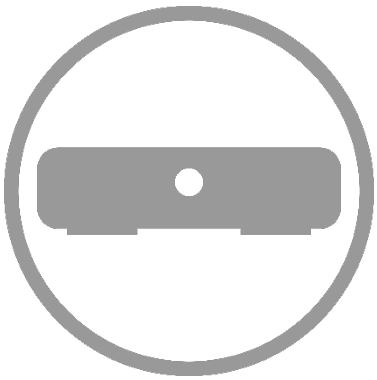
pakedge®

NK-1

Wireless Controller with BakPak

User Guide



Introduction

The popularity and affordability of IP networking has driven audio/video and control networks to share the same physical wiring with computer networks. However, computer data can tolerate unpredictable latency in ways that audio-video streaming and control systems cannot. Sophisticated systems require the same robustness as an enterprise network to ensure that IP-based controls occur instantly and audio/video packets arrive in time.

Note: If this is your first time installing this product, please read this manual in its entirety.

Customer Service and Technical Support

Pakedge is committed to providing you with exceptional support on all of our products. If you wish to speak with one of our representatives, you may contact us at:

Technical Support

Email: support@pakedge.com
Phone: 650.385.8703

Visit our website for up-to-date support information at www.pakedge.com.

Please be prepared to provide your product's model and serial number when contacting Pakedge Support. Your model and serial numbers are printed on a label located on the electronic housing.

Contents

Overview

The front panel of the NK-1 has a pair of blue LEDs (HDD and PWR).

See the table below 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

Physical cabling (power, Ethernet, console) is located on the rear panel.

The table below describes each port and its function.

Name	Description
AC Connector	AC110~260V
Power Switch	Provides power to the NK-1
USB	Maintenance
LAN	MDI/MDIX RJ45 interface for connection to the LAN
Maintenance	A Port for maintenance purposes
Console	Local management,115200bps, RJ45 interface

Preparing to install the controller

Installing a wireless controller is similar to installing a network switch. Installing the associated APs, however, is more complex, so add your APs to the network before logging in to your NK-1 for the first time, and refer to “Planning AP deployment” on page 21.

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 USB-to-Serial adapter may be necessary if you would like to use the console interface)
- Ethernet cable

Installation

- If mounting in a standard 19″ AV rack, attach the rack-mount brackets. If not rack-mounting, make sure that the NK-1 is physically mounted near power and network connections (for example, a backbone switch or firewall/router).

Configuring the NK-1 through your network router

If you are using a router that has an internal IP scheme of 192.168.1.*x*, then you can connect the controller to an available port on your router or network switch and run the wizard.

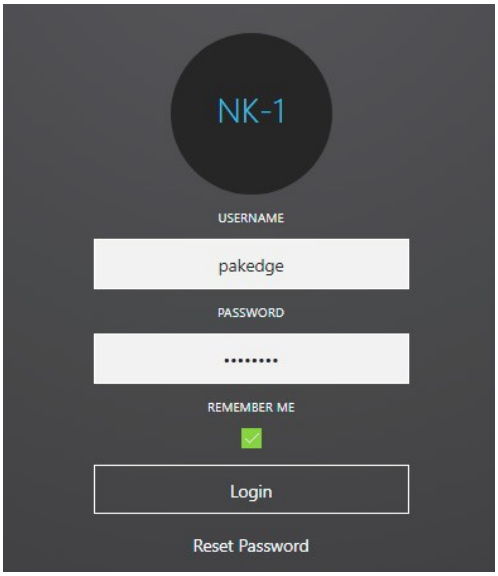
1. Connect the controller to power and press the power switch on the rear panel.
2. Connect an Ethernet cable from your router to the NK-1.
3. From a computer connected to this network, open any web browser (Mozilla Firefox recommended).
4. Go to Step 4 under "Configuring the NK-1 directly using a computer" below.

Configuring the NK-1 directly using a computer

If your router is using an IP scheme other than 192.168.1.*x* or you want to configure the NK-1 directly using a computer, you can configure the NK-1 directly.

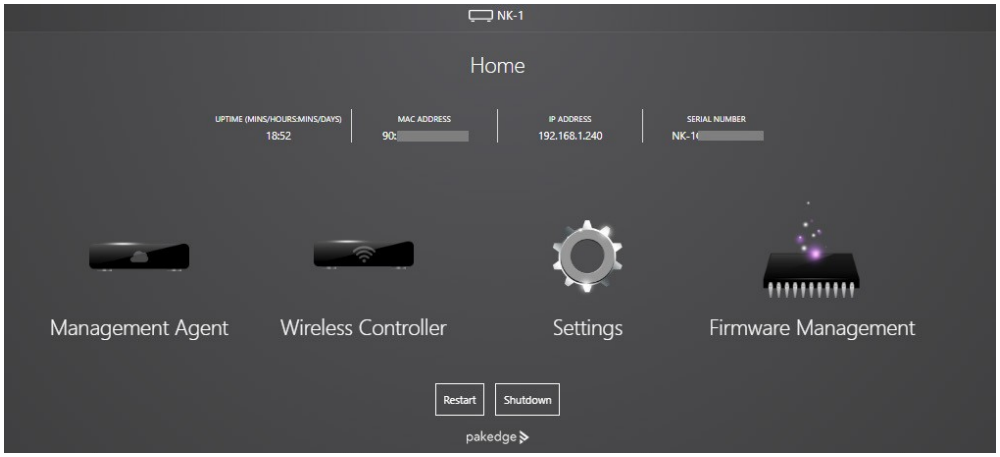
To configure the NK-1 directly using a computer:

1. Connect the controller to power and press the power switch on the rear panel.
2. Connect an Ethernet cable from your computer to the NK-1.
3. Configure the computer with a static IP address of **192.168.1.10** and subnet mask of **255.255.255.0**, then open any web browser (Mozilla Firefox is preferred).
4. In the web browser, enter the NK-1's default IP address (**192.168.1.240**) into the address bar and press **Enter**. A webpage appears, prompting you for a username and password.



5. Enter **pakedge** as the username and **pakedgen** for the default password, then click **Log in** to log in to the web administration portal.

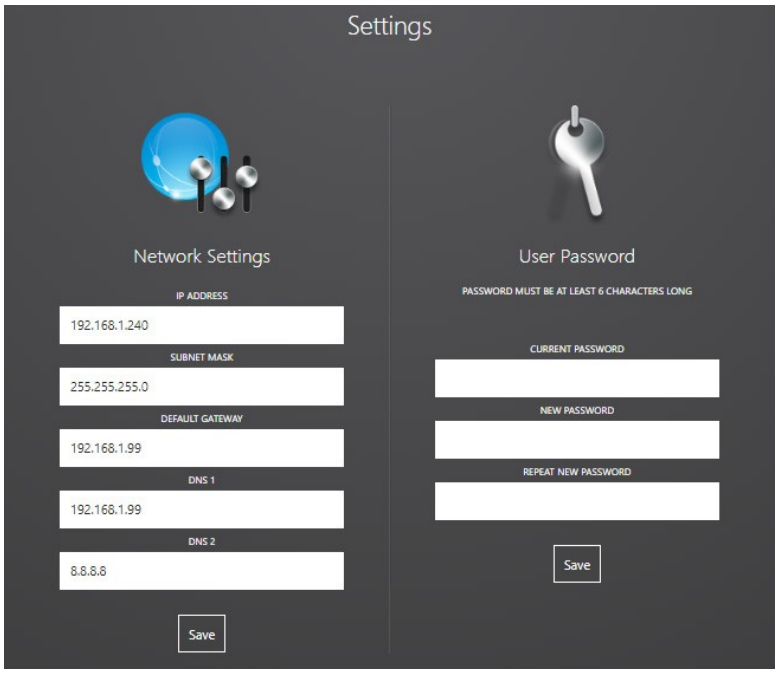
6. After you have logged into the controller, you will see the *Home* screen.



Important: The first time you log in, the Setup Wizard starts. Go to "Running the wizard" on page 7.

7. Click **Settings**, or click the Home screen's **Settings** icon.

8. Enter the correct IP address, subnet mask, default gateway, and DNS information, then click **Save**. You can now run the wizard to configure your wireless network.



