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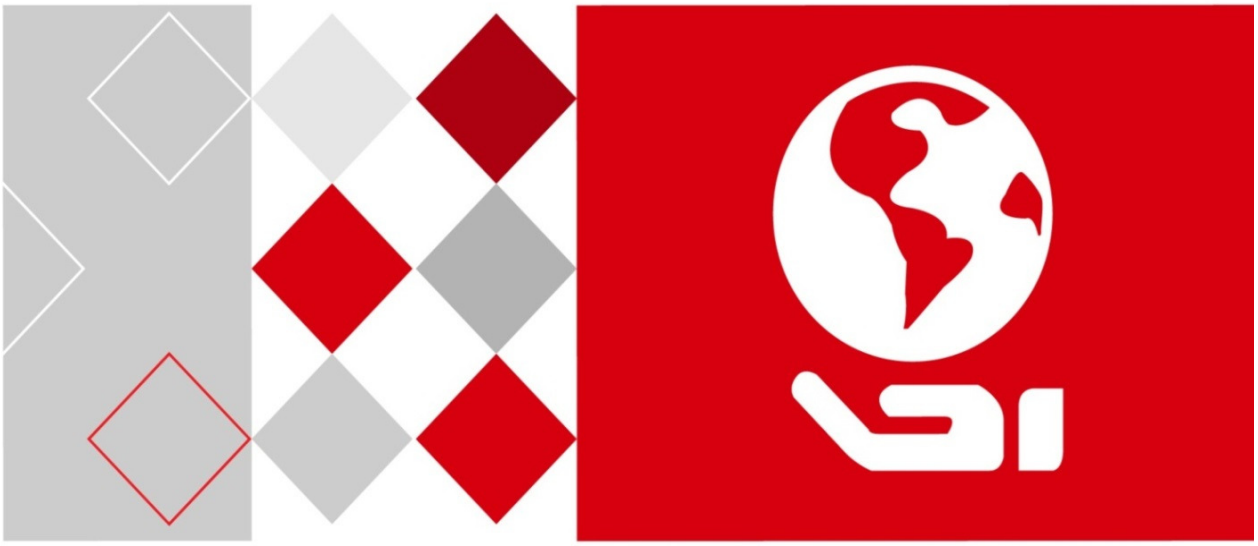

DS-3WF03C-D Outdoor Video Wireless Network Bridge

User Manual

User Manual

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About this Manual

This Manual is applicable to DS-3WF03C-D outdoor video wireless network bridge, the Manual includes instructions for using and managing the product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version in the company website (http://overseas.hikvision.com/en/).
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—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 equipment should be installed and operated with a minimum distance 20cm between the radiator and your body

EU Conformity Statement

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Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.

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Chapter 1 Product Overview

DS-3WF03C-D is a powerful WIFI Bridge/AP/CPE device, which allows WIFI access and video/audio/data transmission device, enables long-range, fast speed and robust wireless connections. Integrated with Hikvision's XTrans technology, DS-3WF03C-D has the advantages of long-distance, high-throughput, and Strong anti-interference.

XTrans technologies include TDMA, 5M/10M/20M/40MHz bandwidth, intelligent rate control, Auto ACK Time-Out Adjust and so on. TDMA technology solves the problems of hidden-node problem in the 802.11 network. 5M/10M/20M/40MHz bandwidth can be flexibly configured by the uses in different working scenario to achieve the best link quality. Intelligent rate control algorithm can be adapted to quick channel quality variations automatically, thus stabilizing the wireless throughput. ACK Time-Out Auto Adjust can automatically detect the distances of the DS-3WF03C-D devices, and thus adjust the wireless parameters to achieve the best wireless link quality.

The longest transmission range and max speed of DS-3WF03C-D can be as high as 5Km and 300Mbps, making it suitable for many applications of WIFI Bridge/CPE, especially have advantages for point-to-multi-point communication.

13.1 Product Advantages

The DS-3WF03C-D has the industrial leading technology, owing the performance capability of a wireless base station with only a small form factor, furthermore, it has very attractive low cost.

DS-3WF03C-D has the following advantages compared to the competitors:

1. Embedded XTrans technology

DS-3WF03C-D devices is embedded with XTrans technology, including TDMA, 5/10/20/40MHz bandwidth, intelligent rate control, Auto ACK Time-out adjust. They make the device have longer transmission distance, higher throughput and better point-to-multi-point performance.

2. Longer transmission distance, higher throughput

The longest transmission distance of DS-3WF03C-D can be as far as 5 km, and the max throughput can be 300Mbps. It can satisfy the needs of most of the applications.

3. Embedded hardware watchdog

DS-3WF03C-D is embedded with hardware watchdog, which is used to monitor the working status of the device. Once the system is not working properly, the DS-3WF03C-D device can be rebooted to guarantee the stability of the system.

4. Software Ping watchdog function

DS-3WF03C-D software ping watchdog function enable the device periodically ping another device associated to, so that it can detect if the system is working well. If the wireless link is lost or there is any problem, the device is rebooted. This is important because the devices can be restored to work automatically if there is any problem, and avoid the extra human labour to maintain the outdoor devices.

5. Outdoor industrial product

DS-3WF03C-D device can work at all kinds of outdoor severe environments, including -30 to 70 degree temperature, 5% to 95% humidity, while maintain good performance.

13.2 Electrical Specifications

The electrical specifications are shown are the following table:

Table 1-1 Specifications

	Items	Specifications
Wireless	Standard	IEEE802.11 a/n(2T2R 300Mbps)
	Operation frequency	5.15 to 5.25GHz
	Modulation mode	802.11 a/n: OFDM
	Antenna	Internal, Gain 15dBi,H:40° V:15°
	Output power	The Max E.I.R.P about 21dBm
	Receive sensitivity	-74dBm@65Mbps, -96dBm@6Mbps
	Data rate	11n:13.5/15/27/30/40.5/45/54/60/81/90/108/120/121.5/135/150/162/180/216/240/270/300Mbps(40MHz) 130/117/104/78/65/58.5/52/39/26/13/6.5Mbps(20MHz) 11a :54/48/36/24/18/12/9/6Mbps(Auto)
Hardware	Power supply	24V/0.5A PoE
	Interface	PoE*1+LAN*1
	Operation temperature	-30℃ to 75℃(-22℉ to 167℉)
	Storage temperature	-40℃ to 85℃(-40℉ to 185℉)
	Operation humidity	5% to 95%RH non-condensing
	Dimensions	270x40x88mm(10.6x1.57x3.46inch)
Software	Encryption	802.1x/WPA-PSK/WPA2-PSK
	Network mode	Router/Bridge
	Operation mode	Access Point, Station, WDS Access Point, WDS Station
	Security	IP/MAC filter, SSID hidden
	Network protocol	TCP/UDP/ARP/ICMP/DHCP/HTTP/NTP
	TDMA	Supported (Avoid 802.11 hidden-node problems, and improve the point-to-multi-point performance)
	Auto ACK timing adjust	Supported(It can automatically choose optimized parameter in long distance transmission, keep the performance always the best)
	Management and Logs	NTP, Syslog, Telnet, AC
	Web based configuration	Supported
	Firmware update	Support update firmware by Web page
	Bandwidth supported	5M/10M/20M/40MHz

13.3 Features

- High performance 802.11n 2×2 MIMO chip
- Longest transmission range: 5Km, and max transmission throughput: 300Mbps
- Integrated XTrans technology, including TDMA, intelligent rate control, Auto ACK Time-out adjust
- TDMA solves the problems of hidden-node problem in the 802.11 network, thus having better long-distance and PTMP performance
- 5 operation mode: Access Point, Station, WDS Access Point, WDS Station, WDS Repeater
- Point-to-point, point-to-multipoint connection
- Unique RF and antenna design enables long-range transmission
- Wireless multimedia optimization technology guarantees video/audio transmission QoS
- Web based working scenario selection makes the installation and setting much easier
- Reliable PoE power supply
- Web-based configuration, easy to use
- Waterproof housing and accessory kit protects

13.4 Typical Application

The DS-3WF03C-D usage examples are shown in figure; it can be used as WIFI AP, CPE, or outdoor PTP, PTMP topology. Therefore, DS-3WF03C-D is suitable for various applications like wireless video transmission, and wireless signal coverage.

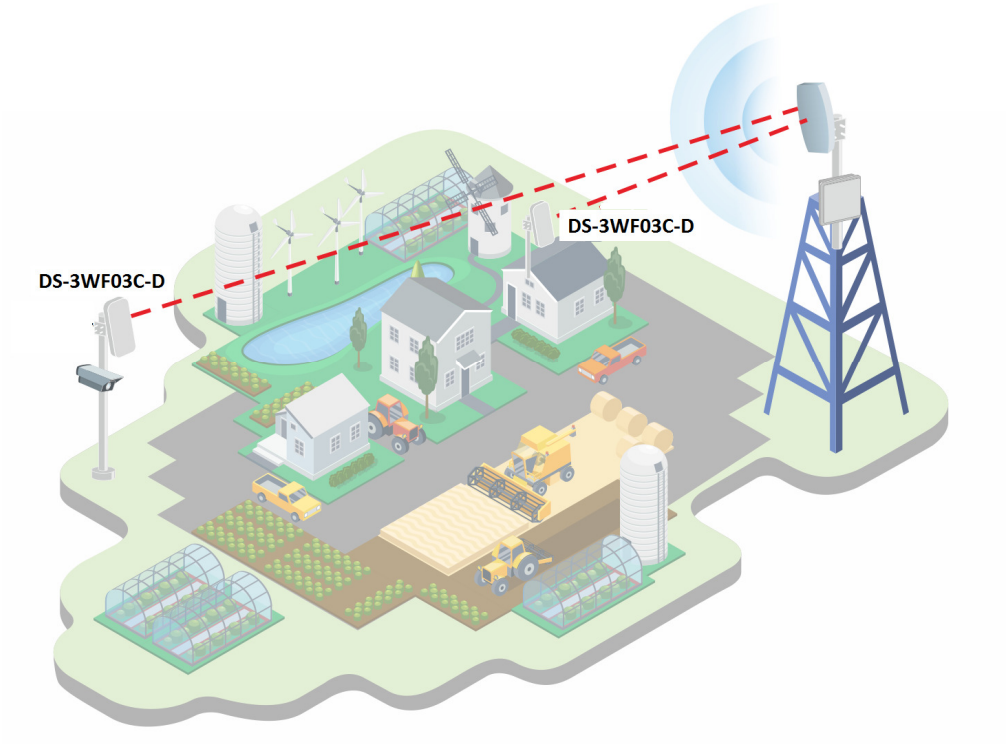

Figure 1-1 Typical Application

13.5 Applications

DS-3WF03C-D can be used widely in the following applications:

- Wireless video surveillance (free-way, city, police, oil pipeline, forest and etc.)
- Carrier wireless backhaul and rural area internet last-mile wireless solution
- Enterprise local area network inter-connection
- WIFI signal coverage and rural wireless coverage

13.6 Hardware Overview

DS-3WF03C-D's hardware information is described in the following table:

Table 1-2 Hardware information

Hardware Specifications	
CPU/Baseband Radio	Atheros AR9344
Memory	64MB DRAM, 8MB Flash
Physical Interface	2×10/100M Base-TX (Cat. 5/5E, RJ-45) Ports
LED Status	Power, LAN, WLAN, 3×Link Quality
Power supply	POE, Power Adapter 24V/0.5A

13.7 LED Description

The LEDs of DS-3WF03C-D can be divided to 2 groups. One group of LEDs are Indicators, including the left 3 LEDs of figure, and they are Power, LAN and WAN indicators. The other group of LEDs are Link Quality, including the right 3 LEDs of figure, shown the signal strength.

