

4G Wireless Data Terminal

User Manual

1. Product Manual Overview

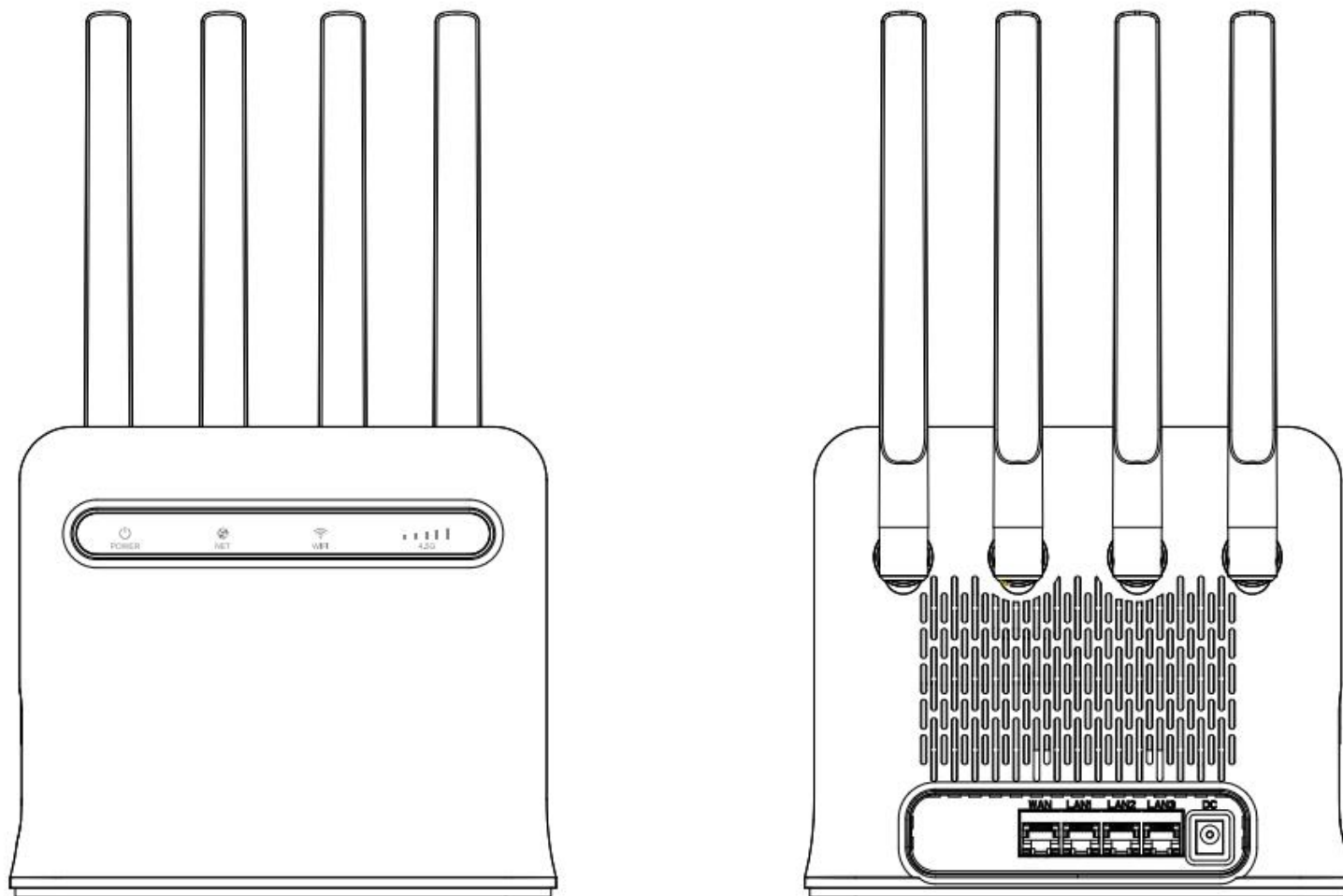
This is a CPE of 4G Wireless Data Terminal CAT12 cloud card solution.

1.1 User Book Graphic Instructions

Graphic Format	Description
< >	The button that represents the page.
""	Represents information such as name or password.