Running the wizard

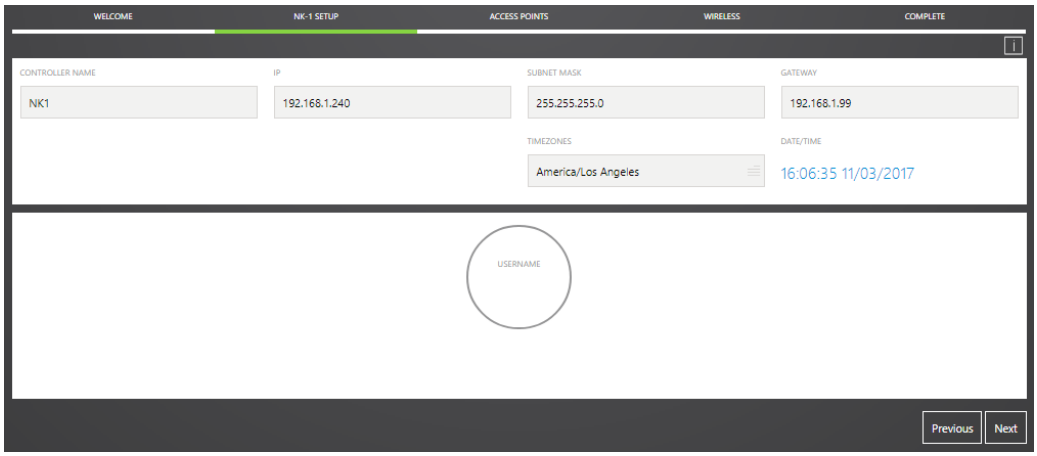
The wizard will discover, manage, and configure your wireless access points, making it a quick and easy way to set up your wireless network. **Note:** The wizard must be completed to gain access to the main controller interface. After completing the wizard for the first time, the option to run the wizard again will not be available until the system is restored to factory defaults.

To run the wizard:

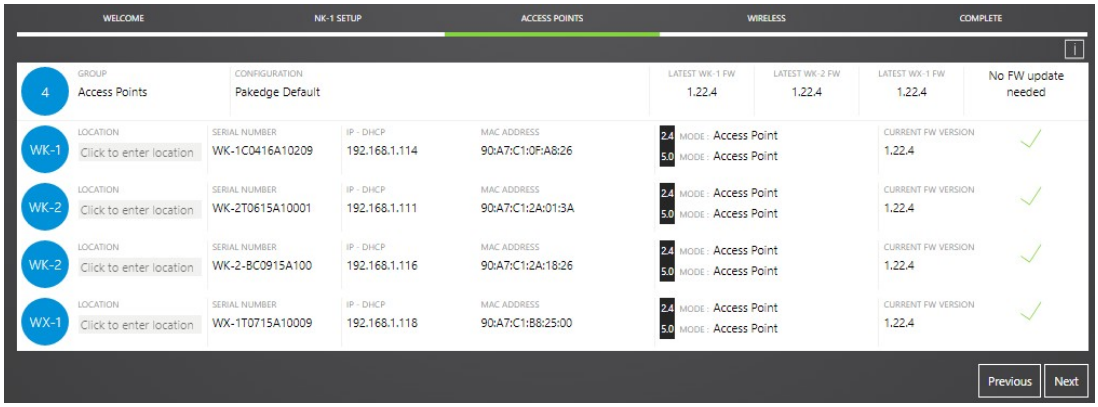
1. Log in to the NK-1.

   The first time you log in, the Setup Wizard starts and displays the number of APs (wireless access points) it has discovered. **Notes:** You will not be able to access the Wireless Controller Dashboard until this wizard is completed. AP Discovery must discover at least one AP before you continue with the Setup Wizard.

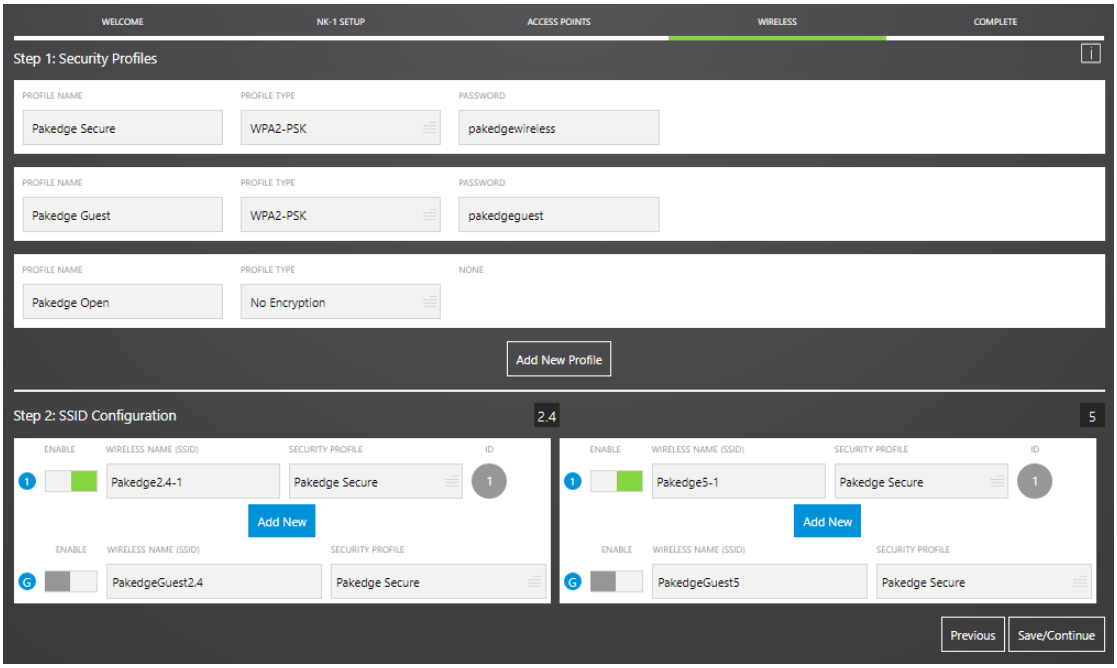
2. If the number of discovered APs does not match the number of APs that are actually installed, click **Continue Discovery** to give it time to discover the additional APs. When you are satisfied with the AP count, go to Step 3.
3. Click **Continue Wizard**. The wizard's *Welcome* screen opens.
4. Click **Next**. Here you can set up your controller name and IP address, as well as subnet mask, gateway, and time zone.



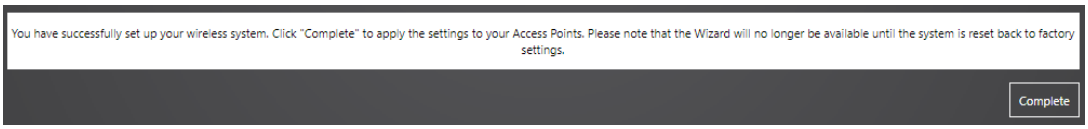
5. To change your login credentials (strongly recommended), click **Edit Password** or **Edit Security Questions**.
6. Click **Next**. Here you can edit each AP's location, view each serial number, IP address, MAC address, channel, and power setting, and select APs for firmware updates.



7. To update an AP's firmware, select its circle on the right side of the table.
8. Click **Next**. Here you can set up multiple security profiles for your APs and set up each radio band's SSID configuration.