Table 1-3 LED Information

LED	Color	Status
POWER	Green	ON = Device Power on
LAN	Green	ON = Device connected to the network
WLAN	Green	OFF = Device radio is OFF ON = Device radio is ON, but not sending or receiving date through the wireless LAN. BLINK= Device radio is ON, and sending or receiving date through the wireless LAN.
Link Quality	Red Yellow Green	Showing the signal strength between the device and the network. Green is ON = good quality Yellow is ON = medium quality Red = poor quality or no link

Chapter 2 Installation

This chapter describes how to install DS-3WF03C-D device in the bridge mode, and the installation method of router mode can be seen in Chapter 7.

2.1 Connections and Installation

The connection of DS-3WF03C-D device to POE and power supply is shown in figure.

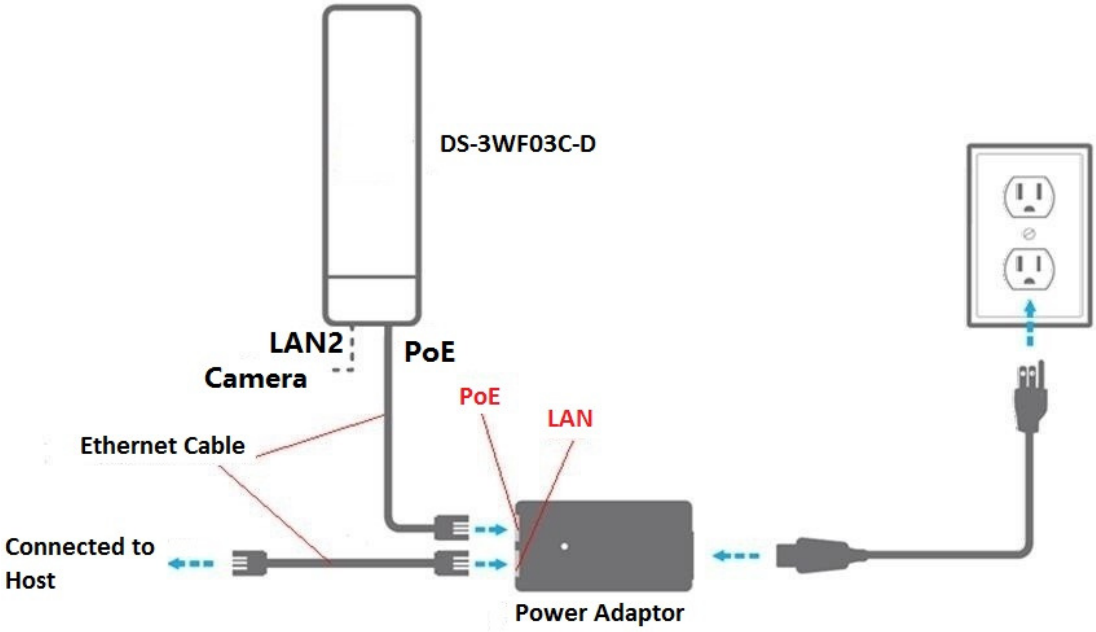

Figure 2-1 Connections at Bridge mode

DS-3WF03C-D has 2 RJ45 ports, and they are marked with “POE” and “LAN2” separately. In the bridge mode, please connect the device with the POE power adaptor in the following way:

1. Remove the bottom cover from the DS-3WF03C-D device, and you will see there are 2 RJ45 ports marked with “POE” and “LAN2”.
2. Using an Ethernet cable to connect the POE power adaptor and the “POE” port of the DS-3WF03C-D device.
3. Connect the POE adaptor to the normal power supply board.
4. Normally, “LAN2” port of the DS-3WF03C-D can be connected to IP Camera and

other devices, or leave it unconnected

5. Mount the DS-3WF03C-D securely to the pole by locking the strap tightly.

2.2 Restore to the Factory Settings

In some cases, uses can restore the device to the factory settings by the following way in the figure. Push the reset button for 5~10 seconds until all LEDs are on. Then the device will restore to the factory setting. During this process, the DS-3WF03C-D's RJ45 ports will be connected and disconnected twice.

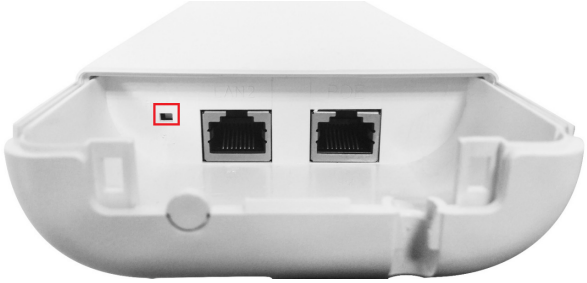

Figure 2-2 Restore to the factory settings

For default, all the factory settings are shown in the following table.

Table 2-1 Main parameters at the factory settings

Items	Default Settings
IP address	192.168.1.35/192.168.1.36
User name	admin
Password	admin
Output power	High
Encryption	WPA->WPA2->CCMP->Password:1234567890abc
Network mode	Bridge

Chapter 3 Quick Configuration

This chapter describe how to configure the device quickly.

3.1 Log In

To log in the DS-3WF03C-D device, user needs to configure the TCP/IP of your computer first as the following steps:

1. Right click Local Area Connection icon of your computer and click properties, then click Continue, the Local Area Connection Properties dialog box appears as figure.

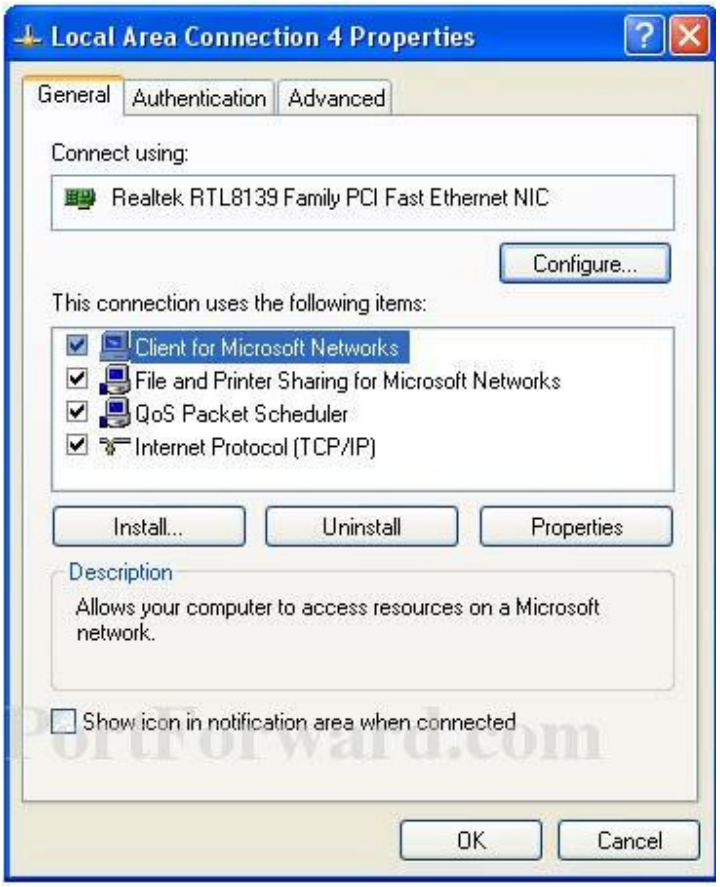

Figure 3-1 Local Area Connection Properties

2. Select Internet Protocol (TCP/IP) and click Properties button, and the following dialog box appear:

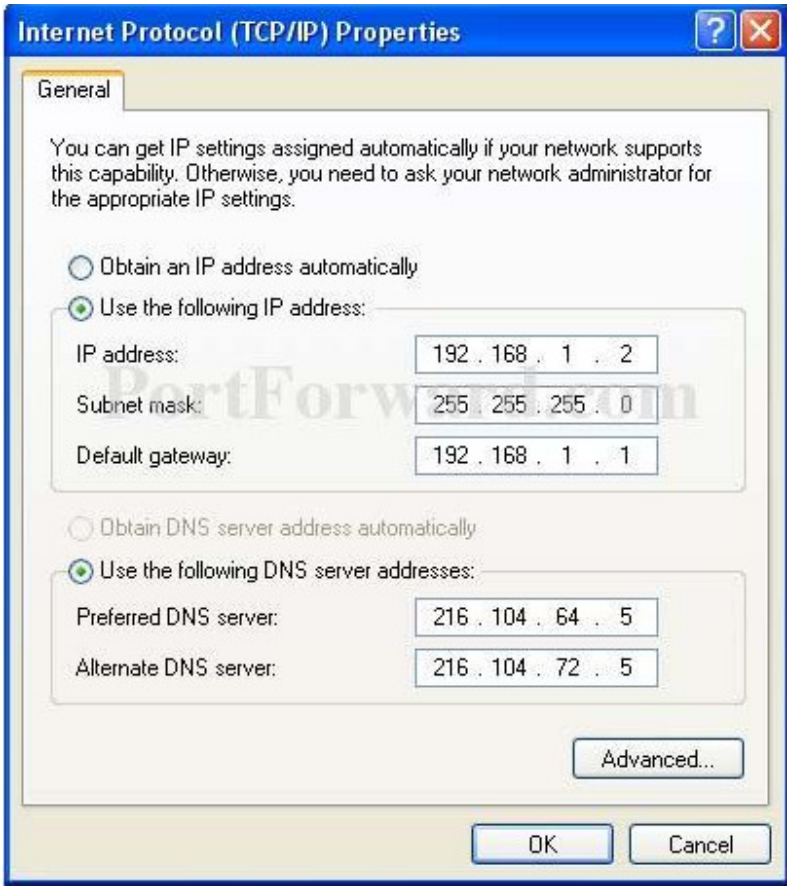

Figure 3-2 IP settings

3. In the above figure, IP address should be set to 192.168.1.*, here * can be a number between 1-255 (but not 36) since the DS-3WF03C-D（T/R） default IP address is 192.168.1.35/36.