2. Description of Product Appearance Information

2.1 Product Appearance



2.2 Port Description

Figure 2-1 description of the port

Name	Instructions
RST	Reset key (hold down for 8 seconds to restore the system to factory Settings)
POW	Power button
WPS	WPS keys

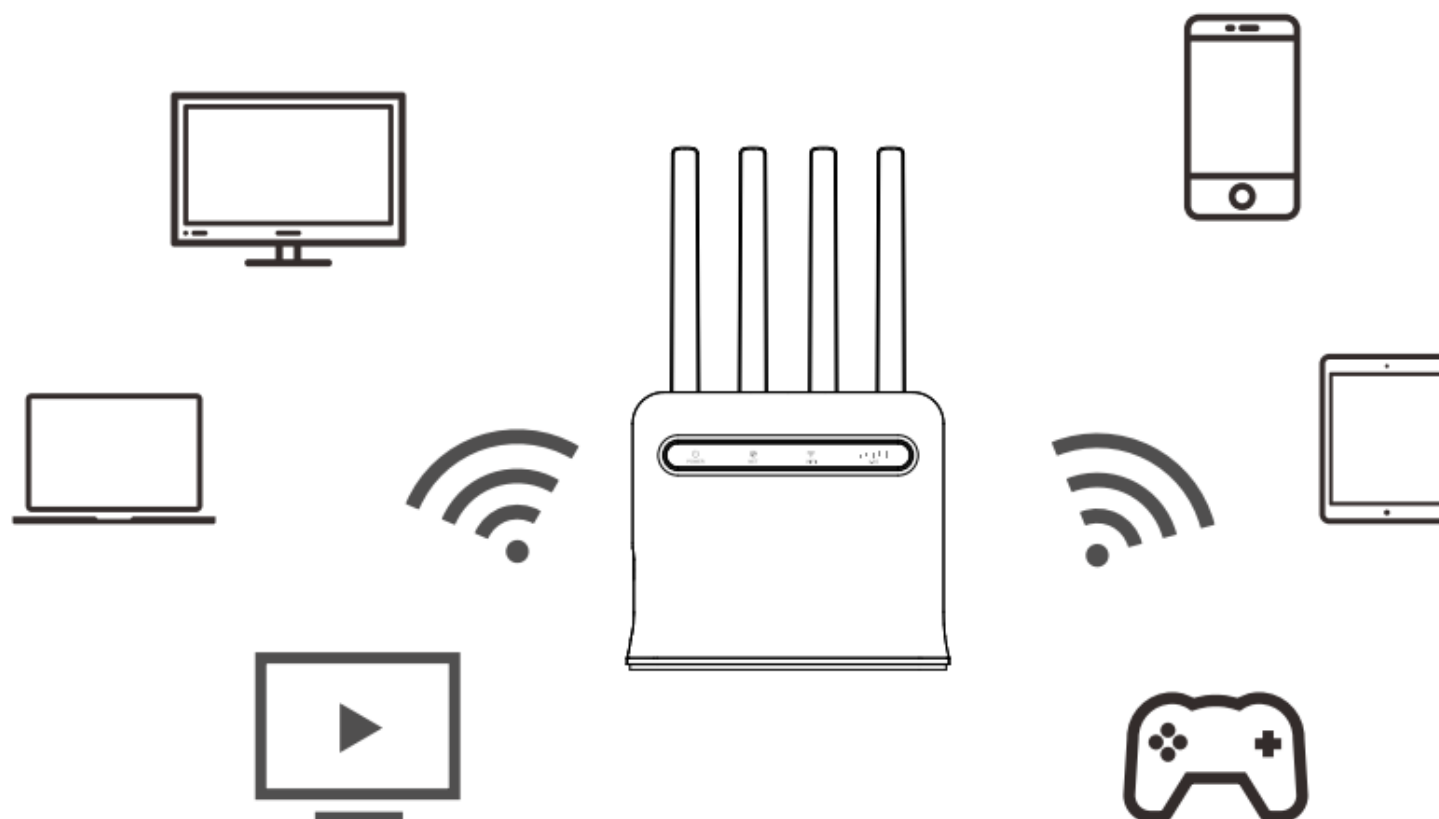
SIM	1 * SIM slot/press type
WAN/LAN	1 * WAN port (switchable LAN port)
LAN	3 * LAN port
DC	1 * Power interface (12V/2A)
External antenna	4 * CAT12 4G antenna interface

