
- **Security Mode**: If your wireless network uses WEP encryption, select **WEP** from the drop-down list. The Wireless Security page displays options for WEP encryption.

- **Auth Type:** In the drop-down list, select an authentication method. The options are **Open System**, **Shared Key**, and **Auto**.
  - If you choose **Open System**, any client will be able to authenticate, as long as it conforms to any MAC address filter policies you've set. Authentication packets are transmitted unencrypted.
  - Choosing **Shared Key** enables the W7x to send an unencrypted challenge text string to a device that attempts to communicate with the W7x. The device requesting authentication will encrypt the challenge text and return it to the W7x. If the challenge text is correctly encrypted, the W7x allows the requesting device to authenticate.
  - If you are unsure which authentication type to use, it's recommended to choose **Auto**.
- **Input Type**: From the drop-down list, select **Hex** or **ASCII**.

- **Key Length**: From the drop-down list, select a key format. 64bit-hex keys require 10 characters; 128-bit keys require 26 characters. A hex key is formatted in hexadecimal notation as a number between 0-9 followed by a letter between A-F.
- **Default Key**: From the drop-down list, select the number of the key to be used; you can define four keys (Key1…Key4) in the text boxes.
- **Key 1-4**: Enter up to four unique WEP keys.
- Click **Accept** to apply the changes. The **SSID profile** window will close and you need to click on **Accept** under the **Network Settings** window for the changes to take effect.
- **Security Mode**: If your wireless network uses a WPA pre-shared key, select **WPA-PSK** or **WPA2-PSK** from the drop-down list.

Wireless Security

Changing the wireless security settings may cause this wireless client to associate with a different one. This may temporarily disrupt your configuration session.

Security Mode	WPA-PSK ▼
Encryption	TKIP ▼
Passphrase		(8 to 63 characters) or (64 Hexadecimal characters)

[Accept] [Cancel]

- **Encryption**: In the drop-down list, select the type of encryption your wireless network uses: **TKIP** or **AES**.
- **Passphrase**: In the text box, type a passphrase of 8-63 characters that will be shared among the Access Points and clients.
- Click **Apply** to save your changes.

ADVANCED

You can configure the performance of your wireless network by changing the Data Rate, Transmit Power, and RTS/CTS Threshold.

CONNECTION STATUS

The **Connection Status** menu appears only when the W7x is operating under Repeater mode or Client-Bridge mode.

REPEATER MODE

NOTE: The options in the main menu of the W7x change depending on the current operating mode of the W7x. The main menu options discussed in this chapter are those available in Repeater mode.

In **Repeater** mode, the W7x can associate with any Wireless Access Point, as shown in the figure below.

Summary of configuration for Repeater Mode:

1. First setup the initial Access Point that will be broadcasting the Wireless Network you wish to associate the W7x with. Setup as usual- i.e. SSID, IP Address, Channel, Security, etc. For simplicity, we will refer to this AP as AP-1.

2. Connect the 2nd AP, which we will call AP-2 to the LAN and login via your Web Browser.

3. Configure AP-2 by selecting **Repeater** Mode from the Properties page under the System header.

4. Now configure the SSID, Channel, and Security settings to match those of AP-1.

5. Finish the configuration of the W7x in Repeater Mode by assigning it a unique IP address, if it is not connected to a DHCP server.

6. You should be able to verify performance from the client device by sending a ping request to the IP address of the W7x or accessing the GUI through your Web Browser at the same address.

For more detailed setup information for setting up the W7x in **Repeater** mode see below.

2.4GHZ AND 5GHZ WIRELESS

2.4GHz Wireless
- Network Settings
- Wireless MAC Filter
- Advanced
- Client List
- Connection Status

In Repeater mode, the W7x main menu has the following options, to be described in detail in the sections that follow.

- Network Settings
- Wireless MAC Filter
- Advanced
- Client List
- Connection Status

NETWORK SETTINGS

2.4GHz / Wireless Network Settings

802.11 Mode	802.11 B/G/N Mixed
SSID	Specify the static SSID : AP SSID (1 to 32 characters) Or press the button to search for any available WLAN Service. Site Survey
Repeater SSID	AP SSID (1 to 32 characters)
Prefered BSSID	☐ __ : __ : __ : __ : __ : __

Wireless Security

Changing the wireless security settings may cause this wireless client to associate with a different one. This may temporarily disrupt your configuration session.