4. When the above IP setting is done, input the default IP 192.168.1.35 into the address bar of your web browser, and the following log in interface appears as shown in figure.

5. In figure, input the user name and password (default is admin/12345) and click the Confirm button, then you can log in to the web configuration menu of the DS-3WF03C-D device.

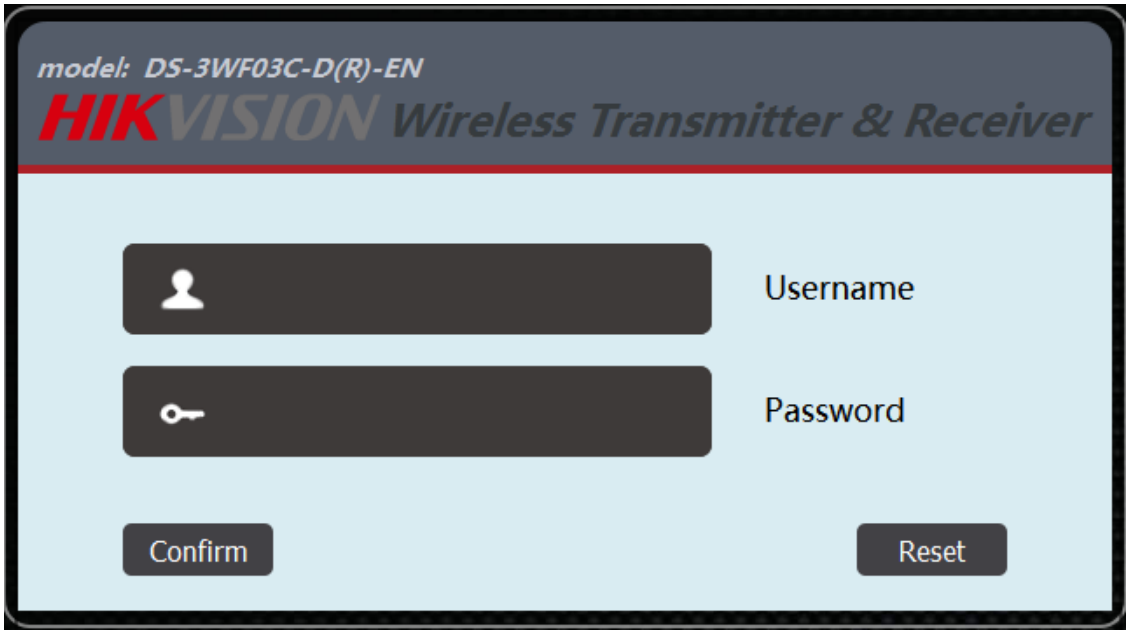

Figure 3-3 DS-3WF03C-D Log in interface

3.2 Quick Configuration of the Device

The users will see how to configure the DS-3WF03C-D device quickly in this chapter.

1. The first page shown after log in is the Status page, which indicates the working status, current setting, software version and other information of the DS-3WF03C-D device. Users can switch to other pages by clicking the left main menus in figure.

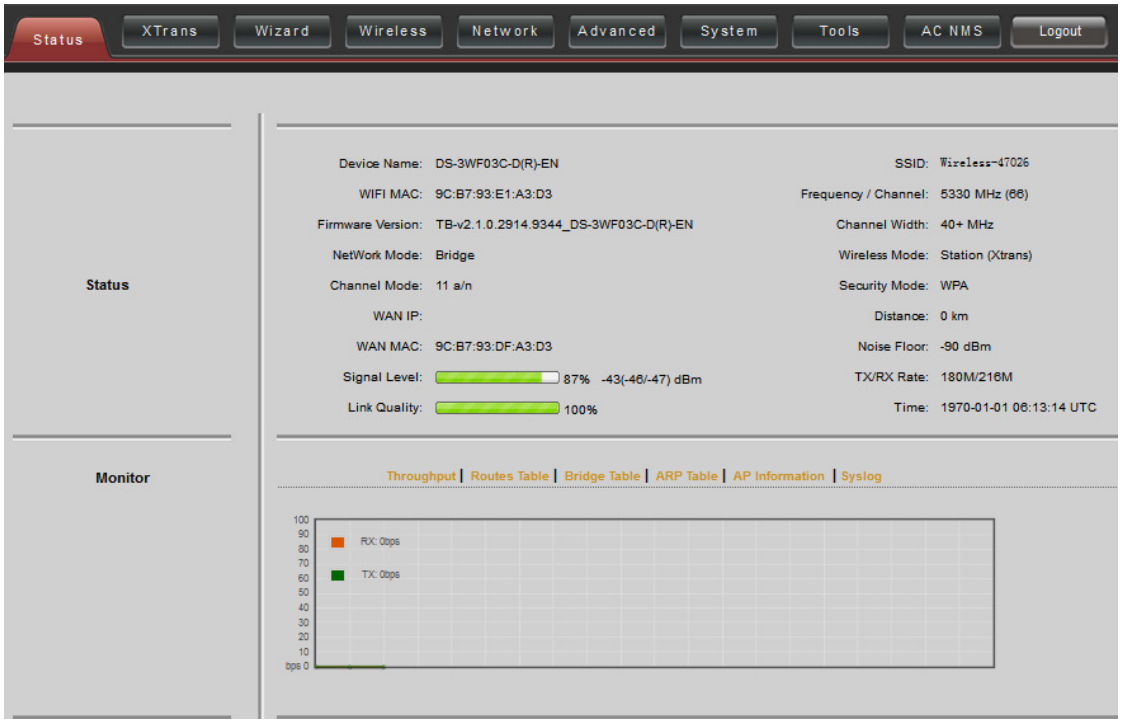

Figure 3-4 Status Page

2. Click Wizard main menu, the users can configure the device quickly, including Network and Wireless settings and so on. It is Wizard-Network page as shown in figure, and this page helps to set the basic network parameters. The default mode is Bridge mode, and the default LAN IP address is 192.168.1.35. If the user wants to configure the device to Router mode, please click Network in the main menu.

NOTE

If several DS-3WF03C-D devices are connected in the Point-to-Point or Point-to-Multi-Point topologies, they must be configured to different IP address to avoid collisions.

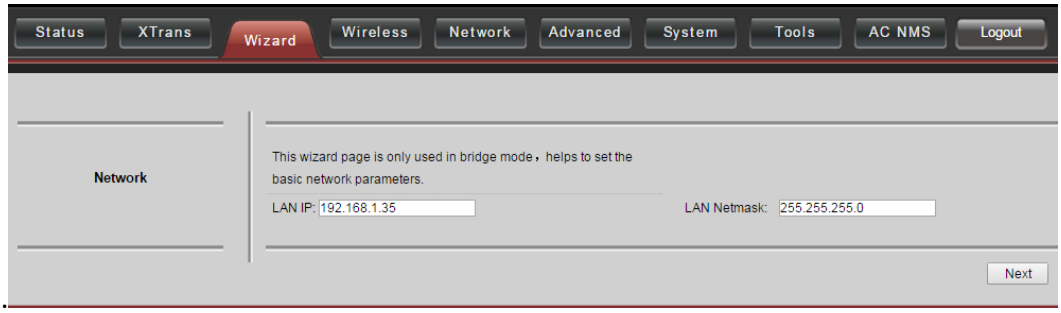

Figure 3-5 Wizard Network

3. After finishing the Wizard-Network settings, click next and it goes to Wizard-Wireless page shown in figure. The most used wireless mode is the Access Point and the Station.

   Station mode: The device acts as a WIFI station, and it can be connected to a normal home access point or DS-3WF03C-D access point.

   Access Point mode: The DS-3WF03C-D device acts as an access point, which allows normal WIFI stations access. For detail settings of wireless mode, please click Wireless in the main menu.

   NOTE

   If two DS-3WF03C-D devices need to be connected in point-to-point topology, one of the device need to be configured as Access Point, and the other one need to be configured as Station, and both of them should have the same Encryption method.

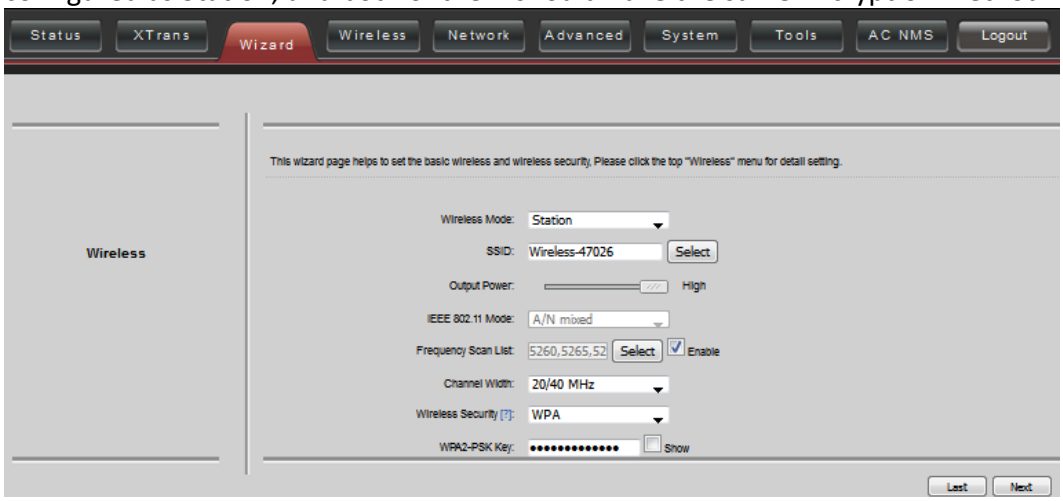

Figure 3-6 Wizard Wireless

4. The last page of Wizard is shown in figure. User can click Change to save all the settings, and then click Apply the make the setting effective, or click last to modify the previous settings.

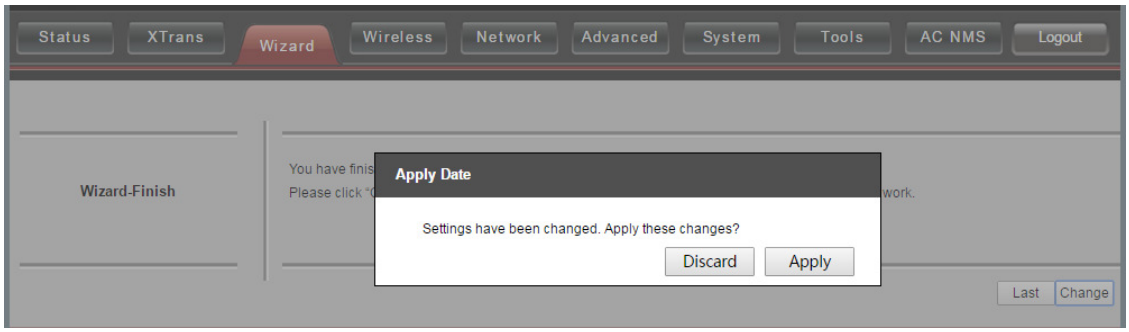

Figure 3-7 Wizard Finish

Chapter 4 TDMA

Currently, most of the outdoor bridge products are developed based on 802.11 protocols, however, it has the limitations of short-distance, hidden node problems, and poor point-to-multi-point performance.