2.3 Light Position Description

Name	Status	Description				
POW Light	Green Light Off	Device not powered on				
	Green Light On	Device powered on				
NET Light	Green Light Off	No data connection				
	Green Light On	Data connection				
SMS/WPS Light	Off Green Light	Wireless Off				
	Green Light On	Wireless On				
	Green Light flashing slowly (1s: 1s=On: Off) 2MIN	WPS button pressed				
4.5G Light	RSRP (dBm)					
	<-115	[-115,-110)	[-110,-105)	[-105,-95)	[-95,-85)	>=-85
SINR (dB)	<-3	0	1	1	1	1
	[-3,1)	0	1	1	2	2
	[1, 4, 6)	0	1	2	3	3
	[7, 9, 13)	0	1	2	3	4
	>=13dB	0	1	2	3	4
Button reset	Press the reset button for 5S, and 4.5G lights 1, 2, 3, 4, and 5 will be on simultaneously Green light flashing fast (0.1s: 0.1s=On: Off)					

3. Equipment Quick Installation Guide

3.1 Overall Diagram of Equipment Networking



3.2 Operating Environment Requirements

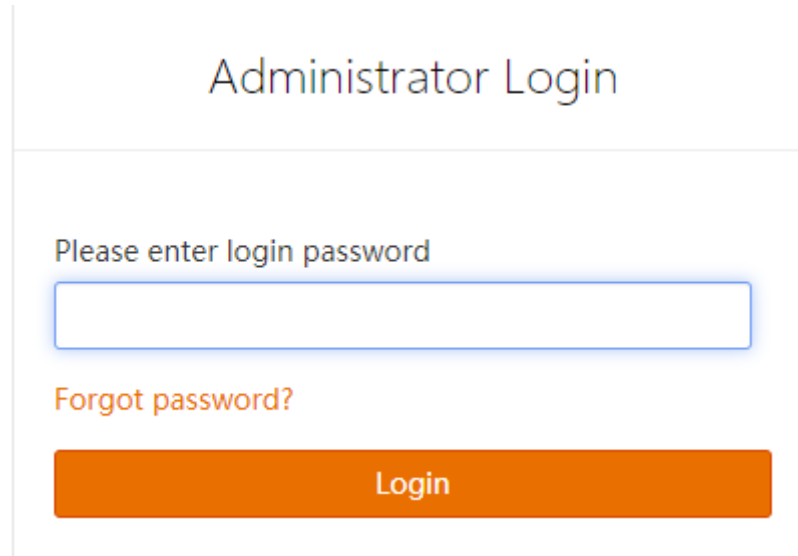
Operating temperature	0 °C ~ 55 °C
Storage temperature	- 20 °C ~ 85 °C
Operating humidity	5% to 95% (No condensation)

4. Equipment Management

Note: The following operations are performed without accessing the external network. If the device is already connected to an external network, remove the external network cable and follow the steps below.

4.1 Connect and Log in to the Device Management Page

1. Use a network cable to connect the device's LAN port and the computer's network port separately.
2. After waiting for more than ten seconds, the computer will automatically obtain the address.
3. Open the browser page, enter the gateway address of the device "192.168.1.1" in the address bar of the browser page (the gateway address of the device is marked on the label on the back of the device, the default address is 192.168.1.1) to jump to the page.
4. After successful page jump, the login interface of the device will be displayed, please enter the password "admin" in the page according to the prompt (the password is marked on the label on the back of the device, the initial password is admin by default), and then click < Login > button.
5. After successfully logging in to the device management interface, you can view the basic information of the device and manage the operation of the device.



5. Introduction to Basic Functions

5.1 System Status

The system interface can intuitively display all the current status information of the device, and the unique module popup interface can clearly and accurately display more setting information.

- Home
- Network
- Wireless
- Parental Control
- Device Management
- Smart QoS
- Security
- NAT Forwarding
- VPN
- System Service
- System Management

Home

Internet Information	
Internet Status	DHCP Disconnected
IP Address	
Default Gateway	
DNS Server	
MAC Address	8C:88:2B:00:00:65
Connection Time	0 day0 hour0 minutes0 seconds

Modem Information	
Status	SIM card abnormal
BAND	

2.4G Wireless Information	
Wireless Status	Open
Wireless Name(SSID)	SKYLINK_2.4G
Channel	Automatic(11)
MAC Address	8C:88:2B:00:00:64
Encryption Method	Encrypted
Encrypted Password	MDAwMDY0

5G Wireless Information	
Wireless Status	Open
Wireless Name(SSID)	SKYLINK_5G
Channel	149
MAC Address	8C:88:2B:00:00:68
Encryption Method	Encrypted
Encrypted Password	MDAwMDY0

LAN Information	
IP Address	192.168.1.1
DHCP Server	Open
MAC Address	8C:88:2B:00:00:64
Users	1

System Information	
Model	X1271
Firmware Version	V9.1.0u.6851
Elapsed time	0 day0 hour3 minutes40 seconds
Published	2023-11-11 11:7:56

