# **PAKEDGE**DEVICE&SOFTWARE INC.

# **C36**

ENTERPRISE-CLASS, FULLY MANAGED, WIRELESS ACCESS POINT CONTROLLER



# **USER MANUAL**

VERSION 1.2



( F

# **FCC Certifications**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

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.

#### **CE Mark Warning**

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 Class A for ITE, the essential protection requirement of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

The company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information. No part of this document can be copied or reproduced in any form without written consent from the company.

#### Trademarks:

All trade names and trademarks are the properties of their respective companies.

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WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. THE UNIT MUST NOT BE EXPOSED TO DRIPPING OR SPLASHING WATER. CAUTION: DO NOT OPEN THE UNIT. DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE INSTALLATION AND TROUBLESHOOTING INSTRUCTIONS. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL. CAUTION: THIS DEVICE MUST BE INSTALLED AND USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AS DESCRIBED IN THE USER DOCUMENTATION THAT COMES WITH THE PRODUCT. WARNING: POSTPONE INSTALLATION UNTIL THERE IS NO RISK OF THUNDERSTORM OR LIGHTNING ACTIVITY IN THE AREA.

#### Safety Precautions:

To reduce the risk of fire, electric shock, and injury to persons, always follow basic safety precautions when using this device:

- Read all of the instructions (listed here and/or in the user manual) before you operate this equipment.
- Comply with all warning and caution statements in the instructions.
- Retain the instructions for future reference.
- Observe all warning and caution symbols that are affixed to this equipment.
- Comply with all instructions that accompany this equipment.
- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.
- Installation of this product must be in accordance with national wiring codes and conform to local regulations.
- Give particular attention to all safety precautions.
- Operate this product only from the type of power source indicated on the product's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damage to the equipment from lightning strikes and other electrical surges.
- Wipe the unit with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.
- Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.
- Do not directly cover the device or block the airflow to the device with insulation or any other objects.

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# QUICK CONTROLLER OVERVIEW

The front panel of the C36 has a pair of blue LEDs. See the below table for more information.

| Label | Function              | Description                             |
|-------|-----------------------|---|
| HDD   | Hard Drive Activity   | When lit, the hard drive is in use      |
| PWR   | Power indicator light | When lit, indicates that unit has power |

The rear panel is where the physical cabling (power, Ethernet, console) is located. The table below describes each port and its function.

| Name         | Description                                       |
|--------------|---|
| AC Connector | AC110~260V  |
| Power Switch | Provides power to the C36                         |
| USB ½        | Maintenance                                       |
| LAN          | MDI/MDIX RJ45 Interface for connection to the LAN |
| HDMI         | HDMI Display out for maintenance                  |
| Console      | Local management, 115200bps, RJ45 interface       |

# PREPARING TO INSTALL THE CONTROLLER

Installing the C36 is similar to installing a network switch. If you have installed a managed switch before, the process will be very similar.

Tools required:

- Phillips screwdriver (if using rack-mount brackets).
- PC or laptop with Ethernet interface and a web browser (an integrated DB-9 port or USBto-Serial adapter may be necessary if you would like to use the console interface).
- Ethernet cable.

#### INSTALLATION

- 1. Open the box and remove the unit.
- 2. If mounting the switch in a standard 19" AV rack, attach the rack-mounting brackets that come with the C36. If not rack-mounting, ensure that the switch is physically mounted near power and network connections (i.e, backbone switch or firewall/router).
- 3. Connect power to the device.
- 4. Connect an Ethernet cable from your computer to the LAN port on the C36.
- 5. You are now ready to configure the switch to an IP address that matches your network.

# SETTING CONTROLLER IP ADDRESS

- 1. Connect the controller to power and push the power switch on the rear panel. The PWR LED will light up and the fans will start.
- 2. If you are using a Pakedge router that has an internal IP address of 192.168.1.99, then you can connect the controller to an available port on your router or a network switch and skip to The Wizard. If your router is using an IP address of other than 192.168.1.99 but still on the 192.168.1.X scheme, skip to step 3. If your router is using an IP scheme other than 192.168.1.X, skip to step 11.
- 3. Connect an Ethernet cable from the C36 to your router while the router is on.
- 4. In the browser, enter the C36's default IP address of **192.168.1.236** into the address bar and press **<ENTER**>.

5. A web page will appear prompting you for a username and password. Enter **pakedge** as the username and **pakedgec** for the password. Then click **Login** to log in to the web administration portal.



6. Once you have logged into the controller, you will see the Dashboard.

| Macrocell Controller | Das                                   | hboard 主 Settir   | ngs 🗼 Dea         | ler Tools 🧭 Wiz     |   | 🕇 4d 2h 51m       |           |         |
|----------------------|---------------------------------------|-------------------|-------------------|---------------------|---|-------------------|-----------|---------|
|                      |                                       |                   |                   |                     |   |                   | Dashboard | Widgets |
| 90 1                 | 2.4 One: 0<br>Chenta)<br>7/ct10360 aa |                   |                   |                     |   |                   |           |         |
|                      |                                       | pak               | (0                | dg                  | e |                   |           |         |
|                      |                                       |                   |                   |                     |   |                   |           |         |
|                      |                                       |                   |                   |                     |   | hermani Cantralia |           |         |
|                      |                                       | Refresh Dashboard | Reboot Controller | Shutdown Controller |   |                   | \<br>\    |         |

7. Hover your mouse over **Settings** towards the top. Click **Macrocell Controller**.

| Dashboard           | Settings             | Dealer Tools          | Wizard     |
|---------------------|----------------------|-----------------------|------------|
| Dashboard & Widgets | Macrocell Controller | Site Survey           | Run Wizard |
| Reports             | Access Point         | AP Deployment         |            |
|                     | Global Configuration | Wireless Optimization |            |
| 1                   | Advanced             |                       |            |
|                     |                      |                       |            |

#### 8. Click LAN Settings.

| Macrocell Controller                        |   |             |                                |
|---|---|-------------|--------------------------------|
| Administration                              | Maintenance                             |             | ntroller Firmware              |
| Edit controller password                    | Run maintenance on the controller       | Ci          | urrent firmware version        |
| Config                                      | Config                                  |             | Config                         |
| Time and Date                               | LAN Settings                            | SNMP        | License                        |
| Edit controller Time, Date, Zone And Format | Edit Controller IP, Netmask and Gateway | Enable SNMP | Controller license maintenance |
| Config                                      | Config                                  | Config      | Config                         |

9. Enter the correct default gateway. Click **Save** to finalize the settings. Now that your controller has the correct default gateway, you can skip to the section titled **The Wizard**.

|           | LAN SETTINGS  |
|-----------|---------------|
| IP:       | 192.168.50.2  |
| Netmask:  | 255.255.255.0 |
| Gateway:  | 192.168.50.1  |
| Hostname: | c36           |
|           | Save          |

- 10. Connect an Ethernet cable from your computer to the C36 directly.
- 11. Configure the PC with a static IP address of **192.168.1.10** and subnet mask of **255.255.255.0** and then open any browser (Mozilla Firefox is preferred).
- 12. In the browser, enter the C36's default IP address of **192.168.1.237** into the Address Bar and press **<ENTER>**.
- 13. A web page will appear prompting you for a username and password. Enter **pakedge** as the username and **pakedgec** for the password. Then click **Login** to log in to the web administration portal.

| Macrocell Controller |  |
|----------------------|--|
| Username             |  |
| Password             |  |
| Login                |  |
| pareug               |  |
|                      |  |
|                      |  |

14. Hover your mouse over **Settings** at the top. Click **Macrocell Controller**.



#### 15. Click LAN Settings.

| Macrocell Controller                        |   |             |                                |
|---|---|-------------|--------------------------------|
| Administration                              | Maintenance                             | Co          | ntroller Firmware              |
| Edit controller password                    | Run maintenance on the controller       | Ci          | urrent firmware version        |
| Config                                      | Config                                  |             | Config                         |
| Time and Date                               | LAN Settings                            | SNMP        | License                        |
| Edit controller Time, Date, Zone And Format | Edit Controller IP, Netmask and Gateway | Enable SNMP | Controller license maintenance |
| Config                                      | Config                                  | Config      | Config                         |

16. Enter the correct IP address information. Click **Save** to finalize the settings. You can now connect the controller to your network.

|           | LAN SETTINGS  |
|-----------|---------------|
| IP:       | 192.168.50.2  |
| Netmask:  | 255.255.255.0 |
| Gateway:  | 192.168.50.1  |
| Hostname: | c36           |
|           | Save          |

# THE WIZARD

The Wizard will discover, manage and configure your access points. Making it a quick and easy tool to get your wireless network up and running.

#### **STEP 1: FIRMWARE**

1. Log in to the C36 and hover your mouse over Wizard towards the top. Click Run Wizard.

| Dashboard           | Settings             | Dealer Tools          | Wizard     |
|---------------------|----------------------|-----------------------|------------|
| Dashboard & Widgets | Macrocell Controller | Site Survey           | Run Wizard |
| Reports             | Access Point         | AP Deployment         |            |
| 1                   | Global Configuration | Wireless Optimization |            |
|                     | Advanced             |                       |            |
|                     |                      |                       |            |

2. Click **Start** to begin the wizard setup.



3. The access points must all be on the same firmware version. If there is any inconsistency in the firmware version, the C36 will notify you.



4. Click **Ok** to be redirected to the **AP-Firmware** update page.

5. The icon - Control indicates which access points have an older firmware and which version they should be updated to. Select the highlighted APs and click on **Update AP Firmware**. Once

|             |               |         |                 | Re-Scan | Upload Firmware File | Update AP Firr | nware |
|-------------|---------------|---------|-----------------|---------|----------------------|----------------|-------|
| AP Location | IP            | Model   | Active Firmware |         | Available Firmware   | Status         |       |
|             | 192.168.1.130 | WAP-x3G | 2.11            |         | 2.11 🗸               |                |       |
|             | 192.168.1.111 | WAP-x3G | 2.11            |         | 2.11 👻               |                |       |
|             | 192.168.1.110 | WAP-x3G | 2.11            |         | 2.11 👻               |                | E     |
|             | 192.168.1.250 | W6x     | 1.2             |         | 1.3 👻                |                |       |
|             | 192.168.1.250 | W6x     | 1.2             |         | 1.3 👻                |                |       |

the process is complete, all your access points should display a green icon like this: 1

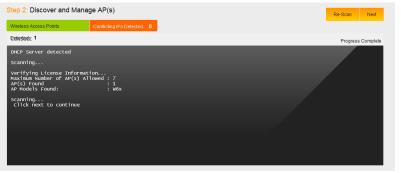
6. Click **Next** to continue to step 2.

