

Kapparock KR001
Home Automation Gateway
Quick Start Guide

Version 0.0.1

About This Product

Developers,

Thank you for choosing KappaRock KR001 Home Automation Gateway (HAG), a low cost, state of the art home automation solution. Various home automation technologies have been around for over 20 years, yet none has any sizeable market penetration, mostly due to the complexity and the prohibitive cost of deployment. Nevertheless, introducing intelligence into the traditional home electrics means they will be more energy efficient, user friendly and more creative. As a result, the quality of life will be greatly improved, at the same time, our earth will be a greener place.

HAG strives to be the key to kick-start this ecosystem of enormous potential.

By incorporating the new IEEE 802.15.4 wireless technology, it brings a new dimension of wireless connectivity in addition to a high performance broadband wireless router. On the other hand, HAG is powered by free software. This simple yet innovative integration will serve as the underlying infrastructure which supports the fast growing green-tech ecosystem. With HAG and its SDK, developers will be able to turn their ideas into physical products with less time and effort. The lowered cost for product development will ultimately benefit consumers. And if this technology is in fact improving people's lives, more people will be willing to try it out. Hopefully this process will benefit everyone.

1 Package Contents

- ✓ KR001 Home Automation Gateway
- ✓ 100V-240V AC Adapter
- ✓ 3dBi Omni Directional Antenna x2

2 Key Parameters

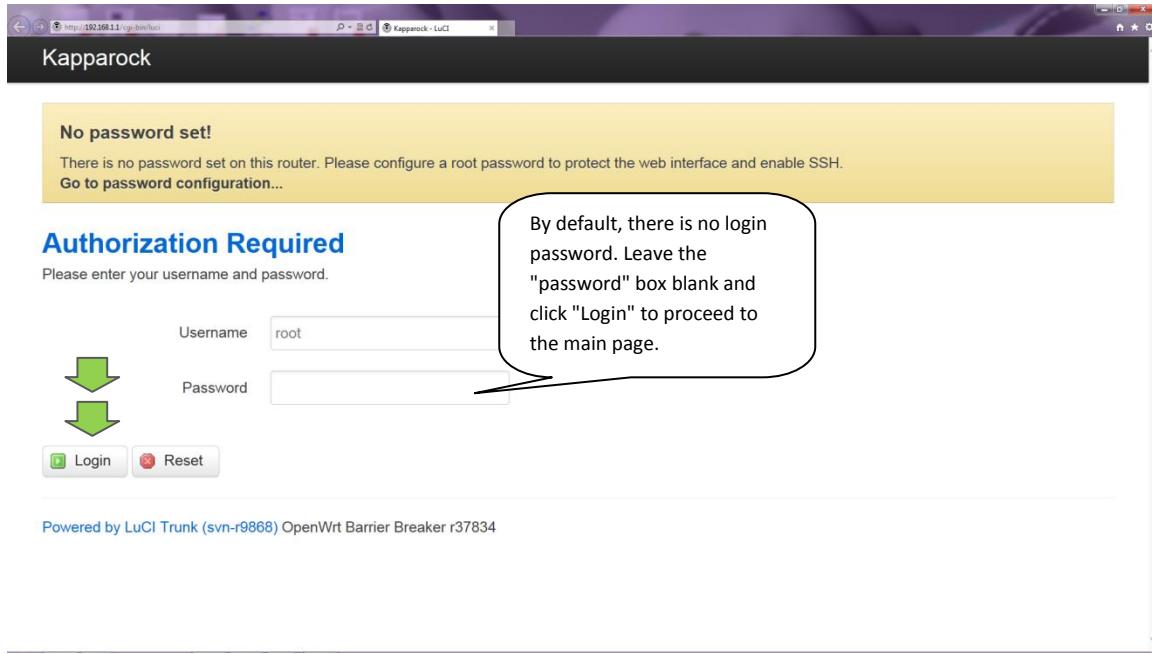
Standards	IEEE 802.11b,g,n IEEE 802.15.4
Data Rates	IEEE 802.11b,g,n : Up to 300Mbps IEEE 802.15.4 : Up to 250kbps
Frequency Range	2.4-2.4835GHz
Modulation	DBPSK,DQPSK,CCK,OFDM,DSSS,OQPSK
Interface	4x 10/100M LAN, 1x 10/100M WAN
Power Supply	Input: 100V-240V AC Output: 12V DC

3 Basic Setup

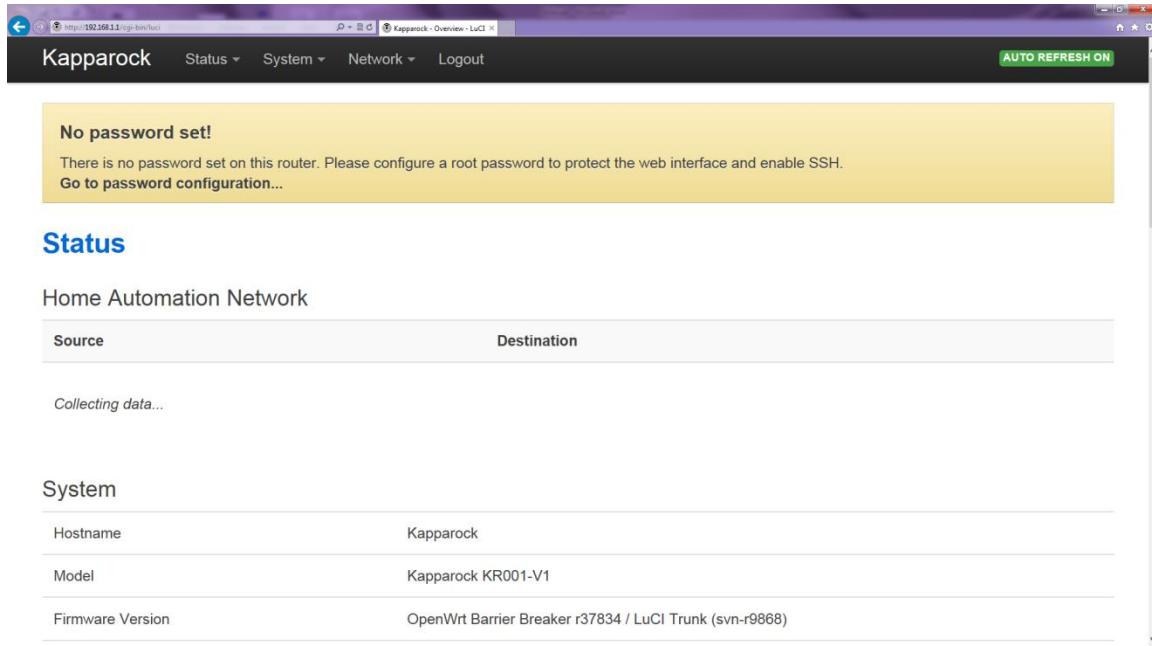
Step 1 Connect the internet cable to the **WAN** port

Step 2 Connect your PC to one of the **LAN** port

Step 3 On the web browser, type in the default IP address, 192.168.1.1, to open up the web interface. The username is **root**, there is no default password.



Step 4 Click "Login" to proceed to the main page.



Login Password

Step 1 It is recommended to set a login password. To set a login password, click "Go to password configuration" on the main page, which links to password setup page.



Status

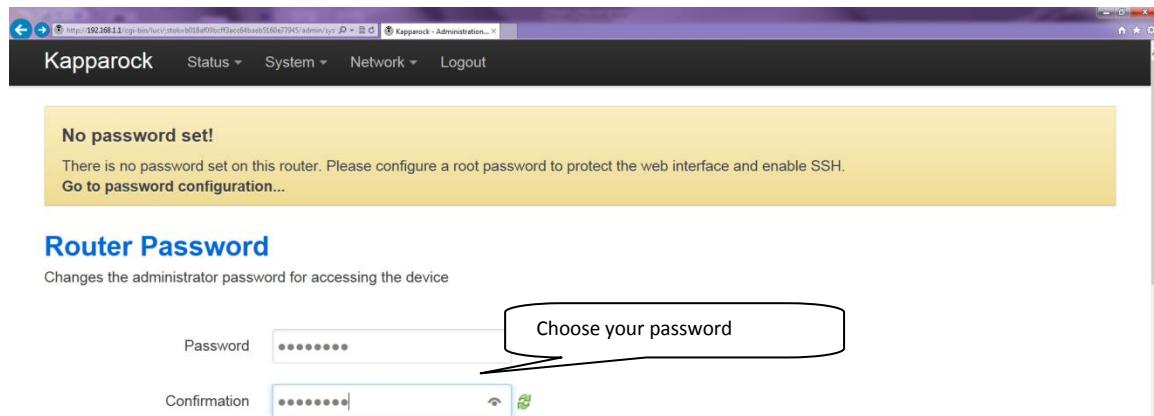
Home Automation Network

Source	Destination
Collecting data...	

System

Hostname	Kapparock
Model	Kapparock KR001-V1
Firmware Version	OpenWrt Barrier Breaker r37834 / LuCI Trunk (svn-r9868)

Step 2 On password setup page, type in your new password in the "Password" box and repeat it in the "Confirmation" box.

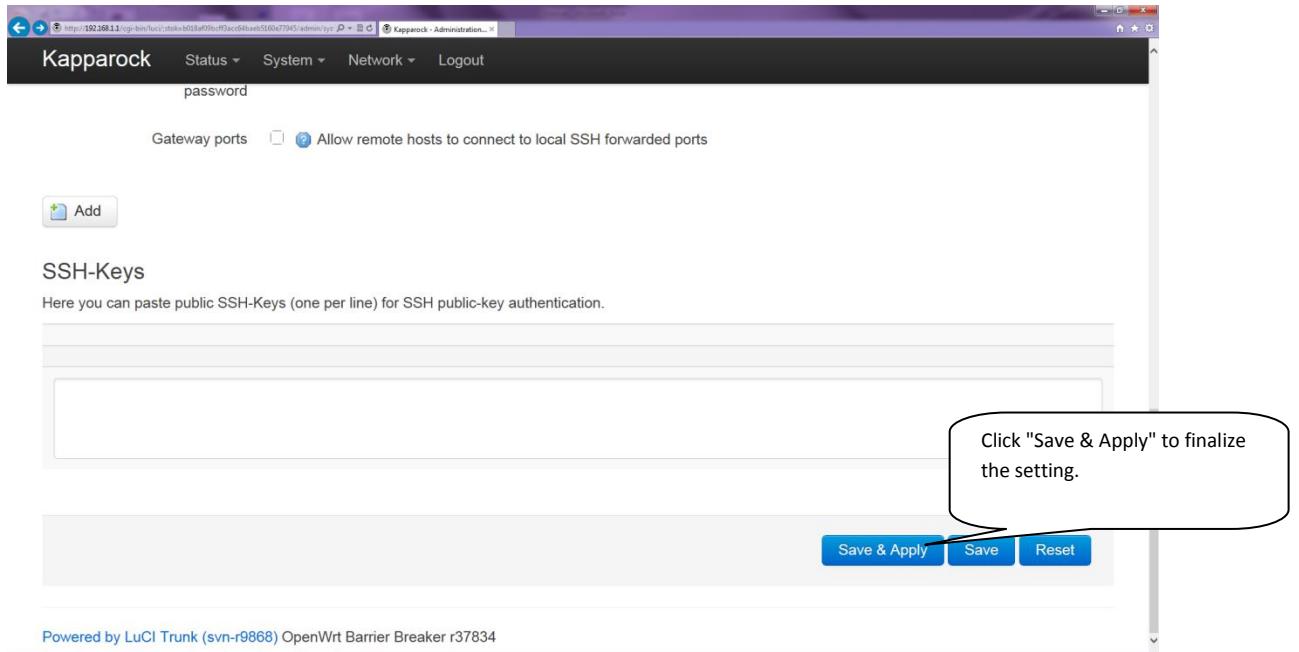


SSH Access

Dropbear offers SSH network shell access and an integrated SCP server

Dropbear Instance

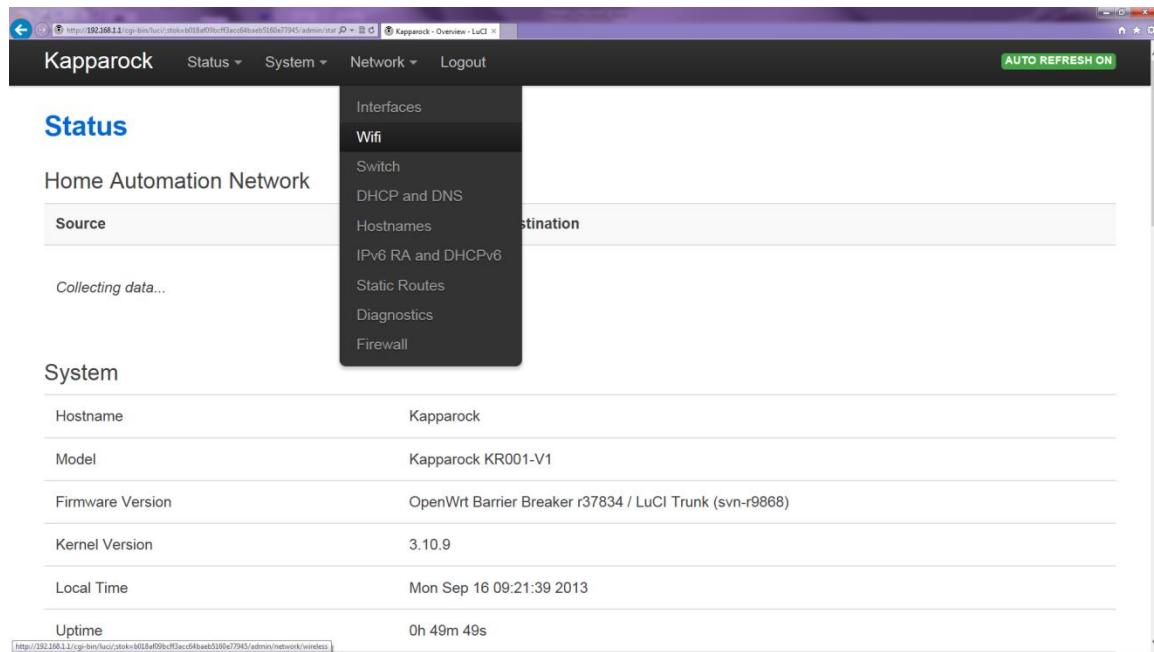
Step 3 Scroll to the bottom of the page and click "Save & Apply" to finalize the setting.



The screenshot shows a web browser window for the Kapparock administration interface. The URL is <http://192.168.1.1/cgi-bin/luci>. The page title is "Kapparock - Administration...". The navigation menu includes "Status", "System", "Network", and "Logout". A "password" field is present. Below the menu, there is a "Gateway ports" section with a checkbox and a note about allowing remote hosts to connect to local SSH forwarded ports. A "SSH-Keys" section contains a text area for pasting public SSH keys and an "Add" button. At the bottom, there are "Save & Apply", "Save", and "Reset" buttons. A callout box with the text "Click \"Save & Apply\" to finalize the setting." points to the "Save & Apply" button. The footer of the page indicates it is "Powered by LuCI Trunk (svn-r9868) OpenWrt Barrier Breaker r37834".

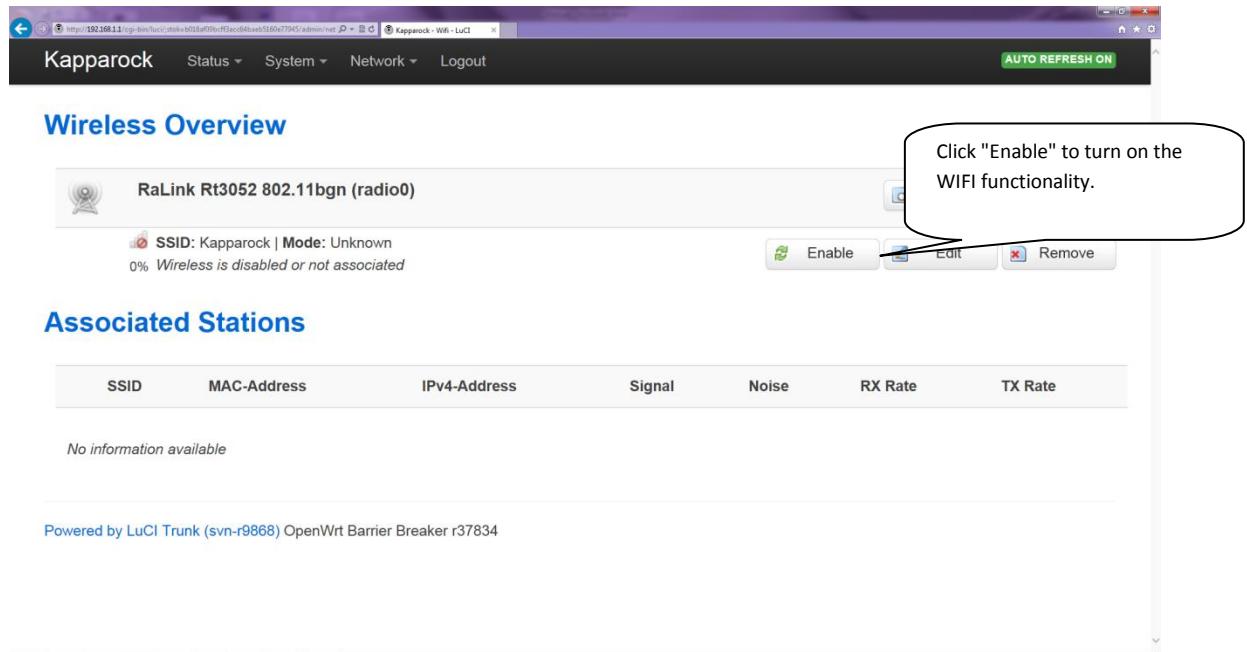
WIFI Functionality

Step 1 For security reasons, Wireless AP mode is enabled by default. You can enable the wireless AP in Network → Wifi. This will lead you to the "Wireless Overview" page



The screenshot shows the Kapparock LuCI web interface. The top navigation bar includes links for Status, System, Network, and Logout, with an 'AUTO REFRESH ON' button. The main content area is titled 'Status' and contains sections for 'Home Automation Network' (Source: Collecting data...) and 'System' (Hostname: Kapparock, Model: Kapparock KR001-V1, Firmware Version: OpenWrt Barrier Breaker r37834 / LuCI Trunk (svn-r9868), Kernel Version: 3.10.9, Local Time: Mon Sep 16 09:21:39 2013, Uptime: 0h 49m 49s). On the left, a vertical sidebar shows the Network menu with 'Wifi' selected. The URL in the address bar is <http://192.168.1.1/cgi-bin/luci/;stok=b013a0f09cfff3cc64bae5160e7795/admin/network/wireless>.

Step 2 On "Wireless Overview" page, click "Enable" to turn on the WIFI functionality.



The screenshot shows the 'Wireless Overview' page. The top navigation bar is identical to the previous screenshot. The main content area is titled 'Wireless Overview' and shows a single interface: 'RaLink Rt3052 802.11bgn (radio0)'. Below the interface name, it says 'SSID: Kapparock | Mode: Unknown' and '0% Wireless is disabled or not associated'. To the right of this information are three buttons: 'Enable' (highlighted with a callout box containing the text 'Click "Enable" to turn on the WIFI functionality.'), 'Edit', and 'Remove'. The URL in the address bar is <http://192.168.1.1/cgi-bin/luci/;stok=b013a0f09cfff3cc64bae5160e7795/admin/network/wireless>.

Step 3 With the WIFI being turn on, you can connect to the router wirelessly.

WIFI Password

Step 1 It is recommended to set a WIFI password to prevent unauthorized connections to your router. To set a WIFI password, click "Edit" on the "Wireless Overview" page, this will lead you to device configuration. Click "Wireless Security" under "Interface Configuration"

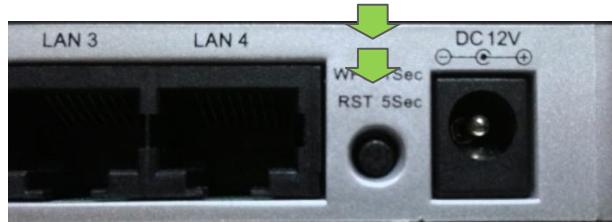
The screenshot shows the Kapparock WiFi LuCI interface. The top navigation bar includes links for Status, System, Network, and Logout, with an 'AUTO REFRESH ON' button. The main content area is divided into two sections: 'Device Configuration' and 'Interface Configuration'.
Device Configuration: Shows the status of the wireless network: Mode: Master | SSID: Kapparock, BSSID: 00:0F:02:44:EE:E0, Encryption: None, Channel: 1 (2.412 GHz), Bitrate: 0.0 Mbit/s, and Country: US. It also includes a 'Disable' button and a 'Channel' dropdown set to 'auto'.
Interface Configuration: Shows the encryption settings: Encryption: No Encryption. A callout box points to the 'Encryption' dropdown, which is currently set to 'No Encryption'. Below it is a 'Key' field containing '*****'. A large green arrow points down to the 'Save & Apply' button at the bottom of the page.

Step 2 Choose an Encryption method and type in your password. Click "Save & Apply" to finalize your setting.

The screenshot shows the Kapparock WiFi LuCI interface with a callout box and green arrows indicating the steps to change encryption and save settings. The 'Interface Configuration' page is displayed, showing the 'Encryption' dropdown set to 'WPA-PSK/WPA2-PSK Mixed' and the 'Key' field containing '*****'. A callout box with a green arrow points to the 'Encryption' dropdown, with the text: "Choose a password encryption method and type in your password. Click 'Save & Apply' to finalize your setting." A large green arrow points down to the 'Save & Apply' button at the bottom of the page.

4 Reset/Restart

Push the "RST" button to reboot the system. If, due accidental bad configuration, the unit becomes inaccessible, push and hold the "RST" button for 30 seconds to reset the system to factory default.



5 Application development using the 802.15.4 compliant transceiver

In addition to the functions of a high performance 802.11n router. The system contains a 802.15.4 compliant air interface which, along with the built-in software stack, is designed to connect other Zigbee devices. As such, the system is a great development platform for Zigbee related products services. For SDK and product development information, please go to www.kapparock.com

FCC Information and Copyright

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates,

uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference

to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does

cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is

encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

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.

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

License

OpenWrt is free software, provided AS-IS and without any warranty.

If not otherwise stated in the source files, the OpenWrt build environment is provided under the terms of the GNU General Public License Version 2. The exact GPLv2 license text can be found in the file LICENSE in the source repository.

The OpenWrt distribution (precompiled images etc.) bundles a lot of third party applications and modules which are available under various other Open Source licenses or Public Domain. The sources for those packages can be found on the OpenWrt mirror. Please refer to these source packages to find out which license applies to them.

We expect that you are knowledgeable about GNU/Linux and basic networking concepts, before you install OpenWrt on your router. Support may be provided on a voluntary basis by developers and fellow users, but is not guaranteed.

KR001 Home Automation Gateway is powered by OpenWrt. For more information, please visit www.openwrt.org.