Resource Utilization

18%

RAM

2%

CPU

Interface Information

WAN
LAN1
LAN2
LAN3

5G Wireless Information	
Wireless Status	Open
Wireless Name(SSID)	SKYLINK_5G
Channel	149
MAC Address	8C:88:2B:00:00:68
Encryption Method	Encrypted
Encrypted Password	MDAwMDY0

LAN Information	
IP Address	192.168.1.1
DHCP Server	Open
MAC Address	8C:88:2B:00:00:64
Users	1

System Information	
Model	X1271
Firmware Version	V9.1.0u.6851
Elapsed time	0 day0 hour1 minutes7 seconds
Published	2023-11-11 11:7:56

Resource Utilization

17%

RAM

7%

CPU

Interface Information

WAN
LAN1
LAN2
LAN3

- System information: Automatically displays the operating days and the current software version and model;
- LAN information: Displays the address of the LAN port and the number of users;
- Resource usage information: Displays CPU and Memory usage status, and interface information;
- 2.4G/5G wireless information: Display 2.4G/5G wireless status and name, password, channel;
- Modem information: Display APN connection status and signal strength;
- Routing information: Displays route status, number of static and policy route connections.

5.2 Network Settings

5.2.1 Internet Settings

Can be used to set Internet access policy, connection mode, host name, MTU, DNS settings, APN, authentication mode, user name, password, PIN code.

Network > Internet

Internet Strategy	Auto(Wired First)
Wired Settings	
Connection Mode	Dynamic IP(DHCP) Auto detect
Connection Status	Connected
Host Name	XF
MTU	1500 (Range:576~1500)
DNS Settings	Get DNS automatically
<input checked="" type="radio"/> Default MAC <input type="radio"/> Clone MAC	

Modem Settings

IP Address	0.0.0.0
Module Model	
APN	Not required, leave blank.
Authentication method	None
User Name	Not required, leave blank.
Password	Not required, leave blank.
PIN	Not required, leave blank.
Apply	

5.2.2 LAN Settings

Can be used to set the LAN port IP address and DHCP address.

Network > LAN

This page is used to set parameters within the LAN.

IP Address	<input type="text" value="192.168.1.1"/>
Subnet Mask	<input type="text" value="255.255.255.0(24)"/>
DHCP Server	<input type="text" value="Open"/>
DHCP Start Address	<input type="text" value="192.168.1.2"/>
DHCP End Address	<input type="text" value="192.168.1.250"/>
DHCP lease time	<input type="text" value="2 hours"/>

5.2.3 USSD

To obtain USSD service information, please check whether the operator supports it when using the service and press the cancel button at the end of the service.

Network > USSD

This page is used to obtain USSD service information, please confirm whether the operator supports it when using this service, and press the cancel button at the end

USSD Request	<input type="text"/>
<input type="button" value="Send"/> <input type="button" value="Cancel"/>	
USSD Result	<div style="background-color: #cccccc; width: 100%; height: 100%;"></div>

5.2.4 SMS Service

You can send emails to others and record the contents of sending and receiving.

Network > SMS Service

Recipient	<input type="text"/>			
SMS Editor	<input type="text"/>			
Send SMS				
Inbox	Maximum capacity Used capacity			
ID	Time	Sender	SMS content	Operation
No data				
Outbox	Maximum capacity Used capacity			

5.2.5 DDNS Settings

This mode is turned off by default, and when turned on, provides a valid, unchanging Internet domain name (URL address) to match a (likely ever-changing) IP address.

Network > Dynamic DNS

Dynamic DNS is a service that provides you with a valid, unchanging Internet domain name (URL address) to match a (most likely changing) IP address.	
Radio	Open
Service Provider	<input type="text" value="No-IP"/>
Go to register	
Domain Name	<input type="text"/>
User Name	<input type="text"/>
Password	<input type="text"/>
DDNS connection status	DDNS update failed
DDNS connection information	The IP associated with the domain name is

5.3 Wireless Settings**5.3.1 Basic Settings**

In this mode, the basic information of 2.4G/5G wireless network can be set (for example: Wireless Name, Password, Frequency Band, Bandwidth, Channel, Country/Region).

Wireless > Basic

This page is used to set the basic parameters of the wireless network.

2.4GHz Wireless 5GHz Wireless

Wireless Status

Wireless Name(SSID)

Hide SSID

Encryption

Wireless Password

Band

Country/Zone

Bandwidth

Channel

This page is used to set the basic parameters of the wireless network.