9. Click **Complete** to finish the wizard and apply the new settings to all connected access points.

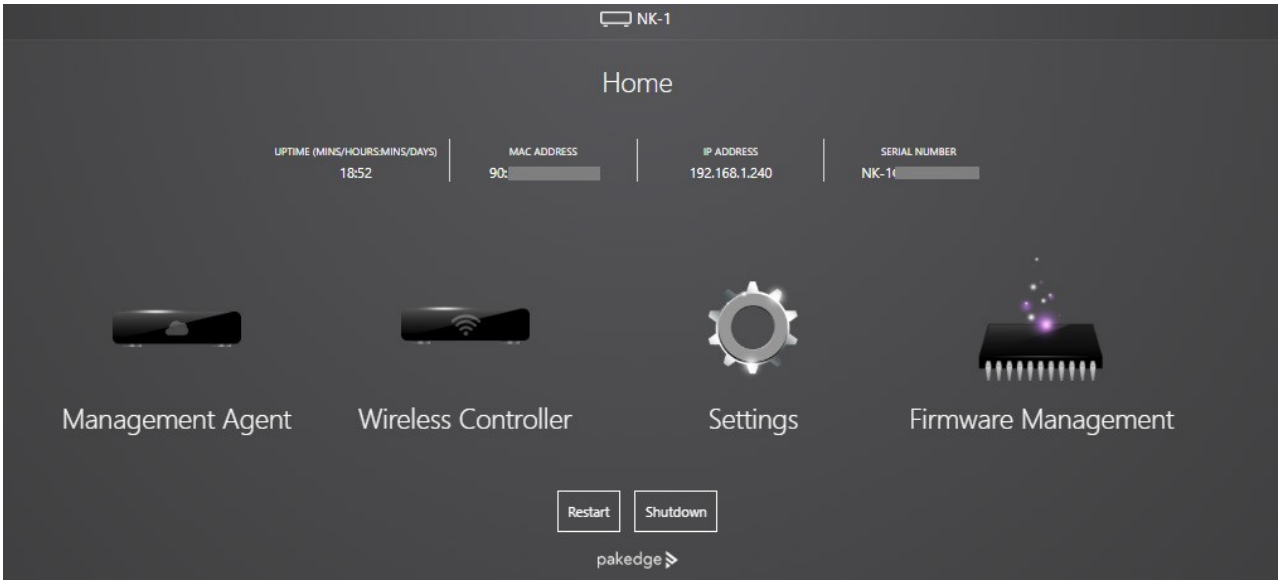


The *Wireless Controller Dashboard* opens, where you can view CPU and memory usage and a list of the types of APs installed.

Note: The wizard is disabled after it has completed setup. To run the wizard again, you must restore the NK-1 to its factory default settings, then log back in to the controller. To do this, go to the Wireless Controller Dashboard, click **System Settings** at the top of the page, click **System Settings** in the menu that opens, then click **Restore Defaults**.

NK-1 Home screen

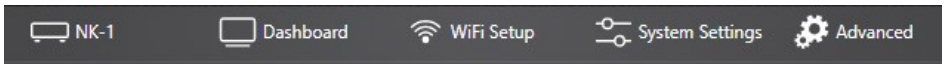
The Home screen is your jumping-off point for cloud-based network management, wireless controller setup, NK-1 device settings, and NK-1 firmware management.



System summary—This small table gives you at-a-glance information for the NK-1's uptime, MAC address, IP address, and serial number.

Management Agent—This takes you to the BakPak login for full, cloud-based network management, which allows you to view, configure, and even reboot attached network devices.

Wireless Controller—This takes you to the wireless controller components:



The *Dashboard* shows widgets for CPU usage, memory usage, AP status, and number of connected clients. With *Clients* selected, the Dashboard shows each connected AP's settings, and you can give each a descriptive device name.

WiFi Setup lets you select access points to view and change each detected AP's settings. It also lets you select **Configuration** to view system configurations and view and change user configurations.

System Settings lets you view and change NK-1 system settings (including login credentials and maintenance tasks). Clicking Access Point Settings displays the number of valid licenses, a list of APs that are controlled by the NK-1, and firmware update status for each.

Advanced helps you plan your AP deployment, create AP scheduling, set up MAC filtering, and run a site survey.

Settings—This takes you to your NK-1 device settings page, where you can change the NK-1's setup (including IP address and subnet mask) and your login credentials.

Firmware Management—This takes you to a screen where you can update your NK-1's firmware, if necessary.

Restart and Shutdown—Click these to restart or power off the NK-1.

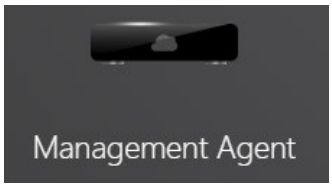
Tip: For quick info about a screen's settings, click the "information" button. This helpful button is available in most screens throughout the interface.

Managing the network

The BakPak cloud-based network management system (included) allows you to monitor, configure, and manage the network and network-connected devices in all of your customers' sites, all from a single dashboard.

To access BakPak:

1. From the NK-1 *Home* screen, click **Management Agent**.



   If this is your first time accessing BakPak, the *Management Agent Registration* screen opens. If you've already set up BakPak with your NK-1 controller, you are brought to BakPak's *Dashboard.*

2. In the *Management Agent Registration* screen, click **Register to BakPak**, then follow the on-screen instructions to set up your account.
3. Refer to the *BakPak Remote Management System User Guide* for complete BakPak instructions.

Using the Wireless Controller application

In addition to settings configured during the wizard's setup, you can configure the entire WiFi network from this application.

To access WiFi settings:

1. From the NK-1's *Home* screen, click **Wireless**.

The Wireless Controller *Dashboard* opens.

Using the Wireless Controller Dashboard

The *Dashboard* displays AP CPU and memory usage, AP status, and the number of clients connected to each AP.

Using AP status widgets

The AP status widgets are all visible in the basic *Dashboard* view.

- The *Hardware* widget shows the CPU and memory usage over time. This information can be used to monitor the system's performance.
- The *AP Status* widget shows the detected APs based on status.
    - Healthy: APs are managed, configured, and online.
    - Offline: APs are no longer being detected by the controller.
    - Not configured: APs are detected but a configuration from the controller was not applied.
    - Unmanaged: APs are not managed by the controller due to a license limitation or being unsupported. Unsupported APs can be APs that are set up in modes other than Access Point mode (WDS, repeater). If an AP is unmanaged, the controller will not be able to configure it or perform any actions on it.
    - FW out of date: APs are not running the latest firmware.
- The *Connected Clients* widget displays the APs that are or *have been* connected to your wireless network. It also shows the devices per AP and per band (2.4 GHz or 5 GHz) on each AP, and you can select and deselect which bands to display. You can also use this section to look at the client's movement from one AP to another.

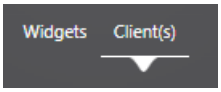
You have the option to rename and block the client, if needed. To unblock a client, you will have to go to **Advanced** > **MAC Filtering**.

Using the Client(s) view

The Client(s) view lets you see currently connected WiFi devices and their status. You can also enter a device name here for easier tracking later.

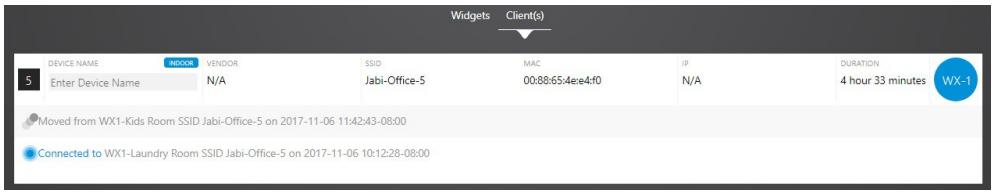
To view the history of a client device's connections:

1. In the Wireless Controller *Dashboard's* basic view, click **Client(s)**.



   The list of clients opens, showing each WiFi-connected device and current status.

2. Click somewhere on the device's table row. The device's history list expands, showing each time the client device connected to the network or moved between APs.



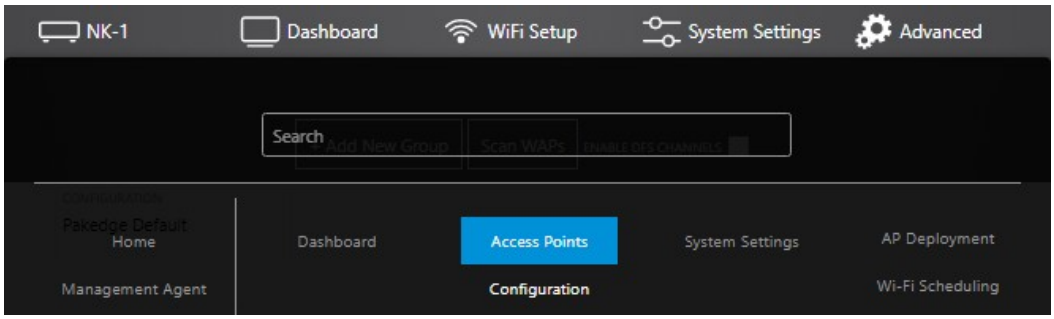
3. To close the list, click anywhere inside the list.

Setting up WiFi

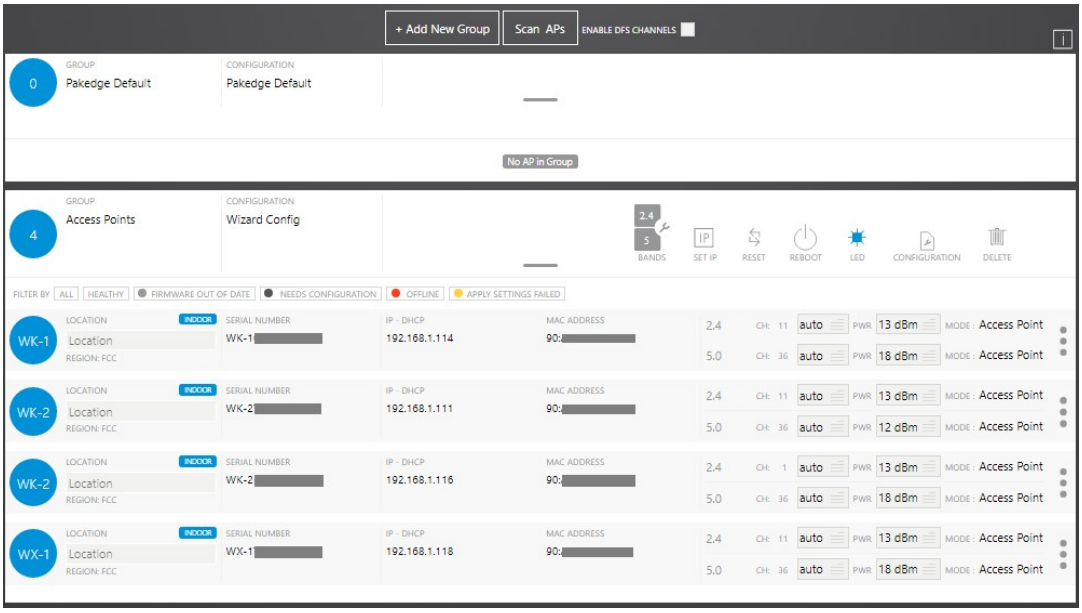
Setting up WiFi for access points

To set up WiFi for the network's access points:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **Access Points**.



The list of connected access points opens, displaying AP locations, identifiers, and settings. Here you can scan for APs and organize APs into groups.



AP groups explained

- **Pakedge Default group**—Unmanaged APs are automatically added to the *Pakedge Default* group. An AP is considered unmanaged if you no longer have enough licenses on the controller or if the AP is running in an unsupported mode such as WDS or repeater. The only action allowed on an AP in this group is to manage the AP. To do so, expand the group and click on the arrow pointing left, and you will see a flag option that can be used to managed an AP.
- **Access Points group**—The controller automatically discovers and manages APs and adds them to a group called *Access Points* when the setup wizard is run.

Creating a new group

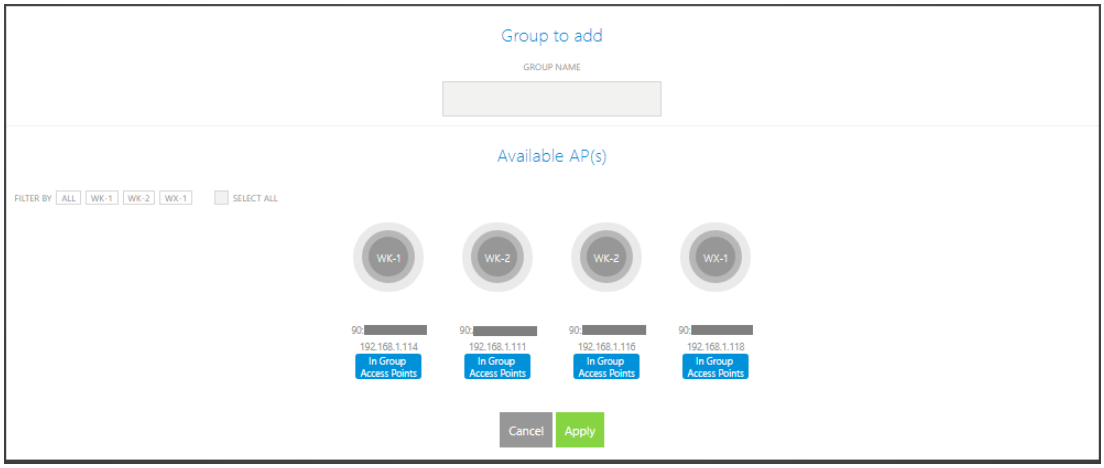
Usually one group that includes all the APs is enough, but if you want to apply different configurations to different APs on the same network, you can by creating a new group, adding the APs you want to this group, and applying a specific configuration to the group. Note: An AP cannot belong to two groups at the same time.

Note: Only managed APs can be added to a group.

To create a new group:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **Access Points**.
2. Click **Add New Group** (near the top of the page).

The *Group to add* screen opens.



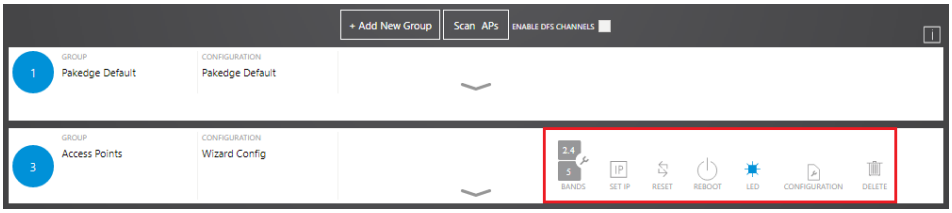
3. Give the group a name, then click to select the APs to add to the new group. (Blue APs are selected, gray APs are not.)
4. Click **Apply**. The group is created.

Changing access point and group basic settings

You can change basic settings for AP groups and individual APs from this screen.

To change settings for an AP group:

1. In the *Access Points* screen, click one of the icons on the right of the group name.



BAND—Toggles a band on and off for the group (*Enable/Disable Band*), rejects clients attempting to connect on a particular band (*Reject Client*), and enables Multicast Enhancement (*Multicast Enhancement*).

SET IP—Resets DHCP or changes static IP addresses for group APs. To refresh DHCP addresses, click **DHCP**. To specify new static IP addresses, click IP, click **Scan for IPs in use**, enter the address to change on the left, the address to change it *to* on the right, then click **Apply IP(s)**.

RESET—Resets all APs to factory default settings. Use with caution.

REBOOT—Reboots all APs in the group.

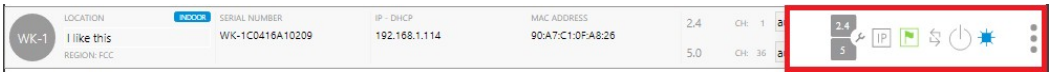
LED—Turns all AP LEDs on or off. To turn the LEDs on or off, select ON or OFF, then click Apply. When all group APs have LEDs turned on, this icon is blue. When any of the group APs have LEDs turned off, this icon is gray.

CONFIGURATION—Edits the AP group. Click a grayed-out AP to add it to the group, or click a blue AP to remove it from the group, then click Apply. If you want to apply one of the defined configurations (see below), click the toggle for Do you want to apply/change configuration?, then select an available configuration.

DELETE—Deletes the AP group.

To change settings for an individual AP:

1. In the *Access Points* screen, click one of the AP groups to expand it, then click the three-dot menu icon at the right to open the AP settings menu.



BAND—Toggles a band on and off for the AP (*Enable/Disable Band*), rejects clients attempting to connect on a particular band (*Reject Client*), and enables Multicast Enhancement (*Multicast Enhancement*).

SET IP—Resets the DHCP address or changes the static IP address for the AP. To refresh the DHCP address, click DHCP. To specify new static IP addresses, click IP, click Scan for IPs in use, enter the address to change on the left, the address to change it *to* on the right, then click Apply IP.

Flag—Flags an AP for management.

RESET—Resets the AP to factory default settings.

REBOOT—Reboots the AP.

LED—Turns the AP's LEDs on or off. To turn the LEDs on or off, select ON or OFF, then click Apply. When the LEDs are on, this icon is blue.

Viewing AP group configurations

To view AP group configurations:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **Configuration**. The configurations screen opens.

2. Click a configuration to expand its list.
   - **System Configurations**—Includes only the Pakedge Default configuration (read only). This is a configuration used to indicate what configuration APs will adopt when they are returned to factory defaults. Click View to see its settings.
   - **User Configurations**—These are the configurations that have been defined by you or other administrators.

Creating a new AP group configuration

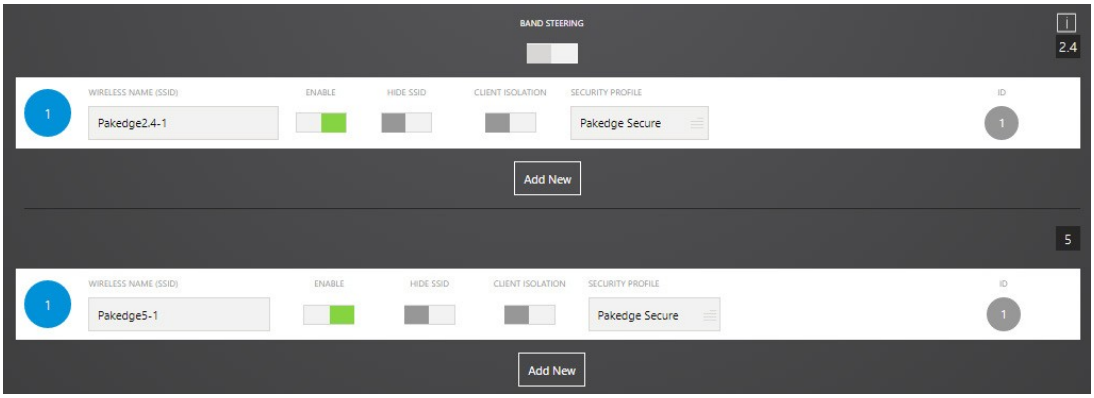
You can create different configurations to apply to different AP groups. You may have, for example, a group of APs called “Guest” that includes APs in the guest area, and you would like the guest to have his own wireless configuration.

To create a new configuration:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **Configuration**.
2. Click **New Configuration**.

The group configuration screen opens.

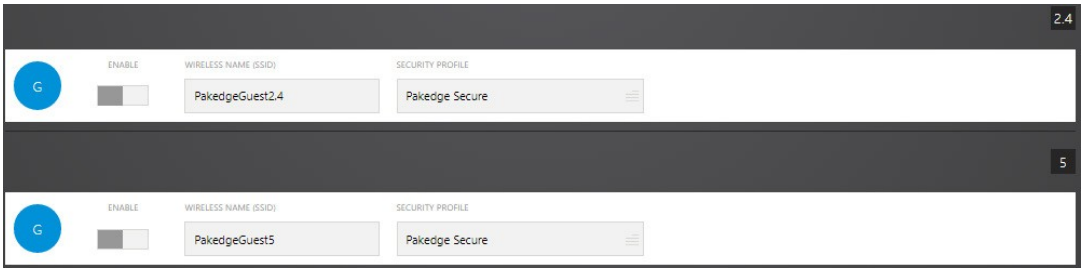
3. Click **SSID Configuration** to create and manage SSIDs.



You can create up to eight SSIDs per band by clicking Add New. Each SSID can have its own security profile and password. You can also enable band steering which, while enabled, limits the SSIDs to a maximum of eight.

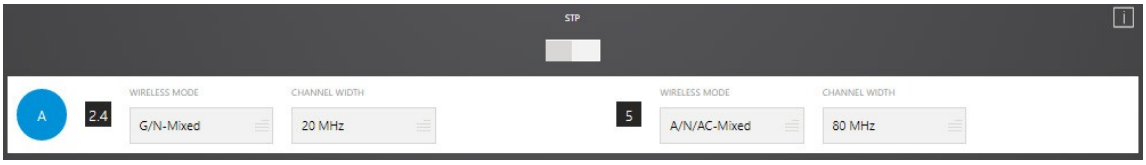
- **Enable:** Used to enable/disable the SSID from broadcasting. This will *not* affect the entire interface, only this one SSID.
- **Hide SSID:** Used to hide the SSID while still broadcasting. Clients can still connect to it if previously connected or by entering the SSID name manually.
- **Client Isolation:** When enabled, clients connected to the same SSID cannot see each other.
- **Security Profile:** Acts as the password for this SSID. To create and edit security profiles, click the Security Profiles tab near the top of the screen.
- **ID:** If you use VLANs (Pakedge zones), click the ID circle to select the appropriate VLAN ID for the selected SSID. If the VLAN ID is not default, you can click the grey circle and enter a VLAN ID manually.

4. Click **Guest** to define the SSID’s guest network.



You can set up one guest SSID per band. Note that guest SSIDs do not depend on the router settings (such as VLANs). The Guest Network is designed for routers that do *not* support VLANs. The Guest Network acts as its own network with no communication to other SSIDs.

5. Click **Advanced** to change wireless mode and channel width.

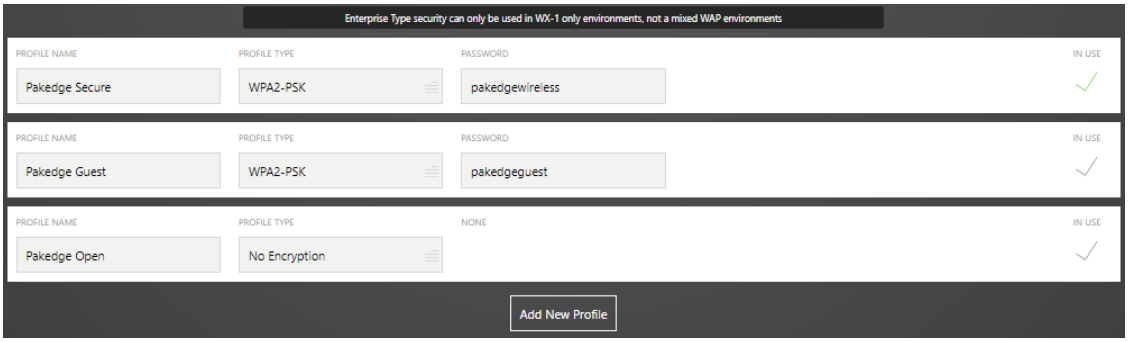


You can modify these settings if the default settings are not working well in the environment where the system is being set up.

6. Click **RADIUS** to set up Radius security.

Radius wireless security can be used only in WX-1-only environments. If you are using WK-1s or WK-2s, the RADIUS configuration will not be applied.

7. Click **Security Profiles** to create a profile that can be applied to SSIDs on your network.



By default, three security profiles are already created: *Pakedge Secure*, *Pakedge Guest*, and *Pakedge Open*. You can modify these profiles. To create a new profile (if needed), click **Add New Profile**.

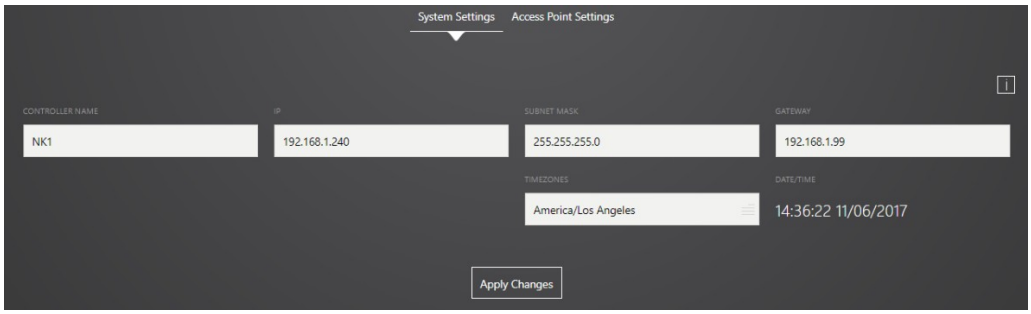
8. When you complete creating a wireless configuration, click **Save/Apply**, then enter a configuration name and select an AP group to apply this configuration to. Tip: If you don't select an AP group to apply the configuration to, you can still save it and apply it later.

Changing NK-1 system settings

You can edit the NK-1's network settings, time zone, and login credentials, as well as reboot, back up, and restore the NK-1.

To change NK-1 network settings:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **System Settings**. The *System Settings* tab opens.



2. Click in any of the fields to change the NK-1 controller name, IP address, subnet mask, gateway, and time zone, then click **Apply Changes**.

Changing login credentials

Although the username must stay "pakedge," you can change the NK-1's password (for logging in) and security questions (for password recovery).

To change NK-1 login credentials:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **System Settings**. The *System Settings* tab opens.

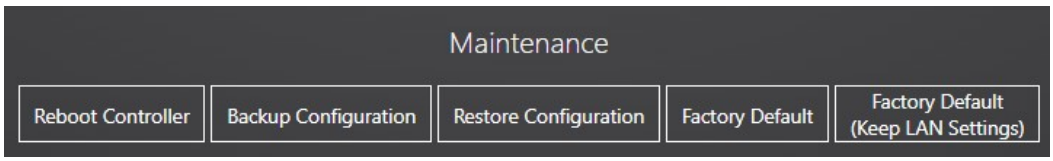
2. To change the password, click **Edit Password**, follow the on-screen instructions, then click **Update**. **Note:** The password must be at least six characters long.
3. To change the security questions used for password recovery, click **Edit Security Questions**, enter the requested information, then click **Apply**.

Performing NK-1 maintenance

This *System Settings* section allows you to back up and restore the wireless controller settings. You can also reboot the NK-1 and restore it to factory defaults, if necessary, with or without retaining its LAN settings. **Note:** Restoring the NK-1 to factory defaults does not return the APs to their factory defaults.

To perform NK-1 maintenance:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **System Settings**. The *System Settings* tab opens.



2. To reboot the controller, click **Reboot Controller**, then click **OK**.
3. To back up the current NK-1 configuration, click **Back up configuration**, navigate to the drive and folder you want to save the configuration to, then click **Save**.
4. To restore an NK-1 configuration that has been backed up, click **Restore Configuration**, click **Choose File**, navigate to the file, then click **Upload**.
5. To restore the NK-1 to its factory default settings, click **Factory Default**, then click **OK**.

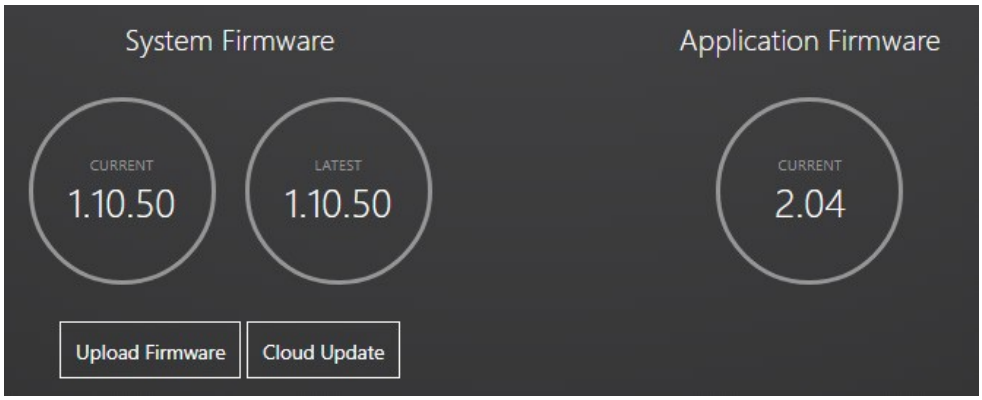
   Caution: We strongly recommend you back up the configuration before you try restoring the NK-1 to its factory default settings.
6. To restore the NK-1 to its factory default settings *while retaining its LAN settings*, click **Factory Default (Keep LAN Settings)**, then click **OK**.

Updating system firmware

In the *System Settings* section, you can update the NK-1's firmware and view the Wireless Controller's firmware version.

To update system firmware:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **System Settings**. The *System Settings* tab opens.



2. To update the NK-1 firmware from the cloud, click **Cloud Update**, then click **OK** to automatically find and install the latest firmware available from Pakedge.

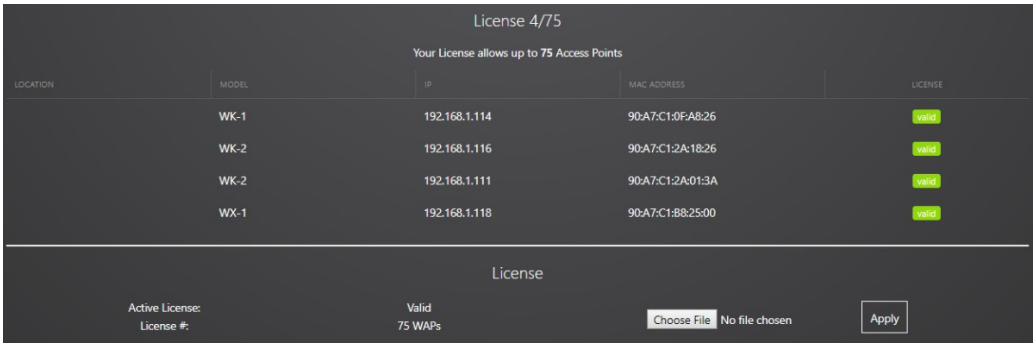
3. To update the NK-1 firmware from a firmware file that has been downloaded onto your computer, click **Upload Firmware**, click **Choose File**, navigate to the firmware update file, then click **OK**.

Viewing and updating license information

In the *Access Point Settings* section, you can view and update the NK-1's license information.

To view and update license information:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, click **System Settings**, then click the **Access Point Settings** tab. The *System Settings* tab opens and displays the number of APs in use, along with the total number of allowed AP licenses.



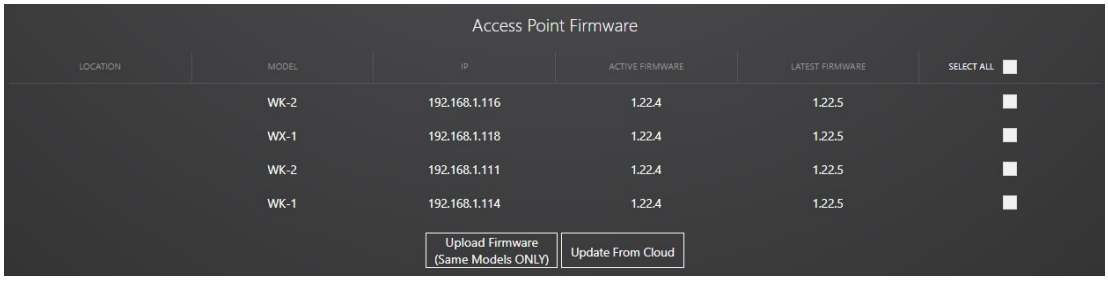
2. To update your license, click **Choose File**, select the license file, then click **Apply**.

Updating AP firmware

You can use this screen to update firmware for all of your connected Pakedge APs.

To update AP firmware:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, click **System Settings**, then click the **Access Point Settings tab**. The *System Settings* tab opens and displays APs and their firmware versions under the *Access Point Firmware* heading.



2. To update a Pakedge AP's firmware from the cloud, select each AP to update, click **Cloud Update**, then click **OK** to automatically find and install the latest firmware available from Pakedge. **Note:** Whenever the controller is rebooted, it downloads the latest license information from Pakedge and applies it to the wireless controller.
3. To update an AP's firmware from a firmware file that has been downloaded onto your computer, select each AP to update (*selected APs must be identical models*), click **Upload Firmware**, click **Choose File**, navigate to the firmware update file, then click **OK**. **Important:** The *Upload Firmware* method should be used only if the wireless controller does not have an Internet connection for the *Cloud Update*.

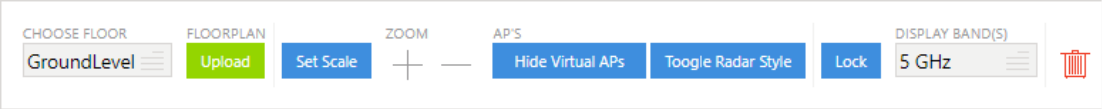
Using advanced WiFi settings

Planning AP deployment

The AP deployment tool is used to give the installer an idea of how thorough your WiFi coverage will be based on the placement of the APs. We recommend you always use this tool before placing the APs, although they'll need to be connected to the network first. Note: For APs to be placeable on the floorplan, they *must* be added to the NK-1's network (unless they are a virtual AP). Tip: You can add as many virtual APs as you like to help in future planning.

To plan your AP deployment:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **AP Deployment**. The deployment planning screen opens.

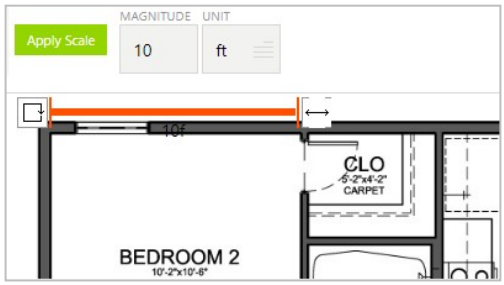


2. Click **Upload** on the toolbar, select the floorplan file, then click **Upload** again. The floorplan is inserted onto the screen. **Note:** Only JPG and PNG formats are supported (no PDFs). To use a PDF floorplan, you can use Adobe Reader or Adobe Acrobat to export an image file that can be uploaded.

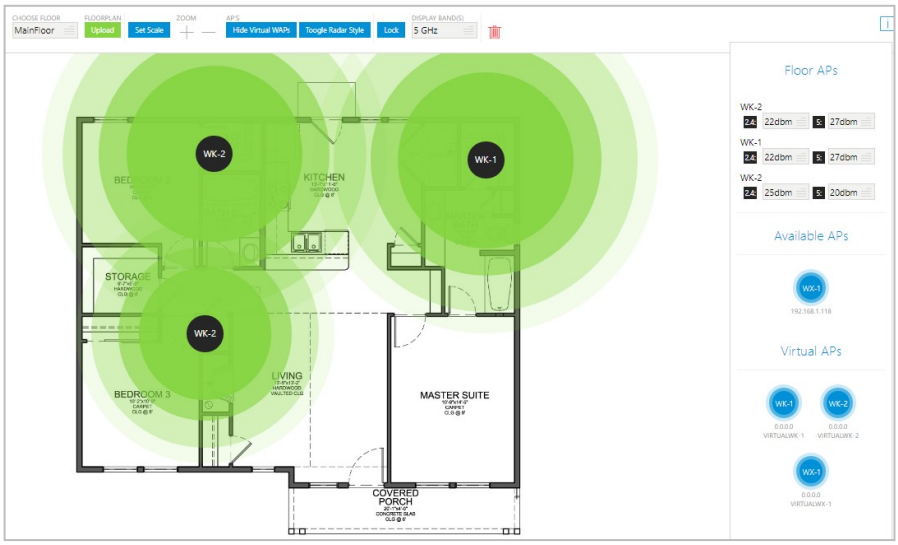
   Tip: If uploading floorplans for a multiple-floor dwelling, upload each separately, each using a unique filename.

3. Click and drag the icon at the left of the scale slider to move the slider to a floorplan location for sizing. **Tip:** Move the slider to a wall that has a round number, such as 10 or 15 feet, for easier sizing in the next step.

4. Click and drag the icon at the right of the scale slider until it matches the distance specified under MAGNITUDE and UNIT, then click **Apply Scale**.

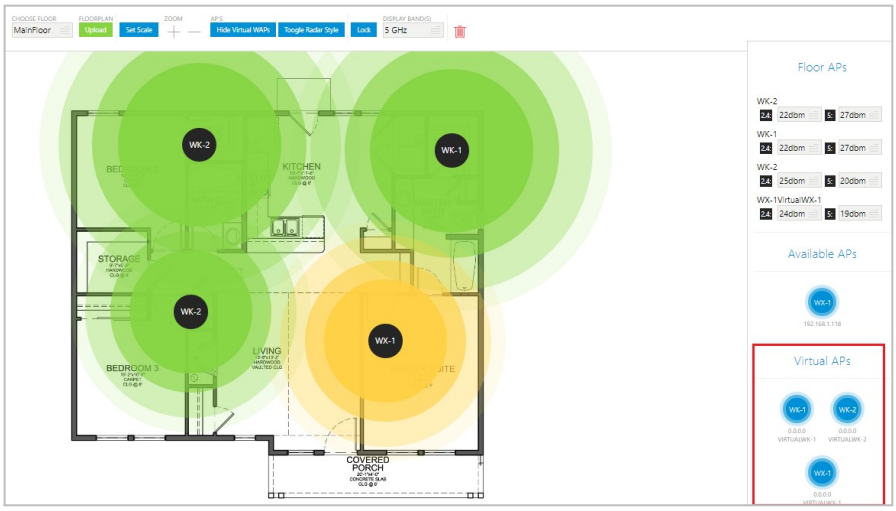


5. Click and drag available APs from the *Available APs* section on the right of the screen to a location on the floorplan.

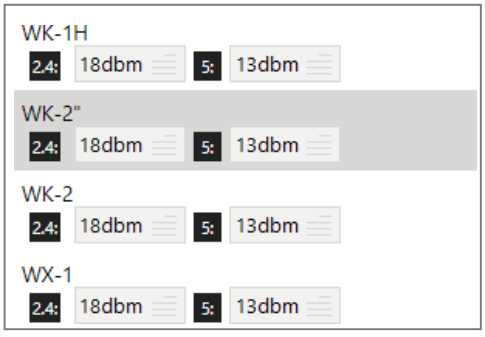


Tip: To toggle the toolbars on and off, click **Toggle Toolbars**.

6. If more APs are needed but none are available, you can use virtual APs based on the model type. Virtual APs are represented in yellow, to differentiate them from true APs.



7. To change the power level of a placed AP, select it, then adjust its power level from the right panel.



8. To change the band represented in the floorplan's WiFi coverage, click **DISPLAY BAND(S)**, then click the band (**5 GHz** or **2.4 GHz**).

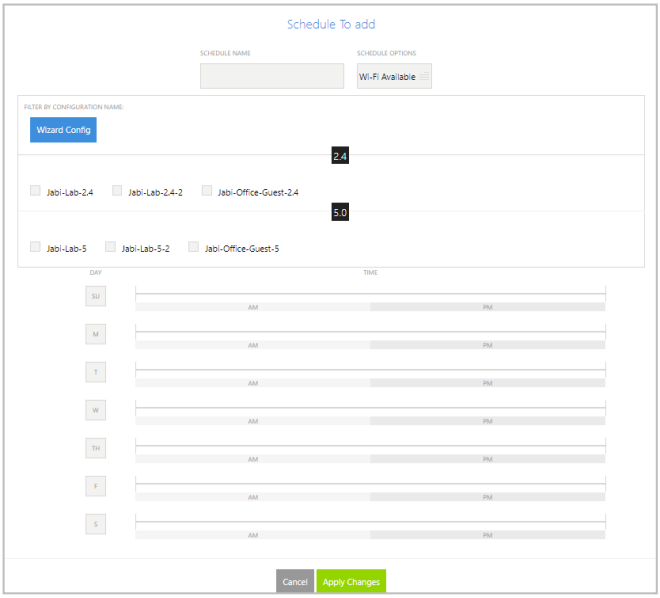
9. To delete a floorplan and start over, click the trash can icon.

Scheduling WiFi availability

You can use WiFi scheduling to create schedules to enable and disable an SSID for a specific day and time.

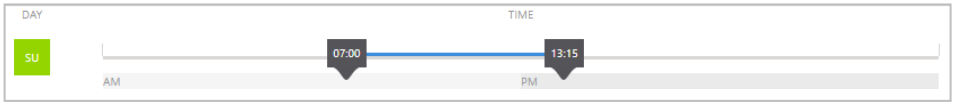
To create a schedule:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **WiFi Scheduling**. The WiFi scheduling screen opens.
2. Click **Add Schedule**. The *Schedule to Add* screen opens.



3. Give the schedule a name, then select the SSIDs to schedule.

4. Select **WiFi Available** or **No WiFi**, then select the **Day of week** and **Time span** to match the Schedule option (WiFi availability) you chose. **Note:** Time is selected in a 24-hour format. You can select only one time span per day. To select more than one time span per day, you must define multiple schedules.



5. When you are done making changes, click **Apply Changes**.

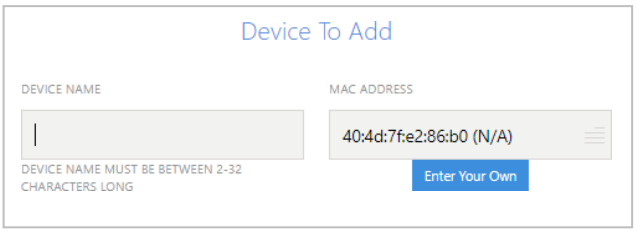
Note: If you create a schedule that turns off WiFi for an entire day, you must wait until midnight for the schedule to take effect.

Setting up MAC filtering

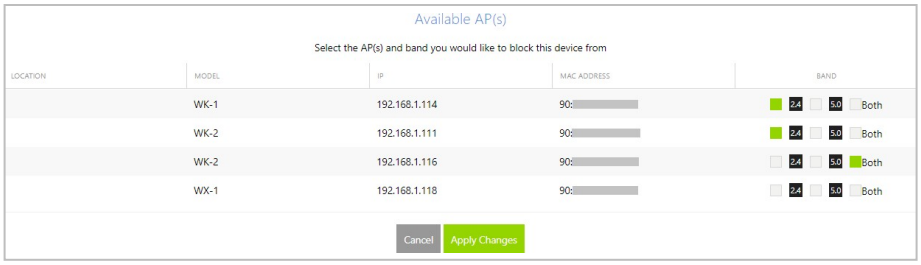
MAC filtering allows you to block certain devices from connecting to your wireless network by AP and by radio band. Note: You can also block clients by going to the Clients widget, then selecting Clients.

To set up MAC filtering:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **MAC Filtering**. The MAC filtering screen opens.
2. Click **Add New MAC Filter**. The *Device to Add* screen opens.
3. In the *Device To Add* section, give the device a descriptive name, then under MAC ADDRESS click **Enter Your Own** to manually enter the device's MAC address, or select an already-connected device from the MAC Address pull-down menu.



4. In the *Available AP(s)* section, select the APs and bands you want to block the device from.



5. When you are done making changes, click **Apply Changes**.

Running a site survey

A *site survey* scans an AP's frequencies for devices broadcasting their SSID, then graphs each signal by detected channel and strength.

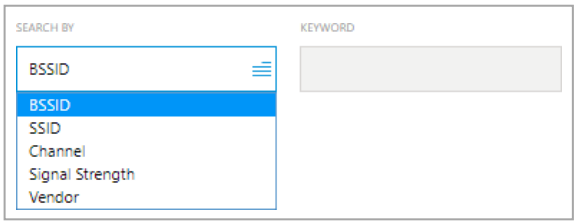
To run a site survey:

1. In the Wireless Controller *Dashboard*, click **WiFi Setup**, then click **Site Survey**. The site survey screen opens.

2. Click **View Survey** for the AP you want to survey. The results are graphed and tabulated. **Tip:** You can switch between bands.

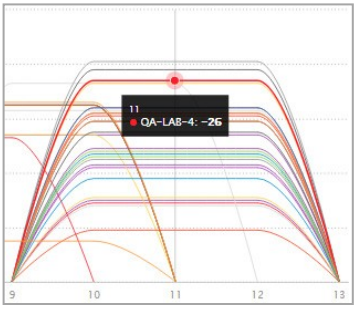
Tip: If a survey has been run before on an AP, clicking **View Survey** will show you the results of the last survey that was run. To run a fresh site survey, click the double arrows next the *Last run* information.

3. To view only particular devices, channels, or signal strengths, select the **Search by** term, then enter the filter **Keyword** to use. For example, to view only access points that use Channel 1, select **Channel** for your Search by term, then enter "**1**" into the **Keyword**



field.

4. To quickly view the signal strength and channel of a specific AP, hover the mouse over the line that represents that AP. A pop-up box will appear containing the information.



5. To run another survey, click **Close Survey**.
6. Click **Add New MAC Filter**. The *Device to Add* screen opens.

Changing administration settings

NK-1 system administration includes managing NK-1 network settings, login credentials, and firmware management.

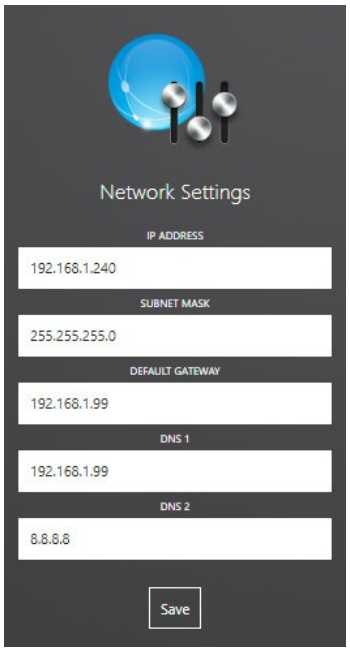
Changing NK-1 system settings

At any time after running the wizard, you can manually change the NK-1's network settings.

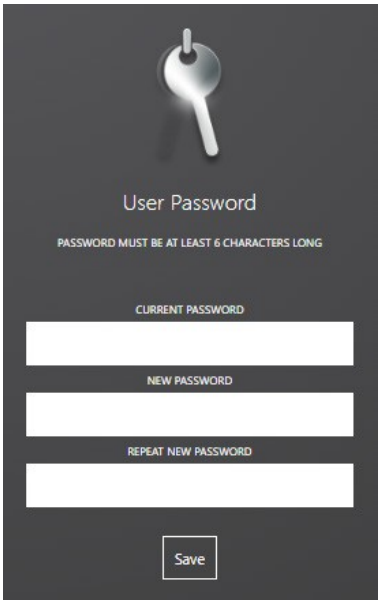
To change the NK-1's network settings:

1. In the *Home* screen, under *Administration*, click the Settings icon.

2. To change the NK-1's network settings, enter the correct IP address, subnet mask, default gateway, and DNS information, then click Save.



3. To change the NK-1's login credentials, enter your current password, enter your new password, verify it, then click **Save**.



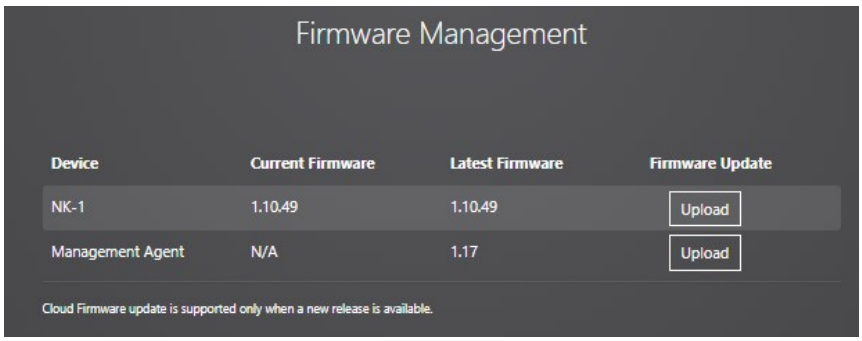
Updating system firmware

You can update the NK-1's firmware and view the firmware version for the Management Agent.

To update the NK-1's firmware:

1. In the *Home* screen, under *Administration*, click the **Firmware Management** icon.

The *Firmware Management* screen opens.



2. To update the NK-1 firmware from the cloud, click **Cloud Update**, then click **OK** to automatically find and install the latest firmware available from Pakedge.
3. To update the NK-1 firmware from a firmware file that has been downloaded onto your computer, click **Upload Firmware**, click **Choose File**, navigate to the firmware update file, then click **OK**.

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Regulatory information:
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