

WP9331 Quick Start Guide

Rev.A

1. Product Descriptions

The WP9331 is a dual radios, dual band, 802.11ac wave 2 access point. It provides powerful WLAN supporting wireless speed up to 400Mbps on 2.4GHz, 867Mbps on 5GHz; one Ethernet port to connect to the backbone network, one Ethernet ports can be aggregated to connect to one computer through the network cables. Besides, the WP9331 supports 802.3at/af PoE PD to allow the device powered by PoE switch remotely.

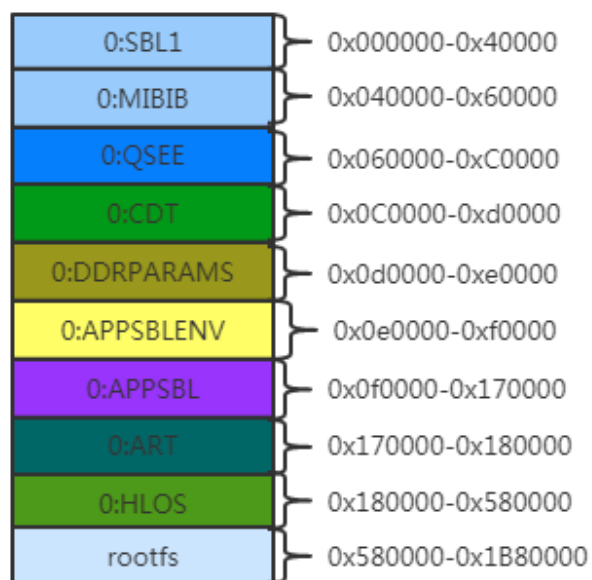
2. Hardware information

3. Software introduction

a) QSDK version

The firmware running on the board is QSDK SPF3.0 CSU1 with required changes for the hardware board.

b) Flash partition layout



WiFi RF calibration data and MAC addresses are stored in “0:ART” partition, which is written during manufacturing process. Normally, we don't need to modify the data in this partition.

c) Default IP settings

For downlink ports, they use static IP settings as below.

IP address: 192.168.1.1

Subnet mask: 255.255.255.0

For uplink port, IP address will be obtained from DHCP.

Note: the device is working on NAT router mode by default. Downlink ports act as LAN ports, uplink port acts as WAN port.

d) Management interfaces

The device can be managed via telnet or web GUI throughput downlink ports.

- Telnet

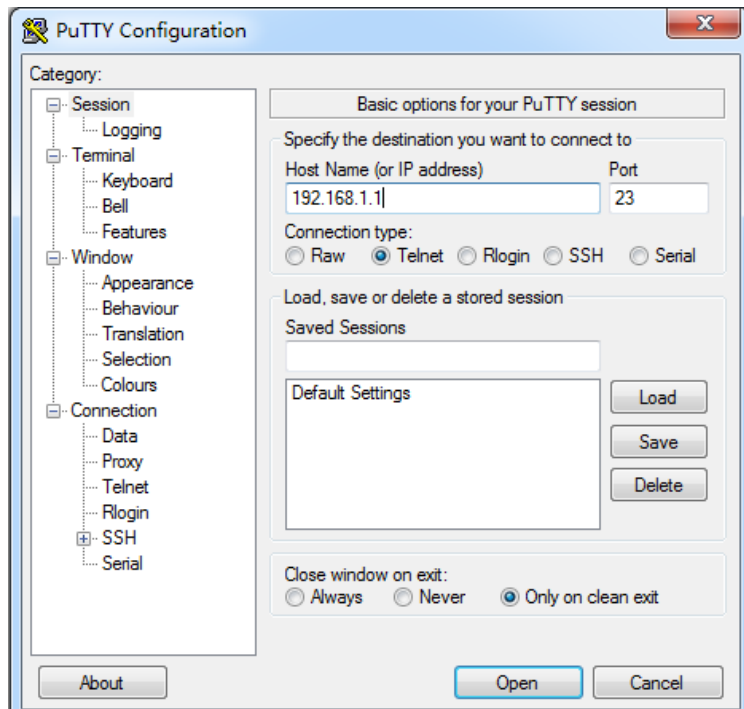
Username: (none)

Password: (none)

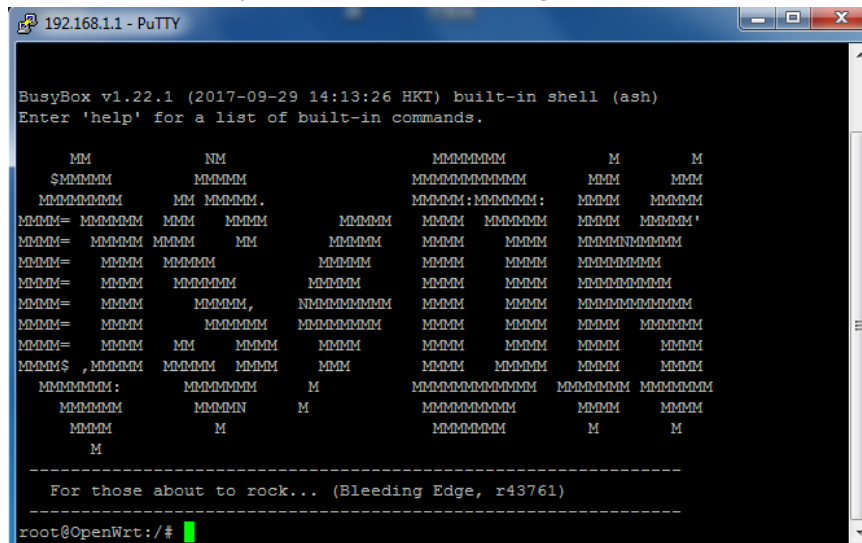
Port: 23

Telnet for example:

- 1) Power on device
- 2) Wait 2 minutes, use telnet tool (e.g. putty.exe) login to 192.168.1.1;



If connection is OK, you can see similar message:



- Web GUI
Username: root
Password: (none)
Port: 80

The screenshot shows a web browser window with the address bar displaying `http://192.168.1.1/cgi-bin/luci`. The page title is "OpenWrt". A yellow warning box at the top states: "No password set! There is no password set on this router. Please configure a root password to protect the web interface and enable SSH. Go to password configuration...". Below this, a blue heading "Authorization Required" is followed by the text "Please enter your username and password." The login form contains two input fields: "Username" with the value "root" and "Password" which is empty. There are "Login" and "Reset" buttons below the fields. At the bottom, a footer line reads: "Powered by LuCI Trunk (svn-r58) OpenWrt Barrier Breaker r56".

Note: both telnet and web GUI are not accessible from uplink port since uplink port acts as WAN port by default.

4. WiFi settings commands

The command can be input through UART console or Telnet.

a) Configure WiFi

```
wifi detect > /etc/config/wireless
uci commit wireless
uci revert -P /var/state wireless
wifi
uci add wireless wifi-iface
uci add wireless wifi-iface
uci set wireless.@wifi-device[0].country=US
uci set wireless.@wifi-device[0].hwmode=11ng
uci set wireless.@wifi-device[0].disabled=0
uci set wireless.@wifi-device[0].htmode=HT40+
uci set wireless.@wifi-device[0].channel=1
uci set wireless.@wifi-device[0].txchainmask=3
uci set wireless.@wifi-device[0].rxchainmask=3
uci set wireless.@wifi-iface[0].mode=ap
uci set wireless.@wifi-iface[0].ssid=WP9331wifi0
uci set wireless.@wifi-iface[0].encryption=none
```

```
uci set wireless.@wifi-iface[0].device=wifi0
uci set wireless.@wifi-device[1].country=US
uci set wireless.@wifi-device[1].hwmode=11ac
uci set wireless.@wifi-device[1].disabled=0
uci set wireless.@wifi-device[1].htmode=VHT80
uci set wireless.@wifi-device[1].channel=36
uci set wireless.@wifi-device[1].txchainmask=3
uci set wireless.@wifi-device[1].rxchainmask=3
uci set wireless.@wifi-iface[1].mode=ap
uci set wireless.@wifi-iface[1].ssid=WP9331wifi1
uci set wireless.@wifi-iface[1].encryption=none
uci set wireless.@wifi-iface[1].device=wifi1

uci commit wireless
wifi
iwconfig
```

Note: wifi-device[0] refers to the 1st radio (2.4G), and wifi-device[1] refers to the 2nd radio (5G).

b) Change wireless mode and bandwidth

- 2.4G:

```
uci set wireless.@wifi-device[0].hwmode=11ng
uci set wireless.@wifi-device[0].htmode=HT40+
uci commit wireless
wifi
```

Available “hwmode” for 2.4G: **11b, 11g, 11ng**

Available “htmode” for 2.4G: **HT40+, HT40-, HT20**

- 5G:

```
uci set wireless.@wifi-device[1].hwmode=11ac
uci set wireless.@wifi-device[1].htmode=VHT80
uci commit wireless
wifi
```

Available “hwmode” for 5G: **11a, 11na, 11ac**

Available “htmode” for 5G: **VHT80, HT40+, HT40-, HT20**

c) Change WiFi SSID

- 2.4G:

```
uci set wireless.@wifi-iface[0].ssid=WP9331-2G
```

```
uci commit wireless
wifi
```

- 5G:

```
uci set wireless.@wifi-iface[1].ssid=WP9331-5G
uci commit wireless
wifi
```

d) Change WiFi security

- 2.4G Open:

```
uci set wireless.@wifi-iface[0].encryption=none
uci commit wireless
wifi
```

- 5G Open:

```
uci set wireless.@wifi-iface[1].encryption=none
uci commit wireless
wifi
```

- 2.4G WPA2-PSK AES:

```
uci set wireless.@wifi-iface[0].encryption='psk2+ccmp'
uci set wireless.@wifi-iface[0].key="1234567890"
uci commit wireless
wifi
```

- 5G WPA2-PSK AES:

```
uci set wireless.@wifi-iface[1].encryption='psk2+ccmp'
uci set wireless.@wifi-iface[1].key="1234567890"
uci commit wireless
wifi
```

e) Show WiFi settings

```
uci show wireless
```

5. Factory reset

In case you need to reset the device to factory default settings, please follow below steps:

```
root@OpenWrt:/# firstboot  
This will erase all settings and remove any installed packages. Are  
you sure? [N/y]  
y  
/dev/mtdblock10 is mounted as /overlay, only erasing files  
root@OpenWrt:/# reboot
```

[End]

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one 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.

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device is restricted to **indoor** use.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance **32cm** between the radiator & your body.

ISED:

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

CAN ICES-3 (B)/NMB-3(B)

High Power Radars: High power radars are allocated as primary users (meaning they have priority) in the 5250MHz to 5350MHz and 5650MHz to 5850MHz bands. These radars could cause interference and/or damage to Wireless LAN devices used in Canada.

Les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250 - 5350 MHz et 5650 - 5850 MHz. Ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance **32cm** between the radiator & your body.

*Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de **32cm** de distance entre la source de rayonnement et votre corps*

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

Pour les produits disponibles aux États-Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.