XTrans technology is developed and patented by Hikvision, utilizing a series of advanced technologies such as TDMA, 5M/10M/20M/40MHz bandwidth support, intelligent rate control, Auto ACK Time-out Adjust, having the advantage of long transmission range, high date rate and robust transmission.

TDMA technology solves the problems of hidden-node problem in the 802.11 network infra-structure. 5M/10M/20M/40MHz bandwidth can be flexibly configured by the uses in different working scenario to achieve the best link quality. Intelligent rate control algorithm can be adapted to quick channel quality variations, while stabilize the wireless throughput, thus suitable for long-distance transmission. ACK Time-out Auto Adjust can automatically detect the distances of the DS-3WF03C-D devices, and adjust the wireless parameters to achieve the best link quality.

The TDMA setting is shown in the following figure.

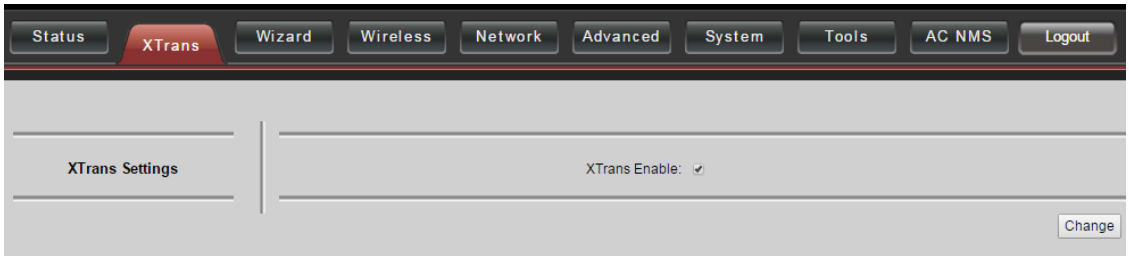

Figure 4-1 TDMA Settings

To use the TDMA, the user needs to enable TDMA mode in the AP device, and set a priority level in the station device. When several stations are connected to one AP, different stations demand different throughput. If the station demands higher throughput, its priority level can be set to High, otherwise set to Low. When the stations demand the same throughput, their priority level can be set to the same level.

NOTE

When using TDMA mode, the TDMA button need to be enabled at both AP and station devices in the web-based configuration menu. The devices from other vendors cannot be connected to DS-3WF03C-D in the TDMA mode.

Chapter 5 Status

Status is the first page shown after logging in. It shows the current configuration and real-time monitoring of the device, seen in the following figure. This page is divided into 2 parts: Status and Monitor.

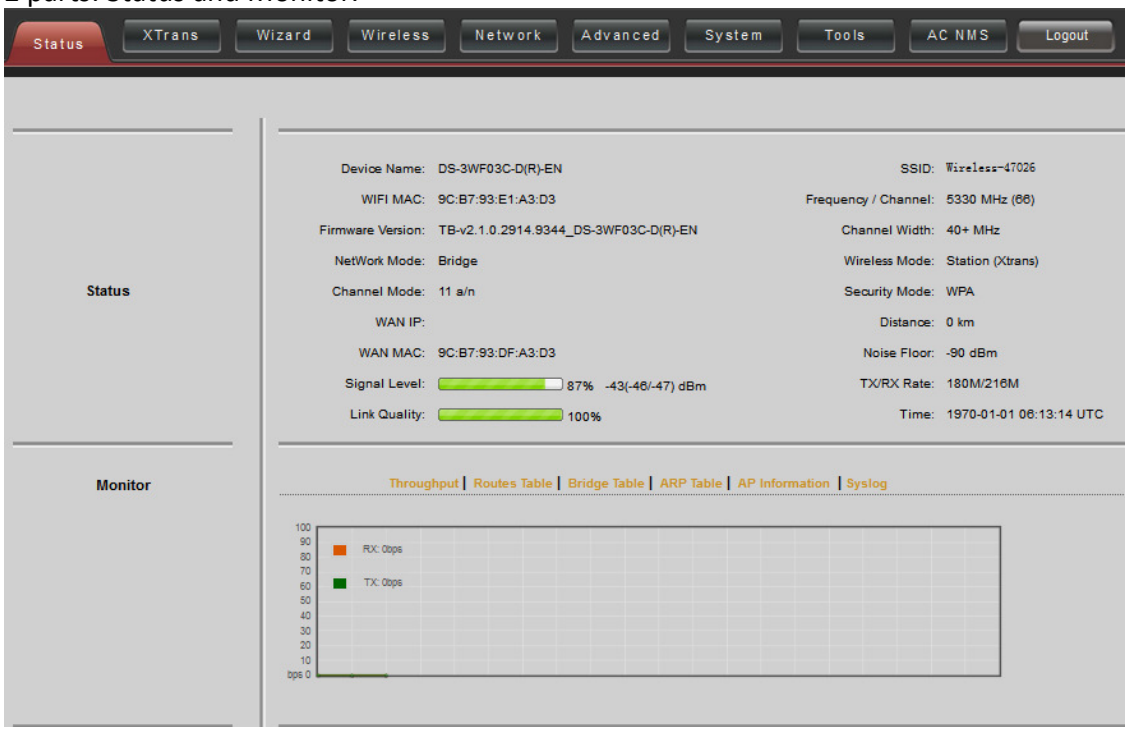

Figure 5-1 Status

5.1 Status

All the configurations in Status page are shown in table.

Table 5-1 Configurations shown in Status

Items	Description	Items	Description
Device	Name of the device	SSID	The name of the wireless network
WIFI MAC	MAC of the wireless port	Frequency/Channel	Wireless channel chosen
Firmware Version	Software version number	Channel Width	5MHz, 10MHz, 20MHz, 40-MHz, 40+ MHz
Network Mode	Network mode: Router or Bridge	Wireless Mode	Access Point, Station, WDS Access Point, WDS Station, WDS repeater
Channel Mode	Wireless	Security	Wireless encryption method

	communication protocol, for example, 11 a/n	Mode	
WAN IP	WAN IP address	Distance	The distance between two associated devices
WAN MAC	MAC of the WAN port	Noise Floor	Noise Floor value
Signal Level	It indicates the signal strength of the device	TX/RX Rate	The date rate of current device during sending and receiving data.
Link Quality	Quality of the connection link	Time	The real-time

5.2 Monitor

Throughput: The figure here monitors the real-time throughput of the wireless link, shown in the following figure.

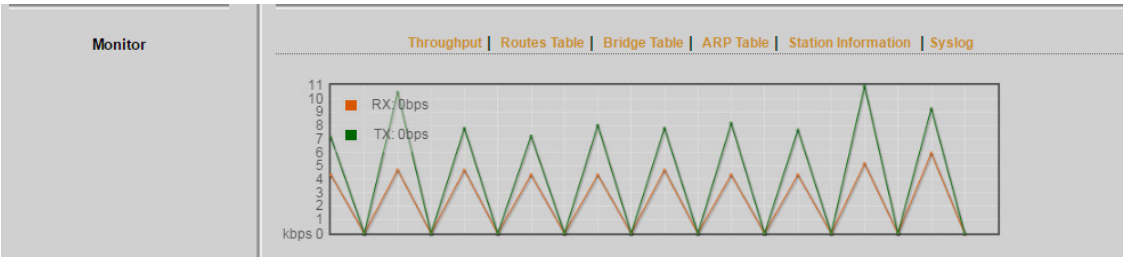

Figure 5-2 Throughput monitor

Routes Table: It is stored in a router that lists the routes to particular network destinations, and in some cases, metrics (distances) associated with those routes. The route table contains information about the topology of the network immediately around it.

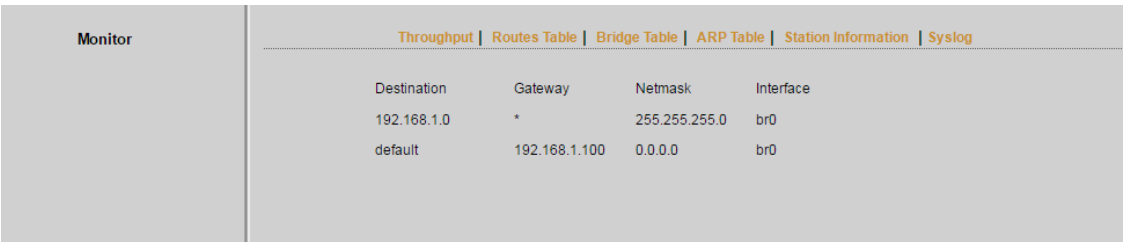

Figure 5-3 Router Table

Bridge Table: It lists all the devices that communicate through the DS-3WF03C-D device.

Figure 5-4 Bridge Table

ARP Table: It lists the IP address and MAC address of the devices that communicate through the LAN port of the DS-3WF03C-D device.

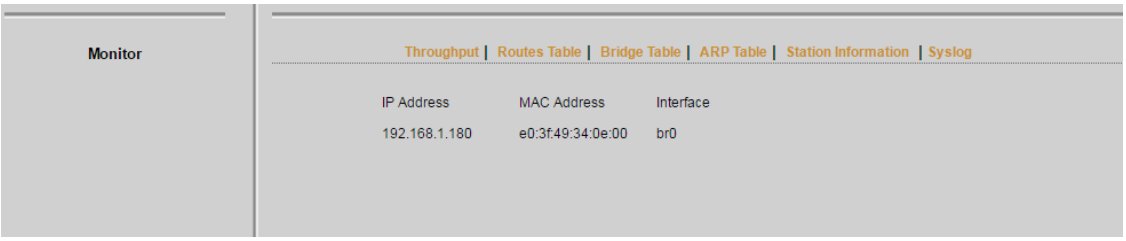

Figure 5-5 ARP Table

AP/Station Information: Showing the status information of the associated devices.

For example, if the DS-3WF03C-D device is an AP, and the associated device is a Station, and this Station Information shows the related information of the Station device in the figure.

