MG700 WiFi Gateway/Router

User's Manual

Features

Supports WiFi 802.11 b/g/n
Optional internal battery
Micro SD Card/SIM Card Slot

Description

The MG700 is a high performance global router for M2M applications. It is WiFi gateway which supports three serial ports and functions to expand a user's M2M application. A user can easily configure settings from the GUI interface and record data on a micro SD card or USB storage device. An optional internal battery provides backup power which allows for an alert to be sent in the event of a power failure.

Table of Contents

1 Introduction

The MG700 is a mobile router. MG700 has a built-in 802.11 b/g/n WiFi radio that functions as both an access point and a WAN bridge. This allows WiFi devices to securely communicate with the MG700 and access a wired network or the internet. It also enables the MG700 to use available WiFi networks for even higher speed internet access.

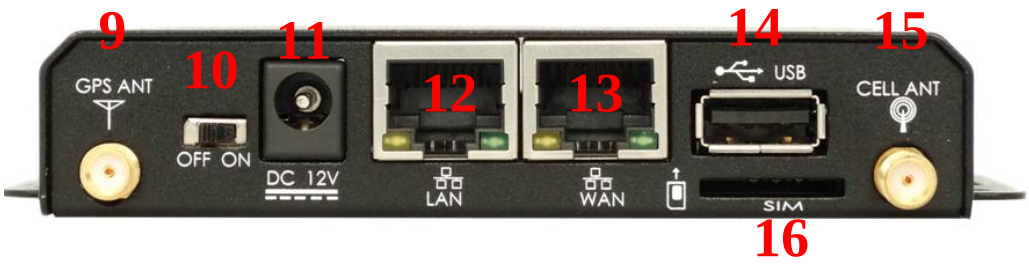
Panel Indicators

- Top Panel

LED indicators on top

Item	Description
1	WiFi indicator. LED on when WiFi AP is ready. LED flashes when data is transmitting.
2	Cellular indicator. LED on when the cellular function is ready. If Cellular led is flashing, it means searching Service Provider.
3	Power indicator. LED on when the power is on.
4	Optional battery charging indicator. LED on when the battery is charging.

- Back Panel



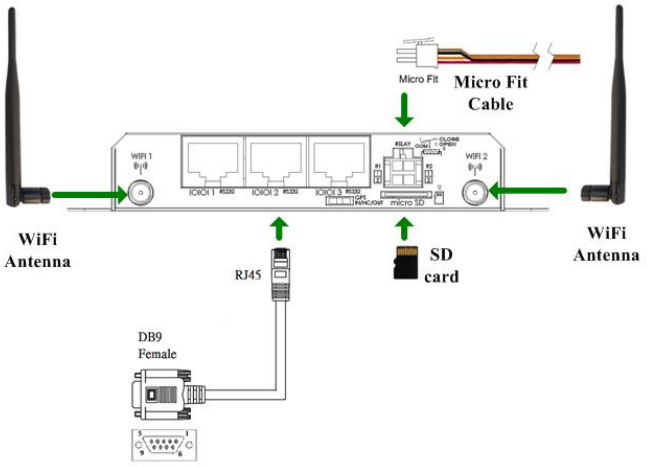
Back side

Item	Description
9	Optional GPS antenna connector.
10	On/Off Switch
11	12VDC power input
12	LAN Port
13	WAN Port
14	External USB device, only for USB storage.
15	Cellular antenna connector
16	SIM card slot

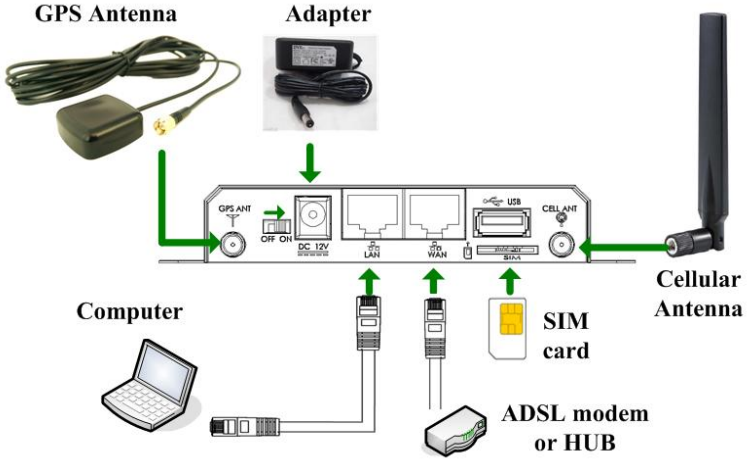
2 Installation Guide

Open the MG700's Box, there are include MG700 body、AC adapter box and accessory box on MG700's Box. User can login the MG700's web GUI by three steps.

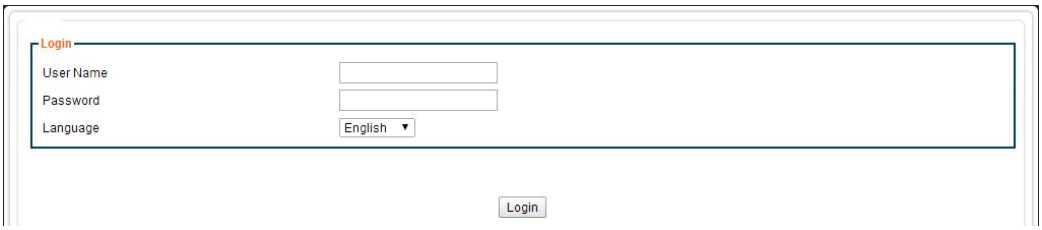
Step 1: Install the WiFi Antenna、SD card、Micro Fit Cable and RJ45 to DB9 Cable.



Step 2: Install Cellular Antenna、SIM Card、Adapter、GPS Antenna and LAN cable to Computer. Then Turn the Switch on.



Step 3:Input http://192.168.60.1:8080 to login page on browser.

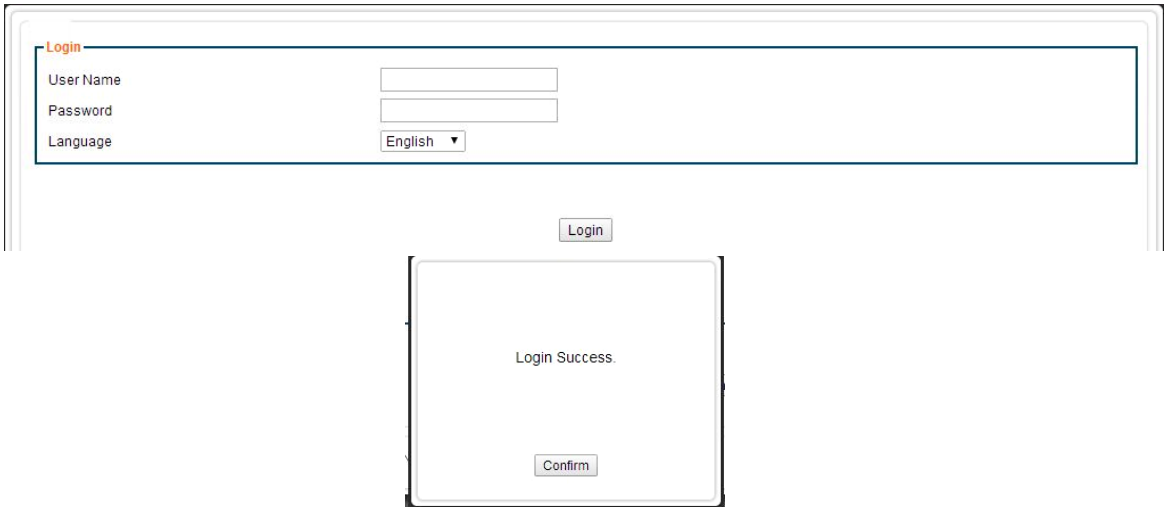


Note:

1. SD card、SIM card、Micro Fit Cable、Cellular Antenna、GPS Antenna、RJ45 to DB9 Cable depend on different MG700's model.
2. WiFi Antenna and Adaptor are necessary.
3. If user uses the ADSL or Static IP, please connect the WAN port.

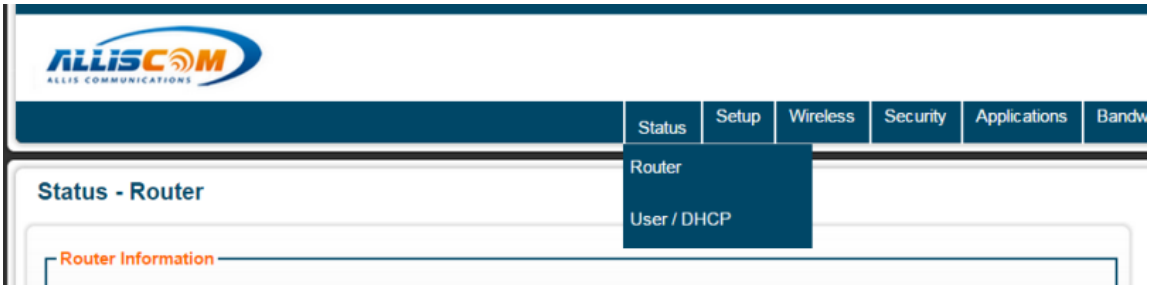
3 Login Page

For the initial setup of a MG700, a user will use an Ethernet cable to connect to a computer. Using a web browser, enter the default IP address and port (192.168.60.1:8080) into the address bar. The Login page will appear. Enter “admin” into the User Name and Password fields. The User Name and Password can be changed during initial setup. If you logged in successfully, then you will see the Login Success page. Press the “Confirm” button to enter into the configuration page.



4 Status Page

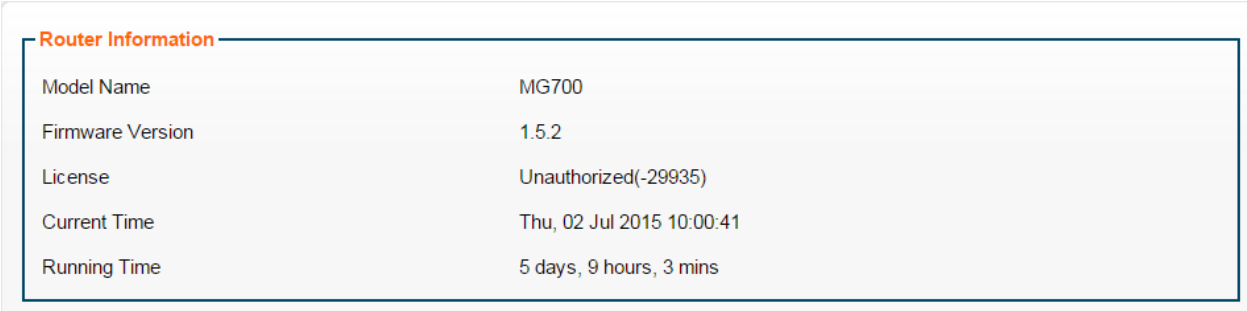
Under the Status tab, information for the Router, User/DHCP and User/Current can be selected through the drop-down menu.



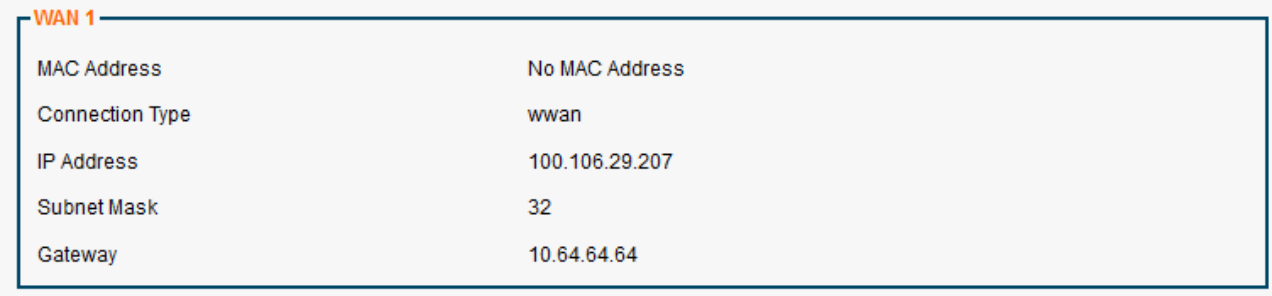
4.1 Router

On the Router Page, the router information will be shown in four sections: Router Information, WAN 1, LAN 1, and Wireless Network 1.

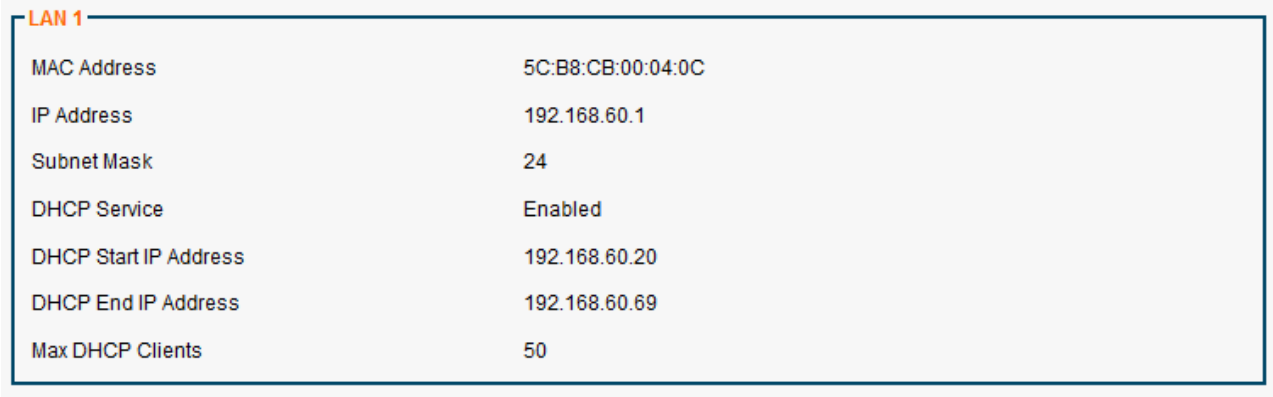
Router Information includes model name, firmware version, license, and current and running times.



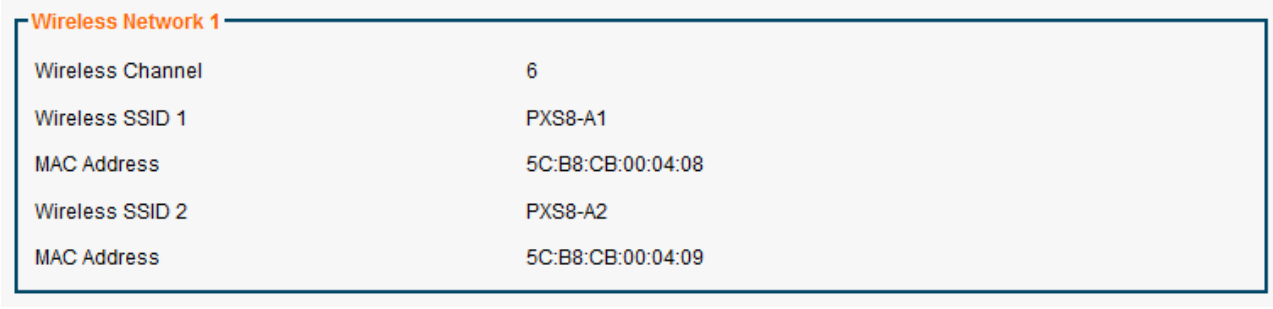
The WAN 1 information shows MAC address, connection type, IP address, subnet mask, and gateway.



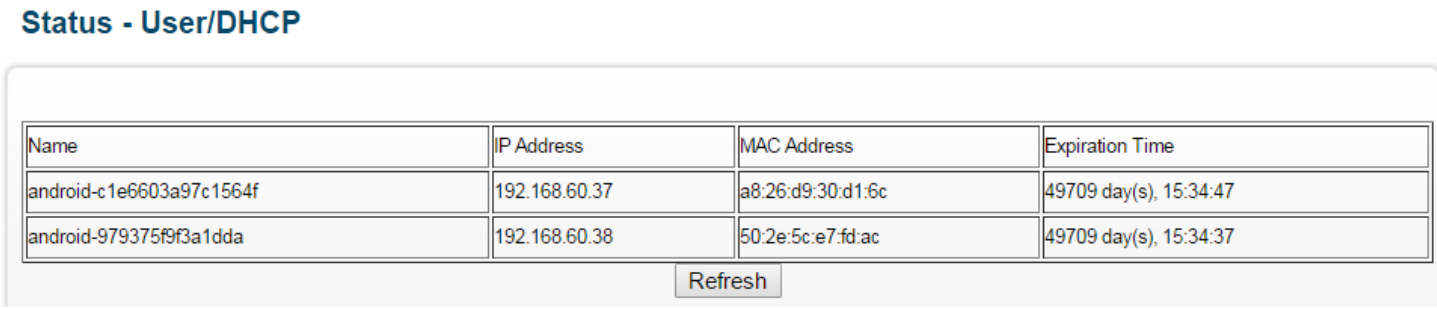
The LAN 1 page shows MAC address, IP address, subnet mask, DHCP service, DHCP start IP address, DHCP end IP address, and max DHCP clients.



The Wireless Network 1 includes the wireless channel, wireless SSIDs, and MAC addresses.

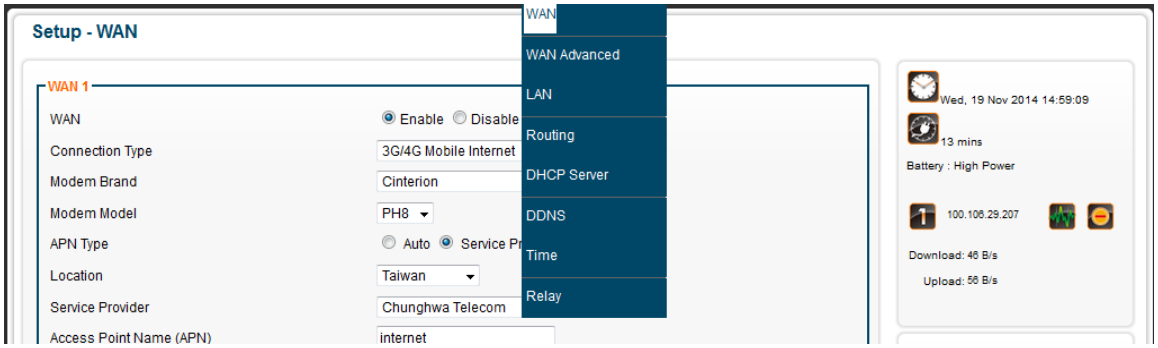


4.2 User / DHCP



5 Setup Page

On the Setup – WAN page, a user can set up the WAN, LAN, DHCP, DDNS, Time, and Relay.

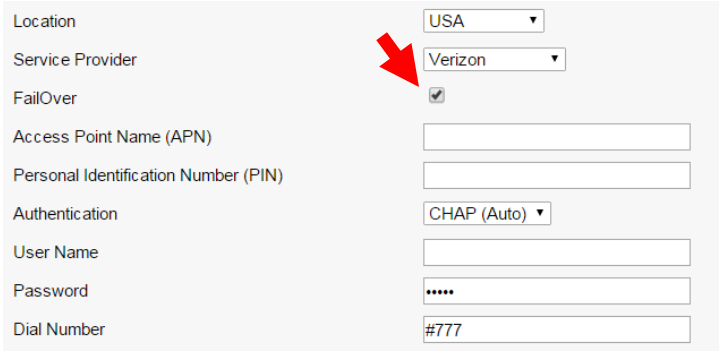


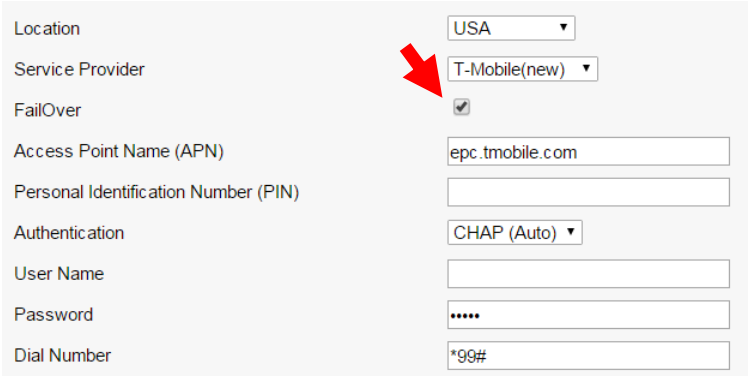
5.1 WAN

In the WAN 1 section of the WAN page, select Enable and Connection Type. The connection types to choose from are DHCP, PPPoE, Static IP, 3G/4G Mobile Internet, and WISP. For most Ethernet connections, the default DHCP client mode is sufficient. If your WAN interface has been assigned a static IP address, then select “Static IP” and enter the appropriate TCP/IP setting value. If your Ethernet connection uses the PPPoE protocol, then select “PPPoE” and enter your login information. The MG700’s WiFi radio can also be used in place of the wired Ethernet WAN connect.

- Failover

In MG700 support failover function. The failover is switching to a redundant Service Provider between Verizon and T-Mobile network. If Service Provider is selected Verizon, the MG700 will select Verizon network to be the main Service Provider. MG700 will connect internet by Verizon network first. If Verizon network cannot connect internet, MG700 will change to T-mobile network automatically.

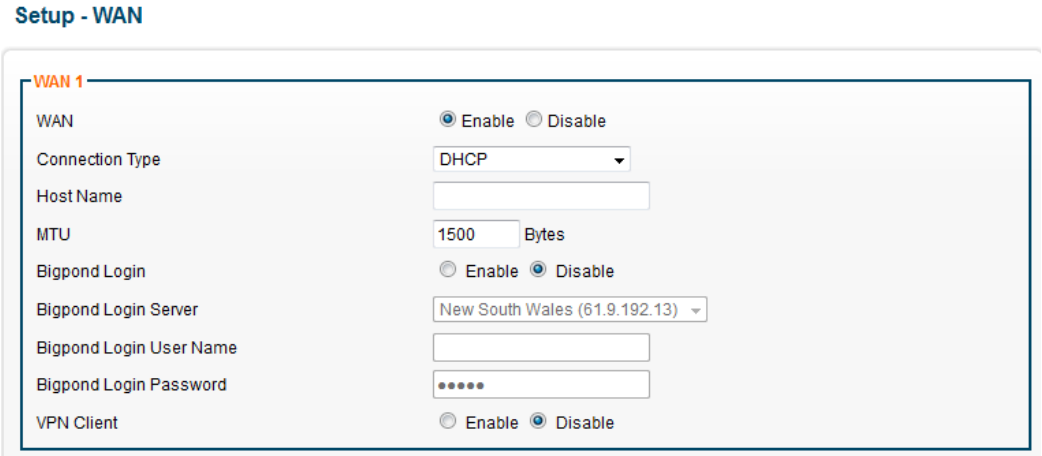




Important: The Failover function is only support Verizon and T-mobile network system switch automatically.