Security Mode	Disabled

Apply   Cancel

- **802.11 Mode**: Choose the setting that corresponds to the type of wireless clients connected to your network: **B, G, N, B/G or B/G/N** (on the 2.4GHz) or **A, N or A/N** (on the 5GHz).   If you aren't sure which type(s) of clients will access the wireless networks, it's recommended to choose **B/G/N Mixed** (on the 2.4GHz) or **A/N Mixed** (on the 5GHz) for best performance.

- **NOTE**: When set to a mixed mode ALL devices connected to the wireless will use the mode that is compatible for ALL devices. Example – If you have the 2.4GHz Wireless set to B/G/N Mixed and a devices connects using G, all devices will be connected at G speed.

- **SSID**: SSID is the name the W7x will broadcast over the wireless network to identify the Access Point. You can set the SSID in either of two ways: type a name in the "**Specify the static SSID:**" text box (maximum length 32 characters), or click "**Site Survey**" to perform an automatic Site Survey. A new window will display the site survey utility. The W7x will scan the 2.4GHz frequency for devices currently broadcasting

their SSID and display them in the 2.4GHz Site Survey table (see figure below). In the table, click the **BSSID** of the Access Point you wish to connect to.

- Click "**Refresh"** to re-scan the frequency.

2.4GHz / Site Survey

2GHz Site Survey   i:Infrastructure :Ad_hoc

BSSID	SSID	Channel	Signal Level	Type	Security	Mode
90:A7:C1:07:12:92	Pakedge1-2.4G	1	-74 dBm	11g/n	none	i
F2:A7:C1:07:12:8A		6	-58 dBm	11g/n	none	i
92:A7:C1:07:12:8A	Pakedge2-2.4GHz	6	-55 dBm	11g/n	none	i
B2:A7:C1:07:12:8A	Pakedge4-2.4GHz	6	-57 dBm	11g/n	none	i
C2:A7:C1:07:12:8A	Pakedge5-2.4GHz	6	-58 dBm	11g/n	none	i
D2:A7:C1:07:12:8A	Pakedge6-2.4GHz	6	-57 dBm	11g/n	none	i
E2:A7:C1:07:12:8A	Pakedge7-2.4GHz	6	-58 dBm	11g/n	none	i
02:A7:C1:07:12:8A		6	-58 dBm	11g/n	none	i

- **Preferred BSSID:** If you want the W7x to associate based on MAC Address instead of SSID, select the checkbox and type a MAC address in the spaces provided**.**
- **Security Mode**: If your wireless network uses WEP encryption, select **WEP** from the drop-down list. The Wireless Security page will display options for WEP encryption.

Wireless Security

Changing the wireless security settings may cause this wireless client to associate with a different one. This may temporarily disrupt your configuration session.

Security Mode	WEP ▼
Auth Type	Open System ▼
Input Type	Hex ▼
Key Length	40/64-bit (10 hex digits or 5 ASCII char) ▼
Default Key	1 ▼
Key1	
Key2	
Key3	
Key4	

- **Auth Type:** In the drop-down list, select an authentication method. The options are **Open System**, **Shared Key**, and **Auto**.
  - If you choose **Open System**, any client will be able to authenticate, as long as it conforms to any MAC address filter policies you've set. Authentication packets are transmitted unencrypted.
  - Choosing **Shared Key** enables the W7x to send an unencrypted challenge text string to a device that attempts to communicate with the W7x. The device requesting authentication will encrypt the challenge text and return it to the W7x. If the challenge text is correctly encrypted, the W7x allows the requesting device to authenticate.
  - If you are unsure which authentication type to use, it's recommended to choose **Auto**.
- **Input Type**: From the drop-down list, select **Hex** or **ASCII**.