2.4GHz Wireless 5GHz Wireless

Wireless Status

Wireless Name(SSID)

Hide SSID

Encryption

Wireless Password

Band

Country/Zone

Bandwidth

Channel

5.3.2 Guest Network

This mode is off by default, but when it is on, you can set up the 2.4G/5G wireless network separately. With the guest network function, users can set up an independent Internet environment for guests, which uses a separate Internet key. This not only

prevents the leakage of the user's own Internet key, but also prevents the leakage of user data information, thus further ensuring the security of the home network.

Wireless > Guest Network

The guest network is a virtual network. Through the guest network function, users can establish an independent Internet environment for guests, which uses a separate Internet key, which can not only avoid the leakage of the user's own Internet key, but also prevent the leakage of user data information, thereby further ensuring the security of the home network.

2.4GHz Wireless 5GHz Wireless

Wireless Status

Open

Wireless Name(SSID)

SKYLINK_2.4G_GUEST

Hide SSID

Encryption

Allow guests to access my local network

Wireless > Guest Network

The guest network is a virtual network. Through the guest network function, users can establish an independent Internet environment for guests, which uses a separate Internet key, which can not only avoid the leakage of the user's own Internet key, but also prevent the leakage of user data information, thereby further ensuring the security of the home network.

2.4GHz Wireless 5GHz Wireless

Wireless Status

Open

Wireless Name(SSID)

SKYLINK_5G_GUEST

Hide SSID

Encryption

Allow guests to access my local network

5.4 Parental Control

This mode is off by default, and when it is on ,it helps you to limit your child's online time by not being able to access the Internet outside of the set allowable online time.

Parental Control

Parental controls can help you limit the amount of time your child spends online and not be able to access the internet outside of the set allowed time period.

Radio Open

Current parental control list (Maximum:32)

ID <input type="checkbox"/>	MAC Address	Internet schedule	Description	Operation
	<input type="text"/>	<input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday <input type="checkbox"/> Sunday <input type="checkbox"/> Every 00 : 00 - 00 : 00	<input type="text"/>	Add

5.5 Device Management

This function is turned off by default and can be used to set up static DHCP services when enabled.

Device Management

This page is used to set up static DHCP services.

Radio Open

Current static DHCP list (Maximum:32)

ID <input type="checkbox"/>	IP Address	MAC Address	Operation
	<input type="text" value="192.168.1."/>	<input type="text" value="00:00:00:00:00:00"/> Scan	Add

5.6 Smart QoS

This function is turned off by default, when it is on, you can intelligently speed limit rules in the list. Supports Quality of Service (QoS), and intelligent QoS bandwidth management based on services and IP network segment.

Smart QoS

This page is used to set up the Smart QoS feature.

Radio

Upstream Bandwidth
(1-1000Mbps)

Downstream Bandwidth
(1-1000Mbps)

Current Smart QoS list (up to 10 rules allowed to be added)

ID <input type="checkbox"/>	IP Address	Maximum Upload(Mbps)	Maximum Download(Mbps)	Operation
	<input type="text" value="192.168.1."/> <input type="button" value="Scan"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Add"/>

This

5.7 Security Settings

5.7.1 IP/Port Filtering

This function is turned off by default, when it is on, you can set up IP/Port filtering, it is used to restrict LAN users from accessing the Internet.

Security > IP/Port Filtering

This page is used to set up IP/Port filtering, which is used to restrict LAN users from accessing the Internet.

Radio Open

Current IP/Port Filtering List (The maximum entry count is 32)

ID <input type="checkbox"/>	IP Address	Port Range	Protocol	Description	Operation
	<input type="text" value="192.168.1."/> <input type="button" value="Scan"/>	<input type="text"/> - <input type="text"/>	TCP/UDP <input type="button" value="v"/>	<input type="text" value="Description"/>	<input type="button" value="Add"/>

5.7.2 MAC Filtering

This function is turned off by default, when it is on, it is used to restrict access to the Internet by certain users on the LAN. The MACs in the list will be prohibited from accessing the Internet through the gateway when the function is enabled, and the rules in the list will not take effect when the function is disabled.

Security > MAC Filtering

MAC address filtering is used to restrict access to the Internet for certain users within a local area network. When this feature is enabled, the MAC in the list is prohibited from accessing the Internet through the gateway, and the rules in the list do not take effect when the feature is disabled.

Radio Open

Current MAC filter list (Maximum:32)

ID <input type="checkbox"/>	MAC Address	Description	Operation
	<input type="text"/> <input type="button" value="Scan"/>	<input type="text" value="Description"/>	<input type="button" value="Add"/>

5.7.3 URL Filtering

This function is disabled by default, when it is on, it is used to restrict LAN users from accessing the Internet. Enabling this feature will prohibit the domains in the list from being accessed by users. The rules of the list do not take effect when this feature is disabled.

Security > URL Filtering

URL filtering is used to restrict LAN users' access to the Internet. When enabled, domain names in the list are prevented from being accessed by users. When the feature is disabled, the rules for the list do not take effect.

Radio Open

Current URL filter list (Maximum:32)

ID <input type="checkbox"/>	URL	Operation
	<input type="text"/>	<input type="button" value="Add"/>

5.8 NAT Forwarding

5.8.1 Port Forwarding

This function is turned off by default, but when it is turned on, port forwarding is set up to provide services over the Internet.

NAT Forwarding > Port Forwarding

This page is used to set up port forwarding to provide services on the Internet.

Radio Open

Current port forwarding list (Maximum:32)

ID <input type="checkbox"/>	IP Address	Protocol	Internal Port	External Port	Description	Operation
	192.168.1. <input type="text"/> <input type="button" value="Scan"/>	TCP/UDP ▾	<input type="text"/>	<input type="text"/>	<input type="text" value="Description"/>	<input type="button" value="Add"/>

5.8.2 DMZ

This function is turned off by default, but when it is turned on, it protects you from direct exposure to external networks and attacks.

NAT Forwarding > DMZ

When some hosts need to provide some application services, such as Web, Mail, FTP, etc., in order to better provide services, and at the same time effectively protect the security of the internal network.

Radio Open

Host IP

The IP of the computer currently connected is 192.168.1.225

5.8.3 VPN Penetration

Used to set up VPN penetration service functions.

NAT Forwarding > VPN Passthrough

This page is used to set up the VPN traversal service feature.

Allow PING from WAN Close

L2TP penetration Open

PPTP penetration Open

IPSec penetration Open

5.9 System Services

5.9.1 Remote Management

Used to set up the remote management function of the system, turned off by default.

System Service > Remote

This page is used to set up the remote management capabilities of the system.

Radio	<input type="checkbox"/> Open
Port	<input type="text" value="1024"/> (80~65535)

5.9.2 SNMP

Used to set up the SNMP service, turned off by default.

System Service > SNMP

This page is used for SNMP service settings.

Radio	<input type="checkbox"/> Open
Version	<input type="text"/>
Service port	<input type="text"/> (1-65535)
Interface	<input type="text"/>

5.10 System Administration

5.10.1 Changing the Administrator Password

System Management > Change Password

This page is used to set the administrator password, it is recommended to change the default password for security.

Original Password	<input type="text"/>
New Password	<input type="text"/>
Confirm Password	<input type="text"/>

- **Old password:** The default password of the device is “admin”, which is marked on the label on the back of the device. The password can be changed to a maximum of 32 characters (that is, 32-bit English characters, digits, and special characters).
- **New password:** The password can be changed to a maximum of 32 characters (that is, 32-bit English characters, digits, and special characters).
- **Confirm password:** Enter the new password once to confirm the success.

5.10.2 Time Settings

System Management > Time Settings

This page is used to set the system time to synchronize with the Internet time server.

Current Time

Time Zone

Automatically synchronize NTP time

NTP Server 1

NTP Server 2

NTP Server 3

- **Select time zone:** 24 time zone options are supported from -12 to +12, and users can set the time according to the local time.
- **Automatically synchronize NTP time:** After this option is selected, the device automatically synchronizes time based on the NTP server address. If this option is not selected, the device automatically starts time based on the current time. It is generally not recommended to deselect this option.
- **NTP server:** The IP addresses of the three servers are automatically updated at the same time and it is generally not recommended to change them.

5.10.3 Scheduled Restart

Used to restart the device. Tap Restart to restart the device.

System Management > Scheduled

This page is used to set Tasks schedule.

Mode

Close
Close
Specified time
Count down

5.10.4 Firmware Upgrade

System Management > Firmware Upgrade

Upgrade online, by downloading a new firmware upgrade from the firmware server.

Firmware Version	V9.1.0u.6791
Build Time	2023-09-11 17:07:37

[Detect new version](#)

Local Upgrade, it takes about 2 minutes to upload and update the firmware, please be patient. Warn! Do not disconnect the power or network during the upgrade process, otherwise it will cause damage to the machine.

Do not preserve configuration

[+ Choose File](#)

- **Firmware version:** Automatically displays the current version number. When the device is connected to the network, click the < Detect New Version > button, and the device will automatically detect if there is a new version that can be upgraded. If there is a new version, the page prompts if there is a new version and whether it needs to be upgraded, and a < Upgrade > button appears.
- **Do not retain the configuration:** This function is used with the firmware upgrade function. If this function is selected, the original configuration of the device will be cleared after the firmware upgrade is successful.
- **Select file:** Support page to manually upgrade the firmware, the user can choose the different version of firmware with the device to upgrade by themselves.

5.10.5 System Configuration

System Management > System Configuration

Back up the configuration file, please keep the backup configuration file safe.

[Backup](#)

Restore System Configuration

[+ Choose File](#)

[Restore](#)

Please be careful, once reset, all system configurations will be the default.

[Reset](#)

This page is used to restart the device.

[Reboot](#)

- **Backup configuration file:** Automatically saves the configuration of the current device into a file, which is convenient for later restoration to factory defaults.
- **Restore configuration file:** Select the saved configuration file or another configuration file to update. After the device is restarted, the device configuration automatically changes to the configuration status of the updated configuration file.
- **Reset system configuration:** Click the < Restore > button, and the device automatically clears all settings and restores to the original factory state.

5.10.6 Ping Diagnostics

Simply enter the address you want to ping and the number of bars you want to ping, and tap apply to perform ping diagnostics.

System Management > Ping Diagnosis

This page is for ping diagnostics.

Ping Address

Number of ping
(1~60)

5.10.7 Route Tracing

System Management > Traceroute

This page is for traceroute.

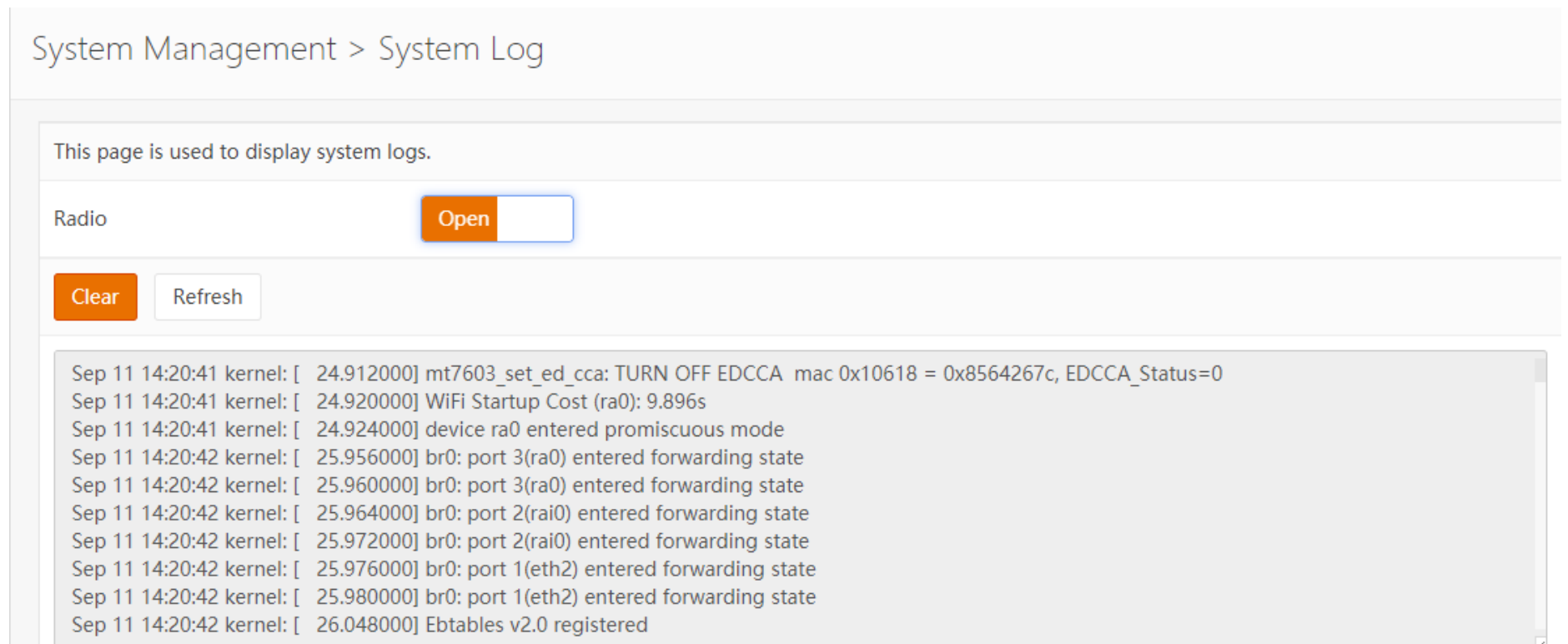
Tracking Address

Number of traces
(1~60)

Simply enter the address to be traced and the number of entries to be traced and click "Execute" to route the trace.

