

# **UA-220 User Manual**

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This manual is likely to change as a result of product version upgrade or other reasons. Our company reserves the right to modify the contents of this manual without any notice or prompt. This manual is only for the use of guidance, I tried their best to in this manual provide accurate information, but our company does not ensure that the content of the manual no mistakes, the manual of all statements, information and advice does not constitute any express or implied warranty.

## Security notice

Important! Before the product is started, please read the safety and compatibility information of this product.

### IMPORTANT!

See Compliance and Safety information for the product before connecting to the supply.

## Environmental protection

This product meets the design requirements on environmental protection, product storage, use, and disposal shall comply with relevant national laws, regulations, requirements

# Preface

Location Anchor is a kind of anchor based on UWB manufactured by Woxu Wireless Co.,Ltd., which is for human and goods indoor location with high precision. This document introduces the method to use and configure the anchor.

Contents : [Reader](#), [Appointment](#) , [Technical support](#)

## Reader

This manual is mainly applicable to the following engineers:

0. Students and teachers and developers
0. Engineer

## Appointment

The book also uses a variety of eye-catching signs to indicate that in the operation of the process should pay special attention to the place, the significance of these signs are as follows:

|             |  |
|-------------|--|
| Attention   | Use Only Power Supplies listed in the user instructions<br>Use only power adaptor model UES12LZ supplied by UE Electronic<br>The improper operation may result in loss of data or damage to equipment, which should be paid attention to in the operation. |
| Description | Description of the operation of the contents of the necessary complement and description   |

## Technical Support

When you are installing or using this product, please contact me directly in accordance with the contact information provided in this document.



|    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|
| AT | BE | CY | CZ | DK | EE | FI |
| FR | DE | EL | HU | IE | IT | LV |
| LT | LU | MT | NL | PL | PT | SK |
| SI | ES | SE | UK | BG | RO | HR |

### FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the 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 transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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**IMPORTANT NOTE:**

Note: 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.

Note: The operators should cease operation when the harmful Interference occurs to other users.

**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 20cm between the radiator& your body.

This equipment only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject the operator to serious legal penalties.

This device may not be employed for the operation onboard an aircraft, a ship or a satellite is prohibited.

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# 1 Configuration

## 1.1 WEB

Web information in default is as below:

Device information list

|            | Device information | note           |
|------------|--------------------|----------------|
| IP address | 192.168.1.9        | Changeable     |
| User name  | woxuwireless       | NOT Changeable |
| Key        | woxuwireless       | Changeable     |

