APR-3100N Series

Industrial AP/VPN/Router

IEEE 802.11a/b/g/n

User Manual

Version 1.0

www.antaira.com

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FCC Warning

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. It may cause harmful interference to radio communications if the equipment is not installed and used in accordance with the instructions. 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.

Caution: Any changes or modifications not expressly approved by the grantee of this device 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.

CE Mark Warning

This is a Class-B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

RF Exposure Warning

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment. The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

ICES 003 Statement

This Class B digital apparatus complies with Canadian ICES-003.

Industry Canada Statement:

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject 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.

Declaration of Conformity

Antaira declares the following:

Product Type: Wireless Industrial Router

Model No.: APR-3100N conforms to the following product standards:

This device complies with the Electromagnetic Compatibility Directive (89/336/EEC) issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European Norms (in brackets are the equivalent international standards.)

Electromagnetic Interference (Conduction and Radiation): EN 55022 (CISPR 22)

Electromagnetic Immunity: EN 55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11)

Low Voltage Directive: EN 60 950: 1992+A1: 1993+A2: 1993+A3: 1995+A4: 1996+A11: 1997.

Therefore, this product is in conformity with the following regional standards: **FCC Class B:** following the provisions of FCC Part 15 directive, **CE Mark:** following the provisions of the EC directive.

Antaira also declares that:

The wireless card in this product complies with the R&TTE Directive (1999/5/EC) issued by the Commission of the European Community. Compliance with this directive implies conformity to the following:

- **EMC Standards: FCC: 47 CFR Part 15, Subpart B, 47 CFR Part 15, Subpart C (Section 15.247); CE: EN 300 328-2, EN 300 826 (EN 301 489-17)**

Therefore, this product is in conformity with the following regional standards: **FCC Class B**: following the provisions of FCC Part 15 directive, **CE Mark:** following the provisions of the EC directive.

Industrial Wireless Router

Antaira’s Industrial Wireless Ethernet Router

User Manual

Version 1.0 (November 2014)

This manual supports the following models:

- APR-3100N

This document is the current official release manual. Please check our website (www.antaira.com) for any updated manual or contact us by e-mail (support@antaira.com).

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1. Introduction

Antaira Technologies' industrial wireless devices come with a pre-installed "user friendly" web console interface, which allows users to easily configure and manage units.

1.1 Product Overview

Antaira's APR-3100N series of wireless routers is designed to operate within industrial environments. The router provides a fast and effective means of communicating over a LAN via a wired or wireless connection. Multiple WAN connection types are provided for easy access to the internet. The APR-3100N series is an 802.11a/b/g/n high-performance wireless device. It is capable of data transfer rates up to 300 Mbps. It is easy to extend the reach and number of computers connected to your wireless network. The APR-3100N wireless router's VPN capability creates encrypted "tunnels" through the internet, allowing a remote office or traveling users to securely connect into the user's corporate network from off-site.

It is a fully manageable industrial Ethernet device that supports the standard Layer 3 Ethernet configurable settings. This product series is IP30 rated and DIN-rail mountable that provides a standard operating temperature range (-10°C to 60°C) and an extended operating temperature range (-35°C to 75°C).

1.2 Product Software Features

- Effortless installation via configurable Universal Plug and Play (UPnP) integration with an intuitive Graphical User Interface (GUI) on UPnP-supported operating systems (Windows ME and XP).
- Intuitive web-based management interface to simplify operation and support.
- Ethernet connectivity to the Internet or network through a network interface card (NIC), providing 10/100 Mbps to the port.
- Firewall that provides many security features such as blocking common hacker attacks, including IP Spoofing, Ping flood, Stealth Scan, ICMP flooding etc.
- Advanced firewall released configuration to extend the capability and security, including a virtual server, port trigger, DMZ host, UPnP auto forwarding, IP filter and MAC filter.

1.3 Product Hardware Features

- System Interface and Performance
  - All RJ-45 ports support Auto MDI/MDI-X Function
  - Store-and-forward switching architecture
  - 8K MAC address table
- Power Input
  - DC 12~48V redundant with a 6-pin removal terminal block
  - One user programmable alarm relay contact
- Operating Temperature
  - Standard operating temperature models: -10°C to 60°C
  - Extended operating temperature models: -35°C to 75°C
- Case/Installation
  - IP-30 protection metal housing
  - Grounding Screw for protection
  - DIN-Rail and wall mount design

1.4 Package Contents

- 1– APR-3100N series: Industrial 802.11 a/b/g/n Access Point/VPN/Router
- 2- Reverse SMA connector antennas
- 1-Product CD
- 1- Din-Rail & wall mounting bracket with screws
- 1-RJ45 to DB9 serial console cable

1.5 Safety Precaution

Attention: If the DC voltage is supplied by an external circuit, please use a protection device on the power supply input. The industrial APR-3100N series hardware specs, ports, cabling information, and wiring installation will be described within this user manual.

2. Hardware Description

2.1 Physical Dimensions

Figure 2.1, below, shows the physical dimensions of Antaira's APR-3100N series: industrial 802.11a/b/g/n access point/VPN/router.

(W x D x H) is **46mm x 115mm x 155mm**

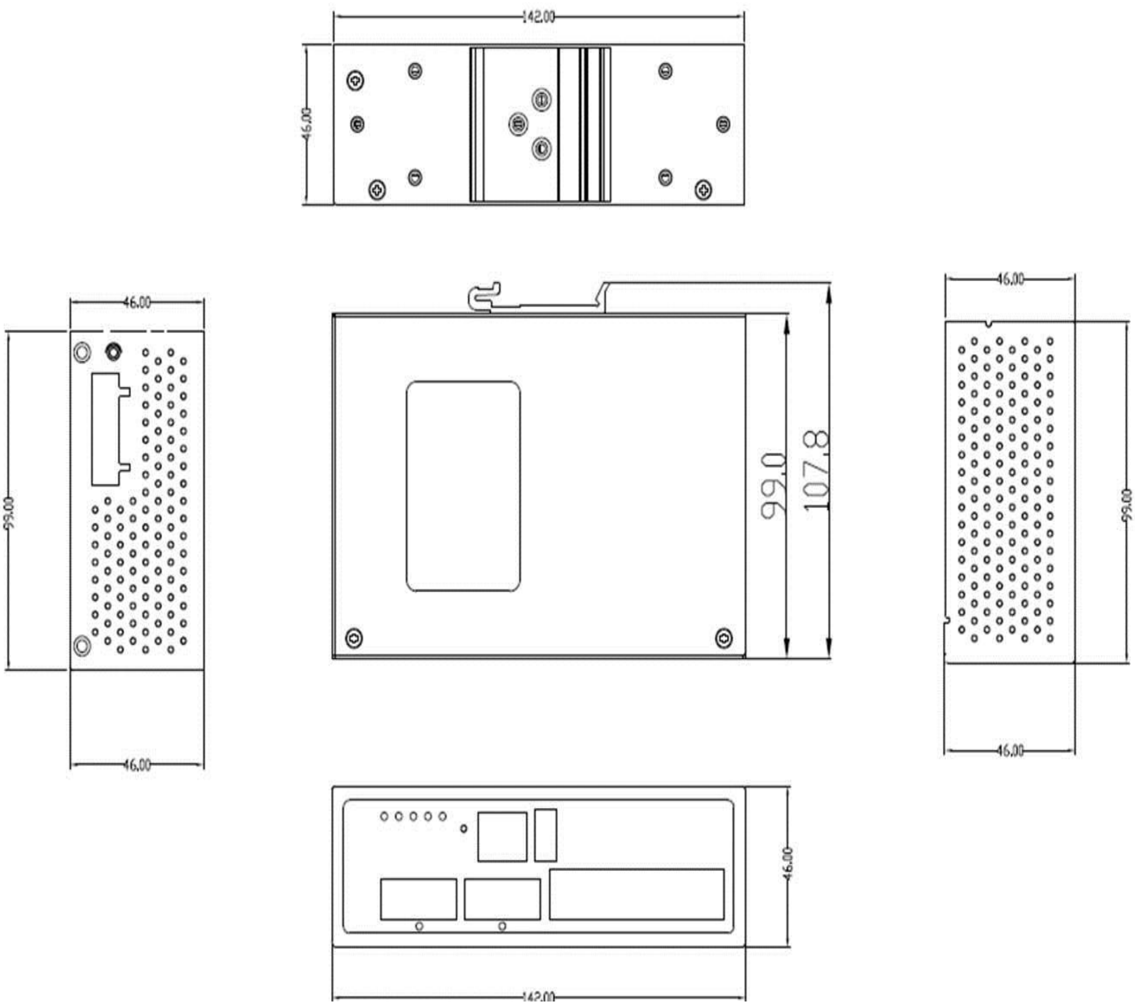


Figure 2.1

APR-3100N Series Physical Dimensions

2.2 Front Panel

The front panel of the APR-3100N series: industrial 802.11a/b/g/n access point/VPN/router is shown below in *Figure 2.2*.

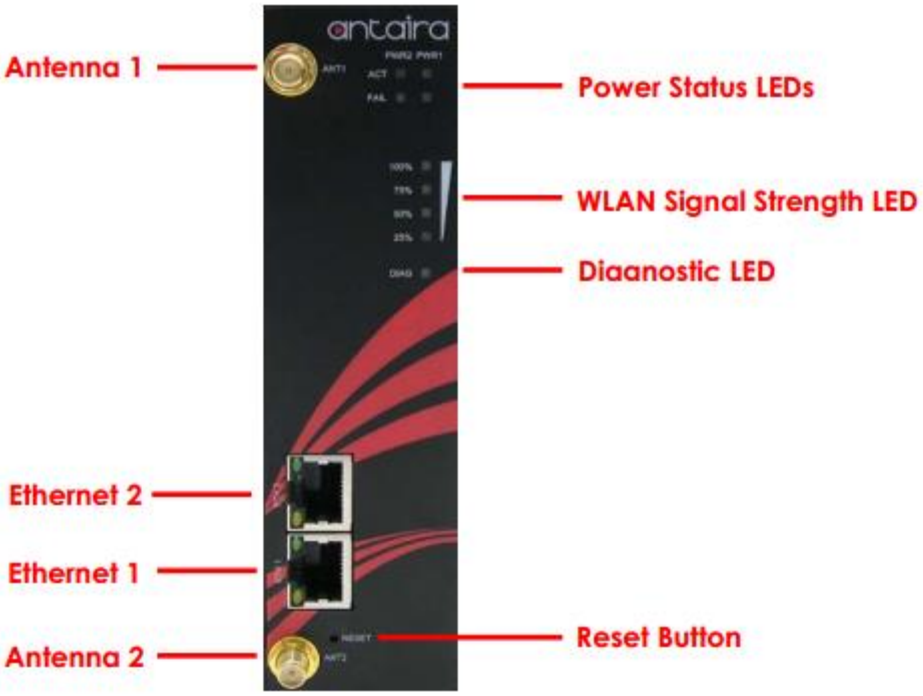


Figure2.2

The Front Panel of APR-3100N Series

2.3 Top View

Figure 2.3, below, shows the top panel of the APR-3100N series that is equipped with one 6-pin removal terminal block connector for dual DC power inputs (12~48VDC).

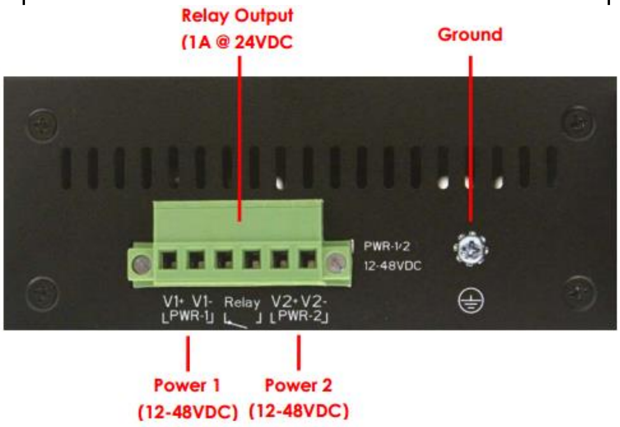


Figure2.3

Top Panel View of APR-3100N Series

2.4 LED Indicators

There are LED light indicators located on the front panel of the industrial access point/VPN/router that display the power status and network status. Each LED indicator has a different color and has its own specific meaning (*Table 2.1)*.

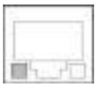
LED	Color	Description	
ACT	PWR1	Green	Powerinput1is active
		Off	Powerinput1isinactive
	PWR2	Green	Powerinput2is active
		Off	Powerinput2isinactive
Fail	PWR1	Red	No Power going into PWR1
		Off	Power detected going into PWR1
	PWR2	On	No Power going into PWR2
		Off	Power detected going into PWR2
Diag	Green	Blinking	Unit not ready/ Boot sequence
		Off	Unit is ready
WLAN	Green/Red	Red	LED 1 < 25%
		Green	LED 2 < 50%
		Green	LED 3 < 75%
		Green	LED 4 < 100%
LAN Port 1 & 2		On	Connected to network, 10/100Mbps
		Flashing	Networking is active
		Off	Not connected to network

Table 2.1

LED Indicators for APR-3100N Series

2.5 Ethernet Ports

- **RJ-45 Ports**

RJ-45 Ports (Auto MDI/MDIX): The RJ-45 ports are auto-sensing for 10Base-T and 100Base-Tx connections. Auto MDI/MDIX means that the switch can connect to another switch or workstation without changing the straight-through or crossover cabling. See the figures below for the straight-through and crossover cabling schematics.

- **RJ-45 Pin Assignments** (Table 2.2)

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

Table 2.2
RJ45 Pin Assignments

Note *"+" and "-" signs represent the polarity of the wires that make up each wire pair.*

All ports on this industrial Ethernet switch support the automatic MDI/MDI-X operation. Users can use straight-through cables (see the figure below) for all network connections to PCs, servers, other switches and hubs. With straight-through cable pins 1, 2, 3, and 6, at one end of the cable are connected straight through to pins 1, 2, 3 and 6 at the other end of the cable. The table below (*Table 2.3*) shows the 10BASE-T and 100BASE-Tx MDI and MDI-X port pin outs.

Pin MDI-X	Signal Name	MDI Signal Name
1	Receive Data plus (RD+)	Transmit Data plus (TD+)
2	Receive Data minus (RD-)	Transmit Data minus (TD-)
3	Transmit Data plus (TD+)	Receive Data plus (RD+)
6	Transmit Data minus (TD-)	Receive Data minus (RD-)

Table 2.3

Ethernet Signal Pin Outs

The following figures show the cabling schematics for straight-through and crossover.

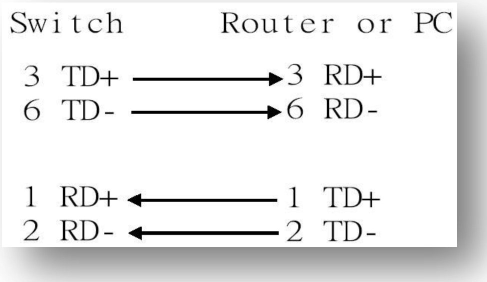


Figure 2.5
Straight-Through Cable Schematic

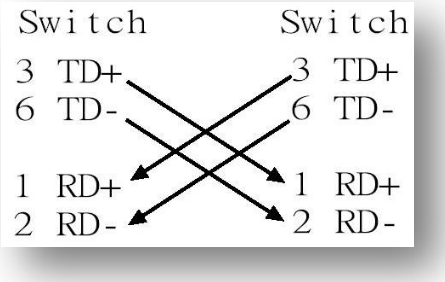


Figure 2.4
Crossover Cable Schematic

2.6 Cabling

- Twisted-pair segments can be connected with an unshielded twisted pair (UTP) or shielded twisted pair (STP) cable. The cable must comply with the IEEE 802.3u 100BaseTx standard (e.g. Category 5, 5e, or 6). The cable between the equipment and the link partner (switch, hub, workstation, etc.) must be less than 100 meters (328 ft.) long.

2.7 Wiring the Power Inputs

Please follow the steps below to insert the power wire.

1. Insert the positive and negative wires into the PWR1 (V1+, V1-) and PWR2 (V2+, V2-) contacts on the terminal block connector as shown below in *Figure 2.7*.

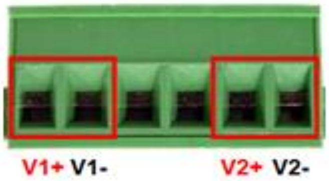


Figure 2.7

Power Terminal Block

2. Tighten the wire-clamp screws to prevent the wires from loosening, as shown below in *Figure 2.8*.

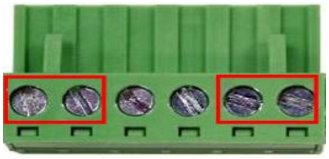


Figure 2.8

Power Terminal Block

Note	• *Only use copper conductors, **60/75°C**, tighten to **5lbs.** • *The wire gauge for the terminal block should range between **18~20 AWG**.*

2.8 Wiring the Fault Alarm Contact

The fault alarm contact is in the middle of the terminal block connector as the picture shows below. An application example for the fault alarm contact is shown below in *Figure 2.9*.

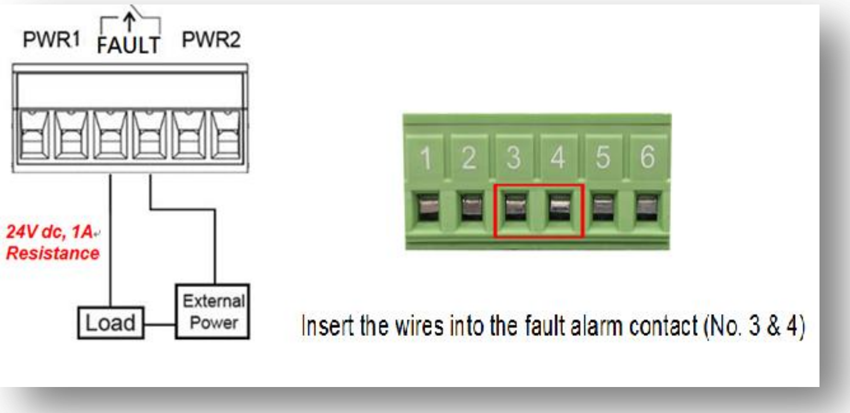


Figure 2.9

Wiring the Fault Alarm Contact

Note	•	*The wire gauge for the terminal block should range between* ***12 ~ 24AWG***

3. Mounting Installation

3.1 DIN-Rail Mounting

The DIN-Rail is pre-installed on the industrial router from the factory. If the DIN-Rail is not on the industrial Ethernet switch, please see *Figure 3.1* to learn how to install the DIN-Rail on the switch.

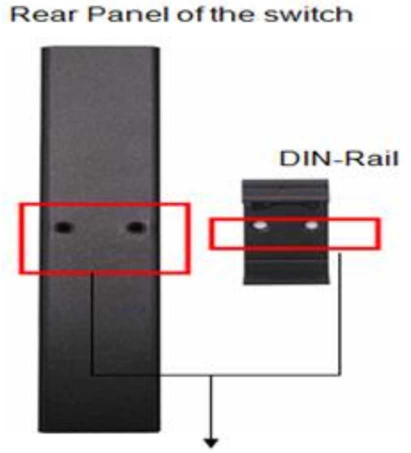


Figure 3.1

The Rear Side of the Switch and DIN-Rail Bracket

Follow the steps below to learn how to hang the industrial router.

1. Use the screws to install the DIN-Rail bracket on the rear side of the industrial Ethernet switch.
2. To remove the DIN-Rail bracket, do the opposite from step 1.
3. After the DIN-Rail bracket is installed on the rear side of the switch, insert the top of the DIN-Rail on to the track as shown below in *Figure 3.2*.
4. Lightly pull down the bracket on to the rail as shown below in *Figure 3.3*.
5. Check if the bracket is mounted tightly on the rail.
6. To remove the industrial Ethernet switch from the rail, do the opposite from the above steps.

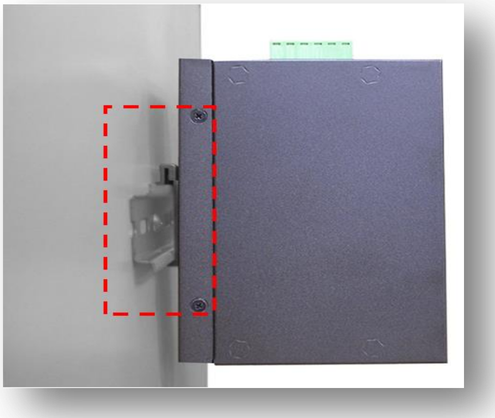


Figure 3.2

Insert the Switch on the DIN-Rail

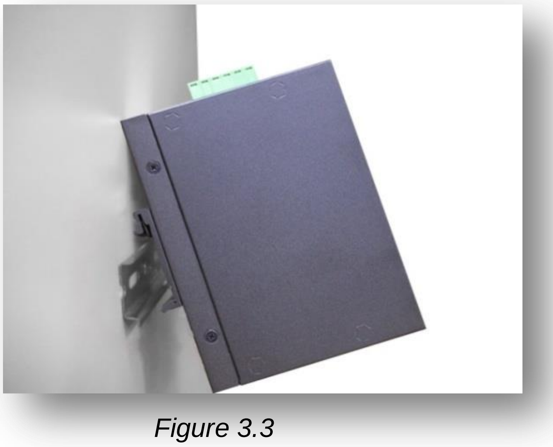


Figure 3.3

Stable the Switch on DIN-Rail

3.2 Wall Mounting

Follow the steps below to mount the industrial Ethernet switch using the wall mounting bracket as shown below in *Figure 3.4*.

1. Remove the DIN-Rail bracket from the industrial Ethernet switch by loosening the screws.
2. Place the wall mounting bracket flush with the back of the industrial Ethernet switch.
3. Use the screws to screw the wall mounting bracket on the industrial Ethernet router.
4. Use the hook holes at the edges of the wall mounting bracket to hang the industrial Ethernet switch on the wall.
5. To remove the wall mount bracket, do the opposite from the steps above.

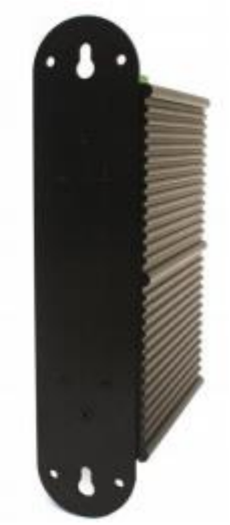


Figure 3.4

Wall Mounting Bracket on the Router

4. Hardware Installation

4.1 Installation Steps

This section will explain how to install Antaira's APR-3100N series: industrial IEEE 802.11a/b/g/n access point/VPN/router.