- **Key Length**: From the drop-down list, select a key format. 64bit-hex keys require 10 characters; 128-bit keys require 26 characters. A hex key is formatted in hexadecimal notation as a number between 0-9 followed by a letter between A-F.
- **Default Key**: From the drop-down list, select the number of the key to be used; you can define four keys (Key1…Key4) in the text boxes.
- **Key 1-4**: Enter up to four unique WEP keys.
- Click **Accept** to apply the changes. The **SSID profile** window will close and you need to click on **Accept** under the **Network Settings** window for the changes to take effect.
- **Security Mode**: If your wireless network uses a WPA pre-shared key, select **WPA-PSK** or **WPA2-PSK** from the drop-down list.

- **Encryption**: In the drop-down list, select the type of encryption your wireless network uses: **TKIP** or **AES**.
- **Passphrase**: In the text box, type a passphrase of 8-63 characters that will be shared among the Access Points and clients.
- Click **Accept** to apply the changes. The **SSID profile** window will close and you need to click on **Accept** under the **Network Settings** window for the changes to take effect.

WIRELESS MAC FILTER

On the W7x's main menu, in the Wireless section, click **Wireless MAC Filter**. The Wireless MAC Filter page appears where you can allow or block access to the network by clients with specific MAC addresses.

- **ACL Mode:** To block a client from associating with the W7x, or to deny or allow access by a client with a MAC on a list, select the appropriate option from the drop-down list.

- o If you select **Allow MAC in the List**, only clients whose MAC addresses are on the list in the table will be able to access the network; other clients will be blocked.
- o If you select **Deny MAC in the List**, clients whose MAC addresses are on the list will be unable to access the network; but all other clients will be granted access.
- **MAC Address:** In the text boxes, type a client's MAC address, then click **Apply** to add the client to the list.
- The table at the bottom of the dialogue lists the MAC address you have blocked or allowed. To delete selected MAC addresses or delete all the addresses in the table, select the address (es) in the list and click **Delete**.
- Click **Apply** to save your changes.

ADVANCED

You can configure the performance of your wireless network by changing the Data Rate, Transmit Power, and RTS/CTS Threshold.

2.4GHz / Advanced

Data Rate	Auto
Transmit Power	29 dBm
RTS/CTS Threshold (1 - 2346)	2346 bytes

Apply   Cancel

CLIENT LIST

The **Client List** menu appears only when the W7x is operating under Access Point mode or repeater mode. This menu will show all the devices connected to the W7x. From the **Client List**, you can click on **"Block"** and this will prevent the device from connecting.

NOTE: If you want to block a device from connecting on both the 2.4GHz and 5GHz band, then you must click on **"Block"** under both the 2.4GHz and 5GHz client list.

2.4GHz / Client List

SSID:#	MAC Address	TX(Bytes)	RX(Bytes)	RSSI(dBm)	Deny Access

Refresh

CONNECTION STATUS

The **Connection Status** menu appears only when the W7x is operating under Repeater mode or Client-Bridge mode.

2.4GHz / Connection Status

Network Type	Repeater
SSID	AP SSID
BSSID	90:A7:C1:07:0E:E6
Connection Status	Associated
Wireless Mode	IEEE 802.11b/g/n Mixed
Current Channel	2.437 GHz(Channel 6)
Security	None
Tx Data Rates(Mbps)	1 Mbps
Current noise level	-95 dBm
Signal strength	-96 dBm

Refresh

LOG & MANAGEMENT

Log & Management
- Diagnostics
- VLAN Management
- Wireless Traffic Shaping
- Band Steering
- System Log
- Log
- LED Options

The Log & Management menu has the following settings:
- Diagnostics
- VLAN Management
- Wireless Traffic Shaping
- Band Steering
- System Log
- Log
- LED Options

DIAGNOSTICS

If you experience network errors or unresponsive devices, the W7x diagnostic functions can help you determine the cause. To access the diagnostic functions, on the W7x main menu, in the Log & Management section, click **Diagnostics**. The Diagnostics page appears.

PING TEST PARAMETERS

- **Target IP**: Type the IP Address of the device to check.
- **Ping Packet Size**: Type the size of the ping packets (In Bytes).
- **Number of Pings**: Type the number of ping attempts.
- Click **Start Ping** to start the test.
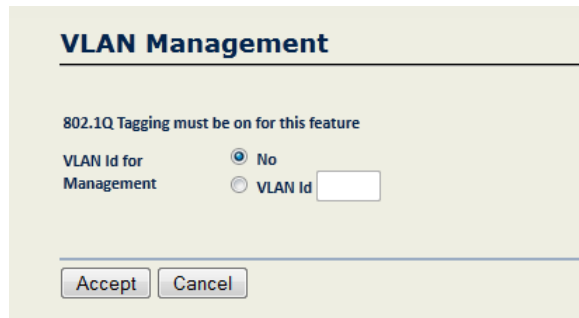
TRACEROUTE TEST PARAMETERS

A Traceroute test can help you identify obstacles you may have in the network. The Traceroute text maps the path that packets take between the W7x and the target device. To run a Traceroute test, type the Traceroute target and click **"Start Traceroute"** to being the test.

VLAN MANAGEMENT

If you enable VLAN tagging in the W7x Wireless section under any of the SSIDs, you can choose a VLAN Management ID for the W7x to access the administrative functions of your W7x. Let's say you pick VLAN3 to be the VLAN used for management and the subnet range for VLAN 3 is 192.168.3.X. The IP address for the W7x must be 192.168.3.X, where X is any value in range.

- **VLAN Id for Management:** To turn on VLAN Management, select the **VLAN Id** button.
- In the **VLAN Id** text box, type the ID number of the VLAN you want to allow access to the administrative functions of the W7x. For example, if VLAN3 is used for management, type in 3.
- Click **Accept** to save your changes.

WIRELESS TRAFFIC SHAPING

The **Traffic Shaping** option allows you to limit incoming and outgoing traffic and divide traffic up per percentage across different SSIDs.

NOTE: This feature will not only when the Access Point is in Access Point mode.

Wireless Traffic Shaping

Traffic Shaping	○ Enable @ Disable
Incoming Traffic Li mit	|1 尚口 | kbit/s
2.4GHz se 而 ng	
Outgoîng Tra 而 cLîmit	∞ ___00 ⊥ kbit/s
Total Percentage	| %
5510#1: Pakedgel-2.4GHz	▭ %
5510#2 :(O 的	▭ %
弱的的 (O 的	▭ %
55 仿制約的	▭ %
弱的的 (O 的	▭ %
弱的描 (O 的	▭ %
弱的盯 (O 的	▭ %
弱的甜 (O 的	▭ %
SGHz 扭呵呵	
Outgoîng Tra 而 cLîmit	∞ ___00 ⊥ kbit/s
Total Percentage	| %
5510#1: Pakedgel-SGHz	%
5510#2 :(O 的	▭ %
弱的的 (O 的	▭ %
55 仿制約的	▭ %
弱的的 (O 的	▭ %
弱的描 (O 的	▭ %
弱的盯 (O 的	▭ %
弱的甜 (O 的	▭ %

\| Apply 11 Cancel \|

BAND STEERING

Band steering allows connected clients to steer from 2.4GHz to 5GHz. It is important to note that the clients must support 5GHz in order for Band Steering to work. Band steering is a very important feature and when enabled, it increases the throughput by reducing the contention for the busy 2.4GHz band resources. Before you enable Band Steering, make sure that you have at least one SSID on the 2.4GHz band that has the same exact settings on the 5GHz band. If you try to enable Band Steering and you do not have matching SSIDs on both bands, you will get an error message and the functionality will not work.

SYSTEM LOG

The **System Log** menu option will display logs recorded by the W7x.

Show log type: In the drop-down menu, select a log type. The log types available are: **Debug**, **Information**, **Notice**, **Warning**, **Error**, **Critical**, **Alert**, and **Emergency**.

LOG

While the system log contains a history of events recorded by the W7x device, the management log contains events triggered on the Ethernet and wireless interface. This log is a useful debugging tool when an unknown error occurs on the system, or when you need to send a report to Pakedge technical support.

The **Log** page displays a history of events triggered on the Ethernet and Wireless interface.

Syslog: Choose to **Enable** or **Disable** the system log.

Log Server IP Address: Type the IP address of the server that will receive the system log.

Local Log: Choose to **Enable** or **Disable** the local log.

Click **Apply** to save your changes.

LED OPTIONS

This menu will allow you to turn **ON/OFF** the LEDs for Power, Ethernet and Wireless.

APPENDIX A – SPECS

HARDWARE SPECIFICATIONS

- 1 x 10/100/1000 Gigabit Ethernet RJ-45 port with IEEE 802.3af Power over Ethernet (PoE) support
- Configurable LED Indicators for Power, Ethernet, 2.4GHz Wireless and 5GHz Wireless
- Power over Ethernet (PoE) IEEE802.3af compliant 48 VDC / 0.375A
- Power Supply: 100 to 240 VDC ± 10%, 50/60 Hz (depends on different countries)
- DC input: 12V/2A

RF INFORMATION

- Frequency Band:
  - 802.11 B/G/N on 2.4 to 2.462GHz.
  - 802.11 A/N on 5 to 5.805GHz.
- Operating Channels:
  - 2.4GHz - 11 for North America, 13 for Europe, 14 for Japan
  - 5GHz – 24 Channels
- Transmit Power (Typical):
  - 802.11a (5.180 ~ 5.805GHz) up to 26dBm
  - 802.11b (2.412 ~ 2.462GHz) up to 29dBm
  - 802.11g (2.412 ~ 2.462GHz) up to 29dBm
  - 802.11n (2.412 ~ 2.462GHz, 5.180 ~ 5.805GHz) up to 26dBm
- Receiver Sensitivity (Typical):
  - 802.11a (5.180 ~ 5.805GHz) up to -93dBm
  - 802.11b (2.412 ~ 2.472 GHz) up to -98 dBm
  - 802.11g (2.412 ~ 2.472 GHz) up to -93 dBm
  - 802.11n (2.412 ~ 2.472 GHz, 5.180 ~ 5.805GHz) up to -93 dBm

OPERATIONS

- Operation Modes:
  - 2.4/5GHz Have independent operation modes.
  - Access Point/Client Bridge/WDS Bridge/WDS AP/Repeater
- Up to 16 SSID
- Supports 802.1q VLANs
- Spanning Tree Supports 802.1d Spanning Tree Protocol
- IP Auto-configuration – DHCP client
- Transmission rate options:

    ○ 2.4GHZ – N ONLY, B/G/N MIX, B ONLY, G ONLY

    ○ 5GHZ – N ONLY, A/N MIX, A ONLY

MANAGEMENT AND SECURITY

- User Power Control Adjustment by dBm
- Web-based configuration (HTTP)/Telnet
- Upgrade firmware via web browser
- Reset Button: to reboot (press 1 second); to reset to Factory Default (press and hold for 10 second)
- System Monitoring Statistic and Event log
- Traffic Measurement Per interface
- Auto-channel Selects least congested channel
- Bandwidth management
- Backup & Restore settings through Web interface
- QoS WMM
- WEP/WPA/WPA2/ WPA MIXED Encryption
- WPA-PSK using TKIP or AES / WPA-EAP using TKIP
- 802.1x Authenticator
- SSID broadcast enable/disable
- MAC Address Filter
- WLAN L2 Isolation (AP mode only)
- Wireless Client connected list

ENVIRONMENT

- Temperature Range: 0 to 50° C (32° to 122° F)
- Storage: -20 to 60° C (-4° to 140° F)
- Humidity (non-condensing):
    - Operating: 90% or less
    - Storage: 90% of less

MECHANICAL

- Dimensions – 9.142" x 6.242" x 1.438" (L x W x D)
- Weight – 17.4 oz.
- Housing – 14 gauge anodized aluminum electronic housing.
-

APPENDIX B – TECHNICAL SUPPORT

Please visit our website for up-to-date support information:

Website: www.pakedge.com

Email: support@pakedge.com

CONTACT INFORMATION:

Pakedge Device & Software Inc.