### Attention

1. If you change the key, please save the key, if you really forgot it, please contact us or your seller.

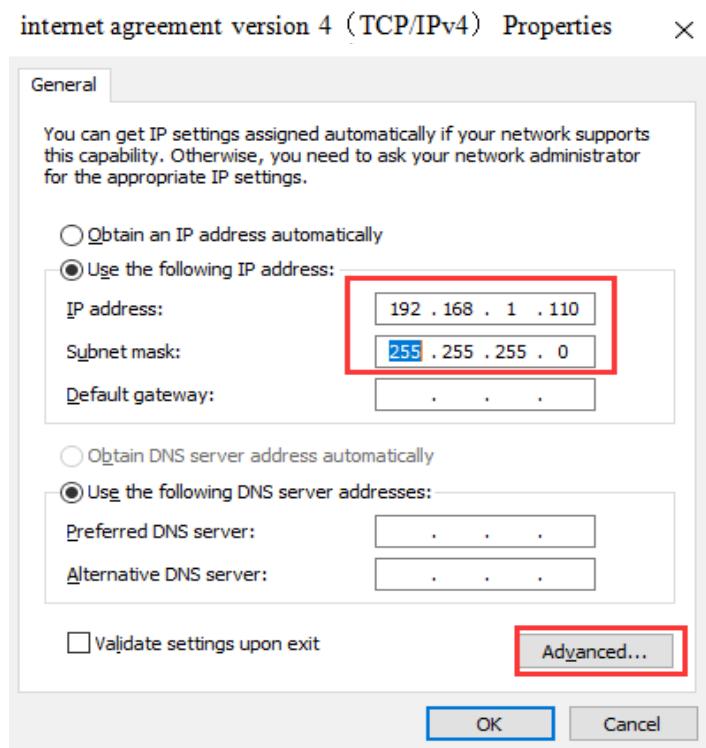
### Log in Web as below step

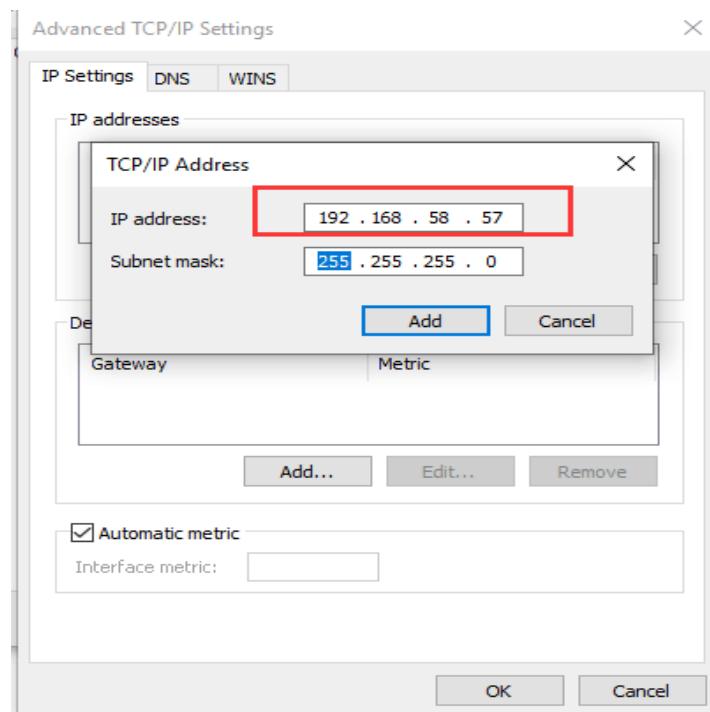
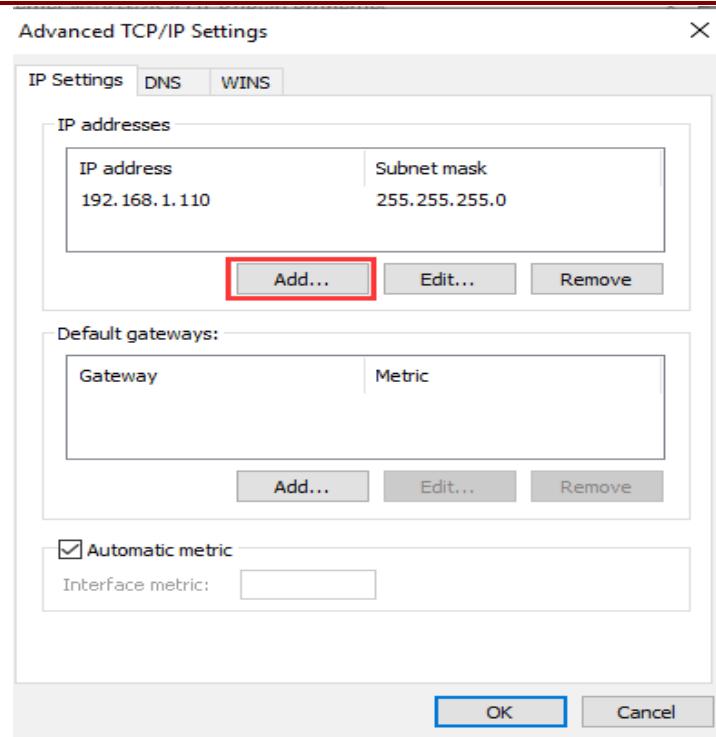
#### (1) Connect device and PC

Connect the PC to the device's network over cable.