Installation Steps

1. Unpack the industrial Ethernet router from the original packing box.
2. Check if the DIN-Rail bracket is screwed on the industrial Ethernet router.
    - If the DIN-Rail is not screwed on the industrial Ethernet router, please refer to the **DIN-Rail Mounting** section for DIN-Rail installation.
    - If you want to wall mount the industrial Ethernet router, please refer to the **Wall Mounting** section for wall mounting installation.
3. To hang the industrial Ethernet router on a DIN-Rail or wall, please refer to the **Mounting Installation** section.
4. Power on the industrial Ethernet router and then the power LED light will turn on.
    - If you need help on how to wire power, please refer to the **Wiring the Power Inputs** section.
    - Please refer to the **LED Indicators** section for LED light indication.
5. Prepare the twisted-pair, straight-through category 5 cable for Ethernet connection.
6. Insert one side of the RJ-45 cable into router's Ethernet port and on the other side into the networking device's Ethernet port, e.g. switch, PC or server. The Ethernet port's (RJ-45) LED on the industrial Ethernet router will turn on when the cable is connected to the networking device.
    - Please refer to the **LED Indicators** section for LED light indication.
7. When all connections are set and the LED lights all show normal, the units connection is complete.

5. Web Management

5.1 Web Console Configuration

This section introduces the configuration by web browser.

5.1.1 About Web-Based Management

All of Antaira's industrial managed routers are embedded with HTML web console interfaces that have a flash memory on the CPU board. It is a "user friendly" design with advanced management features that allow users to manage the router from anywhere on the network through any Internet browser, such as Internet Explorer (version 9.0 or above is recommended), Firefox, Chrome and many more.

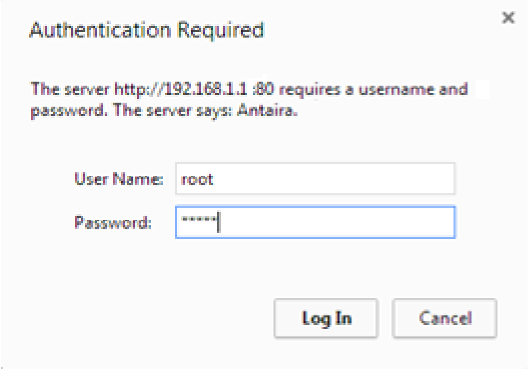
Preparing for Web Console Configuration

Antaira's industrial router comes with a factory default value outlined below:

- Default IP Address: **192.168.1.1**
- Default User Name: **root**
- Default Password: **admin**

System Login

1. Launch any Internet browser
2. Type in factory default IP address: http://192.168.1.1 of the router. Press "**Enter**".
3. The login screen appears.


Authentication Required

The server http://192.168.1.1 :80 requires a username and password. The server says: Antaira.

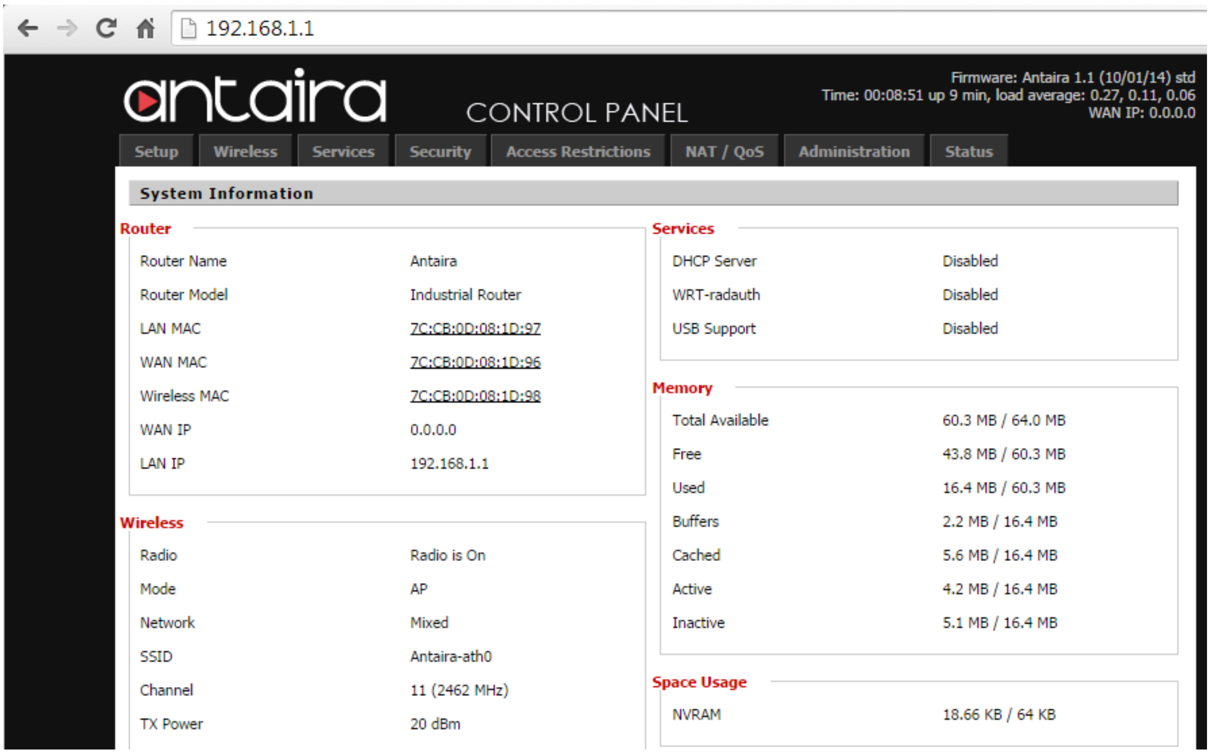
User Name: root

Password: *****

Figure 5.1 - Web Console "Login"

4. Key in the default username: **root** and password: **admin**.

5. Click the “Login” button, then the main (status) page of the web console will appear.



Firmware: Antaira 1.1 (10/01/14) std
Time: 00:08:51 up 9 min, load average: 0.27, 0.11, 0.06
WAN IP: 0.0.0.0

System Information

Router	
Router Name	Antaira
Router Model	Industrial Router
LAN MAC	7C:CB:0D:08:1D:97
WAN MAC	7C:CB:0D:08:1D:96
Wireless MAC	7C:CB:0D:08:1D:98
WAN IP	0.0.0.0
LAN IP	192.168.1.1

Wireless	
Radio	Radio is On
Mode	AP
Network	Mixed
SSID	Antaira-ath0
Channel	11 (2462 MHz)
TX Power	20 dBm

Services	
DHCP Server	Disabled
WRT-radauth	Disabled
USB Support	Disabled

Memory	
Total Available	60.3 MB / 64.0 MB
Free	43.8 MB / 60.3 MB
Used	16.4 MB / 60.3 MB
Buffers	2.2 MB / 16.4 MB
Cached	5.6 MB / 16.4 MB
Active	4.2 MB / 16.4 MB
Inactive	5.1 MB / 16.4 MB

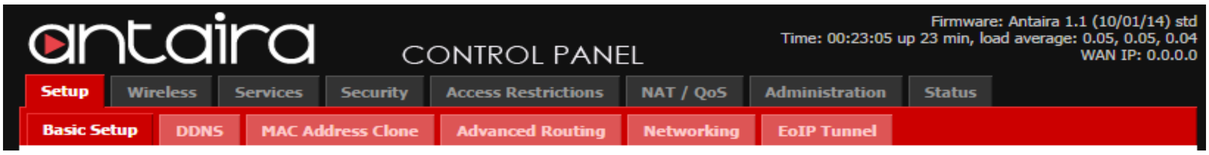
Space Usage	
NVRAM	18.66 KB / 64 KB

Figure 5.2.

The online image of the switch will display the real-time ports connection status.

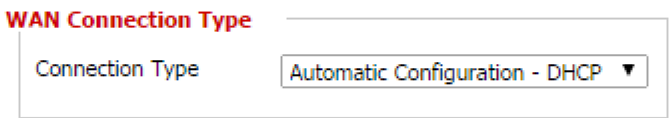
5.2 Setup

5.2.1 Basic Setup



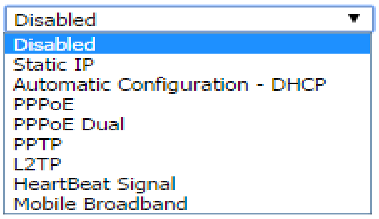
Firmware: Antaira 1.1 (10/01/14) std
Time: 00:23:05 up 23 min, load average: 0.05, 0.05, 0.04
WAN IP: 0.0.0.0

5.2.1.1 WAN Setup



WAN Connection Type

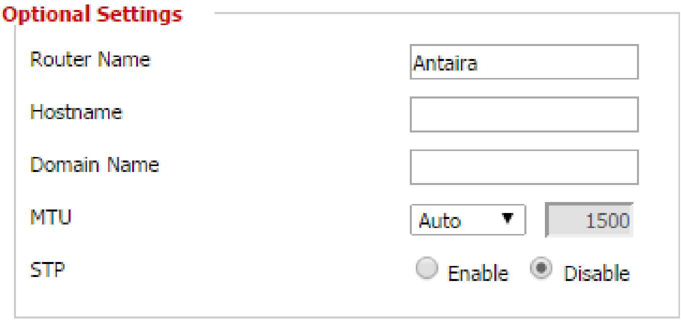
Connection Type: Automatic Configuration - DHCP ▼



WAN Connection Type	Description
Disabled	The WAN port is disabled.
Static IP	A static IP address will be used.
	Required: IP address, subnet mask, gateway and server to be entered manually.
Automatic Configuration- DHCP	The router obtains its WAN-side IP address from a DHCP server.
PPPoE	Configure as a PPPoE-Client.
	Username and Password are required. **Advanced Options:** Service Name, T-Home VLAN 7 Support, PPP Compression, MPPE Encryption, Single Line Multi Link and Connection Strategy.
PPPoE Dual	Allows the users to set multiple paths of the WAN. (Used in Russia)
PPTP	Establishes a connection via PPTP.
	Required: Gateway, Username, Password, and encryption information.
L2TP	Establishes a connection via L2TP.
	Required: Gateway, Username, Password, and encryption information.
HeartBeat Signal	Short frames sent by the wireless device that contain information such as the SSID, encryption information, data rates and other information. This information is only used if the ISP supports heartbeat signals. **Note that HeartBeat signals are

	only used in Australia. **
Mobile Broadband	Used for LTE cellular routers.
Username/Password	Enter the username and password used when logging onto the ISP through a PPPoE or PPTP connection.
Dial String	Used for different types of speeds and service providers. AT&T uses *99***1#(UMTS/3G/3.5G) Verizon uses *99***3#(UMTS/3G/3.5G)
APN	Access Point Name is the name of a gateway between a GPRS, 3G or 4G mobile network and another computer network (typically the internet). For AT&T version units use “broadband” as the APN. For Verizon version units use “vzwinternet” as the APN.
Connection Type	The LTE connection type that is being made.

5.2.1.2 Optional Settings



Optional Settings

Router Name: Antaira

Hostname:

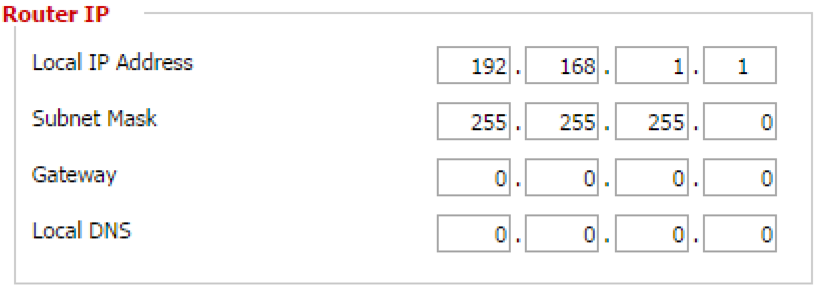
Domain Name:

MTU: Auto ▼ 1500

STP: ○ Enable ● Disable

Optional Settings	Description
Router Name	The desired name to appear for the router.
Hostname	Necessary for some ISP’s and can be provided by the ISP.
Domain Name	Necessary for some ISP’s and can be provided by the ISP.
MTU	**Maximum Transmission Unit:** Specifics the largest packet size permitted for Internet transmission. Auto will allow the router to select the best MTU for the Internet connection. Manual values entered should be in the 1200 to 1500 range.
STP	**Spanning Tree Protocol:** Creating the best path between devices without creating loops.

5.2.1.3 Router IP



Router IP

Local IP Address 192 . 168 . 1 . 1

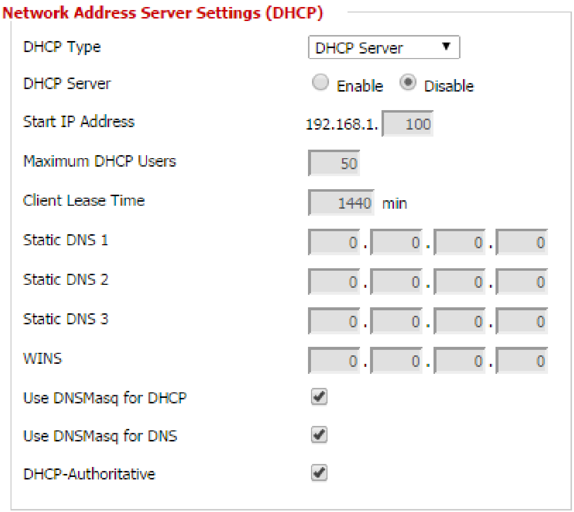
Subnet Mask 255 . 255 . 255 . 0

Gateway 0 . 0 . 0 . 0

Local DNS 0 . 0 . 0 . 0

Choose the desired LAN side IP Address, Subnet Mask, Gateway and Local DNS information.

5.2.1.4 Network Address Server Settings (DHCP)



Network Address Server Settings (DHCP)

DHCP Type: DHCP Server ▼

DHCP Server: ○ Enable ● Disable

Start IP Address: 192.168.1. 100

Maximum DHCP Users: 50

Client Lease Time: 1440 min

Static DNS 1: 0 . 0 . 0 . 0

Static DNS 2: 0 . 0 . 0 . 0

Static DNS 3: 0 . 0 . 0 . 0

WINS: 0 . 0 . 0 . 0

Use DNSMasq for DHCP ☑

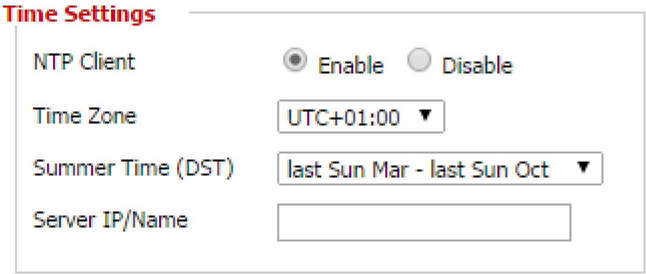
Use DNSMasq for DNS ☑

DHCP-Authoritative ☑

Network Address Server Settings	**Description**
DHCP Type	**Server:** Keep the default "Enable" to keep the DHCP server option. If there is already a DHCP server on the network, select "Disable".
	Forwarder: Additional routers can be hardwired to the main router on the network. The additional routers will have the type set as "Forwarder". Any devices connected to the additional routers will receive their DHCP information from the main router.
DHCP Server	**Enable** if the router is to provide DHCP addressing. **Disable** if there is already a DHCP server active on the network.
Start IP Address	A numerical value for the DHCP server to start with when assigning IP addresses. **Note: Do NOT start with 192.168.1.1 (as the routers IP address).**

Maximum DHCP Users	The maximum number of PCs the router will assign the IP address to go through the DHCP.
Static DNS IP Address	The Domain Name System (DNS) is how domain names are translated to Internet addresses. The ISP provider will provide at least one unique DNS IP addresses.
WINS	**Windows Internet Naming Services:** Manages the PC's interaction with the internet. If a WINS server is being used, enter the servers IP information here. Leave blank if no WINS server is present.

5.2.1.5 Time Settings



Time Settings

NTP Client ● Enable ○ Disable

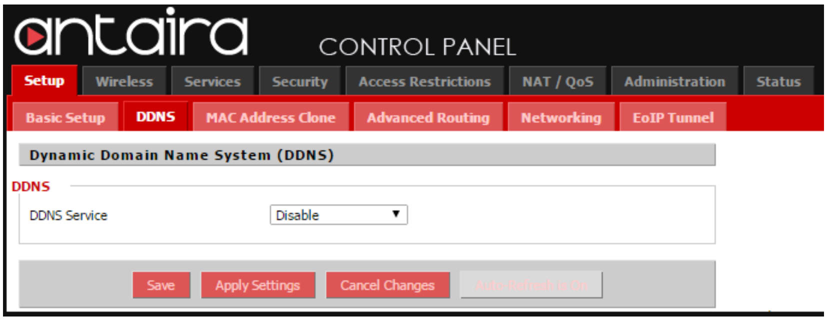
Time Zone UTC+01:00

Summer Time (DST) last Sun Mar - last Sun Oct

Server IP/Name

Time Settings	**Description**
NTP Client	**Network Time Protocol:** Used for time synchronization between the client and the network time server.
Time Zone	UTC is the "Coordinated Universal Time" based off the mean solar time at Earths prime meridian. Select the time zone the unit is located at.
Summer Time (DST)	Offset of time based from the UTC time.
Server IP/Name	Enter either the servers IP address or assigned name.

5.2.2 DDNS

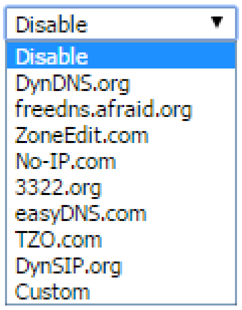


Dynamic Domain Name System (DDNS)

DDNS

DDNS Service Disable

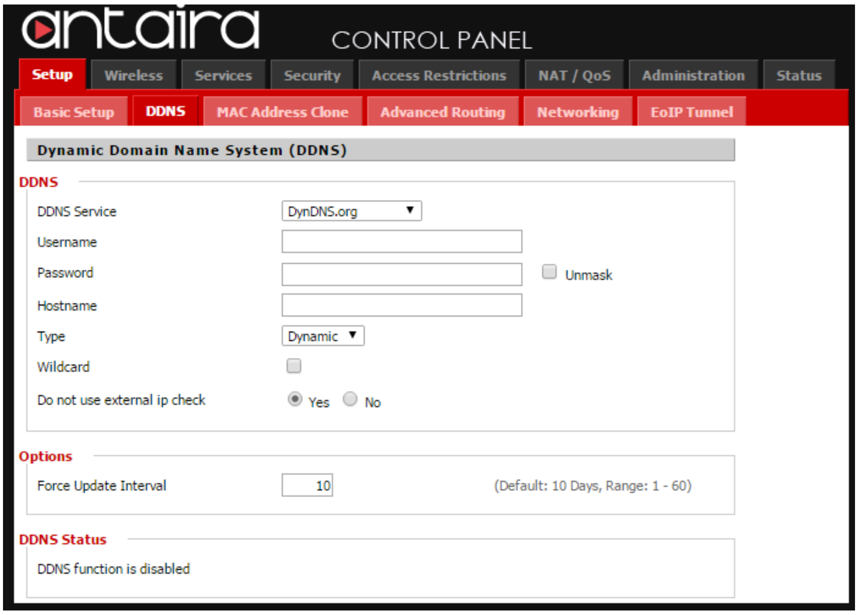
5.2.2.1 DDNS Service



The router offers a Dynamic Domain Name System (DDNS). The DDNS allows users to assign a fixed host and domain name to a dynamic internet IP address. This is useful when hosting a website or FTP server.

**Note: Before using this feature, the end user will need to sign up for the DDNS service with a DDNS service provider. The dropdown selection has several possible DDNS service providers. If the end user does not wish to use a DDNS server, simply leave the dropdown on the default “Disable” setting.

5.2.2.2 Setting up a DDNS Service



Dynamic Domain Name System (DDNS)

DDNS

DDNS Service: DynDNS.org

Username:

Password: □ Unmask

Hostname:

Type: Dynamic

Wildcard: □

Do not use external ip check: ● Yes ○ No

Options

Force Update Interval: 10 (Default: 10 Days, Range: 1 - 60)

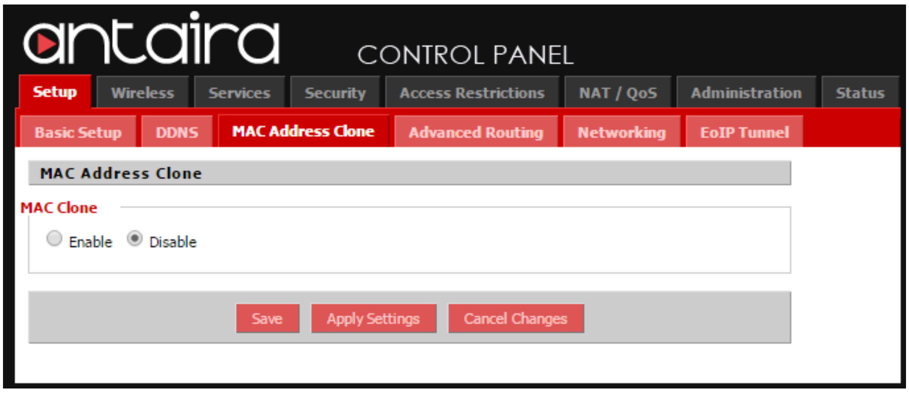
DDNS Status

DDNS function is disabled

DDNS Settings	Description
DDNS Service	Sign up for a DDNS service through a DDNS service provider.
Username	Setup a Username through the DDNS service provider.
Password	Setup a Password through the DDNS service provider.
Hostname	Setup a Hostname through the DDNS service provider.
Type	**Dynamic:** Allows a hostname (that was chosen by the user through the DDNS service provider) to point to the users IP address.
	Static: Like Dynamic service, but the DNS host will not expire after 35 days without updates.
	Custom: Creates a managed primary DNS that provides the

	user more control over the DNS.
Wildcard	Enabling the “Wildcard” feature allows the users host to be aliased to the same IP address and the DNS server.
External IP Check	Allows the DDNS function to pick up the WAN IP from the router instead of checking on an external site.
Force Update Interval	The number represents how often (in days) an update will be performed.
Apply Settings & Save	Any changes made will need to be both applied and saved before they take effect.

5.2.3 MAC Address Clone



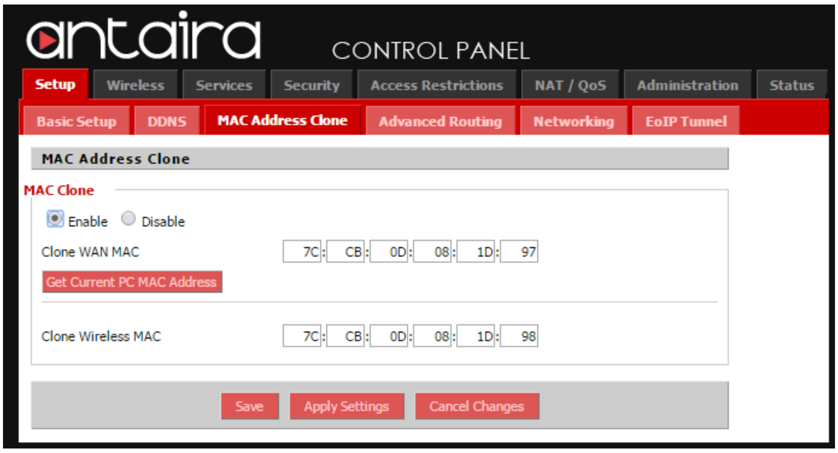
MAC Address Clone

MAC Clone

○ Enable ● Disable

By enabling the MAC address clone, the user is able to clone the MAC address of the network adapter onto the router.