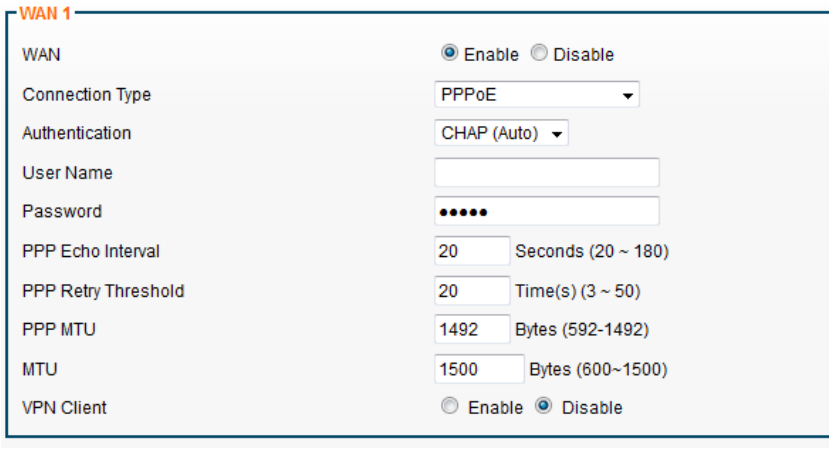
- DHCP mode

If DHCP is selected, then the MG700 will be assigned an IP address from the server. The IP address is automatically assigned to you by your ISP (most common Ethernet WAN option).



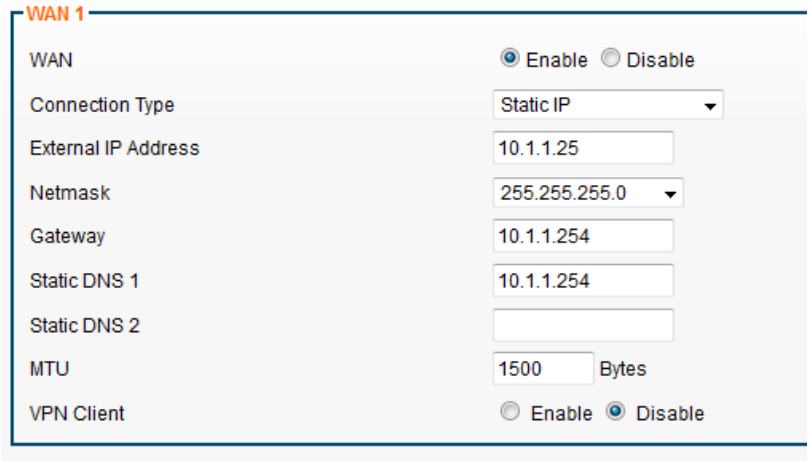
- PPPoE mode

In PPPoE mode, a user needs to key in the User Name and Password. If your ISP provides the username and password, then please enter the information accordingly.



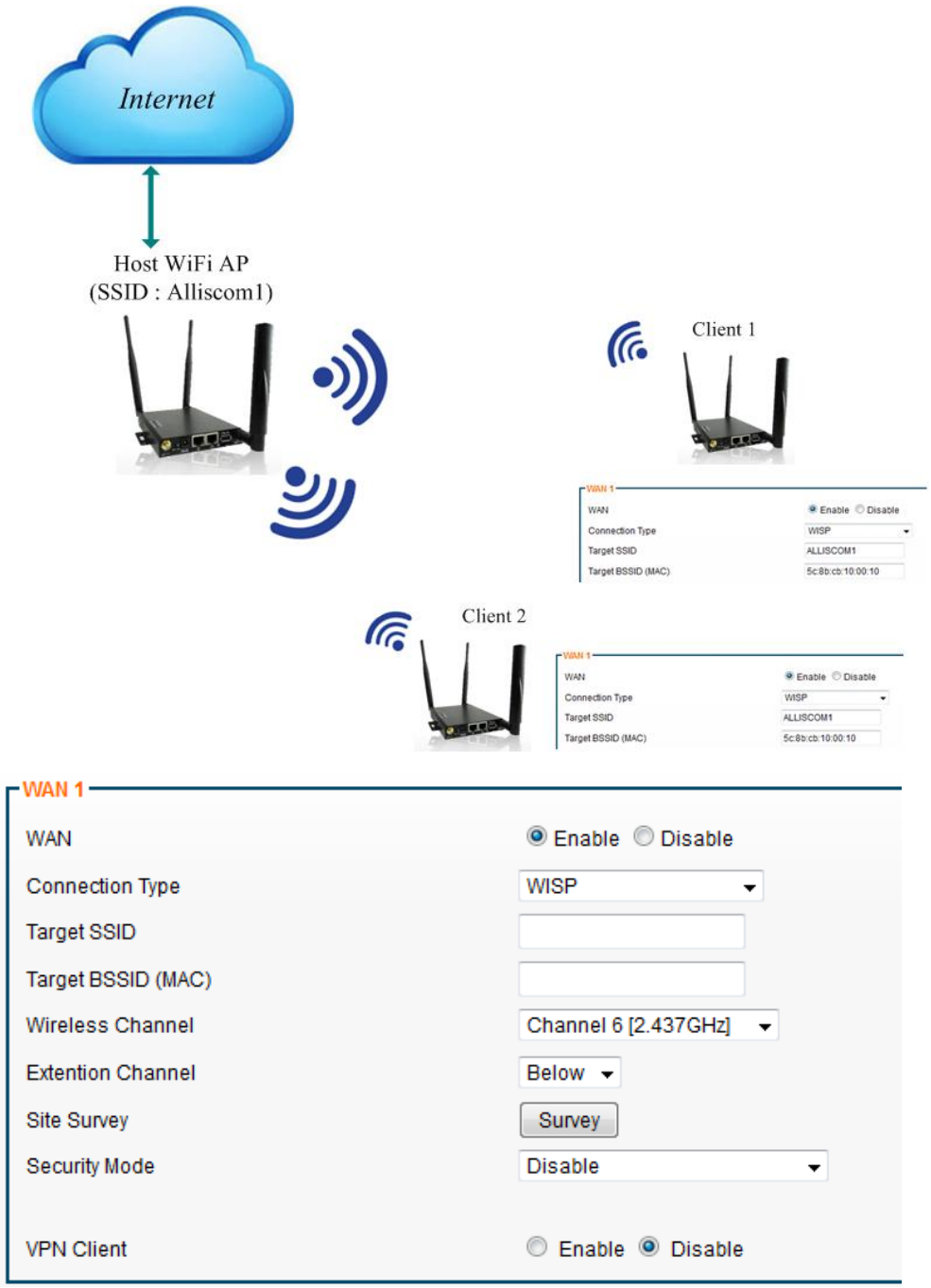
- Static IP mode

  For Static IP connections, enter the IP address, netmask, gateway and DNS information. The IP address, subnet mask, gateway and DNS server are provided by your ISP. The IP address cannot be the same as the LAN's IP address.

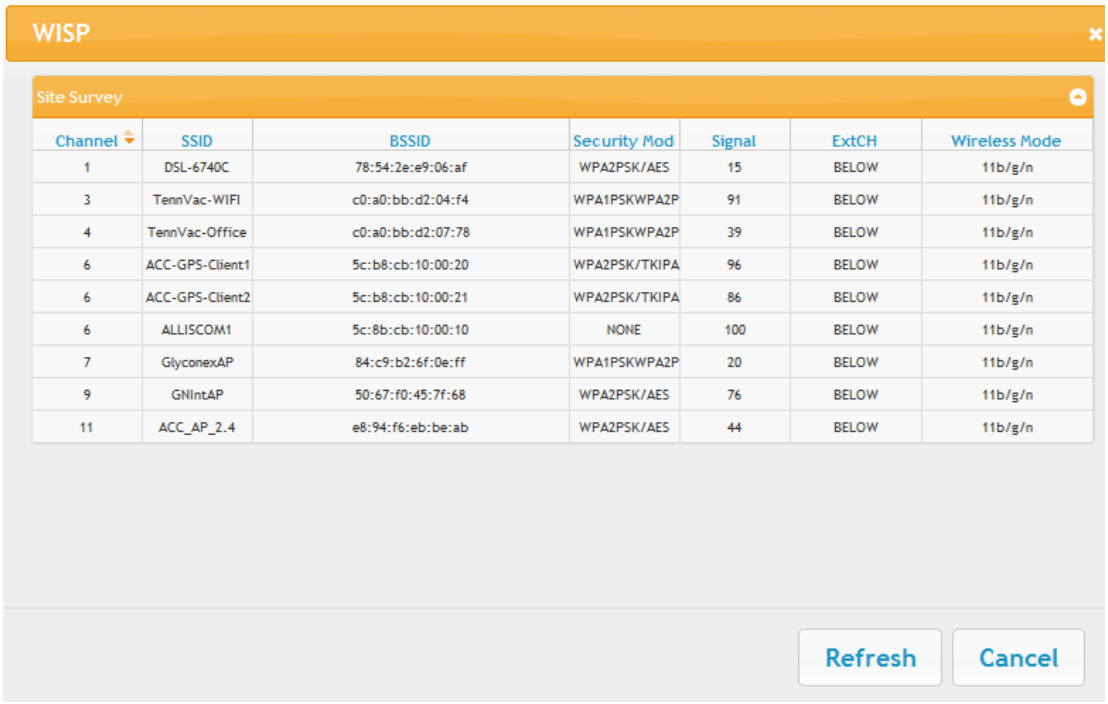


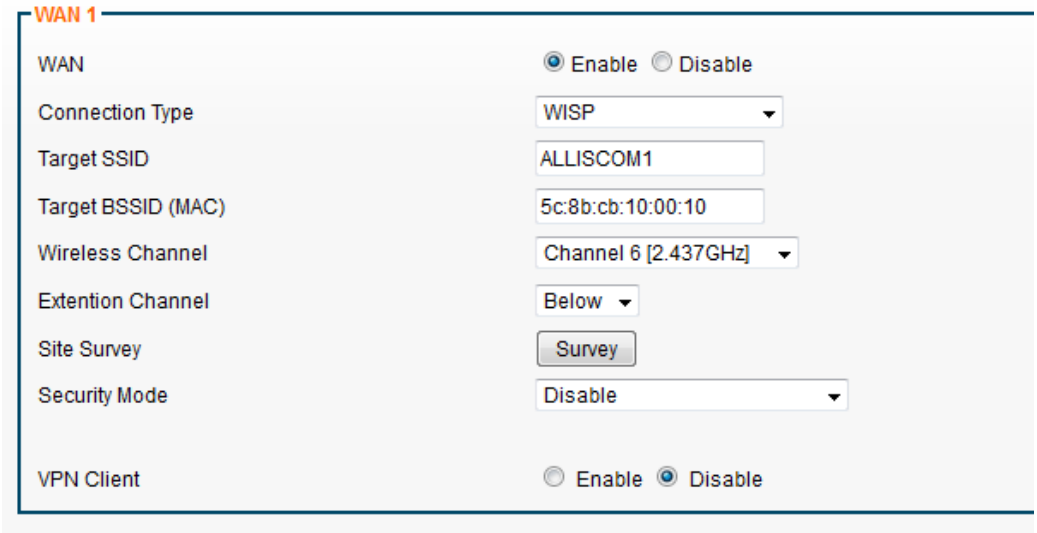
- WISP mode

  The built-in WiFi radio can be used as a WAN interface to establish a connection to an external WiFi network. The MG700 supports both AP mode and WiFi Client mode. Whenever the MG700 detects the target WiFi network, it will automatically try to make a connection to this network. This option can be disabled at the Ethernet WAN interface, but the MG700 can still function as a local WiFi access point while connected to the remote WiFi network. A user can also set the MG700 to connect to other WiFi AP. In the WISP mode, press the Survey button and the MG700 will search for WiFi AP. For example, the Client1 and Client2 can connect internet by WISP setting through Host WiFi AP.



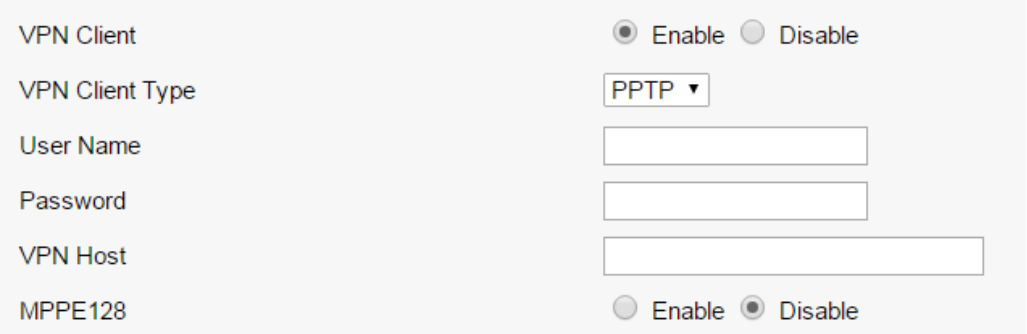
A site survey list will appear. After selecting the proper WiFi AP, the target SSID and MAC address will fill in automatically.





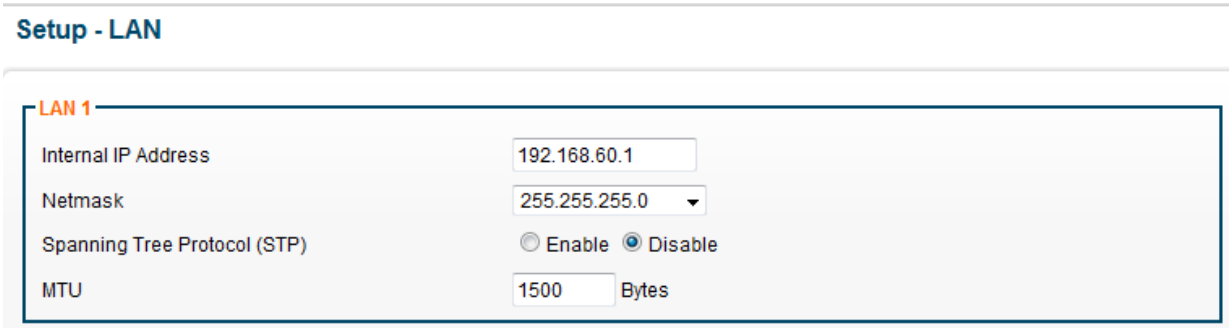
- VPN Client

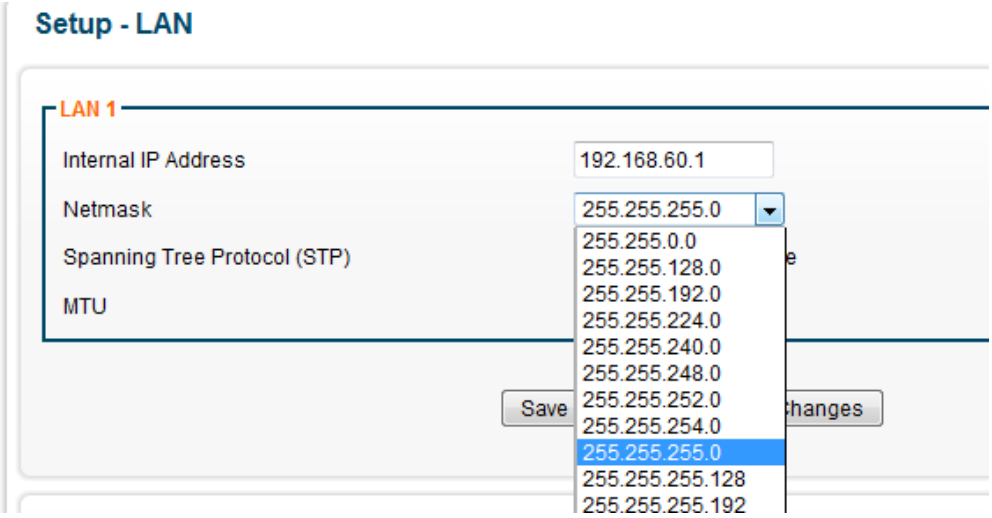
  The MG700 support act as PPTP “client”, it will enable to allow the WAN to make a client connection to a remote PPTP server. If enabled, enter the PPTP username, password, VPN host IP address an MPPE128 parameters required for the PPTP VPN connect.



6 LAN

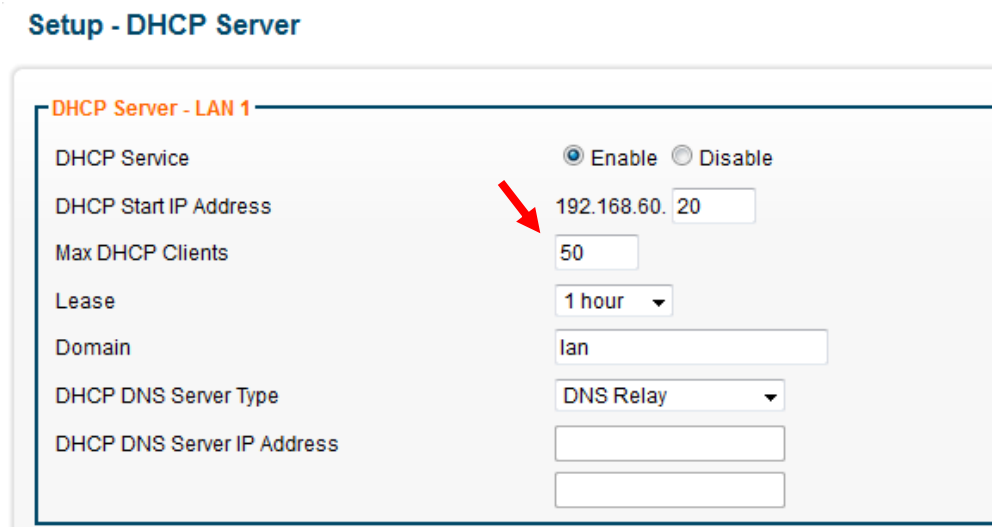
If a user needs to change the MG700 default LAN subnet, then go to the Setup - LAN page and enter the IP address assigned to the MG700 and select the desired subnet mask from the drop-down list. The MG700 DHCP server will automatically adjust to serve addresses from the new subnet.





7 DHCP Server

The DHCP service is enabled by default, a user can set the Start IP address and Max DHCP Clients number.



8 DDNS

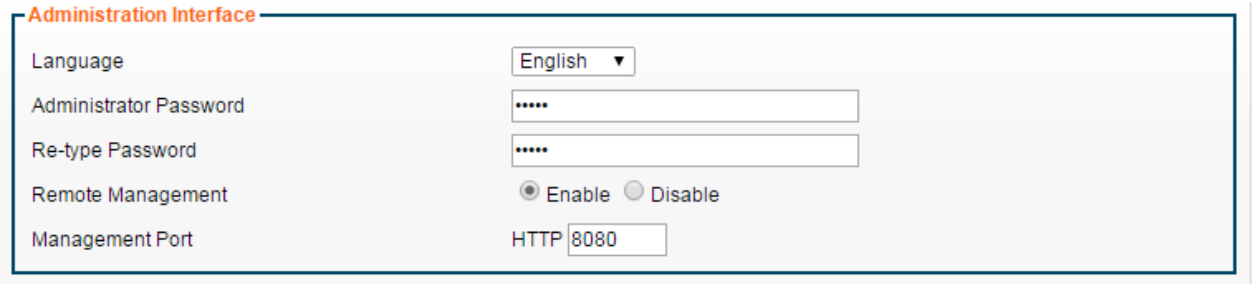
DDNS (Dynamic Domain Name Service) allows an "internet domain name" to be assigned to a computer /router which has a dynamic IP address. This makes it possible for other internet devices to connect to the computer/router without needing to trace the changing IP addresses themselves. To enable DDNS, you will first need to sign up for DDNS services from one of the supported DDNS service providers such as DynDNS.org, TZO.com or ZoneEdit.com…etc. The MG700 supports the unique DDNS server for free. DDNS is useful when combined with the virtual host and/or port-forwarding features. It allows internet users to connect to your virtual host by using a domain name rather than an IP address. The DDNS service helps users to locate the correct IP address through the domain name.

For example, assume that you wish to remotely access a web server embedded in one of your LAN devices, but you obtain a different IP address from your ISP each time you connect to the internet. In this case, you will need to enable DDNS, so users can connect to your web server through a fixed domain name without regard for the changing IP address of your WAN connection. The DDNS service is disabled by default. A user can configure the host name and password.

As a service to its customers, MGDDNS operates a Dynamic DNS service which is automatically updated each time a MG700 IP changes. The DDNS host name is the MAC address of the MG700 in the "mgddns.com" domain. For example: 5CB8CB000500.mgddns.com. This "permanent" DDNS names is always available but cannot be changed. To create your own hostname, register with one of the supported DDNS service providers before configuring the MG700's DDNS settings.

DDNS Service	Select Enable to enable DDNS service. Select Disable to disable DDNS service.
DDNS Type	Mgddns.com
Host Name	Enter the name (such as “alvin”) assigned by DDNS service for MG700, e.g: alvin.mgddns.com, the DDNS service will be updated the hostname on MG700. The hostname must match exactly on both the DDNS account.
Update Time	Update DDNS IP period.

Remote Management needs to be enabled if a user wants get the MG700 by a DDNS server.