#### **STEP 2: DISCOVER AND MANAGE AP(S)**

- 1. Once the firmware has been updated on all access points, the C36 will continue on with the wizard.
- 2. The C36 will scan your network and discover any compatible access points. Click **Next** to continue.

| Step 1: Firmware St | atus     |                 |                  | Upgrade     | Re-Scan |  |
|---------------------|----------|-----------------|------------------|-------------|---------|--|
| IP                  | AP MODEL | ACTIVE FIRMWARE | LATE ST FIRMWARE | MAC ADDRESS | STATUS  |  |
| 192.168.50.161      | W6x      | 1.9             | 1.9              | 1000000000  |         |  |

3. The C36 will detect the DHCP server on the network, which is usually a router. Click **Next** to continue.



#### **STEP 3: GLOBAL CONFIGURATION**

- 1. In this step you will configure up to 4 SSIDs, as well as an optional guest network.
  - Enable: Allows you to enable/disable an SSID
  - SSID: Enter the SSID name
  - **Suppressed SSID**: When this is set to **On**, the SSID will be active but you will not see it broadcasting and will need to manually enter the SSID name to join it
  - **Station Separation**: When this is set to **On**, devices connected to the same SSID cannot see/ping or communicate with each other
  - **Security**: Choose the best security that fits your network needs (recommended WPA2-PSK)
  - **Passphrase**: Enter your wireless password
  - Enable 802.1q tag: Only Enable when you have a router capable of doing VLANs. When you set it to **On** you will be given the option to choice which VLAN to tag it to

Step 3: W6x Wizard Configuration Enable Enable 2 SSID SSID Suppressed SSID Station Senarat Passphrase Passphrase Enable 802.1q tag Enable 802.1q tag: On . -O of 00 Enable Enable 3 Δ SSID SSID Suppre ssed SSID ssed SSID: Passphrase Passphrase Enable 802.1q tag: Oor Enable 802.1q tag: 00

2. If you are configuring a W7 access point, the configuration screen will look slightly different. The Wizard will ask you how many SSIDs you would like to configure. You can configure up to 16 SSIDs (8 on each band) on W7's.

| Step 3: W7x Wizard Configuration          |       |                      | 2.4 GHz 5 GHz     |
|---|-------|----------------------|-------------------|
| Select Number of SSID's to Broadcast: 0 🔻 | On On | ENABLE BAND STEERING | Available Band(s) |
| Select Number of SSID's to Broadcast.     |       |                      |                   |

3. Once you have selected the number of SSIDs you wish to use, you will be able to configure the SSID. The SSID options are very similar to the options available on the W6.



4. You will have two options on the W7 that say **Band Steering** and **Clone to 5 GHz**. Band Steering pushes devices that support 5 GHz over to that band instead of keeping them on the more congested 2.4 GHz band. This is beneficial when you have devices that operate on an older wireless standard, such as wireless G or B. You can keep those slower devices on the 2.4 GHz band and have the faster clients on the 5 GHz band.

If you are dealing with a site that encounters a lot of interference on the 2.4 GHz band, either from neighboring access points or other devices, we would recommend disabling the band steering option and setting the 5 GHz SSID differently from the 2.4 GHz SSID. This way, 5 GHz devices stay on that SSID.

| Step 3: W7x Wizard Configuration  | CLONE TO 5GHZ ENABLE BAND STEERING | 2.4 GHz 5 GHz<br>Available Band(s) |
|---|------------------------------------|------------------------------------|
| SSID C35-1-2-4GHz<br>Suppressed SSID: orOrr<br>Station Separation: orOrr<br>Security: Disable<br>Enable 802.1q tag: orOrr | SSID<br>1                          |                                    |

5. The **Clone to 5 GHz** option will allow you to copy the 2.4 GHz SSIDs to the 5 GHz band. This way, they will both have identical settings. If you do not wish to have the same SSIDs for both, leave this option disabled and then click on the **5 GHz** option towards the upper-right hand side.

| Step 3: W7x Wizard Configuration | CLONE TO 5GHZ<br>ିନ 🎃 ିମ | ENABLE BAND STEERING | 2.4 GHz<br>Available | 5 GHz<br>Band(s) |
|----------------------------------|--------------------------|----------------------|----------------------|------------------|
|                                  | Sat                      | ve                   |                      |                  |

6. The 5 GHz settings will look similar to the 2.4 GHz settings. You will be asked how many SSIDs you need.



7. Once you have selected the number of SSIDs you want, you can configure the SSID name, security, password, etc.

| lumber of SSID's t               | o Broadcast 1 🔻     |           | Available Band(s) |  |
|----------------------------------|---------------------|-----------|-------------------|--|
| 3SID:<br>Suppressed SSID:        | C38-1-5GHz<br>OnO// | SSID<br>1 |                   |  |
| Station Separation:<br>Security: | On Off<br>Disable   |           |                   |  |
| Enable 802 1q tag:               | an 👝 🕒 Ott          |           |                   |  |
|                                  |                     |           |                   |  |

8. Once you are done setting up the SSID(s), click **Save**. You will be prompted to save your changes.

| Save Changes                             |                         |                     |  |  |  |  |  |  |
|--|-------------------------|---------------------|--|--|--|--|--|--|
| Would you like to Save your changes now? |                         |                     |  |  |  |  |  |  |
| Cancel                                   | Save and stay on 5GHz A | apply Configuration |  |  |  |  |  |  |

# ADVANCED SETTINGS IN GLOBAL CONFIGURATION

Under the advanced tab you will have two options.

**802.11 Mode**: This will allow you to set the mode of the access points. By default, it is set to B/G/N. This means that any wireless devices that support these modes will be allowed to connect. You can set the mode to any of the following choices:

- B
- G
- B/G
- N
- B/G/N (default)

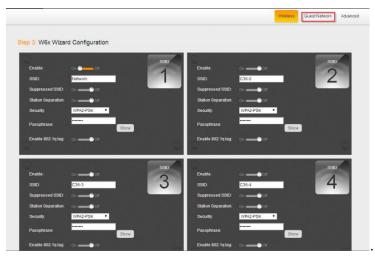
**Channel mode**: This option will allow you to set the channel width of your access points. When set to 40 MHz, the access points will be allowed to use more channels to increase throughput (speeds). Although this can be beneficial, it can also cause issues. If you are in a popluated area, using more channels will increase the chances of encountering interference. A 20 MHz channel mode is recommended for areas with many nearby access points.

| ed |
|----|
|    |
|    |
|    |
|    |
|    |
|    |

# **GUEST NETWORK (OPTIONAL)**

The Guest Network is designed for routers that do NOT support VLANs. The Guest Network acts as its own network with no communication with the other SSIDs.

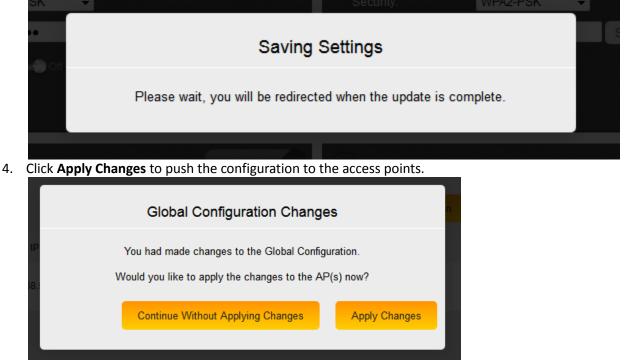
1. To enable and set the security settings on the guest SSID, click on the guest network option towards the upper right hand side.



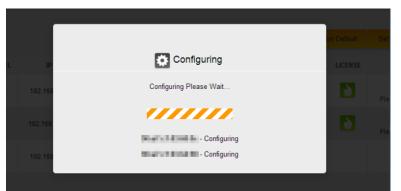
2. Here you can change the SSID and password of the guest network. You have the option to change the subnet that the guest network is on, if desired. The **Default Gateway** must be set to the IP address of your router. The **DNS** can usually use the same IP as your default gateway, but you can use a publicly available DNS server such as 8.8.8.8 as well. Click **Save** when done and **Save and Apply** to apply the configuration to the APs.

| Enable:             | On Off              | Guest |
|---------------------|---------------------|-------|
| SSID:               | PakedgeGuestNetwork | Guest |
| Station Separation: | On 👝 Off            |       |
| Security:           | Disable <b>T</b>    |       |
| Guest Network       | IP Setup            |       |
| IP Address          | 192 168 200 1       |       |
| IP Subnet Mask      | 255 255 255 0       |       |
| Use Guest Netv      | vork As DHCP Server |       |
| Starting IP Address | 192 168 200 100     | D     |
| Ending IP Address   | 192 168 200 200     | D     |
| Gateway and D       | NS                  |       |
| Primary DNS         | 192 168 1 99        |       |
| Secondary DNS       | 8 8 8 8             |       |
|                     |                     |       |

3. You should see the following message.



5. When the controller is applying the changes to the access points, you will see a screen similar to the following:



 Once the C36 is done applying the configuration to the access points, you will be redirected to the Access Point Overview page. <u>NOTE: After the configuration is done on the</u> <u>guest network, make sure you reboot the access points from the AP</u> <u>Reboot section.</u>

|               |       |                | Re           | Remove Manage / Unmana |                  | age   | Re-Scan     | Factory D | )efault | Configu | ire |
|---------------|-------|----------------|--------------|------------------------|------------------|-------|-------------|-----------|---------|---------|-----|
| AP LOCATION   | MODEL | IP             | CHANNEL      | I                      | MAC ADDRESS      |       | POWER       | LICE      | INSE    | STATUS  |     |
| Click to edit | W6x   | 192.168.50.172 | 2.4 GHz 11 👻 | 9(                     | 0:a7:c1:03:60:aa | 2.4 G | Hz 11 dBm 👻 | E         |         | Online  |     |

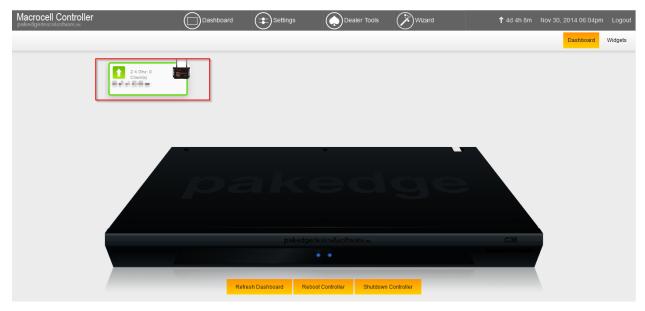
# ACCESS POINT OVERVIEW

After saving and applying the global configuration, you will be directed to the Access Point Overview page.

| Macrocell Controller | Dashboar      |       | Dashboard      | Settings   |        | Dealer Tools    | Wizard          |                 | 🕇 4d 3h 38r | m Nov 30  | , 2014 05:34pm Logou  |
|----------------------|---------------|-------|----------------|------------|--------|-----------------|-----------------|-----------------|-------------|-----------|-----------------------|
|                      |               |       |                |            |        |                 | м               | lanual Setup    | ED Controls | AP Reboot | Access Point Firmware |
|                      |               |       |                |            |        |                 |                 |                 |             |           |                       |
|                      |               |       |                |            | Remove | Manage / Unmana | ige Re-Scan     | Factory Default | Configu     | ure       |                       |
|                      | AP LOCATION   | MODEL | IP             | CHANNEL    |        | MAC ADDRESS     | POWER           | LICENSE         | STATUS      |           | _                     |
|                      | Click to edit | W6x   | 192.168.50.172 | 24GHz 11 👻 |        |                 | 2.4GHz 11 dBm 👻 |                 | Online      |           | ?                     |
|                      |               |       |                |            |        |                 |                 |                 |             |           |                       |

#### DASHBOARD

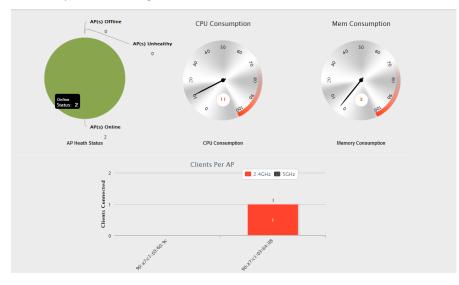
The dashboard will display connected access points at the top.



You can click on the **Widgets** button towards the upper-right hand side to display all of the widgets on the C36.

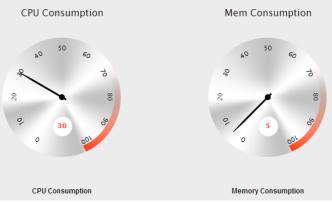
| Dealer Tools | Wizard | 🕇 4d 4h 8m | Nov 30, 2014 06:04pr | n Logout |
|--------------|--------|------------|----------------------|----------|
|              |        |            | Dashboard            | Widgets  |
|              |        |            |                      |          |

The following is an example of the widgets screen.

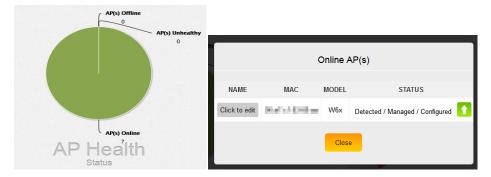


The widgets will display important information about the controller.

- **CPU Consumption**: Measures how much of the C36's CPU is being used. For best performance, keep it below 65-70%.
- **Memory Consumption**: Measures the C36 memory usage. For best performance, keep it below 60%.



- AP Health Status: Displays Online, Unhealthy, and Offline APs.
  - Online AP: Means the APs are configured and online.
  - Unhealthy AP: Means that the APs either:
    - Do not have the correct configuration.
    - Are unmanaged by the controller and therefore cannot be configured
  - Offline AP: The C36 cannot find the APs. APs with default IP addresses at 192.168.1.250 will also be listed under this section
  - You can also click on the graph to get more details about which APs are online/offline/unhealthy.



• **Clients per AP**: This widget will show you all the clients connected to your APs. You will see a bar graph that lists the number of devices per AP. You can click on this bar to get more information about the connected device, its MAC address, and the signal strength.



• MAC filter and WiFi schedule: This section will display any current WiFi schedules or MAC filter policies.

| MAC Filter(s) : Allow List |                  |                   |                       |  |  |  |  |  |  |
|----------------------------|------------------|-------------------|-----------------------|--|--|--|--|--|--|
| CLIENT NAME                | MAC /            | ADDRESS           | AP'S EFFECTED         |  |  |  |  |  |  |
|                            | WiFi Schedule(s) |                   |                       |  |  |  |  |  |  |
| SCHEDULE NAME              | SCHEDULE OPTIONS | SCHEDULE TIME AND | D DATE INCLUDED AP(S) |  |  |  |  |  |  |
|                            |                  |                   |                       |  |  |  |  |  |  |

#### **REPORTS**

The Reports page gives you summarized and detailed information about your access points and the connected clients. In addition, this section provides logs, when APs go offline/online, and whenever the global configuration is updated.

| Reports                   |                            |                                    |
|---------------------------|----------------------------|------------------------------------|
| Summary                   | Detailed                   | Client List                        |
| View general AP(s) report | View detailed AP(s) report | View all connected clients quickly |
| View                      | View                       | View                               |
|                           | Custom                     | Events                             |
| Run cu                    | stom AP(s) report          | View AP(s) Events                  |
|                           | View                       | View                               |

#### "Reports" has 5 sections:

• **Summary**: Provides basic information about your access points, like MAC address, AP model, AP mode (B/G/N), wireless channel, AP firmware version, IP address of the AP, and the default gateway. If you prefer to not see the MAC address of the AP under Device, you can change the location name under Settings – Access Point.

| Gateway | IP            | Firmware | Channel | Mode  | Model | Device            |
|---------|---------------|----------|---------|-------|-------|-------------------|
|         | 192.168.1.130 | 2.11     | Auto    | B/G   | W6x   | 90:a7:c1:01:01:0e |
|         | 192.168.1.111 | 2.11     | Auto    | B/G   | W6x   | 90:a7:c1:01:32:5e |
|         | 192.168.1.110 | 2.11     | Auto    | B/G   | W6x   | 90:a7:c1:01:3d:16 |
|         | 192.168.1,138 | 1.3      | Auto    | B/G/N | W6x   | 90:a7:c1:03:11:b2 |
|         | 192.168.1.115 | 1.3      | Auto    | BIGIN | W6x   | 90:a7:c1:03:11:ba |
|         | 192.168.1.113 | 1.3      | Auto    | BIGIN | W6x   | 90:a7:c1:03:1a:be |

• **Detailed**: Provides additional information about your access points and the clients connected to them. You will also see a list of SSIDs, the VLAN of each SSID, the security settings of each SSID, and the number of clients connected to each AP. You can click on the number of clients connected to see a list of the devices with their MAC addresses and the signal strength.

| # Clies                                 | VLAN             | Security   | SSID   | Gateway | IP            | Channel | Mode  | Model | Device            |
|---|------------------|--|--|---------|---------------|---------|-------|-------|-------------------|
| 0                                       | 1<br>2<br>3<br>4 | WPA2-PSK<br>WPA2-PSK<br>WPA2-PSK<br>WPA2-PSK                                 | Ver15Test-1<br>Ver15Test-2<br>Ver15Test-3<br>Ver15Test-4               |         | 192.168.1.130 | Auto    | B/G   | W6x   | 90:a7:c1.01:01:0e |
| 2                                       | 1<br>2<br>3<br>4 | WPA2-PSK<br>WPA2-PSK<br>WPA2-PSK<br>WPA2-PSK                                 | Ver15Test-1<br>Ver15Test-2<br>Ver15Test-3<br>Ver15Test-4               |         | 192.168.1.111 | Auto    | B/G   | W6x   | 90:a7:c1:01:32:5e |
| 0                                       | 1<br>2<br>3<br>4 | WPA2-PSK<br>WPA2-PSK<br>WPA2-PSK<br>WPA2-PSK                                 | Ver15Test-1<br>Ver15Test-2<br>Ver15Test-3<br>Ver15Test-4               |         | 192,168.1.110 | Auto    | B/G   | W6x   | 90:a7:c1.01:3d:16 |
| 00000                                   | 1<br>2<br>3<br>4 | WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES | Ver15Test-1<br>Ver15Test-2<br>Ver15Test-3<br>Ver15Test-4<br>Ver15Guest |         | 192.168.1.138 | Auto    | BIGN  | W6x   | 90:a7:c1:03:11:b2 |
| 000000000000000000000000000000000000000 | 1<br>2<br>3<br>4 | WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES | Ver15Test-1<br>Ver15Test-2<br>Ver15Test-3<br>Ver15Test-4<br>Ver15Guest |         | 192.168.1.115 | Auto    | BIGIN | W6x   | 90:a7:c1:03:11:ba |
| 0000                                    | 1<br>2<br>3<br>4 | WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES<br>WPA2-PSK AES | Ver15Test-1<br>Ver15Test-2<br>Ver15Test-3<br>Ver15Test-4<br>Ver15Guest |         | 192.168.1.113 | Auto    | BIGN  | W6x   | 90:a7:c1:03 1a.be |

- **Custom**: Allows you to create your own reports with the information in the order you prefer. Click **Create** to create a report.
  - Select the APs you want to monitor from the Available AP section. The order in which the APs are displayed under Monitored AP will be the same on the custom report.
  - 2. Select the data you want to view from the **Available Data** section. The order in which the fields are listed will be the same in the custom report.
  - 3. Name the report in the **Save As** field and click **Apply**.
  - 4. The new custom report will now be available just to the right of **Detailed**.

| Avaliable AP                           |        | Monitored AP   |       |
|--|--------|----------------|-------|
| 90:a7:c1:01:01:0e                      | >      | i.e.           | Sort  |
| 90:a7:c1:01:3d:16                      | 39     |                | Тор   |
| 90:a7:c1:03:11:b2<br>90:a7:c1:03:11:ba | ¢      |                | Up    |
| 90:a7:c1:03:1a:be                      | *      | -              | Down  |
|  |        |                | Botto |
| Ausilable Data                         |        | Monitored Data |       |
|  |        |                |       |
| Available Data                         |        | Monitored Data |       |
| Model                                  | ><br>- | Monitored Data | Sort  |
| Model Adde Channel E Firmware          | *      | E COL          | Тор   |
| Model A<br>Mode<br>Channel E           |        | E COL          |       |

- Edit/Delete a Custom Report: If you need to edit or delete a custom report, select Custom under Reports and choose the custom report you need to edit/delete from the drop down box. After hitting Edit, you can make adjustments to the custom report and select Update. If you want to completely remove the report, click Remove.
- **Events**: The Events tab displays when global configurations are updated, as well as when an AP goes offline or come back online. The date, time and AP affected are recorded as well.

| Pages: 1 2 3 4 5 6 7 8 9 10 11 | 12 13 14    |          |                   |
|--------------------------------|-------------|----------|-------------------|
| Event                          | Date        | Time     | AP Affected       |
| Global Configuration Updated   | May 8, 2013 | 08:43 AM | All APs           |
| Global Configuration Updated   | May 8, 2013 | 08:43 AM | All APs           |
| Global Configuration Updated   | May 8, 2013 | 08:43 AM | All APs           |
| Global Configuration Updated   | May 8, 2013 | 08:43 AM | All APs           |
| AP is offline                  | May 8, 2013 | 08:44 AM | 90:a7:c1:01:06:b0 |
| AP is online                   | May 8, 2013 | 08:44 AM | 90:a7:c1:01:06:b0 |
| AP is offline                  | May 8, 2013 | 08:44 AM | 90:a7:c1:01:3d:16 |
| AP is online                   | May 8, 2013 | 08:45 AM | 90:a7:c1:01:3d:16 |
| AP is offline                  | May 8, 2013 | 08:46 AM | 90:a7:c1:01:01:0e |

• Client list: The client list displays all of the devices connected wirelessly.

| Search: (MAC Addre          | sses, Client names, Vendors, AP MAC Addre | ss, AP Band)  |                   |         |
|-----------------------------|---|---------------|-------------------|---------|
| CLIENT MAC ADDERSS          | CLIENT NAME                               | CLIENT VENDOR | AP MAC ADDRESS    | AP BAND |
| ALC: NOT THE REAL           | ALC: N 101                                |               | 90:a7:c1:03:60:aa | 2.4Ghz  |
| Showing 1 to 1 of 1 entries |   |               | First Previous 1  | Next    |

• **Client History**: The client history section reports when clients move from one AP to another and from one band to another.

| 04.14:61:21:64:30           |          | Search: |                   |             | DATE THE            |             |
|-----------------------------|----------|---------|-------------------|-------------|---------------------|-------------|
| CLIENT MAC ADDRESS          | AP MODEL | AP BAND | AP MAC ADDRESS    | AP LOCATION | DATE - TIME         | CLIENT NAME |
| d4:f4:6f:21:e4:a0           | W7x      | 5       | 90:a7:c1:07:2e:3e |             | 01/19/2015 11:53:08 |             |
| Showing 1 to 1 of 1 entries |          |         |                   |             |                     |             |
| -                           |          |         |                   |             |                     |             |

# SETTINGS

# MACROCELL CONTROLLER

The **Macrocell Controller** option has 7 sections to it. Here you will be able to perform functions such as changing the password to the controller, resetting the controller, updating firmware, and much more.

| Macrocell Controller   |   |                               |   |
|--|---|-------------------------------|---|
| Administration<br>Edit controller password<br>Config         | Maintenance<br>Run maintenance on the controller<br>Config        |                               | Config  |
| Time and Date<br>Edit controller Time, Date, Zone And Format | LAN Settings<br>Edit Controller IP, Netmask and Gateway<br>Config | SNMP<br>Enable SNMP<br>Config | License<br>Controller license maintenance<br>Config |

#### Administration

Here you can change the default password by clicking **Change Password**.

|          | Change Password     |
|----------|---------------------|
| USERNAME | CREATED             |
| pakedge  | 2014-01-16 09:32:09 |
|          |                     |

#### Maintenance

Here you can perform several functions. Each function is covered in the next section.

- **Backup Configuration**: The C36 allows you to back up configurations you made to the controller in you ever need to factory default the C36. These changes include the global configurations, IP address, and host name.
- **Restore Configuration**: Allows you to restore your saved configuration page.
- Factory Default Controller: The controller and the AP will reset to default settings.
- **Reboot Controller**: If needed, you can reboot the controller.



#### **Controller Firmware**

If you have a new firmware, you can upload the file and then apply it to your controller.



#### Time and Date

In this section, you can set the time, date, country, and whether you want the time displayed in a 12 or 24 hour format.

| Set Time and Date Automatically |  |
|---------------------------------|--|
| Date and Time:                  | 05/08/2013 11:56 AM -                    |
| Time Zone                       | (GMT-08:00) Pacific Time (US & Canada) 🗸 |
| Country                         | United States -                          |
| Time Format                     | 12 hour 👻                                |
|                                 |  |

#### LAN Settings

Change the IP address, subnet mask and gateway of the C36.

|           | LAN SETTINGS  |
|-----------|---------------|
| IP:       | 192.168.1.35  |
| Netmask:  | 255.255.255.0 |
| Gateway:  | 192.168.1.99  |
| Hostname: | c36           |
|           | Save          |

#### SNMP

Enable/Disable SNMP. By enabling this option, you can receive notifications if the C36 goes offline. For more information, ask about our BakPak software.

| SNMP                         |         |
|------------------------------|---------|
| Enabled:                     | 2       |
| Community Name (Read Only):  | public  |
| Community Name (Read/Write): | private |
| Save                         |         |

# License

This section displays each access point and its license status. If you are getting a red thumbs down, verify that you have enough licenses for all the access points, that the firmware is up-to-date on each AP, and that they are being managed by the C36.

| Location | Model | IP            | MAC Address   | License |
|----------|-------|---------------|---------------|---------|
|          | W6x   | 192.168.1.113 | 0.22000       |         |
|          | W6x   | 192.168.1.123 | 10.01110.0101 |         |
|          | W6x   | 192.168.1.122 | 85/54 E0840   |         |

# **ACCESS POINT**

The access point section will show you how to manually configure access points and reboot access points. This section also shows you how to adjust the LED lights of your access points.

| Access Point         |                      |             |  |  |  |  |  |  |  |  |
|----------------------|----------------------|-------------|--|--|--|--|--|--|--|--|
| Manual Setup         | LED Controls         | AP Reboot   |  |  |  |  |  |  |  |  |
| Manage AP's Manually | Turn On/Off AP LED's | Reboot AP's |  |  |  |  |  |  |  |  |
| View                 | View                 | View        |  |  |  |  |  |  |  |  |

#### MANUAL

You can configure your access points manually under the Manual Setup page if you decide not to use the Wizard. You would also use this section if you add an additional access point without rerunning the Wizard. Below is a detailed explanation of all the options under the **AP Settings** page. <u>NOTE: If an AP is operating in any other mode than Access Point mode, the controller will block any action on it show in the image below.</u>

|                |       |               |                   | Remove Manage /         | Unmanage Re-      | Scan Factory Default              | Set IP  | Configure |
|----------------|-------|---------------|-------------------|-------------------------|-------------------|-----------------------------------|---------|-----------|
| AP<br>LOCATION | MODEL | IP            | OPERATING<br>MODE | CHANNEL                 | MAC<br>ADDRESS    | POWER                             | LICENSE | STATUS 🔲  |
|                | W6x   | 192.168.1.113 | Repeater          | 2.4 GHz Auto 👻          | 90:a7:c1:03:59:f4 | 2.4 GHz 29 dBm 👻                  |         | Conline   |
| Click to edit  | W7x   | 192.168.1.118 | Access<br>Point   | 24GHz 6 ▼<br>sgHz 132 ▼ | 90:a7:c1:07:2e:3e | 2.4 GHz 29 dBm →<br>sgHz 26 dBm → |         | Online    |

• **AP Location**: You can edit and rename this field to give a better understanding of the access point's physical location (for example, Upstairs Bedroom).

|               |       |               | Remove         | Manage / Unmanage | Re-Scan  | Factory Default | Set IP  | Config        | ure |
|---------------|-------|---------------|----------------|-------------------|----------|-----------------|---------|---------------|-----|
| AP LOCATION   | MODEL | IP            | CHANNEL        | MAC ADDRESS       |          | POWER           | LICENSE | STATUS        |     |
| Click to edit | W6x   | 192.168.1.126 | 2.конz Auto 🔻  | 90:a7:c1:03:60:9c | 2.4 GHZ  | 29 dBm 🔻        |         | Online        |     |
| Click to edit | W6x   | 192.168.1.127 | 2.4 GHZ AUTO V | 90:a7:c1:03:64:98 | 2.4 G Hz | 29 dBm 🔻        |         | <b>Online</b> |     |

- **Remove**: If you removed an access point from your setup and you don't want it to stay listed in the AP table, select it and click **Remove**.
- **Manage/Unmanage**: This option allows you to toggle an access point between managed and unmanaged. If you want to make an AP a stand-alone device again that is no longer managed by the C36, here is where you can do so.
- **Re-Scan**: Scans for changes like newly-added access points and Status changes.
- **Factory Default**: If you are having any problems configuring the APs, you can always set them back to factory default.
- Set IP: By default, all the IPs will have the same address of 192.168.1.250. Part of the configuration process is to change the IP addresses of all the APs. You can choose to change the IP using DHCP or set a static IP address.
- **Configure**: This will apply the global configuration to the selected AP(s).

• You can change the channel and transmit power under the Channel and Power options. Make the necessary changes to all the APs and then click **Save Channel/Power.** 

| Save Channel/  | Power |               |                   | Remove             | Manage /  | / Unmanage     | Re-Scan | Factory Default                 | Set IP  | Configu       | re |
|----------------|-------|---------------|-------------------|--------------------|-----------|----------------|---------|---------------------------------|---------|---------------|----|
| AP<br>LOCATION | MODEL | IP            | OPERATING<br>MODE | CHAN               | NEL       | MAC<br>ADDRESS | 5       | POWER                           | LICENSE | STATUS        |    |
|                | W6x   | 192.168.1.113 | Repeater          | 2.4 GHZ AU         | ito 👻     | 90:a7:c1:03:5  | i9:f4   | 2.4 GHz 29 dBm 👻                |         | <b>Online</b> |    |
| Click to edit  | W7x   | 192.168.1.118 | Access<br>Point   | 24GHz 1<br>5GHz 13 | ▼<br>12 ▼ | 90:a7:c1:07:2  | e:3e    | 24GHz 29 dBm ↓<br>sgнz 26 dBm ↓ |         | <b>Online</b> | 5  |

#### LED CONTROLS

The LED control section will allow you to turn LEDs on/off on any of the access points. This can be beneficial in trying to locate a particular access point.

|             |          |               |                   | Save LED Settings       |
|-------------|----------|---------------|-------------------|-------------------------|
| AP LOCATION | AP MODEL | IP ADDRESS    | MAC ADDRESS       | LED STATUS              |
|             | W6x      | 192.168.1.126 | 90:a7:c1:03:60:9c | Power Ethernet Wireless |
|             | W6x      | 192.168.1.127 | 90:a7:c1:03:64:98 | Power Ethernet Wireless |

To turn an LED off, simply click on the blue square next to the LED you wish to disable. Then click on Save LED Settings.

|             |          |               |                   | Save LED Settings       |
|-------------|----------|---------------|-------------------|-------------------------|
| AP LOCATION | AP MODEL | IP ADDRESS    | MAC ADDRESS       | LED STATUS              |
|             | W6x      | 192.168.1.126 | 90:a7:c1:03:60:9c | Power Ethernet Wireless |
|             | W6x      | 192.168.1.127 | 90:a7:c1:03:64:98 | Power Ethernet Wireless |

#### **AP REBOOT**

The AP reboot section will allow you to either individually reboot an access point or reboot multiple access points at once. To reboot an access point, simply click on the check box next to an access point

|             |          |               |                   |        | Reboot |
|-------------|----------|---------------|-------------------|--------|--------|
| AP LOCATION | AP MODEL | IP ADDRESS    | MAC ADDRESS       | STATUS |        |
|             | W6x      | 192.168.1.126 | 90:a7:c1:03:60:9c |        |        |
|             | W6x      | 192.168.1.127 | 90:a7:c1:03:64:98 |        |        |

# ACCESS POINT FIRMWARE

This section checks your AP(s) for their firmware version and allows you to update to the latest available firmware version. Under the column Status we have different symbols to indicate what action is needed.

|             |                | Re-Scan U |                 | Upload Firmware File | Update AP Firmv    | vare   |  |  |
|-------------|----------------|-----------|-----------------|----------------------|--------------------|--------|--|--|
| AP LOCATION | IP             | MODEL     | ACTIVE FIRMWARE |                      | AVAILABLE FIRMWARE | STATUS |  |  |
| 1st AP      | 192.168.50.172 | W6x       | 1.9             |                      | 1.9 🔻              |        |  |  |

- **Upload Firmware File**: Here is where you will upload any newer firmware files that you wish to push to the access points.
- **Update AP Firmware**: After uploading the new firmware file, select the AP(s) that will receive the firmware upgrade and click **Update AP Firmware**.
- **Re-Scan**: after updating the firmware, you can do another scan to detect the new firmware on the AP(s) and to verify they are all on the correct version.

# ADDING AN ADDITIONAL ACCESS POINT

Below are the steps for adding an additional AP to an existing system:

1. If you are adding a new AP out of the box, the default IP address should be 192.168.1.250. For this AP the **Status** will blink **Set IP**. Select the check box next to it and select **Set IP**.

|             |       |               | Remove  | Manage / Unmanage | Re-Scan | Factory Default | Set IP  | Configu | ure |
|-------------|-------|---------------|---------|-------------------|---------|-----------------|---------|---------|-----|
| AP LOCATION | MODEL | IP            | CHANNEL | MAC ADDRESS       |         | POWER           | LICENSE | STATUS  |     |
| 1st AP      | W6x   | 192.168.1.250 |         | 8.4 × 000 0 mm    |         |                 | 2       | Set IP  |     |

- After setting a static IP or letting the access point obtain one from the DHCP (recommended), the C36 will check new access point's firmware to see if it matches the firmware of the existing units. If the firmware is out of date, you will need to go to the Access Point Firmware section to update the firmware on the AP.
- 3. When the firmware on all access points match, the status will display **Please Manage**. To do so, check the box for the AP and select **Manage/Unmanage**.

|             |       |                | Remove       | Manage / Unmanage | Re-Scan        | Factory Default | Set IP   | Configure |
|-------------|-------|----------------|--------------|-------------------|----------------|-----------------|----------|-----------|
| AP LOCATION | MODEL | IP             | CHANNEL      | MAC ADDRESS       | POWER          | LICENSE         | STAT     | rus 🔳     |
| 1st AP      | W6x   | 192.168.50.172 | 24GHz Auto 👻 | 10.01110.0114     | 2.4 GHz 29 dBr | m 🗸 🦻           | Please M | Manage    |

4. Now that the access point is managed, you will see that it needs to be configured. Again, select the access point and click **Configure**. The C36 will now push the global configuration to the new AP.

|             |       |                | Remove         | Manage / Unmanage | Re-Scan        | Factory Default | Set IP   | Configure   |
|-------------|-------|----------------|----------------|-------------------|----------------|-----------------|----------|-------------|
| AP LOCATION | MODEL | IP             | CHANNEL        | MAC ADDRESS       | POWER          | LICENSE         | STA      | TUS 🔲       |
| 1st AP      | W6x   | 192.168.50.172 | 2.4 GHz Auto 👻 | 10 al + 110 dimen | 2.4 GHz 29 dBm | •               | Please C | E Donfigure |

5. Once finished, the access point will display as online.

|             |       |                | Remove         | Manage / Unmanage | Re-Scan | Factory Default | Set IP  | Configu | ire |
|-------------|-------|----------------|----------------|-------------------|---------|-----------------|---------|---------|-----|
| AP LOCATION | MODEL | IP             | CHANNEL        | MAC ADDRESS       |         | POWER           | LICENSE | STATUS  | E   |
| 1st AP      | W6x   | 192.168.50.172 | 2.4 GHZ Auto 👻 | 8.07100.000       | 2.4 G H | 29 dBm 👻        | ð       | Online  |     |

# **GLOBAL CONFIGURATION**

The settings for the Global Configuration section have already been discussed earlier in this manual, in the section **The Wizard Step 3: Global Configuration**. If you decide to make any changes to your SSIDs or enable/disable the guest network, you can always refer back to the Global Configuration page, make the necessary changes, and apply the configuration to the APs.

| /6x Global Config   | uration  |           |   |   |           |
|---|--|-----------|---|---|-----------|
| Enable:<br>SSID:<br>Suppressed SSID:<br>Station Separation:<br>Security:<br>Passphrase:<br>Enable 802.1q tag: | Cr Cr<br>Supportiab-2.4<br>Cr Cr Cr<br>WPA2-PSK<br>INFO<br>Show<br>Cr Cr | sub<br>1  | Enable:<br>SSID:<br>Suppressed SSID:<br>Station Separation:<br>Security:<br>Passphrase:<br>Enable 802.1q tag: | Conference of<br>supportest2<br>Conference of<br>WPA2-PSK •<br>WPA2-PSK •<br>Show<br>Conference of WARE 2 • | 2<br>2    |
| Enable:<br>SSID:  | On Cit<br>Supportlest3   | ssid<br>3 | Enable:<br>SSID:  | On€0f<br>[38-4  | ssid<br>4 |
| Suppressed SSID:<br>Station Separation:<br>Security:<br>Passphrase:   | onOff<br>onOff<br>WPA2-PSK<br>WWA2-PSKShow                               |           | Suppressed SSID:<br>Station Separation:<br>Security:<br>Passphrase:   | on on<br>wpa2-psk   |           |
| Enable 802.1q tag:  |  |           | Enable 802.1q tag:  | OnOff   |           |

#### **ADVANCED**

The Advanced section talks about setting up MAC filtering, wireless schedules, and client limits.

| Advanced   |                      |  |  |  |  |  |
|--|----------------------|--|--|--|--|--|
| MAC Filtering  | Client Limit         | Scheduling   |  |  |  |  |
| Enable/Disable MAC Filtering<br>Create Allow/Block Filters | Create Client Limits | Enable/Disable WiFi Scheduling<br>Schedule Reboot/Active Times |  |  |  |  |
| Config   | Config               | Config   |  |  |  |  |

#### **MAC FILTERING**

With MAC filtering, you can allow/deny wireless clients from connecting based on their MAC addresses. By default, MAC filtering is disabled. If you want to enable it, please take the following steps.

1. Navigate to the advanced settings page. Click **Config** under MAC filtering.

| Advanced                     |                      |                                |
|------------------------------|----------------------|--------------------------------|
| MAC Filtering                | Client Limit         | Scheduling                     |
| Enable/Disable MAC Filtering | Create Client Limits | Enable/Disable WiFi Scheduling |
| Create Allow/Block Filters   |                      | Schedule Reboot/Active Times   |
| Config                       | Canfig               | Config                         |

2. By default, MAC filtering is disabled. Click the Enable icon.

| Macrocell Controller<br>pakedgedevice&software,inc | Dashboard |
|--|-----------|
|  |           |
|  |           |

3. Click Save and continue.

| MAC Filter : Apply Change(s) |                                  |   |  |  |  |  |  |
|------------------------------|----------------------------------|---|--|--|--|--|--|
| _                            | Save MAC Filter.                 |   |  |  |  |  |  |
| Cancel                       | Save and Continue Save and Apply | d |  |  |  |  |  |
| _                            | 0                                |   |  |  |  |  |  |

4. Under MAC filtering options you will have two choices.

Allow list: This option will configure the access points so that only the MAC addresses you specify are allowed to connect to the wireless. All other MAC addresses will not be allowed to connect to the wireless access points.

Block list: This option will configure the access points so that only the MAC addresses you specify are blocked. All other MAC addresses will be allowed to connect to the wireless access points.

5. Once you have selected the MAC filtering option you will need to add a rule that specifies the device(s) you want to allow/deny access. Click **Add**.

| Enable  |                |                                    |     |                 |      |       |
|---|----------------|------------------------------------|-----|-----------------|------|-------|
| Mac Filtering Options<br>Allow Device in the List 👻 |                |                                    | Add | Remove          | Edit | Apply |
| CLIENT NAME   | MAC ADDRESS    | AP'S EFFECTED                      |     | Select All Devi | ces  |       |
|   | No Devices are | currently setup for MAC Filtering. |     |                 |      |       |

6. Enter a **Device Name** and **Device MAC Address**. At the bottom, select the access points that the MAC filtering policy applies to. Once you have entered all the information, click **Save**.

|   | Ado                      |           | Filter          |                        |            |   |
|---|--------------------------|-----------|-----------------|------------------------|------------|---|
| Device Name<br>Wireless Device<br>Device MAC Address<br>aa:bb:cc:dd:ee:ff |                          |           |                 |                        |            |   |
| Show 10 - entries   | t the AP(s) and band you | would lik | e to block/allo | ow this devic<br>Searc |            |   |
| LOCATION <b>^</b>   | MAC<br>90:a7:c1:03:60:aa | \$        | MODEL 🔶<br>W6x  | BAND \$                | Choose All | ÷ |
| Show  | ing 1 to 1 of 1 entries  |           |                 |                        | Save       | • |

7. Click **Apply**, and then click **Save and Apply** to finalize the settings.

| Enable   |                   |                         |          |        |             |
|--|-------------------|-------------------------|----------|--------|-------------|
| Mac Filtering Options Allow Device in the List |                   |                         | Add      | Remove | Edit Apply  |
| CLIENT NAME                                    | MAC ADDRESS       | AP'S EFFECTED           |          | Select | All Devices |
| Wireless Device                                | aa:bb:cc:dd:ee:ff | 90:a7:c1:03:60:aa   W6x | 2.4 G Hz |        |             |

8. You can also block a device from your wireless network from the Widgets page. Navigate to the dashboard and click on the Widgets button on the upper right-hand side.



9. Click on the bar graph for the access point with the wireless client that you wish to block.



10. Find the MAC address of the wireless client you wish to block from the wireless network. You will need to change the name of the device. By default, it will simply display the MAC address for the name. Once you have filled in a name for the wireless device, click on **Block Device**.

| 1 Client(s) Connected to |         |        |      |          |              |  |  |
|--------------------------|---------|--------|------|----------|--------------|--|--|
| NAME                     | MAC     | VENDOR | RSSI | BAND     |              |  |  |
| iPhone                   | 000.000 |        | -84  | 2.4 G Hz | Block Device |  |  |
| Close                    |         |        |      |          |              |  |  |

11. You will then see the following message letting you know that the MAC filtering feature will be changed to block the device you have selected. Click **Yes** to apply the settings.



12. You can also unblock a device from the same screen. The following shows an example of this.

| 1 Client(s) Connected to |         |        |      |         |                 |  |  |
|--------------------------|---------|--------|------|---------|-----------------|--|--|
| NAME                     | MAC     | VENDOR | RSSI | BAND    |                 |  |  |
| iPhone                   | 440,040 |        | -84  | 2.4 GHz | Un-Block Device |  |  |
| Close                    |         |        |      |         |                 |  |  |

#### **CLIENT LIMIT**

The Client Limit option will prevent any W7 access points from becoming overburdened with too many wireless clients. By default, this option is enabled. This means that no more than 127 wireless clients will be allowed to associate with a W7. Unfortunately, the W6 access point does not support the client limit.

|                   |            |                       |              | Apply    |
|-------------------|------------|-----------------------|--------------|----------|
| Show 10 • entries |            |                       |              | Search:  |
| AP LOCATION       | AP MODEL 0 | MAC ADDRESS $\varphi$ | CLIENT LIMIT | STATUS O |
| 100000            | W7x        | 1000000               | 2.4GHz 127   | Limited  |
|                   | WA         |                       | 5GHz 127     | Limited  |

If you wish to disable the client limit for a W7, you can simply click on Unlimited button next to the band. You can disable it on both bands if you wish.

|                   |     |            |             |   |              |   | Apply     |
|-------------------|-----|------------|-------------|---|--------------|---|-----------|
| Show 10 • entries |     |            |             |   |              |   | Search:   |
| AP LOCATION       | •   | AP MODEL 0 | MAC ADDRESS | 0 | CLIENT LIMIT | ¢ | STATUS 0  |
| W7r               | W7x |            | 2.4GHz 127  |   | Unlimited    |   |           |
|                   |     |            |             |   | 5GHz 127     |   | Unlimited |

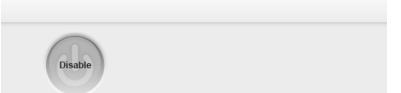
#### SCHEDULING

The scheduling feature will allow you to set up a WiFi schedule so that the wireless will only be active at certain times. By default, scheduling is disabled. To configure a schedule, please follow the steps below.

1. Navigate to the advanced settings and click **Config** under Scheduling.

| Advanced                     |                      |                                |
|------------------------------|----------------------|--------------------------------|
| MAC Filtering                | Client Limit         | Scheduling                     |
| Enable/Disable MAC Filtering | Create Client Limits | Enable/Disable WiFi Scheduling |
| Create Allow/Block Filters   |                      | Schedule Reboot/Active Times   |
| Config                       | Config               | Config                         |

2. Hover your mouse over the button that says Disabled and click on it. This will enable the WiFi scheduling.



3. You will get a message asking if you want to apply the changes now. Click on Save and Continue.

| ſ     |        | Scheduling : Apply Change(      | (s)            |
|-------|--------|---------------------------------|----------------|
|       |        | Save Scheduling.                |                |
| SCHEL | Cancel | Save and Continue               | Save and Apply |
|       |        | No Schedule is currently setup. |                |

4. Now you will be able to add a schedule. Click on Add.

| Enable        |                  |                                 |          | Add   | Remove | Edit         | Apply |
|---------------|------------------|---------------------------------|----------|-------|--------|--------------|-------|
| SCHEDULE NAME | SCHEDULE OPTIONS | SCHEDULE TIME AND DATE          | INCLUDED | AP(S) | Selec  | t All Schedi | ules  |
|               |                  | No Schedule is currently setup. |          |       |        |              |       |

5. Here you can define the parameters of the schedule. Each of these options is described next.

|     |   | Add Schedule   |      |  |
|-----|---|--|------|--|
|     |   |  |      |  |
|     | Schedule Name                                   | Schedule Name  |      |  |
|     |   | O Reboot   |      |  |
| LE  | Schedule Options                                | <ul> <li>Q 2.4GHz Active</li> <li>GGHz Active</li> <li>Q 2.4GHz and SGHz Active</li> </ul> | e    |  |
| upp |   | Everyday   |      |  |
|     | Day   | Monday Tuesday Wednesday Thursday Friday Saturday Sunday                                   |      |  |
|     | Time  |  |      |  |
|     | Available AP(s) Added AP(s) - 50 a7.c1 07 0e.f6 |  |      |  |
|     |   | -  |      |  |
|     | Cancel  | •  | Save |  |

- Schedule Name: This is the name of the schedule.
- Schedule Options: You will be able to set the access points to either reboot, have both the 2.4 GHz and 5 GHz bands active or only have a particular band active.
- **Day**: This will allow you to specify which days you want the schedule to be active.
- **Time**: You can specify a start and end time for the days you have selected. If you chose to specify the time please be sure to use a 24 hour clock.
- Available AP(s): Here you will be able to select which access points you want the schedule to apply to. If you did not name the access points when going through the wizard, then only the MAC address of that access point will be displayed. To select an access point, simply click on it and then click on the arrow that points to the right-hand side. The access point will then be moved over to the Added AP(s) section.

|                  | Add Schedule   |
|------------------|--|
| Schedule Name    | Mon thru Fiday   |
| Schedule Options | Fickest     24/2412 Active     1/24/2424     224/2424     224/2424     224/2424     224/242     224/24     224/24     224/24     224/2 |
| Døy              | Everyday<br>12 Monday 18 Tuesday 18 Wednesday 18 Thursday 18 Finday - Saturday - Sunday  |
| Time             | R Al Day (Use 24-Hour Clock)<br>From [ub. ]mm To [ub. ]mm  |
| Availa           | Added AP(s)  |
| Cancel           | 54   |

6. Once you have finished entering the information for the schedule, click Save. The schedule will now be listed.

| Enable          |                        |  | Add Rem             | ove Edit Apply       |  |
|-----------------|------------------------|--|---------------------|----------------------|--|
| SCHEDULE NAME   | SCHEDULE OPTIONS       | SCHEDULE TIME AND DATE                       | INCLUDED AP(S)      | Select All Schedules |  |
| Mon thru Friday | 2.4GHz and 5GHz Active | Monday, Tuesday, Wednesday, Thursday, Friday | - 90:a7:c1:07:0e:f6 |                      |  |
| mon and Friday  | 2.40 IE and Son Endive | All Day                                      | 00.01.01.01.00.00   |                      |  |

7. Click on **Apply** and then click on **Save and Apply**.

|        | Schedu | iling : Apply Change | (s)            |
|--------|--------|----------------------|----------------|
|        |        | Save Scheduling.     |                |
| Cancel |        | Save and Continue    | Save and Apply |
| d      |        |                      |                |

8. The controller will then apply the settings.

| Applying Changes                     |  |
|--------------------------------------|--|
| Applying WiFi Changes<br>Please wait |  |

9. Once finished, you will be returned to the scheduling section.

# **SITE SURVEY**

The Site Survey will allow you to do a channel scan from any of the access points that the C36 manages. Take the following steps to perform a channel scan on an access point.

1. Navigate to Dealer Tools and click **Site Survey**.

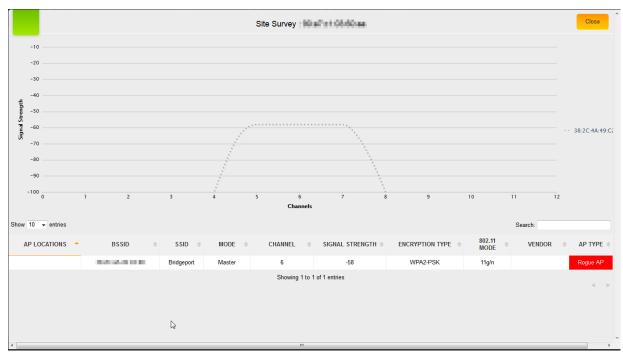
| Dashboard           | Settings             | Dealer Tools          | Wizard     |
|---------------------|----------------------|-----------------------|------------|
| Dashboard & Widgets | Macrocell Controller | Site Survey           | Run Wizard |
| Reports             | Access Point         | AP Deployment         |            |
|                     | Global Configuration | Wireless Optimization |            |
|                     | Advanced             |                       |            |
|                     |                      |                       |            |

2. Here you can select an access point from which you would like to do a site survey. Simply click on the radio button on the right, and then click on **Site Survey**.

| AP LOCATION | AP MODEL | IP ADDRESS     | MAC ADDRESS |   |
|-------------|----------|----------------|-------------|---|
|             | W6x      | 192.168.50.172 | 8.2718 Bar  | ۲ |

3. Once the site survey is complete, you will see a list of the access points in the area along with their channels and signal strength. The surrounding SSIDs will also be displayed in the graph. **Rogue AP** indicates that it is a non-Pakedge access point. For the 2.4 GHz band, it is best to use channels 1, 6, and 11. These are the only non-overlapping channels available for use in the 2.4 GHz band.

The signal strength of the access point is important to note. The closer the number is to zero, the stronger the signal. Any access points that are seen at -75 or greater can be potential sources of interference. In case you may have many neighboring access points, you can set your access points to use a 20 MHz channel width to reduce the chances of being caught in interference.



Note: If the 2.4 GHz is heavily populated with nearby access points, you may want to consider using a dual band access point such as the W7. Interference from neighboring access points can cause issues with wireless connectivity.

4. If you are using a W7, you will have a site survey for the 5 GHz. Click the View 5 GHz option.



Cito Cun

5. Here you will see the site survey for the 5 GHz band. Unlike the 2.4 GHz band, all of the channels in the 5 GHz band are non-overlapping. This is critical for avoiding interference. As long as each access point is set to a different channel, they will not cause interference to one another.



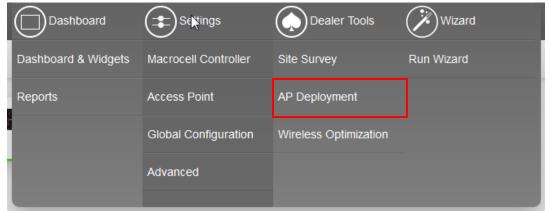
Note: While the 5 GHz is great for avoiding interference, it is important to note that you will generally get less coverage from it compared to the 2.4 GHz. This means you may need more access points with 5 GHz to cover the same area as if you were using 2.4 GHz.

## **AP DEPLOYMENT**

The AP Deployment page lets you upload floor plans onto the C36 and create a heat map for your site to assist with the placement of access points. This will help optimize wireless coverage throughout the property.

To configure AP deployment, follow these steps:

1. Navigate to Dealer Tools and click AP Deployment.



2. You will see a page explaining that the controller is scanning for access points. This page will disappear once the scan is over.

| C36 AP Deployment   | Access Points |
|---|---------------|
| A Scanning for Access Points  |               |
| The C36 is currently scanning, checking the network for Access Points.  |               |
| B. Checking for Existing AP Deployments   |               |
| The C36 is checking for any existing Deployments you may have.  |               |
| c. Need Assistance  |               |
| Deat If at any time you need some assistance, check out the "Quick Tips" for suggestions and<br>improvements with your AP Deployment. |               |
| This panel will automatically dose when scanning is complete.   |               |
|   |               |
|   |               |

3. You will then be presented with the following page. Here you will be able to upload a floor plan onto the C36 and create the heat map.

|  |  | 246#2 |        |          | 10dBm -68d |               | _          | _      |     |  |  |  | Access Points     |
|--|--|-------|--------|----------|------------|---------------|------------|--------|-----|--|--|--|-------------------|
|  |  | 80M2  | -37d8m | -58dBm 4 | IOdBm -86d | 3m -70d8m -71 | 10m -1200n | -47d8m | Nde |  |  |  | 90:a7:c1:03:11:a4 |
|  |  |       |        |          |            |               |            |        |     |  |  |  | 90:a7:c1:03:60:a2 |
|  |  |       |        |          |            |               |            |        |     |  |  |  | 90:a7:c1.03:64.98 |
|  |  |       |        |          |            |               |            |        |     |  |  |  | Living Room AP    |
|  |  |       |        |          |            |               |            |        |     |  |  |  | 90:a7:c1:07:11:a4 |
|  |  |       |        |          |            |               |            |        |     |  |  |  |                   |
|  |  |       |        |          |            |               |            |        |     |  |  |  |                   |
|  |  |       |        |          |            |               |            |        |     |  |  |  |                   |
|  |  |       |        |          |            |               |            |        |     |  |  |  |                   |
|  |  |       |        |          |            |               |            |        |     |  |  |  |                   |

4. Click on Upload Floor Plan.

| Plan(\$) Upload Floor Plan |         |        |       |           |          |          |         |         |        |      |
|----------------------------|---------|--------|-------|-----------|----------|----------|---------|---------|--------|------|
|                            | 2.4 GHz |        | -55di |           | n -68dBm | -71dBm - | 79dBm - | 79dBm · | -80dBm | hide |
|                            | SGHZ    | -37dBm | -58d  | Bm -60dBn | n -66dBm | -70dBm - | 79dBm - | 82dBm · | -87dBm | hide |
|                            |         |        |       |           |          |          |         |         |        |      |
|                            |         |        |       |           |          |          |         |         |        |      |
|                            |         |        |       |           |          |          |         |         |        |      |
|                            |         |        |       |           |          |          |         |         |        |      |

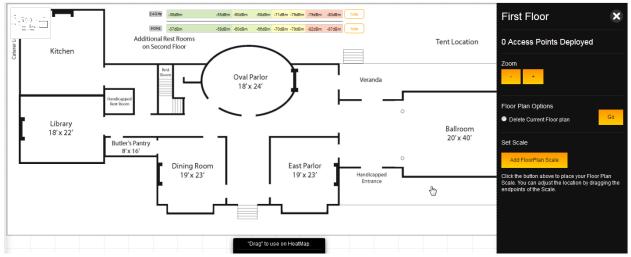
5. Upload your floor plan. Note that you can only upload .jpeg or .png file types.

| Upload Floor Plan           |  |  |  |  |  |  |  |  |
|-----------------------------|--|--|--|--|--|--|--|--|
| Choose floor plan to upload |  |  |  |  |  |  |  |  |
| Browse No file selected.    |  |  |  |  |  |  |  |  |
| Cancel                      |  |  |  |  |  |  |  |  |

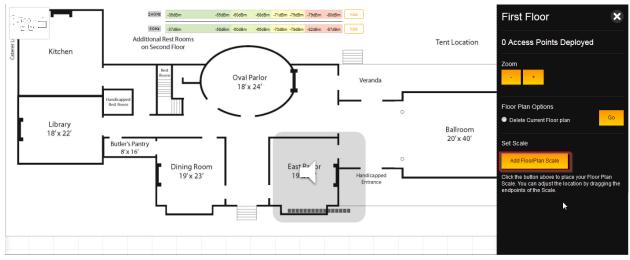
6. Enter a name for your floor plan and click **Continue**.



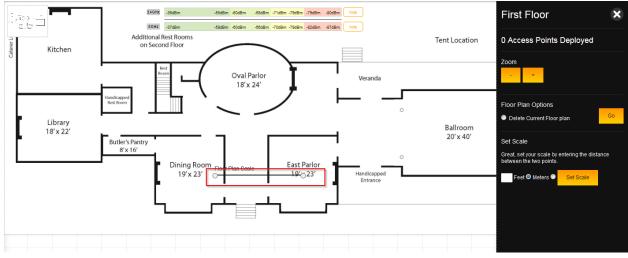
7. You will now see your floor plan on the C36.



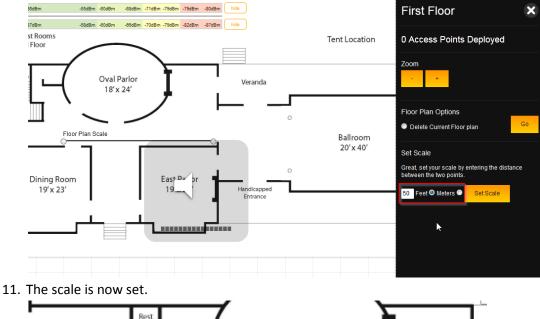
8. Before you can add access points to the heat map, you will need to set a scale. This will tell the C36 how large the site is and display the proper coverage of an access point. To set the scale, click Add Floor Plan Scale.

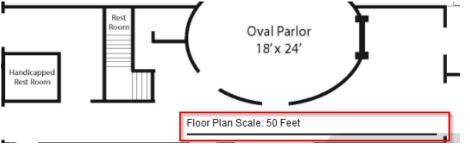


9. You will now have a line that you can maneuver as you like. Move the end points to a spot on the floor plan with a known distance.

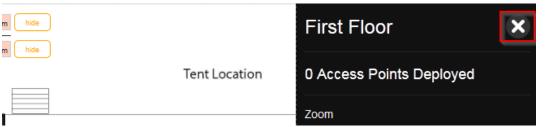


10. Enter the distance in either feet or meters. Click Set Scale.

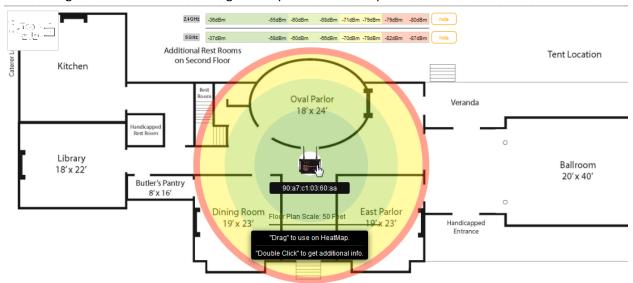




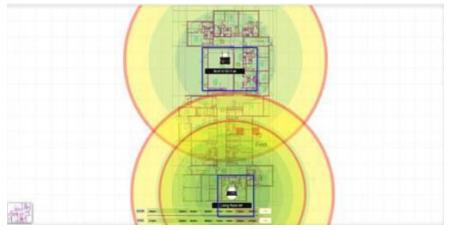
12. With the scale set, you can now close the menu on the right-hand side.



13. Now, we can begin adding access points. Simply drag an access point to the floor plan to view the coverage. You can continue adding access points to the map.



14. Each access point has a multi-colored circle around it. The further an area is from an access point, the weaker the signal. Color changes indicate a change in signal strength.



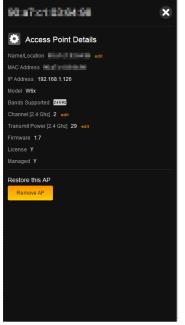
15. To remove an access point, double-click it and then click **Remove AP**.

|                | 24888 -Jodim -Holim Abdim Abdim Abdim -Holim Jodim Abdim Inter    | Living Room AP ×                 |
|----------------|---|----------------------------------|
|                | litikk Jalaim dalam dalam dalam dalam rasim rasim dalam dalam men | Access Point Details             |
|                |   | Name/Location Living Room AP est |
|                |   | IIAC Address 90:a7:c107:0e#6     |
|                |   | IP Address 192,168,1.121         |
|                |   | Model W7x                        |
|                |   | Bands Supported 24080 8088       |
|                |   | Channel (2.4 Ghz) Auto wait      |
|                |   | Channel (5 Ghz) Auto with        |
| S              |   | Transmit Power (2.4 Ghz) 29 edit |
|                |   | Transmit Power (5 Ghz) 26 edt    |
|                |   | Firmware 1.4                     |
| 50             |   | License Y                        |
| Living Room AP |   | Managed Y                        |
|                |   | Remove AP                        |
| Nie            |   |                                  |
|                |   |                                  |

16. When placing a W7 access point on a floor plan, you will see two circles. The smaller circle represents the 5 GHz range and the wider circle represents the 2.4 GHz range. You can hide either band from the heat map by clicking **Hide** on the band you wish to remove.

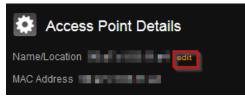
| ZAGHZ | -3869m | -336Sm | -6069m | -Etcan | -71d2m | -7265m | -7969m | -506Bm  | -   |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|-----|
| SGHZ  | -3168m | -300km | -6368m | -60:0m | -7068m | -1968m | -5269m | -distin | 100 |

17. You can double-click on any of the access points on the heat map to view its additional details.



18. From the Additional Point Details menu you can change the **Name/Location**, **Channel**, and **Transmit Power** of your individual access points.

19. To change the Name/Location, click on **Edit**.



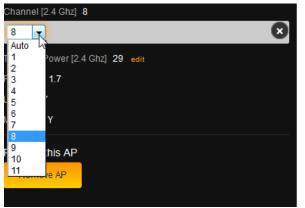
20. The name of an access point is its MAC address by default. To enter a new name, simply click on the text box and begin typing. Click **Save** once finished.

| Nar | ne/Location(s) In-Use |                            | 0:a7:c1.00:60.aa             | × |
|-----|-----------------------|----------------------------|------------------------------|---|
|     | NAME                  | MAC ADDRESS                | \$<br>1 Access Point Details |   |
|     |                       | No data available in table | Name/Location                |   |
|     |                       |                            | 1st AP                       | × |
|     |                       |                            | Save                         |   |

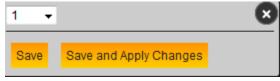
21. To change the channel of the WAP, click **Edit**.



22. Select the channel of the access point. To leave the access point on auto channel, select Auto.



23. If you wish to continue making changes to your heat map, click **Save**. This will save your changes but not apply them—that way, you can finish the configuration of your heat map. If you want to apply the changes to the Global Configuration, click **Save and Apply Changes**.

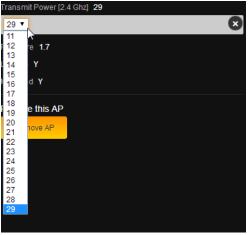


Please note that this will cause your access points to update. During that time, the heat map will not be accessible. It is best to finish the configurations on all of your access points before you perform an update.

24. To change the transmit power, click Edit.



25. Select the power output you would like to use for the access point. It is set at its maximum output by default.



26. Click Save AP Deployment once you are finished with your floor plan.

| -68dBm -71dBm -79dBm -79dBm -80dBm hide | Save AP Deployment |
|---|--------------------|
| -86dBm -70dBm -79dBm -82dBm -87dBm hide | Access Points      |
|   | Tent Location      |
|   |                    |

## WIRELESS OPTIMIZATION

The C36 runs some sophisticated intelligence and algorithms to determine the best optimal settings for you network. This can be done manually or automatically in the background based on the customer's preference. To optimize your wireless network, Under **Dealer Tools** click **Wireless Optimization**.

| Dashboard           | Settings             | Dealer Tools          | Wizard     |
|---------------------|----------------------|-----------------------|------------|
| Dashboard & Widgets | Macrocell Controller | Site Survey           | Run Wizard |
| Reports             | Access Point         | AP Deployment         |            |
|                     | Global Configuration | Wireless Optimization |            |
|                     | Advanced             |                       |            |
| _                   |                      | _                     |            |

You can optimize your network based on your needs. The C36 makes it possible to improve the range of your wireless network using our **SectorMaxx™** technology. To optimize the network for range, just set **SectorMaxx™** to **On** as shown in the figure below and click **Apply**. You will get a popup indicating how much time it will take to save and apply the optimization settings and that will be based on the number of Access Points you have on the network. Click **Save and Apply** to apply your optimization settings or **Cancel** to cancel all your changes.

| SectorMaxx ™  | TruStream ™  | WiFi Optimiza   | ation Settings   |
|---|--|---|--|
| Designed for improving the range of<br>a wireless network | Designed for improving speed of a wireless network | Saving Optimization settings can take u                             | to 3 minutes. Click "Save" to continue.                                  |
|   |  | Please note that when wireles<br>your wireless devices may disconne | s optimization is in progress,<br>ct until the optimization is complete. |
| On Corr   | On Coff  | Cancel  | Save and Apply   |
|   |  |   |  |
| 0   |  |   |  |
| Smart   | Wav™   |   |  |
| Innovative software algorithms t                          | to eliminate wireless interference                 |   |  |
|   |  |   |  |
| Optimize Automatically<br>in background                   | Optimize Now                                       |   |  |
| Optimize Automatically<br>in background<br>On Off         | Optimize Now                                       |   |  |
| in background   |  |   |  |
| or ⊕ Off  |  |   |  |

If you are more concerned about improving the speed on your wireless network and not concerned much about range assuming you have enough coverage, you can optimize your network to get better speed out of your wireless network. . To optimize the network for speed, just set **TruStream™** to **On** as shown in the figure below and click **Apply**. You will get a popup indicating how much time it will take to

save and apply the optimization settings and that will be based on the number of Access Points you have on the network. Click **Save and Apply** to apply your optimization settings or **Cancel** to cancel all your changes.



SmartWav<sup>™</sup> technology works in the background to detect any interference from devices on the network that are not controlled by the C36. It even goes beyond your own network to look at neighboring networks that may have any access points or devices that are causing problems to your own network. Since you do not have any control over a neighboring network, and most of the time even on your own network because some devices would not allow you to make any changes to their settings, the C36 implements complex calculations based on these results to figure out the best optimal changes your wireless network should have. The C36 will then use these results and apply the optimization and required settings. SmartWav<sup>™</sup> runs automatically in the background and gathers information about your network if you enable the Optimize Automatically in background option as shown below



This information will be analyzed and the controller makes a decision on the best settings and applies these changes at a scheduled default time of every **Sunday at 2:00 am**. <u>Please note that this scheduled</u> <u>time may be changed by our support personal only.</u> Please call our support line if you like this time changed. If you'd like to run the optimization manually click **Optimize**. Once you click **Optimize**, the C36 will apply the optimized settings to your controller and access points without having to wait for the automatic scheduled time.

|                | WiFi Op   | timization            |              |             |
|----------------|---|-----------------------|--------------|-------------|
| The Optimizati | ion process can take up t                         | o 3 minutes. Click "C | Optimize" to | o continue. |
|                | e note that when wirele<br>s devices may disconne |                       |              |             |
| Cancel         |   |                       |              | Optimize    |
|                |   |                       |              |             |
|                |   |                       |              |             |
|                |   |                       |              |             |
| Innova         |   |                       |              |             |
| Of             |   |                       |              |             |
|                |   |                       |              |             |
|                |   |                       |              |             |

Manual optimization can also be run after applying the global configuration to your access points. Once the global configuration is applied to your access points, you will get a pop up indicating that the network has been configured and online and an option to run the optimization shown in the figure below. Click on **Optimize**, and the optimization will run.

| Manual Se<br>Manage AP's Mi<br>View<br>Cancel<br>Cancel<br>AP Reboot<br>AP Reboot<br>AP's<br>Reboot AP's | Access Point   | Congratulations                                       |
|--|----------------|---|
|  | Manage AP's Ma | Would you like to Optimize your wireless network now? |
|  |                |   |
|  |                |   |

# CONTACT US

This section includes our technical support phone number and email address. You can also fill out the support form and our technical support department will receive and respond to you ASAP.

| Our support team is a | vailable   |                              |
|-----------------------|------------|------------------------------|
| Monday - F            |            |                              |
| 6:00am - 6:           | 00pm PST.  |                              |
| Phone Support         |            |                              |
| . (650) 385-8         | 703        |                              |
| Email Support         |            |                              |
| ⊠ support@p           | akedge.com |                              |
| Form                  |            |                              |
| ■ Form                |            |                              |
| message               |            | <br>u as soon as we get your |
| Customer Name:        |            |                              |
| Dealer Name:          |            |                              |
| Email Address:        |            |                              |
| Subject:              |            |                              |
|                       |            |                              |
| Description:          |            |                              |
|                       |            |                              |
|                       |            |                              |
|                       |            |                              |
|                       | Submit     |                              |

## LIMITED WARRANTY

#### Model C36

Congratulations on your purchase of a Pakedge Device & Software 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 **three (3) years** 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 **three (3) years** 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 WARRANTY. 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. 3847 Breakwater Avenue Hayward, CA 94545-3606 U.S.A.

877-274-6100

Email: support@pakedge.com

www.pakedge.com

# pakedgedevice&softwareinc.

3847 Breakwater Avenue Hayward, CA 94545 Visit us at:<u>www.pakedge.com</u>

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