#### (2) Configure PC's IP address to make sure the device can communicate each other.

Please change your local network IP as 192.168.1.110, see below picture:





(3) Start up the browser and input log-in information,

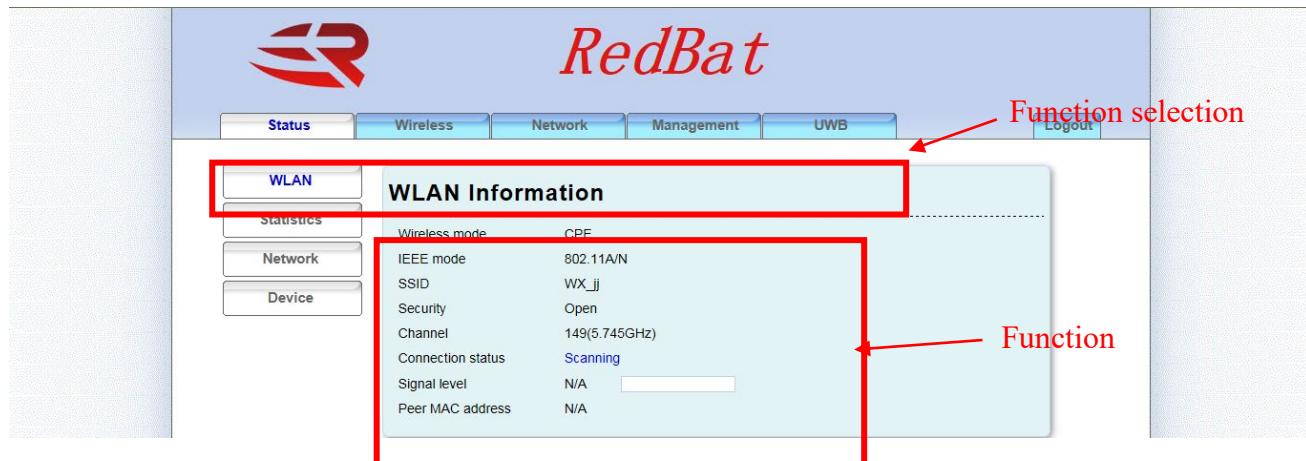
Start up the browser in PC, input the device's IP address in address bar, (default IP is 192.168.1.9), you can log in the Web pages,

Input user name “woxuwireless”, Key “woxuwireless”, click <login>.



Login display page

## 1.2 About page



Page list

About web page, there are three regions:

1. Function selection, select the different function item, in the main function region, will display the corresponding item.
2. Function, Web pages are mainly presented and operated, such as status display, network configuration, etc.
3. Status and configuration

## 1.3 status

In this item, includes "WLAN", "Statistics", "Network", "Device", display different information.

### 1.3.1 Wireless

Wireless information is used to display the relevant information.

## WLAN Information

|                   |           |
|-------------------|-----------|
| Wireless mode     | CPE       |
| IEEE mode         | 802.11A/N |
| SSID              | WX_RTLS   |
| Security          | Open      |
| Channel           | N/A       |
| Connection status | N/A       |
| Signal level      | N/A       |
| Peer MAC address  | N/A       |

### 1.3.2 Statistics

## Network Statistics Information

| Interface | IP address | MAC address | RX packets | RX errors | TX packets | TX errors |
|-----------|------------|-------------|------------|-----------|------------|-----------|
|           |            |             |            |           |            |           |

The wired part and the wireless part respectively count the number of packets received and sent and the number of errors.

### 1.3.3 Network information

## Network Information

|              |               |
|--------------|---------------|
| Network mode | Bridge        |
| IP address   | 192.168.1.9   |
| Subnet mask  | 255.255.255.0 |
| Gateway      | 192.168.1.1   |
| DNS server 1 |               |
| DNS server 2 |               |

Display device network information

### 1.3.4 Device information

Display hardware and software information.