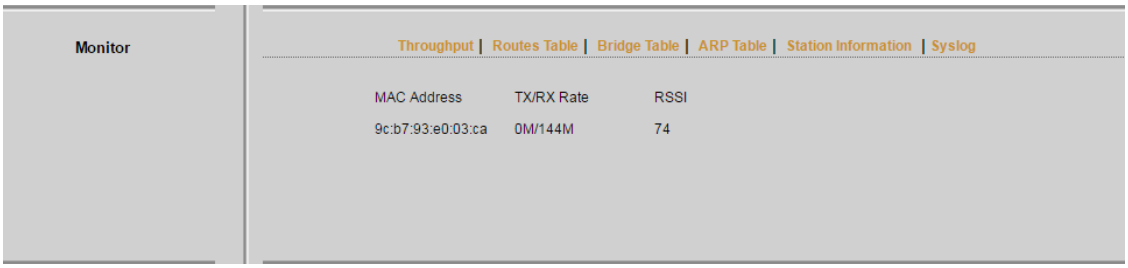

Figure 5-6 Station Information of an AP

If the DS-3WF03C-D is a Station, and AP Information shows the associated AP device's information, seen in figure.

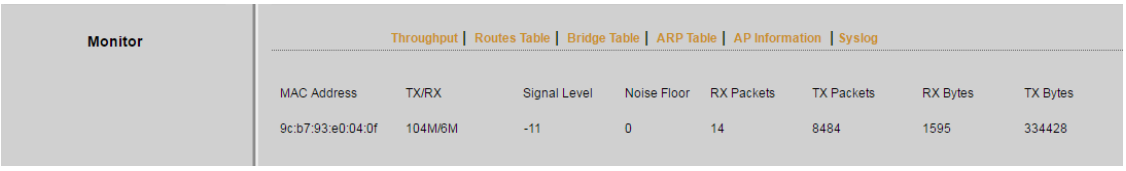

Figure 5-7 AP Information of a Station

Syslog: Display the log information of DS-3WF03C-D.

Chapter 6 Wireless

Wireless is shown in figure.

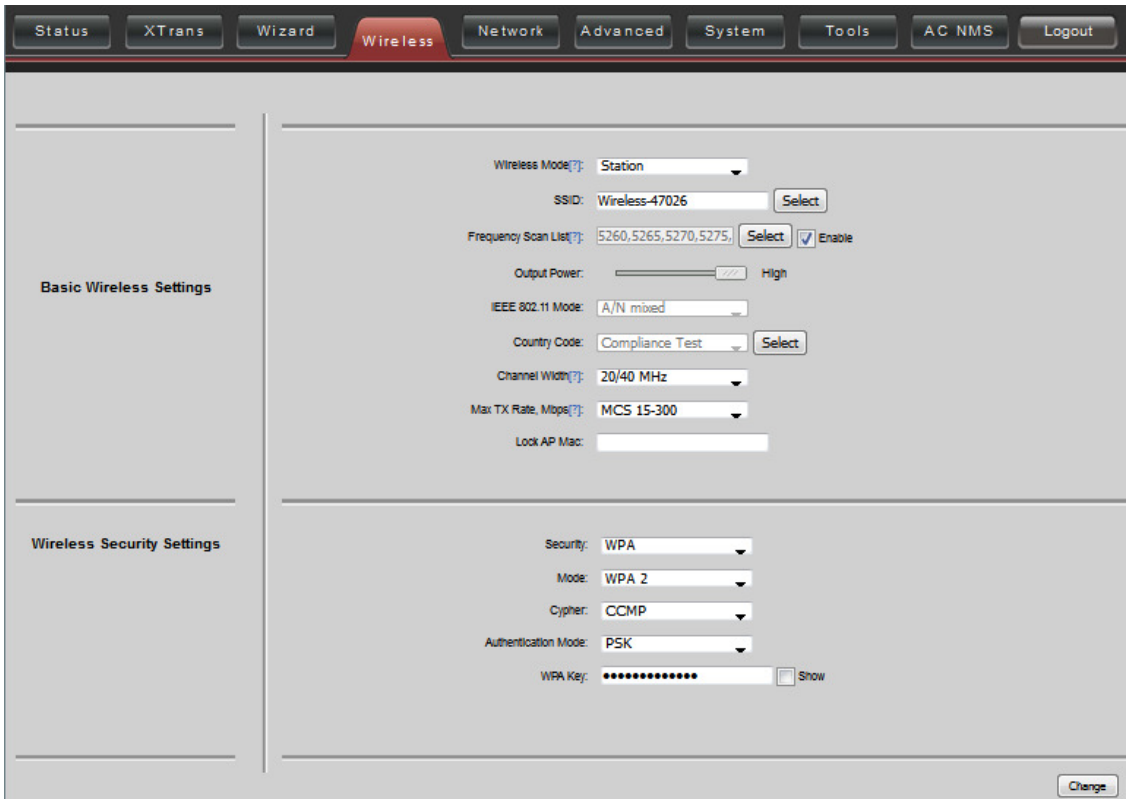

Figure 6-1 Wireless

Wireless Mode: There are totally 5 wireless modes, including: Station, Access Point, WDS Station, WDS Access Point, and WDS Repeater.

Access Point: Access point.

Station: A client device that can be connected to an AP.

WDS Station: Use WDS feature to link multiple APs in a network, all associated stations from any AP can communicate with each other like in ad-hoc mode. WDS station means this device is a station in WDS mode.

WDS Access Point: Use WDS feature to link multiple APs in a network, all associated stations from any AP can communicate with each other like in ad-hoc mode. WDS AP means this device is an AP in WDS mode.

WDS Repeater: A DS-3WF03C-D device can be configured to WDS Repeater mode, so that it can connected to another WDS Station or WDS Repeater.

SSID: Name of a wireless network.

Shown in figure, the user can click the Select button to list all the SSIDs that can be associated, and then choose the one need to be associated.

Frequency MHz: This only appears when the device is configured to Access Point mode or WDS Access Point mode. The device can only work on one channel at the same time.

Frequency scan list: This only appears when the device is configured to Station mode or WDS Station mode. If it's not enabled, the station will scan all the channels which both the device and the country code allowed and then choose the same channel as the associated AP. If it's enabled, click select, another window will pop up and let the user to choose the working channels, and the channels should include the associated AP's channel, which can fasten the association process between the AP and the Station.

Output Power: Output power of the device.

Country Code: Different countries allows different channels, use can choose the country code to only allow the device works at the channels permitted in the particular country.

Channel Width: Channel width selection, and DS-3WF03C-D device supports 5MHz/10MHz/20MHz/40MHz bandwidth.

Max TX Rate: Max transmission rate, and it can be used to limit the max transmission rate of a device.

Root AP MAC Address: In Station, WDS Station, and WDS Repeater modes, users can use this to limit the APs associated to.

Security: User can set the security based on needs to guarantee the wireless security.

WPA: Encryption method supported by 802.11 Protocol.

Chapter 7 Network

7.1 Router Mode

DS-3WF03C-D acts as a router when configured to Router mode. In router mode, the connection is shown in figure. User needs to connect the POE port of POE adaptor to the POE port of the DS-3WF03C-D.

After the above connection, the DS-3WF03C-D can work as a router. The LAN2 port of DS-3WF03C-D device acts as the LAN port of the router, and LAN port of POE adaptor acts as the WAN port of the router.

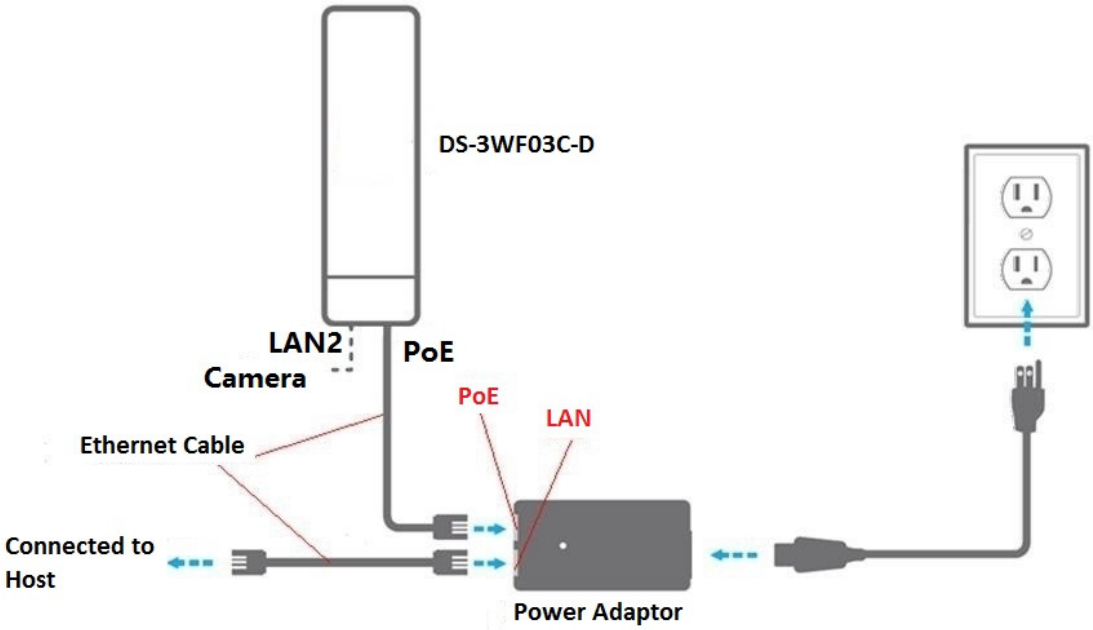

Figure 7-1 Connection figure of router mode

The Network page is shown in figure.