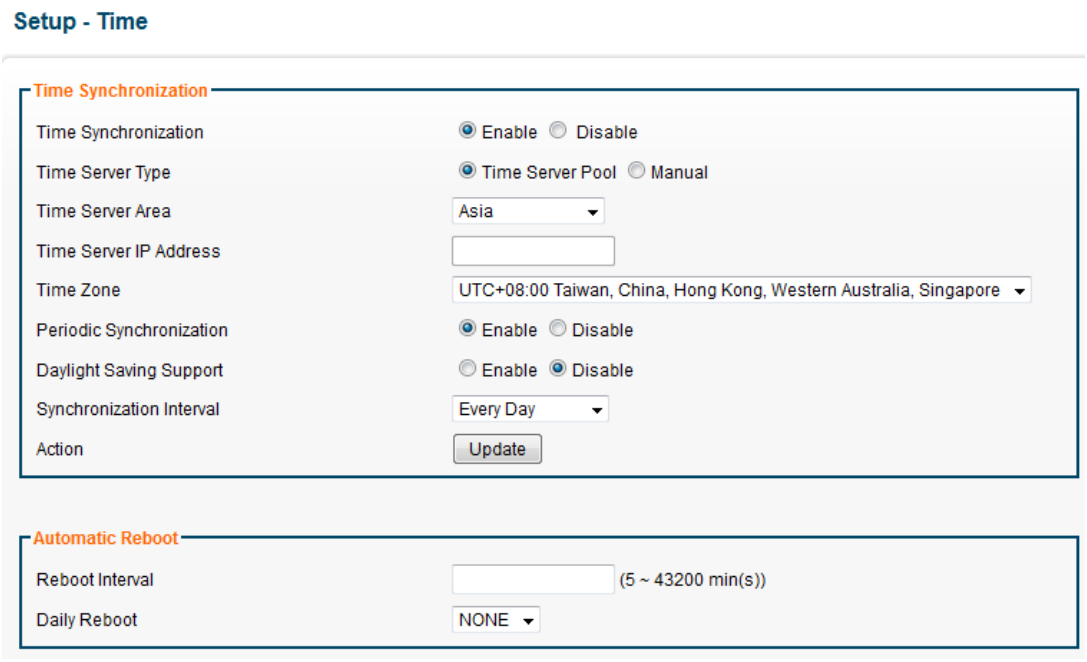
Important:

8.1.1.1 The DDNS should be public IP address.

8.1.1.2 Remote Management need to Enable

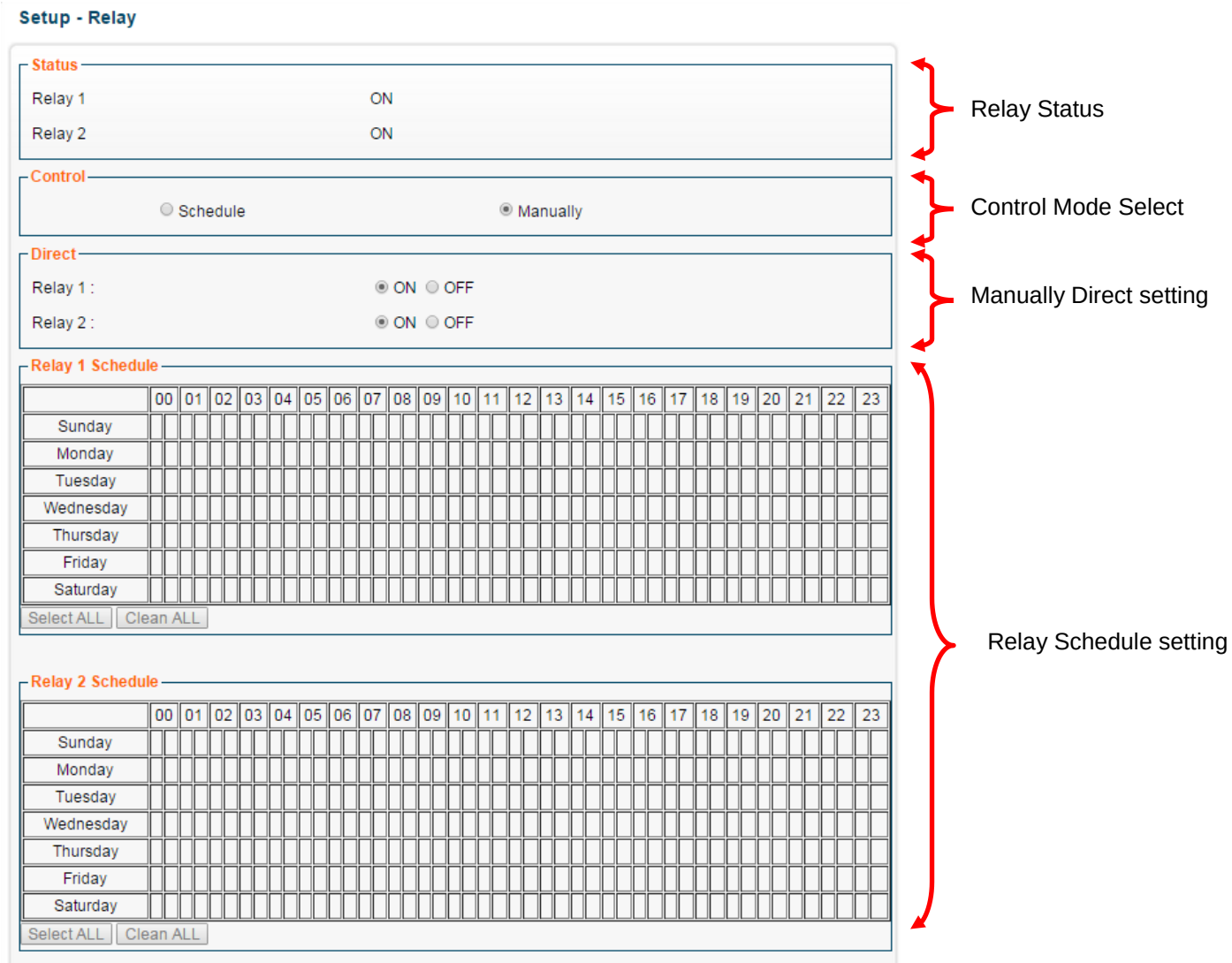
9 Time

The MG700 supports NTP client to update the time. A user can set up the Time Server Area, Time Zone and synchronization interval. A user can also set up the automatic reboot time on this page.

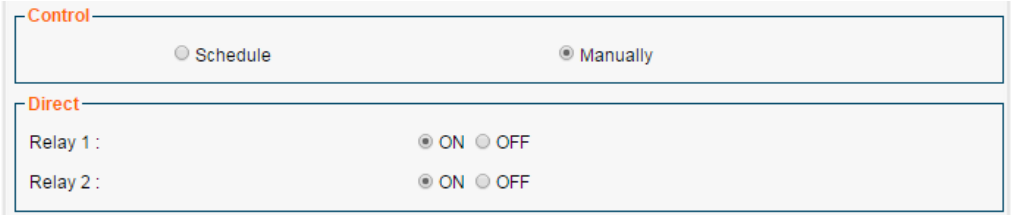


10 Relay

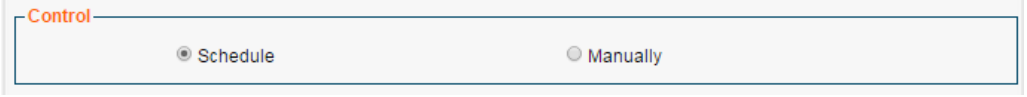
MG700 support the 2 channel GPIO Relay Function. User can see and control the Relay status on this page.



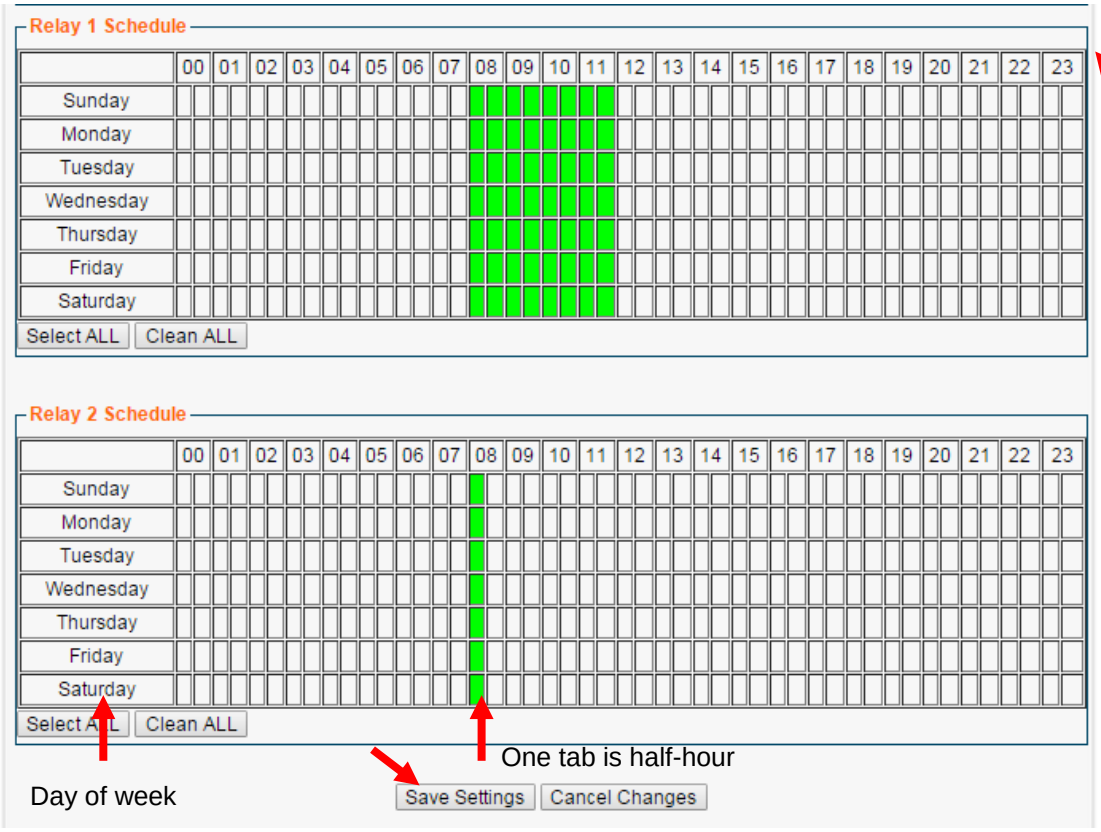
In control block, MG700 support Schedule and Manually mode. If User select Manually mode, user can setting the Relay is On or Off immediately. If User select Schedule mode, MG700 will set Relay On/Off by schedule.



As the control mode change to Schedule, user can setting the Relay1/Relay2 Schedule time is on or off status.



As Schedule selected on Control block, the Relay schedule table will be enabled. User can select the Relay on or off time, the MG700 will turn relay on or off by schedule table automatically. There are 2 tabs in an hour row. After setup done, press “Save settings” button to update the newest configuration.



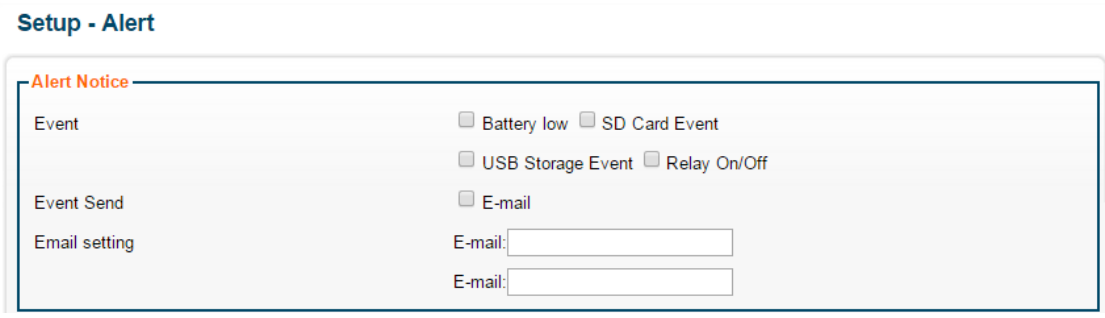
Note:

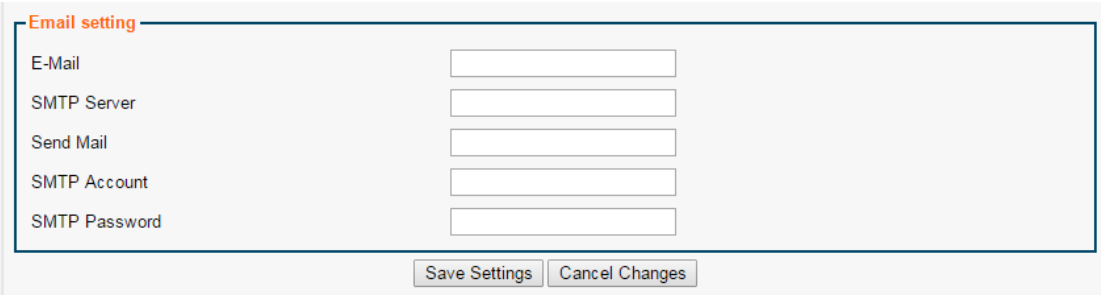
10.1.1.1 Relay Schedule tab could be selected as in schedule mode.

10.1.1.2 The time of day depends on MG700’s time.

11 Alert

In this Page, MG700 support 2 E-mail Alert notice. When the Event trigger, it will send the mail to notice user. The Event include SD card full、USB storage Full、Relay On and Relay Off.





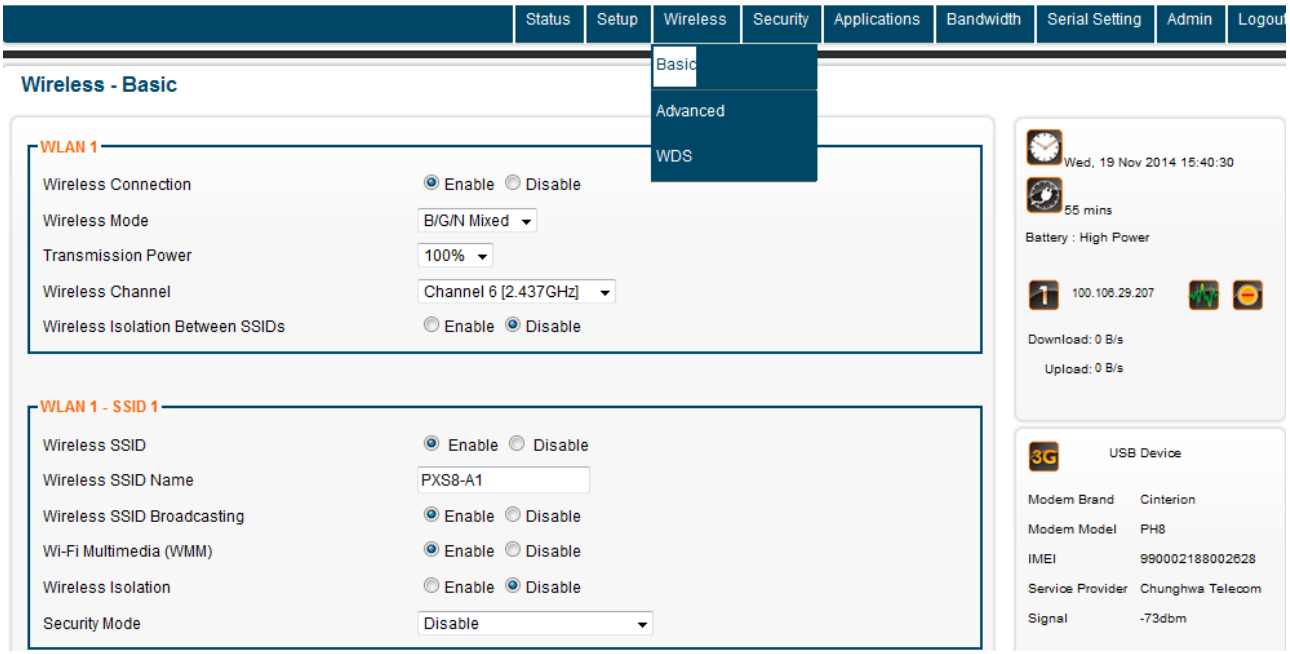
E-Mail	User e-mail address
SMTP Server	SMTP mail server : Port, such as smtp.gmail.com:465
Send Mail	User e-mail address name
SMTP Account	SMTP user's account name
SMTP Password	SMTP user's password

Note: The Battery notice low event is for option.

12 Wireless Page

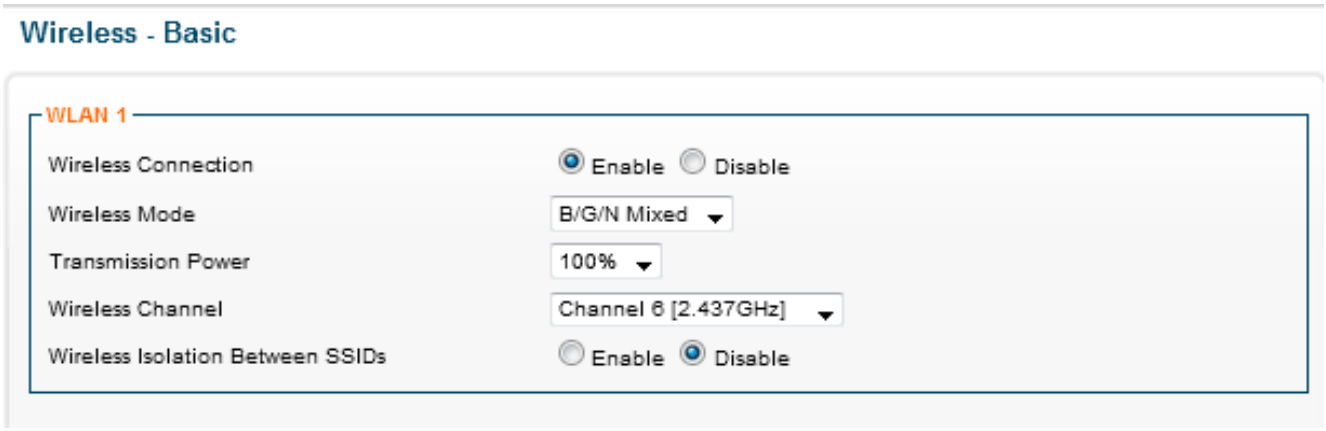
The MG700's multiple simultaneous SSIDs provide the ability to create separate security mode and key settings for both convenience and increased protection. For example, users can configure their network devices to access the first SSID with the WPA2 PSK (Pre-Shared Key), while guests can be assigned to the second SSID with a WEP key that changes periodically. In addition, the SSIDs can be isolated to prevent malicious attacks and local area network access for guests using the second SSID. This provides an extremely convenient approach to providing internet access for guests while maintaining strong security protection at all times.

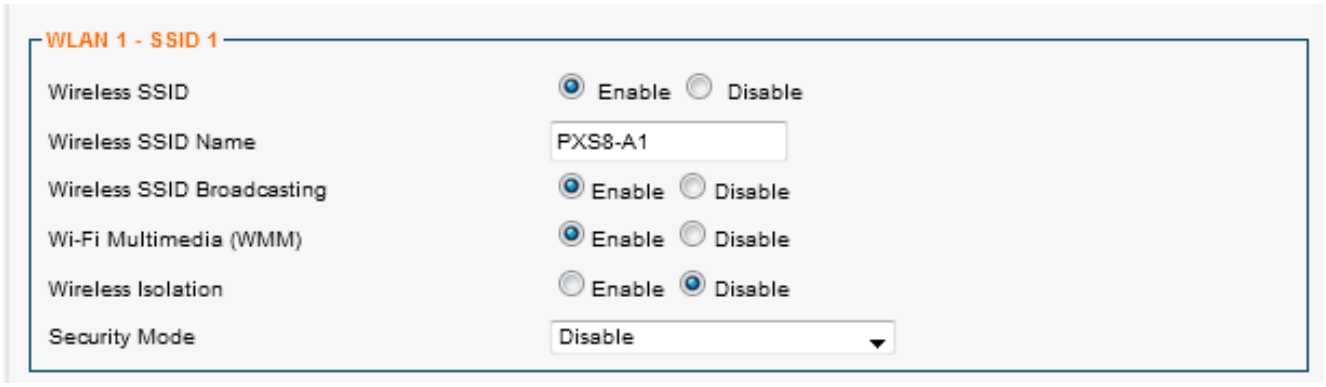
The Wireless Page has the WiFi Basic and WDS settings. The MG700's internal 802.11 b/g/n WiFi radio is disabled by default as a security precaution. To provide laptops, tablets and other WiFi devices with internet connectivity through the MG700, go to the Wireless - Basic page and enable the wireless connection.



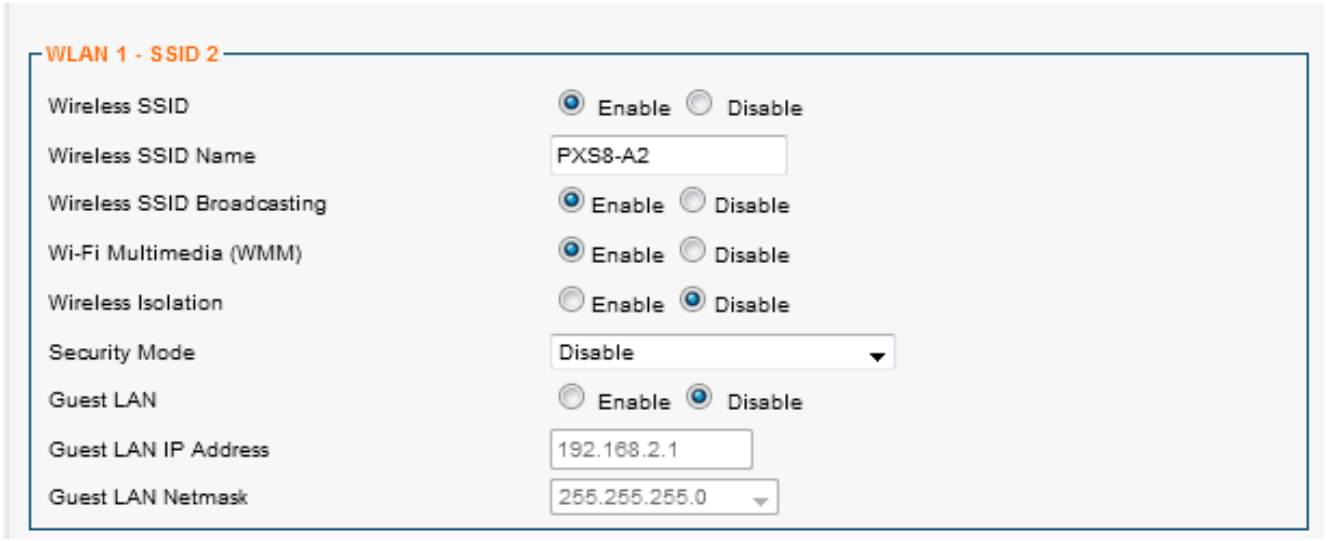
12.1 Basic

On the Basic Page, a user can select to enable or disable wireless connection. A user can also change the wireless mode, WiFi power and channel. Only SSID1 will be enabled by default. You may change the SSID name to suit your preference. We strongly recommend that you change the security mode to prevent unauthorized access to your internet connection. The MG700 also supports a second SSID. This is most often used when you wish to provide "guest" access to your internet service and maintain guest devices on a LAN subnet different than your other devices.