## Device Information

|                  |                                    |
|------------------|------------------------------------|
| Friendly name    | UWB Gateway                        |
| Hardware Version | V0.1                               |
| Firmware Version | V3.0.11                            |
| Release Time     | 2020-07-06 12:36:19                |
| Serial Number    |                                    |
| Wired MAC        | 64:e6:25:30:19:13                  |
| Wireless MAC     | 64:e6:25:30:19:13                  |
| System time      | 2013-01-01 01:08:47                |
| Uptime           | 0 days 1 hours 9 minutes 2 seconds |

Device display

**Friendly name:** the device name you defined, in this device, it is displayed as “UWB Gateway”.

**Hardware version:** current hardware version

**Software version:** current running version

**Release time:** the version released time

**Serial Number:** current device serial number

**Wired MAC :** current device wired physical address

**Wireless MAC:** current device wireless address

**System time:** current system time

**Uptime:** current system running time

## 1.4 Set Wi-Fi network

### 1.4.1 Basic configuration

**Disable WLAN:** If need to make the device connect Wi-Fi, do not select this frame.

**Wi-Fi:** Only support 5GHz.

**Wireless mode:** CPE

#### 1.4.1.1 CPE Mode

Step:

1. The device only supports CPE mode. SSID default is WX\_RTLS, AP MAC is 00: 00: 00: 00: 00: 00, Authentication & encryption mode is Open. If the device has previously been tied to AP or router, the SSID, AP MAC address, authentication / secret mode will retain the last bound status

record.

2. Select wireless network scan. As below:

| Wireless Network List            |                   |             |          |            |                   |      |
|----------------------------------|-------------------|-------------|----------|------------|-------------------|------|
| Select                           | MAC address       | SSID        | Security | Signal dBm | Channel           | Mode |
| <input checked="" type="radio"/> | 64:e6:25:11:02:3c | WX_jj       | Open     | -31        | 149<br>(5.745GHz) | A/N  |
| <input type="radio"/>            | 64:e6:25:10:70:05 | WX_UWB_RTLS | Open     | -59        | 149<br>(5.745GHz) | A/N  |

The device will scan the AP or router that can be searched, select the SSID that needs to be connected, and then confirm the selection button and automatically switch to the basic settings interface, just as the below picture:

### Basic Settings

**Disable WLAN**

|                    |  |
|--------------------|--|
| Wireless frequency | <input checked="" type="radio"/> 5GHz                              |
| Wireless mode      | <input type="button" value="CPE"/>                                 |
| WDS                | <input type="checkbox"/>   |
| SSID               | <input type="text" value="WX_jj"/> (length 1 - 32)                 |
| Peer MAC address   | <input type="text" value="64:e6:25:11:02:3c"/> (xx:xx:xx:xx:xx:xx) |
| Tx power(dBm)      | <input type="button" value="100%"/>                                |
| Security           | <input type="button" value="Open"/>                                |

1. You can see that the Peer MAC address has been entered in the MAC of the destination AP, if the authentication & encryption mode does not enter the authentication & encryption mode of the destination AP, manually modify, click the application, and the binding can be generated.

2. Enter status page about the wireless item to make sure the binding is successful.

## WLAN Information

|                   |  |
|-------------------|--|
| Wireless mode     | CPE  |
| IEEE mode         | 802.11A/N  |
| SSID              | WX_jj  |
| Security          | Open   |
| Channel           | 149(5.745GHz)  |
| Connection status | Connected  |
| Signal level      | -30dBm <div style="width: 80%; background-color: green; display: inline-block;"></div> |
| Peer MAC address  | 64:e6:25:11:02:3c  |

### 1.4.2 Wi-Fi scan

You can see that the Peer MAC address has been entered in the MAC of the destination AP, if the authentication & encryption mode does not enter the authentication & encryption mode of the destination AP, manually modify, click the application, and the binding can be generated. The device will scan the AP or router that can be searched to display its MAC address, SSID, authentication and encryption mode, signal intensity, working channel and mode. Select any of them, automatically jump to the wireless settings page, and fill in the relevant information about SSID and identity.

When click “refresh”, the device will scan on AP and display the scanning result.

## 1.5 Network set

System network mode: IP address, subnet mask, default gateway, DNS server 1, DNS server 2

### Network Settings

|                 |  |
|-----------------|--|
| Network mode    | <input type="button" value="Bridge ▾"/>    |
| IP address      | <input type="text" value="192.168.0.11"/>  |
| Subnet mask     | <input type="text" value="255.255.255.0"/> |
| Default gateway | <input type="text" value="192.168.0.1"/>   |
| DNS server 1    | <input type="text" value="192.168.0.1"/>   |
| DNS server 2    | <input type="text" value="192.168.0.1"/>   |

Network set

## Attention

When modifying the device IP, note that the IP of PC is in the same network segment as device IP, but it cannot be the same.