5.2.3.1 Enable MAC Address Clone



MAC Address Clone

MAC Clone

● Enable ○ Disable

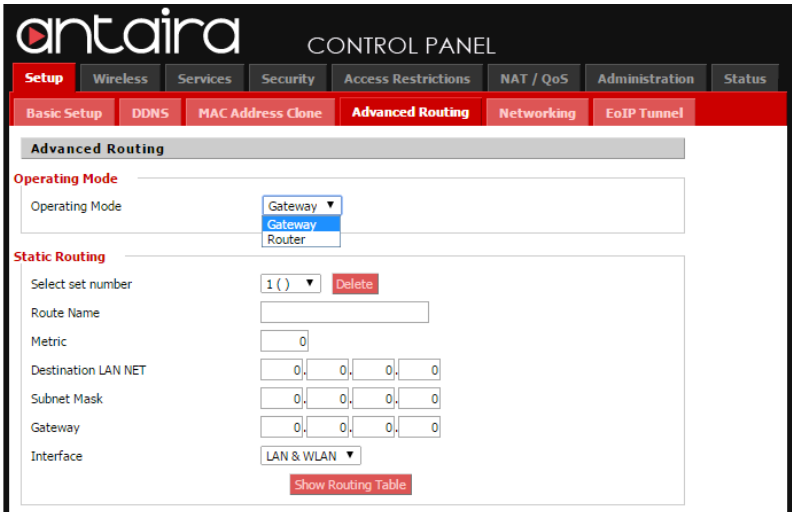
Clone WAN MAC 7C : CB : 0D : 08 : 1D : 97

Clone Wireless MAC 7C : CB : 0D : 08 : 1D : 98

Enter the MAC address of the network adapter in the “Clone WAN MAC” section, or click the “Get Current PC MAC Address” to fill in the MAC address of the PC currently connected. “Get Current PC MAC” is typically used when establishing a service with certain ISP providers.

5.2.4 Advance Routing

5.2.4.1 Gateway



Advanced Routing

Operating Mode

Operating Mode: Gateway (Gateway / Router)

Static Routing

Select set number: 1 ( )

Route Name:

Metric: 0

Destination LAN NET: 0. 0. 0. 0

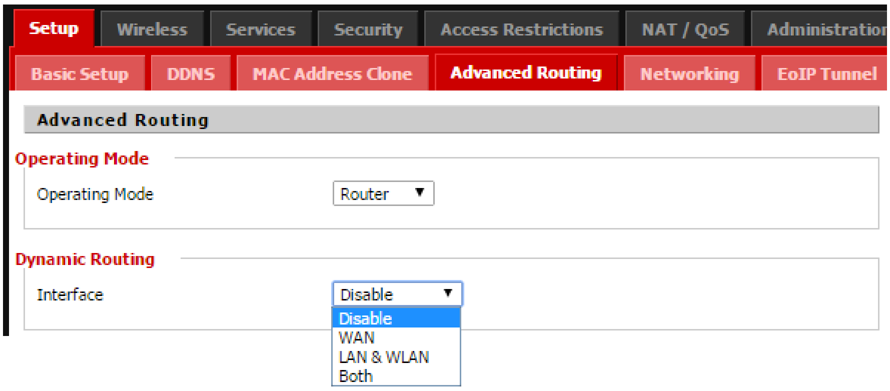
Subnet Mask: 0. 0. 0. 0

Gateway: 0. 0. 0. 0

Interface: LAN & WLAN

Advanced Routing Gateway	**Description**
Operating Mode	**Gateway:** If the router is hosting the Internet connection, the router will perform NAT in Gateway mode.
	Router: Select if the other routers are in use on the network.
Select Set Number	A unique router number. The user can set up to 50 routes.
Route Name	The name assigned to a specific route number.
Destination LAN NET	The remote host assigned to the static route.

5.2.4.2 Router



Advanced Routing

Operating Mode

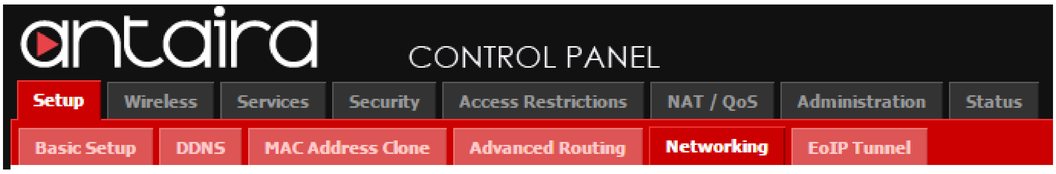
Operating Mode: Router

Dynamic Routing

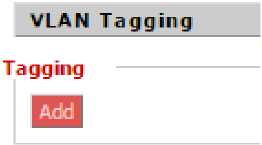
Interface: Disable (Disable / WAN / LAN & WLAN / Both)

Advanced Routing Router	**Description**
Interface	Tells the end user if the destination IP address is on the LAN & WAN, WAN or Loopback.

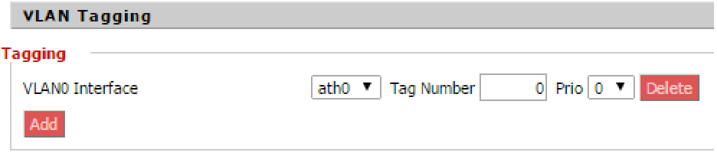
5.2.5 Networking



5.2.5.1 VLAN Tagging


VLAN Tagging

Tagging

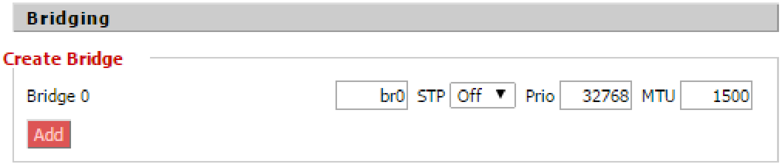

VLAN Tagging

Tagging

VLAN0 Interface ath0 Tag Number 0 Prio 0

Tagging allows the user to create a new VLAN interface from the standard interface by filtering using defined TAG numbers.

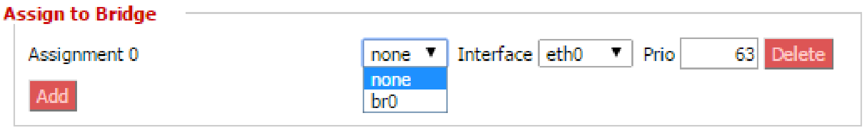
5.2.5.2 Bridging


Bridging

Create Bridge

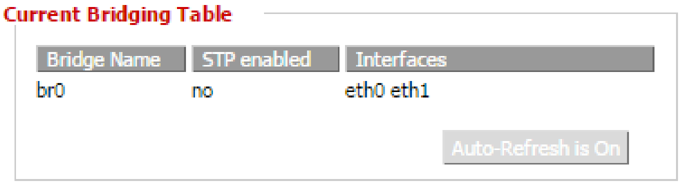
Bridge 0 br0 STP Off Prio 32768 MTU 1500

Bridging	Description
Add	Creates a new empty network bridge for later use.
STP	Spanning Tree Protocol on or off.
Prio	Sets the bridge priority order. (Lower number is higher priority)


Assign to Bridge

Assignment 0 none Interface eth0 Prio 63

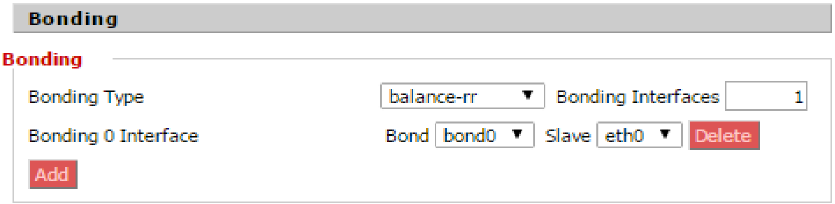
Allows the user to assign an Interface to a network bridge as well as set a priority level.


Current Bridging Table

Bridge Name	STP enabled	Interfaces
br0	no	eth0 eth1

A table with all of the current bridges and their components can be seen in the ‘Bridging’ section of the networking tab, as shown above.

5.2.5.3 Bonding



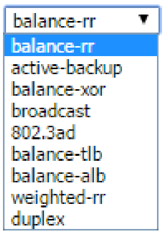
Bonding

Bonding

Bonding Type: balance-rr ▼ Bonding Interfaces: 1

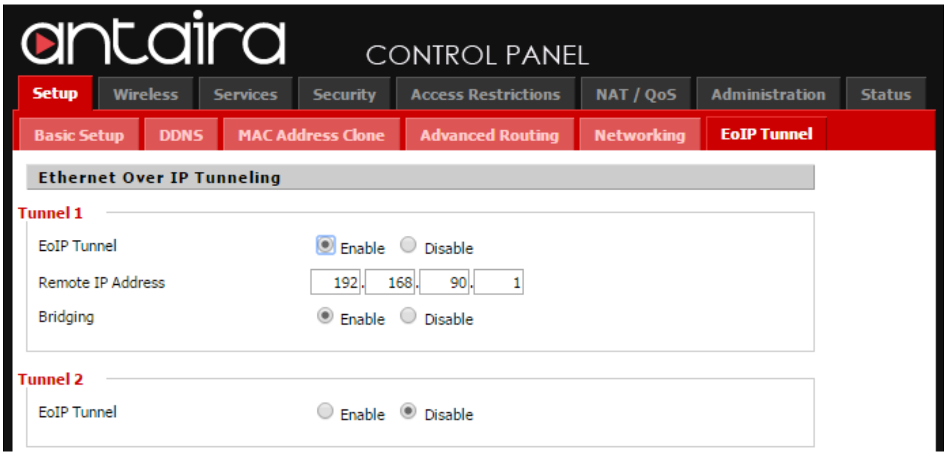
Bonding 0 Interface: Bond bond0 ▼ Slave eth0 ▼ Delete

Add



Bonding	Description
Balance-rr	Packet transmission in sequential order from the first available slave to the last. This provides load balancing and fault tolerance.
Active-Backup	Only one slave in the bond is active. Another slave can only become active if the current slave fails.
Balance-xor	Transmission is based on the source MAC address xor'ed with the destination MAC address.
Broadcast	Transmits all information on to all slave devices.
802.3ad	IEEE 802.3ad LACP creates aggregation groups based on similar speeds and duplex settings. ****Note:** Connected switches need to support the LACP.
Balance-tlb	Transmit Load Balancing that does not require any special switch support. Outgoing traffic is distributed based on the current load of each slave. If a slave unit fails to receive traffic another slave will then take over the traffic from the failed slave.
Balance-alb	Adaptive Load Balancing is for IPV4 traffic and does not require special switch settings. Load balancing is performed though ARP negotiation. Bonding drivers intercept the ARP replies from the loacal system and overwrites the source hardware address with the unique hardware address of the slaves in the bond. Creating different hardware addresses for different peers to the server.
Weighted-rr	Round Robin bonding will use weights assigned to specific slaves. Each slave will have a assigned weight through ioctl. The values will be used at the start of each cycle. Each slave will have a token counter restored to its's weight. The tokens are then used to purchase emitted frames. When there are no tokens available then a new cycle begins.
Duplex	Full-duplex connections of dedicated send and receive links.

5.2.6 EoIP Tunnel



Ethernet Over IP Tunneling

Tunnel 1

EoIP Tunnel ● Enable ○ Disable

Remote IP Address 192. 168. 90. 1

Bridging ● Enable ○ Disable

Tunnel 2

EoIP Tunnel ○ Enable ● Disable

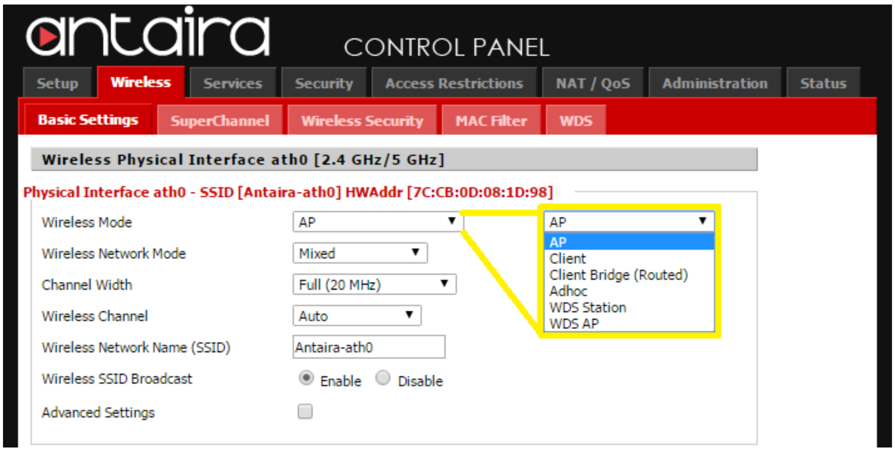
The APR-3100N series supports up to 10 Ethernet over IP Tunnels. EoIP allows the user to create a tunnel between two routers in addition to an IP connection. The EoIP connection is available when the bridging function of the router is enabled. The user can create tunnels over the Internet, through encrypted tunnels or over 802.11b ad-hock wireless networks.   All changes must be applied and saved before they take effect.

5.3 Wireless

5.3.1 Basic Settings

All the basic wireless settings can be configured in this page. Operators can change the Wireless Mode, Network Mode, Channel Width, Wireless Channel and SSID

5.3.1.1 Wireless Mode



Wireless Physical Interface ath0 [2.4 GHz/5 GHz]

Physical Interface ath0 - SSID [Antaira-ath0] HWAddr [7C:CB:0D:08:1D:98]

Wireless Mode: AP

Wireless Network Mode: Mixed

Channel Width: Full (20 MHz)

Wireless Channel: Auto

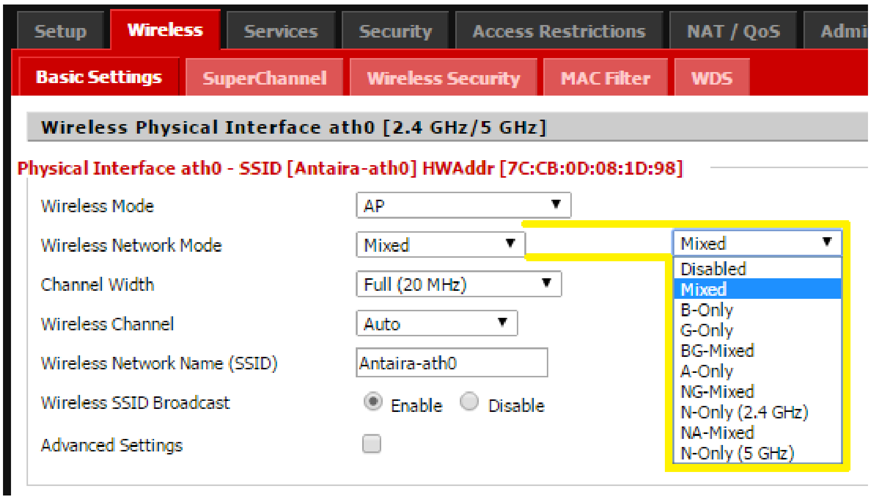
Wireless Network Name (SSID): Antaira-ath0

Wireless SSID Broadcast: ● Enable ○ Disable

Advanced Settings: □

Basic Settings	Description
Wireless Mode	**AP:** The default setting. Access point mode will allow the router to act as a connection point for wireless client devices to connect with.
	Client: The client mode is used to connect to with an access point.
	Client Bridge (Routed): The radio interface is used to connect the LAN side of the router to a remote Access Point. The LAN and the remote AP will be in the same subnet (This is called a "bridge" between two network segments). The WAN side of the router is unused and can be disabled. Use this mode, e.g., to make the router act as a "WLAN adapter" for a device connected to one of its LAN Ethernet ports.
	Adhoc: Is a peer-to-peer, point to point, communication that does not use access points. Devices in Adhoc mode communicate directly to each other.
	WDS Station: Is a proprietary connection with the WDS AP. The WDS Station is like a client, although multiple layer 2 devices can be connected to the WDS Station device.
	WDS AP: Proprietary access point mode that WDS Station devices can connect with.

5.3.1.2 Wireless Network Mode



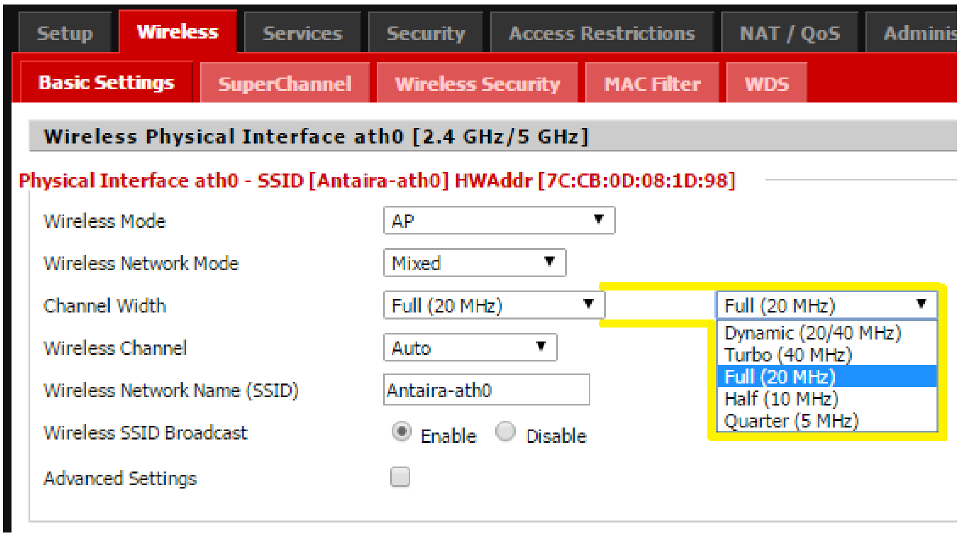
Wireless Physical Interface ath0 [2.4 GHz/5 GHz]

Physical Interface ath0 - SSID [Antaira-ath0] HWAddr [7C:CB:0D:08:1D:98]

Wireless Mode	AP
Wireless Network Mode	Mixed
Channel Width	Full (20 MHz)
Wireless Channel	Auto
Wireless Network Name (SSID)	Antaira-ath0
Wireless SSID Broadcast	● Enable ○ Disable
Advanced Settings	□

Basic Settings	Description
Wireless Network Mode	**Mixed (see different sections below):**
	B-Only: IEEE 802.11b allows a max data rate of 11 Mbits/s through a 2.4 GHz wireless connection. If only B-type Wireless devices are on the network, use this mode.
	G-Only: IEEE 802.11g allows a max data rate of 54 Mbits/s through a 2.4 GHz wireless connection. If only G-type Wireless devices are on the network, use this mode.
	BG-Mixed: If B & G type wireless devices are on the network
	A-Only: IEEE 802.11a allows a max data rate of 54 Mbits/s through a 5 GHz wireless connection. If only A-type Wireless devices are on the network, use this mode.
	NG-Mixed: Is the 802.11n 2.4 GHz band and represents a mix of 802.11b, 802.11g and 802.11n modes
	N-Only (2.4 GHz): Improved throughput for 2.4 GHz devices that also have the IEEE 802.11n standard.
	NA-Mixed: Is the 802.11n 5 GHz band that represents a mix of 802.11 and 802.11a
	N-Only (5 GHz): Improved throughput for 5 GHz devices that also have the IEEE 802.11n standard.

5.3.1.3 Channel Width



Wireless Physical Interface ath0 [2.4 GHz/5 GHz]

Physical Interface ath0 - SSID [Antaira-ath0] HWAddr [7C:CB:0D:08:1D:98]

Wireless Mode: AP

Wireless Network Mode: Mixed

Channel Width: Full (20 MHz)

Wireless Channel: Auto

Wireless Network Name (SSID): Antaira-ath0

Wireless SSID Broadcast: ● Enable ○ Disable

Advanced Settings: □

Basic Settings	Description
Channel Width	**Dynamic (20/40 MHz):** The unit will auto negotiate between 20 or 40 MHz channels for the best possible performance. **Note-** Both the AP and Client side need to support the 40 MHz channel.
	Turbo (40 MHz): IEEE 802.11a/g/n offer might offer the option to use 40 MHz for enhanced through put. **Note-** Both the AP and Client side need to support the 40 MHz channel.
	Full (20 MHz): Typical standard, that offers stable throughput in environments with more wireless noise.
	Half (10 MHz): Reduces the transmit power by ½ of the original.
	Quarter (5 MHz): Reduces the transmit power by ¼ of the original.

5.3.1.4 Wireless Channel

The default wireless channel is set to auto. The user can adjust the wireless channel to select a unique unpopulated channel. The user should be aware of and pay attention to the possibility of neighboring channels overlapping. All devices on the wireless network must use the same channel in order to function appropriately.

5.3.1.5 Extension Channel

The control channel is the main channel that is being used. The extension channel is part of the 40MHz frequency and can be set to above or below the main channel. This extension channel needs to be continuous from the main channel. If the main channel is set to channel one, the unit cannot have an extension channel below, due to there not being any other channels below channel one.