5.10.8 System Logs

This function is turned off by default and displays system logs when enabled.

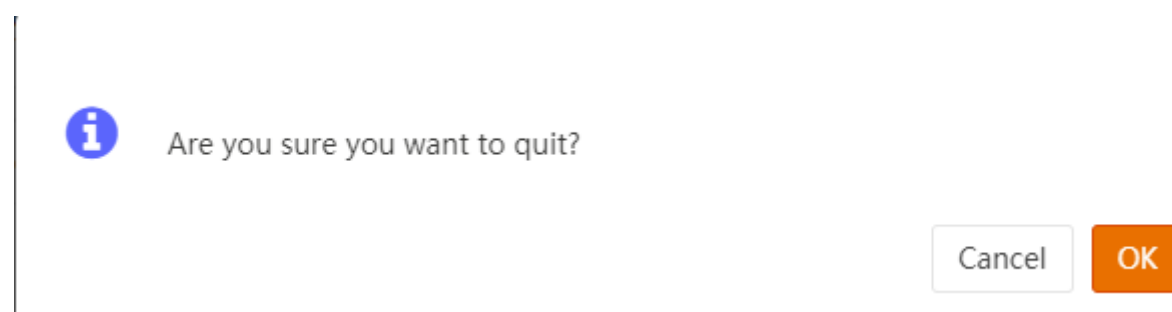


The screenshot shows the 'System Management > System Log' page. At the top, it says 'This page is used to display system logs.' Below this, there is a 'Radio' control with an 'Open' button. Underneath are 'Clear' and 'Refresh' buttons. The main area is a scrollable log window containing the following text:

```
Sep 11 14:20:41 kernel: [ 24.912000] mt7603_set_ed_cca: TURN OFF EDCCA mac 0x10618 = 0x8564267c, EDCCA_Status=0
Sep 11 14:20:41 kernel: [ 24.920000] WiFi Startup Cost (ra0): 9.896s
Sep 11 14:20:41 kernel: [ 24.924000] device ra0 entered promiscuous mode
Sep 11 14:20:42 kernel: [ 25.956000] br0: port 3(ra0) entered forwarding state
Sep 11 14:20:42 kernel: [ 25.960000] br0: port 3(ra0) entered forwarding state
Sep 11 14:20:42 kernel: [ 25.964000] br0: port 2(rai0) entered forwarding state
Sep 11 14:20:42 kernel: [ 25.972000] br0: port 2(rai0) entered forwarding state
Sep 11 14:20:42 kernel: [ 25.976000] br0: port 1(eth2) entered forwarding state
Sep 11 14:20:42 kernel: [ 25.980000] br0: port 1(eth2) entered forwarding state
Sep 11 14:20:42 kernel: [ 26.048000] Ebtables v2.0 registered
```

5.10.9 Exit

Log out of the device background login.



6. Specifications

Chip configuration	Flash/RAM	Flash: 16MByte RAM: 128MByte
Machine port	Keys	1*Reset button, 1*WPS button, 1* Power button
	Module interface	M.2 (Standard M.2 base; Compatible with USB3.0 and 8111H Phy)
	SIM card holder	CAT12: Virtual cloud card + pluggable SIM (add SIM switch)
	Network Port	1 adaptive 10/100/1000Mbps WAN port (switchable LAN port) 3 adaptive 10/100/1000Mbps LAN ports
	Antenna	CAT 12 external antenna *4, WIFI antenna built-in (onboard) *2
	Power Supply	1*DC 12V/2A
Light bits	Light position	1*POW, 1*NET, 1*WIFI, 1*WAN, 1*LAN, 3*4.5G SIGNAL
Work environment	Operating temperature	0°C ~ 55°C
	Operating humidity	5% to 95% (no condensation)
	Storage temperature	-20°C ~ 85°C
Mechanical Properties	Mounting method	Desktop, stereo, etc.
	Size	186 * 159.3 * 49 mm
	Shell	Plastic case

FCC regulation

Part 15.21

Warning: Changes or modifications to this unit not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

Part 15.105

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 tuning 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.

Part 15.19

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.

MPE & SAR

FCC Radiation Exposure Statement

This equipment complied 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.