For example, the device IP is 192.168.1.3, and the IP of PC can be set to 192.168.1.1, 192.168.1.254, 192.168.1.3. Among them, 192.168.1.X represents the network segment and needs to be consistent.

## Modify IP address

### Network Settings

|                 |  |
|-----------------|--|
| Network mode    | <input type="button" value="Bridge ▾"/>    |
| DHCP            | <input type="checkbox"/>                   |
| IP address      | <input type="text" value="192.168.1.9"/>   |
| Subnet mask     | <input type="text" value="255.255.255.0"/> |
| Default gateway | <input type="text" value="192.168.1.1"/>   |
| DNS server 1    | <input type="text"/>                       |
| DNS server 2    | <input type="text"/>                       |

Modify the IP address

**IP address:** it's IP address about LAN port, default is 192.168.1.9,

**Subnet mask:** it's for LAN, default is 255.255.255.0,

**Default Gateway:** It means network gateway configuration, default is 192.168.1.1,

**DNS server 1:** DNS server configuration 1 in LAN port, default is 192.168.1.1

**DNS server 2:** DNS server configuration 2, default is 192.168.1.1

After configuration, click <Apply>.

## 1.6 Management

Management includes "Basic settings", "FW Upgrade", "configuration management", "system log", "system server" and "Reboot".

### 1.6.1 Basic setting

Basic setting is composed by three parts: device name, updated time interval, key management, language setting.

## Device name and updated time interval

Modify device name and amend status updated time interval.

### Basic Settings

|   |   |
|---|---|
| Friendly name   | <input type="text" value="UWB Gateway"/>  |
| Status update interval  | <input type="text" value="3 second"/>  |
| <input type="button" value="Apply"/> <input type="button" value="Reset"/> |   |

**Device name:** the device name

**Status updated time interval:** device status update time interval

After configuration, click application, the result can be checked in the status page.

### Key management

Amend user and password. Default user name is woxuwireless, Key is : woxuwireless.

|   |                      |
|---|----------------------|
| Username  | woxuwireless         |
| New password  | <input type="text"/> |
| Verify password   | <input type="text"/> |
| <input type="button" value="Apply"/> <input type="button" value="Reset"/> |                      |

According to this page, you just need to input new key, click “application”.

### Language set

Two choice: Chinese and English

|   |  |
|---|--|
| Language Settings   | <input type="text" value="English"/>  |
| Country/Region  | <input type="text" value="USA"/>      |
| <input type="button" value="Apply"/> <input type="button" value="Reset"/> |  |

Select English in language settings, select USA in country.

Select and click “apply” .

