



WCPEn-2400-I Quick Start Guide

February 2012

Version 1.0

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FCC Statement

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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible. This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

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.

Note: Wavion and its resellers or distributors are not liable for injury, damage or regulation violations associated with the installation of outdoor units or antennas.

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1. Introduction

This document describes how to set-up, configure and use the WCPEn-2400-I unit. The WCPEn-2400-I is a 2x2 MIMO IEEE 802.11b/g/n wireless indoor CPE, which supports high throughput up to 300Mbps, as well as supporting the unique dual-zone functionality that enables it to connect as a long-range wireless through the WAN to the outdoor WBSn base station, and repeat the signal to the LAN.

1.1 Key Features

WCPEn-2400-I key features are presented below:

- Wireless 802.11n technology
- Two way Beamforming with 2x2 MIMO and 2 data-streams
- Four operational modes
- Data Rate up to 300Mbps
- High Tx power
- WMM & QoS
- Desktop and Window mounting options kit

2. Installation

This document is intended to help you set up and configure the WCPEn-2400-I.

2.1 Package Contents

The following checklist covers all the procedures and equipment that you need to acquire and assemble, prior to beginning the installation and configuration procedures. Ensure that you check this list carefully, before beginning any of the procedures described later in this Guide.

- 1x WCPEn-2400-I unit
- 1x WCPEn-2400-I unit base
- 2x 4dBi antennas
- Power adapter
- Windows mounting kit
- CD

2.2 Product Layout



The image above represents the WCPEn-2400-I. The LAN and DC ports are located on the side of the unit, and LEDs that indicate the Power, LAN and the signal strength are located on the front.

2.3 Installation and Set-up

The following section describes the installation and configuration procedures for the WCPEn-2400-I CPE.

2.3.1 Installing the WCPEn-2400-I

Prior to performing the procedures described in this section, ensure that you have read all the information, and followed all instructions and safety precautions in the [Pre-Installation Checklist](#).

WCPEn-2400-I setup

1. Insert the WCPEn-2400-I unit into the blue base stand.



2. Connect both antennas to the WCPEn-2400-I unit.
3. Connect WCPEn-2400-I to a power source, using the power supply unit. The power LED switches on.
4. Connect WCPEn-2400-I to your PC, using a network cable. The LAN LED switches on.

The WCPEn-2400-I is now setup and ready to be used.

You should now proceed to the section entitled [Connecting Power and Data](#), and after that go to [Basic Configuration](#) in Chapter 3.

2.4 Connecting Power and Data

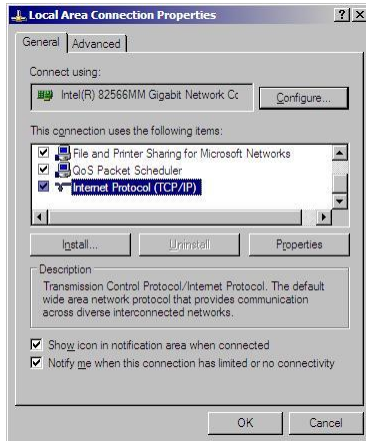
In order to manage the WCPEn-2400-I, your PC and the WCPEn-2400-I management IP should be on the same sub-network. The WCPEn-2400-I management IP is: 192.168.1.2

The following procedure describes how to modify your PC IP address, for Windows XP operating systems.

1. Click **Start => Settings => Network Connections**.

Note: On some computers, this is sometimes displayed as **Start => Settings => Control Panel => Network Connections**.

2. Right-click the Local Area Connection icon, and select **Properties** from the drop-down list displayed.



3. Select **Internet Protocol (TCP/IP)** and click **Properties**.
4. Select **Use the following IP Address**.
5. Enter 192.168.1.100 into the **IP Local Area Connection Properties** window.

2.4.1 Accessing the WCPEn Management Interface

The following procedure describes how to log in to the WCPEn-2400-I management interface, where you can set up and configure the WCPEn-2400-I.

1. In an internet browser, enter `http://192.168.1.2` in the URL navigation field, and click **Enter**.

Note: The following browsers are supported: Microsoft Internet Explorer, Chrome and Mozilla Firefox.

2. A log-in screen is displayed.
 - Enter **admin** in the User Name field.
 - Enter **admin** in the password field.
3. Click **Connect**.

3. Configuring WCPEn

The WCPEn interface is comprised of three separate sections, which each relate to the key areas that you will use.

- The **Status** section enables you to check how the system is working, and whether the unit is configured correctly.
- The **Configuration** section enables you to configure the unit according to your requirements.
- The **Administration** section enables comprehensive maintenance of the unit from the user's point of view, including specifying logs to be created, and creating and adding new users to the system.

3.1 General Configuration

Most of the default settings in the WCPEn-2400-I are pre-defined in order that you do not have to reset them, or make any changes. However, certain elements require personalization, as described below.

3.1.1 Setup

This section describes how to change the default time setting, IP address and admin password.

1. Navigate to **Configuration => System => Time Settings** to set a unified time of the unit, according to your specific time zone.



2. Click **Save**.
3. Navigate to **Configuration => Network => IP Address**. Your default local IP address is displayed.
4. You can change the default IP address to reflect your management IP address.
Note: For information about modifying your IP address, see [Connecting Power and Data](#).
5. Navigate to **Administration => Users**, to change the admin default password.

3.1.2 Operation Mode

When configuring your WCPEn-2400-I, you need to specify an operational mode according to the system set-up with which you are working. The following operation modes are available:

- **Client Bridge Operation Mode**

The Client Bridge operation mode means that the wireless client interface is treated as a WAN port, and the Ethernet ports are considered as LAN ports. When WCPEn-2400-I is in this mode, neither Network Address Translation (NAT) nor routing functionality can be performed.

- **Client Router Operation Mode**

The Client Router operation mode means that both the Network Address Translation (NAT) and the IP address for the PC connected to the WCPEn-2400-I LAN port are provided by the DHCP server at the gateway router, rather than by the unit.

- **Dual Zone Bridge Operation Mode**

In the Dual Zone operation modes, both LAN and WAN interfaces are wireless. The WCPEn-2400-I works as a repeater between the two wireless interfaces.

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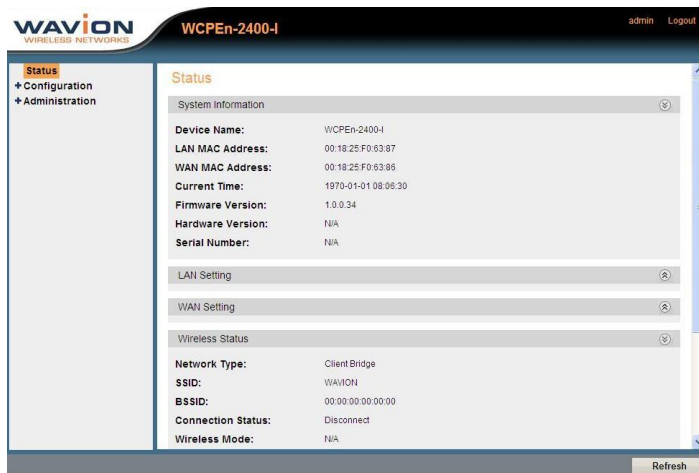
Below please find the procedures describing how to configure according to the specific operation mode.

- [Configuring Client Bridge Operation Mode](#)
- [Configuring Client Router Operation Mode](#)
- [Configuring Dual Zone Bridge Operation Mode](#)
- [Configuring Dual Zone Router Operation Mode](#)

3.1.2.1 Configuring Client Bridge Operation Mode

1. Navigate to **Configuration => System => Operation Mode**, and select the **Client Bridge** mode.
2. Click **Save**.
3. Following the prompt, restart your system.

Note: Once your system powers up again, you can check that the correct operation mode has been activated, by navigating to **Status => Wireless Status => Operation Mode**, as shown below:



4. To configure the Wireless settings, navigate to **Configuration => Wireless => Wireless Setting=>Site Survey**.
5. Click **Scanning**. A list of available access points is displayed
6. Select the required access point and click **Connect**.

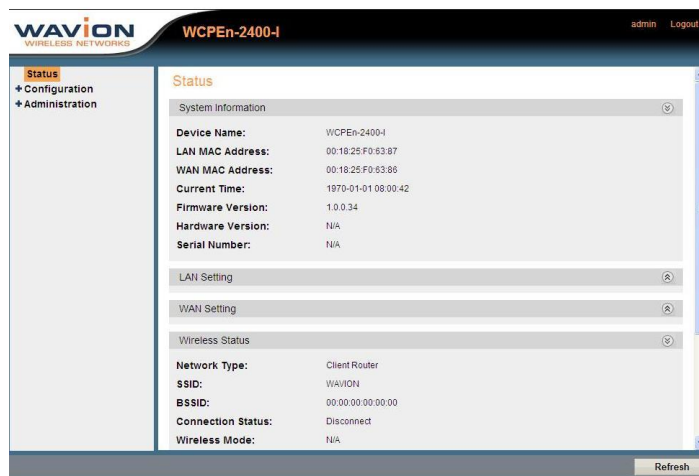
Note: If indicated in the list of access points that security settings need to be configured, click Security Settings:

- Enter the SSID string of your home system.
- Specify the security mode according to your system requirements. For more information, see the [Security, Authentication and Encryption Modes table](#).

3.1.2.2 Configuring Client Router Operation Mode

- Navigate to **Configuration => System => Operation Mode**, and select the **Client Router** mode.
- Click **Save**.
- Following the prompt, restart your system.

Note: Once your system powers up again, you can check that the correct operation mode has been activated, by navigating to **Status => Wireless Status => Operation Mode**, as shown below:



- Navigate to **Configuration => Network => WAN Settings**.
- Select **Dynamic IP (DHCP Client)**, and click **Save**.
- To configure the Wireless settings, navigate to **Configuration => Wireless => Wireless Setting=>VAP1**.
- Click **Scanning**. A list of available access points is displayed
- Select the required access point and click **Connect**.

Note: If indicated in the list of access points that security settings need to be configured, click Security Settings:

- Enter the SSID string of your home system.
- Specify the security mode according to your system requirements. For more information, see the [Security, Authentication and Encryption Modes table](#).

3.1.2.3 Configuring Dual Zone Bridge Operation Mode

- Navigate to **Configuration => System => Operation Mode**, and select the **Dual Zone Bridge** mode.
- Click **Save**.
- Following the prompt, restart your system.

Note: Once your system powers up again, you can check that the correct operation mode has been activated, by navigating to **Status => Wireless Settings => Operation Mode**, as shown below:



4. You must define two Virtual AP (VAPs) for Dual Zone Bridge Operation Mode. VAP1 is the VAP which connects to the outdoor base station, and VAP 2 is the VAP signal to WCPEn-2400-I.
5. To specify the first VAP, navigate to **Configuration => Wireless => Wireless Setting**.
6. Click the **VAP1** tab, and click **Scanning**. A list of available access points is displayed.

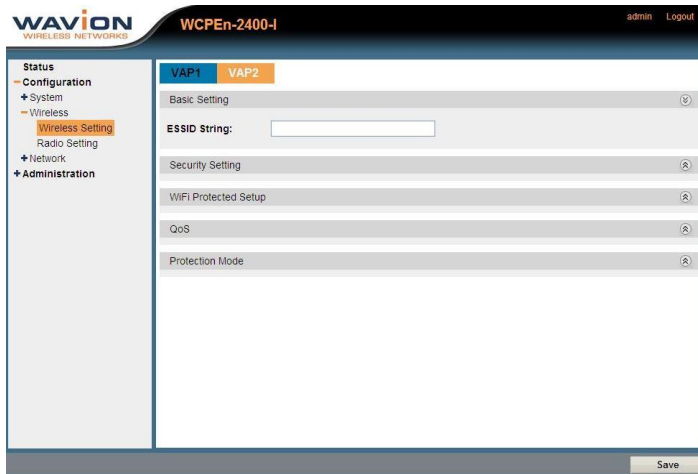
BSSID	SSID	Channel	Signal	Type	Security	Connect
00:18:25:03:50:90	206-2.4	1	32%	802.11b/g	on	Connect
00:18:25:03:34:F2	208-dual	6	100%	802.11b/g	on	Connect
00:18:25:01:F8:70	QA	3	100%	802.11b/g	on	Connect
0C:5A:19:00:02:D8	Axion5	4	73%	802.11b/g	on	Connect
00:18:25:02:10:F0	WavionBeta11n	8	100%	802.11b/g	on	Connect
00:18:25:03:50:92	206-dual	1	28%	802.11b/g	on	Connect
00:18:25:02:1C:B1	204S-B-Camera-WPA2	8	50%	802.11b/g	on	Connect
00:18:25:02:13:B1	207-2	1	100%	802.11b/g	off	Connect
02:18:25:F0:63:7E	wavion guest	3	100%	802.11b/g/n	off	Connect
00:18:25:02:13:B0	207	1	100%	802.11b/g	off	Connect
02:0E:93:73:8C:4A	GROUP1	1	87%	802.11b/g	off	Connect
00:02:65:85:31:77	EnGenius1	1	25%	802.11b/g	off	Connect

7. Select the required access point and click **Connect**.

Note: If indicated in the list of access points that security settings need to be configured, click Security Settings:

 - a. Enter the SSID string of your home system.
 - b. Specify the security mode according to your system requirements. For more information, see the [Security, Authentication and Encryption Modes table](#).

8. Click the **VAP2** tab.



9. Enter the SSID string of your home system.
10. Specify the security mode according to your system requirements. For more information, see the [Security, Authentication and Encryption Modes table](#).
11. Click **Save**.

3.1.2.4 Configuring Dual Zone Router Operation Mode

1. Navigate to **Configuration => System => Operation Mode**, and select the **Dual Zone Router** mode.
2. Click **Save**.
3. Following the prompt, restart your system.

Note: Once your system powers up again, you can check that the correct operation mode has been activated, by navigating to **Basic Status => Wireless Settings => Operation Mode**, as shown below:



4. You must define two VAPs for Dual Zone Router operation mode. VAP1 is the VAP which connects to the outdoor base station, and VAP 2 is the VAP signal to WCPEn-2400-I.
5. To specify the first VAP, navigate to **Configuration => Wireless => Wireless Setting**.
6. Click the **VAP1** tab, and click **Scanning**. A list of available access points is displayed
7. Select the required access point and click **Connect**.

Note: If indicated in the list of access points that security settings need to be configured, click Security Settings:

- a. Enter the SSID string of your home system.
- b. Specify the security mode according to your system requirements. For more information, see the [Security, Authentication and Encryption Modes table](#).

8. Click the **VAP2** tab.

9. Enter the SSID string of your home system.

10. Specify the security mode according to your system requirements. For more information, see the [Security, Authentication and Encryption Modes table](#).

11. Navigate to **Configuration => Network => WAN Setting**.

12. Select **Dynamic IP (DHCP Client)**, and click **Save**.

3.1.3 Specifying Wireless settings

To specify Wireless Settings

1. Navigate to **Configuration => Wireless => Wireless Settings**.

2. In **Site Survey**, click **Scanning** to locate and display a list of the available local WBSn base stations.

BSSID	SSID	Channel	Signal	Type	Security	Connect
00:18:25:03:34:F2	208-dual	6	100%	802.11b/g	on	Connect
0C:5A:19:00:02:D4	Axton	4	59%	802.11b/g	on	Connect
0C:5A:19:00:02:D7	Axton4	4	59%	802.11b/g	on	Connect
0C:5A:19:00:02:D8	Axton5	4	59%	802.11b/g	on	Connect
00:18:25:02:10:F0	WavionBeta11n	8	100%	802.11b/g	on	Connect
00:18:25:01:F6:70	QA	3	100%	802.11b/g	on	Connect
0C:5A:19:00:02:D9	Axton6	4	59%	802.11b/g	on	Connect
0C:5A:19:00:02:D6	Axton3	4	62%	802.11b/g	on	Connect
00:18:25:02:08:21	YB4	6	62%	802.11b/g	on	Connect
00:18:25:02:08:20	YB1	6	59%	802.11b/g	on	Connect
00:18:25:02:13:B1	207-2	1	100%	802.11b/g	off	Connect

3. Click **Connect** on the Base Station to which you wish to connect, and click **Close**.

4. In **Configuration => Wireless => Wireless Settings** go to the **Security Settings** section, and specify the security mode according to your system requirements (see the below table).

3.1.4 Security Settings

Security Mode	Values		
Open	No security applied		
WEP	Simple WEP security (64 or 128 bit hardware key) Modes: <ul style="list-style-type: none">• Open Key• Shared key Indicate which key is primary – 4 options		
WPA	Enhanced security for personal enterprise Available options:		
	<table><tr><td>MODE</td><td><ul style="list-style-type: none">• WPA• WPA2• Auto</td></tr></table>	MODE	<ul style="list-style-type: none">• WPA• WPA2• Auto
	MODE	<ul style="list-style-type: none">• WPA• WPA2• Auto	
	<table><tr><td>CYPHER</td><td><ul style="list-style-type: none">• TKIP• CCMP• Auto</td></tr></table>	CYPHER	<ul style="list-style-type: none">• TKIP• CCMP• Auto
	CYPHER	<ul style="list-style-type: none">• TKIP• CCMP• Auto	
<table><tr><td>Pre-Shared Key</td><td>Enter a pre-shared key, required field. 8-63 characters.</td></tr></table>	Pre-Shared Key	Enter a pre-shared key, required field. 8-63 characters.	
Pre-Shared Key	Enter a pre-shared key, required field. 8-63 characters.		
<table><tr><td>Enterprise/Radius support</td><td><ul style="list-style-type: none">• AUTH Server• Port• Shared Secret</td></tr></table>	Enterprise/Radius support	<ul style="list-style-type: none">• AUTH Server• Port• Shared Secret	
Enterprise/Radius support	<ul style="list-style-type: none">• AUTH Server• Port• Shared Secret		

3.2 General Administration Tasks

The following procedures describe how to upgrade the current firmware, as well as how to restore settings to the default or previously defined settings.

3.2.1 Firmware Upgrade

The firmware upgrade capability enables you to upgrade your system firmware, or to rollback to a previously saved version.

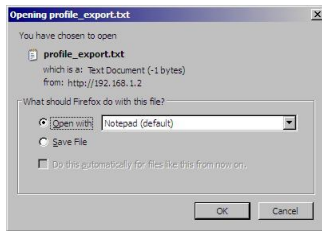
1. In the WCPEn-2400-I management interface, navigate to **Administration => Firmware Upgrade**.
2. Browse to the location in which the upgrade file is located.
3. Click **Upgrade**.

3.2.2 Restoring Settings

You can back-up your current configuration settings, for example, for maintenance or troubleshooting purposes. You can also use this backup to restore your system configuration settings to those previously defined, in the event of a problem.

1. In the WCPEn-2400-I interface, navigate to **Administration => Backup/Restore Settings**.
2. To back up the configuration settings, click **Backup**.

3. A window is displayed, asking you if you wish to save or open your backup file.



4. Select **Save File**, and click **OK**.
5. To restore a system configuration setup from a previously saved backup file, click **Browse** in the **Restore File** field, and navigate to the location where the this file was saved.
6. Select the file, and click **Restore**.

A message is displayed, advising you that the Restore is in process, and that you should refresh your browser within two minutes.

3.3 Status

This section enables you to check how your system is working, and whether the WCPEn unit and software/firmware is configured correctly.

3.3.1 Checking System Setup

Navigate to **Status => System** for an overall view of the system settings.

Parameter	Description and values
Time	Indicates the unified time of the unit, according to the NTP server, and your specific time zone.
Software Versions	Displays the current software (firmware) version. For more information, see the section entitled Firmware .

3.4 Configuration

3.4.1 System Setup

In the GUI, use the **Configuration => System** page to set up, configure and manage your IP. This page displays basic static information on the system, including contact details, and IP addresses. Default values and details are provided, which should be modified, by specifying parameter values according to your network system and requirements.

3.4.2 IP Management

To Configure a Management IP address

1. Navigate to **Configuration => Network => LAN Setting**.

2. Modify the IP address and NetMask values according to your local network specification, as required.

Parameter	Description
IP Address	Change the management IP address
Mask	Enter the required network mask
DHCP Server Setting	Disabled
Static IP Address Setting	<p>Select Enable or Disable</p> <p>If Enabled, you must specify values for the following fields:</p> <ul style="list-style-type: none"> • IP Address • Mac Address <p>Static IP List – displays a list of available static IPs.</p>

4. Appendix B: Troubleshooting

We hope your experience with the WCPEn-2400-I is as smooth as possible. In this section we provide tips to solve some common problems.

4.1 Basic Troubleshooting

Problem	Solution
Default user and password	User: admin Password: admin
Unable to Ping or HTTP the new unit	<ul style="list-style-type: none"> Check the Power Is the CPE Operational? Check the LED, make sure it shows green on the status WCPEn-2400-I default IP Address is 192.168.1.2 /24 mask
Client unable to acquire an IP Address from DHCP Server	<ul style="list-style-type: none"> Is the CPE Operational? Check the DHCP Server. Use Static IP to test the DHCP configuration

4.2 LED Descriptions

LED	Status	Description
Power LED	<ul style="list-style-type: none"> Off On 	<ul style="list-style-type: none"> CPE is powered off CPE has finished the initialization and is powered on
LAN LED	<ul style="list-style-type: none"> Off On Blinking 	<ul style="list-style-type: none"> Network cable is not connected Network cable is connected Ethernet Activity is happening
1st signal strange LED	<ul style="list-style-type: none"> Off On 	<ul style="list-style-type: none"> The CPE is not connected to any AP The CPE has established a connection with the AP
2nd signal strange LED:	<ul style="list-style-type: none"> Off On 	<ul style="list-style-type: none"> Signal strange is less than 25% Signal strange is 26%~50%
3rd signal strange LED	<ul style="list-style-type: none"> Off On (Green) 	<ul style="list-style-type: none"> Signal strange is less 50% Signal strange is 51%~75%
4th signal strange LED	<ul style="list-style-type: none"> Off On (Green) 	<ul style="list-style-type: none"> When signal strange is less than 75% When signal strange is 76%~100%
Reset button	<ul style="list-style-type: none"> All 5 LEDs are blinking when SW is reset (for any reason) 	