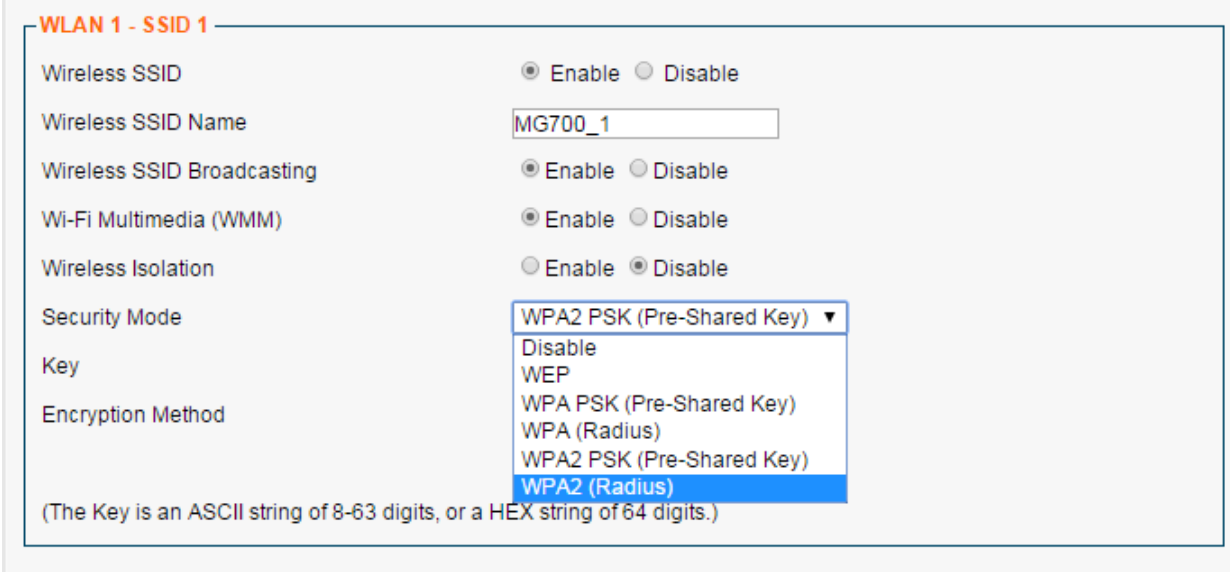


Users connecting to SSID2 can be segregated into their own local area network to provide Internet service while preventing access to other device on the primary LAN. Enter the Guest LAN starting IP Address which will be assigned to the MG700, and the corresponding subnet mark. Guest WiFi devices will be assigned a DHCP address in this subnet. For more flexibility in controlling guest WiFi access.



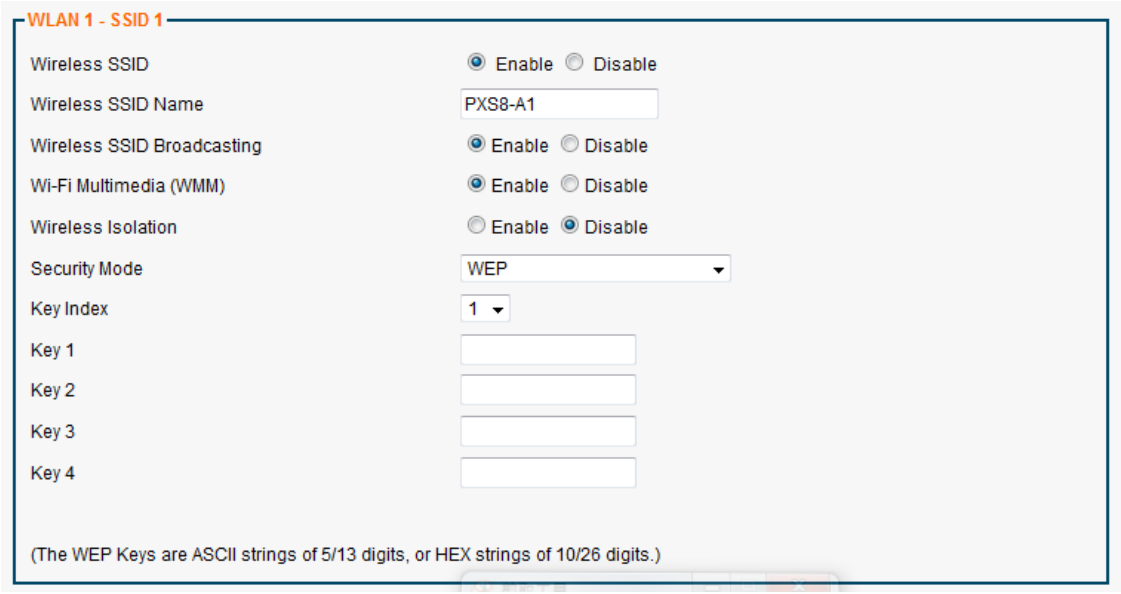
- WiFi Security Mode

The choice for WiFi security mode include: Disable, WEP, WPA PSK(Pre-Shared Key), WPA (Radius), WPA2 PSK(Pre-Shared Key), and WPA2 (Radius) mode.



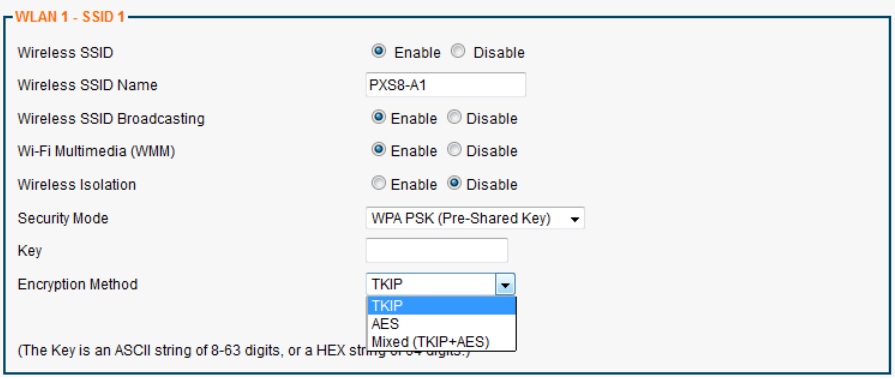
- WEP Mode

Users can setup the WEP key index indicates which WEP key is used for data encryption. The WEP Key(1~4), for 64-bit WEP mode, type 10 hexadecimal digits or 5 ASCII characters. For 128-bit WEP, type 26 hexadecimal digits or 13 ASCII characters.

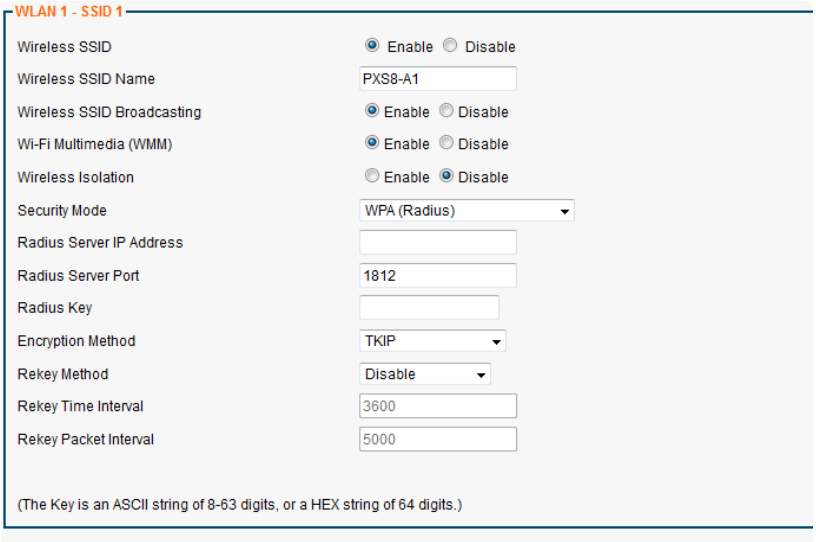


- WPA PSK mode

Setup the Pre-shared Key index as the credential for the packet encryption. This same value must be entered in all WiFi deices connecting to this SSID. In Encryption Mode, TKIP & AES are supported.



- WPA (Radius)

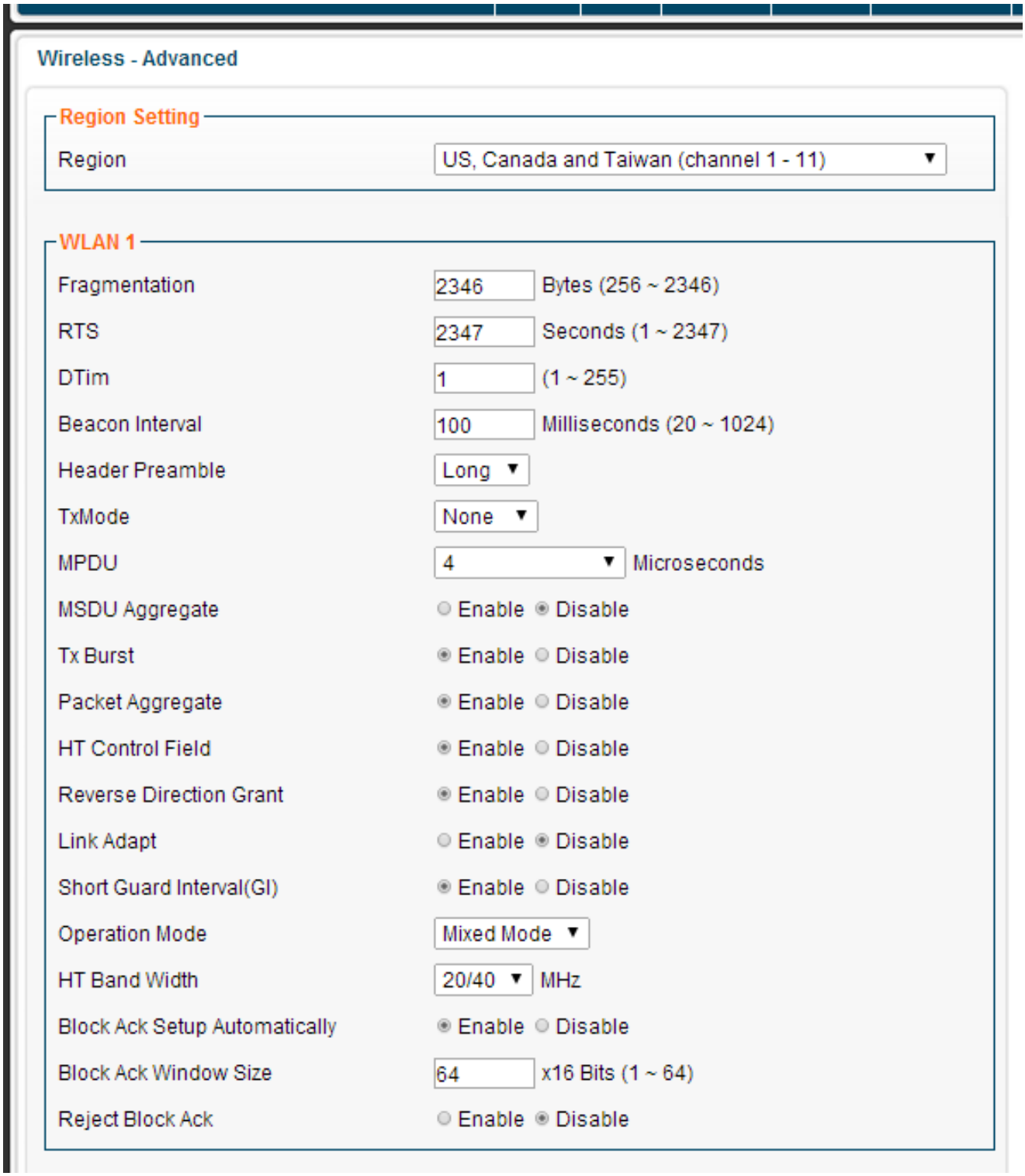


In WPA mode, the list as below:

Radius Server IP Address	Input the RADIUS server's IP address
Radius Server Port	Input the RADIUS server's port number. The default port is 1812.
Radius Key	Input the RADIUS server's Key
Encryption Method	Select TKIP or AER for the packet encryption.
Rekey Method	Select method for determining when new key is required.
Rekey Time Interval	Input the frequency of key renewals in seconds.
Rekey Packet Interval	Input the frequency of key renewals in number of packets.

12.2 Advanced

On the Advanced Page, a user can set the Region and other WLAN settings.



Region	Choose the region in which the MG700 is currently operating (sets channels).
Fragmentation	Enter the fragmentation bytes. The default value is 2346 bytes.
RTS	Enter the RTS seconds. The default value is 2347 seconds.
DTim	Enter the DTim seconds. The default value is 1.
Beacon Interval	Enter the interval to send a beacon. The default value is 100 milliseconds.
Header Preamble	Choose Long or Short header preamble.
TxMode	Choose different transmission mode.
MPDU	MPDU data length. The transmission rate is increased when you choose a larger number, but usually the max value will be 4 in the wireless card
MSDU Aggregate	A kind of packet aggregation method, it can improve the transmission efficiency. Please make sure you Wireless card has this function supported.
Tx Burst	Some 802.11g wireless cards support this mode. The transmission rate can be increased when this function is enabled.
Packet Aggregate	An aggregation method like A-MSDU(MAC Service Data Unit), it can improve the transmission efficiency. Please make sure you Wireless card has this function supported.
HT Control Field	Choose Enable/Disable. It is useful when you need to debug the wireless network.
Reverse Direction Grant	Choose Enable/Disable. The response time can be shorter enable this function is enabled.
Link Adapt	Choose Enable/Disable. The function is used to dynamically change the modulation and encoding mechanism between wireless devices.
Short Guard Interval (SGI)	Choose Enable/Disable. Short GI can improve the transmission rate, but with less immunity when interference exists.
Operation Mode	Choose Mixed mode or Greenfield. You may choose Greenfield mode to increase the transmission rate when you using 802.11n wireless network only.
HT Band Width	Using HT20MHz or HT20/40MHz
Block Ack Setup Automatically	Choose Enable/Disable. If your Wi-Fi Card supports the Block Ack mechanism, it can improve the data transmission efficiency when this function is enabled.
Block Ack Window Size	Specify a Block Ack window size.
Reject Block Ack	Choose Enable to reject the request of BA from another other Wireless device.
MCS	Select transmission (connection) speed.

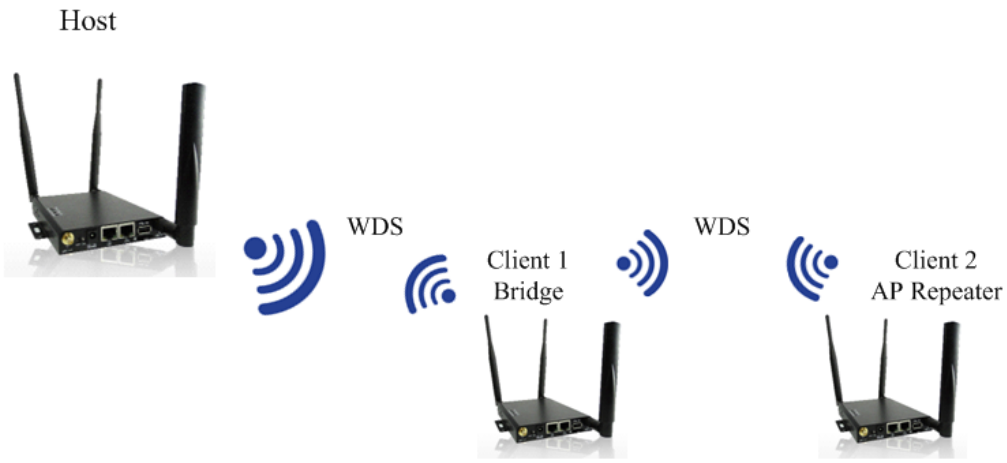
12.3 WDS

A wireless distribution system (WDS) is a system which enables the wireless interconnection of access points in an 802.11 network. It allows a wireless network's coverage area to be expanded using multiple access points without a wired backbone to link the APs. A user can set the WDS settings in this page.

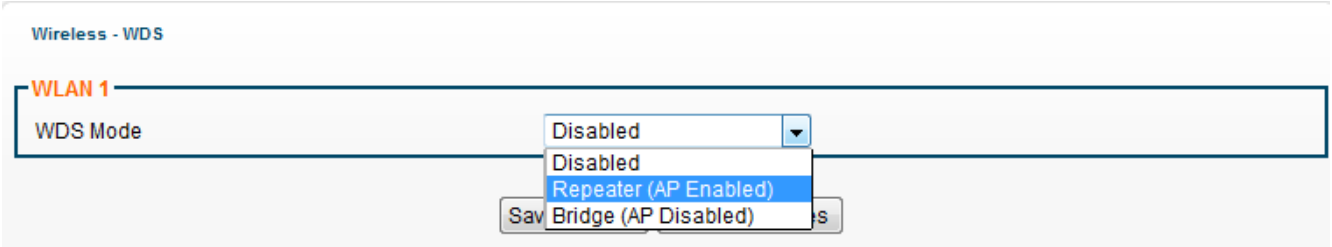
The MG700 supports two modes of WDS operation:

- Repeating: APs communicate with each other and with wireless clients.
- Bridging: APs only communicate with each other and don't allow wireless clients to access them.

All base stations in a wireless distribution system must be configured to use the same radio channel, method of encryption (none, WEP or WPA) and the same encryption keys. They may be configured to different service set identifiers (SSIDs). WDS also requires every base station to be configured to forward to others in the system.

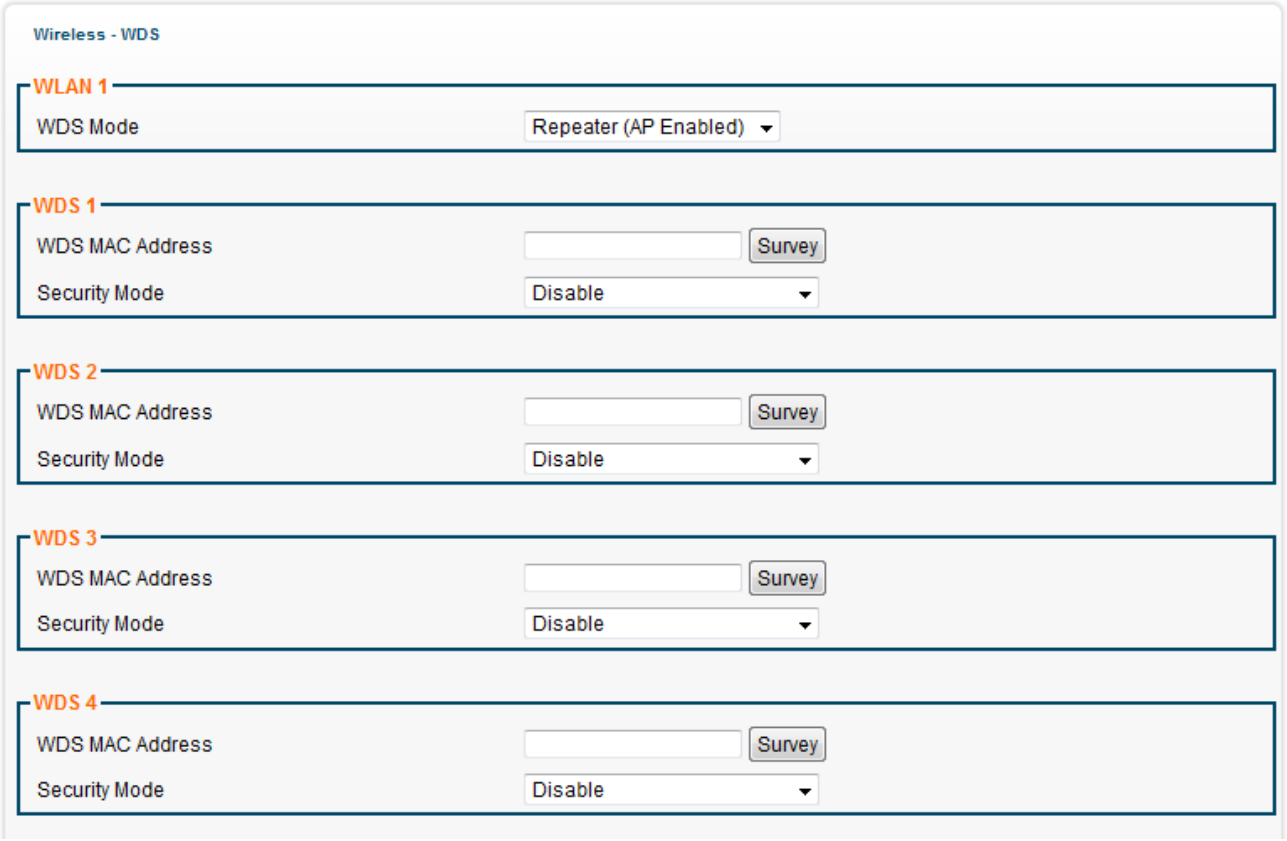


WDS has three selections: Disabled, Repeater and Bridge modes. By default, WDS Mode is disabled. If a user selects Repeater mode, then the WiFi AP function still support and a user can still connect to the MG700's AP. If a user selects Bridge mode, then the MG700 will only be in bridge mode and the WiFi AP function will be disabled.

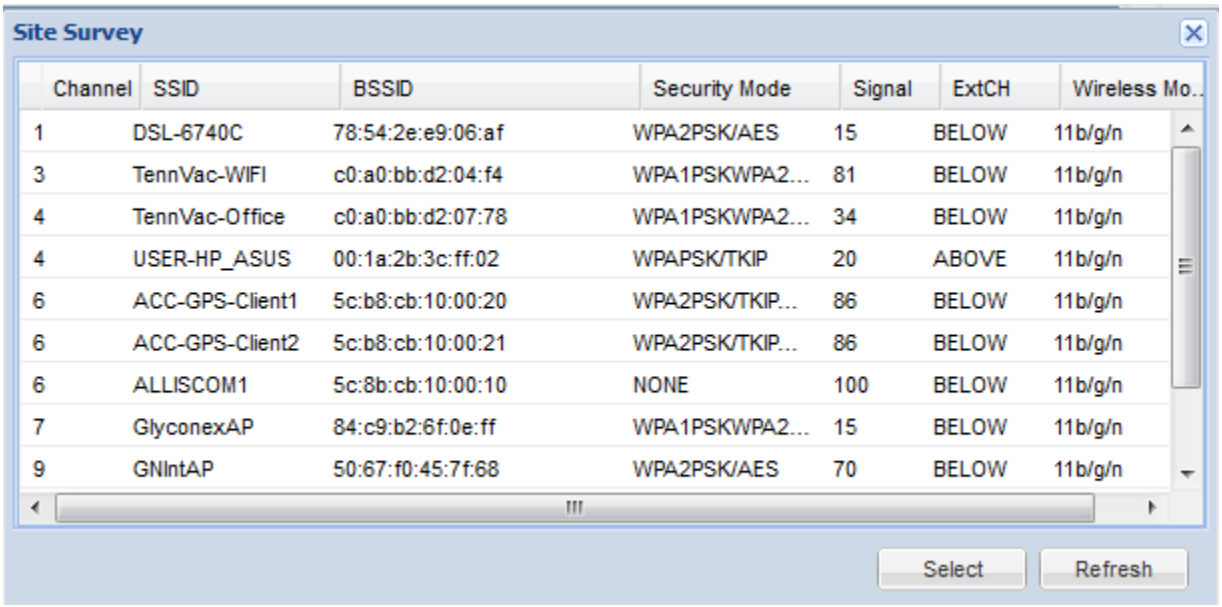


WDS supports four WDS points. Press the Survey button to search for WiFi AP.
Make sure of the following in order for WDS to work correctly:

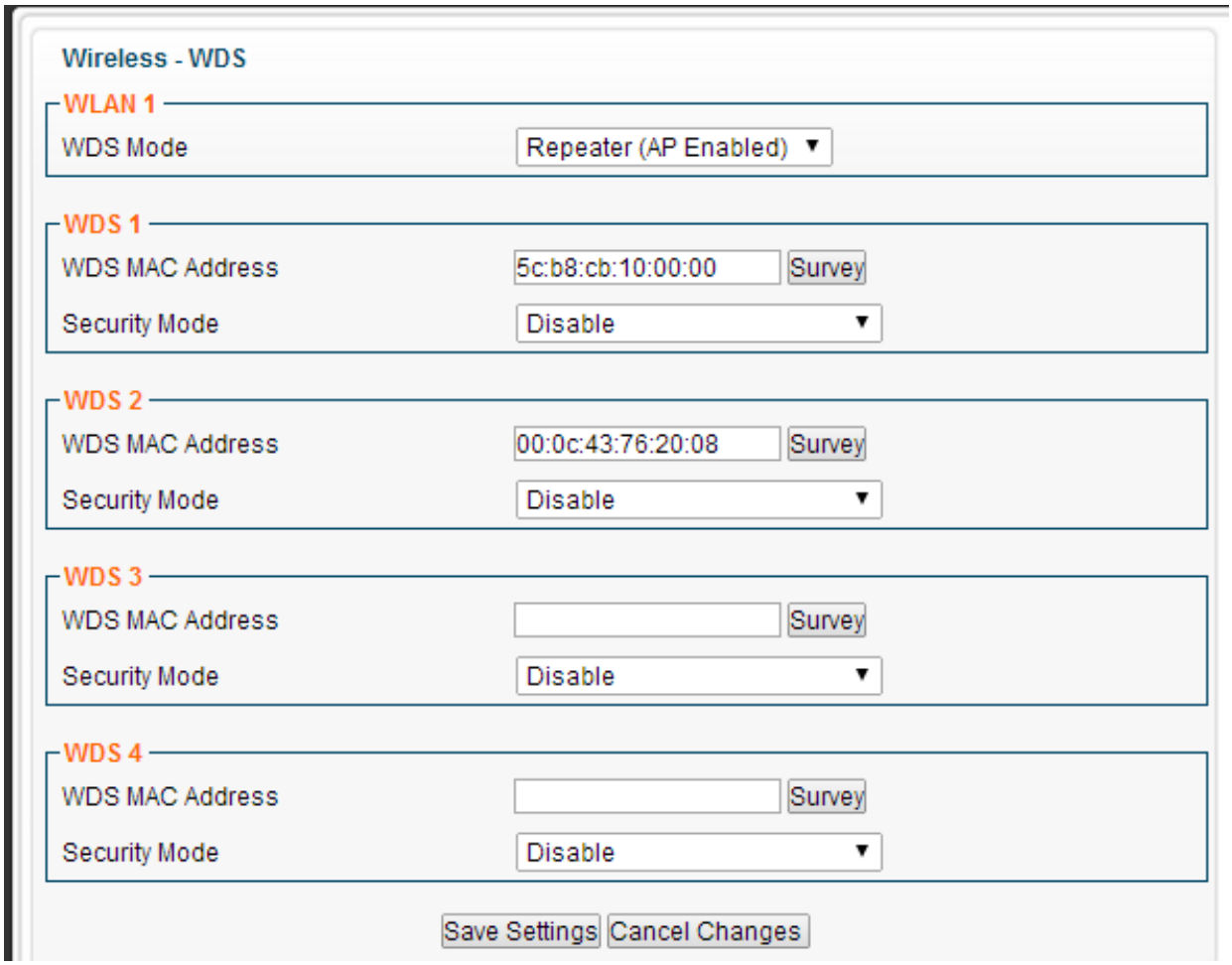
- All WDS devices must use the same radio channel.
- All WDS devices must use the same encryption mode and encryption keys.



Press Survey button, it shows the wireless AP. Then, click the SSID that user want to connect and press "Select" button.



Choose the WiFi AP and press the Select button. The WDS MAC Address will fill in automatically.



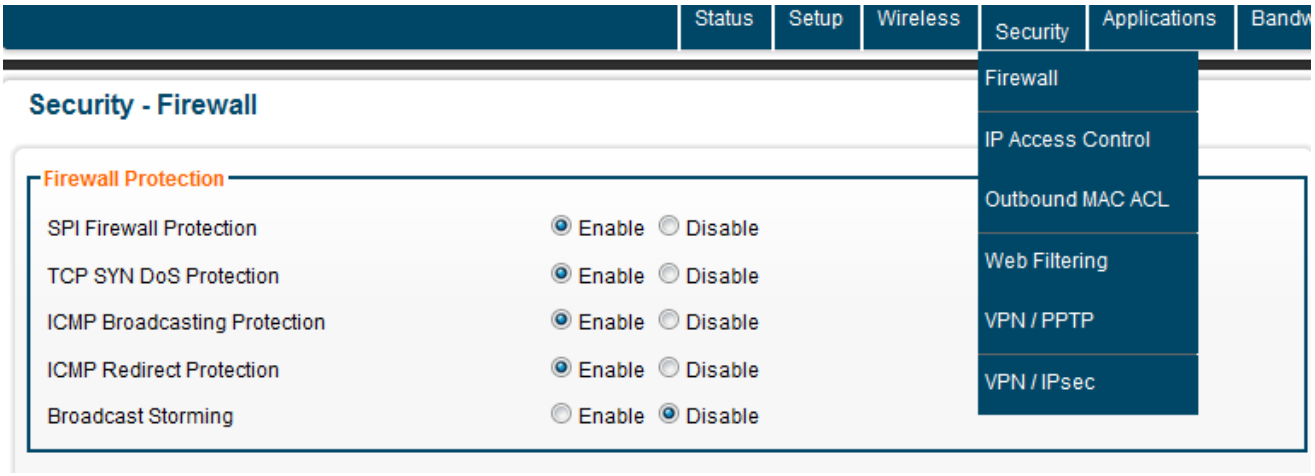
Important:

12.3.1.1 If WDS mode is Bridge mode, user cannot see the SSID

12.3.1.2 Setup WDS system suggest use the same devices (MG700 series).

13 Security Page

Security mode include: Firewall, IP Access Control, Outbound MAC ACL, Web Filtering, VPN/PPTP and VPN/IPsec mode.

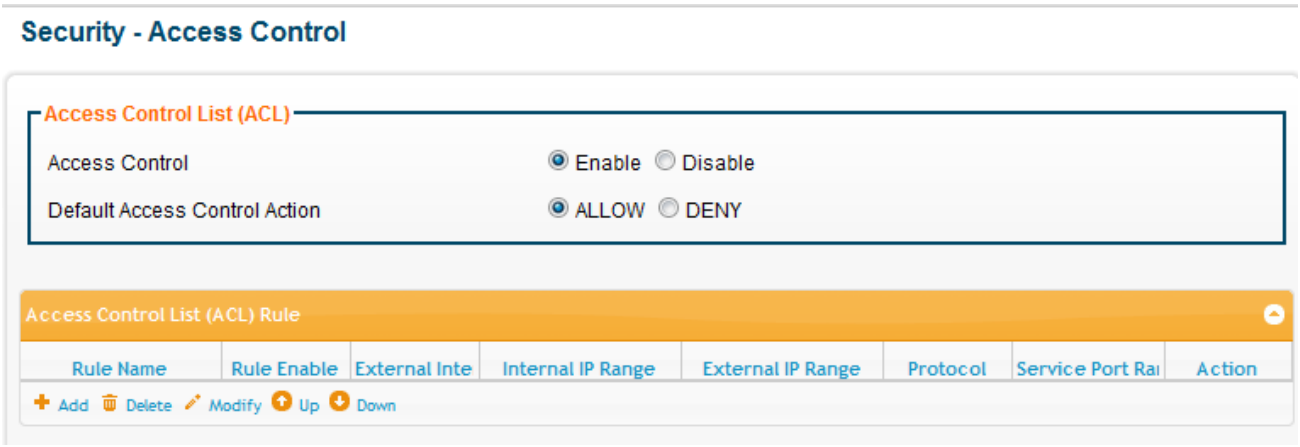


13.1 Firewall

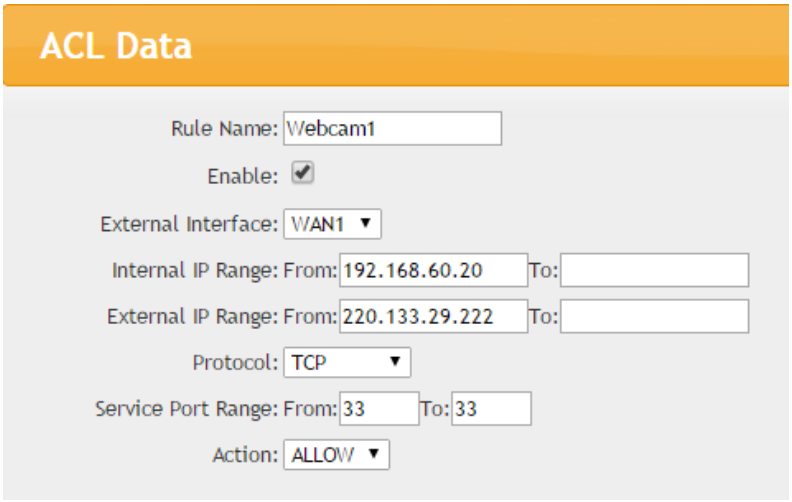
The Firewall page allows the enabling/disabling of SPI Firewall protection, TCP SYN DoS Protection, ICMP Broadcasting Protection, ICMP Redirect Protection and Broadcast Storming method.

13.2 IP Access Control

The IP Access Control page lets a user control access to the MG700 from a specific IP address.



A user can add rules by setting up a Rule Name, Internal and External IP ranges, and Action (Allow or Deny).

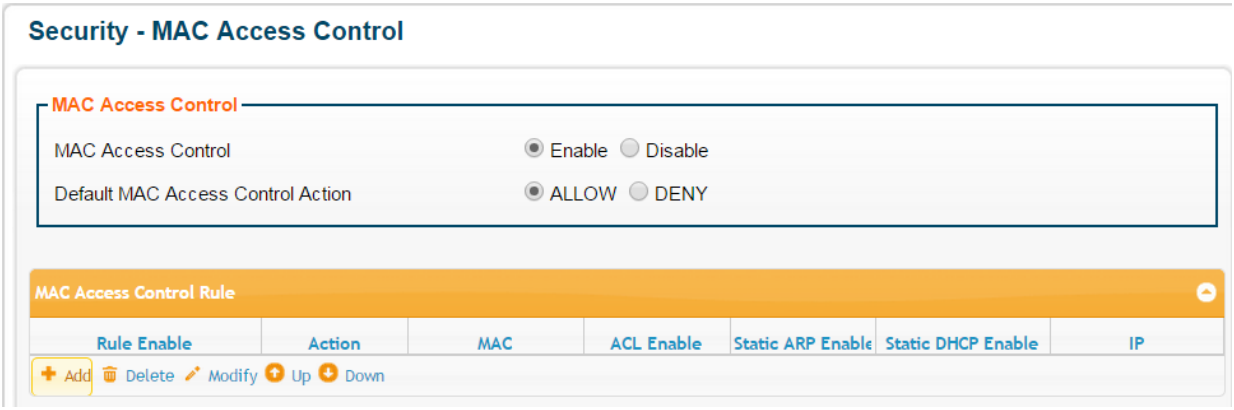


Rule Name	Webcam1
Rule Enable	Enable
External Interface	WAN1
Internal IP Range	If assign, it applies to specific IP. If blank, it applies to all LAN devices.
External IP Range	Assign external IP address range
Protocol	TCP/UDP
Service Port Range	33
Action	ALLOW

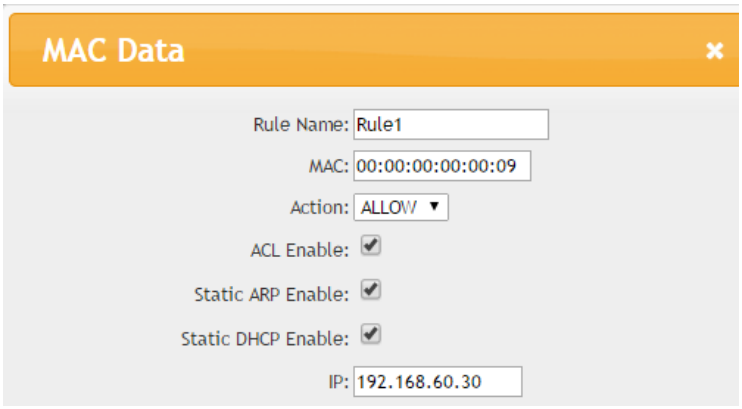
13.3 Outbound MAC ACL

The MG700 can allow a specific MAC address to log in. The MAC Access Control of MG700 is used to either allow or deny specific devices identified by their MAC address from making “outbound”

connections. The MAC rules also enable you to “statically” assign an IP address from MG700’s DHCP pool to a specific MAC address.



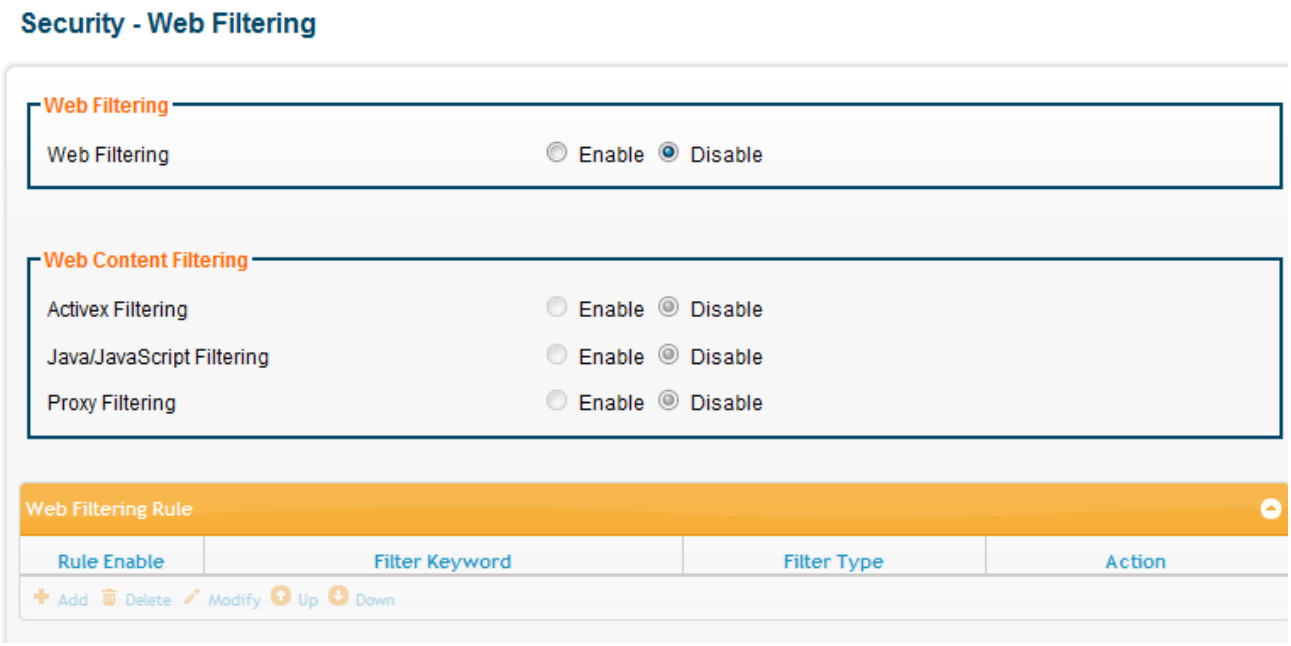
For example, user press “Add” and set the specific MAC address to assign IP address.



Rule Name	Name of the MAC access rule. Spaces are not allowed. For example :“Rule1”
MAC	Set up the MAC Address to which you would like to enable the MAC ACL action. For example, the MAC address as: 00:00:00:00:00:09
Action	Select whether the MG700 should ALLOW / DENY packets matching this rule.
ACL Enabled	Enable/Disable this MAC access rule.
Static ARP Enabled	Enable/Disable this Static ARP rule.
Static DHCP Enabled	Enable/Disable this Static DHCP rule.
IP	The IP address to assign via static ARP or static DHCP. The address must be within the DHCP pool configured for the MG700 and the DHCP Server feature must be enabled. For example : 192.168.60.30

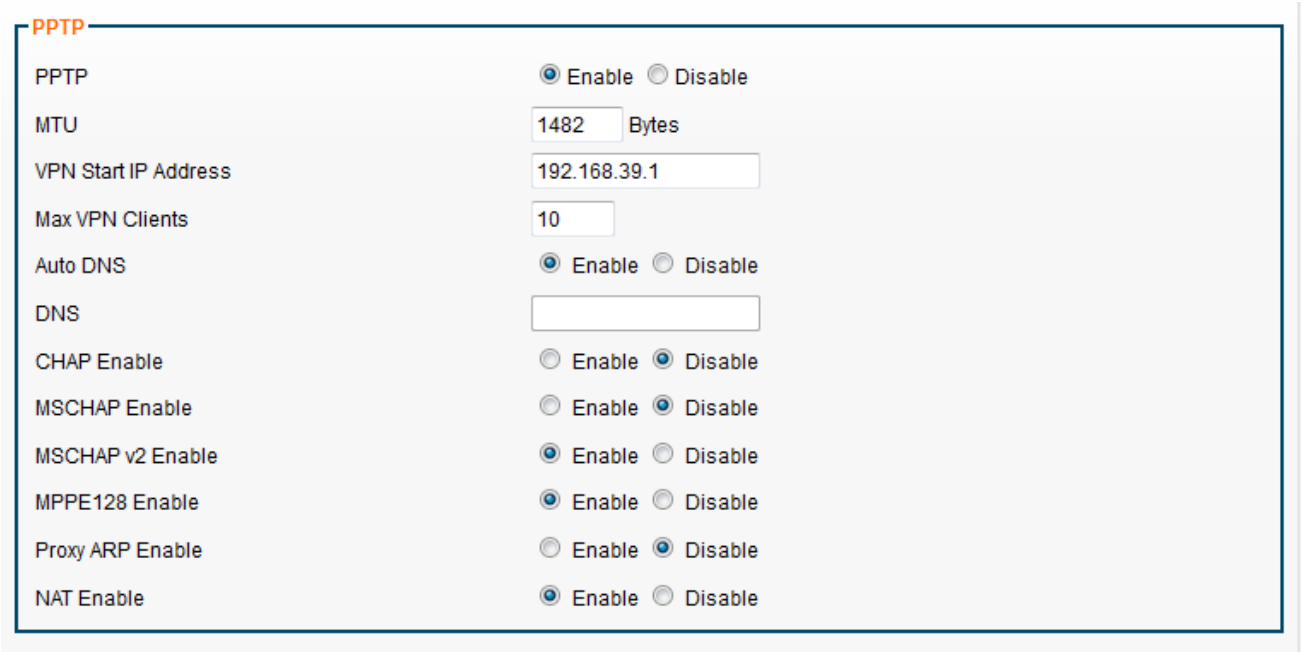
13.4 Web Filtering

The MG700 can set web filtering, include ActiveX, Java Scripting and Proxy filtering.

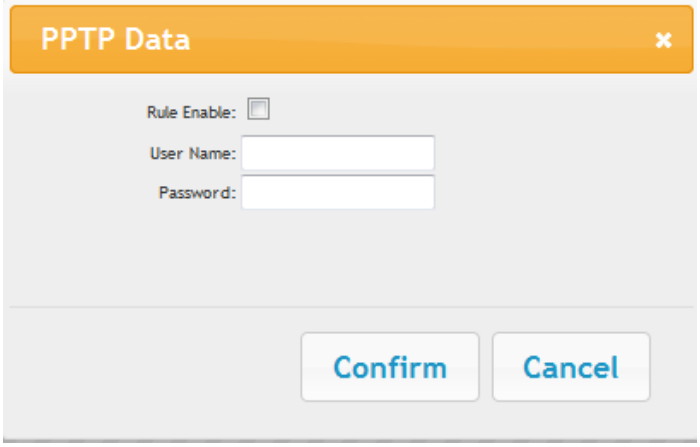


13.5 VPN/PPTP Page

The MG700 supports VPN server. Add rule enable, if VPN PPTP enable. User can set rule to connect MG700 by VPN and VPN start IP address. The Point-to-Point Tunneling Protocol (PPTP) is a method for implementing virtual private networks. PPTP uses a control channel over TCP and GRE tunnel operating to encapsulate PPP packets. The PPTP settings in this section define the parameters and user access rules when the MG700 is acting as a PPTP “server” allow connections from remote PPTP clients such as Windows PC’s.

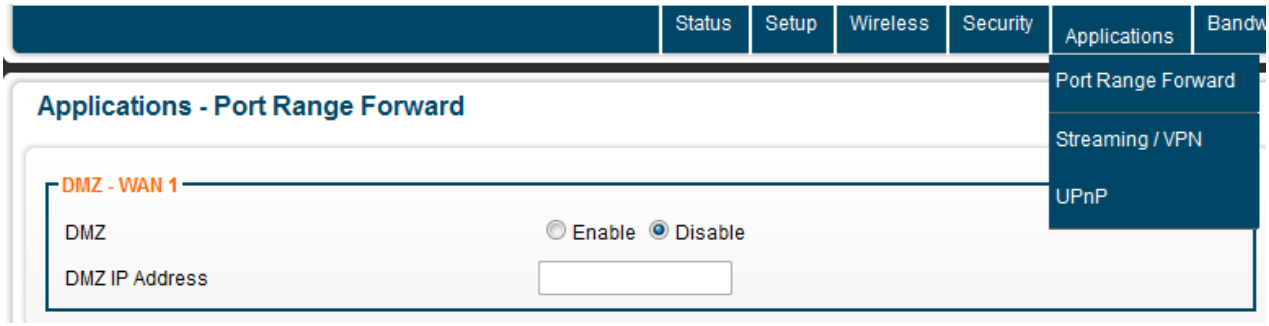


Press “Add”, setup the rule enable, User Name and password.



14 Applications Page

Application function includes Port Range Forward, Streaming VPN and UPnP. By enabling the DMZ Host Function, you can set up a Demilitarized Zone (DMZ) host, that is, a particular computer which is fully exposed to the Internet. This may be necessary for certain applications that use random ports or when you do not know the specific ports required for remote access.

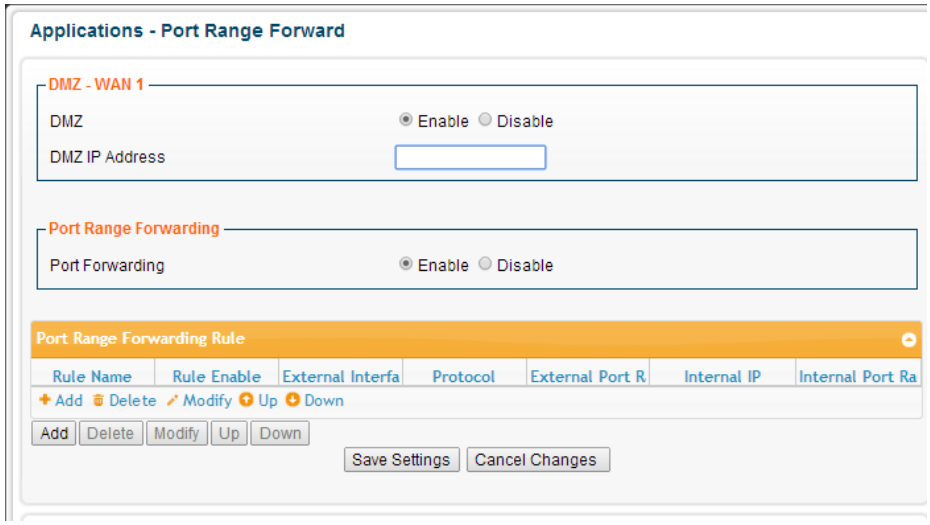


14.1 Port Range Forward

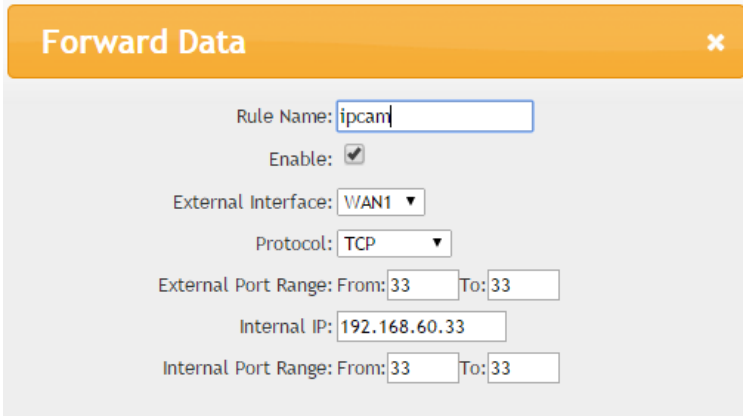
The MG700 provides Network Address Translation (NAT) services to protect private LAN IP addresses from access by users on the external WAN. Port-Forwarding is a technique to selectively allow remote users to access selected devices and services on the private LAN.

The MG700 supports both Port Forwarding and Port Translation features. These features are integrated with the MG700's firewall feature. Creating new port forwarding/translation rules automatically opens the corresponding ports in the firewall – no other configuration is necessary.

The port forwarding function gives remote users access to devices on the local network via the public WAN IP address. Users can assign a specific external port range to a local server (or IP address). Furthermore, users can specify a different internal port range to be associated with external ports in a port forwarding rule. When the MG700 receives an external request to access any one of the configured external ports, it will redirect the request to the corresponding internal server and change its destination port to one of the internal ports specified. This allows multiple LAN devices with the same port (e.g. port 80) to be accessed remotely without having to change their settings.



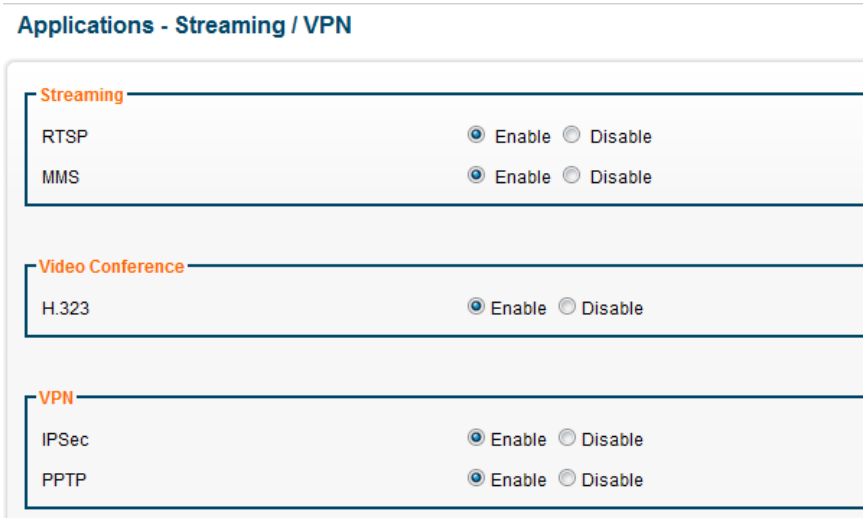
Press Add, then shows the Forward Data page to setting the forward IP and Port.



Rule Name	Enter the name of the port forwarding rule. Do not contain spaces.
Rule Enabled	Check/Uncheck to enable/disable this port forwarding rule.
External Interface	Choose USB or Ethernet WAN as the External port forwarding interface. Each WAN interface must have its own port forwarding rules, so duplicate rules if using the MG700 in a WAN fail-over configuration.
Protocol	Choose TCP, UDP or TCP/UDP for the rule to be applied.
External Port Range	Set up the External Port Range for the rule to capture.
Internal IP	Set up the Internal IP (single address) where incoming packets will be directed when the rule is matched.
Internal Port Range	Set up the Internal Port Range where the rule will send matched packets. The internal and external port ranges must contain the same number of ports, but can be different to enable port translation.

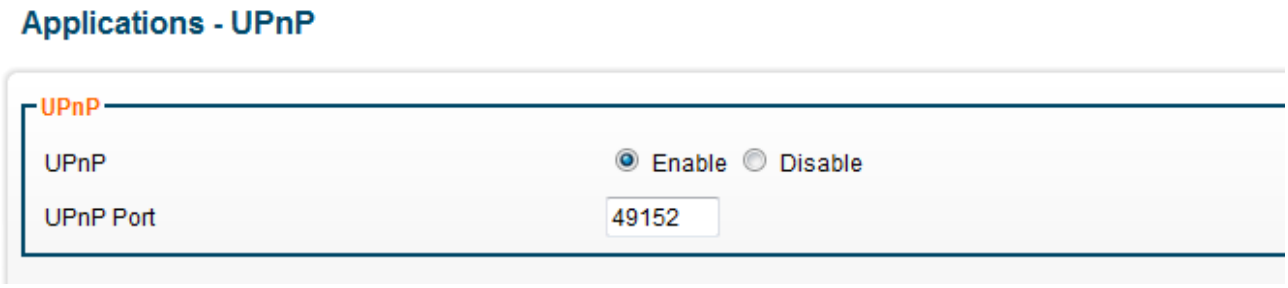
14.2 Streaming/VPN

MG700 can enhance media streaming quality by enabling RTSP, MSS and H.323 protocols. Also, the MG700's VPN Pass-through functionality can also be enabled on this page. All of these features are enabled by default. User could set the Streaming/Video and VPN enable or disable.



14.3 UPnP

Universal Plug and Play (UPnP) is a set of networking protocols that permits networked devices, such as personal computers, printers, Internet gateways, Wi-Fi access points and mobile devices to seamlessly discover each other's presence on the network and establish functional network services for communications.

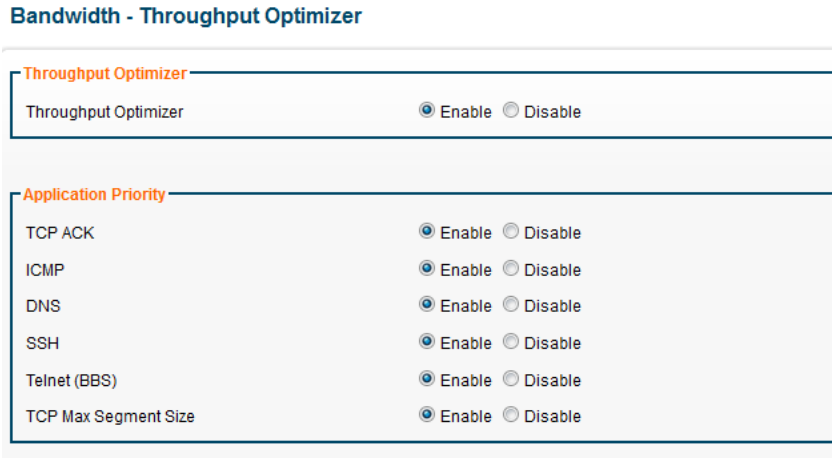


15 Bandwidth Page

The MG700 bandwidth management feature provides powerful and unique mechanism to manage bandwidth – Static Bandwidth Management (SBM) and Dynamic Bandwidth Management (DBM). SBM provide user with the option to allocate a fixed amount of bandwidth for a specific computer or a particular application, while DBM intellectually manages to rest of the bandwidth while all the time satisfying the complicated bandwidth requirements/settings of SBM. The MG700 allow user manage the bandwidth. The bandwidth include: Throughput Optimizer, TurboNAT and Session Manager.

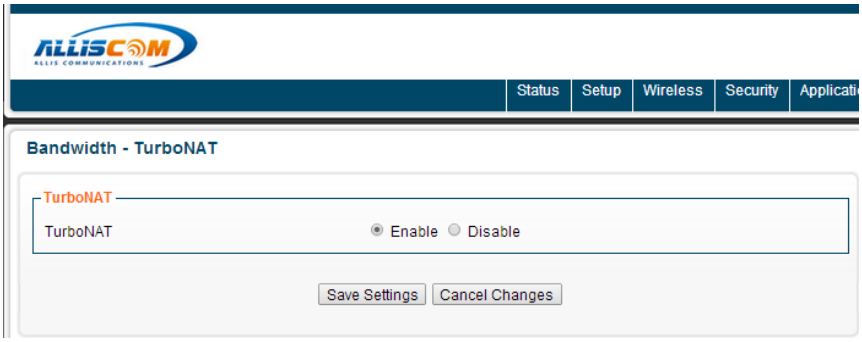
15.1 Throughput Optimize

User can set the throughput optimizer enable and choice the application priority to manage bandwidth automatically.



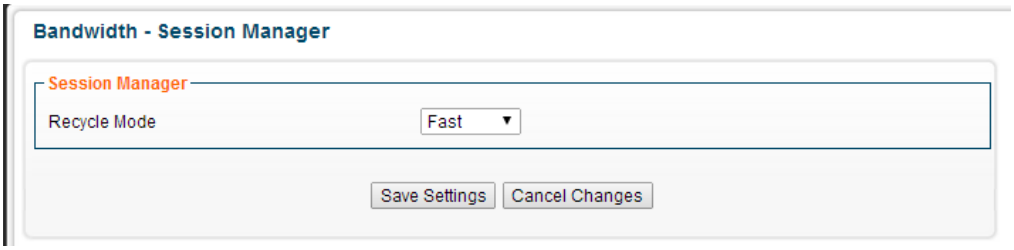
15.2 TurboNAT

Network Address Translation (NAT) is often a performance bottleneck in routers and firewalls. Generic routers are generally insufficient when dealing with a high-speed broadband network. TurboNAT is designed to solve this problem by accelerating NAT performance allowing the MG700 to maximize the higher speed networks and to reserve system performance for other features such as ACL and VPN servers.



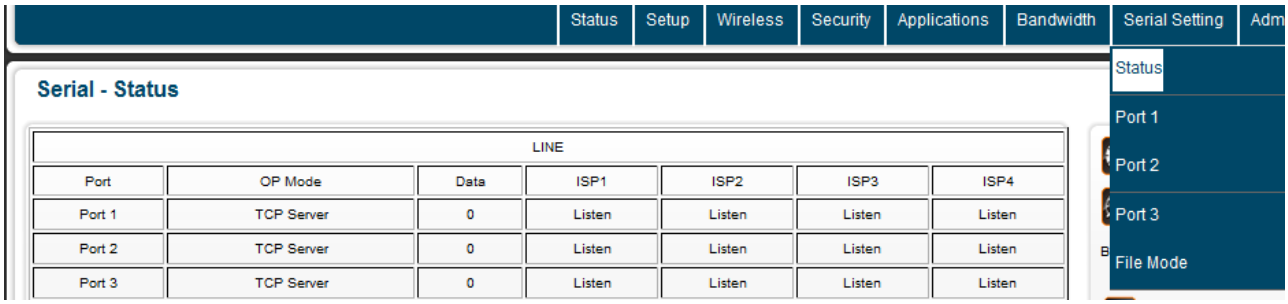
15.3 Session Manager

Session manager will automatically recycle old/dead sessions to get better connection efficiency. Users can choose the re-cycle rate to optimize the connection efficiency especially for applications which rapidly open and close many ports.



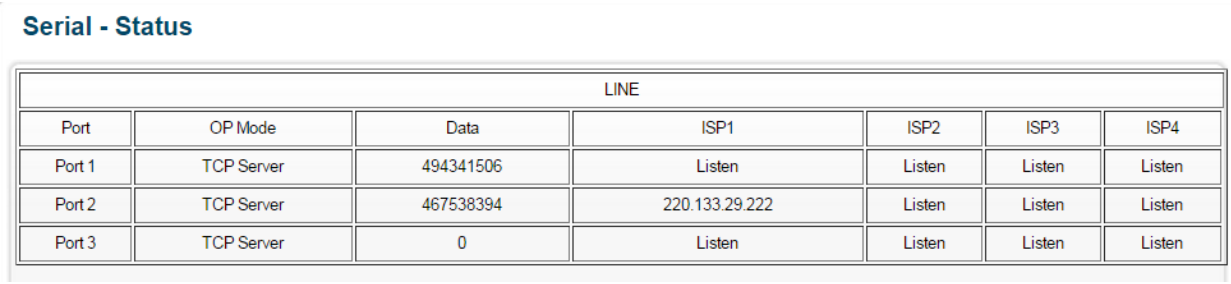
16 Serial Setting Page

In this page, MG700 shows the Port1/Port2/Port3 Operating Mode, data count and listening status. The MG700 supports serial port to user serial device. The serial port data will be change to internet packet data. User can get the data by IP address and Port.



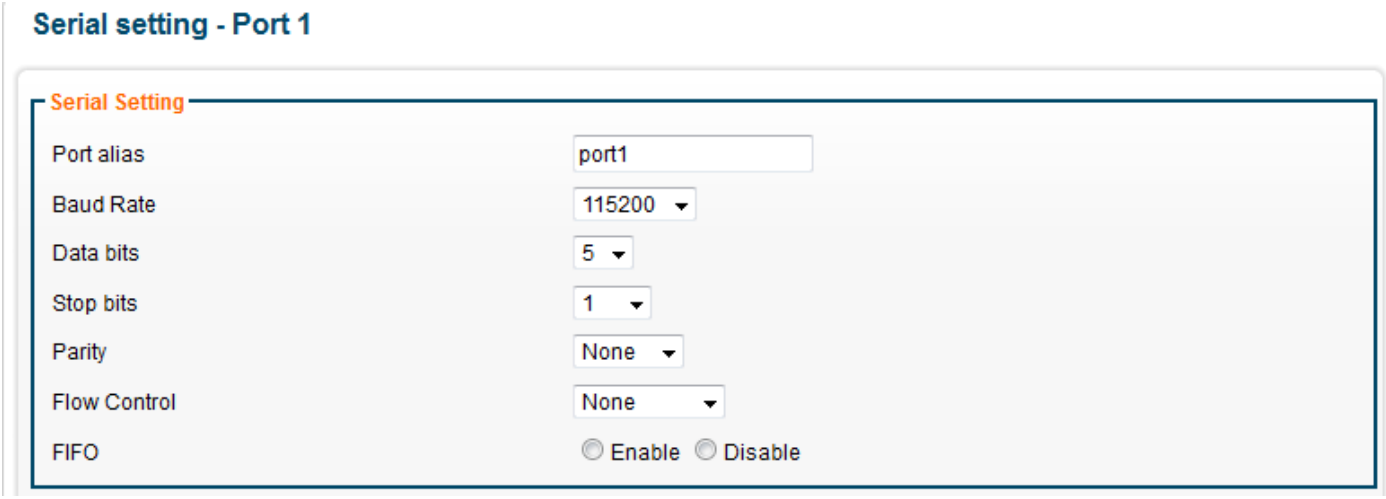
16.1 Status Page

In Status Page, user can monitoring the serial port setting mode and login information.



16.2 Port1/2/3 Page

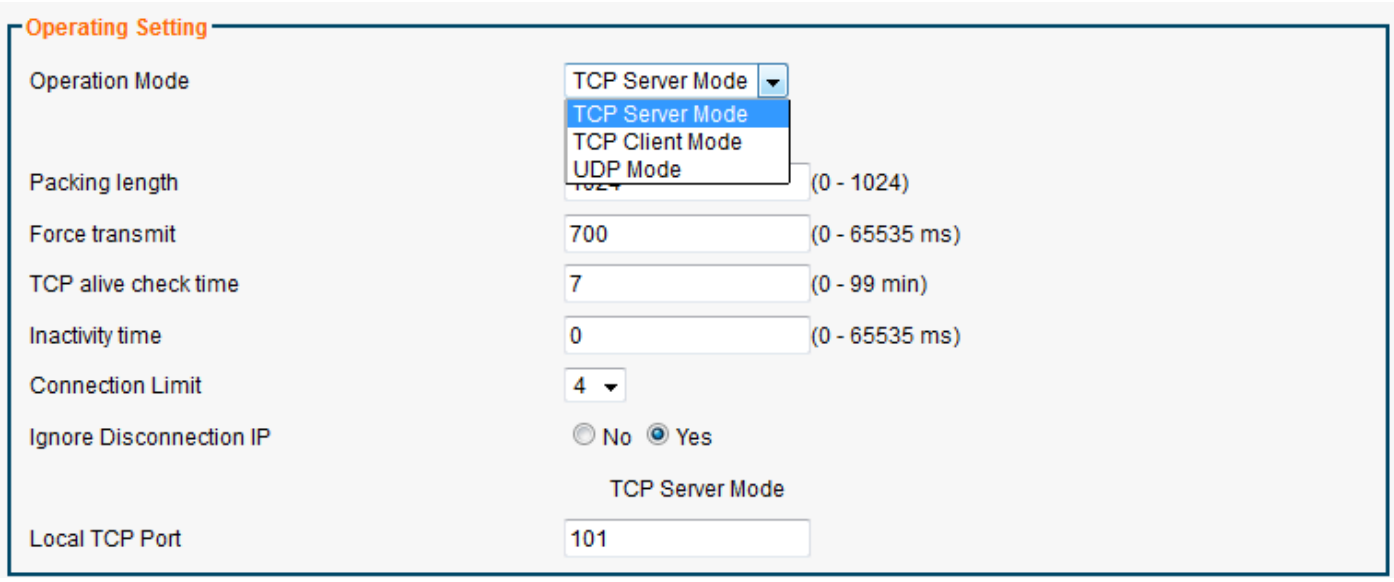
In Port1/2/3 page, user can set the serial port alias name, baud rate, hardware flow control…etc. The Port alias name will create the same directory in SD/USB storage.



The operation mode could be set to TCP Server Mode, TCP Client mode and UDP mode. The TCP Server Mode allow user login the MG700's specific port to get the serial port 1 data. The specific port set into

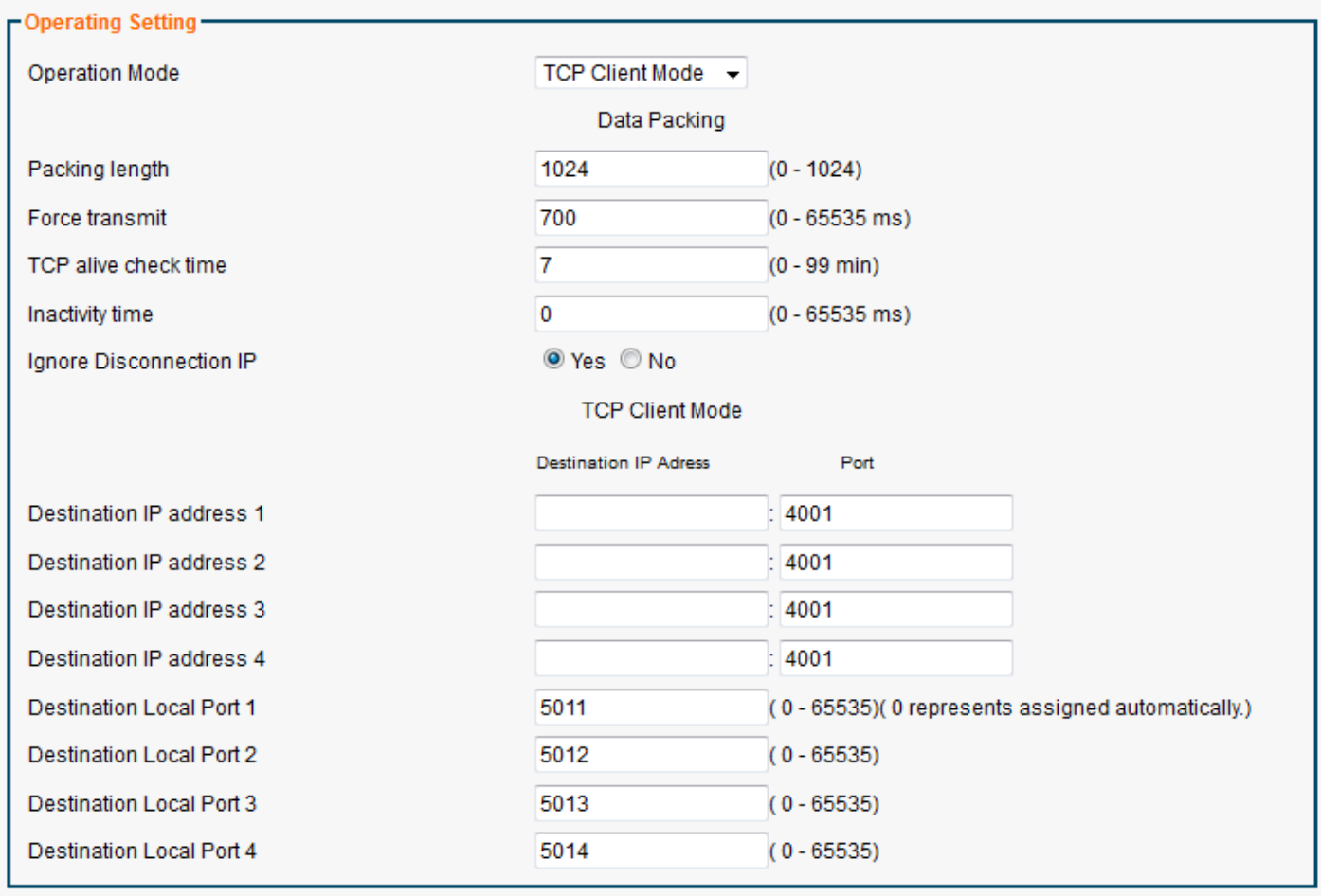
local port.

In TCP Server mode, user MG700 will keep listening for TCP connection.



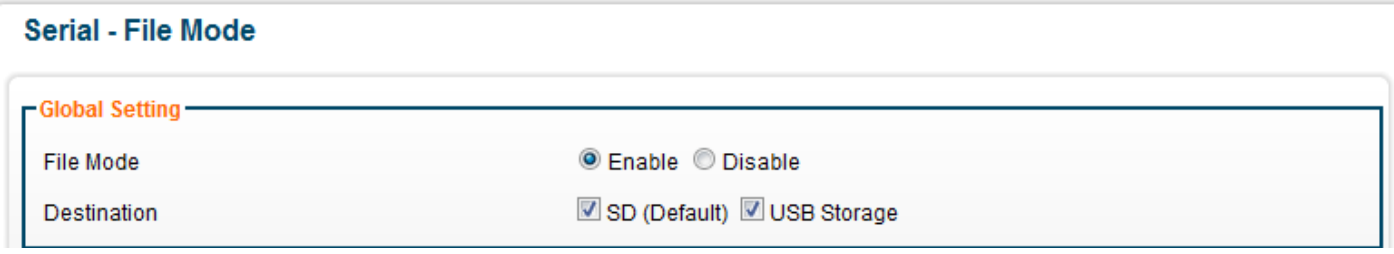
Operation Mode	TCP Server Mode
Packing length (Byte)	MG700 will force out as data length meet the parameter.
Force transmit (ms)	MG700 will Force transmit serial data to the Ethernet port.
TCP alive check time(min)	MG700 will check the TCP connection is alive or not, if not, MG700 will close the connection.
Inactivity time(ms)	If TCP connection is no response with MG700, MG700 will close the connection.
Connection Limit	Allow TCP connection request data in the same time. The maximum is 4.
Ignore Disconnection IP	If select Yes, the TCP connection is not responding will be ignored.
Local TCP Port	Setting the proper Local TCP Port, MG700 will listen Local TCP Port to connection. Note: Do NOT set the same Local TCP Port on Port1/Port2/Port3.

The Client Mode, user can send serial port data out to Destination IP address and Port.



16.3 File Mode Page

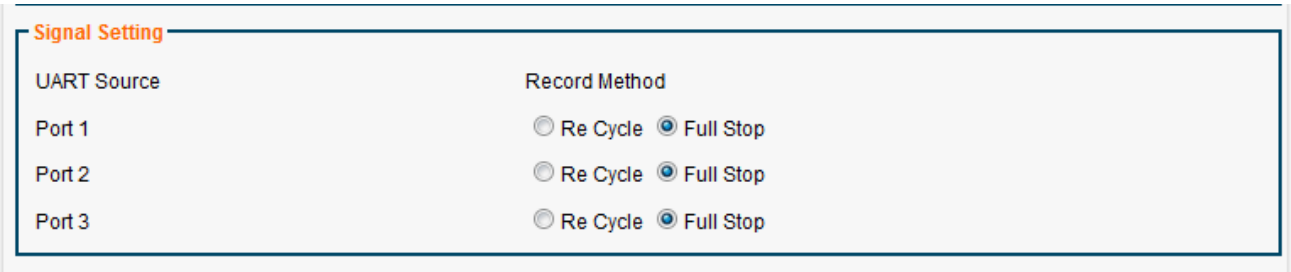
In this page, user can set the serial data save to SD card or/and USB storage. The SD card is default.



Before user remove the SD card or USB storage, please select File Mode to Disable. It will protect the record data. It is because of the FAT/FAT32 format. If the SD/USB is EXT3/EXT4 format, the data will be performance and reliability. Please see the Appendix II: Ext3/Ext4 Format.

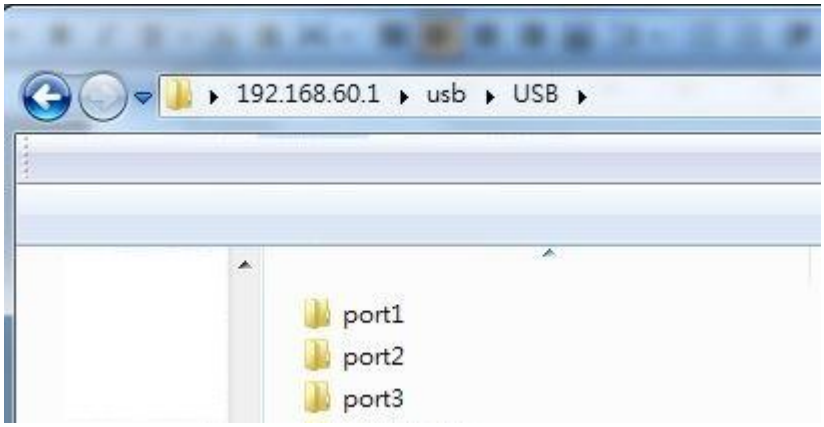
Important: Select File mode to disable before remove the SD card or USB storage.

The record method means if the storage space is full, the serial data will be re-cycle record or stop record.

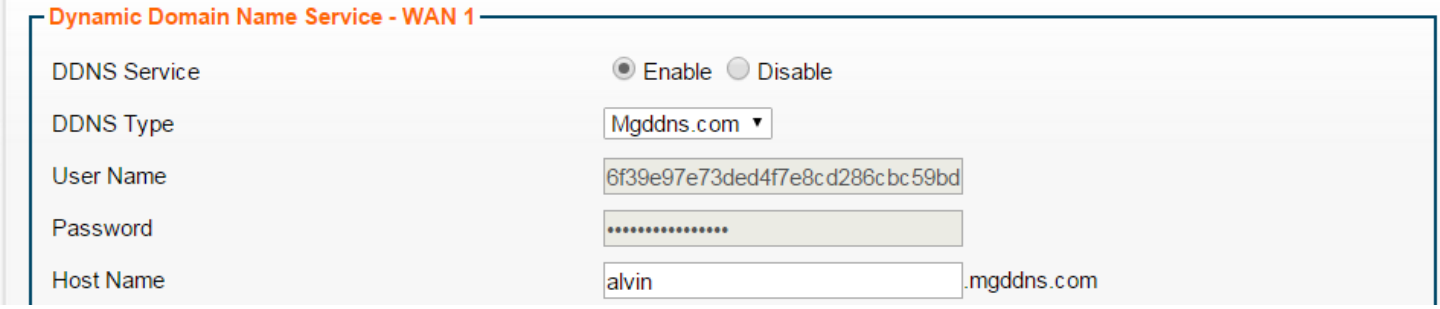


User can login MG700 to download the record data. In the windows system, user input the "\\192.168.60.1" to login. In the Linux system, user input the "SMB://192.168.60.1/" to login.

The port1/port2/port3 directory depends on device alias name.



The DDNS with File Mode, user can enter the " \\alvin.mgddns.com " on file explore to login the MG700 and upload/download the file by remote.



Important:

1. Use “xxxx.mgddns.com” have to public IP address.
2. SAMBA port will be locked by Firewall. If user use SAMBA File mode, the SAMBA port need to unlocked. The SAMBA port is from 135 ~ 139 and port 445.

17 GPS/GNSS Application

The GNSS default port of MG700 is on Port103, user could get the GNSS data by IP address and port, such as “192.168.60.1:103”. On Web GUI, user will see the GNSS data is increase on Port3.

Serial - Status

LINE						
Port	OP Mode	Data	ISP1	ISP2	ISP3	ISP4
Port 1	TCP Server	0	Listen	Listen	Listen	Listen
Port 2	TCP Server	0	Listen	Listen	Listen	Listen
Port 3	TCP Server	333835134	Listen	Listen	Listen	Listen

Serial setting - Port 3

Serial Setting

Port alias	port3
Baud Rate	115200
Data bits	8
Stop bits	1
Parity	None
Flow Control	None
FIFO	Enable / Disable

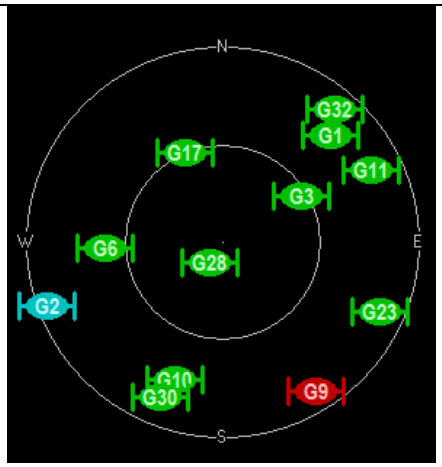
Operating Setting

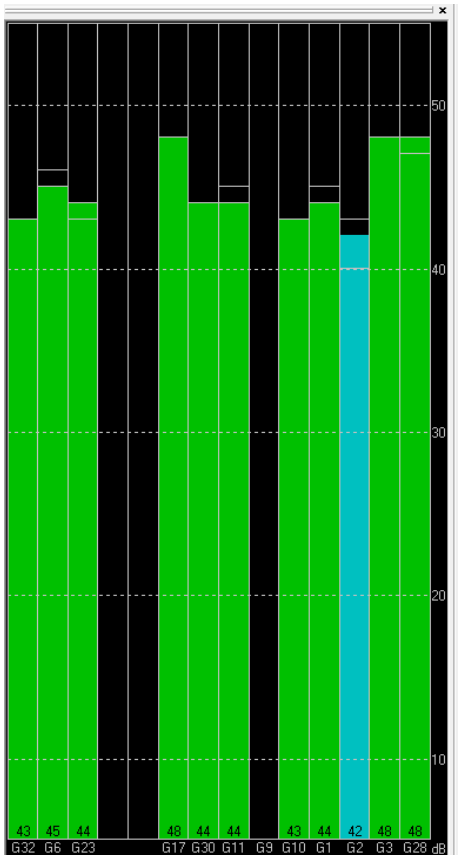
Operation Mode	TCP Server Mode
Data Packing	
Packing length	1024 (0 - 1024)
Force transmit	700 (0 - 65535 ms)
TCP alive check time	7 (0 - 99 min)
Inactivity time	0 (0 - 65535 ms)
Connection Limit	4
Ignore Disconnection IP	No / Yes
TCP Server Mode	
Local TCP Port	103

17.1 GPS/GNSS NMEA data

MG700 support NMEA data, user can get the GPS data by IP address and Port, such as 192.168.60.1:103.

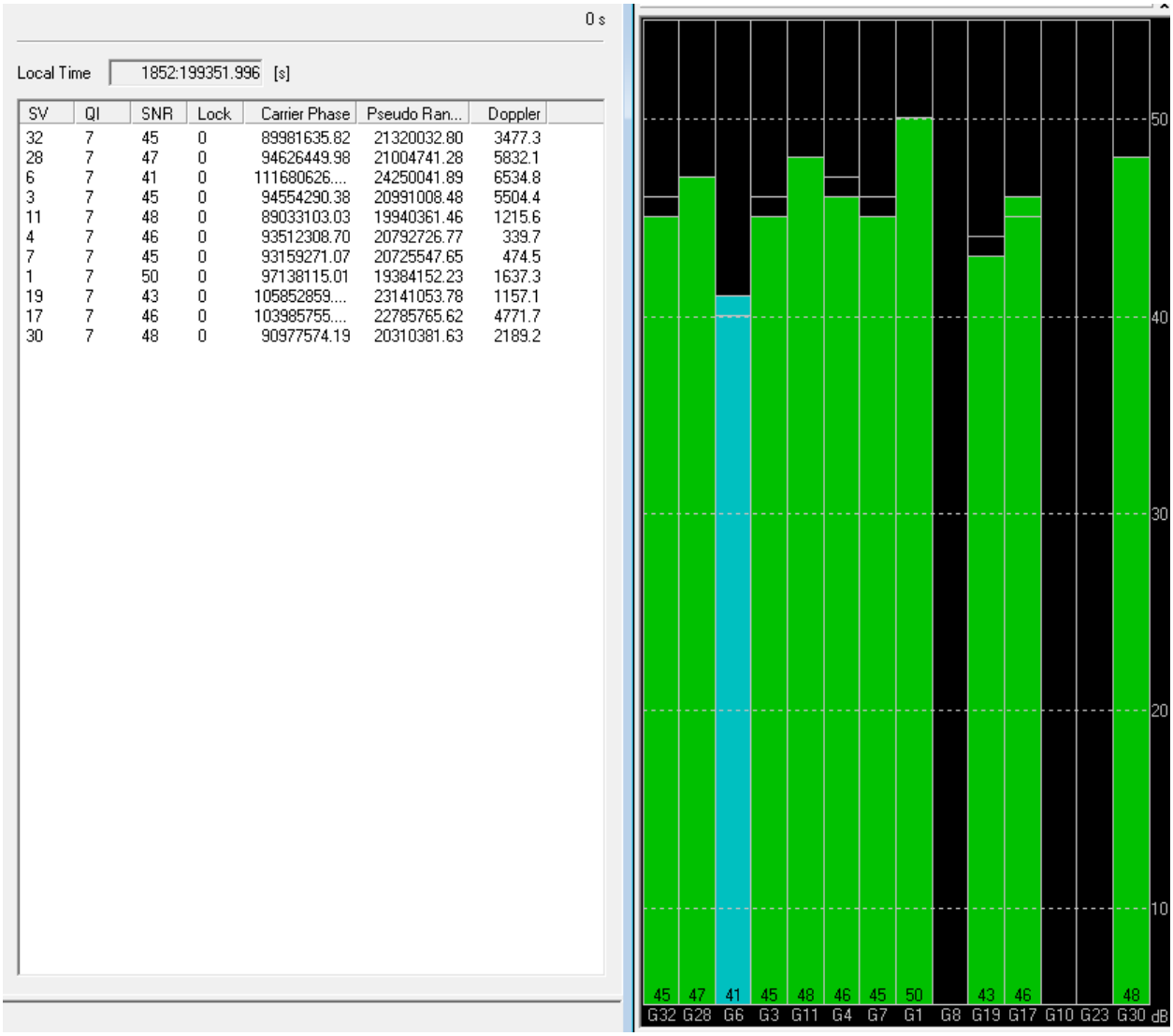
```
$GPGGA,084155.00,2504.18507,N,12137.31827,E,1,10,0.95,94.0,M,15.3,M,,*67
$GPGSA,A,3,32,06,23,17,30,11,10,01,03,28,,,1.71,0.95,1.42*04
$GPGSV,3,1,12,32,11,041,44,06,35,265,46,23,10,115,43,17,44,335,48*72
$GPGSV,3,2,12,30,14,203,44,11,15,063,44,09,08,149,,10,21,199,43*74
$GPGSV,3,3,12,01,21,044,43,02,03,249,38,03,49,061,48,28,81,224,48*74
$GPGLL,2504.18507,N,12137.31827,E,084155.00,A,A*65
$GPGGA,084156.00,2504.18509,N,12137.31828,E,1,10,0.95,93.9,M,15.3,M,,*6B
$GPGSA,A,3,32,06,23,17,30,11,10,01,03,28,,,1.71,0.95,1.42*04
$GPGSV,3,1,12,32,11,041,44,06,35,265,46,23,10,115,43,17,44,335,48*72
$GPGSV,3,2,12,30,14,203,44,11,15,063,44,09,08,149,,10,22,199,43*77
$GPGSV,3,3,12,01,21,044,43,02,03,249,38,03,49,061,49,28,81,224,48*75
$GPGLL,2504.18509,N,12137.31828,E,084156.00,A,A*67
$GPGGA,084157.00,2504.18510,N,12137.31830,E,1,10,0.95,93.9,M,15.3,M,,*6B
$GPGSA,A,3,32,06,23,17,30,11,10,01,03,28,,,1.71,0.95,1.42*04
$GPGSV,3,1,12,32,11,041,44,06,35,265,46,23,10,115,44,17,44,335,48*75
$GPGSV,3,2,12,30,14,203,45,11,14,063,44,09,08,149,,10,22,199,43*77
$GPGSV,3,3,12,01,21,044,44,02,03,249,38,03,49,061,49,28,81,224,48*72
$GPGLL,2504.18510,N,12137.31830,E,084157.00,A,A*67
$GPGGA,084158.00,2504.18510,N,12137.31832,E,1,10,0.95,93.9,M,15.3,M,,*66
$GPGSA,A,3,32,06,23,17,30,11,10,01,03,28,,,1.71,0.95,1.42*04
$GPGSV,3,1,12,32,11,041,43,06,35,265,46,23,10,115,44,17,44,335,48*72
$GPGSV,3,2,12,30,14,203,45,11,14,063,44,09,08,149,,10,22,199,43*77
$GPGSV,3,3,12,01,21,044,44,02,03,249,38,03,49,061,49,28,81,224,48*72
$GPGLL,2504.18510,N,12137.31832,E,084158.00,A,A*6A
$GPGGA,084159.00,2504.18511,N,12137.31834,E,1,10,0.95,93.9,M,15.3,M,,*60
$GPGSA,A,3,32,06,23,17,30,11,10,01,03,28,,,1.71,0.95,1.42*04
$GPGSV,3,1,12,32,11,041,43,06,35,265,46,23,10,115,44,17,44,335,48*72
$GPGSV,3,2,12,30,14,203,44,11,14,063,44,09,08,149,,10,22,199,43*76
$GPGSV,3,3,12,01,21,044,43,02,03,249,38,03,49,061,48,28,81,224,48*74
$GPGLL,2504.18511,N,12137.31834,E,084159.00,A,A*6C
```





17.2 GPS/GNSS RAW Data

MG700 support GNSS data, user can get the GNSS data by IP address and Port, such as 192.168.60.1:103.



0 s

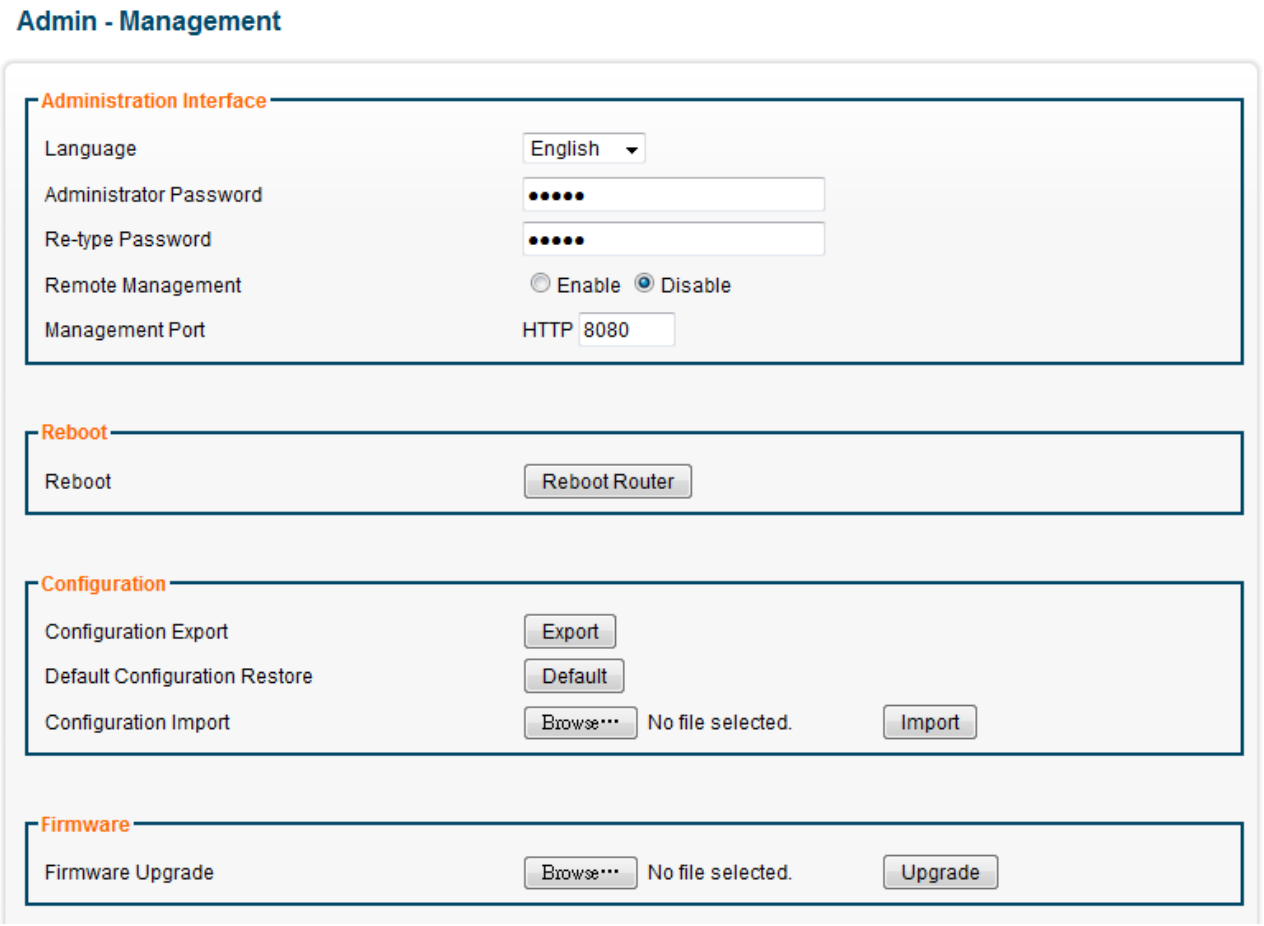
Local Time 1852:199351.996 [s]

SV	QI	SNR	Lock	Carrier Phase	Pseudo Ran...	Doppler
32	7	45	0	89981635.82	21320032.80	3477.3
28	7	47	0	94626449.98	21004741.28	5832.1
6	7	41	0	111680626....	24250041.89	6534.8
3	7	45	0	94554290.38	20991008.48	5504.4
11	7	48	0	89033103.03	19940361.46	1215.6
4	7	46	0	93512308.70	20792726.77	339.7
7	7	45	0	93159271.07	20725547.65	474.5
1	7	50	0	97138115.01	19384152.23	1637.3
19	7	43	0	105852859....	23141053.78	1157.1
17	7	46	0	103985755....	22785765.62	4771.7
30	7	48	0	90977574.19	20310381.63	2189.2

Important: GPS NMEA /GNSS RAW data depend on GPS Module type.

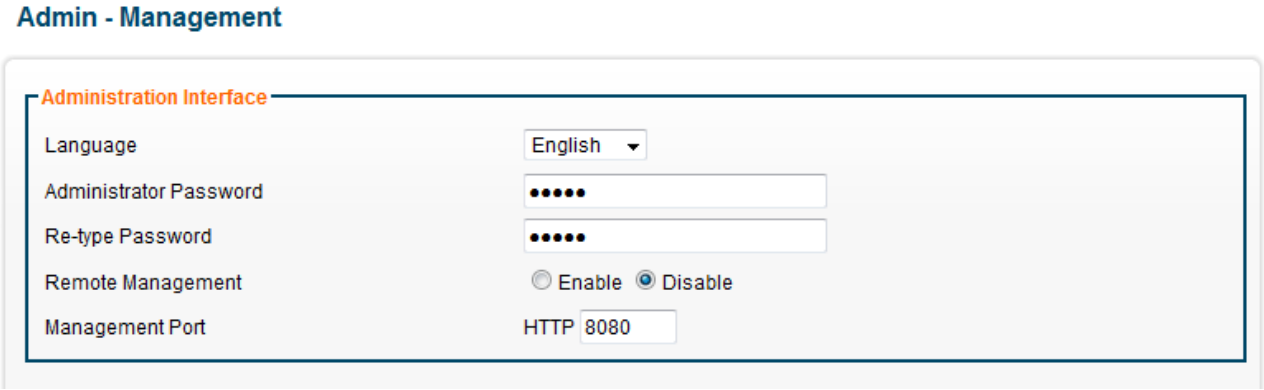
18 Admin Application

The management screen is used to perform various administrative task on the MG700 such as changing the login password, saving and restoring system settings, scheduling a reboot, and performing firmware upgrade.



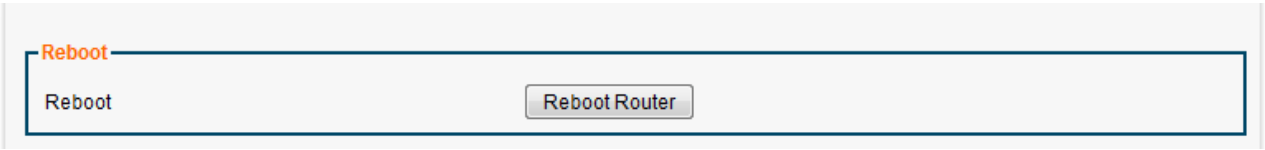
18.1 Management

User can set the login password in this page.

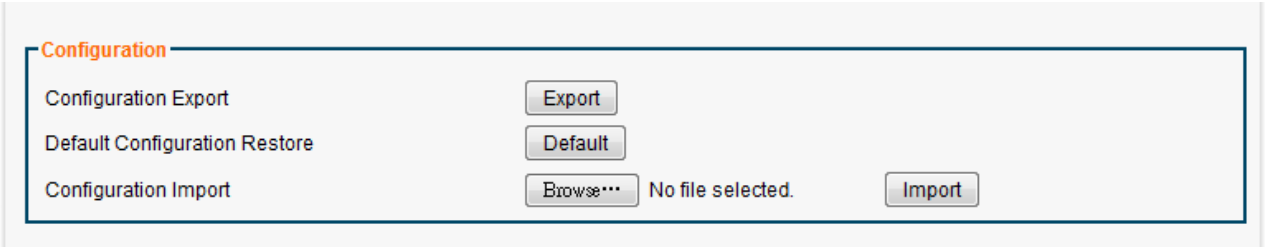


If user needs to reboot the MG700, press “Reboot Router” button. Then the MG700 will reboot

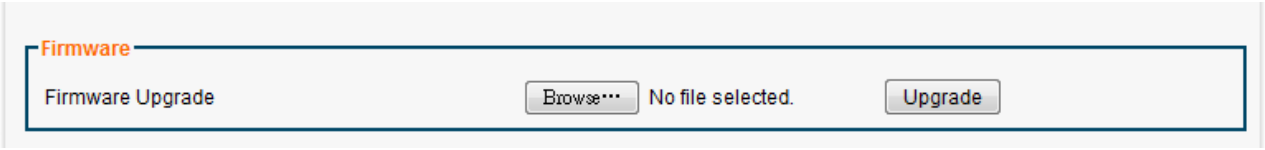
immediately.



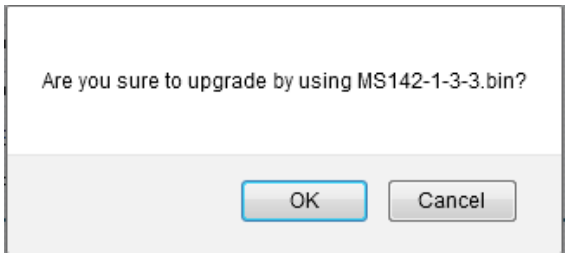
User can export/import the configuration of MG700.

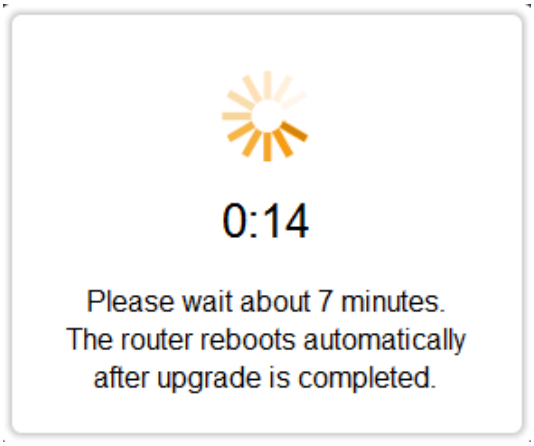


If user need upgrade firmware, press Browser button and choice firmware file.



After press “Upgrade” button, MG700v ask again. If press OK, it will start to upgrade firmware. Upgrade firmware should spent about 7 minutes.

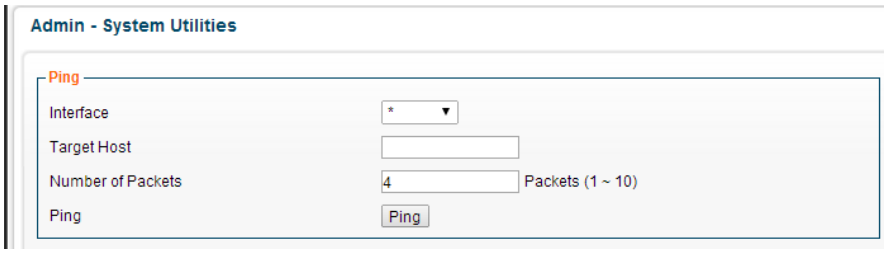




18.2 System Utilities

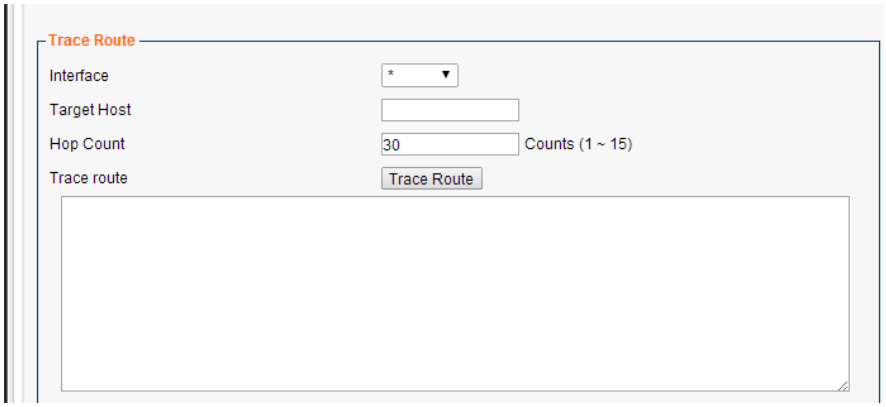
The System Utilities screen provides several useful tools for network and device diagnostics. MG700 include Ping, ARP tracing and Trace Route function

The Ping utility sends a series of ICMP packets to a designated IP address to test communications with that IP.



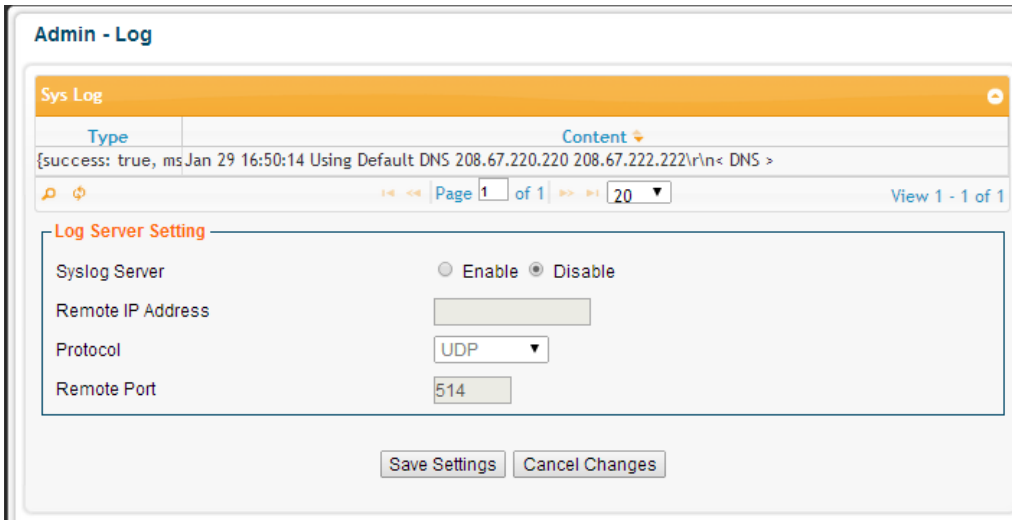
The ARPing similar to “ping”, used to discover hosts on a network. The utility tests whether a given IP address is in use on the local network, and can get additional information about the device using that address. ARPing operates at layer 2(or the link layer of the OSI model) – using the Address Resolution Protocol (ARP) for probing hosts.

Trace Route is a network diagnostic tool for displaying the route and measuring transit delays of packets across and IP network. Trace Route sends a sequence of ICMP echo request packets addressed to a destination host. Trace Route uses the returned ICMP messages to produce a list of that the packets have traversed. The time stamp values returned for each router along the path are the delay (latency) values measured in milliseconds for each packet. The Trace Route results are displayed in the result window.



18.3 Log

The system log records various events that have occurred during the MG700 operation. Events are divided into classes to make it easier to review specific event chains. The MG700 has a limited amount of space available for log events the oldest events are overwritten when the log is full.


Admin - Log
Sys Log
Type
Content
{success: true, ms
Jan 29 16:50:14 Using Default DNS 208.67.220.220 208.67.222.222\r\n< DNS >
Page 1 of 1
20
View 1 - 1 of 1
Log Server Setting
Syslog Server
Enable
Disable
Remote IP Address
Protocol
UDP
Remote Port
514
Save Settings
Cancel Changes

19 MG700 M2M Application

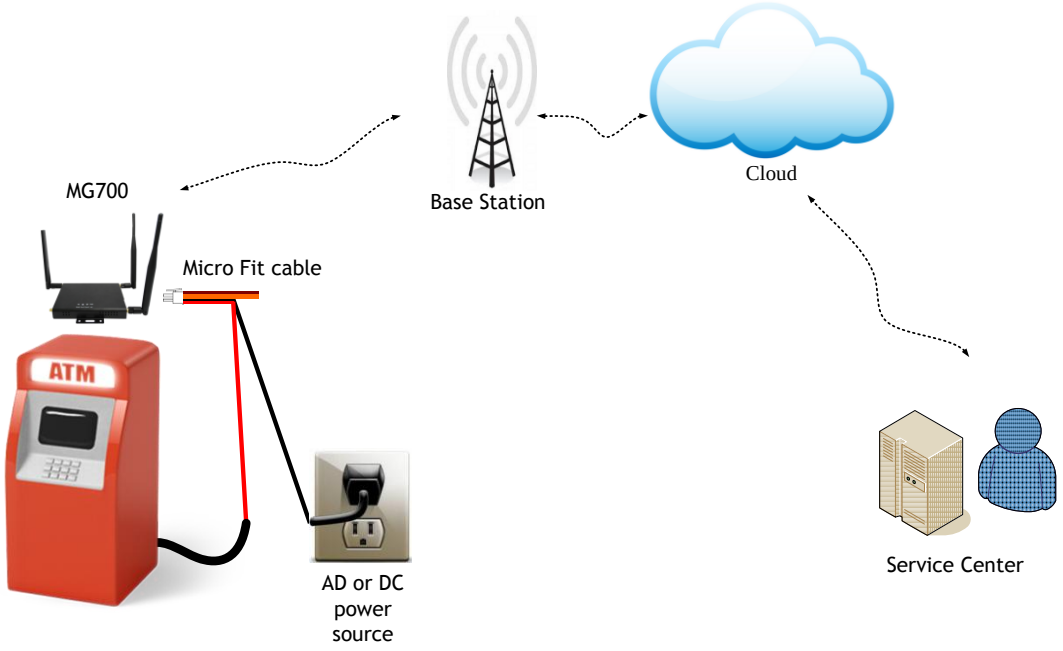
20 Hardware Specifications

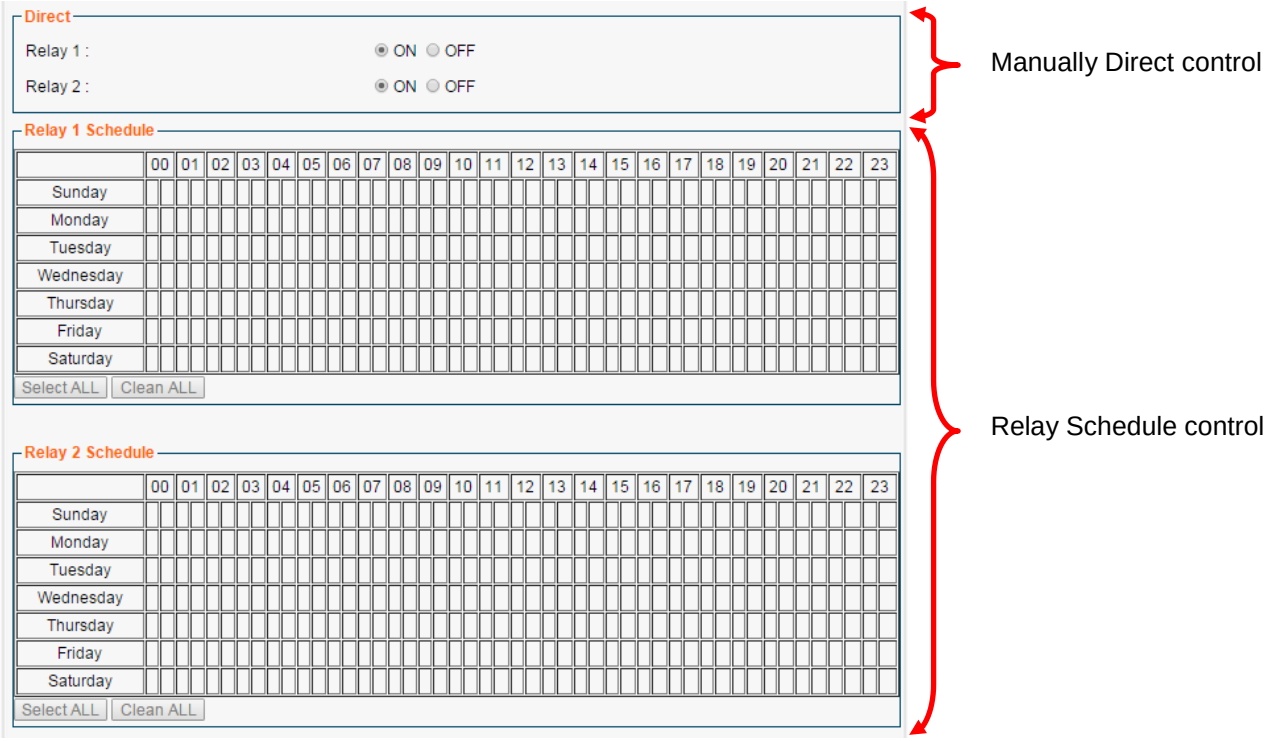
Hardware Specifications	
Main Chip	
Core	MIPS24KEc,580MHz
RAM	1G bit DDR2 RAM
Flash Memory	128M Bit Flash
Wireless	802.11 b/g/n
Antenna	2T2R
Linux OS	Linux 2.6.3
Connector	
RJ45	2 Ethernet port(LAN and WAN) + 3 Serial Port or 3 LAN(option)
TFlash/Micro SD	1
USB Port	1
SIM Card	1
WiFi Antenna	2
GSM Antenna	1
GPIO/Relay	2(Relay Normal Open)
Specific	
Battery	1100mAH(Option)
Reset Button	1
Switch	2(1 for Power on/off, 1 for GPS Select)
Temperature	-20℃ ~ 65℃
Dimension	90 x 130 x 20mm
DC Power	
Power In	12V
Power consumption	Max. 2A
AC Adaptor	
Power In	Input : 110~260VAC Output : 12VDC
Power consumption	Max. 2A
Temperature	0℃ ~ 40℃

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, including interference that may cause undesired operation.

21 Application Note – ATM remote control Application

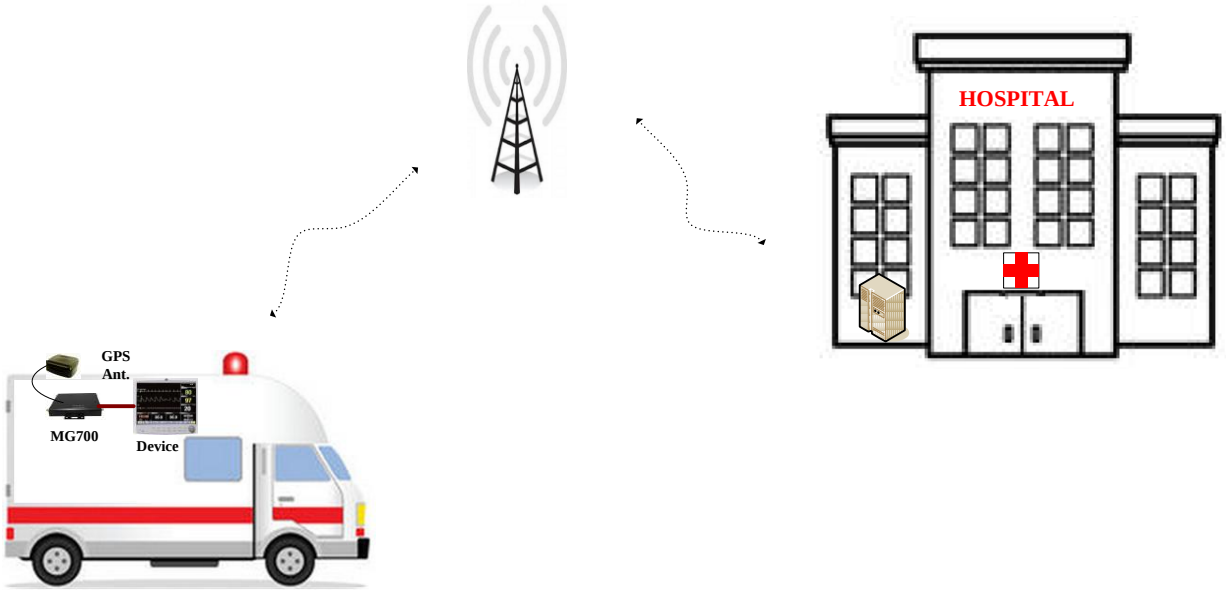
In the ATM remote control power application, If ATM occur the shutdown or stop, the Service Center could reset the ATM's power by MG700 through Manually control or Schedule mode.





Application Note – AMBULANCE Application

When someone with accident, the ambulance arrived at the scene. The MG700 could send the patient's physiological data, heart rate, blood pressure and other information sent to the hospital immediately. Then, the emergency center will provide the best solution for patient quickly . Also, if MG700 with GPS, Hospital will show the ambulance’s position.



Application Note – Tracker/Car Management Application

User can the temperature sensor(RS232 interface) connect with the MG700, then, the Server center will receive the temperature data and monitoring the temperature with Tracker. If MG700 with GPS, the Server can also monitor the Tracker Position.