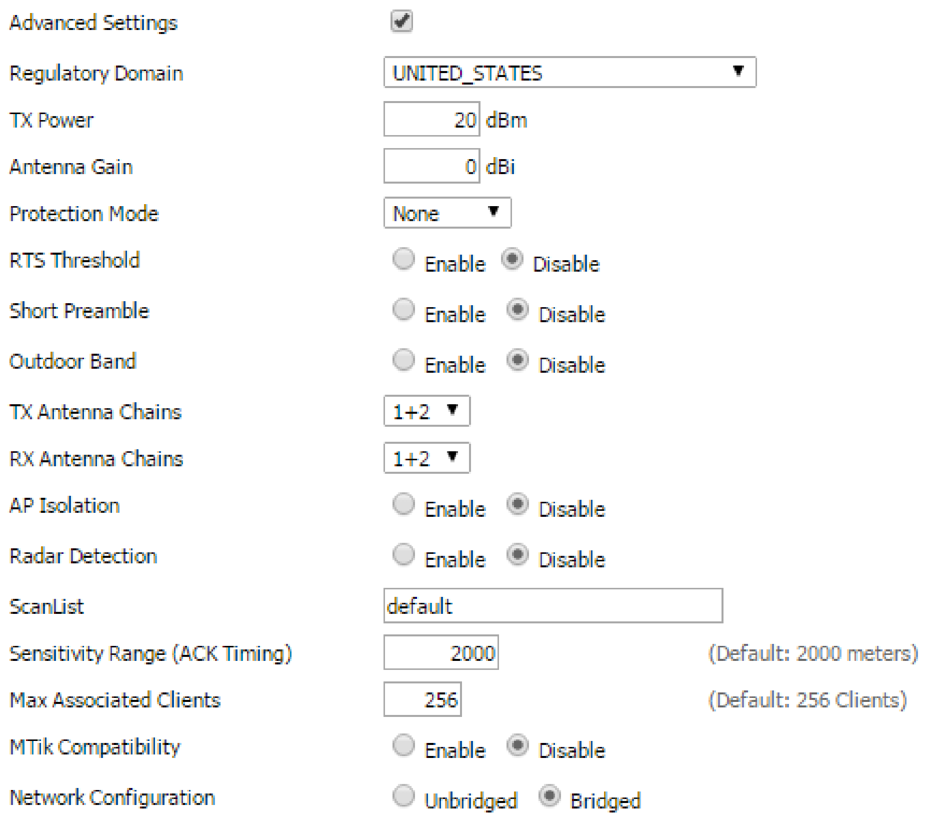
5.3.1.6 Wireless Network Name (SSID)

The SSID is the Service Set Identifier used to identify the operators wireless LAN. The SSID is set by the user in Access Point or Access Point WDS mode. All of the client devices within the range of the access point will receive the broadcasted SSID advertising the SSID.

Wireless SSID Broadcast: Once disabled, the SSID of the access point will no longer be broadcast. This means that client devices will not see the SSID of the unit even though they might within range. A user wishing to connect with a client device to a hidden SSID will need to directly input the SSID and password information. The hidden SSID acts as an additional layer of security, making it harder for unwanted users to connect to the network.

5.3.1.7 Advanced Settings

By selecting the “Advanced Settings” box, the following options will become available to the user.



Advanced Settings	☑	
Regulatory Domain	UNITED_STATES ▼	
TX Power	20 dBm	
Antenna Gain	0 dBi	
Protection Mode	None ▼	
RTS Threshold	○ Enable ● Disable	
Short Preamble	○ Enable ● Disable	
Outdoor Band	○ Enable ● Disable	
TX Antenna Chains	1+2 ▼	
RX Antenna Chains	1+2 ▼	
AP Isolation	○ Enable ● Disable	
Radar Detection	○ Enable ● Disable	
ScanList	default	
Sensitivity Range (ACK Timing)	2000	(Default: 2000 meters)
Max Associated Clients	256	(Default: 256 Clients)
MTik Compatibility	○ Enable ● Disable	
Network Configuration	○ Unbridged ● Bridged	

Advanced Settings	**Description**
Regulatory Domain	
Tx power	20 dBm is the default value and provides the radio 100mW of power. Higher values are not recommended due to excessive heat being generated by the radio causing a lower lifespan.
Antenna Gain	The antenna’s ability to direct radio frequency energy
Protection Mode	CTS protection allows multiple client devices to send data simultaneously to a single access point. The CTS (clear to send) protection is able to set an order of what device gets to transmit, preventing the access point from discarding all info.
RTS Threshold	This should stay at the default 2346 value. This specifies the maximum size for a packet before data is fragmented into multiple packets.
Short Preamble	Default is Long Preamble, a short preamble can be used but communication issues might occur when communicating with IEEE 802.11b devices.
Outdoor Band	By enabling the outdoor band, the user is able to reach the

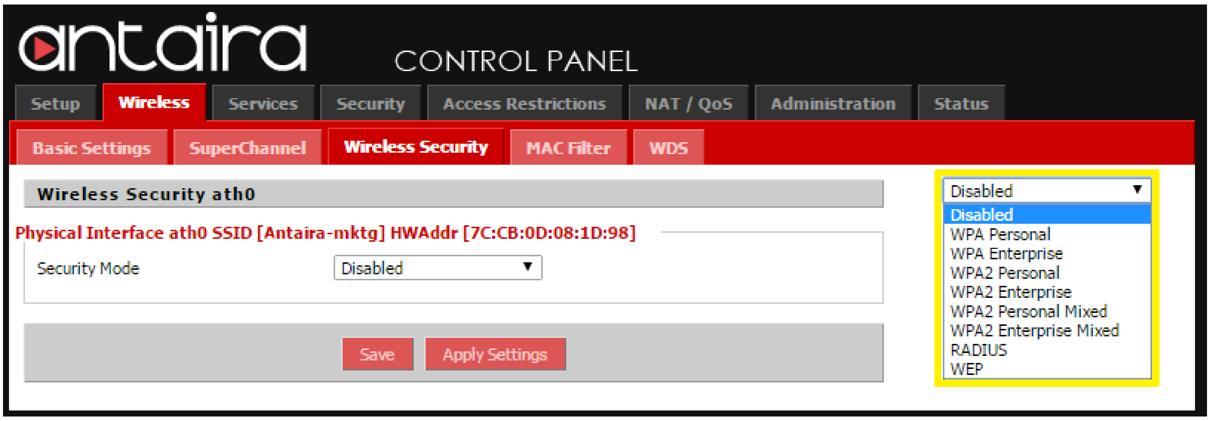
	higher frequency channels.
Tx Antenna Chains	Used based on external antennas to provide optimum performance.
Rx Antenna Chains	Used based on external antennas to provide optimum performance.
AP Isolation	Default is “Disable”, and if enabled, wireless clients are isolated and access to and from other wireless clients is stopped.
Radar Detection	Looks for Airport or Military pulses from radars to prevent unintended interference between equipment.
ScanList	
Sensitivity Range	Default is 2000 meters. The sensitivity range is a timing adjustment based on the distance between linking devices. When the time needed to transmit is greater than the amount of time sender waits before resending the same packet. Typically the ACK time should be 2 times the distance between devices (measured in meters) If the ACK time is to low, information can be lost or not connect.
Max Associated Clients	The number of clients can be connected to the access point.
MTik Compatibility	Activates a compatibility with Mikrotik RouterOS when performing tests
Network Configuration	Wireless interface must be “bridged” with the LAN ports (Client on wireless and on LAN port). “Unbridged” allows a separation between the WLAN and LAN.

5.3.2 SuperChannel

Allows for the use of unique frequencies in the IEEE 802.11g range (2192 Mhz ~ 2732 Mhz) and IEEE 802.11a (4915 mhz ~ 6100 Mhz).

****Note:** This feature has not been enabled yet.

5.3.3 Wireless Security



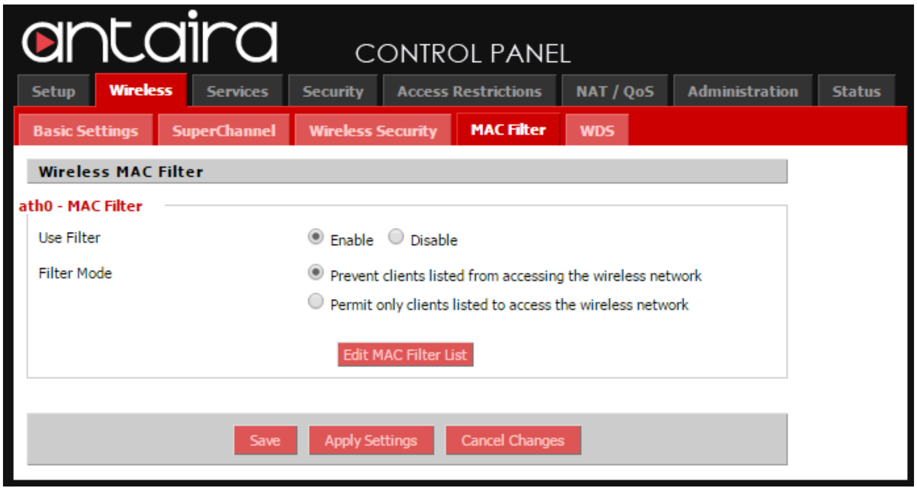
Wireless Security ath0

Physical Interface ath0 SSID [Antaira-mktg] HWAddr [7C:CB:0D:08:1D:98]

Security Mode: Disabled

Wireless Security	Description
Disabled	If wireless security has been disabled, anyone can log onto the access point.
WPA Personal	Choose between AES or TKIP security and enter a password between 8 and 63 characters. The Group Key Renewal can be between 0 and 99,999 seconds.
WPA Enterprise	Uses an external RADIUS server to preform authentication. Use the IP address of the RADIUS server, the RADIUS port (default is 1812) and the shared secret from the RADIUS server.
WPA2 Personal	WPA2 provides additional security from WPA by using the IEEE 802.11i protocols. AES is required when using WPA2 (WPA2 with TKIP is not supported).
WPA2 Enterprise	Uses an external RADIUS server to preform authentication. Use the IP address of the RADIUS server, the RADIUS port (default is 1812) and the shared secret from the RADIUS server.
WPA2 Personal Mixed	If there is a mixture of client devices that use WPA2 and WPA security. Personal is typically used for small networks (ex: home).
WPA2 Enterprise Mixed	If there is a mixture of client devices that use WPA2 and WPA security. Enterprise mode uses a RADIUS server allowing access to be controlled in a large network.
RADIUS	Uses a RADIUS server for authentication.
WEP	WEP should only be used when required due to lower security. The user can choose either 64-bit or 128-bit. For 64-bit the passphrase must be 10 hexadecimal characters. For 128-bit the passphrase must be 26 hexadecimal characters. ***Note:** Hexadecimal characters are “0-9” and “A-F”.

5.3.4 MAC Filter



Wireless MAC Filter

ath0 - MAC Filter

Use Filter ● Enable ○ Disable

Filter Mode ● Prevent clients listed from accessing the wireless network
○ Permit only clients listed to access the wireless network

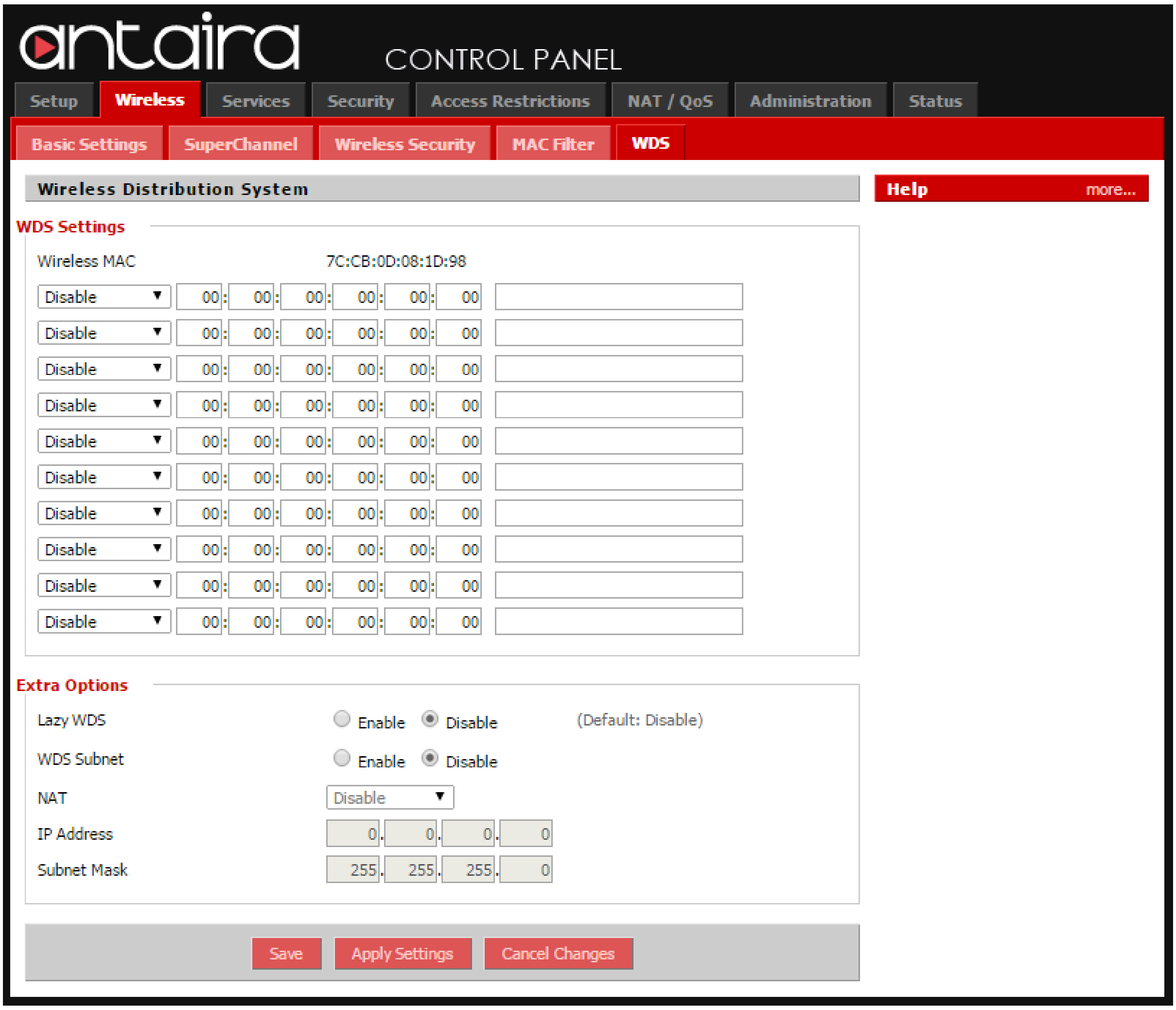
The user can set up a wireless MAC filter. The MAC address filter on the APR-3100N can be set to either “Allow” the MAC addresses listed to gain access or the list can be set to “Deny” access by the listed MAC addresses.

If you want to block specific wireless-equipped PCs from communicating with the router, keep the default setting *“Prevent PCs” listed from accessing the wireless network*. If you want to allow specific wireless-equipped PCs to communicate with the router, click the radio button next to “*Permit only” PCs listed to access the wireless network*.

Click the “*Edit MAC Filter List”* button. Enter the appropriate MAC addresses into the MAC fields.

Click the “*Save Settings”* button to save your changes. Click the “*Cancel Changes”* button to cancel your unsaved changes. Click the “*Close”* button to return to the previous screen without saving changes.

5.3.5 WDS



Wireless Distribution System

WDS Settings

Wireless MAC 7C:CB:0D:08:1D:98

Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	
Disable	00:00:00:00:00:00	

Extra Options

Lazy WDS ○ Enable ● Disable (Default: Disable)

WDS Subnet ○ Enable ● Disable

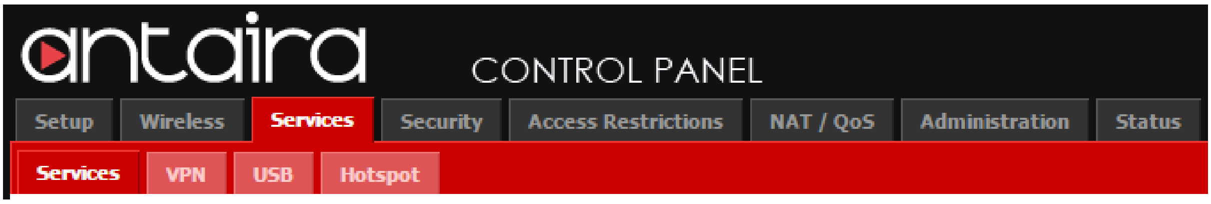
NAT Disable

IP Address 0. 0. 0. 0

Subnet Mask 255. 255. 255. 0

The WDS (Wireless Distribution System) allows the access point to perform bridging, where the access points will only communicate with other WDS access points and associated stations. The MAC address of units forming the WDS must be input to the WDS table. All units within the WDS must have the MAC addresses of the other associating units MAC addresses input to their WDS list.

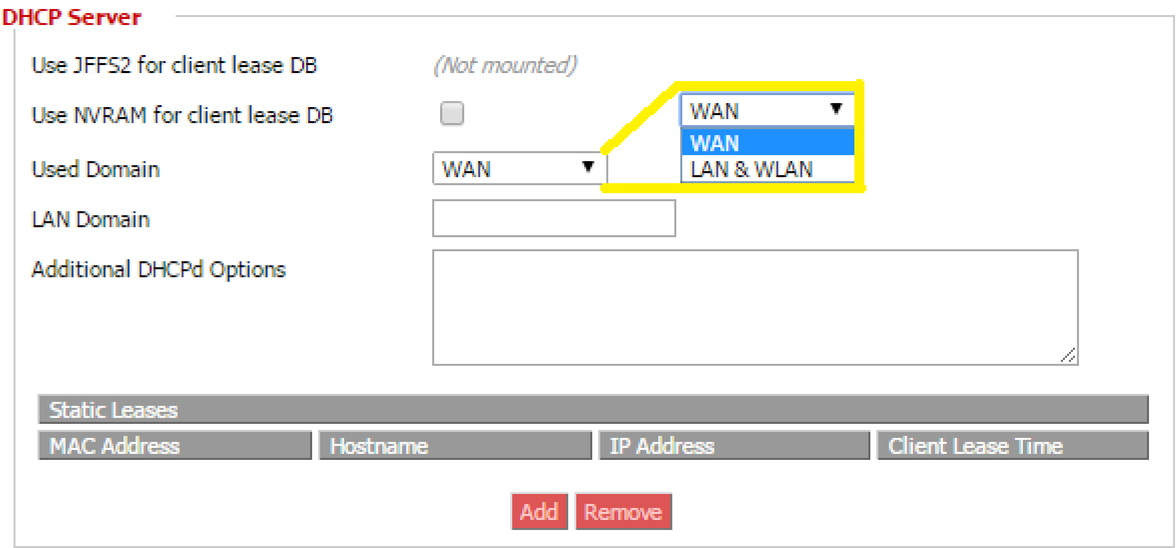
5.4 Services



5.4.1 Services

DHCP Server

The DHCP server will assign IP addresses to your local devices. The DHCP configuration is on the main setup page, although some functions are available through the services tab.


DHCP Server

Use JFFS2 for client lease DB	*(Not mounted)*
Use NVRAM for client lease DB	□
Used Domain	WAN
LAN Domain	
Additional DHCPd Options	

Static Leases

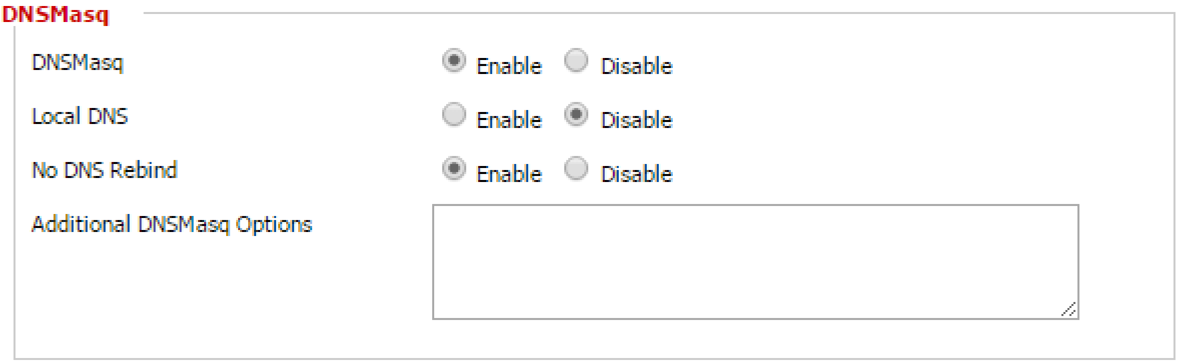
MAC Address	Hostname	IP Address	Client Lease Time

Used Domain: Users select which domain the DHCP clients should get as their local domain. The WAN domain will be set on the "Setup" screen or the LAN domain can be set here.

LAN Domain: The user can define the local LAN domain which will be used as the local domain for the DNSmasq and DHCP service if chosen above.

DNSmasq

The DNSmasq is a local DNS server. The DNSmasq will resolve all host names known to the router from the DHCP as well as forwarding and caching DNS entries from remote DNS servers.



DNSMasq

DNSMasq ● Enable ○ Disable

Local DNS ○ Enable ● Disable

No DNS Rebind ● Enable ○ Disable

Additional DNSMasq Options

Local DNS: “Enable” will allow DHCP clients on the LAN to resolve static and dynamic DHCP hostnames.

No DNS Rebind: DNS rebinding is a malicious attack that causes web page visitors to run a client script that can attack other machines on the network.

GPS: The user can enable GPS coordinate systems. The information will be sent to a specific port (Default is 2947) the user will then need to use a program such Telnet and Google Earth to do the tracking of the GPS coordinate system. This feature is available for LTE cellular models only.

PPPoE Relay: Will allow the DHCP to duplicate the WAN’s IP address from the ISP.

SES /AOSS / EZ-SETUP / WPS Button: The “Reset Button” under the Administration -> Management section must be enabled.

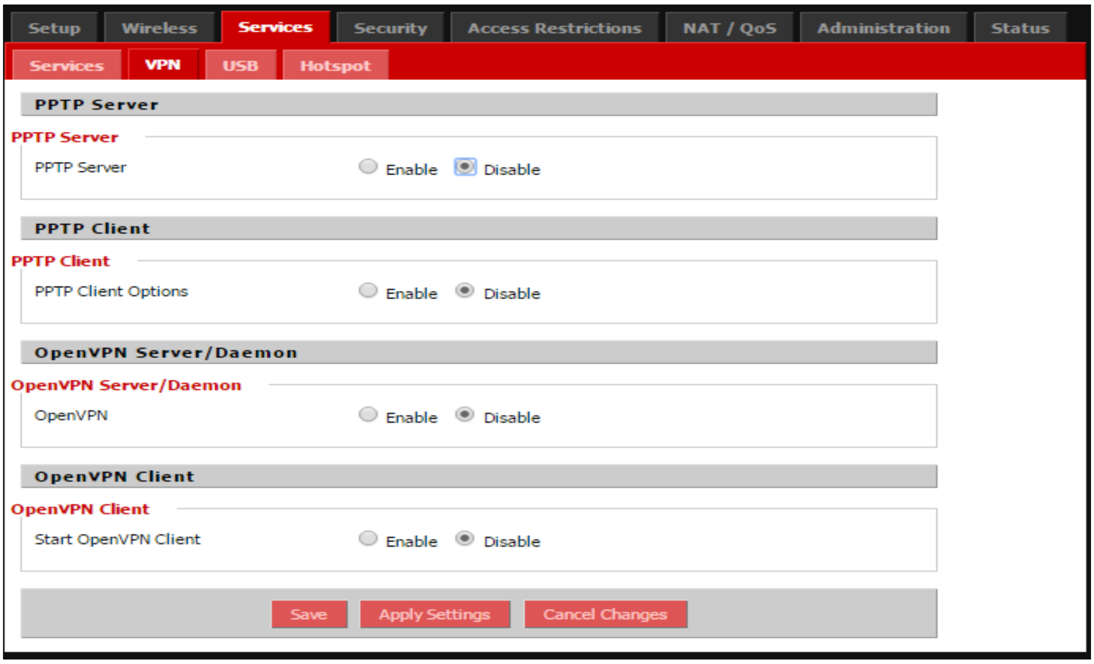
Secure Shell: Enabling SSH allows the user to access the router with a SSH client. SSH Port number for SSH (default is 22)

System Log: Enable the system log to capture system messages. By default they will be collected in the local file /var/log/messages. To send the messages to a different system the user can input the IP address of a remote system log server.