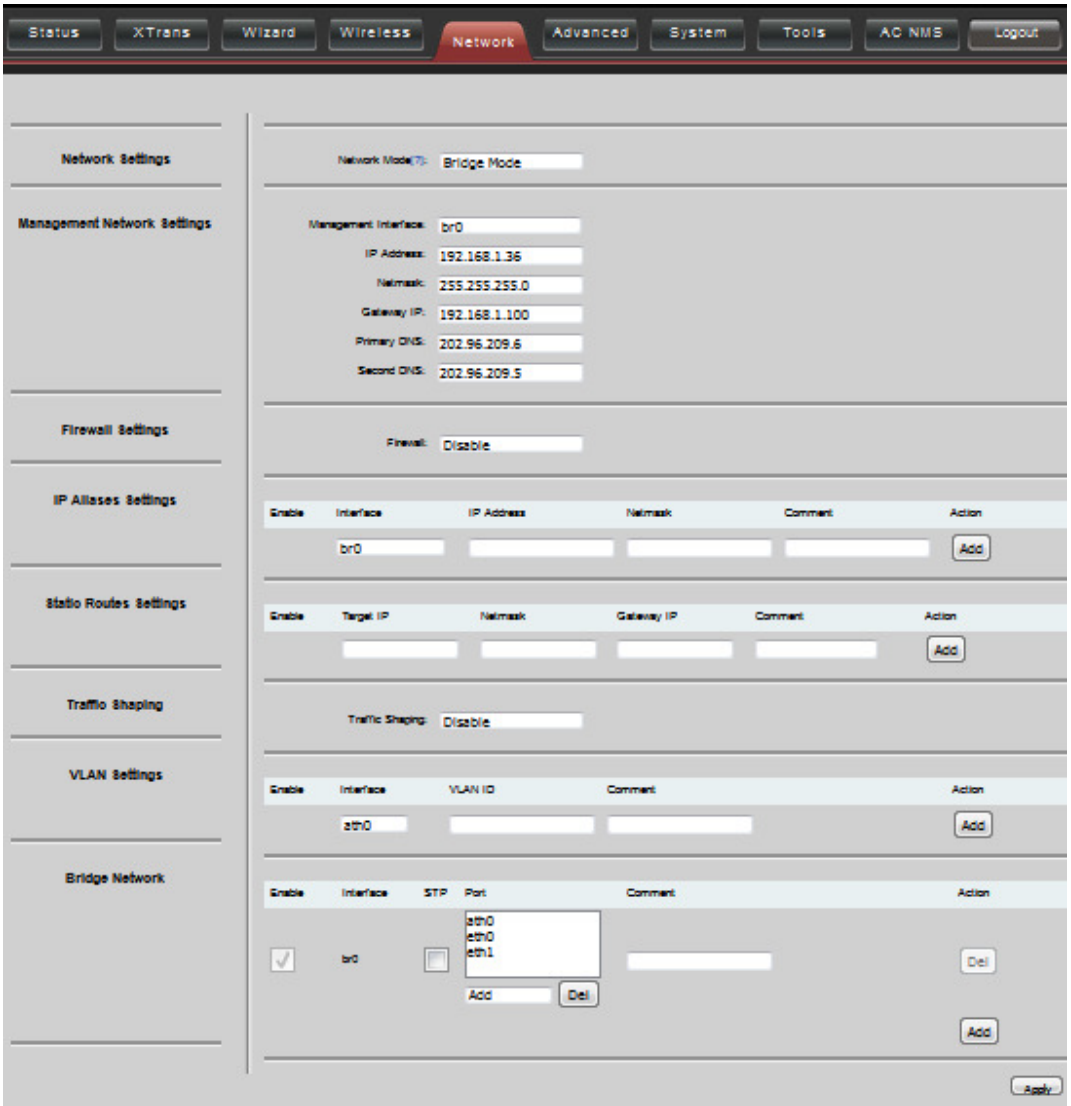

Figure 7-2 Router mode

WAN Mode: WAN mode can be configured to DHCP, PPPoE and Static IP. When set to DHCP, the device can dynamically get the IP address; otherwise, user needs to manually set the IP address, Netmask, Gateway and other information.

WAN IP: WAN IP address. It should be set to the same segment of IP address of the internet provided by ISP, please check with the ISP for this information.

WAN Netmask: WAN Netmask, use can check with the ISP for this information.

NOTE

WAN IP address should not be the same as the IP devices of the internet to avoid collision.

Primary DNS and Secondary DNS: Please check with the ISP for the information.

Gateway IP: The IP address of WAN gateway.

7.2 Bridge Mode

In Bridge mode, there is no WAN port. The LAN port of the POE adaptor, and the LAN2 port of the DS-3WF03C-D device can all be the LAN port, and the user can choose one of them to use as LAN port. Please refer to figure for the connections in Bridge mode, and the IP address/Netmask information setting is the same as Router mode.

7.3 Management

The IP address of the device can be modified, and the management of the device can be performed by setting the specified management interface.

7.4 Firewall

When the firewall is enabled, the device can allow only some devices to be associated to. Shown in figure, and there are 4 cases of Firewall filtering.

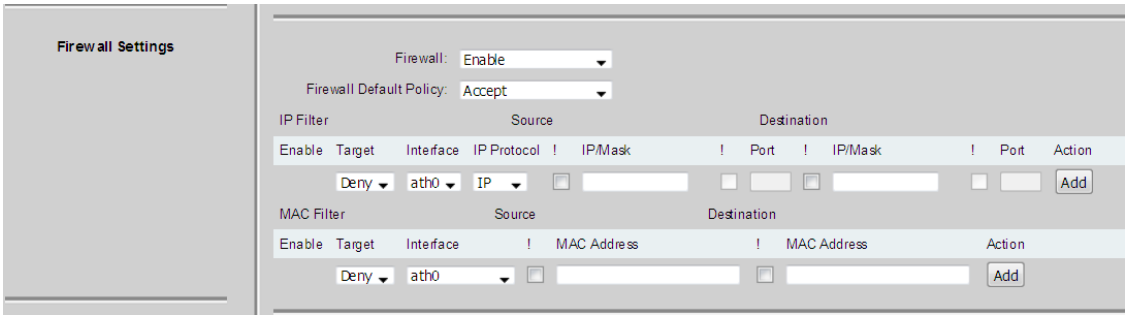

Figure 7-3 Firewall

1. Accept one or several devices with particular MAC address.
2. Deny one or several devices with particular MAC address.
3. Accept one or several devices with particular IP address.
4. Deny one or several devices with particular IP address.

7.5 IP Aliases

Add multiple IP to a network interface.

7.6 Static Routes

This feature can be used to set static routing.

7.7 Traffic Shaping

Traffic shaping is used to control the traffic of ingress/egress based on each network port. As show below, the ingress of ath0 is limited to 1024Kbps, and the egress is limited to 2048Kbps. That means the receiving rate of the wireless link is limited within 1Mbps, the sending rate is limited to less than 2Mbps. But usually, the input limited effect is not obviously, that's because we could not control how quickly the traffic arrives. However, when a port sends out egress traffic, it can control how quickly the traffic exits.

Burst defines the how many bytes allowed for downloading/uploading during a short time. That leads to momentary throughput can greater than the limit value.

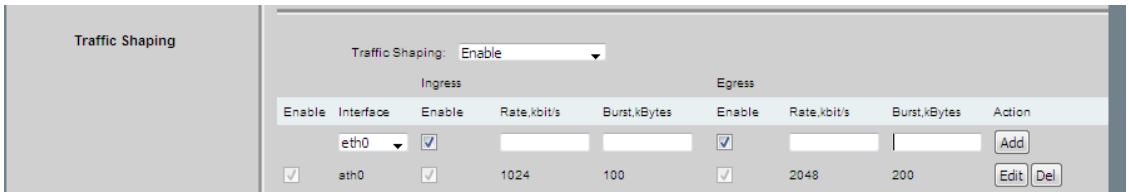

Figure 7-4 Traffic Shaping

- Ingress traffic entering ath0, control the input rate
- Egress traffic exiting ath0, control the output rate

The relationship of rate and burst for ingress:

- Set burst to 0, the rate of ingress is unlimited
- Set burst to about 1/10 of rate limit, the rate curve is stable
- Set burst larger than rate limit, the rate curve will hold a high value for a while then down to stable

Below is the table that reflects the relationship between ingress rate limit and burst.

Ingress		Throughput when reach stable	
Rate Limit(kbps)	Burst(Kbytes)	Mbps	Description
10000	0	29.587	Unlimited
10000	10	4.286	Stable
10000	100	8.037	Oblique up to stable
10000	1000	8.825	From 9.5 down to stable
10000	10000	8.6	From 28.5 down to stable
10000	40000	8.6	Hold on 10 seconds at 29.6, then suddenly down to stable

The relationship of rate and burst for egress:

- Set burst less than 1/10 of rate limit, the rate curve is stable totally
- Set burst larger than rate limit, the rate curve will hold a while at a higher value then down to stable

Below is the table that reflects the relationship between egress rate limit and burst.

Egress		Throughput when reach stable	
Rate Limit(kbps)	Burst(Kbytes)	Mbps	Description
20000	0	18.853	Stable
20000	20	19.021	Stable
20000	200	19.205	Stable
20000	2000	19.437	From 23.5 down to stable
20000	20000	19.2	Hold on 20 seconds at 24.5, then suddenly down to stable
20000	80000	19.2	Hold on several minutes at 24.5, then suddenly down to stable

7.8 VLAN Settings

The VLAN function allows user to create multiple virtual local area network. As show below, we add a VLAN on port ath0. The VLAN ID is 10. The range of VLAN ID is 2~4094. Each VLAN ID represents a different VLAN.

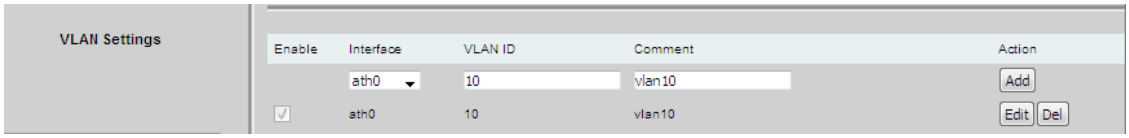

Figure 7-5 VLAN

Bridge function is needed to be used together with VLAN. As show below, we add VLAN 10 on port eth0 and ath0, they are eth0.10 and ath0.10, and put them into the same bridge. The packets from eth0.10 or ath0.10 will be added a VLAN label which ID is 10. That requires: the opposite wireless connection side must support VLAN 10, the device which connects with eth0 is also need to support VLAN 10.

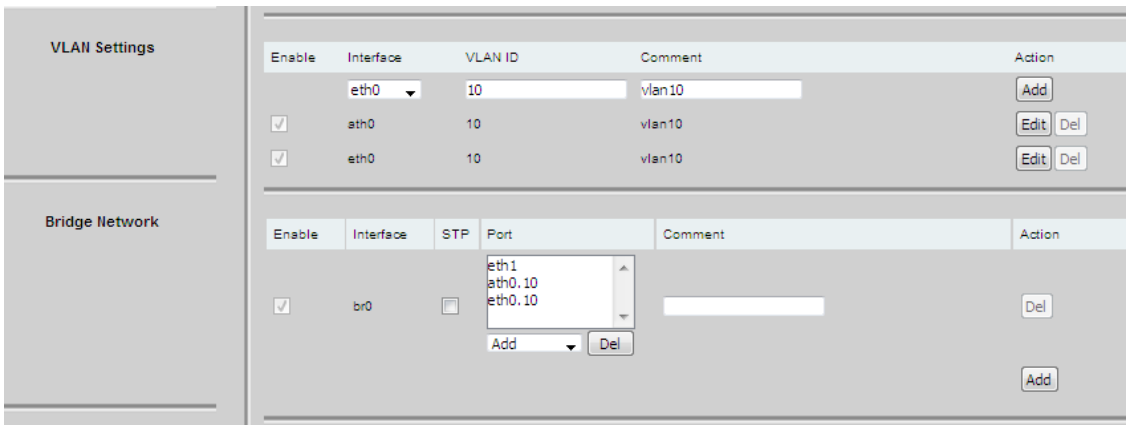

Figure 7-6 VLAN Setting

Below is a common usage:

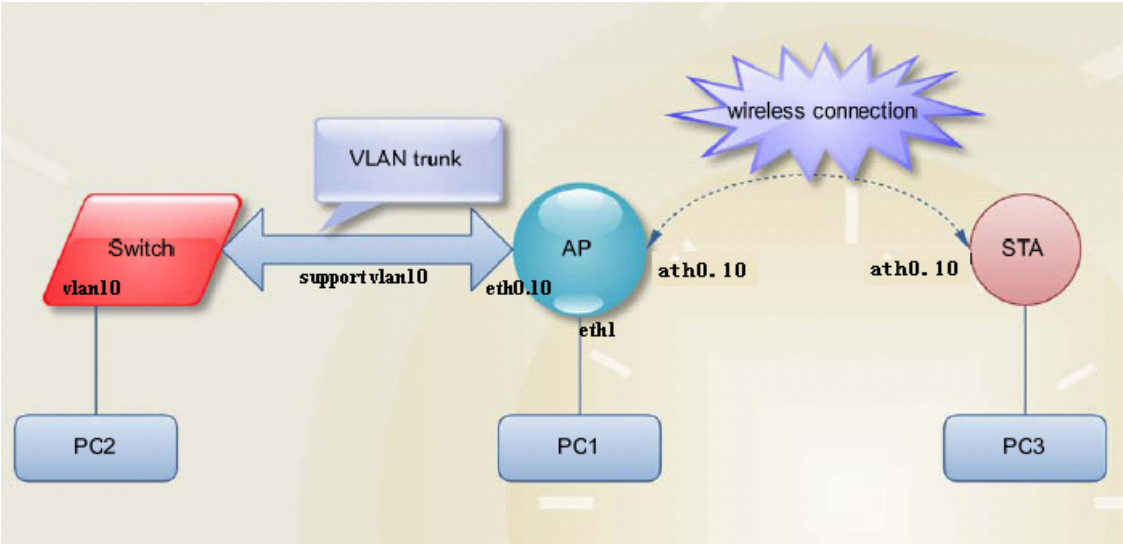

Figure 7-7 VLAN Scenarios

Chapter 8 Advanced

The Advanced page is shown in figure.

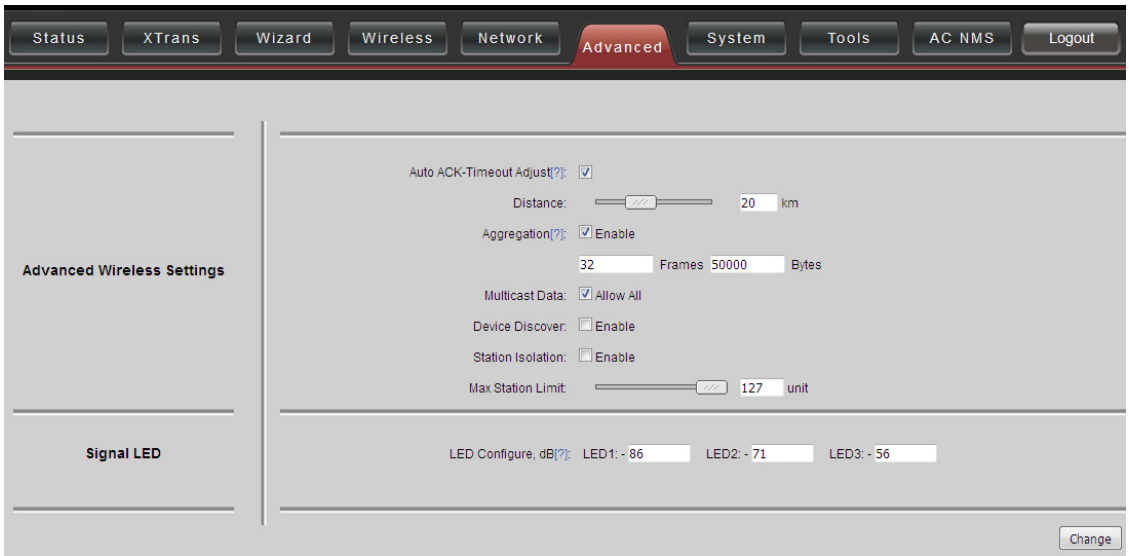

Figure 8-1 Advanced

Auto ACK-Timeout Adjust: It is suggested to enable this function, so that the distance between 2 DS-3WF03C-D devices can be detected and all the related parameters can be optimized to achieve the best link quality.

Distance: The distance can be set manually if the Auto ACK-Timeout Adjust is disabled, otherwise, the distance parameter is not allowed to be set. It is suggested the distance is set automatically by enabling Auto ACK-Timeout Adjust parameter.

Aggregation: It enables several data frames of 802.11 to be aggregated and transmitted out, thus improve the throughput. In default, it's enabled.

Multicast Data: When it's enabled, DS-3WF03C-D devices allow multicast function.

Device Discover: This feature should be used with the Hikvision tool. The tool window will display the MAC address of the device, IP address, and product name and so on.

NOTE

When the equipment is found by wireless way, please keep multicast support enabled.

Station Isolation: Enabling this feature can make connection with an access point, the WDS access points, WDS repeater equipment cannot communicate with each other, even though the client IP duplicate nor of communication have any impact.

Max Station Limit: By setting it to limit the number of clients and WDS clients that are connected to an access point, a WDS access point, a WDS repeater.

LED configure: This is to configure the signal strength value needed to light on. There are 3 LEDs on DS-3WF03C-D devices (LED3 value > LED2 value > LED1 value). The default values are -86dBm, -71dBm and -56dBm. When LED1 value < signal strength < LED2 value, LED1 is lighted on; When LED2 value < signal strength < LED3 value, both the LED1 and LED2 are lighted on; When signal strength > LED3 value, all three LEDs are lighted on.

Chapter 9 System

System page is shown in figure, and it is divided into the following 4 parts: Configuration, Firmware, Device Setting, Accounts.

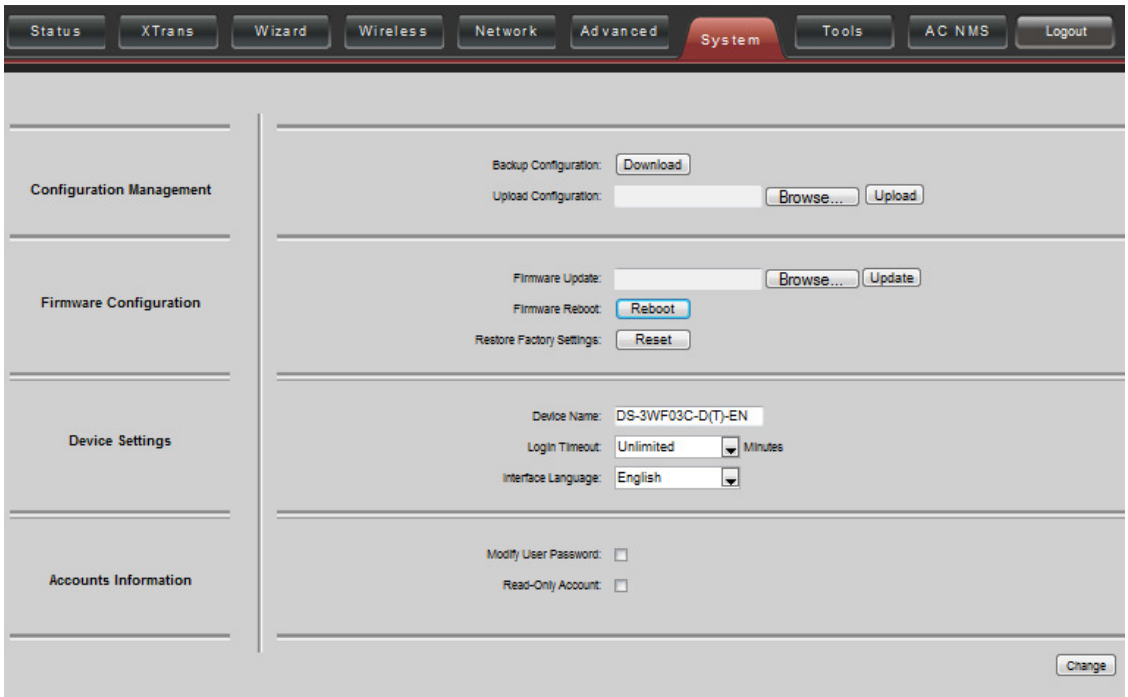

Figure 9-1 System Page

Backup configuration: When clicking Download button, the current configuration can be backed up to a file.

Upload configuration: When clicking browse, user can choose the backup configuration file and then click upload, so that the configuration stored in the backup file can be applied.

Firmware update: Click browse button and choose the file, and then click update button, the firmware can be updated to the latest version.

Firmware reboot: Click the Reboot button to reboot the device.

Restore Factory Settings: Click the Reset button to restore to the factory default settings.

Device name: It can be set to any name needed.

Login Timeout: Login Timeout setting.

Interface Language: Language setting.

Accounts: The user can modify the name and password of user and Read-Only Account.

Chapter 10 Tools

The Tools page is shown in figure.

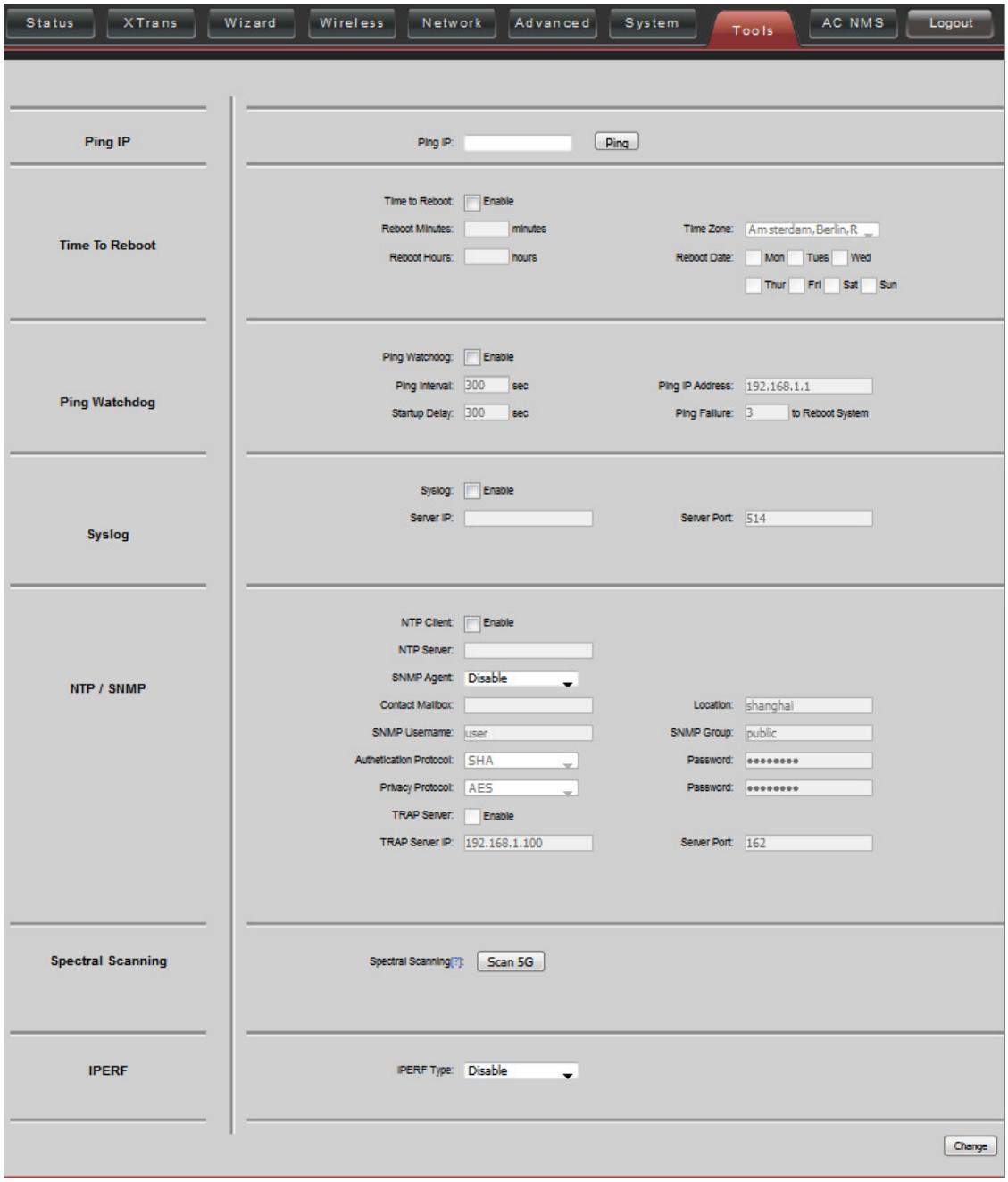

Figure 10-1 Tools

Ping IP: User can input the destination IP address of another device, and click Ping button. If that destination device is successfully connected to the DS-3WF03C-D device, the result shows Alive, otherwise shows Not Alive.

Time To Restart: Timing restart equipment.

Ping Watchdog: The ping watchdog sets the DS-3WF03C-D Device to continuously ping a user-defined IP address (for example, it can be the IP address of the AP the Client is connecting to). If it is unable to ping under the user defined constraints, the DS-3WF03C-D device will automatically reboot. It is highly recommended that users enable this feature at the side of "Station" and disable this feature at the side of "Access Point".

Ping Interval: Specify time interval (in seconds) between the ping requests are sent by the Ping Watchdog

Ping IP Address: Specify an IP address of the target which will be monitored by Ping Watchdog. If this feature is enabled at the side of "Station", Ping IP Address should be the IP address of the AP the Client is connecting to.

Startup Delay: Specify initial time delay (in seconds) until first ping request is sent by the Ping Watchdog

Ping Failure: Specify the number of ping replies. If the specified number of ping replies is not received continuously, the Ping Watchdog will reboot the device.

NOTE

If users want to modify the parameters of Ping Watchdog, please disable it first and then apply. When the web page shows that Ping Watchdog is really disabled, users can now re-enable it with modified parameters.

Telnet/Syslog: When telnet is enabled, the user can input command "Telnet 192.168.1.36" in the DOS window of Windows XP or Windows 7 PC, and then telnet to the DS-3WF03C-D and manipulate the DS-3WF03C-D device. When telnet is disabled, this operation is disabled.

When Syslog is enabled, and the System Log server's IP is also set here, the log information will be output to the Syslog server automatically.

NTP/SNMP: If this NTP server is set, and the DS-3WF03C-D device can access to this NTP server. DS-3WF03C-D device automatically calibrate the time and date information with the NTP server and show the time information in the Status page.

When SNMP is enabled, use can check the working condition and information of the DS-3WF03C-D device.

Spectral Scanning: Spectral scanning function can view around the 20MHz bandwidth frequency of the use situation; this can help you configure the device to avoid busy frequency. If you run the spectral scanning, you cannot do any configuration operations on the device page. If you want to configure the device again, you only need to click the exit button in the spectral scanning web page to exit.

IPERF: Test equipment throughput. Device 1 select the "server" and the IPERF interval is the time to display the throughput of the web page. Device 2 select "client" and the IPERF server to fill in the IP address of the device 1. The number of IPERF threads for testing the number of threads running at the same time, it is recommended to set up 10. IPERF test time for running IPERF seconds. IPERF interval time is the time for the display of the throughput of the web page. For testing, please click the "Test" button.

Chapter 11 AC Management

AC Management page is shown in figure. After this function is enabled, the AC management system must be used.

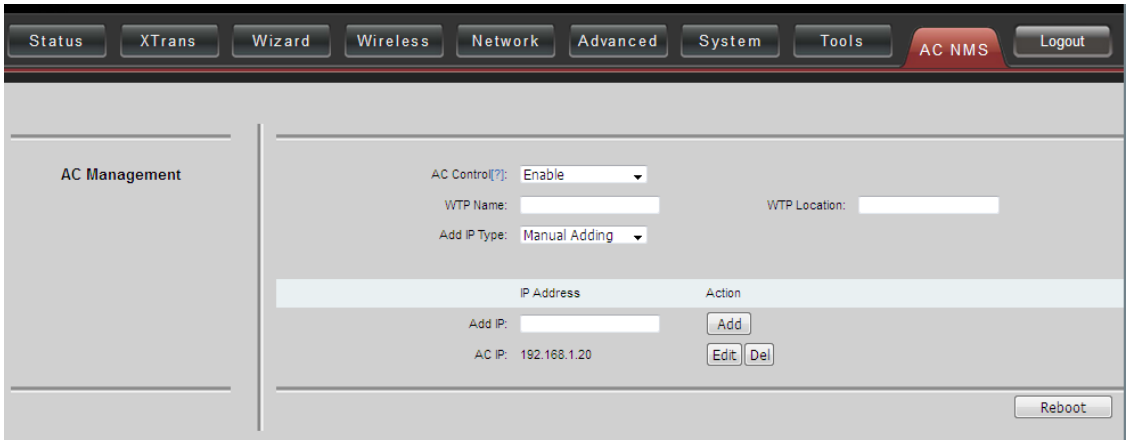

Figure 11-1 AC Management

WTP Name: It's the name of the device that is displayed on the AC.

WTP Location: It's the location information that is displayed on the AC.

AC IP: This IP address can add up to eight, add the IP address is AC management interface's IP and equipment is the same segment. After the AC control function is enabled, click save, application, this time the device will take effect on the AC configuration and restart, the device will join AC. After the AC control function is enabled, the user is able to display the current state of the page on the device page. After the AC control function is disabled, the user is able to modify the device's page.

NOTE

The client must be able to join the AC after it is connected to an access point that has been joined to the AC.

Chapter 12 Logout

When you click logout button, the web will quit and return to the login web.

Chapter 13 Network Configuration Examples

13.1 AP and Station Network

In the point-to-point working scenario, user can configure one DS-3WF03C-D device to AP, and another to station mode, shown in figure.

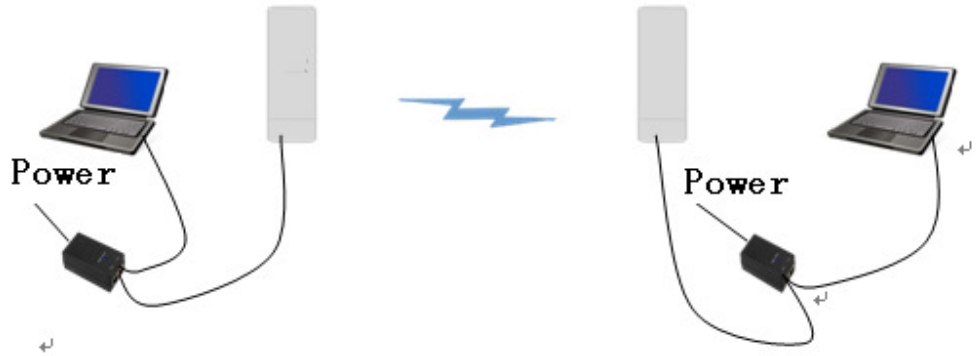

Figure 13-1 AP and Station network

To make the above network work, user need to use computers to configure the 2 devices, and the detail configurations are described in the following:

1 Configure the 2 DS-3WF03C-D devices to bridge mode, and disable the firewall, and set different LAN IP for the 2 devices.

2 In wireless menu, configure the 2 devices to AP and station separately, set the same SSID, the same channel bandwidth (20MHz for default), and set the same encryption and password for both of the devices.

3 After the above setting is done, using one computer to ping the IP address of the other computer, if they are connected, user can watch the connection status in the Status page.

Chapter 14 Appendix-A Troubleshooting

1. The device cannot be started after power on.

1) The Ethernet cable between the DS-3WF03C-D device and the POE adaptor is more than 40 meters long.

2) The Ethernet cable quality is not good enough, and it should be Cat 5e or even Cat 6 cable.

3) The RJ-45 plugs are not well connected.

2. Cannot be restored to the factory setting

Please manually push the Reset button for 5~10 seconds until all LEDs are light on, then the user can log in the device by typing the default IP address 192.168.1.36/192.168.1.35.

3. My computer cannot be connected to the DS-3WF03C-D Access Point.

Please try the following method to solve the problem:

1) Adjust the direction of the DS-3WF03C-D device.

Please rotate the DS-3WF03C-D device since the antenna inside the device is directional.

2) Switch to other wireless channel

Switch to other wireless channel cause there are much interferences in this channel.

3) Turn off the other interference sources

Maybe there are other WIFI devices nearby and cause interferences. Try to turn off other WIFI devices nearby, or move DS-3WF03C-D to another clean environment.

4. The signal strength between 2 DS-3WF03C-D devices is too weak, and throughput is low.

1) The DS-3WF03C-D AP and Station devices are not Line-of-Sight, or there are blocks like a building in between the AP and Station devices.

2) The Station device and AP device is not aligned very well, including both horizontally and vertically, since the antenna of the DS-3WF03C-D is directional.

3) The Station device is installed in the windows, and the windows glass shields the wireless signal.

4) The distance between the AP and Station devices is too far.

5. The signal strength is high, but the throughput is low

1) There are too much interferences, or multi-path interferences. For example, there are too much 2.4GHz or 5.8GHz WIFI device working nearby.

2) The RJ45 ports of the DS-3WF03C-D device don't work well.

6. During the point-to-point or point-to-multi-point connection, when ping from one device to another, the latency is too long or the packet is lost.

1) Isolate the several APs if they are connected to one POE switch.

2) The RJ45 ports are not connected very well.

7. The internet access is lost and the internet speed is low.

1) There are too much stations connected to one AP.

2) AP signal is too weak.

3) There are interference sources nearby.

4) Check the number of users and the max internet speed provided by the ISP.

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