## 1.6.2 FW Upgrade

Upgrade Wi-Fi

## Firmware Upgrade

Current version

V3.0.11

Release Time

2020-07-06 12:36:19

Select File

Select file

No files were selected

**Upload firmware**

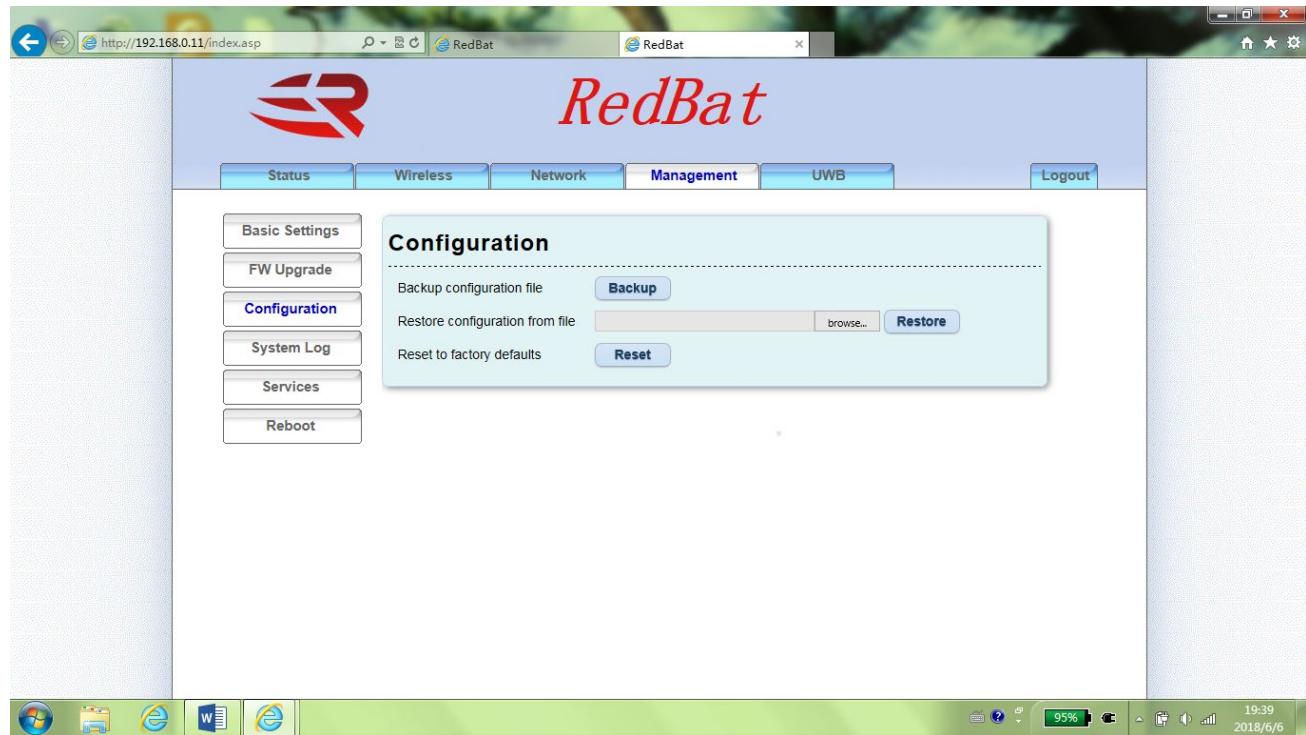
Click <select file > to select one FW, click “upload firmware”, after successful upgrading, restart and display the version information.

### Attention

In the process of upgrading firmware, power failure is not allowed. Power failure will result in unusable equipment.

### 1.6.3 Configuration management

Three parts:“backup configuration file”,“restore configuration”and “restore factory settings”



**Backup:** Backup the configuration file to an external file, and the backup file name is automatically generated into the "config" style.;

**Restore configuration:** Read the contents of the external file configuration and modify the current configuration of the device.

---

**Restore factory configuration:** click<factory configuration>, the configuration about the device will restored as default data.

#### 1.6.4 System log

Enable system logs to display important information about the system., select <Clear> to clear the log content.

### System Log

|                           |   |
|---------------------------|---|
| Enable System log         | <input type="checkbox"/>  |
|                           | <input checked="" type="checkbox"/>                                     |
| Server ip address         | 0.0.0.0   |
| Server port               | 514   |
| Log message               | <div style="border: 1px solid #ccc; height: 150px; width: 100%;"></div> |
| <b>Clear</b>              |   |
| <b>Apply</b> <b>Reset</b> |   |

Enable remote system log, set server IP address and server port, can get the remote system log information.

#### 1.6.5 System service

Four parts: SNMP、NTP management、allow management HTTP port and enable TELNET

## Services

Enable SNMP

**Apply**

**Reset**

NTP Configuration

Date(MM/DD/YYYY)

Time(hh:mm)

Timezone

**Apply**

**Reset**

Enable HTTP Port

Port  Note: the HTTPS is always enabled.

**Apply**

**Reset**

Enable TELNET

Port

**Apply**

**Reset**

**Enable SNMP:** is used to set up SNMP(simple network management protocol);

**NTP management:** manual and NTP,to set system time;

**Allow management HTTP port :** default allow, default port is 80;

**Enable TELNET:** default is enable, default port is 23.

## 1.6.6 Reboot

### Reboot

Reboot device

**Reboot**

Click <reboot>, the system will reboot.