Telnet: Enable a telnet server to connect to the router with telnet. (Default username: *root* password: *password*)

WAN Traffic Counter: The user can view the traffic going through the router. The feature can be disabled. The save router CPU usage the user can view the traffic though SNMP monitoring on a computer.

5.4.2 VPN



PPTP Server

PPTP Server

PPTP Server ○ Enable ● Disable

PPTP Client

PPTP Client

PPTP Client Options ○ Enable ● Disable

OpenVPN Server/Daemon

OpenVPN Server/Daemon

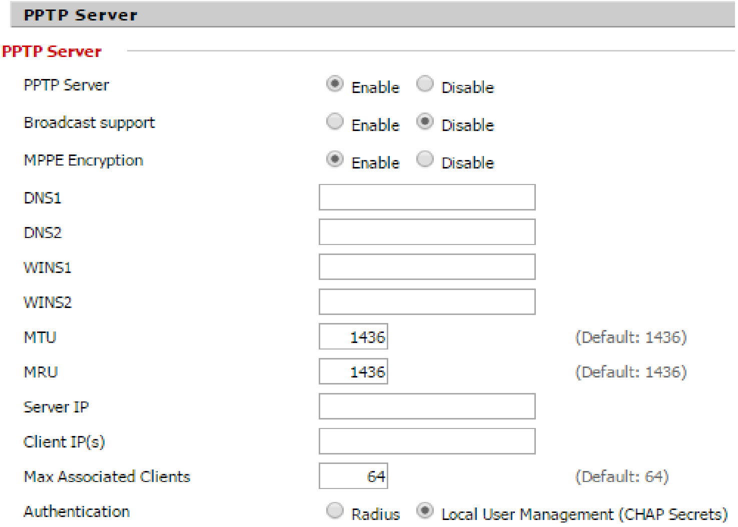
OpenVPN ○ Enable ● Disable

OpenVPN Client

OpenVPN Client

Start OpenVPN Client ○ Enable ● Disable

PPTP Server: Configuring the PPTP server allows the user to access the LAN remotely at home.



PPTP Server

PPTP Server

PPTP Server	● Enable ○ Disable	
Broadcast support	○ Enable ● Disable	
MPPE Encryption	● Enable ○ Disable	
DNS1		
DNS2		
WINS1		
WINS2		
MTU	1436	(Default: 1436)
MRU	1436	(Default: 1436)
Server IP		
Client IP(s)		
Max Associated Clients	64	(Default: 64)
Authentication	○ Radius ● Local User Management (CHAP Secrets)	

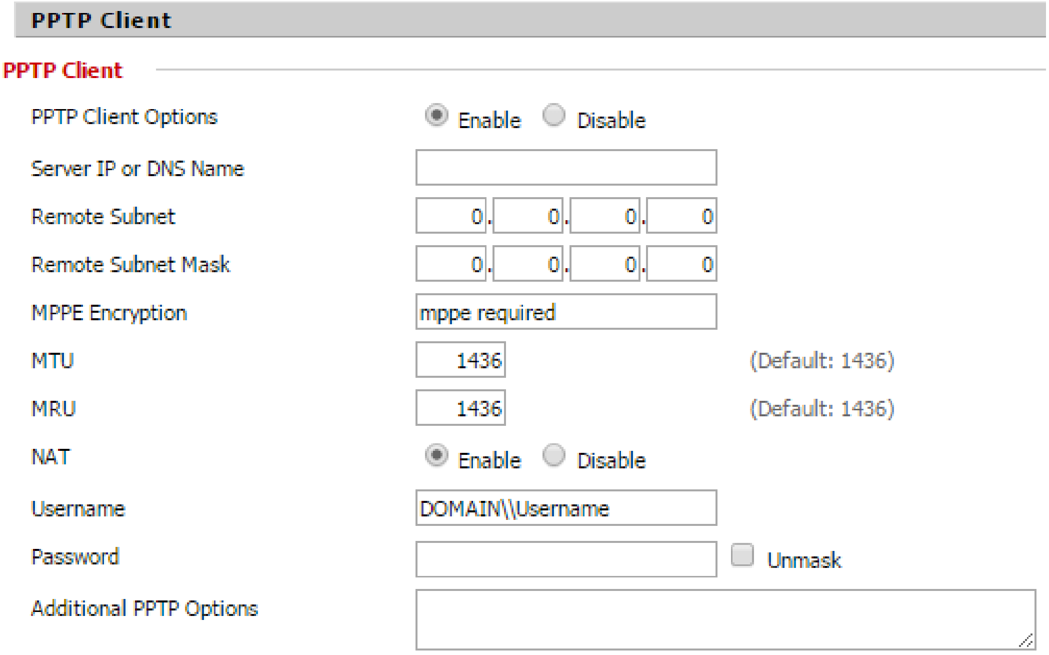
Server IP: The IP address of the router.

Client IP: A list or range of IP address for remotely connected devices. Note: Do not overlap with the range of DHCP addresses.

CHAP Secrets: A list of usernames and passwords for the VPN login. Note: one user per line (Ex: joe *joepassword*).

MTU: Maximum Transmission Unit.

MRU: Maximum Receive Unit.



PPTP Client

PPTP Client

PPTP Client Options	● Enable ○ Disable	
Server IP or DNS Name		
Remote Subnet	0. 0. 0. 0	
Remote Subnet Mask	0. 0. 0. 0	
MPPE Encryption	mppe required	
MTU	1436	(Default: 1436)
MRU	1436	(Default: 1436)
NAT	● Enable ○ Disable	
Username	DOMAIN\\Username	
Password		□ Unmask
Additional PPTP Options		

Server IP or DNS Name: The IP address or DNS Name of the VPN server to connect with.

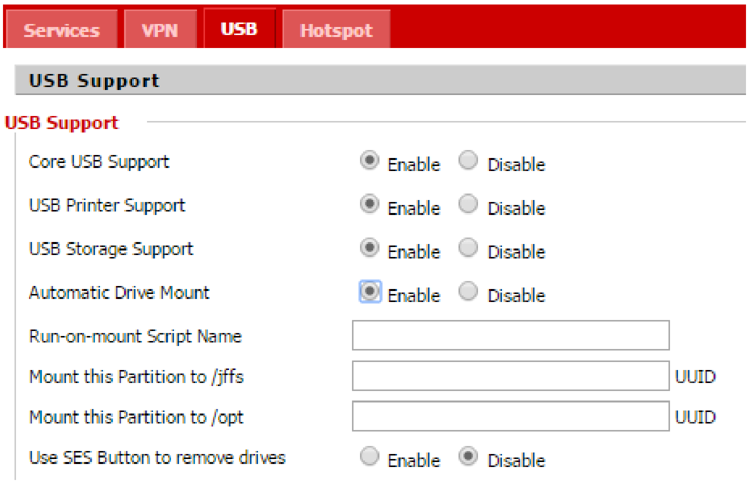
Remote Subnet/Mask: The remote subnet and subnet mask of the network the user is connecting with.

MPPE Encryption: This is used to connect to similar chipset routers. If the user is connecting to a windows VPN the user would need (mppe required,no40no56,stateless)

User Name: The user name that will be seen when connecting to the VPN server.

OpenVPN: Security setting based on certificates that cannot be created on the router. Please refer to OpenVPN’s online documentation for instruction on creating certificates and configuring OpenVPN.

5.4.3 USB



USB Support

USB Support

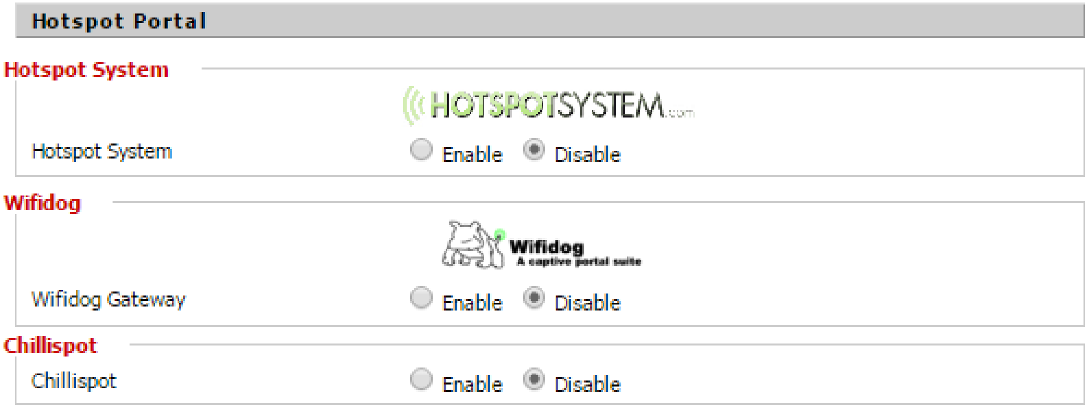
Core USB Support	● Enable ○ Disable
USB Printer Support	● Enable ○ Disable
USB Storage Support	● Enable ○ Disable
Automatic Drive Mount	● Enable ○ Disable
Run-on-mount Script Name	
Mount this Partition to /jffs	UUID
Mount this Partition to /opt	UUID
Use SES Button to remove drives	○ Enable ● Disable

USB	Description
Core USB Support	Default is “Disabled”, Select “Enable” to use USB Support
USB Printer Support	Default is “Disabled”, Select “Enable” to use Printer Support
USB Storage Support	Default is “Disabled”, Select “Enable” to use External Devices
Automatic Drive Mount	Automatically mount connected drives
Run-on-mount Script Name	Run script from the specified path, wherever a drive is mounted though the Automatic Drive Mount
Mount this Partition to /jiffs	Mount partition with a UUID to a specified mounting point
SES Button	Un-mount drives before disconnecting them

5.4.4 Hotspot Portal

The user can set the router as a Hotspot gateway with authentication and accounting.

Most hotspot software requires a server to store the user settings and login information.



Hotspot Portal

Hotspot System

Hotspot System ○ Enable ● Disable

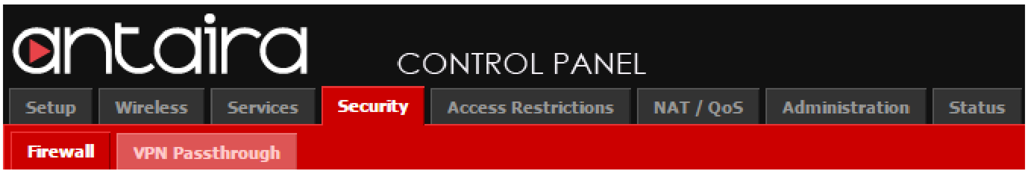
Wifidog

Wifidog Gateway ○ Enable ● Disable

Chillispot

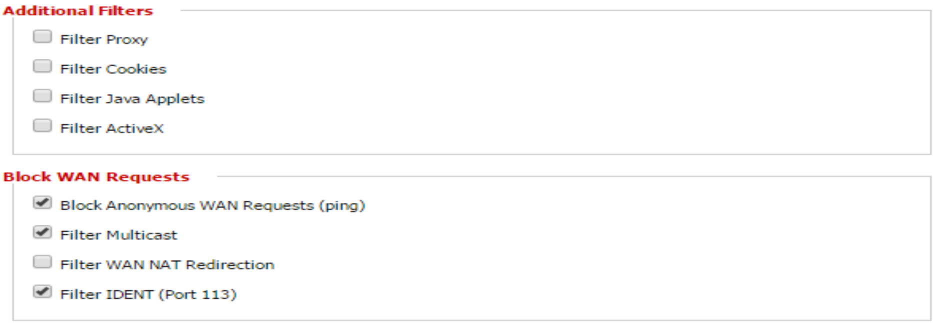
Chillispot ○ Enable ● Disable

5.5 Security



5.5.1 Firewall

The Firewall can be either enabled or disabled. The user can also set additional filters, block certain WAN interface requests and manage logs.



Additional Filters

- □ Filter Proxy
- □ Filter Cookies
- □ Filter Java Applets
- □ Filter ActiveX

Block WAN Requests

- ☑ Block Anonymous WAN Requests (ping)
- ☑ Filter Multicast
- □ Filter WAN NAT Redirection
- ☑ Filter IDENT (Port 113)

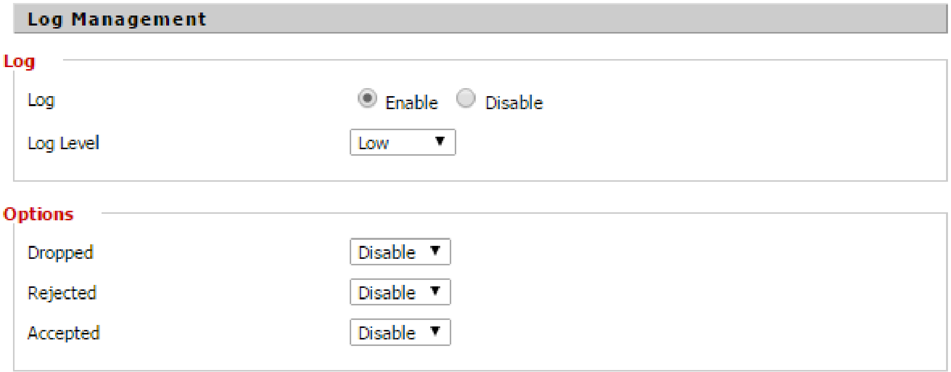
5.5.1.1 Additional Filters

Additional Filters	Description
Filter Proxy	Blocks HTTP requests containing the “host:” string.
Filter Cookies	HTTP requests that contain “cookie:” string are identified and an attempt is made to stop their usage.
Filter Java Applets	Blocks HTTP requests containing URL ending in “.js” or “.class”.
Filter ActiveX	Blocks HTTP requests containing URL ending in “.ocx” or “.cab”.

5.5.1.2 Block WAN Requests

Block WAN Requests	Description
Block Anonymous WAN Requests (Ping)	Stops the router from responding to “pings” from the WAN.
Filter Multicast	Prevents multicast packets from reaching the LAN
Filter WAN NAT Redirection	Prevents hosts on the LAN from using the WAN address of router to contact servers on the LAN.
Filter IDENT	Prevents WAN access to port 113.
Finalization	The settings must be applied and saved before they take effect.

5.5.1.3 Log Management



Log Management

Log

Log ● Enable ○ Disable

Log Level: Low

Options

Dropped: Disable

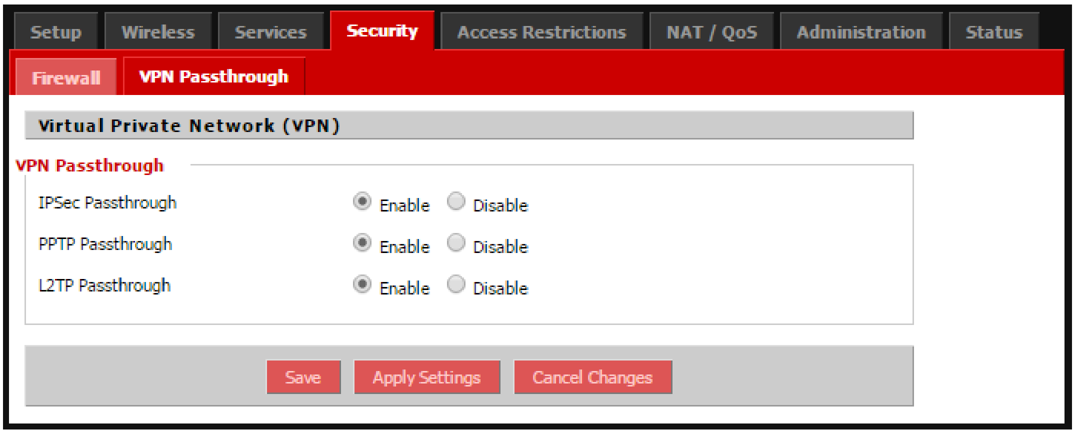
Rejected: Disable

Accepted: Disable

Log Management	**Description**
Log	Keeps activity logs when “Enabled”.
Log Level	Higher log level will log more actions.
Incoming Log	Most recent incoming traffic.
Outgoing Log	Most recent outgoing traffic.
Finalization	The settings must be applied and saved before they take effect.

5.5.2 VPN Passthrough

Virtual Private Networking (VPN) is typically used for work-related networking. For a VPN tunnel, the router supports IPSec Passthrough, PPTP Passthough and L2TP Passthough.



Virtual Private Network (VPN)

VPN Passthrough

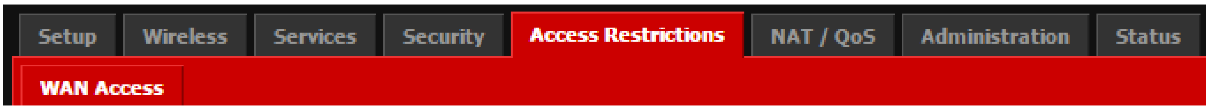
IPSec Passthrough ● Enable ○ Disable

PPTP Passthrough ● Enable ○ Disable

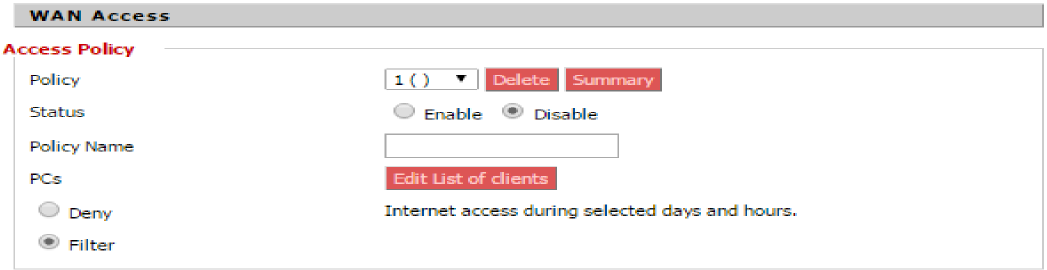
L2TP Passthrough ● Enable ○ Disable

VPN Passthrough	Description
IPSec Passthough	Internet Protocol Security (IPSec) are protocols used to implement a secure exchange of packets at the IP layer. Keeping the IPSec “enabled” allows IPSec tunnels to pass though the router.
PPTP Passthrough	Point-to-Point Tunneling Protocol (PPTP) allows a VPN session to a windows NT 4.0 or 2000 server. To allow a PPTP tunnel to pass though the router, the PPTP passthough will need to be “enabled”.
L2TP Passthrough	Layer Two Tunneling Protocol (L2TP) is an extension of the PPP protocol that enables the ISP to operate Virtual Private Networks (VPS’s). The L2TP merges Microsoft and Cisco features to allow L2TP tunnels to pass through the router.
Finalization	The settings must be applied and saved before they take effect.

5.6 Access Restrictions



5.6.1 WAN Access



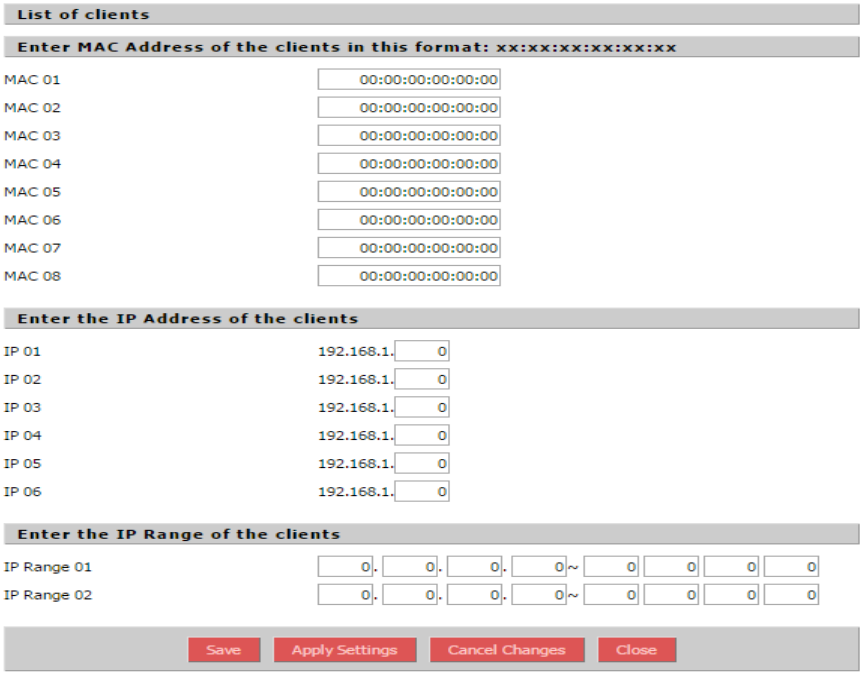
WAN Access

Access Policy

Policy	1 ( ) ▼ Delete Summary
Status	○ Enable ● Disable
Policy Name	
PCs	Edit List of clients
○ Deny ● Filter	Internet access during selected days and hours.

Access Policy: Allows the user to customize up to 10 different Internet access policies for specific PC's based upon the PC's MAC address.

WAN Access	Description
Policy	Select a policy number from the dropdown.
Policy Name	Choose a name for the policy.
PCs	Click the "Edit list of clients" button.
List of Clients	Enter the appropriate IP and MAC addresses. Any changes will need to be applied and saved.
Days & Times	Allows the user to set up specific days or times that the listed PCs will be blocked from internet access.



