PAKEDGEDEVICE&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:

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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 Chenta) 7/ct10360 aa							
		pak	(0	dg	e			
						hermani Cantralia		
		Refresh Dashboard	Reboot Controller	Shutdown Controller			\ \	

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

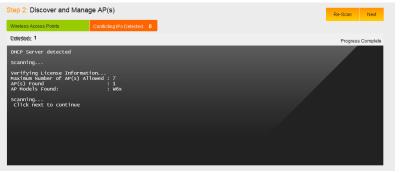
6. Click **Next** to continue to step 2.

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 Available Band(s)
SSID C35-1-2-4GHz Suppressed SSID: orOrr Station Separation: orOrr Security: Disable Enable 802.1q tag: orOrr	SSID 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 ିନ 🎃 ିମ	ENABLE BAND STEERING	2.4 GHz Available	5 GHz 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: Suppressed SSID:	C38-1-5GHz OnO//	SSID 1		
Station Separation: Security:	On Off 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)

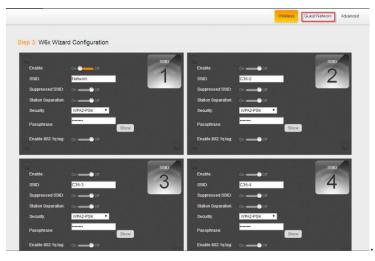
Channel mode: This option will allow you to set the channel width of your access points. When set to 40 MHz, the access points will be allowed to use more channels to increase throughput (speeds). Although this can be beneficial, it can also cause issues. If you are in a popluated area, using more channels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

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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.

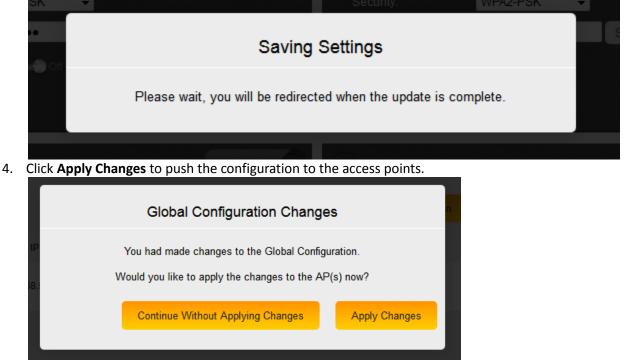
1. To enable and set the security settings on the guest SSID, click on the guest network option towards the upper right hand side.



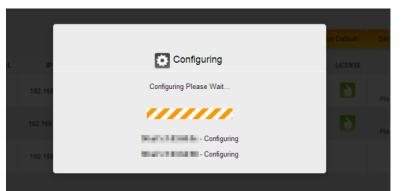
2. Here you can change the SSID and password of the guest network. You have the option to change the subnet that the guest network is on, if desired. The **Default Gateway** must be set to the IP address of your router. The **DNS** can usually use the same IP as your default gateway, but you can use 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 T	
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	

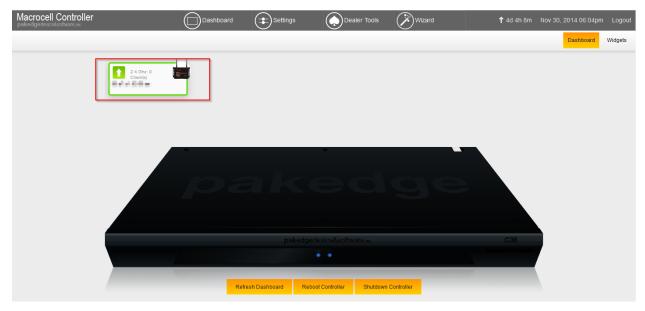
ACCESS POINT OVERVIEW

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

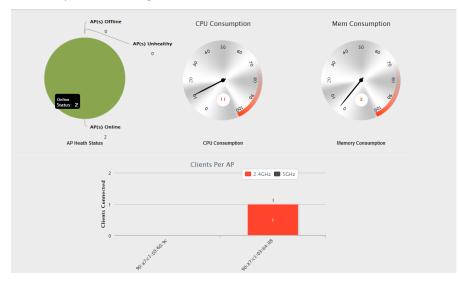
The dashboard will display connected access points at the top.



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

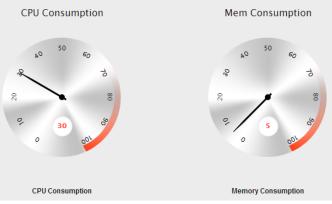
Dealer Tools	Wizard	🕇 4d 4h 8m	Nov 30, 2014 06:04pr	n Logout
			Dashboard	Widgets

The following is an example of the widgets screen.

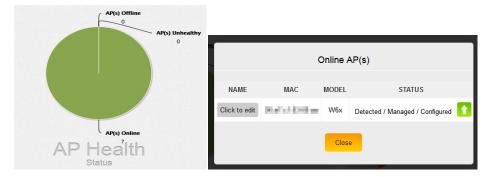


The widgets will display important information about the controller.

- **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 2 3 4	WPA2-PSK WPA2-PSK WPA2-PSK WPA2-PSK	Ver15Test-1 Ver15Test-2 Ver15Test-3 Ver15Test-4		192.168.1.130	Auto	B/G	W6x	90:a7:c1.01:01:0e
2	1 2 3 4	WPA2-PSK WPA2-PSK WPA2-PSK WPA2-PSK	Ver15Test-1 Ver15Test-2 Ver15Test-3 Ver15Test-4		192.168.1.111	Auto	B/G	W6x	90:a7:c1:01:32:5e
0	1 2 3 4	WPA2-PSK WPA2-PSK WPA2-PSK WPA2-PSK	Ver15Test-1 Ver15Test-2 Ver15Test-3 Ver15Test-4		192,168.1.110	Auto	B/G	W6x	90:a7:c1.01:3d:16
00000	1 2 3 4	WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES	Ver15Test-1 Ver15Test-2 Ver15Test-3 Ver15Test-4 Ver15Guest		192.168.1.138	Auto	BIGN	W6x	90:a7:c1:03:11:b2
000000000000000000000000000000000000000	1 2 3 4	WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES	Ver15Test-1 Ver15Test-2 Ver15Test-3 Ver15Test-4 Ver15Guest		192.168.1.115	Auto	BIGIN	W6x	90:a7:c1:03:11:ba
0000	1 2 3 4	WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES WPA2-PSK AES	Ver15Test-1 Ver15Test-2 Ver15Test-3 Ver15Test-4 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 90:a7:c1:03:11:ba	¢		Up
90:a7:c1:03:1a:be	*	-	Down
			Botto
Ausilable Data		Monitored Data	
Available Data		Monitored Data	
Model	> -	Monitored Data	Sort
Model Adde Channel E Firmware	*	E COL	Тор
Model A Mode 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 Edit controller password Config	Maintenance Run maintenance on the controller Config		Config
Time and Date Edit controller Time, Date, Zone And Format	LAN Settings Edit Controller IP, Netmask and Gateway Config	SNMP Enable SNMP Config	License Controller license maintenance 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 LOCATION	MODEL	IP	OPERATING MODE	CHANNEL	MAC 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 Point	24GHz 6 ▼ sgHz 132 ▼	90:a7:c1:07:2e:3e	2.4 GHz 29 dBm → 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 🔻		Online	

- **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 LOCATION	MODEL	IP	OPERATING MODE	CHAN	NEL	MAC 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 👻		Online	
Click to edit	W7x	192.168.1.118	Access Point	24GHz 1 5GHz 13	▼ 12 ▼	90:a7:c1:07:2	e:3e	24GHz 29 dBm ↓ sgнz 26 dBm ↓		Online	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: SSID: Suppressed SSID: Station Separation: Security: Passphrase: Enable 802.1q tag:	Cr Cr Supportiab-2.4 Cr Cr Cr WPA2-PSK INFO Show Cr Cr	sub 1	Enable: SSID: Suppressed SSID: Station Separation: Security: Passphrase: Enable 802.1q tag:	Conference of supportest2 Conference of WPA2-PSK • WPA2-PSK • Show Conference of WARE 2 •	2 2
Enable: SSID:	On Cit Supportlest3	ssid 3	Enable: SSID:	On€0f [38-4	ssid 4
Suppressed SSID: Station Separation: Security: Passphrase:	onOff onOff WPA2-PSK WWA2-PSKShow		Suppressed SSID: Station Separation: Security: Passphrase:	on on 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 Create Allow/Block Filters	Create Client Limits	Enable/Disable WiFi Scheduling 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 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 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 Wireless Device Device MAC Address 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 Searc		
LOCATION ^	MAC 90:a7:c1:03:60:aa	\$	MODEL 🔶 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 φ	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

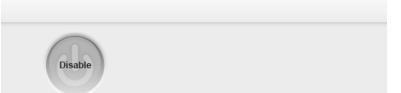
SCHEDULING

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	 Q 2.4GHz Active GGHz Active Q 2.4GHz and SGHz Active 	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 12 Monday 18 Tuesday 18 Wednesday 18 Thursday 18 Finday - Saturday - Sunday
Time	R Al Day (Use 24-Hour Clock) 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 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**.

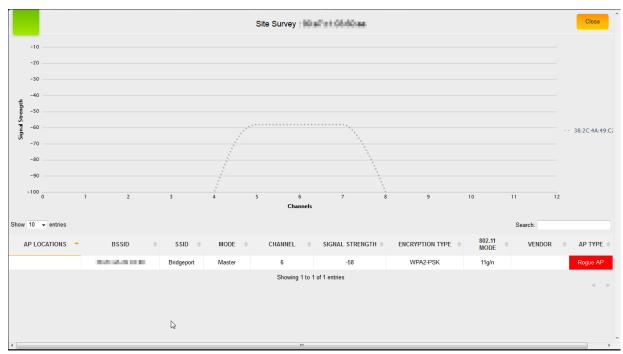
Dashboard	Settings	Dealer Tools	Wizard
Dashboard & Widgets	Macrocell Controller	Site Survey	Run Wizard
Reports	Access Point	AP Deployment	
	Global Configuration	Wireless Optimization	
	Advanced		

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.



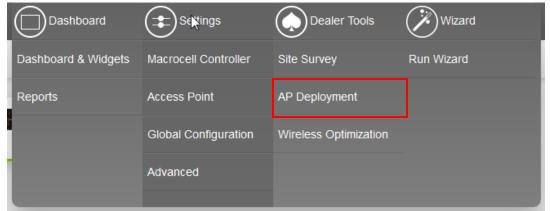
Note: While the 5 GHz is great for avoiding interference, it is important to note that you will generally get less coverage from it compared to the 2.4 GHz. This means you may need more access points with 5 GHz to cover the same area as if you were using 2.4 GHz.

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 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

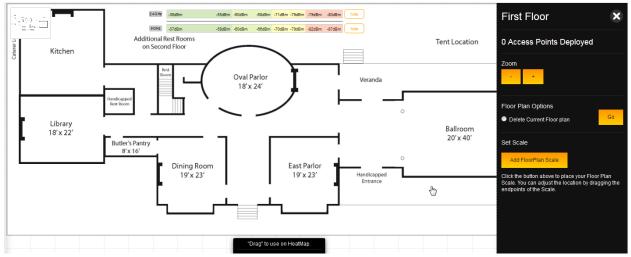
5. Upload your floor plan. Note that you can only upload .jpeg or .png file types.

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

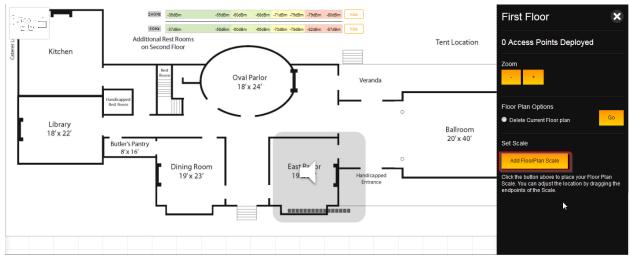
6. Enter a name for your floor plan and click **Continue**.



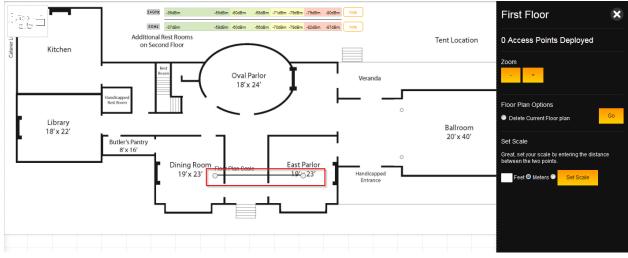
7. You will now see your floor plan on the C36.



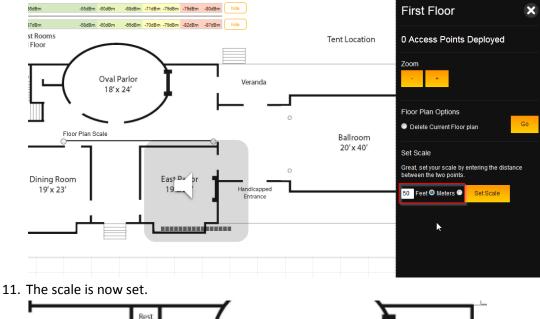
8. Before you can add access points to the heat map, you will need to set a scale. This will tell the C36 how large the site is and display the proper coverage of an access point. To set the scale, click Add Floor Plan Scale.

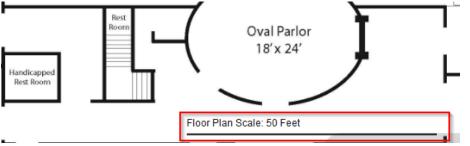


9. You will now have a line that you can maneuver as you like. Move the end points to a spot on the floor plan with a known distance.

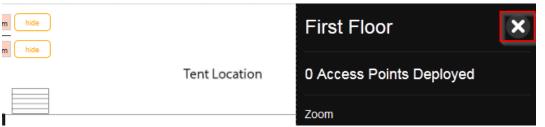


10. Enter the distance in either feet or meters. Click Set Scale.

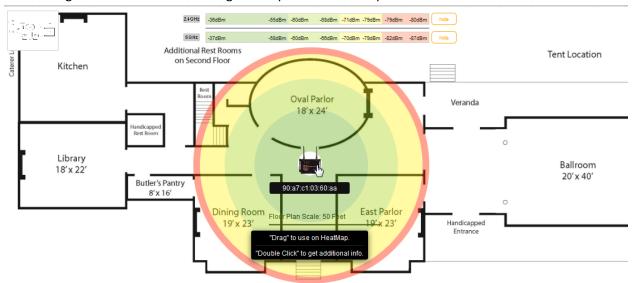




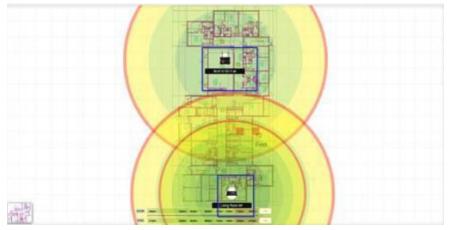
12. With the scale set, you can now close the menu on the right-hand side.



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.



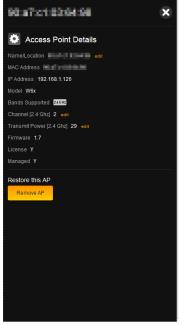
15. To remove an access point, double-click it and then click **Remove AP**.

	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.

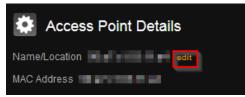
ZAGHZ	-3869m	-336Sm	-6069m	-Etcan	-71d2m	-7265m	-7969m	-506Bm	-
SGHZ	-3168m	-300km	-6368m	-60:0m	-7068m	-1968m	-5269m	-distin	100

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**.



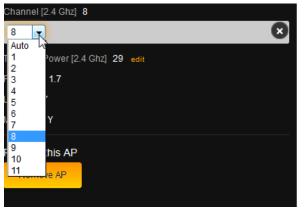
20. The name of an access point is its MAC address by default. To enter a new name, simply click on the text box and begin typing. Click **Save** once finished.

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

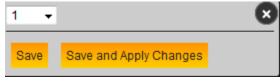
21. To change the channel of the WAP, click **Edit**.



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**.

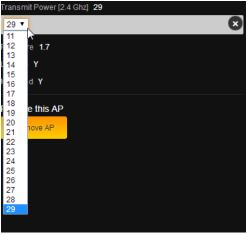


Please note that this will cause your access points to update. During that time, the heat map will not be accessible. It is best to finish the configurations on all of your access points before you perform an update.

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**.

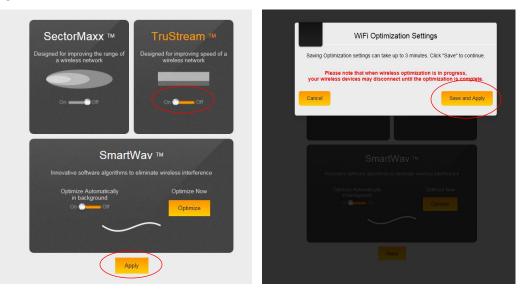
Dashboard	Settings	Dealer Tools	Wizard
Dashboard & Widgets	Macrocell Controller	Site Survey	Run Wizard
Reports	Access Point	AP Deployment	
	Global Configuration	Wireless Optimization	
	Advanced		
_		_	

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 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 your wireless devices may disconne	s optimization is in progress, 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 in background	Optimize Now		
Optimize Automatically in background 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[™] 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[™] 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 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 Manage AP's Mi View Cancel Cancel AP Reboot AP Reboot AP's 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		 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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