1163 Triton Drive

Foster City, CA 94404

U.S.A

MODEL W7X

Congratulations on your purchase of a Pakedge Device & Software wireless product! Pakedge designs and manufactures the finest home networking products. With proper installation, setup, and care, you should enjoy many years of unparalleled performance. Please read this consumer protection plan carefully and retain it with your other important documents.

This is a LIMITED WARRANTY as defined by the U.S. Consumer Product Warranty and Federal Trade Commission Improvement Act.

What Is Covered Under the Terms of This Warranty

SERVICE LABOR: Pakedge will pay for service labor by an approved Pakedge service center when needed as a result of manufacturing defect for a period of one (1) year from the effective date of delivery to the end user.

PARTS: Pakedge will provide new or rebuilt replacement parts for parts that fail due to defects in materials or workmanship for a period of one (1) year from the effective date of delivery to the end user. Such replacement parts are then subsequently warranted for the remaining portion (if any) of the original warranty period.

What Is Not Covered Under the Terms of This Warranty

This warranty only covers failure due to defects in materials and workmanship that occur during normal use and does not cover normal maintenance. This warranty does not cover any appearance item; any damage to living structure; failure resulting from accident (for example: flood, electrical shorts, insulation); misuse, abuse, neglect, mishandling, misapplication, faulty or improper installation or setup adjustments; improper maintenance, alteration, improper use of any input signal and/or power, damage due to lightning or power line surges, spikes and brownouts; damage that occurs during shipping or transit; or damage that is attributed to acts of God.

The foregoing limited warranty is Pakedge's sole warranty and is applicable only to Products sold as new by Authorized Dealers. The remedies provided herein are in lieu of a) any and all other remedies and warranties,

whether expressed, implied or statutory, including but not limited to, any implied warranty of merchantability, fitness for a particular purpose or non-infringement, and b) any and all obligations and liabilities of Pakedge for damages including but not limited to incidental, consequential or special damages, or any financial loss, lost profits or expense, or loss of network connection arising out of or in connection with the purchase, use or performance of the Product, even if Pakedge has been advised of the possibility of such damages.

CAUTION: DAMAGE RESULTING DIRECTLY OR INDIRECTLY FROM IMPROPER INSTALLATION OR SETUP IS SPECIFICALLY EXCLUDED FROM COVERAGE UNDER THIS WARRRANTY. IT IS IMPERATIVE THAT INSTALLTION AND SETUP WORK BE PERFORMED ONLY BY AN AUTHORIZED PAKEDGE DEALER TO PROTECT YOUR RIGHTS UNDER THIS WARRANTY. THIS WILL ALSO ENSURE THAT YOU ENJOY THE FINE PERFORMANCE YOUR PAKEDGE PRODUCT IS CAPABLE OF PROVIDING.

Rights, Limits, and Exclusions

Pakedge limits its obligation under any implied warranties under state laws to a period not to exceed the warranty period. There are no express warranties. Pakedge also excludes any obligation on its part for incidental or consequential damages related to the failure of this product to function properly. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages. In this case, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

Effective Warranty Date

This warranty begins on the effective date of delivery to the end user. For your convenience, keep the original bill of sale as evidence of the purchase date from your authorized dealer.

Important- Warranty Registration

Please register your product at www.pakedge.com. It is imperative that Pakedge knows how to reach you promptly if we should discover a safety problem or product update for which you must be notified. In addition, you may be eligible for discounts on future upgrades as new networking standards come about.

To Obtain Service, Contact Your Pakedge Dealer.

Repairs made under the terms of the Limited Warranty covering your Pakedge product will be performed by an Authorized Pakedge Service Center. These arrangements must be made through the selling Pakedge Dealer. If this is not possible, contact Pakedge directly for further instructions. Prior to returning a defective Product directly to Pakedge, you must obtain a Return Material Authorization number and shipping instructions. Return shipping costs will be the responsibility of the owner.

For additional information about this warranty, visit our website:

Pakedge Device & Software Inc.

1163 Triton Drive

Foster City, CA 94404-1213

U.S.A

877-274-6100

Email- support@pakedge.com

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www.pakedge.com