List of clients

Enter MAC Address of the clients in this format: xx:xx:xx:xx:xx:xx

MAC 01	00:00:00:00:00:00
MAC 02	00:00:00:00:00:00
MAC 03	00:00:00:00:00:00
MAC 04	00:00:00:00:00:00
MAC 05	00:00:00:00:00:00
MAC 06	00:00:00:00:00:00
MAC 07	00:00:00:00:00:00
MAC 08	00:00:00:00:00:00

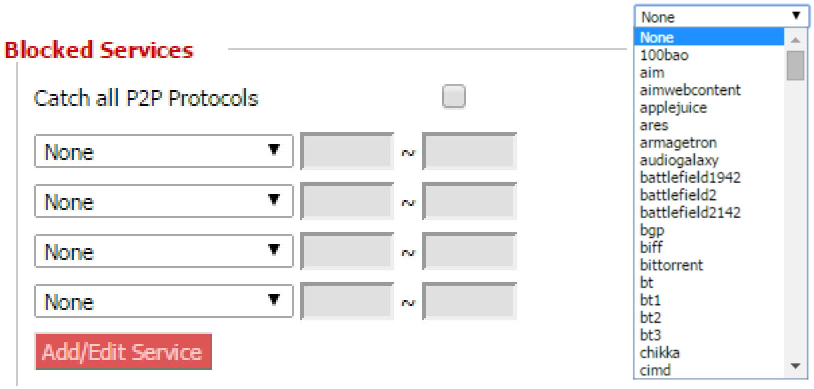
Enter the IP Address of the clients

IP 01	192.168.1. 0
IP 02	192.168.1. 0
IP 03	192.168.1. 0
IP 04	192.168.1. 0
IP 05	192.168.1. 0
IP 06	192.168.1. 0

Enter the IP Range of the clients

IP Range 01	0. 0. 0. 0~ 0 0 0 0
IP Range 02	0. 0. 0. 0~ 0 0 0 0

Save Apply Settings Cancel Changes Close



Blocked Services

Catch all P2P Protocols □

None ▼ ~

None ▼ ~

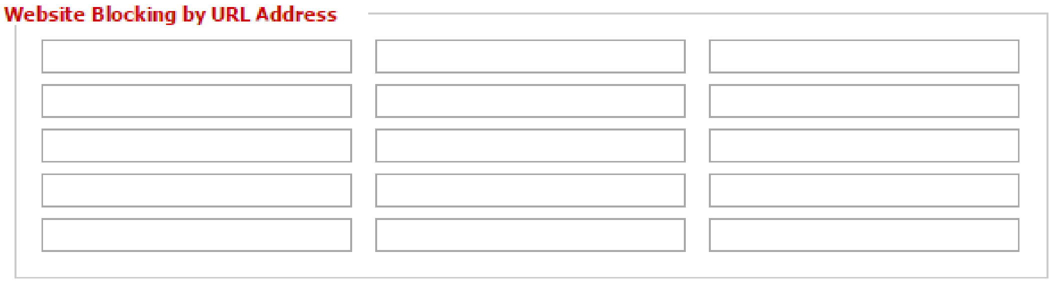
None ▼ ~

None ▼ ~

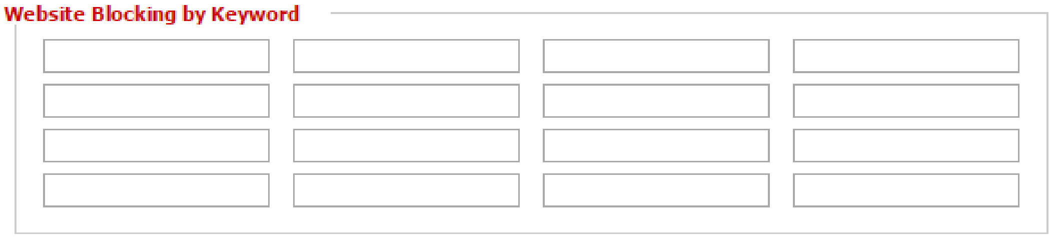
Add/Edit Service

None ▼
None
100bao
aim
aimwebcontent
applejuice
ares
armagetron
audiogalaxy
battlefield1942
battlefield2
battlefield2142
bgp
biff
bittorrent
bt
bt1
bt2
bt3
chikka
cimd

Blocked Services: The user can choose to block access to certain internet services through a dropdown menu under the “Catch all P2P Protocols”.



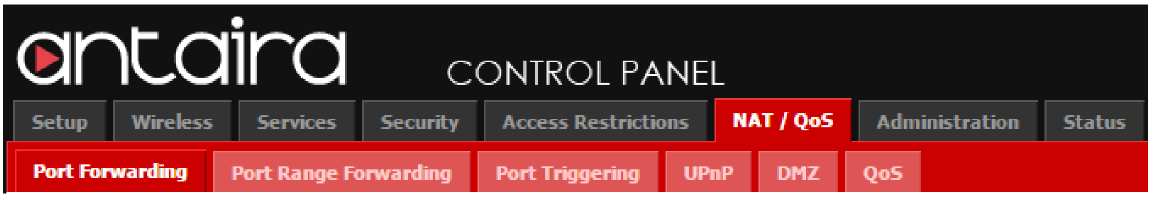
Website Blocking by URL Address



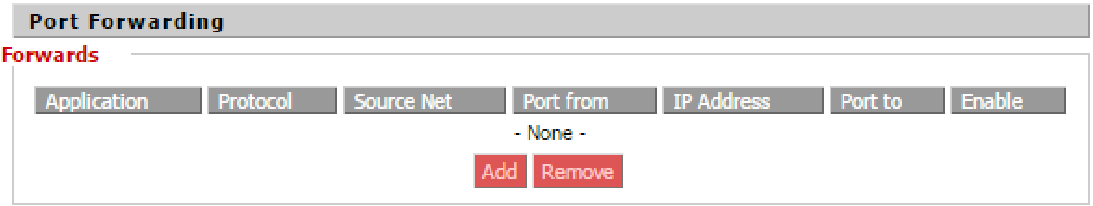
Website Blocking by Keyword

WAN Access Cont.	**Description**
URL Blocking	The user can input specific URL addresses to deny access to those websites.
Keyword	The user can input specific keywords to block access to websites with these keywords in their webpage.
Finalization	The settings must be applied and saved before they take effect.

5.7 NAT/QoS



5.7.1 Port Forwarding



Port Forwarding

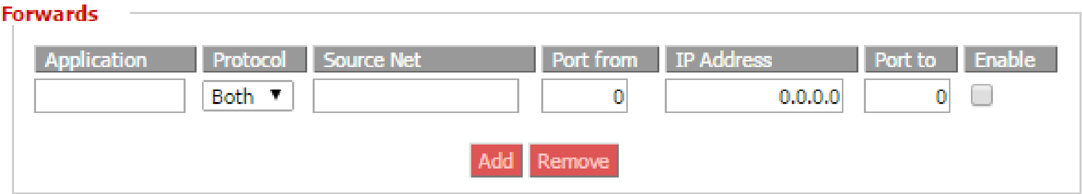
Forwards

Application	Protocol	Source Net	Port from	IP Address	Port to	Enable

- None -

Port Forwarding allows the user to set up public services on the network, such as web servers, ftp servers and e-mail servers. Specialized Internet applications are any applications that use Internet access to perform functions such as video conferencing or online gaming.

To add a new port forwarding rule, click “add” and fill in the fields listed below.

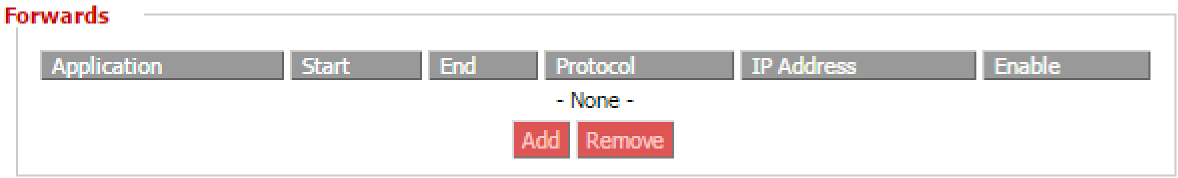


Forwards

Application	Protocol	Source Net	Port from	IP Address	Port to	Enable
	Both ▼		0	0.0.0.0	0	☐

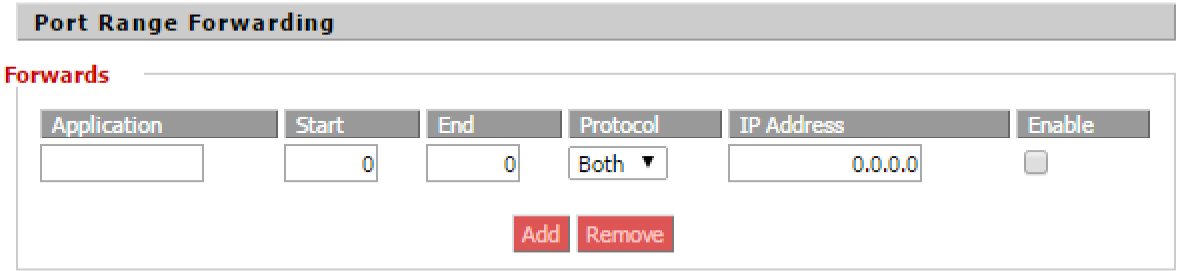
Port Forwarding	Description
Application	Enter the name of the application.
Protocol	The user will need to select the correct protocol, based on their specific application. The choices are TCP, UDP or both.
Source Net	Forwarded only if the sender matches this IP/net.
Port From	The number of the external port (port number seen by users on the Internet side).
IP Address	The IP address of the PC running the application.
Port To	The number of the internal port (port number used by the application).
Enable	Check to enable port forwarding for the application.
Finalization	The settings must be applied and saved before they take effect.

5.7.2 Port Range Forwarding


Forwards

Application	Start	End	Protocol	IP Address	Enable
- None -					

Port Range Forwarding allows the user to set up public services on the network, such as web servers, ftp servers and e-mail servers. Specialized Internet applications are any applications that use Internet access to perform functions such as video conferencing or online gaming. To add a new port forwarding rule, click “add” and fill in the fields listed below. This allows the user to set a range of ports. If the user would like to only forward a single port, please refer back to the ‘Port Forwarding’ section.

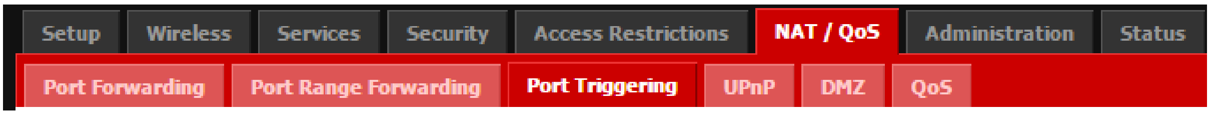

Port Range Forwarding

Forwards

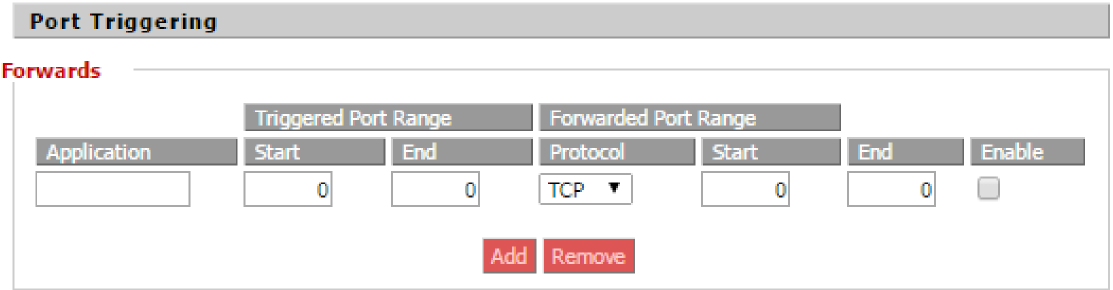
Application	Start	End	Protocol	IP Address	Enable
	0	0	Both ▼	0.0.0.0	□

Port Range Forwarding	Description
Application	Enter the name of the application.
Start	The number of the first port in the range that is to be seen by users on the Internet and forwarding to a PC on the local network.
End	The number of the last port of the range that will be seen by users on the Internet and forwarding to a PC on the local network.
Protocol	Choose the correct protocol based upon the application, the choices are TCP, UDP or Both.
IP Address	The IP address of the PC running the application.
Port To	The number of the internal port (port number used by the application).
Enable	Check to enable port forwarding for the application.
Finalization	The settings must be applied and saved before they take effect.

5.7.3 Port Triggering



Port Triggering allows the user to perform port forwarding without setting a fixed PC. By setting a port triggering rule, the user can allow inbound traffic to arrive at a specific LAN host, using different ports than those used for the outbound traffic. The outbound traffic triggers to the inbound ports that the traffic is directed. To add a new port triggering rule, click on the "Add" button and fill in the fields listed and described below.

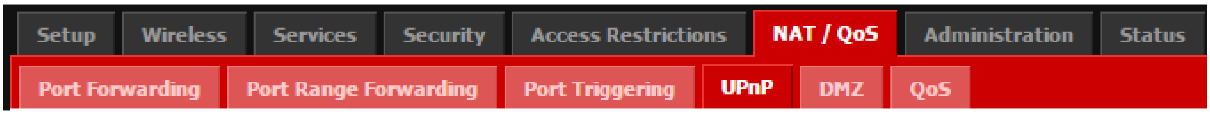

Port Triggering

Forwards

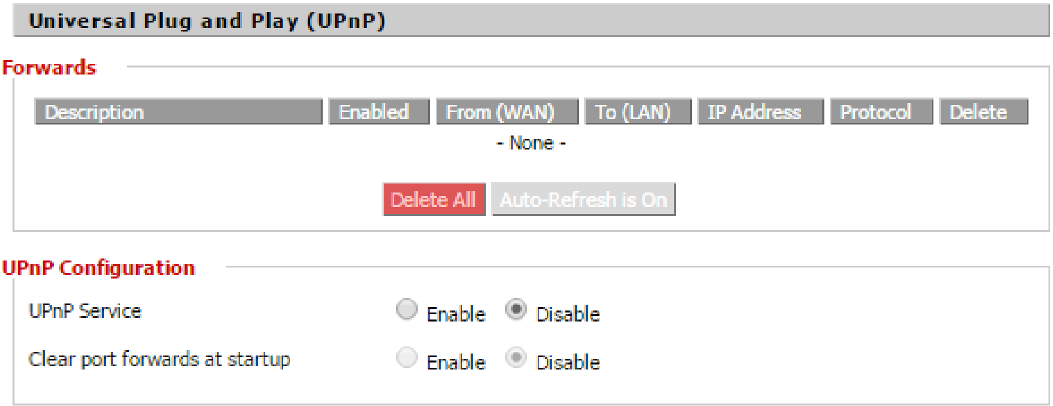
	Triggered Port Range		Forwarded Port Range			
Application	Start	End	Protocol	Start	End	Enable
	0	0	TCP ▼	0	0	□

Port Triggering	Description
Application	Enter the name of the application.
Triggered Range	The number of the first and the last port of the range that should be triggered. If a PC sends outbound traffic from those ports, incoming traffic on the 'Forwarded Range' will be forwarded to that PC.
Forwarded Range	Enter the first and last port of the range, which should be forwarded from the Internet to the PC, which has the 'Triggered Range'.
Enable	Check to enable port forwarding for the application.
Finalization	The settings must be applied and saved before they take effect.

5.7.4 UPnP



Universal Plug and Play is a set of computer network protocols. This technology is for the automatic configuration of devices. The UPnP is able to seamlessly integrate connected devices through control protocols built upon open communication standards.



Universal Plug and Play (UPnP)

Forwards

Description	Enabled	From (WAN)	To (LAN)	IP Address	Protocol	Delete

- None -

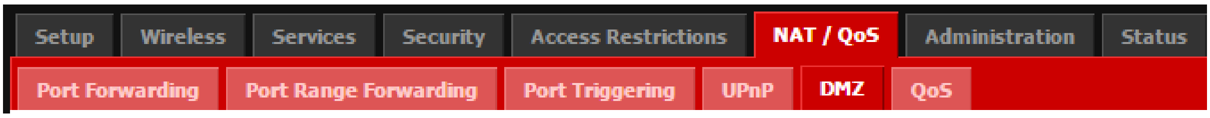
UPnP Configuration

UPnP Service ○ Enable ● Disable

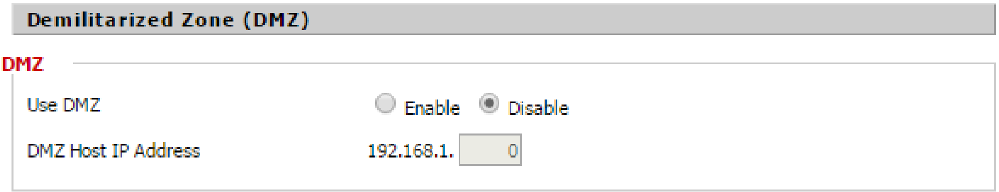
Clear port forwards at startup ○ Enable ● Disable

UPnP	Description
Forwards	The forwards table shows all open ports forwarded automatically by the UPnP. Forwards can be individually deleted with the trash can, or the "Delete All" will clear all forwards.
UPnP Service	Allows applications to automatically setup port forwarding.
Clear Port Forwards at Startup	If enabled, all UPnP port forwardings are deleted when the router starts up.

5.7.5 DMZ



The DeMilitarized Zone (DMZ) feature allows one local user the exposure to the internet for services such as video conferencing. The DMZ hosting forwards all of the ports at the same time to one PC.



Demilitarized Zone (DMZ)

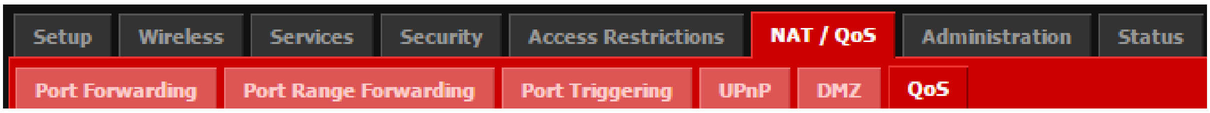
DMZ

Use DMZ ○ Enable ● Disable

DMZ Host IP Address 192.168.1. 0

DMZ	Description
USE DMZ	Enable or disable the use of DMZ.
DMZ Host IP Address	The IP address of the PC using the DMZ service.

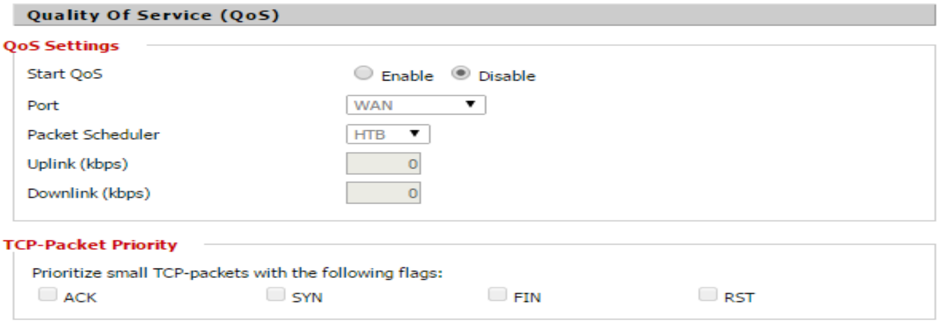
5.7.6 QoS



The Quality of Service (QoS) helps bandwidth management prioritization on the router. Interactive traffic (Internet, telephone, telnet) will get priority and bulk traffic (file transfers or P2P) will receive lower prioritization.

QoS allows bandwidth control allocation to different services, net masks and MAC addresses. QoS is divided into five different bandwidth tiers; Maximum, Premium, Express, Standard and Bulk. Unclassified services will use the “Standard” bandwidth class.

5.7.6.1 QoS



Quality Of Service (QoS)

QoS Settings

Start QoS ○ Enable ● Disable

Port WAN ▾

Packet Scheduler HTB ▾

Uplink (kbps) 0

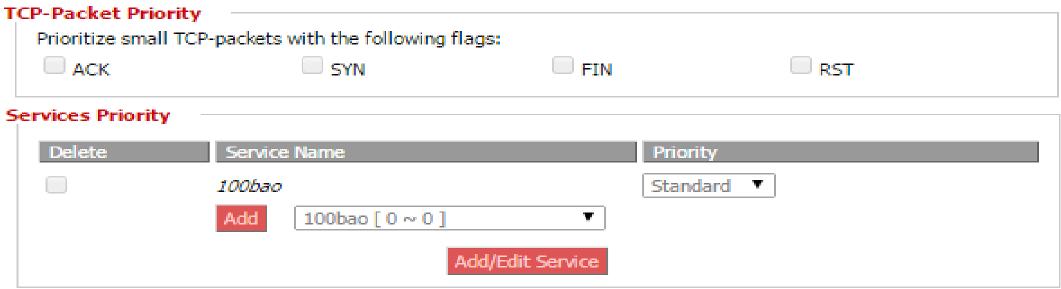
Downlink (kbps) 0

TCP-Packet Priority

Prioritize small TCP-packets with the following flags:

□ ACK □ SYN □ FIN □ RST

QoS	**Description**
Port	When enabled, the user will need to choose to enable the QoS on the “WAN” or the “LAN & WLAN”.
Packet Scheduler	**HTB:** Hierarchical Token Bucket is less resource demanding than HFSC. HTB helps in controlling the use of outbound bandwidth on a given link. HTB allows you to use one physical link to simulate several slower links as well as sending different kinds of traffic on the different simulated links. HTB is useful for limiting the clients download/upload rates as well as preventing one user’s monopolization of bandwidth. **HFSC:** Hierarchical Fair Service Curve allows the attached quest to build an interface tree, thus each queue can have further child queues. Each queue can have a priority and a bandwidth assigned. The priority controls the time packets take to get sent out, while the bandwidth will affect the throughput.
Uplink / Downlink	To use the QoS, the user must enter bandwidth values for the uplink and downlink. Typical values are between 80%~95% of maximum bandwidth. ***Note:** If QoS is only to be applied to the uplink bandwidth, enter 0 for the downlink. <u>*DO NOT*</u> enter 0 for the uplink.



TCP-Packet Priority

Prioritize small TCP-packets with the following flags:

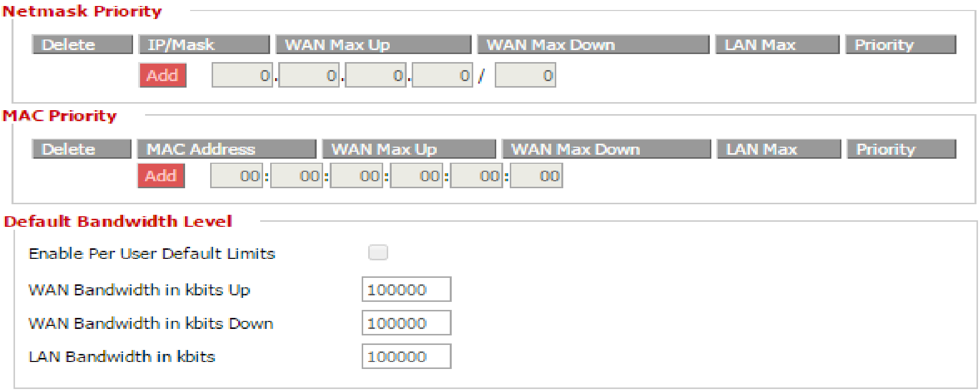
□ ACK □ SYN □ FIN □ RST

Services Priority

Delete	Service Name	Priority
□	*100bao*	Standard ▼

QoS Priority Cont.	**Description**
TCP-Packet Priority	Prioritization of TCP-packets with ACK/SYN/FIN/RST. For the most part, the user will benefit from having SYN, FIN and RST checked. ACK will be dependent on how the network is setup and how much P2P activity there will be. Personal testing on the network should be performed. If very little P2P activity is present it would be beneficial to enable ACT as well.
Service Name	The user can press the “Add” button and choose from a

	dropdown menu of available services. The user will select the specific service that prioritization is desired on.
Priority	How high of a priority the user would like to set for specific services.



Netmask Priority

Delete	IP/Mask	WAN Max Up	WAN Max Down	LAN Max	Priority
Add	0. 0. 0. 0 / 0				

MAC Priority

Delete	MAC Address	WAN Max Up	WAN Max Down	LAN Max	Priority
Add	00: 00: 00: 00: 00: 00				

Default Bandwidth Level

Enable Per User Default Limits □

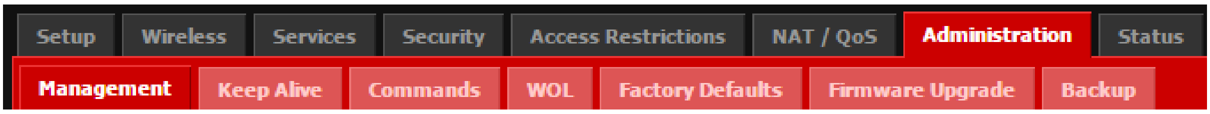
WAN Bandwidth in kbits Up 100000

WAN Bandwidth in kbits Down 100000

LAN Bandwidth in kbits 100000

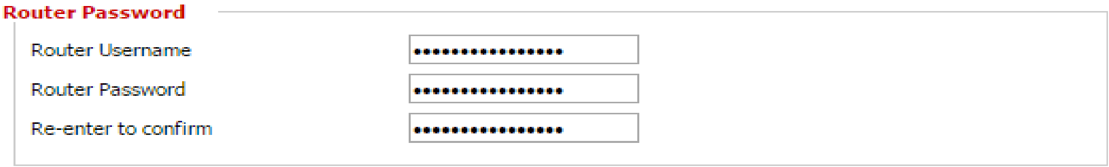
QoS Priority Continued	Description
Netmask Priority	The netmask is the number of bits of the IP address to match. The user can enter a netmask as /32, if the user puts /0 it will mean all IP's.
MAC Priority	To prioritize devices based on MAC address rather than IP address, the user can "Add" the MAC address of any specific device.
Default Bandwidth Level	By enabling, the user can set up/down speeds in Kbits.

5.8 Administration



5.8.1 Management

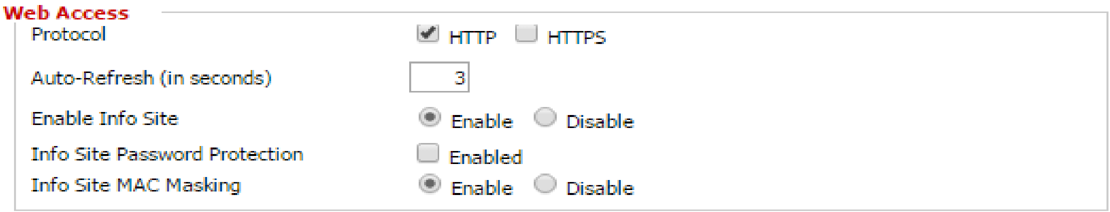
The management screen allows the user to change routers settings as detailed below.



Router Password

Router Username	••••••••••••••••
Router Password	••••••••••••••••
Re-enter to confirm	••••••••••••••••

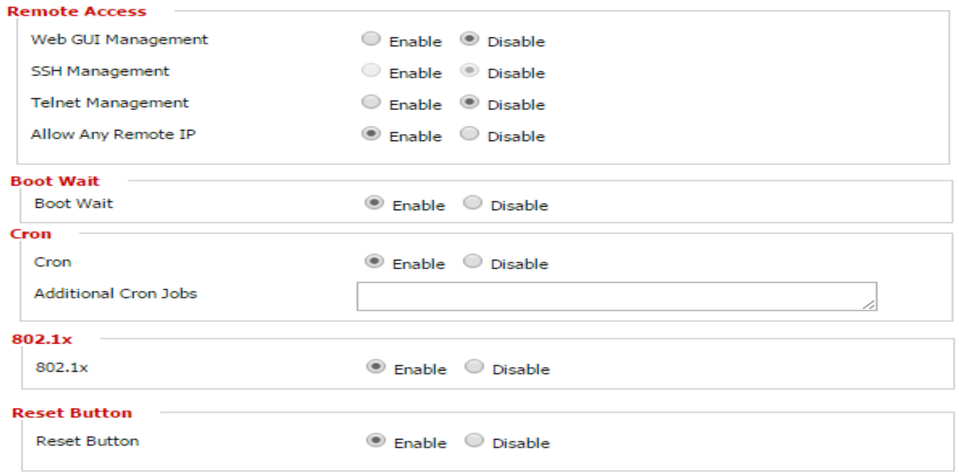
Management	**Description**
Router Username	Default is: “root”　The user is suggested to change the routers name.
Router Password	Default is: “admin” The user is suggested to change the routers password.　The length cannot exceed 32 characters.
Re-enter to Confirm	Re-enter the new password for verification.



Web Access

Protocol	☑ HTTP ☐ HTTPS
Auto-Refresh (in seconds)	3
Enable Info Site	● Enable ○ Disable
Info Site Password Protection	☐ Enabled
Info Site MAC Masking	● Enable ○ Disable

Management Continued	**Description**
Protocol	The user can select to use either HTTP or HTTPS protocols. Please note that any changes will require a manual reboot of the router.
Auto-Refresh	The time in seconds that a webpage will refresh the information.
Enable Info Site	Refers to the information in the “Status” Tab then the “Sys-Info” tab.　By disabling this, access to this page will not be accessible outside the network.
Info Site Password Protection	When the ‘Info Site’ is enabled, the password protection can be setup.
Info Site MAC Masking	Hiding of the first 4 hex groups of the MAC address of the DHCP and wireless clients that external users can see through the “Sys-Info” page.



Remote Access

Web GUI Management	○ Enable ● Disable
SSH Management	○ Enable ● Disable
Telnet Management	○ Enable ● Disable
Allow Any Remote IP	● Enable ○ Disable

Boot Wait

Boot Wait	● Enable ○ Disable

Cron

Cron	● Enable ○ Disable
Additional Cron Jobs	

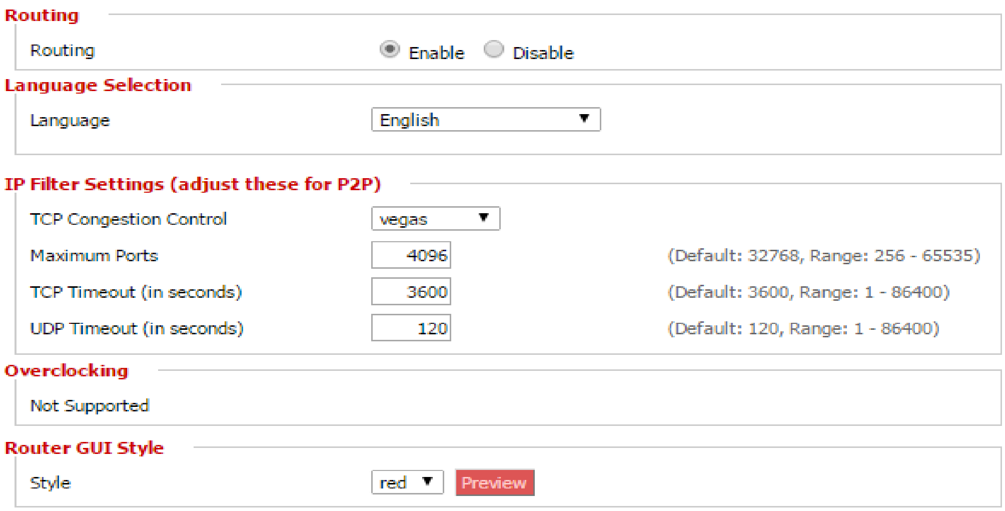
802.1x

802.1x	● Enable ○ Disable

Reset Button

Reset Button	● Enable ○ Disable

Management Cont	Description
Remote Access	Default is disabled, by enabling this the user is able to managed the router from a remote location. The default port is 8080
Boot Wait	Introduces a short delay while booting (5 seconds). This delay allows for the user to initiate the download of new firmware if the current firmware will not boot or re-flashing through the web interface does not work.
Cron	The cron subsystem schedules execution for Linux commands. The command line or startup scripts will be required to use this.
802.1x	A limited 802.1x server to perform proper hand shake with Windows XP clients using WPA security.
Reset Button	Short press- Reset the router (reboot) Long Press > 10 seconds will reset the unit to factory default settings.



Routing

Routing	● Enable ○ Disable

Language Selection

Language	English ▼

IP Filter Settings (adjust these for P2P)

TCP Congestion Control	vegas ▼	
Maximum Ports	4096	(Default: 32768, Range: 256 - 65535)
TCP Timeout (in seconds)	3600	(Default: 3600, Range: 1 - 86400)
UDP Timeout (in seconds)	120	(Default: 120, Range: 1 - 86400)

Overclocking

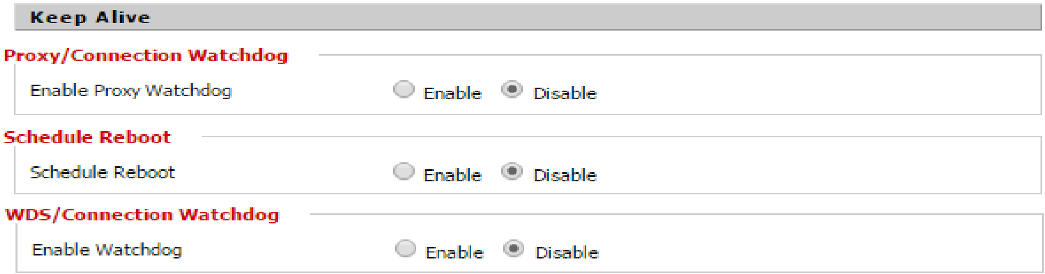
Not Supported

Router GUI Style

Style	red ▼ Preview

Management Cont	Description
Routing	Routing enables the OSPF and RIP routing daemons if those features have been set within the 'Advance Routing' page.
Language Selection	Allows the user to switch the language within the router.
IP Filter Settings	If peer-to-peer applications are running on the network, it would be beneficial to increase the maximum ports and well as lower the TCP/UDP timeouts to improve the stability of the router. Maximum Ports: 4096 TCP Timeout: 120 sec UDP Timeout 120 sec

5.8.2 Keep Alive



Keep Alive

Proxy/Connection Watchdog

Enable Proxy Watchdog ○ Enable ● Disable

Schedule Reboot

Schedule Reboot ○ Enable ● Disable

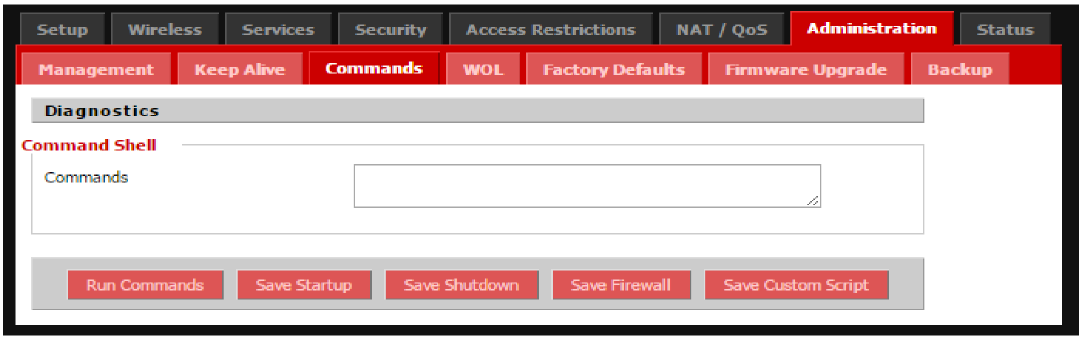
WDS/Connection Watchdog

Enable Watchdog ○ Enable ● Disable

Keep Alive	Description
Proxy/ Connection Watchdog	The Proxy/Connection watchdog will attempt to access a proxy and reboot if it cannot connect. The user will need to input the IP address of the Proxy as well as the time interval.
Schedule Reboot	The user can schedule reboots for the router based on either a time interval or at a set time on specific days.
WDS/Connection Watchdog	The user is able to "Enable" the WDS/Connection Watchdog. The user can then input a time interval check (Seconds). The final step is inputting the IP address of an internet server (Ex Google is 8.8.8.8).

5.8.3 Commands

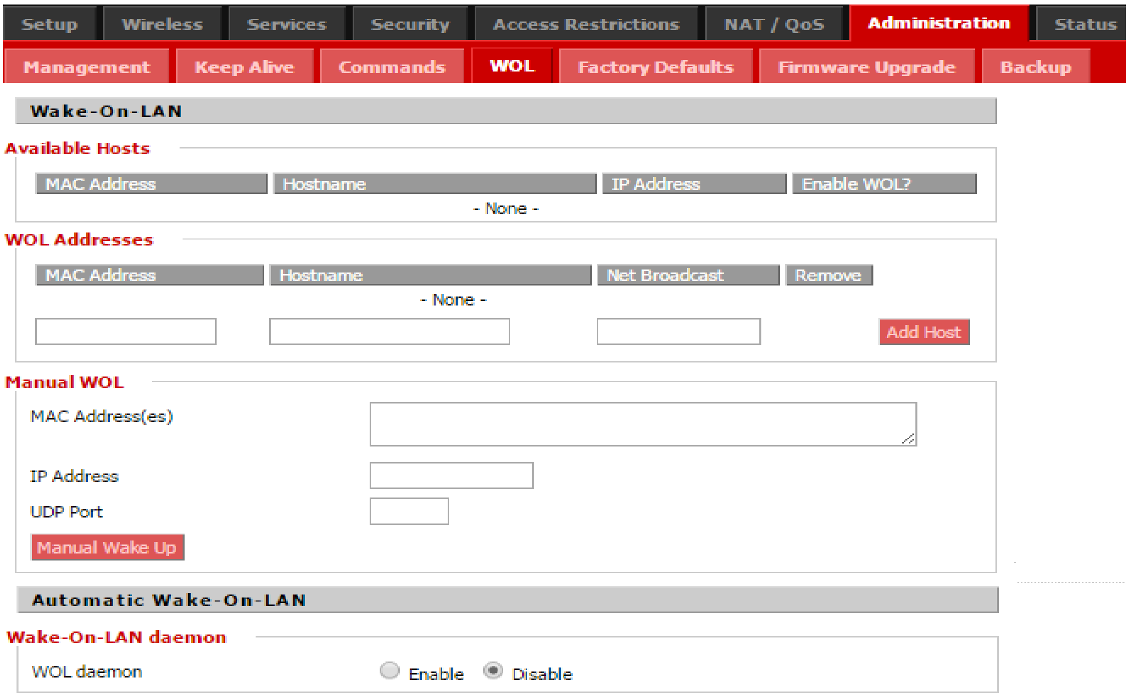
The user is able to run commands lines directly in the web interface.



Commands	Description
Command Shell	Fill the text area with the command “Run Commands” to input.
Startup/Shutdown	The user can save specific command lines to be executed at either the routers startup or shutdown.
Firewall	The user can input firewall commands into the text area. ***Note:** Only one command per row.

5.8.4 WOL

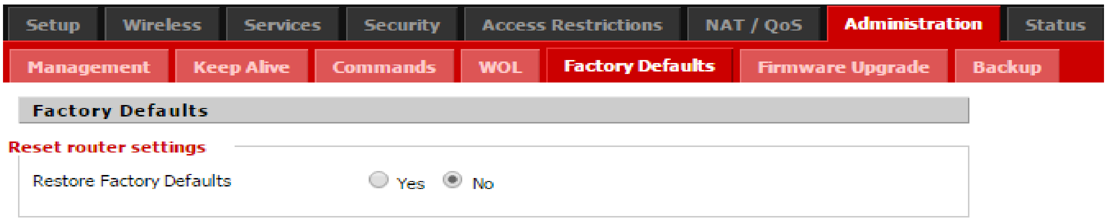
This page allows the user to wake up hosts that are located on the local network.



WOL daemon ○ Enable ● Disable

WOL	Description
Available Hosts	Show the user a list of hosts to add/remove from the WOL address list. Units with static IP addresses as well as units that are automatically discovered though DHCP clients.
WOL Addresses	Allows the user to wake individual hosts in the WOL list.
Manual WOL	Allows the user to wake an individual or list of hosts.

5.8.5 Factory Defaults



Factory Defaults

Reset router settings

Restore Factory Defaults ○ Yes ● No

If at some point the unit needs to be reset back to the factory default settings the user can select YES for the “Restore Factory Defaults” section.

To finalize the changes: Be sure to press the “Apply Settings” button

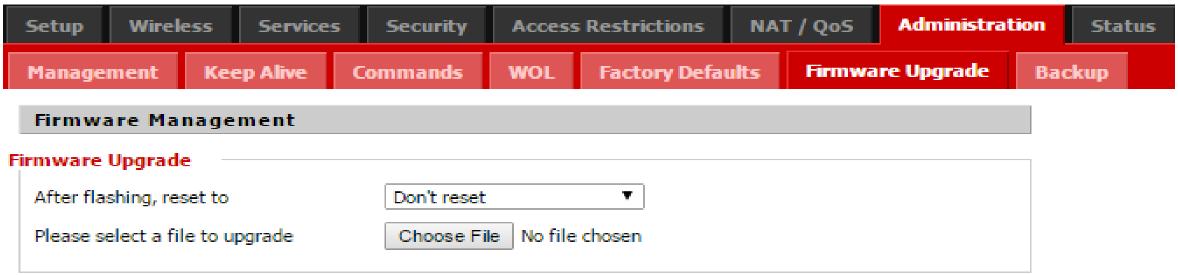
***Note:** After resetting to factory defaults, all previous saved settings will be lost and the unit will return to the original settings.

IP Address: 192.168.1.1 IP

Username: root

Password: admin

5.8.6 Firmware Upgrade



Firmware Management

Firmware Upgrade

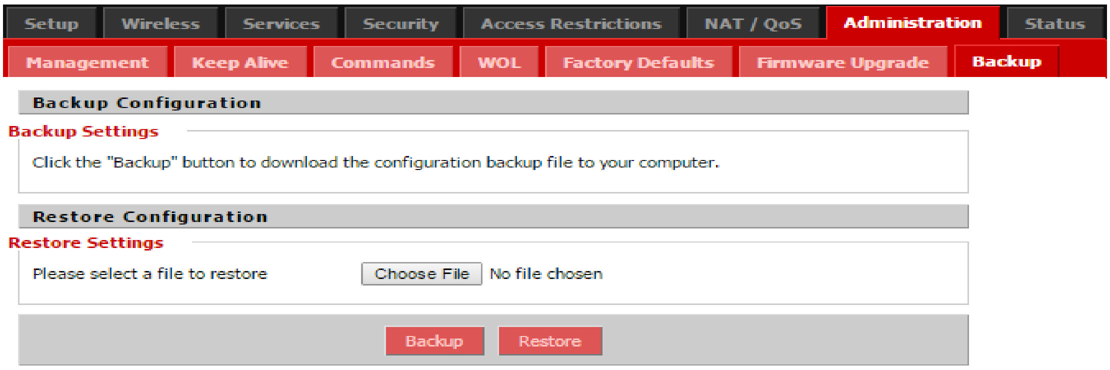
After flashing, reset to: Don't reset

Please select a file to upgrade: No file chosen

When new firmware releases are available, they will be posted on www.antaira.com. Typically, if the router is not experiencing any issues there is no need to load new firmware, unless new features are implemented and the upgrade is available.

***Note:** When new firmware is loaded, the previous configuration settings will be lost. Please make notes of the settings that are being used so the upgrade process is as easy as possible.

5.8.7 Backup



Backup Configuration

Backup Settings

Click the "Backup" button to download the configuration backup file to your computer.

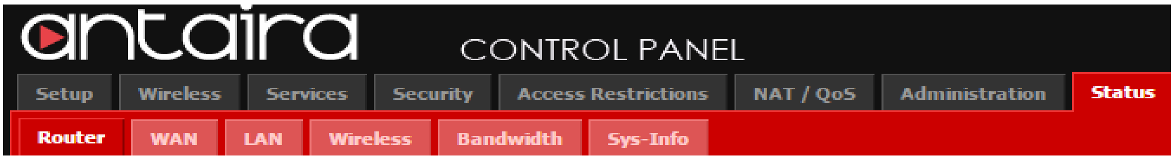
Restore Configuration

Restore Settings

Please select a file to restore No file chosen

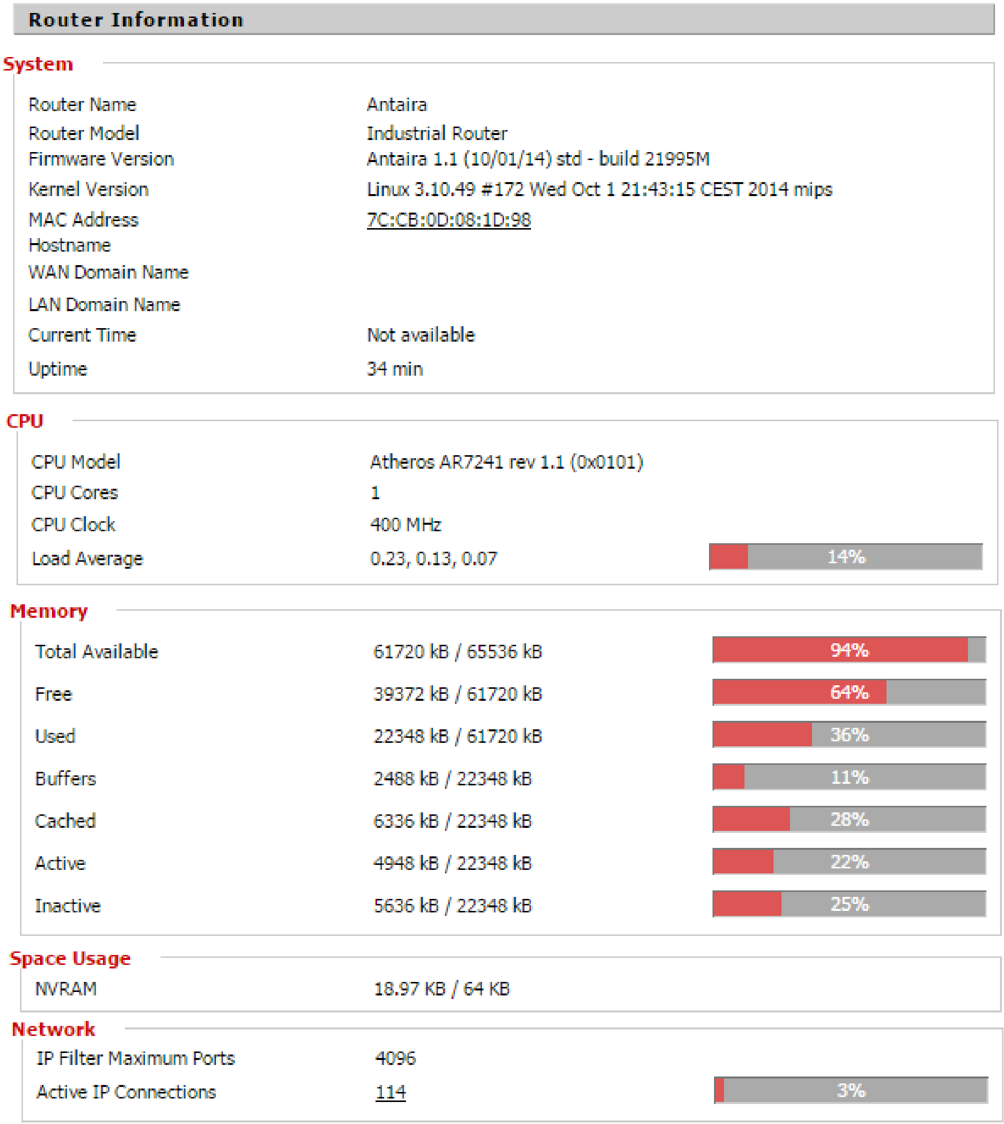
Backup	Description
Backup Settings	By pressing the "Backup" button the user will automatically download a .bin file of the current configuration settings on the router.
Restore Configuration	The user can upload a currently saved configuration file by pressing the "Choose File" button, then selecting the correct file from the network. ***Note:** Only restore files that are based on the same firmware version and correct router models.

5.9 Status



The status page will display the routers current status and configuration settings. The status pages will be for review purposes only, the user will not be able to make changes to any of the sections within the 'Status' section.

5.9.1 Router



Router Information

System

Router Name	Antaira
Router Model	Industrial Router
Firmware Version	Antaira 1.1 (10/01/14) std - build 21995M
Kernel Version	Linux 3.10.49 #172 Wed Oct 1 21:43:15 CEST 2014 mips
MAC Address	7C:CB:0D:08:1D:98
Hostname	
WAN Domain Name	
LAN Domain Name	
Current Time	Not available
Uptime	34 min

CPU

CPU Model	Atheros AR7241 rev 1.1 (0x0101)	
CPU Cores	1	
CPU Clock	400 MHz	
Load Average	0.23, 0.13, 0.07	14%

Memory

Total Available	61720 kB / 65536 kB	94%
Free	39372 kB / 61720 kB	64%
Used	22348 kB / 61720 kB	36%
Buffers	2488 kB / 22348 kB	11%
Cached	6336 kB / 22348 kB	28%
Active	4948 kB / 22348 kB	22%
Inactive	5636 kB / 22348 kB	25%

Space Usage

NVRAM	18.97 KB / 64 KB

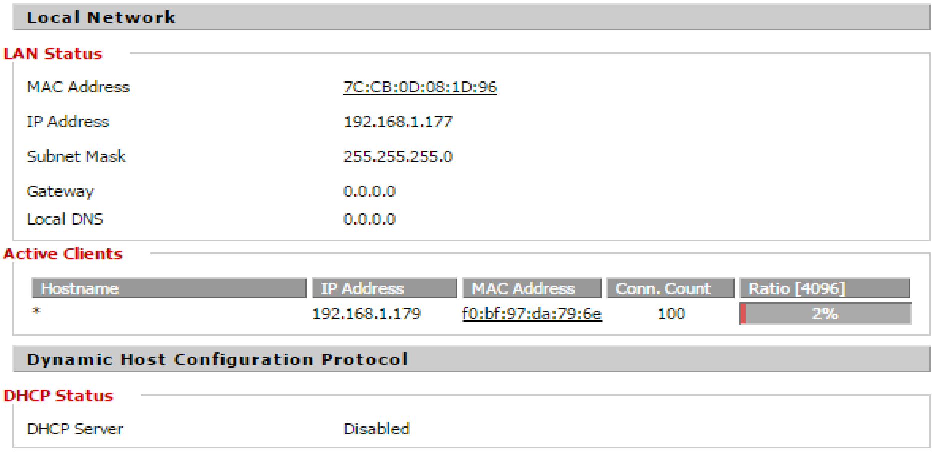
Network

IP Filter Maximum Ports	4096	
Active IP Connections	114	3%

Status Router	Description
System	Basic system information about the router such as the firmware and kernel versions as well as the MAC address.
CPU	How loaded the CPU is at any given time. Also listed is the CPU model and clock speed.
Memory	The percentages of the memory and how the router is allocating memory usage.
NVRAM	Is the amount of non-volatile memory is available on the router. Non-volatile RAM is memory that will keep the information even if the power is turned off.
Network	IP Filter Maximum Ports default setting is 4096 it is not recommended to increase this number.

5.9.2 LAN

This status screen shows all of the current LAN status and configuration settings. Please note that within the 'Status' tab, all information is read only. Changes are made under the standard tabs, not the 'Status' overview tabs.



Local Network

LAN Status

MAC Address	7C:CB:0D:08:1D:96
IP Address	192.168.1.177
Subnet Mask	255.255.255.0
Gateway	0.0.0.0
Local DNS	0.0.0.0

Active Clients

Hostname	IP Address	MAC Address	Conn. Count	Ratio [4096]
*	192.168.1.179	f0:bf:97:da:79:6e	100	2%

Dynamic Host Configuration Protocol

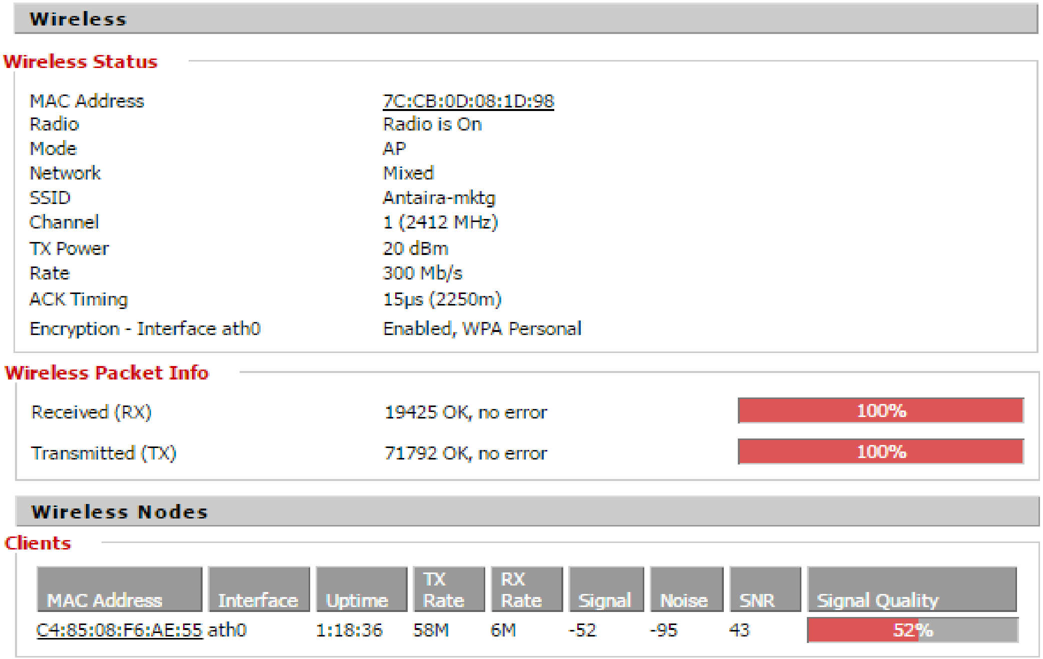
DHCP Status

DHCP Server	Disabled

Status LAN	Description
LAN Status	The current LAN setting that is in effect on the router.
Active Clients	A list of devices connected to the router, including their IP and MAC addresses.

5.9.3 Wireless

This status screen shows all of the current wireless statuses and configuration settings. Please note that within the ‘Status’ tab, all information is read only. Changes are made under the standard tabs, not the ‘Status’ overview tabs.



Wireless

Wireless Status

MAC Address	7C:CB:0D:08:1D:98
Radio	Radio is On
Mode	AP
Network	Mixed
SSID	Antaira-mktg
Channel	1 (2412 MHz)
TX Power	20 dBm
Rate	300 Mb/s
ACK Timing	15µs (2250m)
Encryption - Interface ath0	Enabled, WPA Personal

Wireless Packet Info

Received (RX)	19425 OK, no error	100%
Transmitted (TX)	71792 OK, no error	100%

Wireless Nodes

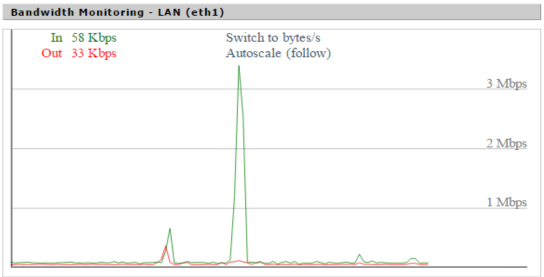
Clients

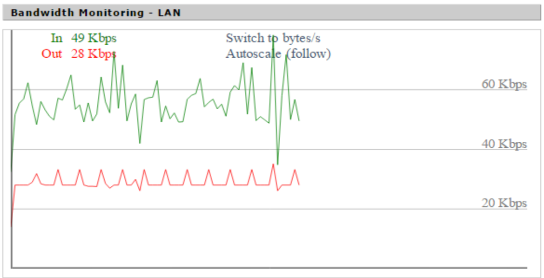
MAC Address	Interface	Uptime	TX Rate	RX Rate	Signal	Noise	SNR	Signal Quality
C4:85:08:F6:AE:55	ath0	1:18:36	58M	6M	-52	-95	43	52%

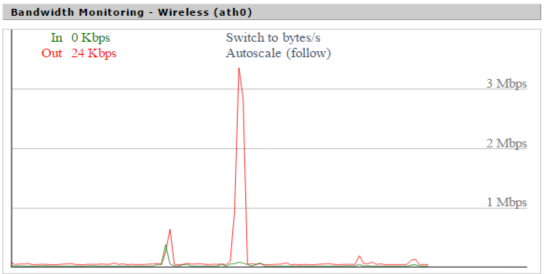
Status Wireless	Description
Wireless Status	The current wireless settings on the device such as the frequency, SSID, Data Rate and radio mode.
Wireless Packet Info	How much wireless data has been sent and received through the wireless unit, as well as any errors that have been detected.
Clients	Information of the wireless clients that are connected to the unit.

5.9.4 Bandwidth

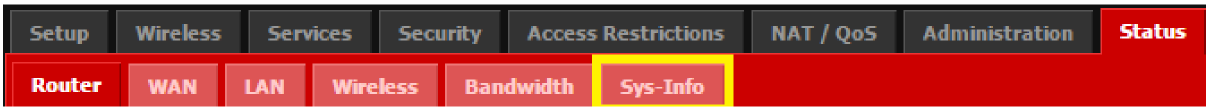
The unit will have bandwidth monitoring tools available for both the LAN and the Wireless of the router. Below are examples of the bandwidth graphs that the user might see.



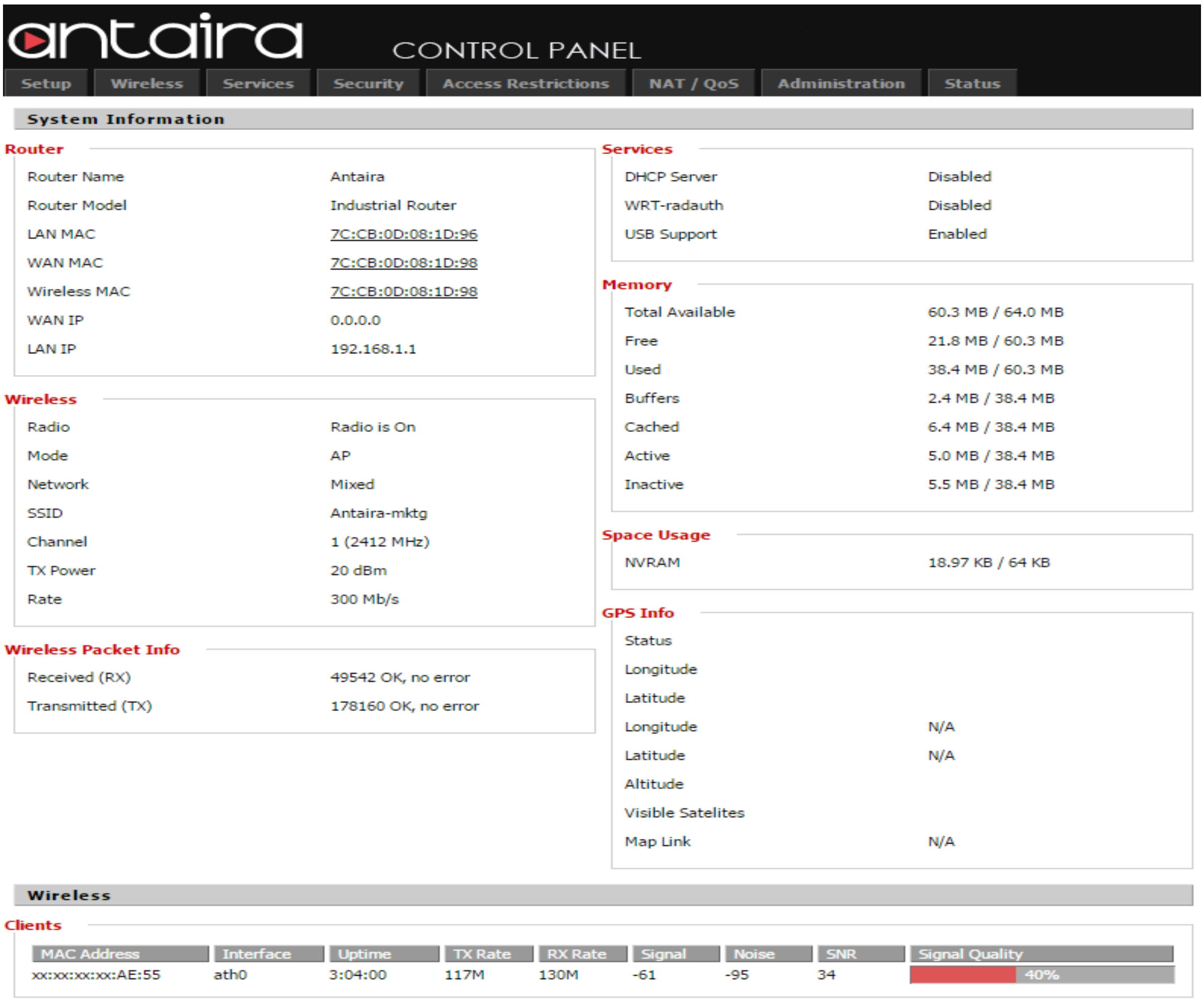




5.9.5 Sys-Info



The “Sys-Info” tab within the “Status” section will bring the user to the landing page of the unit.



System Information

Router

Router Name	Antaira
Router Model	Industrial Router
LAN MAC	7C:CB:0D:08:1D:96
WAN MAC	7C:CB:0D:08:1D:98
Wireless MAC	7C:CB:0D:08:1D:98
WAN IP	0.0.0.0
LAN IP	192.168.1.1

Wireless

Radio	Radio is On
Mode	AP
Network	Mixed
SSID	Antaira-mktg
Channel	1 (2412 MHz)
TX Power	20 dBm
Rate	300 Mb/s

Wireless Packet Info

Received (RX)	49542 OK, no error
Transmitted (TX)	178160 OK, no error

Services

DHCP Server	Disabled
WRT-radauth	Disabled
USB Support	Enabled

Memory

Total Available	60.3 MB / 64.0 MB
Free	21.8 MB / 60.3 MB
Used	38.4 MB / 60.3 MB
Buffers	2.4 MB / 38.4 MB
Cached	6.4 MB / 38.4 MB
Active	5.0 MB / 38.4 MB
Inactive	5.5 MB / 38.4 MB

Space Usage

NVRAM	18.97 KB / 64 KB

GPS Info

Status	
Longitude	
Latitude	
Longitude	N/A
Latitude	N/A
Altitude	
Visible Satelites	
Map Link	N/A

Wireless

Clients

MAC Address	Interface	Uptime	TX Rate	RX Rate	Signal	Noise	SNR	Signal Quality
xx:xx:xx:xx:AE:55	ath0	3:04:00	117M	130M	-61	-95	34	40%

6. Terms

Terms	Value Description
DHCP Client	**Enable the DHCP client by checking this box.** If DHCP fails and the configured IP address is zero, DHCP will retry. If DHCP fails and the configured IP address is not a zero, DHCP will stop and the configured IP settings will be used. The DHCP client will announce the configured System Name as hostname to provide DNS lookup.
IP Address	**The unit default IP is 192.168.1.254.** Assign the IP address that the network is using. If the DHCP client function is enabled, the user is not required to assign the IP address. The network DHCP server will assign the IP address for the switch and it will be displayed in this column.
Static	Choose this option to assign the static IP settings for the external interface. IP Address and Netmask settings should consist with the address space of the network segment where the device resides. If the device IP settings and administrator PC (which is connected to the device through wired or wireless) IP settings will use different address space, the device will become unreachable.
Subnet Mask	Assign the subnet mask of the IP address. If the DHCP client function is enabled, the user is not required to assign the subnet mask.
Gateway	Assign the network gateway for the switch. If the DHCP client function is enabled, user is not required to assign the Gateway. This is the IP address of the host router which resides on the external network and provides the point of connection to the next hop towards the internet. This can be a DSL modem, Cable modem, or a WISP gateway router. The device will direct all the packets to the gateway if the destination host is not within the local network. The Gateway IP address should be from the same address space (on the same network segment) as the device's external network interface (Wireless interface in the Station case and the LAN interface in the AP case).
Netmask	This is used to define the device’s IP classification for the chosen IP address range. This sequence (255.255.255.0) is a typical netmask value for Class C networks, which supports the IP address range 192.0.0.x to 223.255.255.x. Class C network Netmask uses 24 bits to identify the

	network (alternative notation "/24") and 8 bits to identity the host.
DNS	The Domain Name System (DNS) is an internet "phone book" which translates domain names to IP addresses. These fields identify the server IP addresses where the DNS requests are forwarded by the device. Primary DNS server IP is mandatory. It is used by the DNS Proxy and for the device management purpose. Secondary DNS server IP address is optional. It is used as the fail-over in case the primary DNS server will become unresponsive.

Terms	**Value Description**
Port Forwarding	Port forwarding allows specific ports of the hosts residing in the internal network to be forwarded to the external network. This is useful for a number of applications such as FTP servers, gaming, etc. where different host systems need to be seen using a single common IP address/port.
IP Address	This is the IP of the host which is connected to the internal network and needs to be accessible from the external network.
Port To	This is the TCP/UDP port of the application running on the host which is connected to the internal network. The specified port will be accessible from the external network.
Port From	This is the TCP/UDP port of the external port running and is the port seen by users on the internet. The specified port will be accessible from the external network.

Terms	**Value Description**
PPPoE	Point-to-Point Protocol over Ethernet (PPPoE) is a virtually private and secure connection between two systems which enables encapsulated data transport. It is commonly used as the medium for subscribers to connect to Internet Service Providers. Select the IP Address option PPPoE to configure a PPPoE tunnel in order to connect to an ISP. Only the external network interface can be configured as PPPoE client as all the traffic will be sent via this tunnel. The IP address, Default gateway IP and DNS server IP address will be obtained from the PPPoE server after PPPoE connection is established. Broadcast address is used for the PPPoE server discovery and tunnel establishment. Valid authorization

	credentials are required for the PPPoE connection:
PPPoE Username	Username to connect to the server (must match the configured on the PPPoE server).
Password	Password to connect to the server (must match the configured on the PPPoE server).
MTU/MRU	The size (in bytes) of the Maximum Transmission Unit (MTU) and Maximum Receive Unit (MRU) used for the data encapsulation while transferring it through the PPP tunnel.
Enable DMZ	The Demilitarized zone (DMZ) can be enabled and used as a place where services can be placed such as Web Servers, Proxy Servers, and E-mail Servers such that these services can still serve the local network and are at the same time isolated from it for additional security. DMZ is commonly used with the NAT functionality as an alternative for the Port Forwarding while makes all the ports of the host network device be visible from the external network side.
DMZ IP	Connected to the internal network host, specified with the DMZ IP address will be accessible from the external network. With a multicast design, applications can send one copy of each packet and address it to the group of computers that want to receive it. This technique addresses packets to a group of receivers rather than to a single receiver. It depends on the network to forward the packets to the hosts which need to receive them. Common Routers isolate all the broadcast (thus multicast) traffic between the internal and external networks, however provides the multicast traffic pass-through functionality

Terms	**Value Description**
RTS Threshold	Determines the packet size of a transmission and, through the use of an access point, helps control traffic flow. RTS/CTS (Request to Send / Clear to Send) is the mechanism used by the 802.11 wireless networking protocol to reduce frame collisions introduced by the hidden terminal problem. RTS/CTS packet size threshold is 0-2347 bytes. If the packet size the node wants to transmit is larger than the threshold, the RTS/CTS handshake gets triggered. If the packet size is equal to or less than threshold the data frame gets sent immediately. System uses Request to Send/Clear to Send frames for the handshake which provide collision reduction for access point with hidden stations. The stations are sending a RTS frame first while data is send only after handshake with an AP is

	completed. Stations respond with the CTS frame to the RTS which provides clear media for the requesting station to send the data. CTS collision control management has time interval defined 78 during which all the other stations hold off the transmission and wait until the requesting station will finish transmission.
ACK Timeout	Specifies the ACK Timeout. Every time the station receives the data frame it sends an ACK frame to the AP (if transmission errors are absent). If the station receives no ACK frame from the AP within the set timeout, it re-sends the frame. The performance drops because too many data frames are being re-sent, thus if the timeout is set too short or too long, it will result in a poor connection and throughput performance.
QoS Prioritization	Network traffic is always unpredictable and the only basic assurance that can be offered is the best effort traffic delivery. To overcome this challenge, Quality of Service (QoS) is applied throughout the network. This ensures that network traffic is prioritized according to specified criteria and receives preferential treatments. By traffic prioritization function, users can classify the traffic into four classes for differential network application. All of Antaira's industrial managed switches support four priority queues.
System Warning	System warning function is very important for managing a switch. Users can manage the switch by "Syslog", "System Event Log", and "Email Server" through the "Services" tab for Advanced Notice in any event type. By setting the remote server, the user will receive these system warning features through email, whenever any event occurs. It definitely increases the flexibility and capability for the user to monitor the remote site network and device statuses.