## 1.7 UWB

Five parts : Basic settings, Advanced, Statistics,UWB Upgrade,RF Gateway

### 1.7.1 Basic settings

#### UWB Setting

|   |                           |
|---|---------------------------|
| SW Version  | UA220 V3.0.18(BT V2.0.07) |
| HW Version  | UM-209 V01                |
| Release Time  | Sep 18 2019 15:02:07      |
| System Type   | TDOA ▼                    |
| ID  | 00005501 (xxxxxxxx)       |
| PanID   | 5758 (xxxx)               |
| Prev Sync ID  | 00000000 (xxxxxxxx)       |
| Repeater  | □                         |
| Sync Enable   | □                         |
| Manager   | □                         |
| Fast Range  | □                         |
| Report Tof  | □                         |
| Report ID   | 00000000 (xxxxxxxx)       |
| Resp Index  | 0 ▼                       |
| RF Mode   | 11 ▼                      |
| Channel   | 5 : 6489.6MHz             |
| Datarate  | 6.8Mbps                   |
| Antenna Delay   | 0 (0 - 65535)             |
| Cable Length  | 0 (0 - 255 cm)            |
| Output Power  | 0 ▼ dBm                   |
| <input type="button" value="Apply"/> <input type="button" value="Refresh"/> |                           |

Display current device's UWB version about H/W and software , set its ID, others are set off from the server.

It can be selected from 0 dBm, but it is not for end users, it is for technical personnel. When it sell to end users, it has been locked.

### 1.7.2 Advanced

Used to set up sub-anchor list and team number.

#### UWB Advanced Settings

|   |  |
|---|--|
| Slave Anchor List   | 0 ▼ 0000 (xxxx)<br>0:0000,1:0000,2:0000,3:0000,4:0000,5:0000,6:0000,7:0000,8:0000,9:0000 |
| Group Index   | 0 0 0 0 (x x x x)  |
| <input type="button" value="Apply"/> <input type="button" value="Refresh"/> |  |

### 1.7.3 Statistics

It is used to count the data of sending packets, sending successful data, and receiving message data.

#### UWB Statistics

| Type       | TX | TX SUCC | RX     |
|------------|----|---------|--------|
| Sync       | 0  | 0       | 173016 |
| Poll       | 0  | 0       | 0      |
| Resp       | 0  | 0       | 0      |
| Final      | 0  | 0       | 0      |
| Report TOF | 0  | 0       | 0      |
| Blink      | 0  | 0       | 0      |
| Tag Reg    | 0  | 0       | 7606   |
| Tag RegACK | 0  | 0       | 0      |

#### Network Statistics

| Type          | TX   | RX |
|---------------|------|----|
| TOF           | 0    | 0  |
| TDOA          | 0    | 0  |
| Dync Timeslot | 0    | 0  |
| Dync Sync     | 0    | 0  |
| User Data     | 0    | 0  |
| Heartbeat     | 137  | 0  |
| Tag Reg       | 7606 | 0  |
| Discovery     | 0    | 0  |

### 1.7.4 Upgrade

Upgrade step:

- (1) Open the Upgrade page, as below:

## UWB Upgrade

Current version UA220 V3.0.18(BT V2.0.07)

Release Time Sep 18 2019 15:02:07

Select File  No files were selected

- (2) Click “select file” and import bin file, such as UA220 APP V3.0.18.bin
- (3) Open the management page and click restart.
- (4) Open UWB page, check whether it is the updated version information.

If it fails, restart the device and check UWB status, if it is not successful, repeat the above steps.

If it always fails, please contact us.

The whole software bundle is upgraded. Common users cannot modify the software. The software can be obtained by the website [www.uwbleader.com](http://www.uwbleader.com) or Woxu support team.

The upgrade can be performed only by professional installers who have logged in to the device.

### 1.7.5 Gateway

As below picture,select the gateway page in UWB page, the server default IP is 192.168.1.110,server port is 44333. You can change the server IP and server port as you need, please make sure the device IP is in the same network segment, click enable log, make TAG and anchor range, will display the ranging information in log output frame.

## RF Gateway

Server IP

Server port

Enable Log

**Apply**

Log: