MLB-G420X

MLB-G4201
Ethernet to 2G/3G Terminal
MLB-G4202
Ethernet to LTE Terminal

➲ USER MANUAL

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1 INTRODUCTION

1.1 Description

The MLiS MLB-G4201 is a Ethernet to 3G wireless terminal designed for RJ45 communication over TCP/IP via any readily available 3G carrier network.

Moreover, the MLiS MLB-G4202 is an Ethernet to LTE wireless terminal designed for RJ45 communication over TCP/IP via any readily available LTE carrier network.

Overall, they are more cost and time effective to use remote solutions to combine Machine to Machine over diverse locations without having first to establish and invest in a huge complex network.

The MLB-G420X wireless terminal offer Ethernet to Cellular communication. LEDs are used to indicate the status of the wireless terminal.

The MLB-G420X wireless terminal can be used to provide a wireless communication link to many applications, including metering, fleet and asset management, vending, security and alarm monitoring, e-maintenance and other telemetry applications.

1.2 Highlights

Interface

- MLB-G4201: 1 x Cellular Antenna Connectors SMA (female)
- MLB-G4202: 2 x Cellular Antenna Connectors, SMA (female)
- DC jack/terminal block Connector for power / DB9 connector (male) / 2 x DI
- DB9 connector (female)
- 2 * Ethernet: 10/100Mbps, RJ45 connector, Auto MDI/MDIX
- SMA Female Connector (GSM antenna connector)
- 2 * SIM card reader
- 1 * relay
- 2 * I/O pins

General Features

MLB-G4201

General Features	
Frequency Range	UMTS (WCDMA/FDD) 800/850/900/1900/2100 MHz GSM 800/900/1800/1900 MHz
Protocol Stack	TCP/IP, UDP, HTTP, HTTPs, FTP, DHCP, DDNS, ARP, Telnet, SMTP, SNMP
Power Supply Input	9~48VDC
Power Consumption	Working mode: < 330mA
Humidity	5~95% (non-condensing)
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L) x (W) x (H)	122x88x48mm (excluding connectors)
Weight	420g (without antenna)
Casing Material	Metal
Data Transmission	
GPRS	Multi-slot class 12, mobile station class B
EDGE	Multi-slot class 12
CSD	-9.6 Kbps, non-transparent, V.110
SMS	MT, MO, Cell Broadcast, Text and PDU mode
Operating Mode	Transparent TCP Server/TCP client /UDP SMS/AT command
Relay	1 output with current carrying capacity of 2A @ 40VDC
Digital Inputs	2 electrically isolated inputs: +13~+30V for state “1” (on) +3~-30 V for state “0” (off)
ESD Protection	15 KV
Event Trigger	GPRS/Reboot/IO/Relay
NAT	Yes
Port Forwarding	Yes
IPSec	Yes
OpenVPN	Yes
MCCP/MCCU	Yes API： MLiS Cellular Control Protocol (= MCCP) Utility： MLiS Cellular Configuration Utility (= MCCU)
Interfaces	
RF Antenna Socket	50 Ohm SMA
Power Connector	DC jack connector/ Terminal Block
SIM Card Num	2
SIM Card Slot	Flip-up type

Ethernet Interface	2 x RJ45 connector for 10/100M
Serial Interface	DB9 connector (male)
LED	8 x Working Status Indicator 3 x Network Status Indicator
Reset	HW Reset
Approval	
Certification	EMC EN55022/24 FCC Part 15B EMS IEC61000-4-2 IEC61000-4-3 IEC61000-4-4 IEC61000-4-5 IEC61000-4-6 RF EN301908-1 Safety EN60950-1 NCC

MLB-G4202

General Features	
Frequency Range	LTE - 2100/1800/2600/900/800 MHz UMTS/HSPA - 2100/1900/850/800/900 MHz
WCMDA	2100MHz, 1900MHz, 850MHz, 900MHz
Protocol Stack	TCP/IP, UDP, HTTP, HTTPs, FTP, ICMP, DHCP, DDNS, ARP, SNMP, Telnet
Power Supply Input	9~48VDC
Power Consumption	Working mode: < 330mA
Humidity	5~95% (non-condensing)
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L) x (W) x (H)	121x88x48mm (excluding connectors)
Weight	425g (without antenna)
Casing Material	Metal
Data Transmission	
Peak Download Rate	100 Mbps
Peak Upload Rate	50 Mbps
Operating mode	Transparent TCP server/TCP client/UDP SMS/AT command
Relay	1 output with current carrying capacity of 1 A @ 40VDC
Digital Inputs	2 electrically isolated inputs: +13~+30V for state “1” (on) +3~-30V for state “0” (off)
ESD Protection	15 KV
NAT	Yes
Port Forwarding	Yes
IPSec	Yes
OpenVPN	Yes
Event Trigger	GPRS/Reboot/IO/Relay
MCCP/MCCU	Yes API：MLiS Cellular Control Protocol (= MCCP) Utility：MLiS Cellular Configuration Utility (= MCCU)
Interfaces	
RF Antenna Socket	50 Ohm SMA
Power Connector	DC jack connector/ Terminal Block
SIM Card Num	2
SIM Card Slot	Flip-up type
Ethernet Interface	2 x RJ45 connector for 10/100M
Serial Interface	DB9 connector (male)
LED	8 x Working Status Indicator 3 x Network Status Indicator
Reset	HW reset

Approval	
Certification	EMC EN55022/24 FCC Part 15B EMS IEC61000-4-2 IEC61000-4-3 IEC61000-4-4 IEC61000-4-5 IEC61000-4-6 RF EN301908-1 Safety EN60950-1 NCC

1.3 Functional Block Diagram

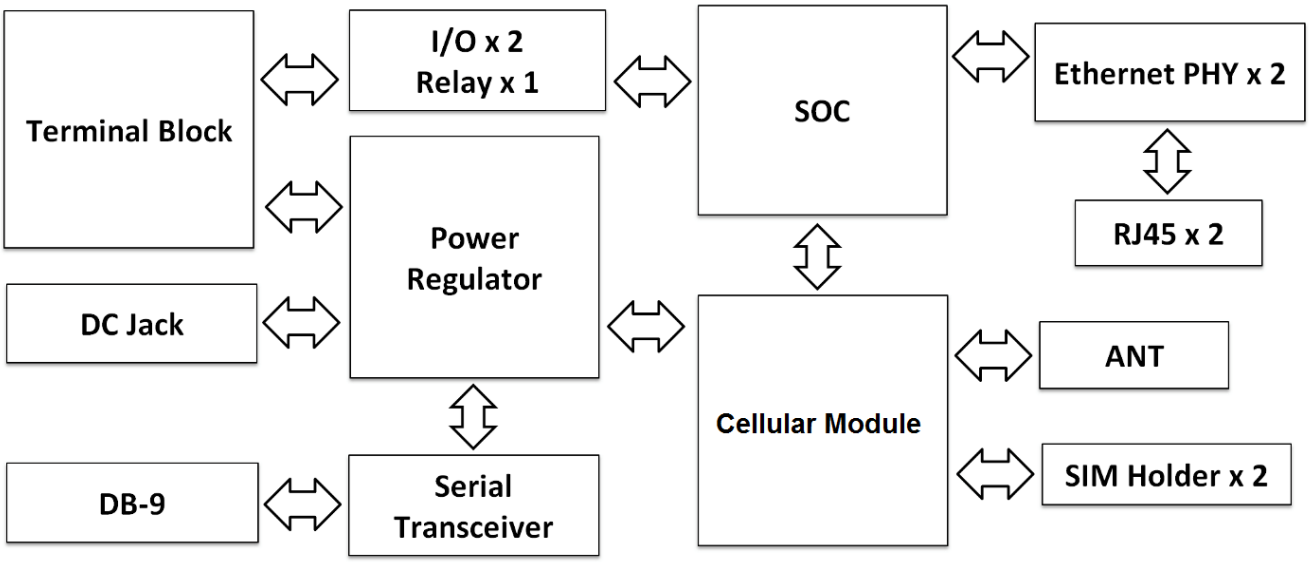

Figure 1: Functional Block Diagram for MLB-G420X

The MLB-G420X consists of a fully certified (CE /NCC approved) GSM/GPRS engine, SIM card holder and power regulator.
The wireless terminal is supplied with power via the DC jack and terminal block. The remaining RJ45 connector is used for data communications.
The SMA female connector provides the air interface to an external 50 ohm antenna specified for the correct frequency band.

1.4 Precautions

The MLB-G420X wireless terminal is designed for indoor use only. For outdoor use, it has to be integrated into a weatherproof enclosure. Do not exceed the environmental and electrical limits as specified in the user manual.

2 MECHANICAL DESCRIPTION

2.1 Overview

The pictures below show the mechanical design of the wireless terminal along with the positions of the different connectors.

2.2 Dimensions

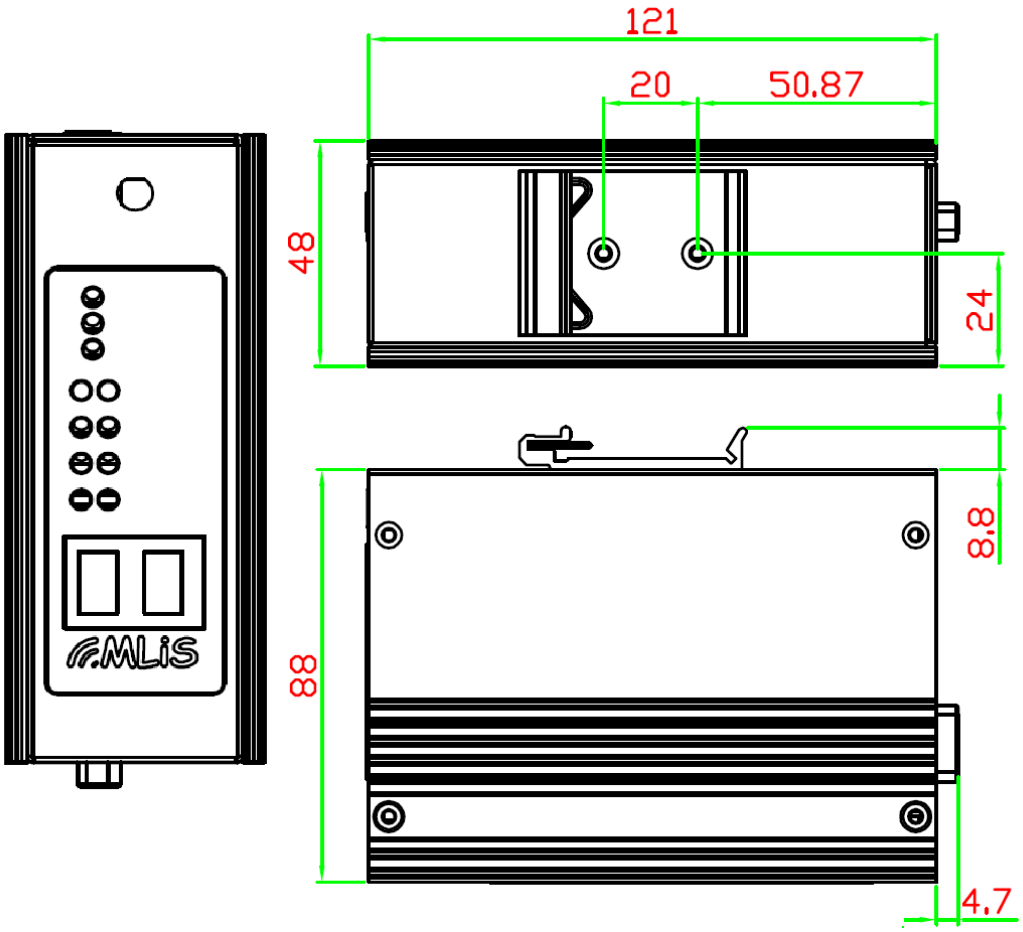

Figure 2-1: Chassis Dimension for MLB-G4201

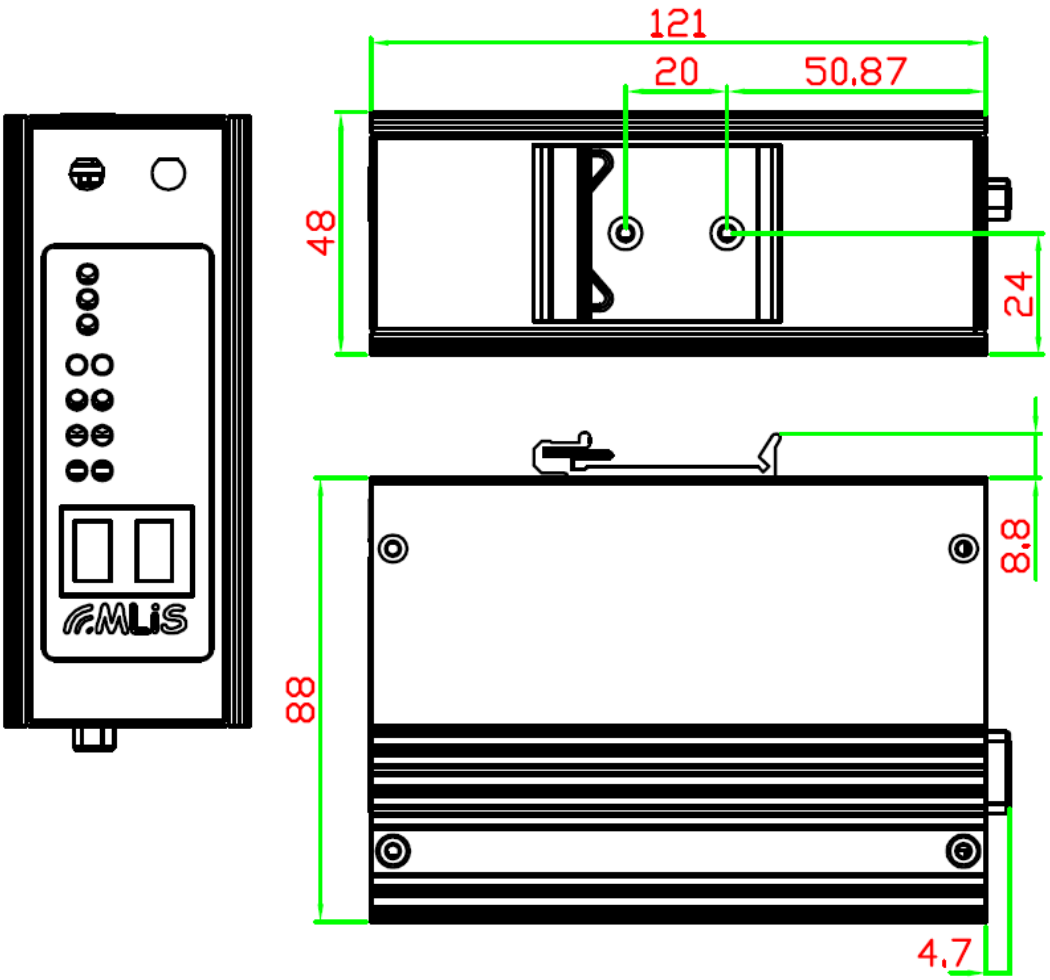

Figure 3-2: Chassis Dimension for MLB-G4202

S/N	Parameter	Value
1	Height (H)	48mm
2	Length (L)	121mm
3	Width (W)	88.0mm
4	Weight	420g
5	Chassis Material	Metal

Table 1: Chassis Dimensions and Mechanical Description for MLB-G420X

3 ELECTRICAL INTERFACE DESCRIPTIONS

3.1 Buttom side view (DB9 connector)

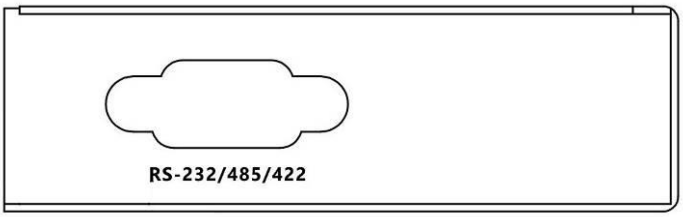

Figure 4:RS232/RS422/RS485 for MLB-G420X

The table below defines the RS-232/422/485 pin configuration on the wireless terminal.

Pinouts

Pin	RS-232	RS-422/485 4-wire	RS-485 2-Wire
1	DCD = Input	Not Used	Not Used
2	RXD = Input	RXD+ = Input	Not Used
3	TXD = Output	TXD+ = Output	DAT+ (often B)
4	DTR = Output	Not Used	Not Used
5	GND	GND	GND
6	DSR = Input	RXD-- = Input	Not Used
7	RTS = Output	Not Used	Not Used
8	CTS = Input	Not Used	Not Used
9	Not Used	TXD-- = Output	DAT-- (often A)

Table 2: DB9 Pins Definition for MLB-G420X

3.2 Top side view (DC Jack & Power Terminal block)

Figure 5: DC and Terminal Block for MLB-G420X

For power redundancy purpose, it is recommended to connect both DC jack and the wire power line to the corresponding power pinouts of terminal block to a DC power sources.

The interfaces description and pinouts definition for MLB-G420X are as follows:

Name	Description	Function
DC	DC	Input Power:+9V~+48V
Terminal Block	PWR(V+, V-)	• Input Power:+9V~+48V • Pin #1 is V+ • Pin #2 is V- • When use DC for input, the output power of TB is same as input power
	Relay	External Relay: Load Voltage: 40V max Load Current: 2.0A max
	DI1(I1, COM_1) Pin #5 is + Pin #6 is -	• I1: external signal +12V~+48V • COM_1:common grand • Pin #5 is + • Pin #6 is -
	DI2(I2, COM_2) Pin #7 is + Pin #8 is -	• I2:external signal, +12V~+48V • COM_2: comman grand • Pin #7 is + • Pin #8 is -
Reset	Reset	• 1-click for 1 second to reboot MLB-G420X. • Long press 30 seconds to reset MLB-G420X to default.

Table 3: Interfaces description and Pinouts definition of MLB-G420X

Note: The reset button is located on the top panel of MLB-G420X. You can reboot it to factory default settings by pressing the RESET button with a pointed object such as an un folded paper clip.

System reboot: Hold the RESET button down for 1 second and then release

Reset to factory default: Hold the reset button down for 30 seconds while the READY LED and SIM LED go off until READY LED starts bliking green. Release the button to reset the MLB-G420X.

3.3 Frond view (Antenna & LED)

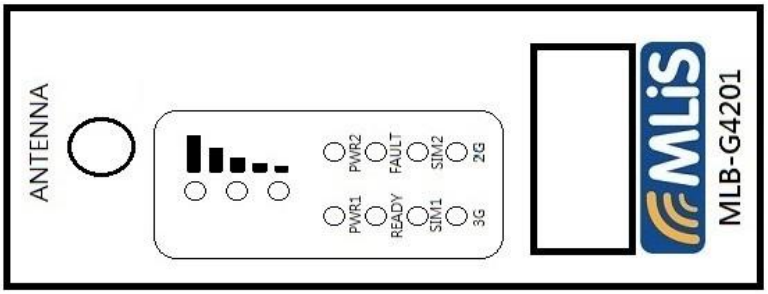

Figure 6-1: Antenna Connector for MLB-G4201

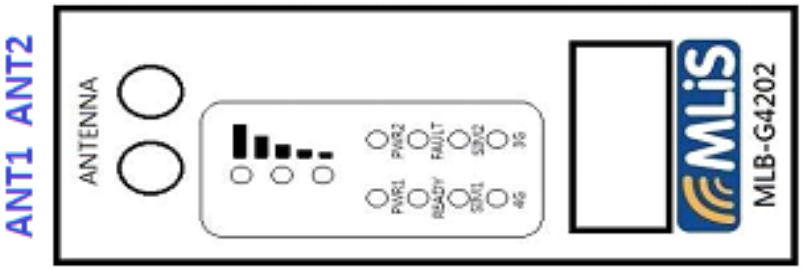

Figure 7-2: Antenna Connectors for MLB-G4202

Note: For the model of MLB-G4202, it is strongly recommended to install both antennas to gain the better quality of cellular signal. For a reminder, it is mandatory to install ANT1; if you only install ANT2, there would be no cellular signal received to establish the traffic communication.

For optimum RF performance, the MLiS wireless terminal has to be connected to an external RF antenna matched to 50ohms. Please use a SMA Male connection for the wireless terminal.

The functions of LED are indicated on the table below.

LED	Color	State	Description
PWR1 (DC)	Green	On	Power is being supplied from power input 1.
PWR2 (Terminal Block)	Green	On	Power is being supplied from power input 2.
READY	Green	On	System startup is complete and the system is operating with IP address obtained.
		Blink	Device has been located.
		Off	Power is off, or the system is booting up.
FAULT	Red	On	System configuration error or a relay event has occurred.
		Blink	IP address conflict.
		Off	Power is off, or there is no error condition.
SINGNAL (3LEDs)	Green	On	Number of LEDs to indicate cellular signal level when registered to a base station. Signal LED 1: 0 < RSSI ≤ 12 Signal LED 2: 12 < RSSI ≤ 21 Signal LED 3: 21 < RSSI ≤ 31
SIM1	Amber	On/Off	SIM 1 is active or inactive.
		Blink	SIM 1 is not inserted or PIN code is incorrect.
SIM2	Amber	On/Off	SIM 2 is active or inactive.
		Blink	SIM 2 is not inserted or PIN code is incorrect.

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4G	Amber	On	Registered to a base station with cellular connection in LTE mode
3G	Amber	On	Registered to a base station with cellular connection in UMTS or HSPA mode

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3G	Amber	On	Registered to a base station with cellular connection in UMTS or HSPA mode
2G	Amber	On	Registered to a base station with cellular connection in GPRS or EDGE mode

Table 4: LED Functions of MLB-G420X

3.4 Hardware Installation

In the bottom, the MLB-G420X wireless terminal is provided with a SIM card reader designed for 1.8V and 3V SIM cards. It is the flip-up type which can be locked. It can be accessed through removing the cover as shown below.

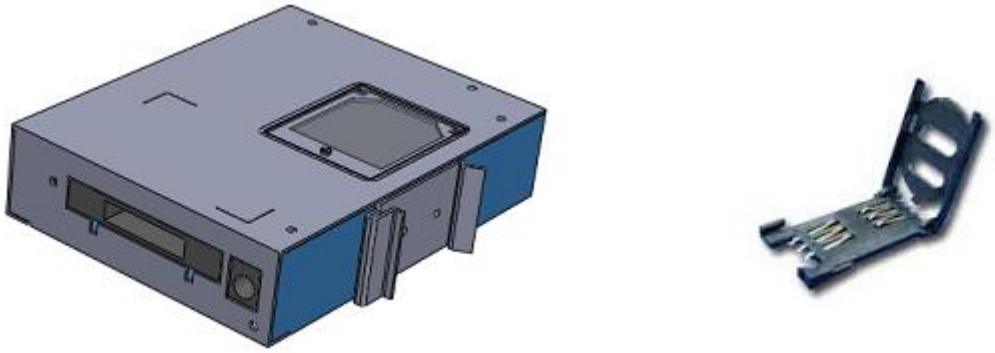


Figure 8: SIM Card Holder for MLB-G420X

- **Be sure to power off the modem when user replaces the SIM card. Otherwise it may cause damage to the equipment.**

The MLB-G420X fully operates when inserting a SIM card. Some MLB-G420X functionality may be lost if user trys to operate the wireless terminal without a SIM card.

Installing a SIM Card

The SIM card slots are located inside the MLB-G420X's housing. To install a SIM card, please follow the steps listed below:

1. Turn off the MLB-G420X.
2. Remove the screw to open the SIM card slot cover.
3. Install a SIM card into a SIM card flip-up holder.

- For SIM 1, orient the gold contacts facing down and the cut-off edge to the left.
- For SIM 2, orient the gold contacts facing up and the cut-off edge to the left.

4. Install the screw to secure the SIM card slot cover.

DIN-Rail Mounting

The aluminum DIN-Rail attachment plate should already be fixed to the back panel of the MLB-G420X when you take it out of the box.

1. Insert the top of the DIN-Rail stiff metal spring into the slot.

2. The top of stiff metal spring of the DIN-Rail mounting kit unit will snap into the Din rail rack as shown in the following illustration.

To remove MLB-G420X from the DIN-Rail, simply reverse Steps 1 and 2.

3.5 Web Console

Power on MLB-G420X and use Ethernet Cat cable to configure MLB-G420X.
Web Console management ~
Factory default IP: 10.0.10.1
Subnet mask: 255.255.255.0

Please set PC & MLB-G420X into same subnetwork. The Default IP of MLB-G420X is 10.0.10.1/24. Please set up your PC with the same network segment, such as 10.0.10.2/24. So you can use browser to access the web console of MLB-G420X for further configuration or management. Please configure the gateway such as default IP address 10.0.10.1/24 of MLB-G420X on your PC if you wish to route the traffic from LAN to Cellular WAN.

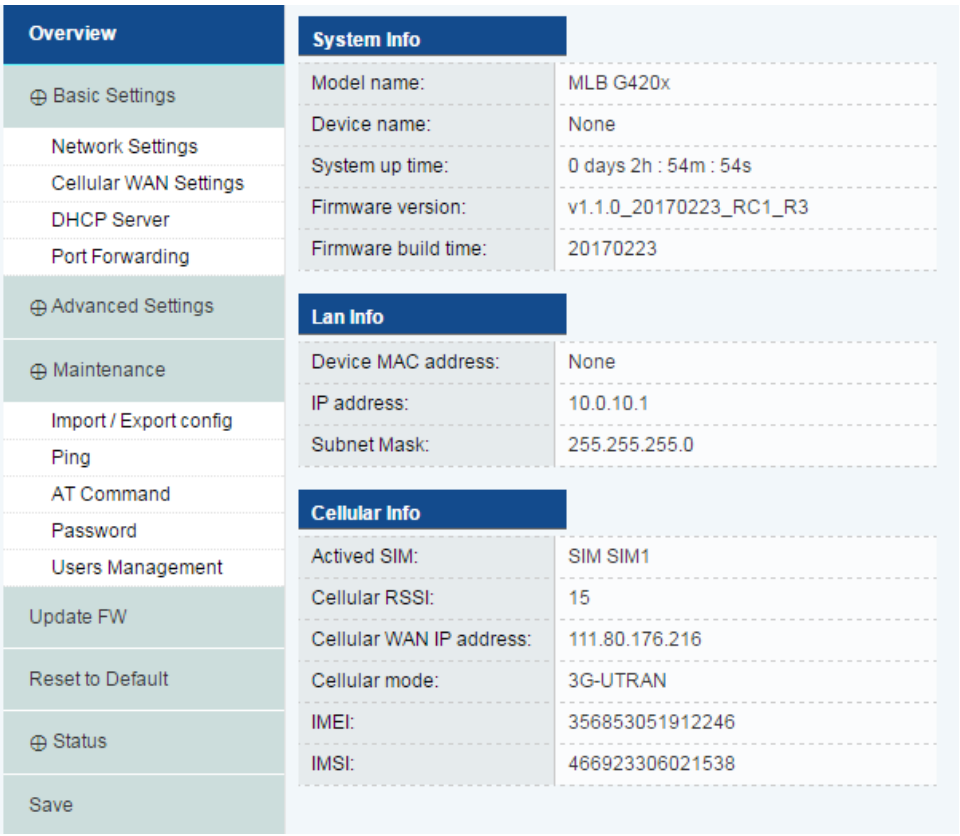
Please enter username and password as below to enter the web console:
Username: admin
Password: 1234

Note:

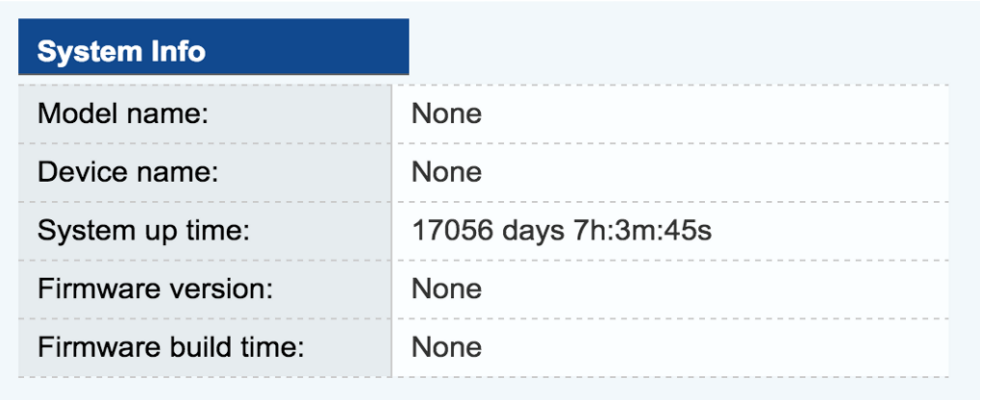
1. If you leave the web-based console management interface unused for 5 minutes, you would be logged out and need to re-enter from this log-in page.
2. It is recommended to use the browser of Chrome v54, Firefox v49 or IE v11 above for web console management.

3.6 Overview

This page displays the system information of MLB-G420X.



3.6.1 System Info



Item	Description
Model name	Display the model name
Device name	Display the device name
Serial No	Display the serial number
System up time	Display system run times
Firmware version	Display the Firmware version
Firmware build time	Display the Firmware build time

3.6.2 LAN Info

Lan Info	
Device MAC address:	None
IP address:	10.0.10.1
Subnet Mask:	255.255.255.0

Item	Description
Device MAC address	Display physical address
IP address	Display the IP address
Subnet Mask	Display the subnet mask

3.6.3 Cellular Info

Cellular Info	
Cellular RSSI:	19
Cellular WAN IP address:	221.120.38.30
Cellular mode:	3G-UTRAN
IMEI:	356853051908335
IMSI:	466923306258664

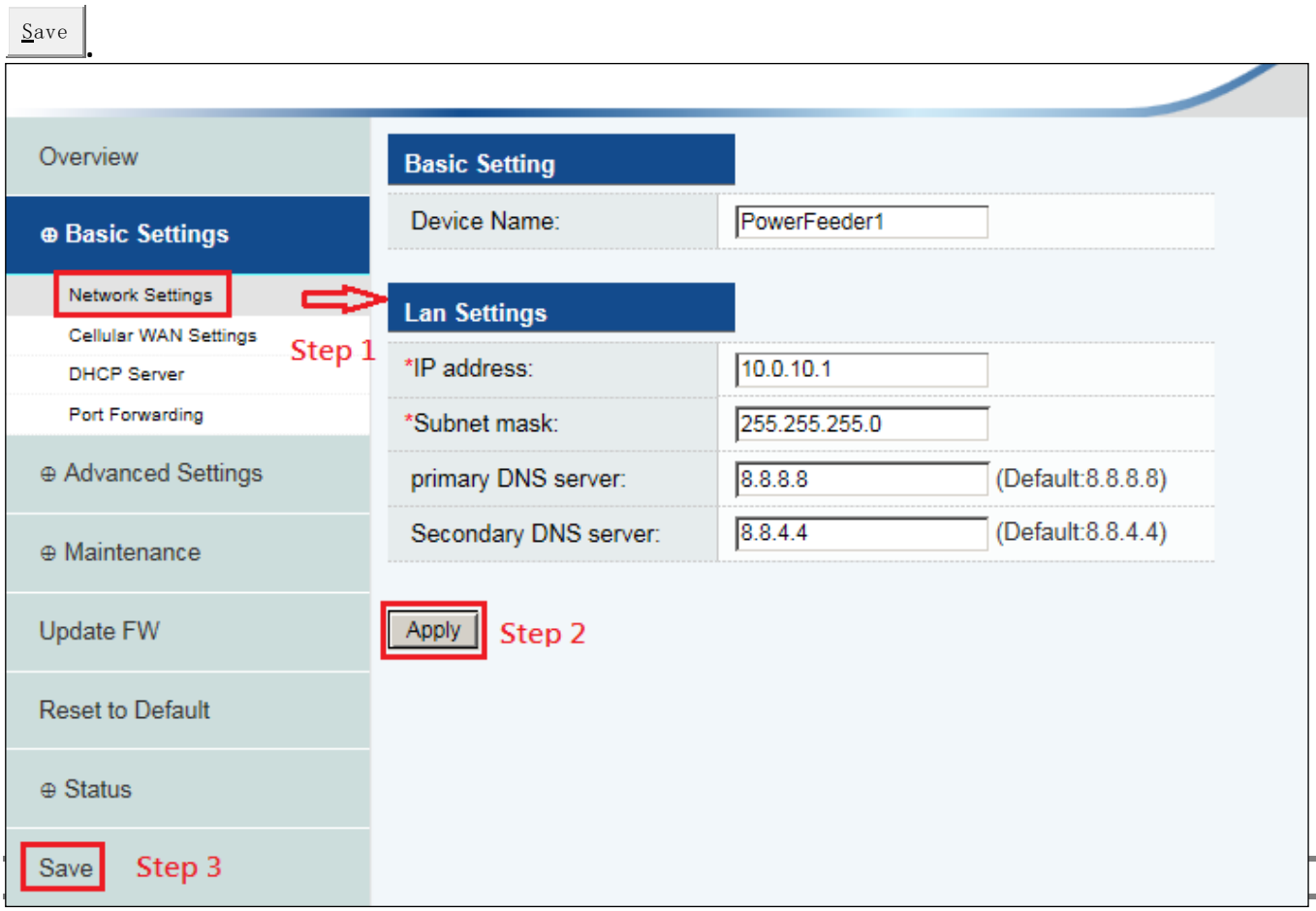
Item	Description
Cellular RSSI	Signal
Cellular WAN IP address	Display the WAN IP address
Cellular mode	Display the cellular mode
IMEI	
IMSI	

3.7 Basic Settings

The Basic Settings group includes the most commonly used settings required by administrators to maintain and control the MLB-G420X.

3.7.1 Network Settings

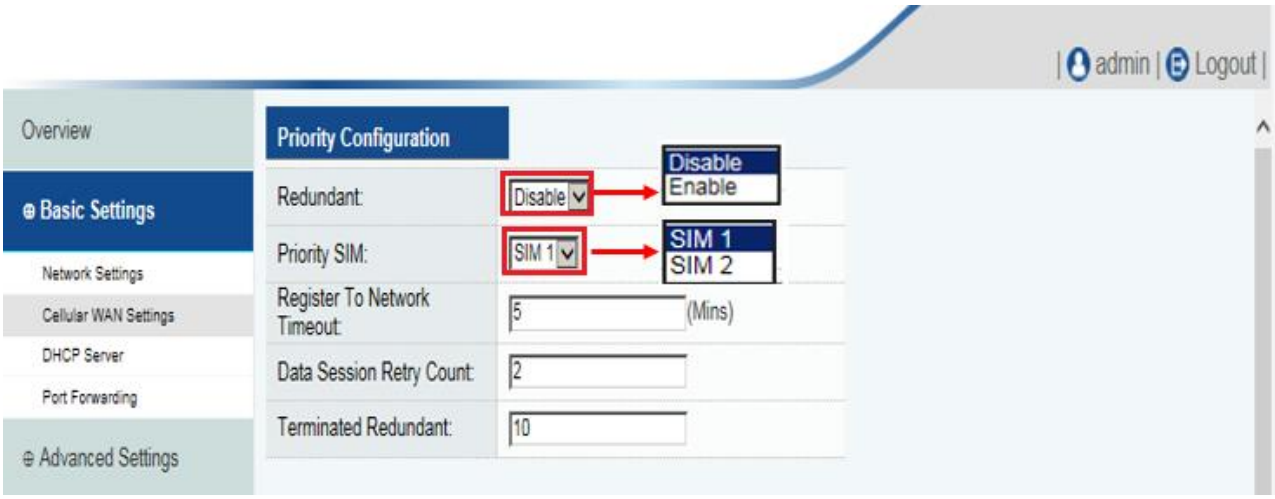
You can provide the Device Name and change the Lan settings as desired.
Please click “Save” if you change the configuration and also wish to update the settings on this device.



Item	Description
IP Address	Enter the unique IP address for the MLB-G420X
Subnet mask	Enter the subnet mask to specify the type of network
Primary DNS server	Enter the IP address of the primary DNS server. After you specify a DNS server, you can access a web site by entering its URL instead of the IP address.
Secondary DNS Server	Enter the IP address of the secondary DNS server.
Apply & Save	1.Click to Apply all settings. 2.Go to “Save” then click on the save button if you wish to update the configuration settings. Save

3.7.3 Cellular WAN Settings

MLB-G420X supports Dual-SIM for cellular connection redundancy.



Redundant:
With Disable, SIM 1 is the only activate SIM interface;
With Enable, the selected SIM # interface in the priority SIM menu would be the main one. The other SIM interface would be the backup one.

Priority SIM:
Set main SIM & backup SIM. .

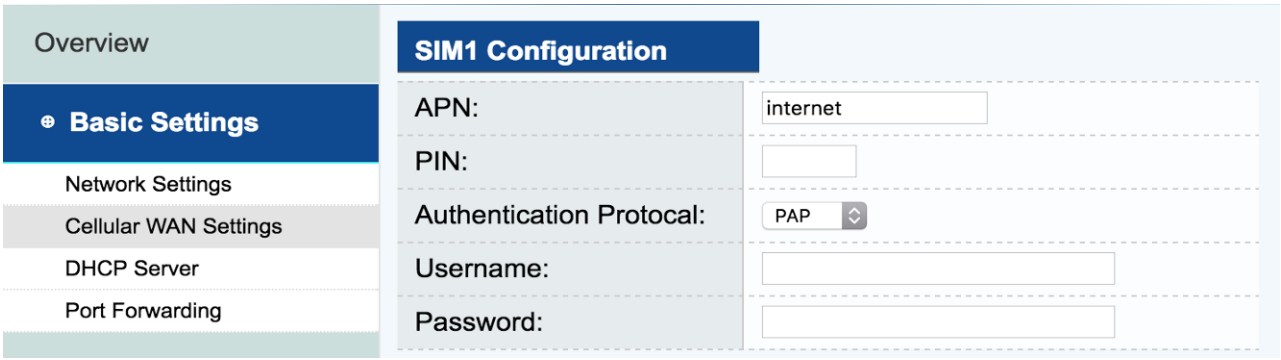
Register to Network Timeout:
Default value is 5 mins (1~100).
The registration process has to be completed to a base station before the timeout specified in the Register to network timeout field. For instance; if MLB-G420X's 1st priority SIM failed to register to the base station within that time period, it changes to 2nd priority SIM.

Data Session Retry Count:

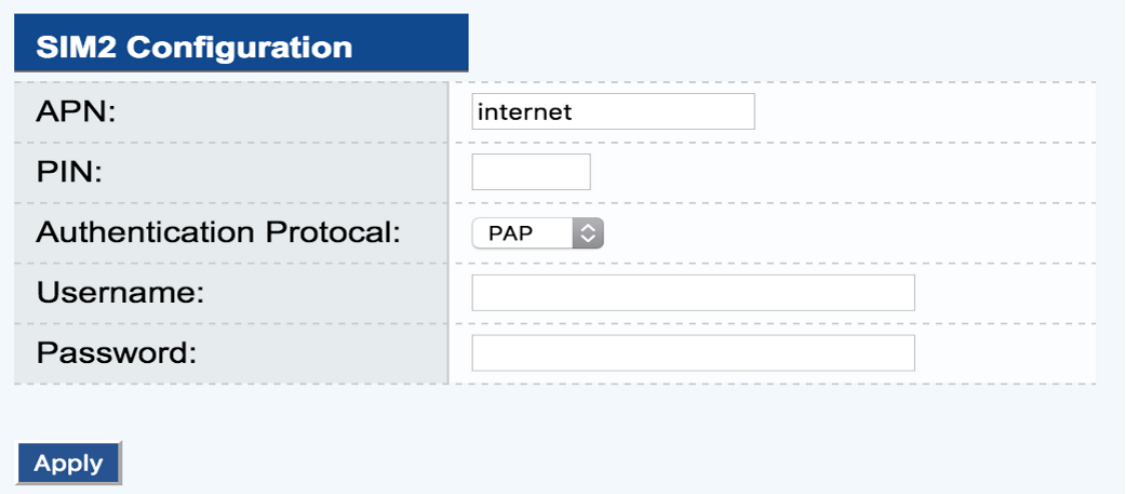
Sometimes the cellular connection is terminated based on your ISP; in such scenarios, MLB-G420X's main SIM retries to reconnect the number of times specified in the data Session Retry field. If still failed, it will change to the backup SIM interface.
Default Value is 2 (0~9999, 9999 means unlimited)

Terminated Redundant:

Under the conditions of either Register to network failed or Data session retry failed would trigger the SIM redundant function, the redundant times such as changing from SIM1 to SIM2 or from SIM2 to SIM1 varies from 1 to 9999 (9999 means unlimited). After the number of redundant changes reached the specified times such as the default value is 10 times, the redundant function would be stopped.



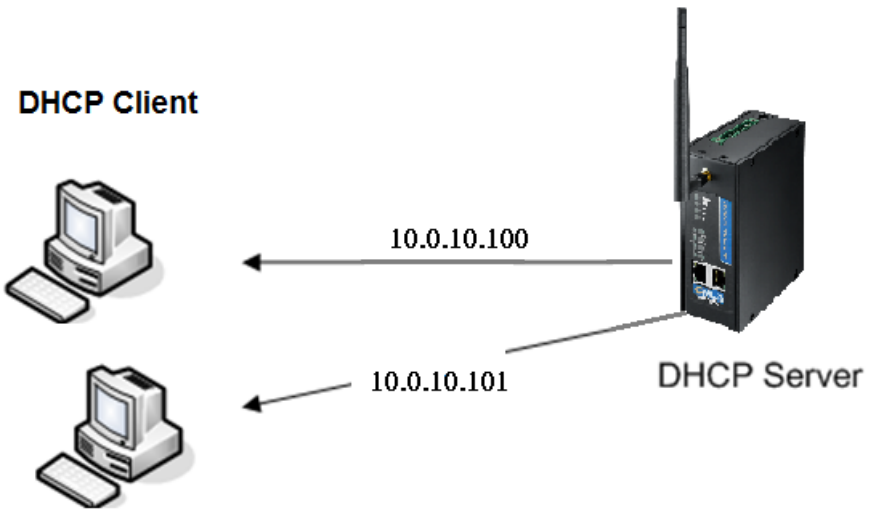
Item	Description
APN	Access Point Name
PIN	Personal Identification Number
Authentication Protocol	Select authentication protocol if your service provider provided
Username	Enter the username for authentication if your service provider provided
Password	Enter the username for authentication if your service provider provided
Apply & Save	1.Click to Apply all settings. 2.Go to "Save" then click on the save button if you wish to update the configuration settings. Save

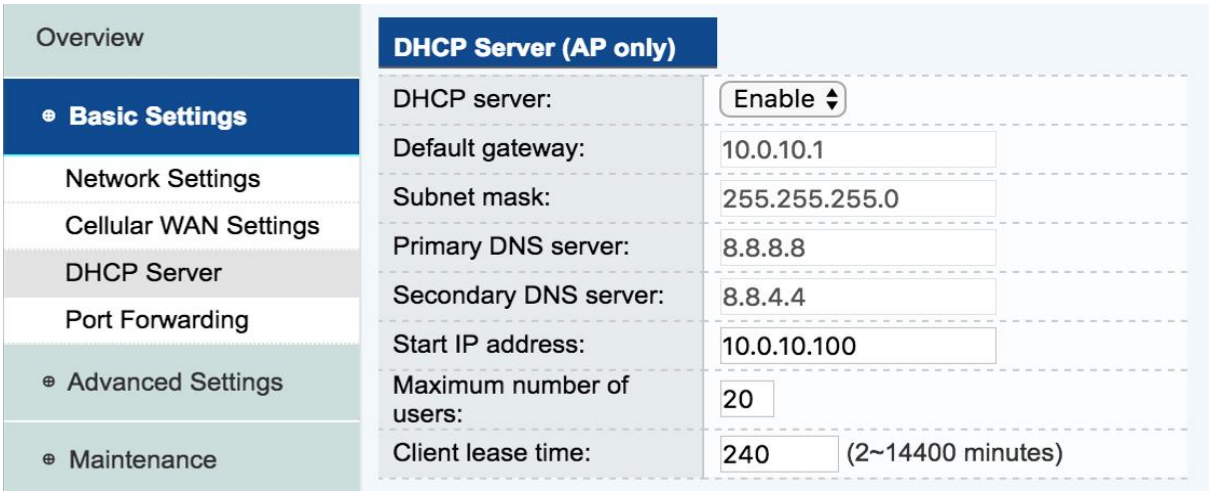


Item	Description
APN	Access point name
PIN	Personal identification number
Authentication Protocol	Select authentication protocol if your service provider provided
Username	Enter the username for authentication if your service provider provided
Password	Enter the username for authentication if your service provider provided
Apply & Save	1.Click to Apply all settings. 2.Go to “Save” then click on the save button if you wish to update the configuration settings. Save

3.7.4 DHCP Server

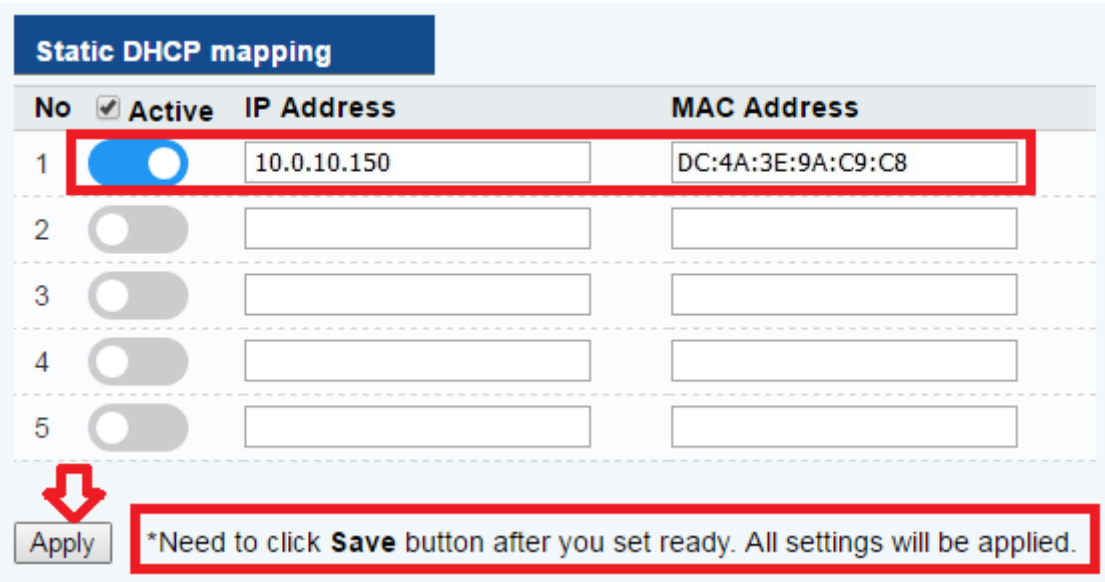
The Dynamic Host Configuration Protocol (DHCP) save network administrators time and effort on manually configuring IP addresses of the connected End devices thru automatically IP addresses assignment. With DHCP Server implementation of MLB-G420X, the connected DHCP supported client devices can successfully obtain the dynamic IP addresses assigned from the MLB-G420X (DHCP server) via Ethernet ports network connection.





Item	Description
DHCP server	Select “Enable” or “Disable” by drop-down list
Default gateway	Set default gateway
Subnet mask	Set subnet mask
Primary DNS server	Set IP address of the primary DNS server.
Second DNS server	Set IP address of the secondary DNS server.
Start IP address	Enter the starting IP address in the IP address pool.
Maximum number of users	Enter the number (1~999) of IP address to assign to DHCP clients.
Client lease time	Enter the lease time (2~14400 minutes) for an assigned IP address. The IP address expired after the lease time.

With Static DHCP mapping function, you can manually specify the desired IP address to the specific connected network device distinguished by the MAC address.



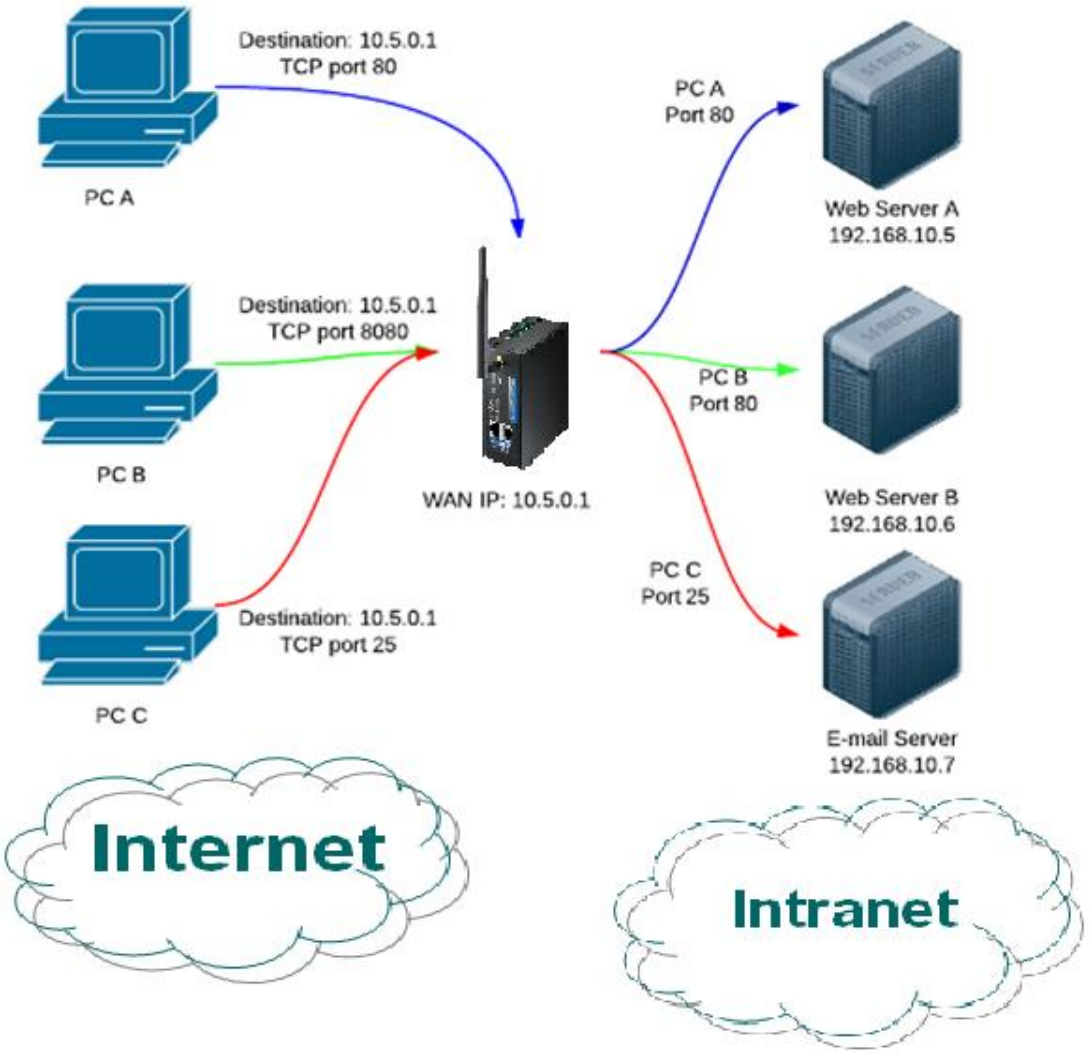
The user can check if the specific MAC network device gets the corresponding IP address successfully in the windows command.

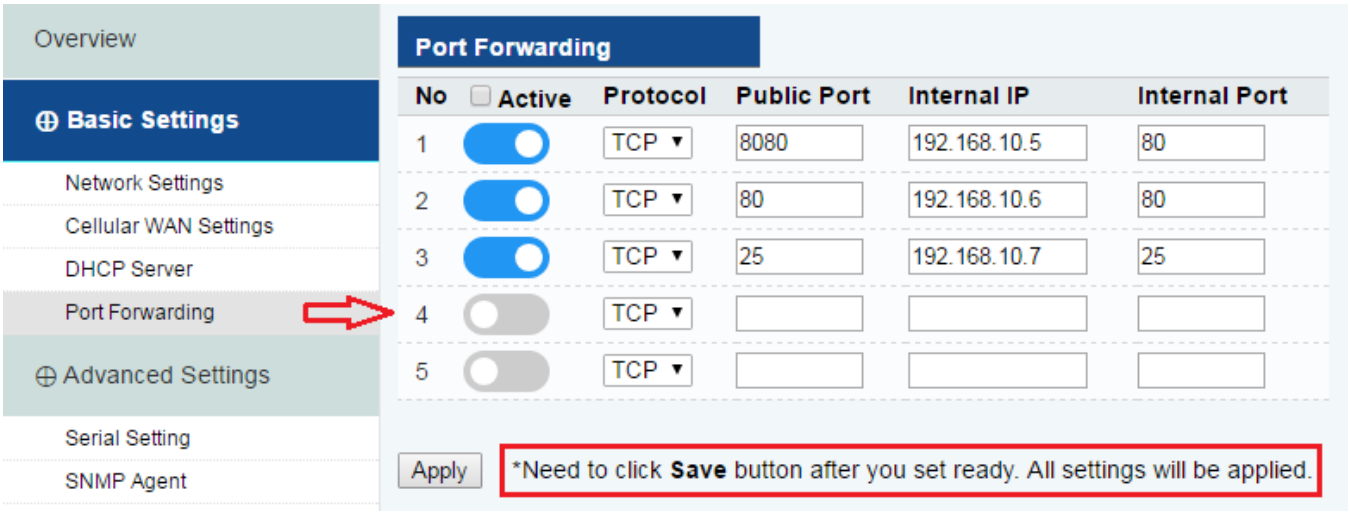
```
Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) Ethernet Connection (2) I219-LM
   Physical Address. . . . . . . . . : DC-4A-3E-9A-C9-C8
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   IPv4 Address. . . . . . . . . . . : 10.0.10.150(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : Friday, May 12, 2017 10:08:47 AM
   Lease Expires . . . . . . . . . . : Friday, May 12, 2017 2:08:47 PM
   Default Gateway . . . . . . . . . : 10.0.10.1
   DHCP Server . . . . . . . . . . . : 10.0.10.1
   DNS Servers . . . . . . . . . . . : 8.8.8.8
                                       8.8.4.4
   NetBIOS over Tcpip. . . . . . . . : Enabled
```

Item	Description
Static DHCP mapping	1. Input MAC address and assign IP address. 2. Enable the mapping setting. 3. Click Apply to save settings.
Apply & Save	1.Click to Apply all settings. 2.Go to “Save” then click on the save button if you wish to update the configuration settings. Save

3.7.5 Port Forwarding

The function of port forwarding on the MLB-G420X allows you to redirect traffic from a remote host on the WAN to a specific port on a LAN network device and prohibits remote hosts to access the LAN network devices directly.


Destination: 10.5.0.1
TCP port 80
PC A
Destination: 10.5.0.1
TCP port 8080
PC B
Destination: 10.5.0.1
TCP port 25
PC C
WAN IP: 10.5.0.1
PC A
Port 80
PC B
Port 80
PC C
Port 25
Web Server A
192.168.10.5
Web Server B
192.168.10.6
E-mail Server
192.168.10.7
Internet
Intranet


Overview
Basic Settings
Network Settings
Cellular WAN Settings
DHCP Server
Port Forwarding
Advanced Settings
Serial Setting
SNMP Agent
Port Forwarding
No
Active
Protocol
Public Port
Internal IP
Internal Port
1 TCP 8080 192.168.10.5 80
2 TCP 80 192.168.10.6 80
3 TCP 25 192.168.10.7 25
4 TCP
5 TCP
Apply
*Need to click Save button after you set ready. All settings will be applied.

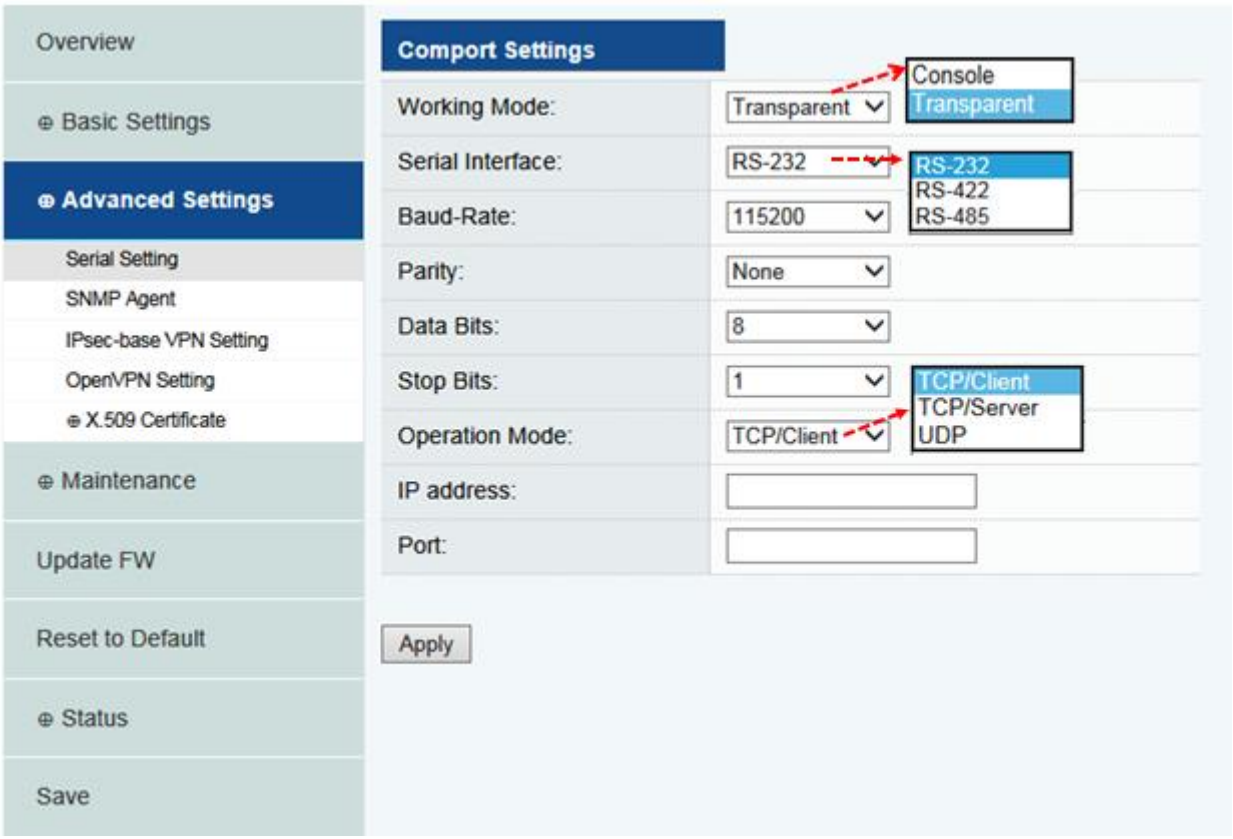
Item	Description
Port Forwarding	1. Select Protocol and input Public Port, Internal IP, and Internal Port. 2. Enable the mapping setting. 3. Click Apply to save settings.
Apply & Save	1. Click to Apply all settings. 2. Go to "Save" then click on the save button if you wish to update the configuration settings. Save

3.8 Advanced Settings

Several advanced functions are available to increase the functionality of your MLB-G420X and wireless network system.

3.8.1 Serial Setting

The serial settings page is where you set the serial communication parameters for the device port. Comport Settings include working mode, serial interface, baudrate, parity, and operation mode also its corresponding IP address and port number if related.

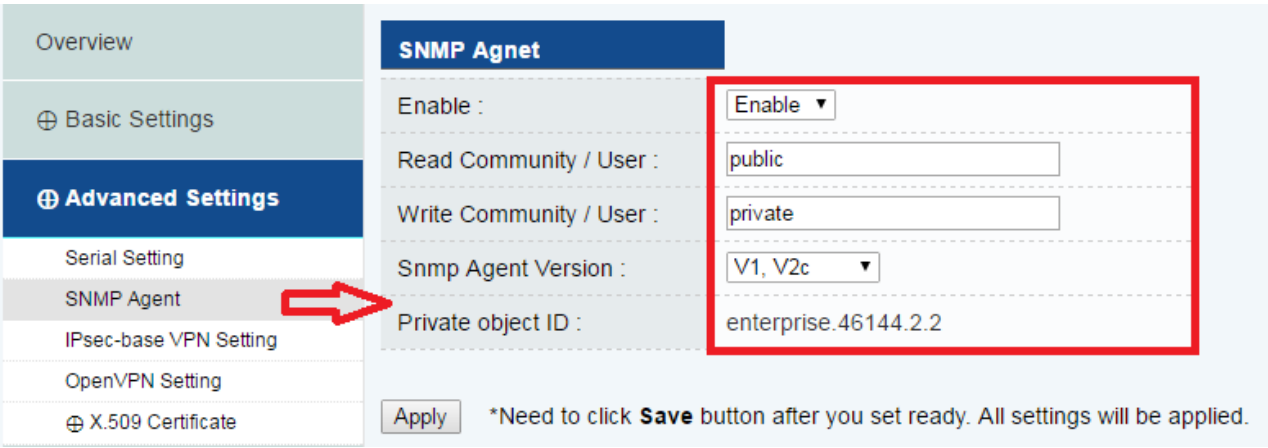


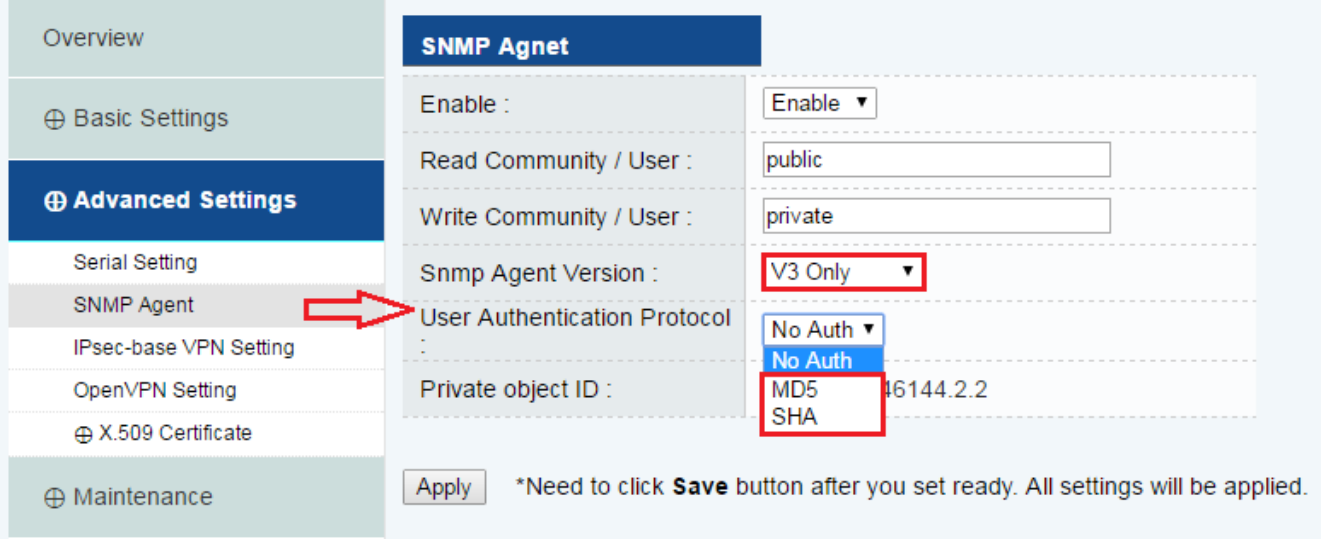
Item	Description
COM Port settings	1. Select Working Mode which is Console mode or Transport Mode, 2. Select Serial Interface, Baud-Rate, Parity, Data Bits, Stop Bits. 3. Select Operation Mode; Input IP address & Port # for TCP/Client & UDP mode. Input Port # for TCP/Server mode. 4. Click Apply to save settings.
Apply & Save	1.Click to Apply all settings. 2.Go to “Save” then click on the save button if you wish to update the configuration settings. Save

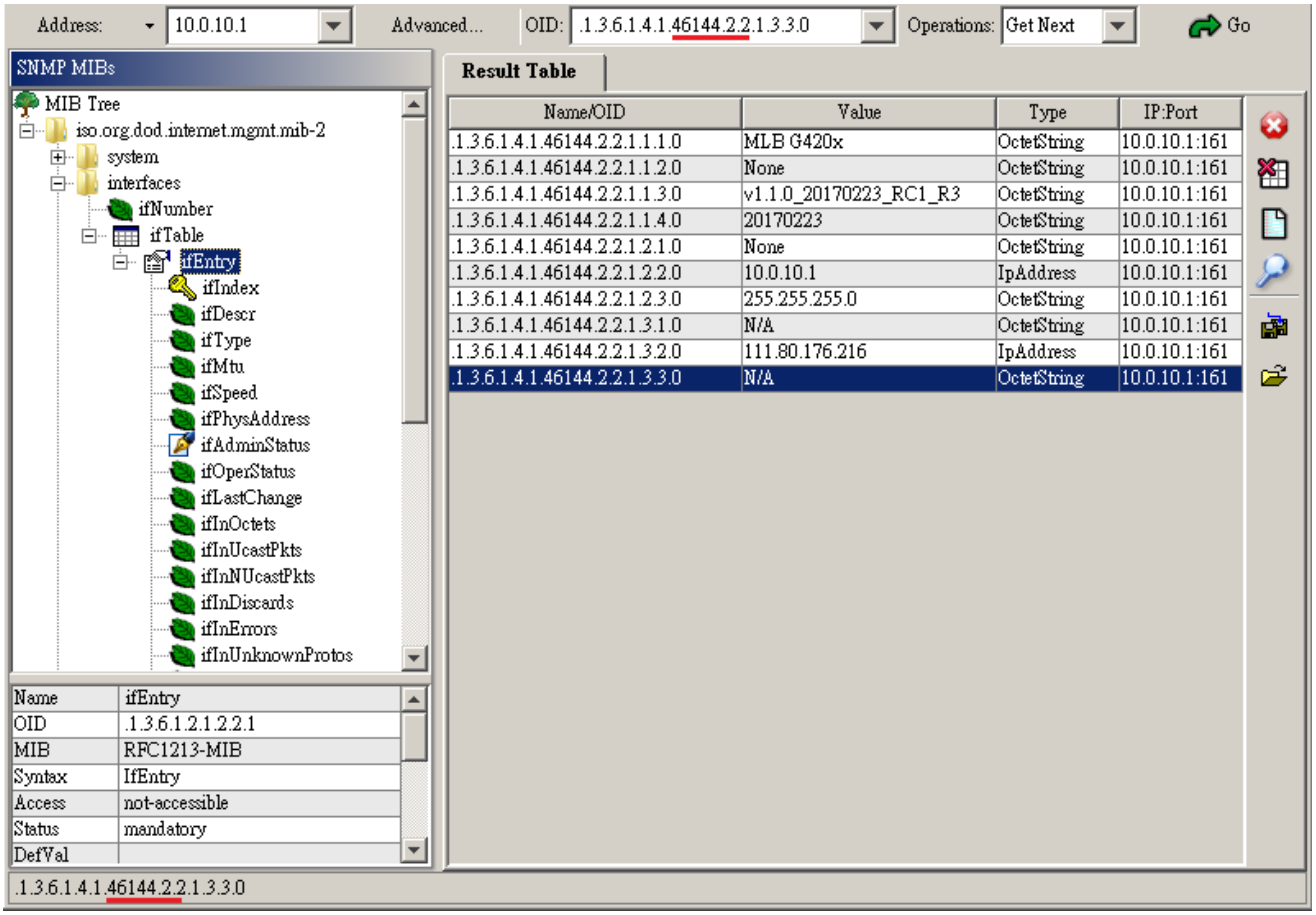
3.8.2 SNMP Agent

Simple Network Management Protocol (SNMP) is an OSI application layer protocol that facilitates management information between network devices.
SNMP is based on the manager/agent model of a network management architecture.
An SNMP-managed network consists of three key roles: SNMP Manager, agents, and managed devices.
SNMP commands are typically issued by a network management station which is called a network manager and are responded to by a network management agent within each managed device.

The SNMP versions are v1, v2c, v3.
SNMP v1 and v2c use community string public and private for authentication which allows SNMP servers access all objects with read-only or read/write permissions by default. SNMP v3 enhances security with Data Encryption.
The SNMP manager use three operations to communicate with the Managed devices.
GET/GET Next/GET Bulk is used to retrieve the information from the Managed devices.
SET is used to configure the Managed device.



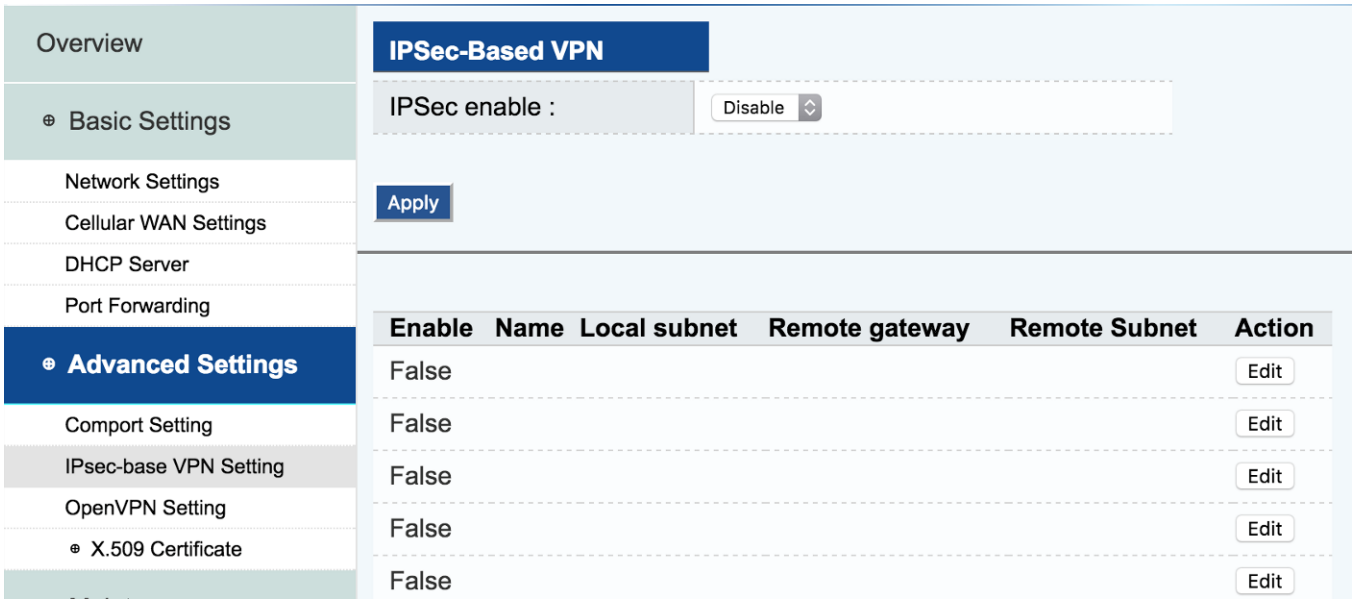

Overview
Basic Settings
Advanced Settings
Serial Setting
SNMP Agent
IPsec-base VPN Setting
OpenVPN Setting
X.509 Certificate
Maintenance
SNMP Agnet
Enable :
Enable
Read Community / User :
public
Write Community / User :
private
Snmp Agent Version :
V3 Only
User Authentication Protocol :
No Auth
No Auth
MD5
SHA
Private object ID :
46144.2.2
Apply
*Need to click Save button after you set ready. All settings will be applied.


Address:
10.0.10.1
Advanced...
OID:
.1.3.6.1.4.1.46144.2.2.1.3.3.0
Operations:
Get Next
Go
SNMP MIBs
MIB Tree
iso.org.dod.internet.mgmt.mib-2
system
interfaces
ifNumber
ifTable
ifEntry
ifIndex
ifDescr
ifType
ifMtu
ifSpeed
ifPhysAddress
ifAdminStatus
ifOperStatus
ifLastChange
ifInOctets
ifInUcastPkts
ifInNUcastPkts
ifInDiscards
ifInErrors
ifInUnknownProtos
Name ifEntry
OID .1.3.6.1.2.1.2.2.1
MIB RFC1213-MIB
Syntax IfEntry
Access not-accessible
Status mandatory
DefVal
Result Table
Name/OID Value Type IP:Port
.1.3.6.1.4.1.46144.2.2.1.1.1.0 MLB G420x OctetString 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.1.2.0 None OctetString 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.1.3.0 v1.1.0_20170223_RC1_R3 OctetString 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.1.4.0 20170223 OctetString 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.2.1.0 None OctetString 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.2.2.0 10.0.10.1 IpAddress 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.2.3.0 255.255.255.0 OctetString 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.3.1.0 N/A OctetString 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.3.2.0 111.80.176.216 IpAddress 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.3.3.0 N/A OctetString 10.0.10.1:161
.1.3.6.1.4.1.46144.2.2.1.3.3.0

Item	Description
Enable	1. Enable the SNMP Agent setting. 2. Click Apply to save settings. 3. Need to go to “Save” then click on the save button to complete the process Save
Read community / User	Indicates the community read access string to permit access to SNMP agent. The allowed string length is 0 to 255, and the allowed content is the ASCII characters from 33 to 126. The field is applicable only when SNMP version is SNMPv1 or SNMPv2c. If SNMP version is SNMPv3, the community string will be associated with SNMPv3 communities table. It provides more flexibility to configure security name than a SNMPv1 or SNMPv2c community string. In addition to community string, a particular range of source addresses can be used to restrict source subnet.
Write Community	Indicates the community write access string to permit access to SNMP agent. The allowed string length is 0 to 255, and the allowed content is the ASCII characters from 33 to 126. The field is applicable only when SNMP version is SNMPv1 or SNMPv2c. If SNMP version is SNMPv3, the community string will be associated with SNMPv3
SNMP Agent Version	Indicates the SNMP supported version. Possible versions are: SNMP v1: Set SNMP supported version 1. SNMP v2c: Set SNMP supported version 2c. SNMP v3: Set SNMP supported version 3.
User Authentication Protocol	Select **No Auth** to use an administrator account to access objects without authentication. Select **MD5** to authenticate using HMAC-MD5 algorithms where the minimum requirement is to use an 8-character password. Select **SHA** to authenticate using HMAC-SHA algorithms where the minimum requirement is to use an 8-character password.
Private Object ID	The private object ID (OID) is the enterprise value for the MLB-G420X.

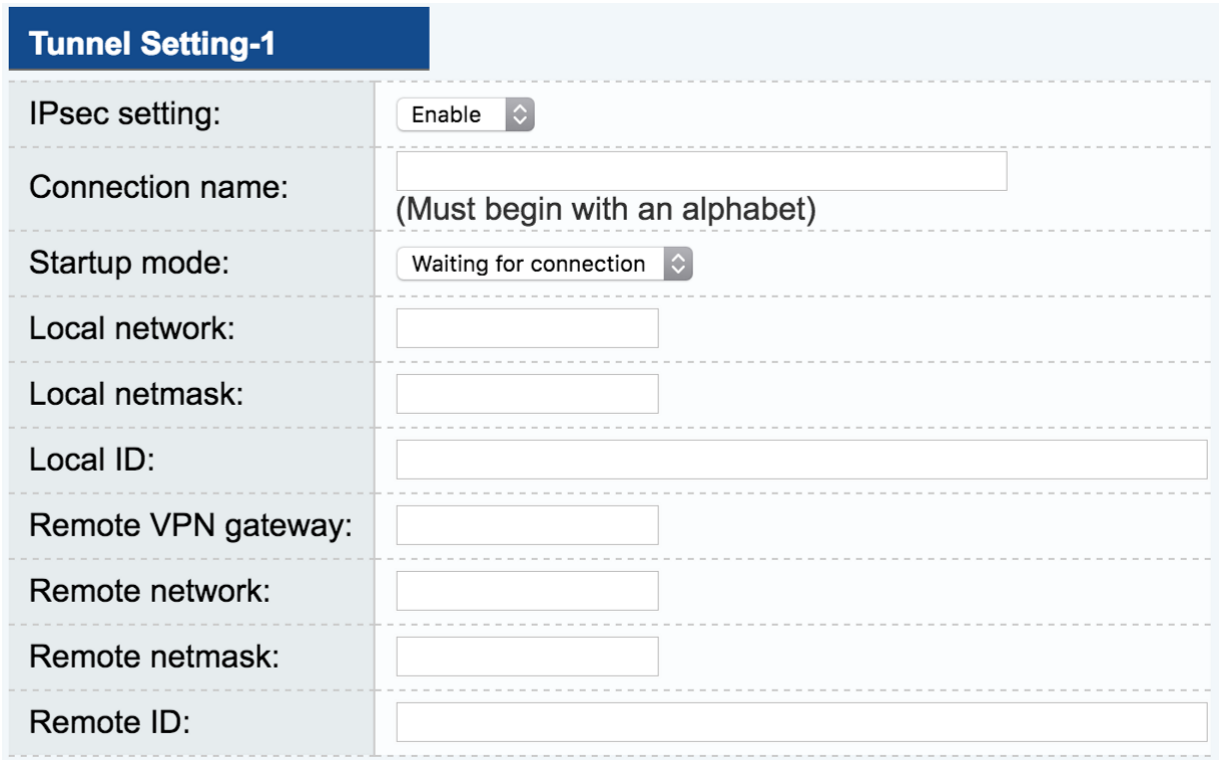
3.8.1 IPSec-based VPN Setting

VPN (Virtual Private Network) provides private network security over Internet by establishing secure tunnels, so that data can be exchanged in a secure manner. IPSec is layer 3 protocol with authentication and encryption implementation.

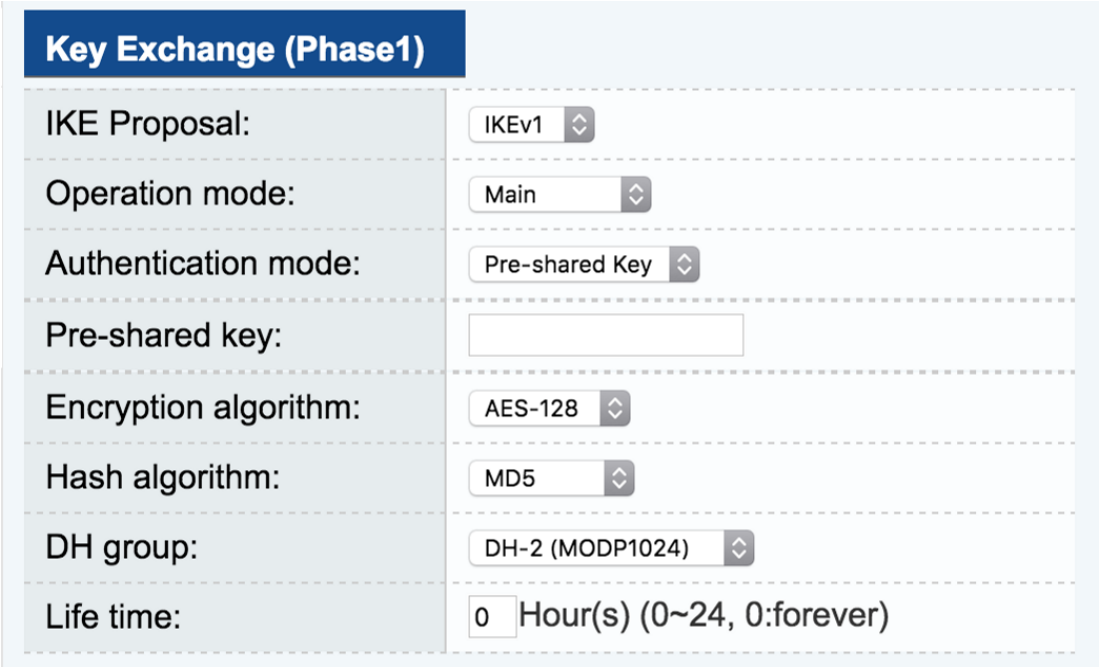


Item	Description
IPSec Enable	Select “Enable” to enable the IPSec function.
Edit	Click “Edit” to create IPSec settings.
Apply & Save	1. Click to Apply all settings. 2. Need to go to Save then click on the save button to complete the process Save

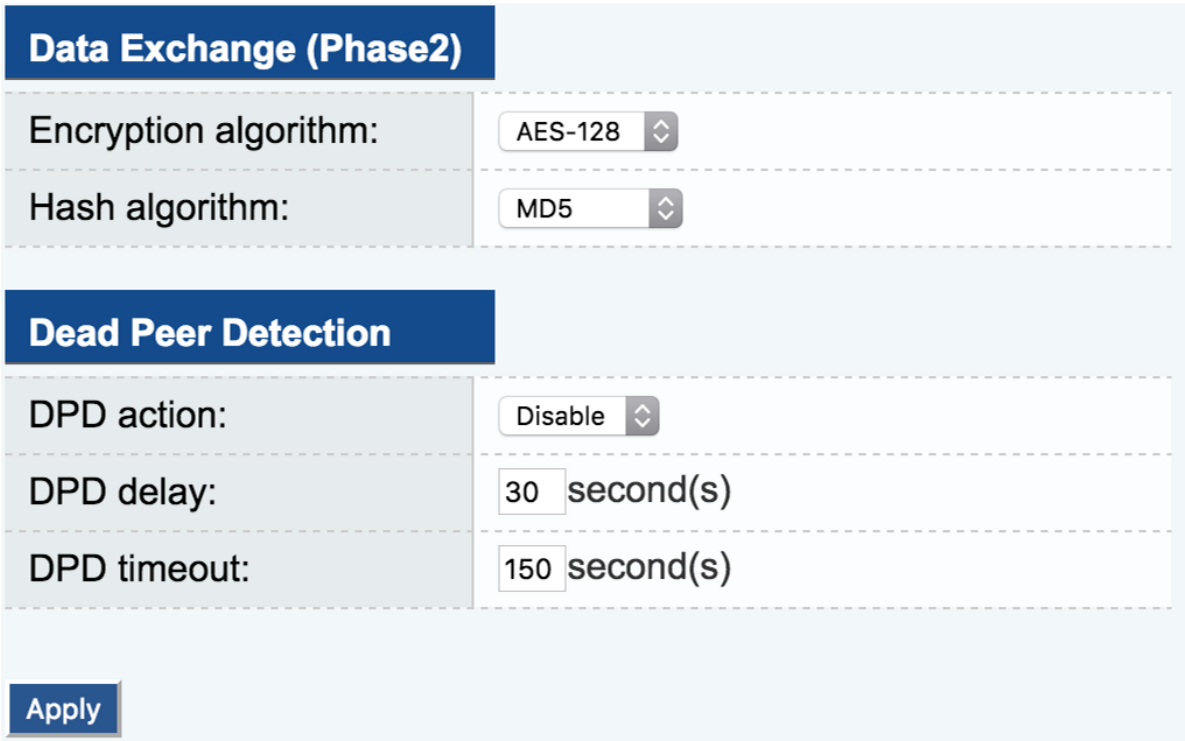
IPSec Settings



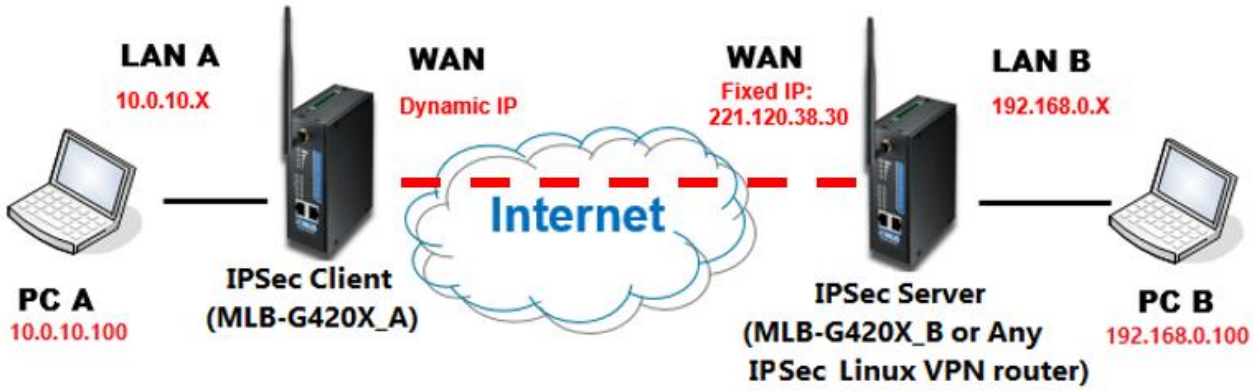
Item	Description
Connection name	Enter a descriptive name for the VPN tunnel.
Startup mode	Select Start in Initial to set the MLB-G420X to initiate a connection with the remote VPN gateway.
Local network	Enter the remote VPN server subnet IP of the local network.
Local netmask	Enter the remote VPN server subnet netmask of the local network.
Local ID	Enter an ID to identify and authenticate the local VPN gateway.
Remote VPN gateway	Enter the WAN IP address of the remote VPN gateway.
Remote network	Enter the remote VPN server subnet IP of the remote network.
Remote netmask	Enter the remote VPN server subnet netmask of the remote network
Remote ID	Enter an ID to identify and authenticate the remote VPN endpoint.



Item	Description
IKE Proposal	Select IKEv1 or IKEv2
Operation Mode	Select main mode or aggressive mode to configure the standard negotiation parameters for IKE Phase 1 of the VPN Tunnel.
Authentication Mode	
Pre-shared Key	Select Pre-shared key authentication mode to for phase 1 key exchange. The configuration fields vary depending on the authentication mode you select.
Encryption Algorithm	Select the DES, 3DES or AES128 algorithm for the VPN ISAKMP phase 1 encryption mode.
Hash Algorithm	Select the MD5 or SHA-1 VPN key exchange phase 1 hash mode.
DH Group	Select the DH-2 (1024) or DH-5 (1536) VPN key exchange phase 1 Diffie-Hellman group. As the Diffie-Hellman Group number increases, the higher the level of encryption implemented for PFS.
Life Time	Enter the number of minutes for the VPN IKE SA phase 1 Lifetime. This is the period of time to pass before establishing a new IPSec security association (SA) with the remote endpoint.

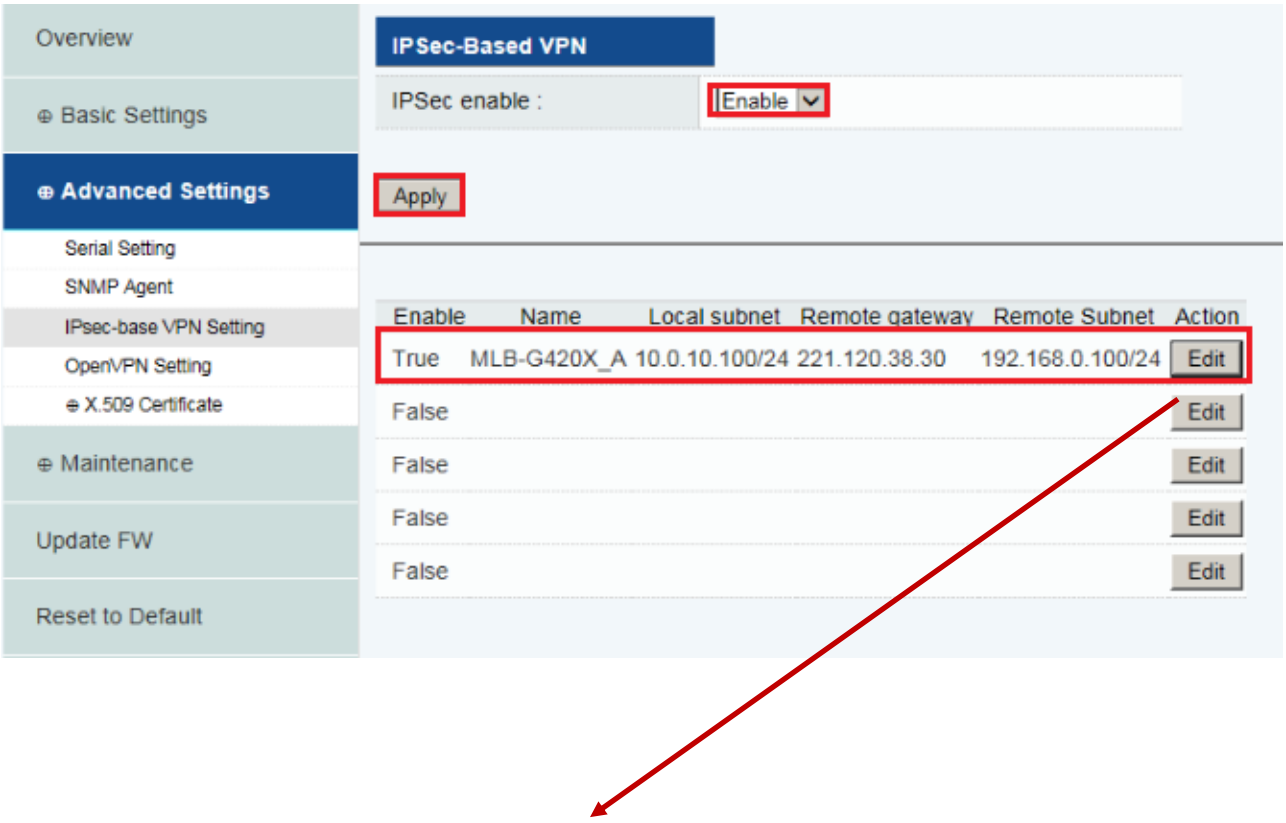


Item	Description
Encryption Algorithm:	Select the DES, 3DES or AES128 algorithm for the VPN ISAKMP phase 2 encryption mode.
Hash Algorithm:	Select the MD5 or SHA-1 VPN key exchange phase 2 hash mode.
Dead Peer Detection:	When you enable the Dead Peer Detection (DPD) feature, the OnCell G3470A-LTE performs one of the following actions when connection to a remote IPSec tunnel is down: • Hold: Keep the VPN tunnel • Clear: Clear the VPN tunnel • Restart: Re-establish the VPN tunnel on Start in Initial mode. • Restart by Peer: Re-establish the VPN tunnel on Wait for connecting mode
DPD Delay	The period of dead peer detection messages.
DPD Timeout	Timeout to check if the connection is alive or not.
Apply & Save	1. Click to Apply all settings. 2. Need to go to Save then click on the save button to complete the process Save

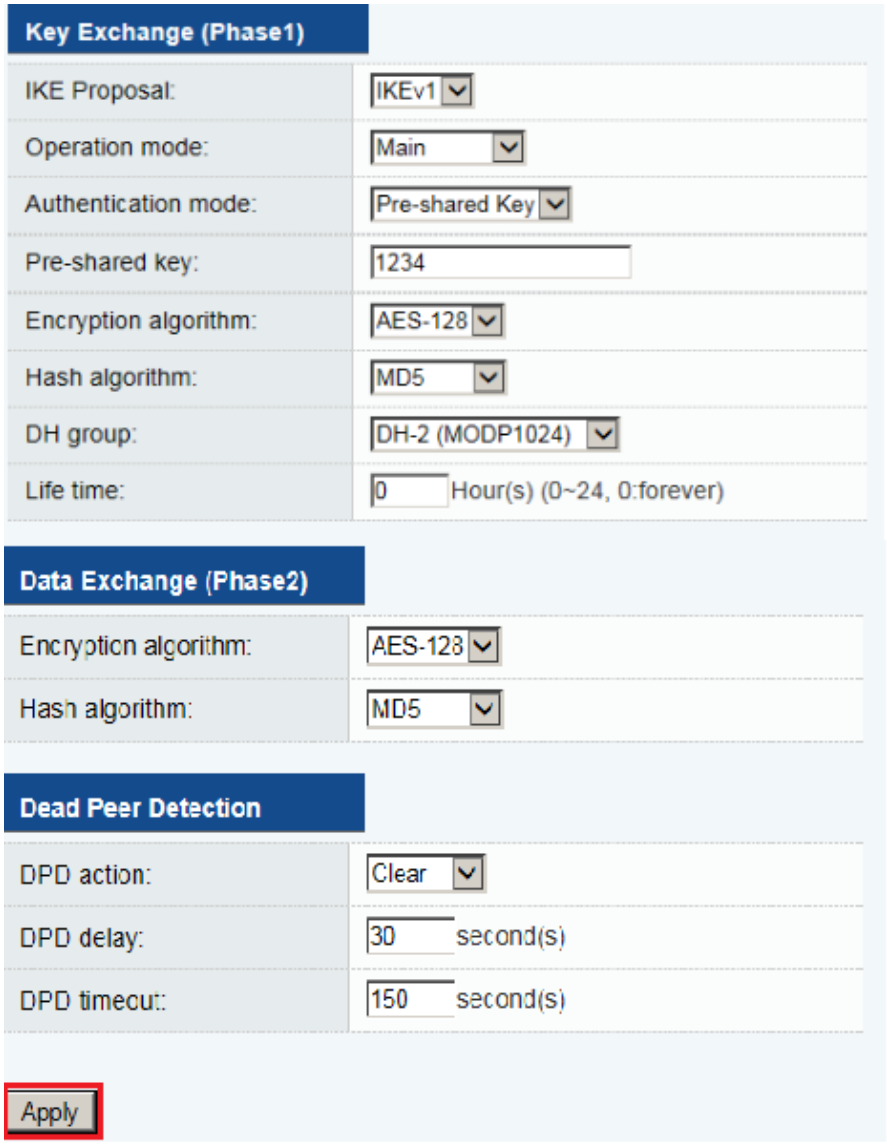


IPSec Secure Tunnel Setup Example

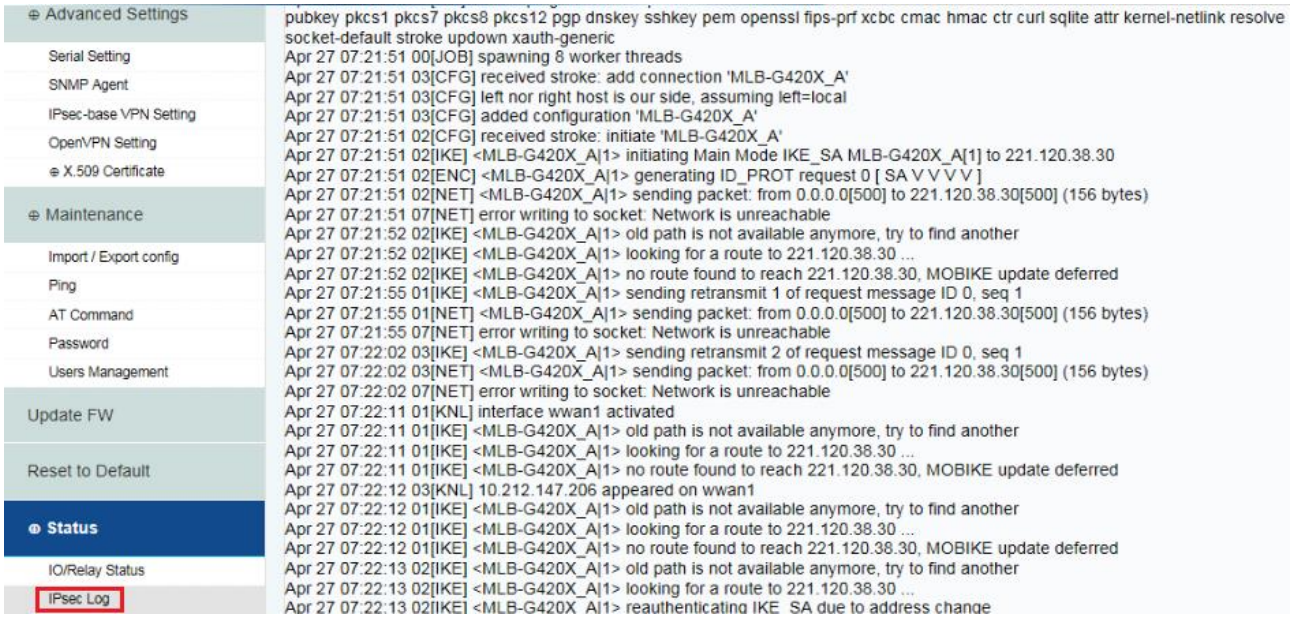
MLB-G420X_A Configuration



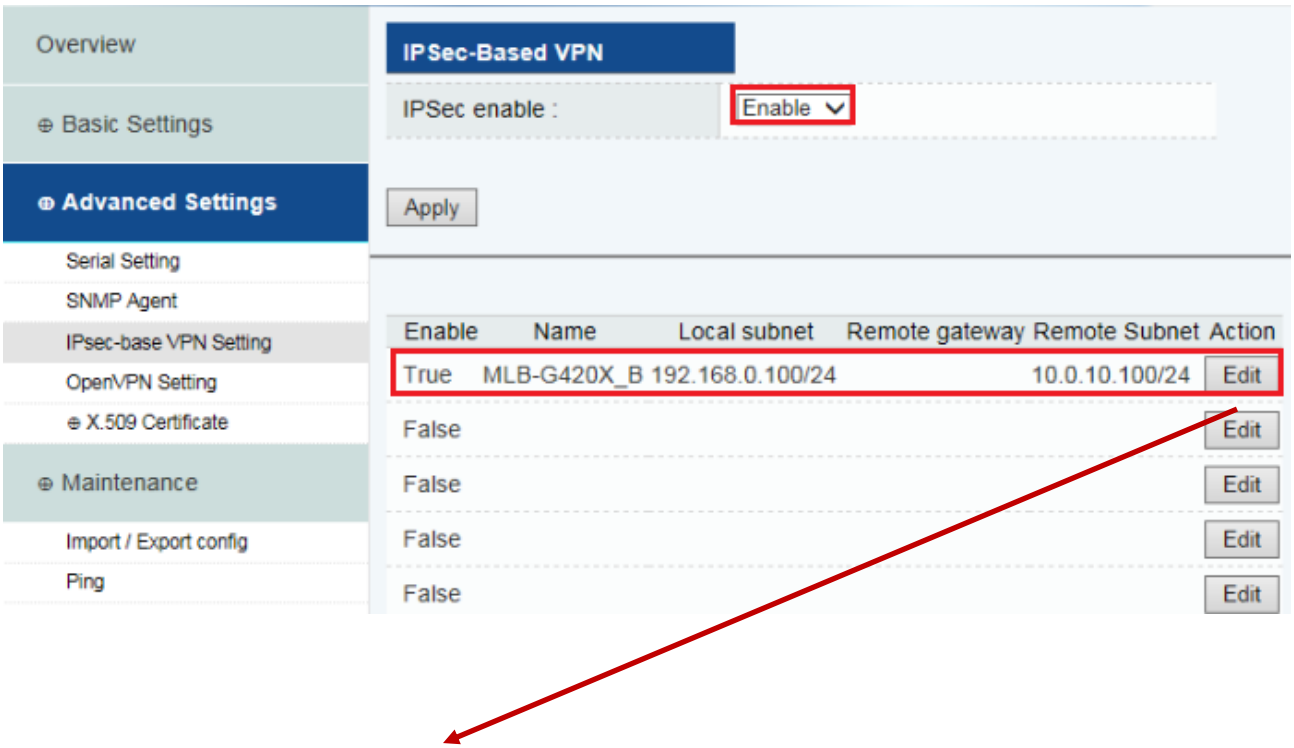
Tunnel Setting - 1	
IPsec setting:	Enable
Connection name:	MLB-G420X_A (Must begin with an alphabet)
Startup mode:	Start in Initial
Local network:	10.0.10.100
Local netmask:	255.255.255.0
Local ID:	LANA
Remote VPN gateway:	221.120.38.30
Remote network:	192.168.0.100
Remote netmask:	255.255.255.0
Remote ID:	LANB



The user can go to IPSec log to check the IPSec connection status.



MLB-G420X_B Configuration



Tunnel Setting - 1	
IPsec setting:	Enable
Connection name:	MLB-G420X_B (Must begin with an alphabet)
Startup mode:	Waiting for connection
Local network:	192.168.0.100
Local netmask:	255.255.255.0
Local ID:	LANB
Remote VPN gateway:	
Remote network:	10.0.10.100
Remote netmask:	255.255.255.0
Remote ID:	LANA

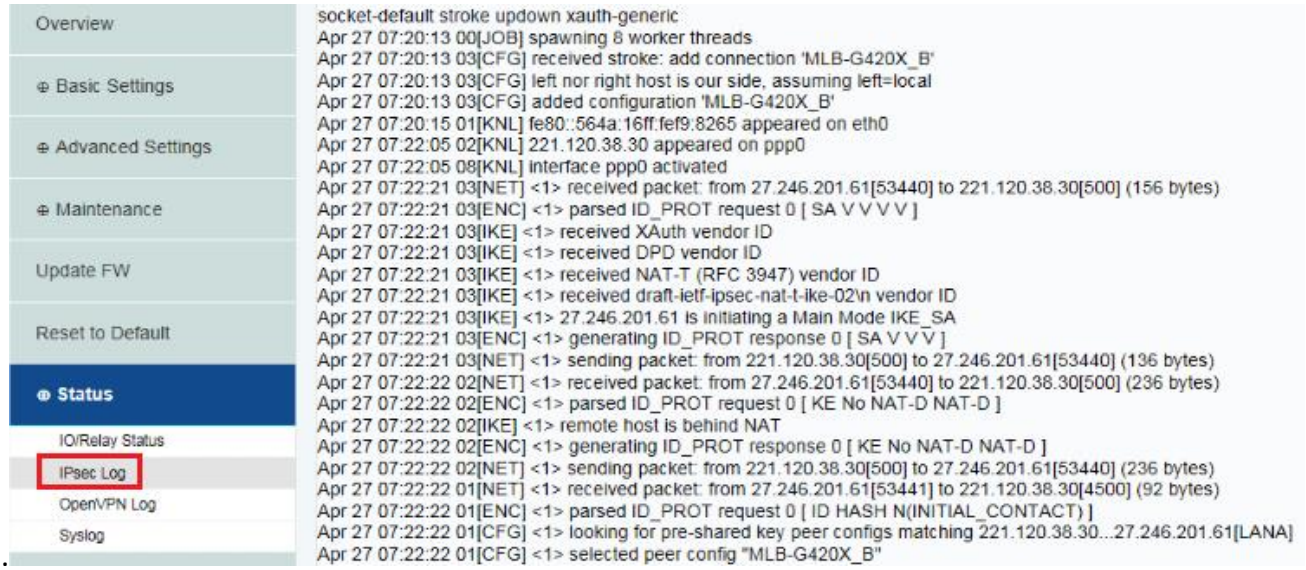
Key Exchange (Phase1)	
IKE Proposal:	IKEv1
Operation mode:	Main
Authentication mode:	Pre-shared Key
Pre-shared key:	1234
Encryption algorithm:	AES-128
Hash algorithm:	MD5
DH group:	DH-2 (MODP1024)
Life time:	0 Hour(s) (0~24, 0:forever)

Data Exchange (Phase2)	
Encryption algorithm:	AES-128
Hash algorithm:	MD5

Dead Peer Detection	
DPD action:	Clear
DPD delay:	30 second(s)
DPD timeout:	150 second(s)

Apply

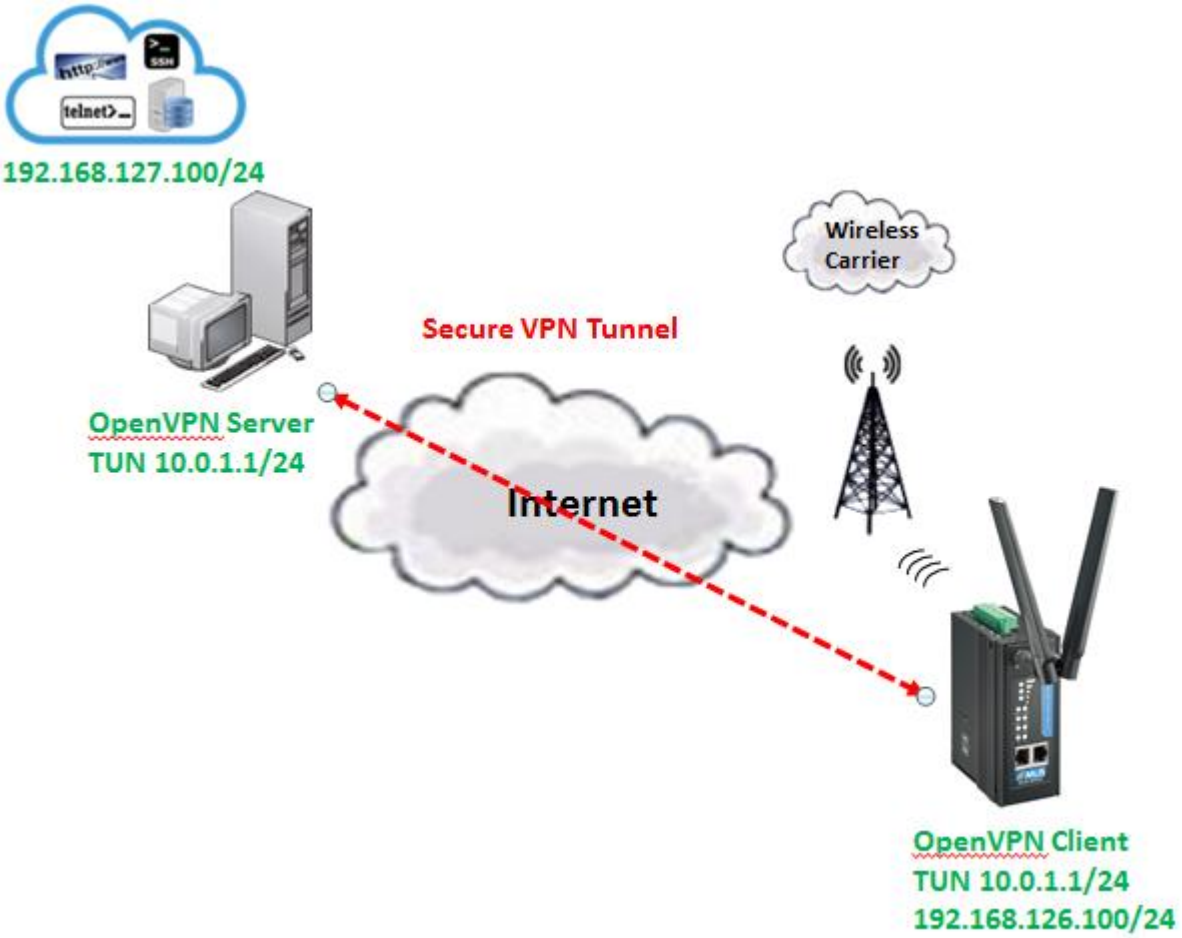
The user can go to IPSec log to check the IPSec connection status.

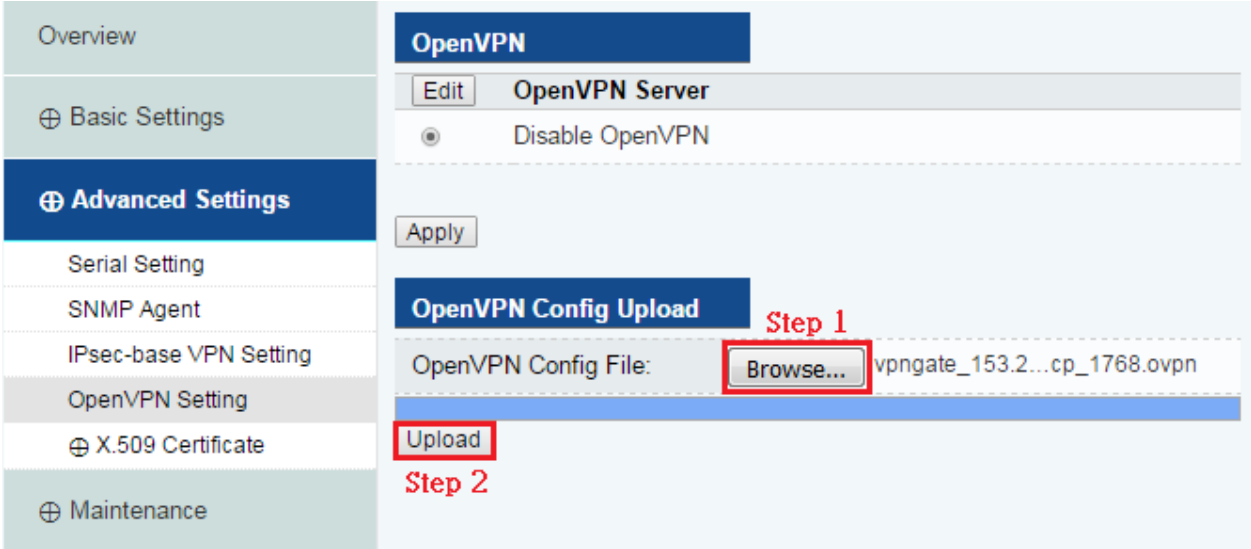


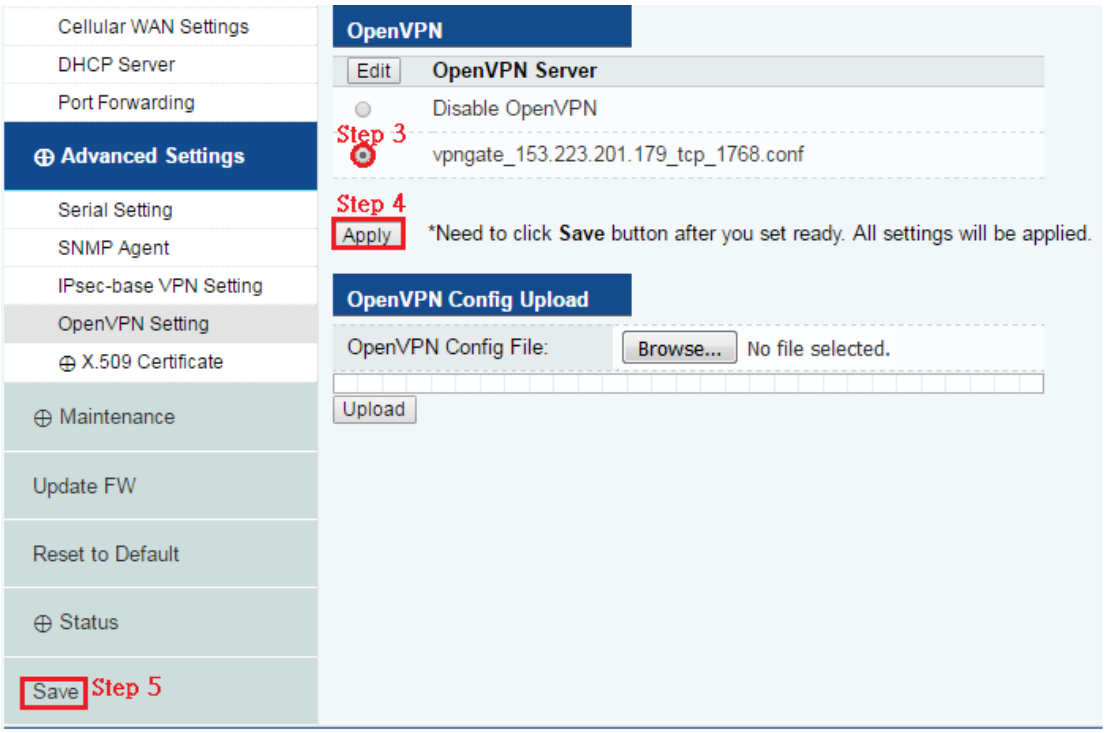
Note: You can verify the IPSec connection by running the ICMP Ping command. In the above setup example scenario, PC A can ping PCB (192.168.0.100) and PC B can ping PC A (10.0.10.100) to verify if IPSec tunnel connection is successfully established.

3.8.2 OpenVPN

OpenVPN is an open-source software application that implements virtual private network (VPN) techniques for creating secure site-to-site connections in routed configurations and remote access facilities.It allows the MLB-G420X LAN network connection have access capability to the network behind the VPN server.



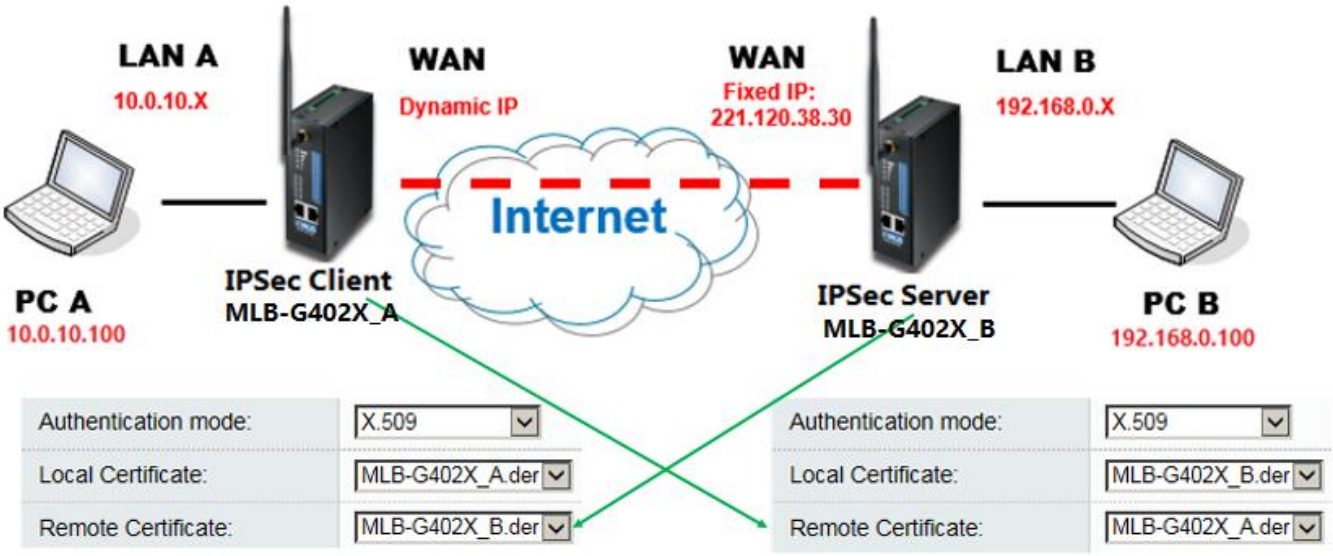




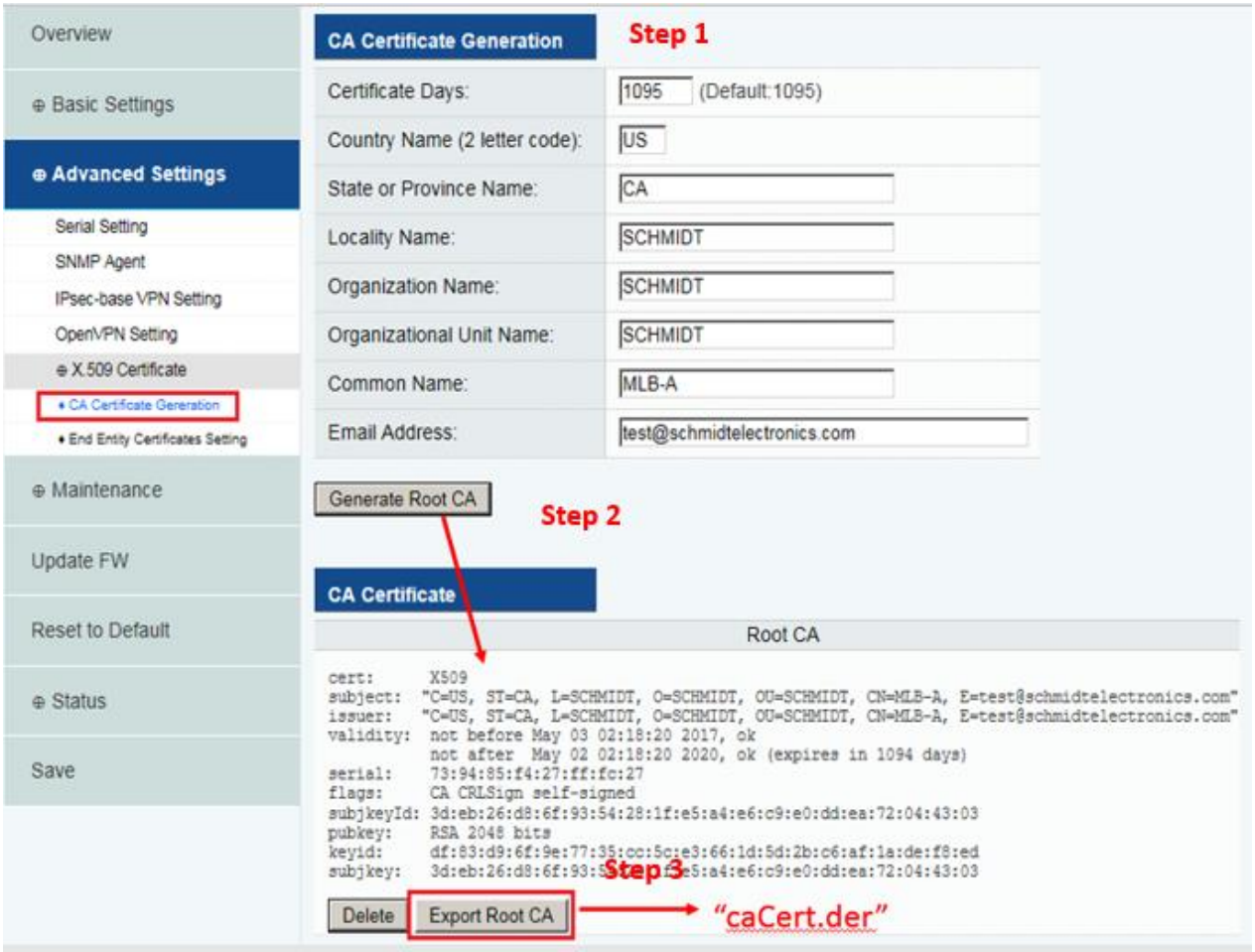
Note: 1. Please make sure that the firewall setting is OFF on both PC A and PC B.
2. Please make sure that IPSec-based VPN setting function is OFF.

3.8.3 X.509 Certificate

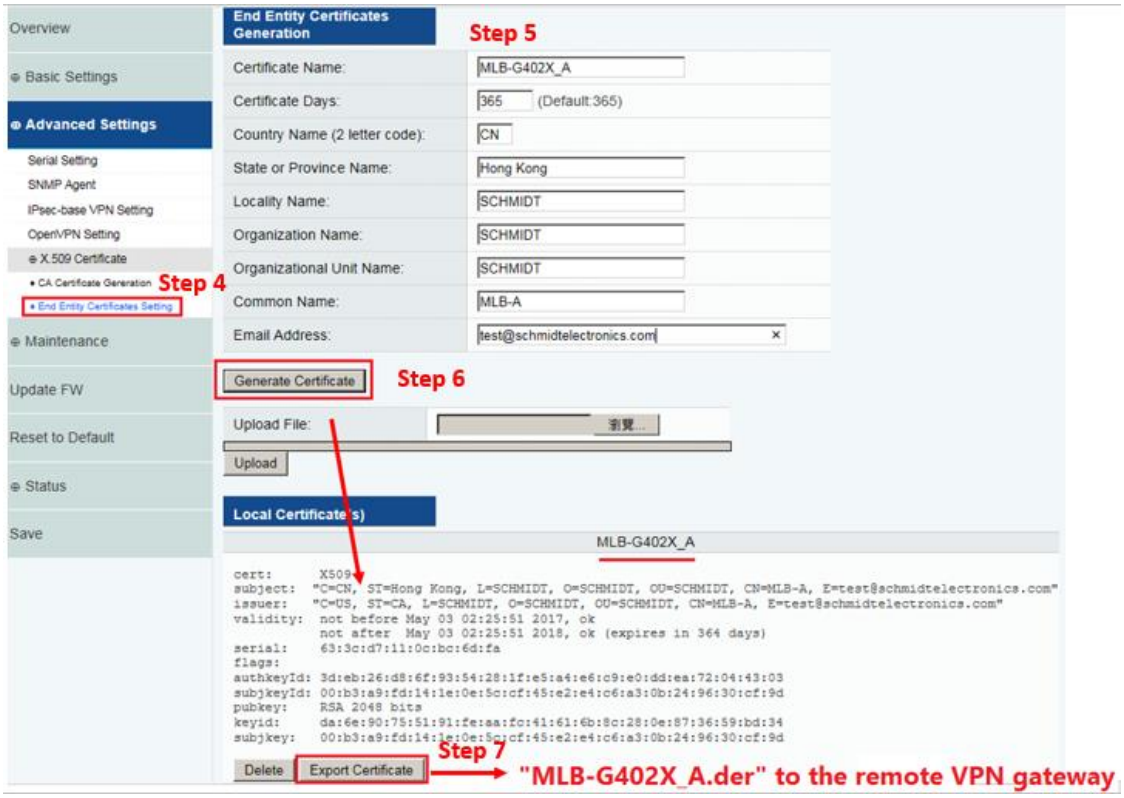
X.509 is a digital certificate method mostly used for IPSec Authentication. MLB-G420X can generate a trusted Root Certification and then generate the certificate to export in order to import on the remote VPN router gateway.

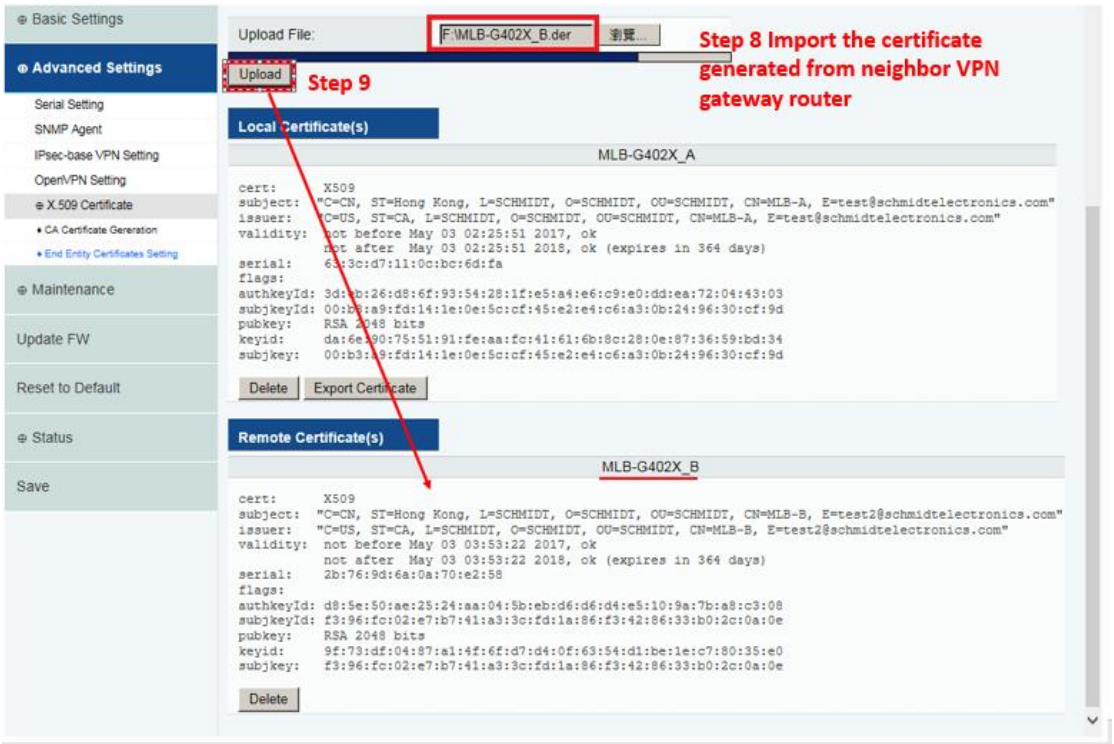


IPSec secure tunnel with X.509 Authentication Method Setup Example
MLB-G402X_A Configuration Steps

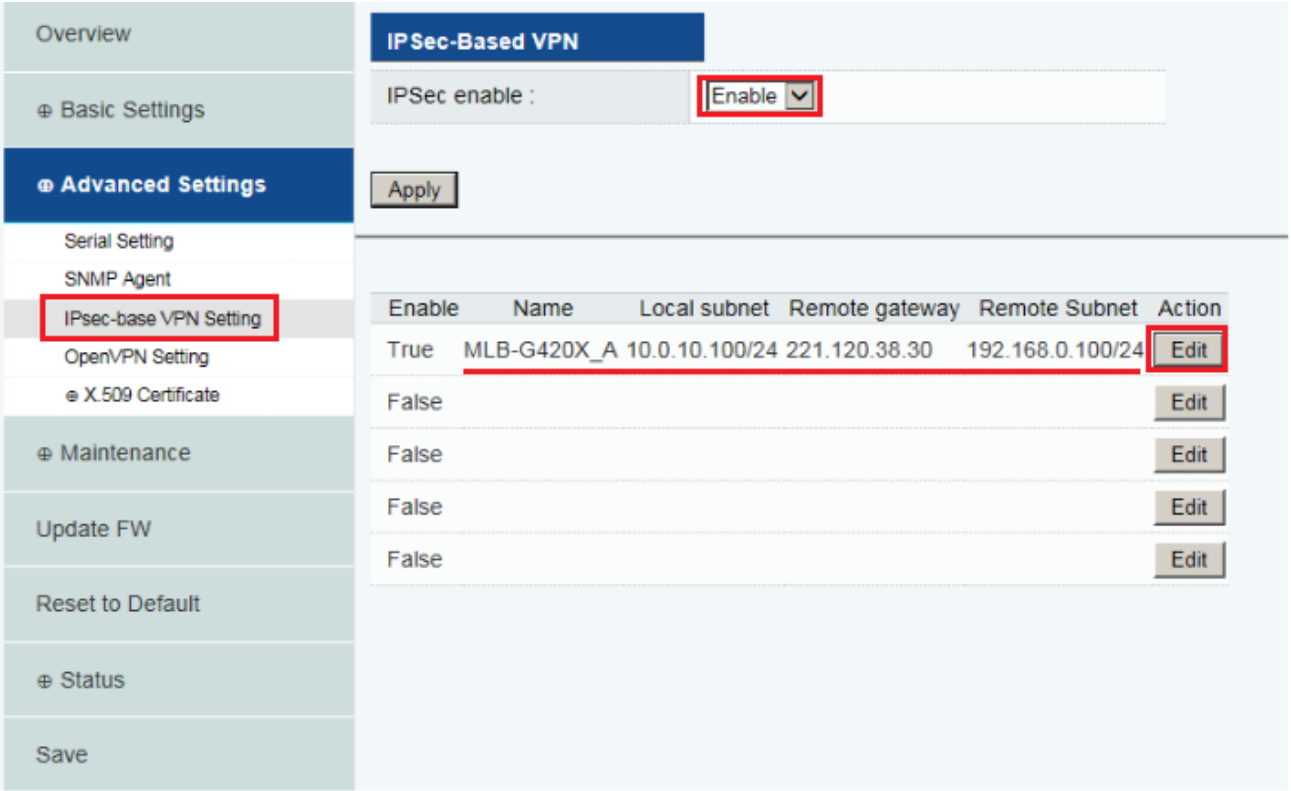


Note: 1. Please make sure to delete the previous root CA before generating the new one.



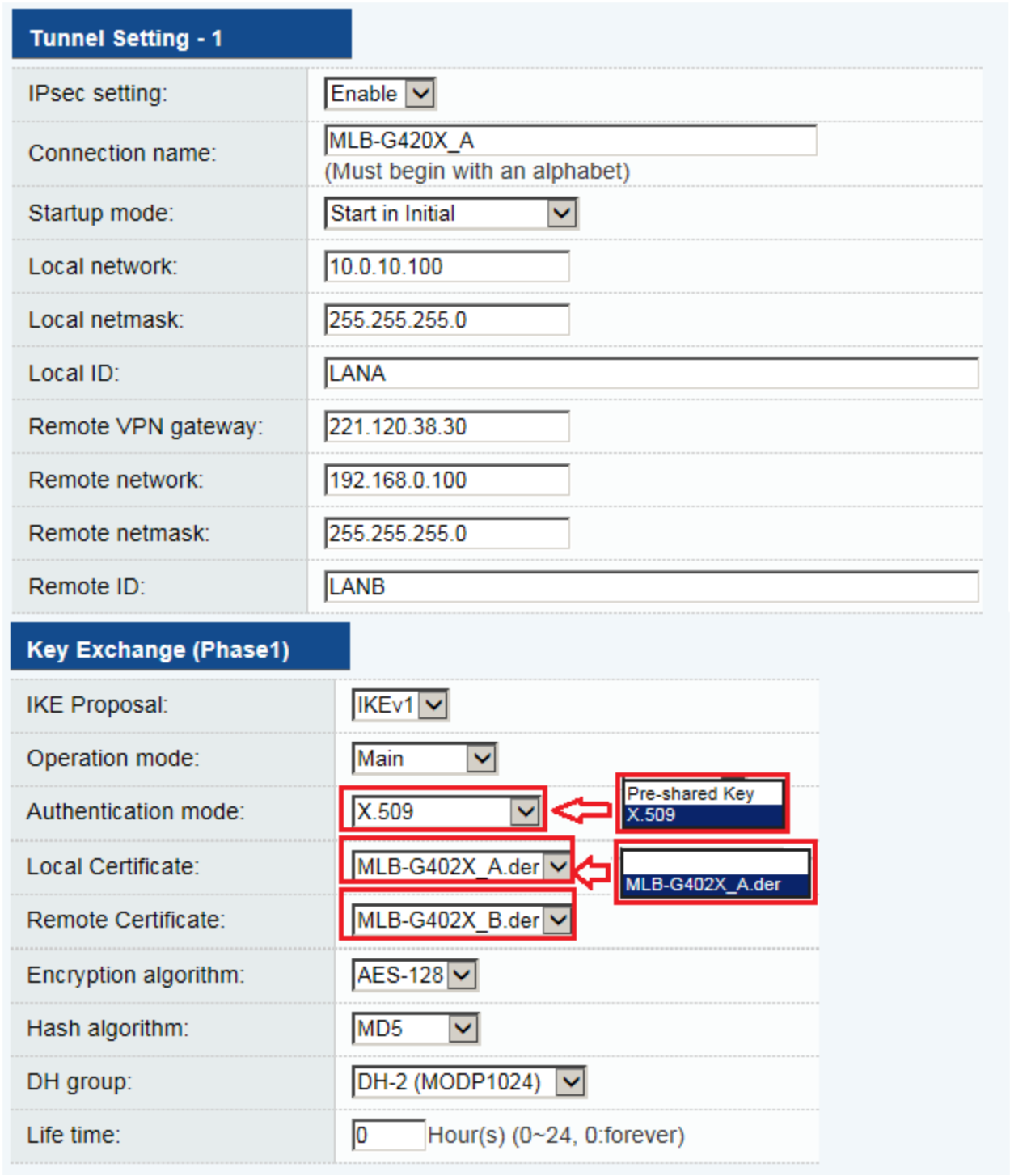


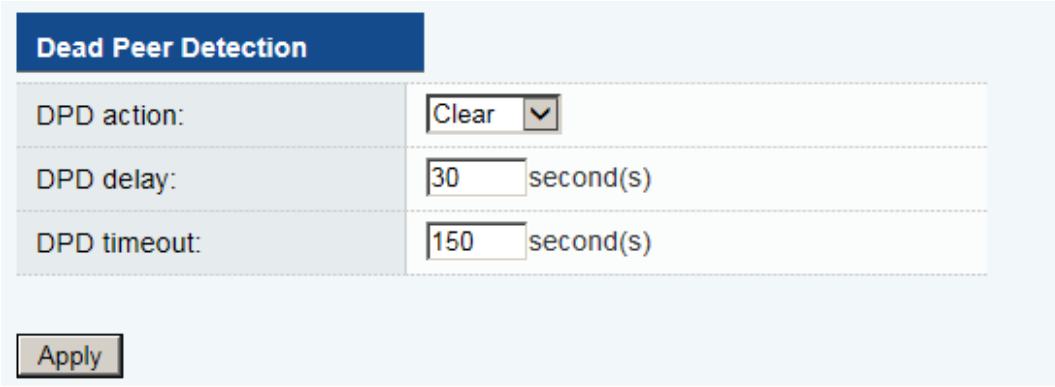
The user can go to the IP-based VPN setting to enable the IPSec function also to create the IPSec connection session by clicking on the tab of Edit.



Note: 1. Please make sure that the function of OpenVPN is disabled first.

The user has to change the authentication mode also select the local certificate and remote certificate carefully.


Tunnel Setting - 1
IPsec setting:
Enable
Connection name:
MLB-G420X_A
(Must begin with an alphabet)
Startup mode:
Start in Initial
Local network:
10.0.10.100
Local netmask:
255.255.255.0
Local ID:
LANA
Remote VPN gateway:
221.120.38.30
Remote network:
192.168.0.100
Remote netmask:
255.255.255.0
Remote ID:
LANB
Key Exchange (Phase1)
IKE Proposal:
IKEv1
Operation mode:
Main
Authentication mode:
X.509
Pre-shared Key
X.509
Local Certificate:
MLB-G402X_A.der
MLB-G402X_A.der
Remote Certificate:
MLB-G402X_B.der
Encryption algorithm:
AES-128
Hash algorithm:
MD5
DH group:
DH-2 (MODP1024)
Life time:
0
Hour(s) (0~24, 0:forever)



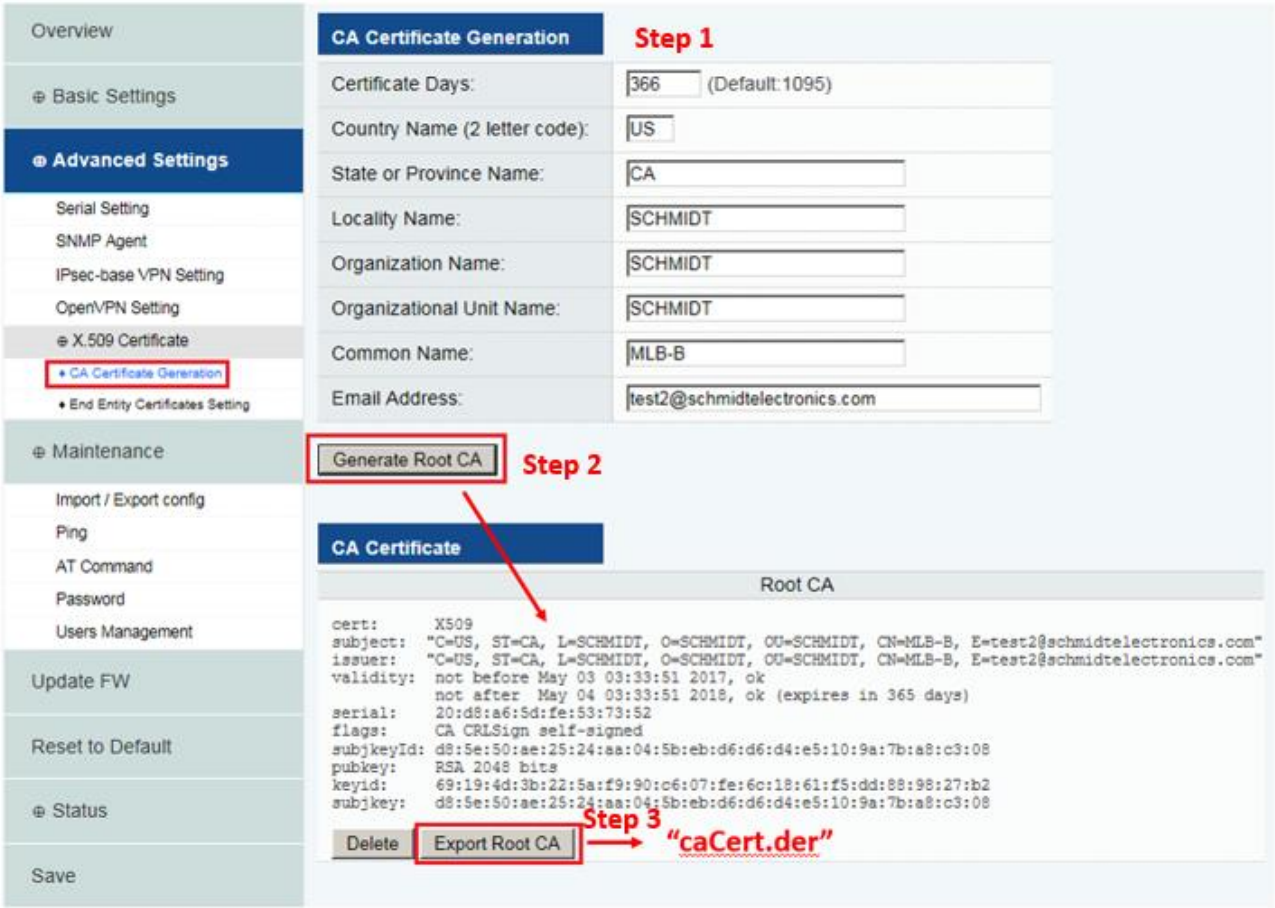
Note: 1.Click to Apply all settings.

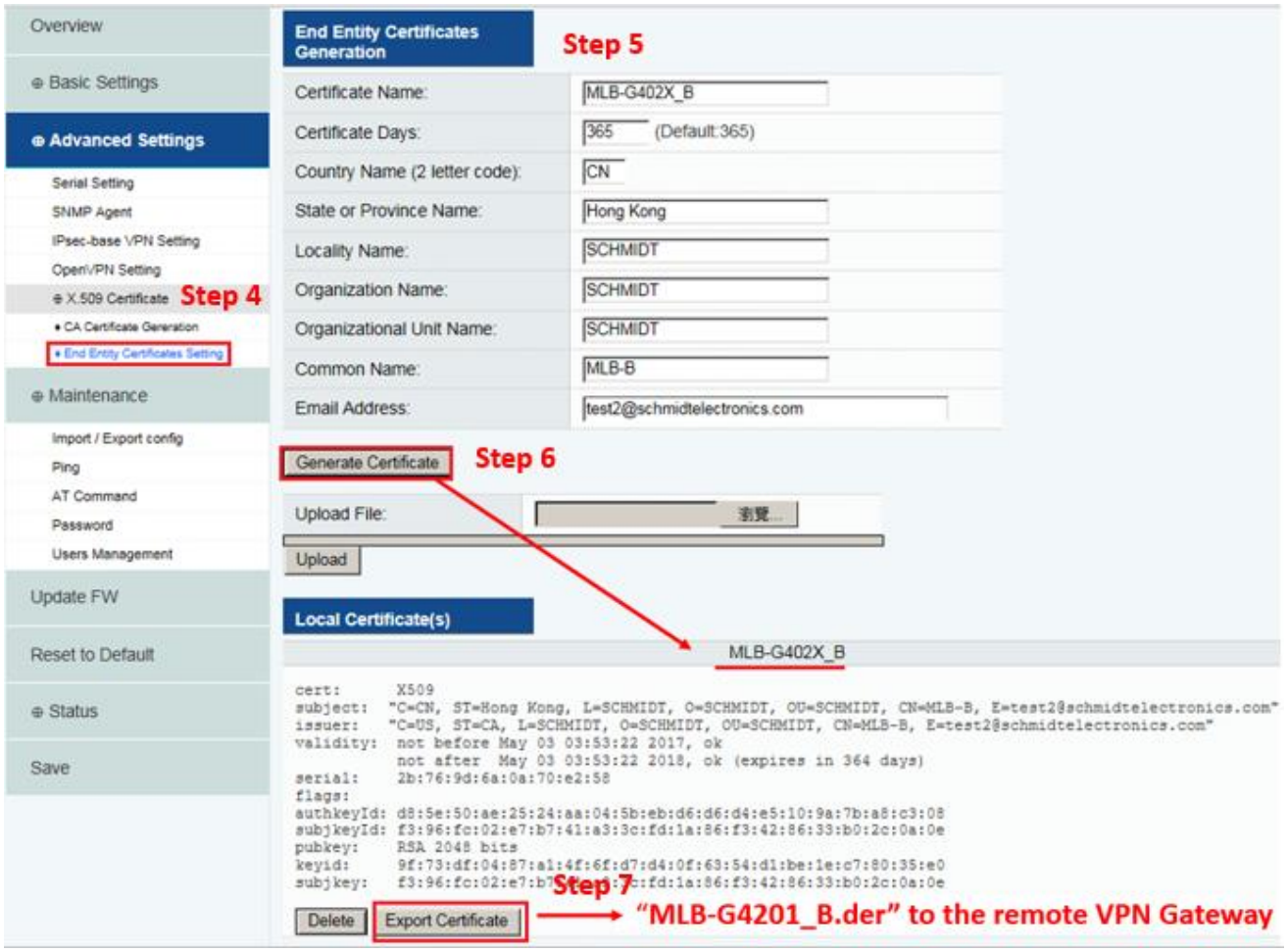
2.Go to "Save" then click on the save button if you wish to update the configuration settings.

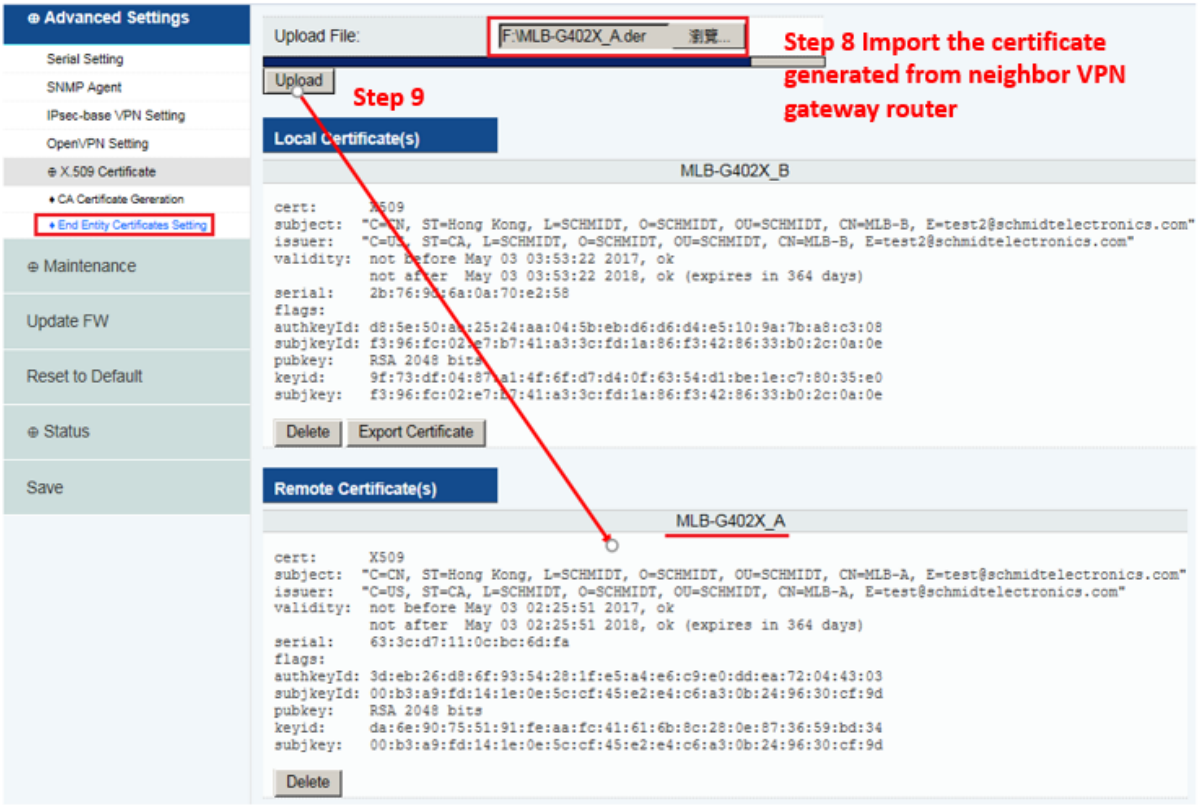
The user can go to IPSec log to check the IPSec with X.509 authentication connection status.

Note: You can verify the IPSec connection with X.509 authentication method by running the ICMP Ping command. In the above setup example scenario, PC A can ping PC B (192.168.0.100) and PC B can ping PC A (10.0.10.100) to verify if IPSec tunnel connection is successfully established.

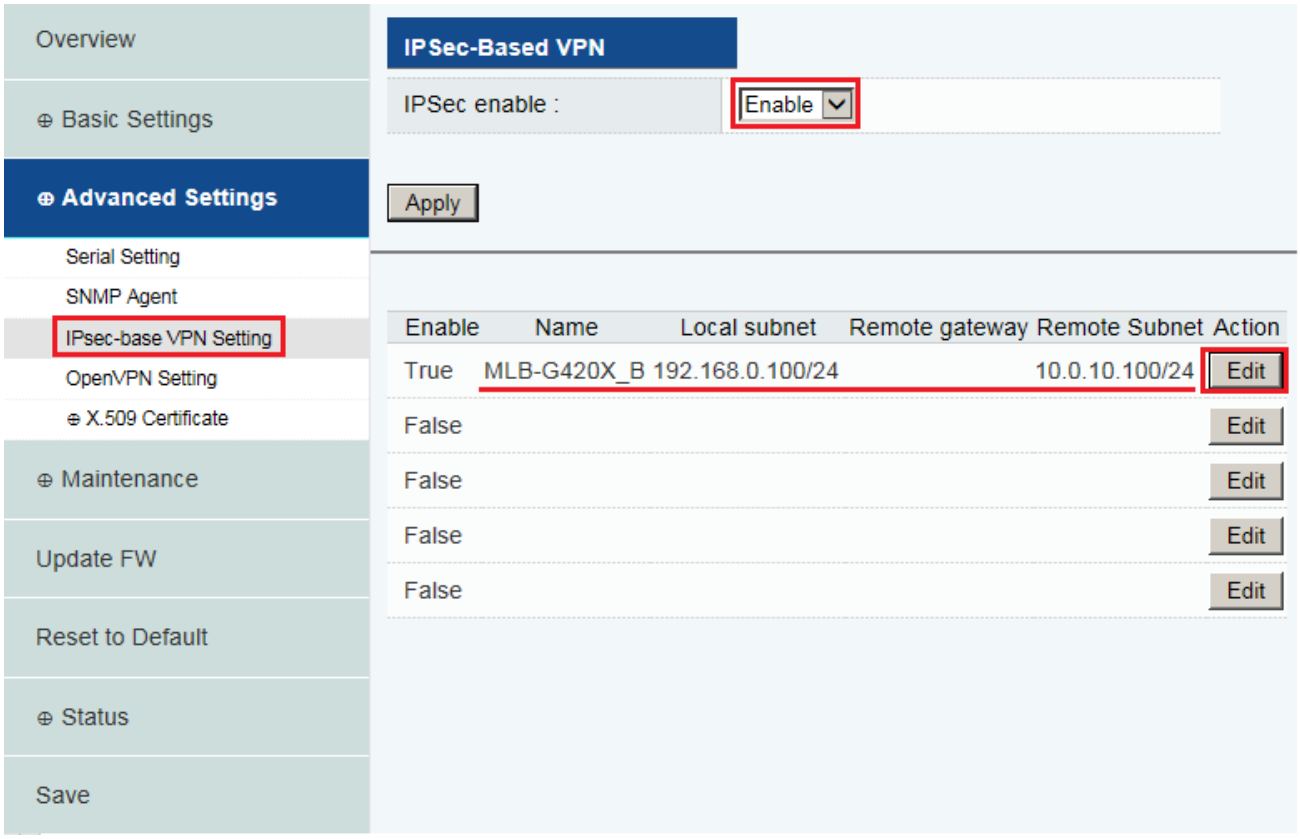
MLB-G402X_B Configuration Steps




Overview
Basic Settings
Advanced Settings
Serial Setting
SNMP Agent
IPsec-base VPN Setting
OpenVPN Setting
X.509 Certificate
Step 4
CA Certificate Generation
End Entity Certificates Setting
Maintenance
Import / Export config
Ping
AT Command
Password
Users Management
Update FW
Reset to Default
Status
Save
End Entity Certificates Generation
Step 5
Certificate Name: MLB-G402X_B
Certificate Days: 365 (Default:365)
Country Name (2 letter code): CN
State or Province Name: Hong Kong
Locality Name: SCHMIDT
Organization Name: SCHMIDT
Organizational Unit Name: SCHMIDT
Common Name: MLB-B
Email Address: test2@schmidtelectronics.com
Generate Certificate
Step 6
Upload File:
Upload
Local Certificate(s)
MLB-G402X_B
cert: X509
subject: "C=CN, ST=Hong Kong, L=SCHMIDT, O=SCHMIDT, OU=SCHMIDT, CN=MLB-B, E=test2@schmidtelectronics.com"
issuer: "C=US, ST=CA, L=SCHMIDT, O=SCHMIDT, OU=SCHMIDT, CN=MLB-B, E=test2@schmidtelectronics.com"
validity: not before May 03 03:53:22 2017, ok
not after May 03 03:53:22 2018, ok (expires in 364 days)
serial: 2b:76:9d:6a:0a:70:e2:58
flags:
authkeyId: d8:5e:50:ae:25:24:aa:04:5b:eb:d6:d6:d4:e5:10:9a:7b:a8:c3:08
subjkeyId: f3:96:fc:02:e7:b7:41:a3:3c:fd:1a:86:f3:42:86:33:b0:2c:0a:0e
pubkey: RSA 2048 bits
keyid: 9f:73:df:04:87:a1:4f:6f:d7:d4:0f:63:54:d1:be:1e:c7:80:35:e0
subjkey: f3:96:fc:02:e7:b7
Step 7
Delete
Export Certificate
"MLB-G4201_B.der" to the remote VPN Gateway

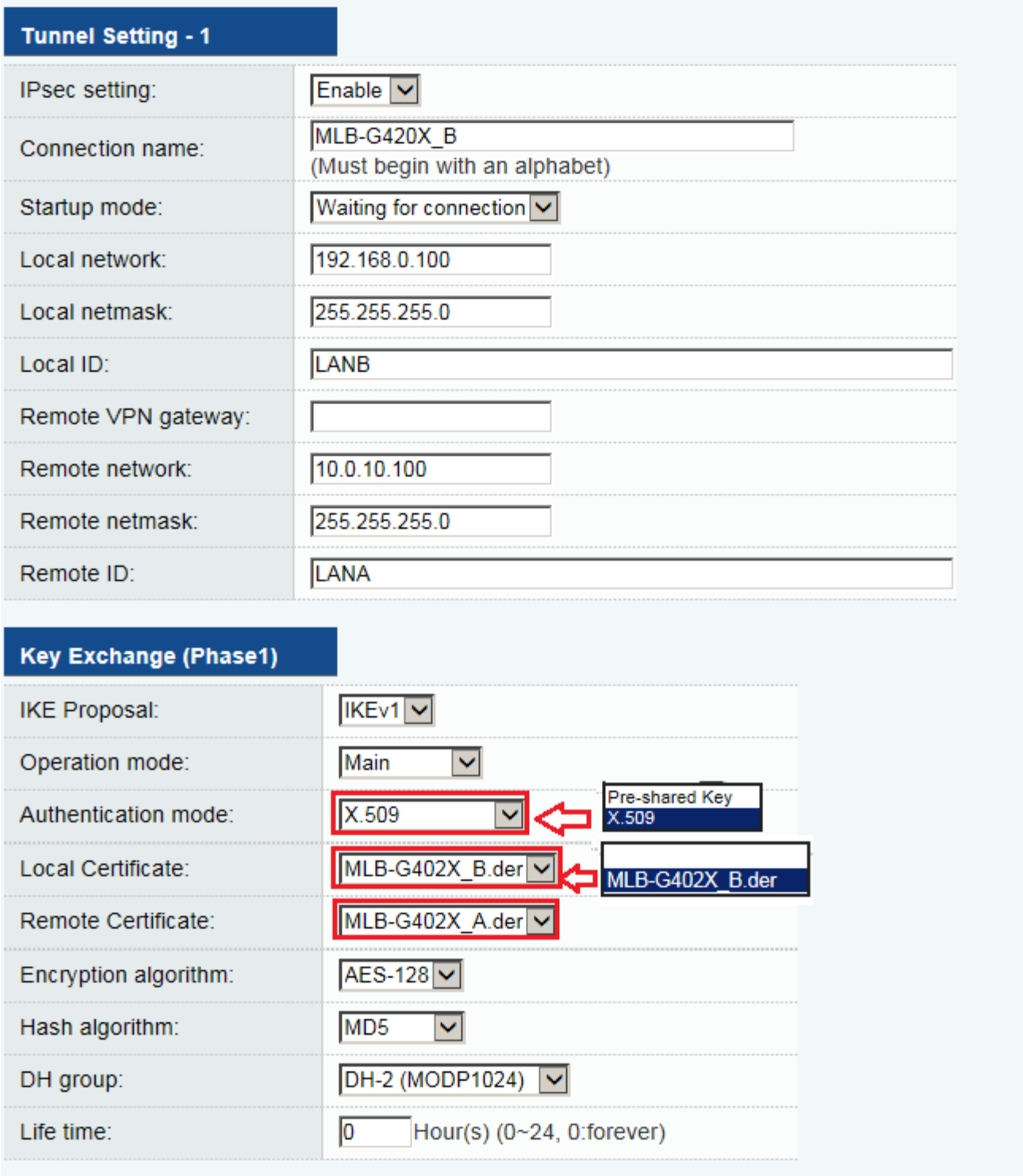


The user can go to the IP-based VPN setting to enable the IPSec function also to create the IPSec connection session by clicking on the tab of Edit.



Note: 1. Please make sure that the function of OpenVPN is disabled first.

The user has to change the authentication mode also select the local certificate and remote certificate carefully.


Tunnel Setting - 1
IPsec setting:
Enable
Connection name:
MLB-G420X_B
(Must begin with an alphabet)
Startup mode:
Waiting for connection
Local network:
192.168.0.100
Local netmask:
255.255.255.0
Local ID:
LANB
Remote VPN gateway:
Remote network:
10.0.10.100
Remote netmask:
255.255.255.0
Remote ID:
LANA
Key Exchange (Phase1)
IKE Proposal:
IKEv1
Operation mode:
Main
Authentication mode:
X.509
Pre-shared Key
X.509
Local Certificate:
MLB-G402X_B.der
MLB-G402X_B.der
Remote Certificate:
MLB-G402X_A.der
Encryption algorithm:
AES-128
Hash algorithm:
MD5
DH group:
DH-2 (MODP1024)
Life time:
0
Hour(s) (0~24, 0:forever)

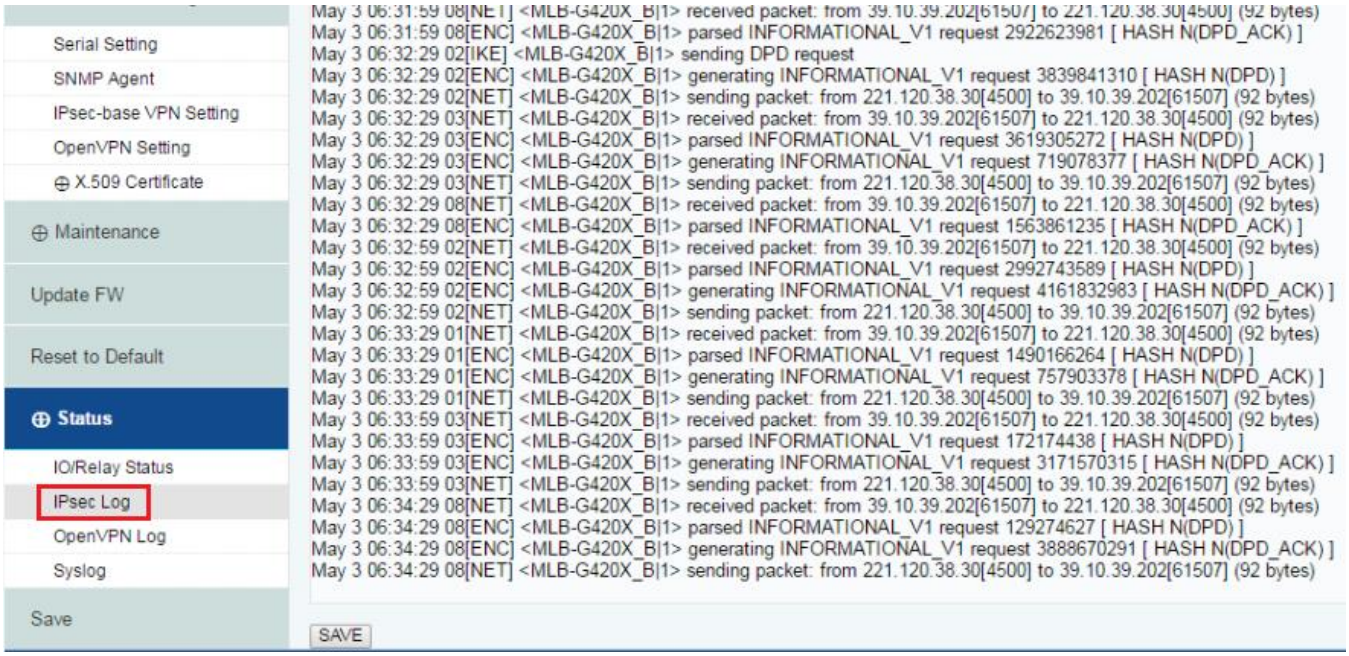
Data Exchange (Phase2)	
Encryption algorithm:	AES-128
Hash algorithm:	MD5

Dead Peer Detection	
DPD action:	Clear
DPD delay:	30 second(s)
DPD timeout:	150 second(s)

Apply

Note: 1.Click to Apply all settings.
2.Go to “Save” then click on the save button if you wish to update the configuration settings.

The user can go to IPSec log to check the IPSec with X.509 authentication connection status.



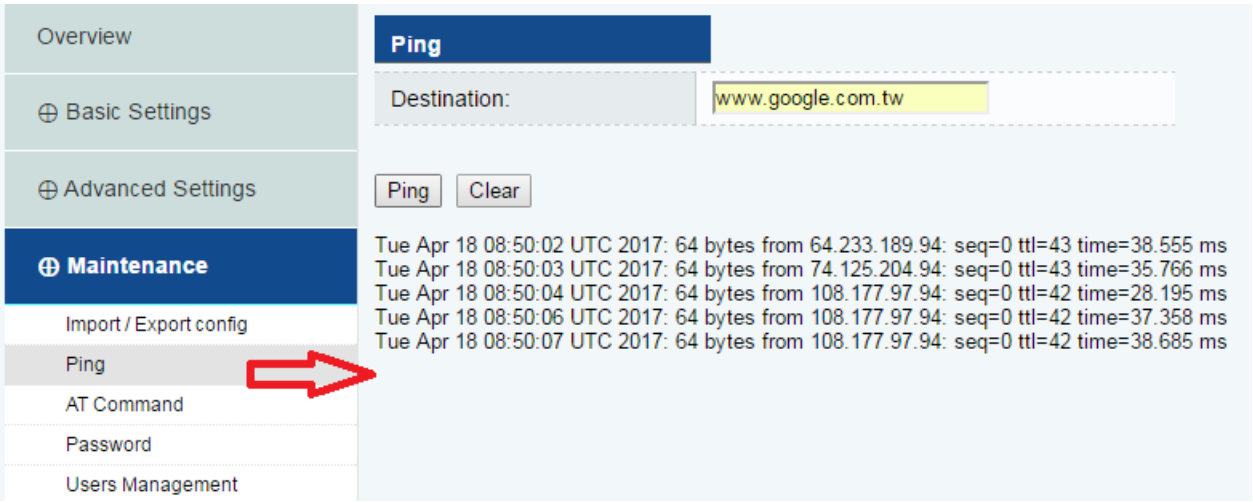
Note: You can verify the IPSec connection with X.509 authentication method by running the ICMP Ping command. In the above setup example scenario, PC A can ping PC B (192.168.0.100) and PC B can ping PC A (10.0.10.100) to verify if IPSec tunnel connection is successfully established.

3.9 Maintenance

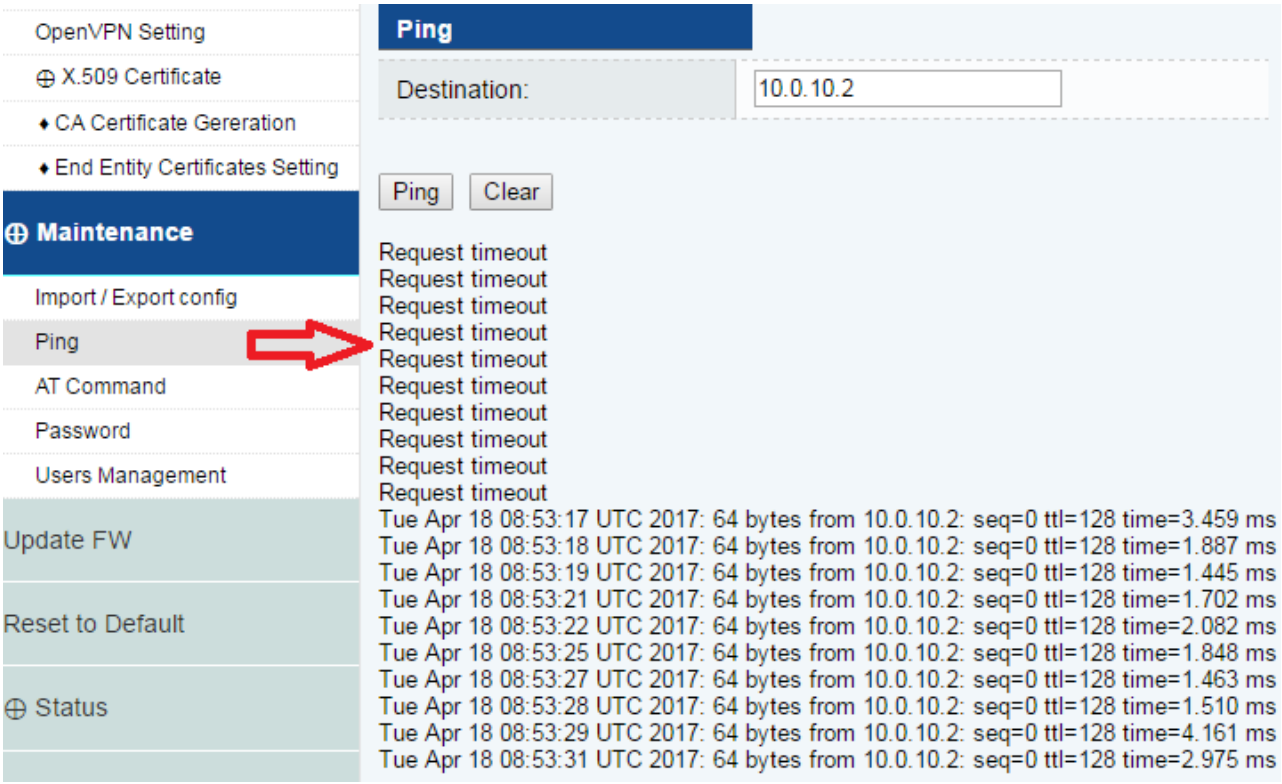
3.9.1 Ping

The ping function provides the user to a useful diagnosis tool for troubleshooting network problems by using the ICMP ping command. Simply input the desired IP address in the Destination field, and then press Ping button to issue the Ping command from the Web console interface.

You can ping from MLB-G420X to any desired IP addresses of hosts reside on the Cellular WAN side.



Or you can ping from MLB-G420X to any desired IP addresses of hosts reside on the LAN side.

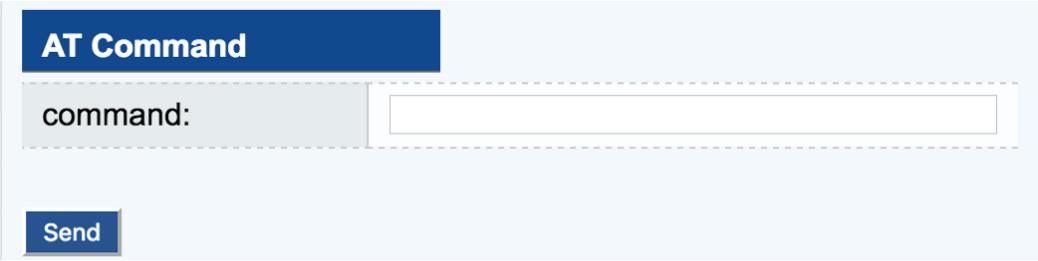


Item	Description
Destination	Inputting a node's IP address in the Destination field, you can use the ping command to make sure it exists and whether or not the access path is available.
Ping	Click to ping.

Note: Please note that the TCP ports of 22, 80 is not available on cellular's WAN port. Also the cellular's WAN port of MLB-G420X would not resond to ICMP ping command.

3.9.2 AT Command

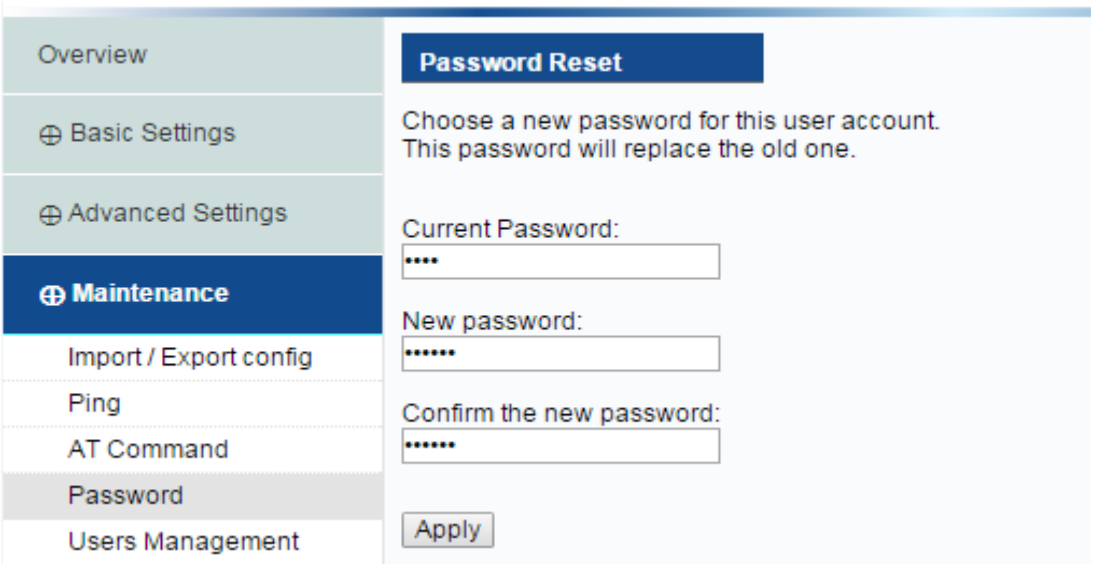
This function of the AT Commands allows the external application to obtain various status information from MLB-G420X series. For detailed AT commands syntax description, please contact Service and Support for such requests.
E-Mail: support.mlis@schmidtelectronics.com



Item	Description
Command	Input AT command in the command field.
Send	Click to send.

3.9.3 Password

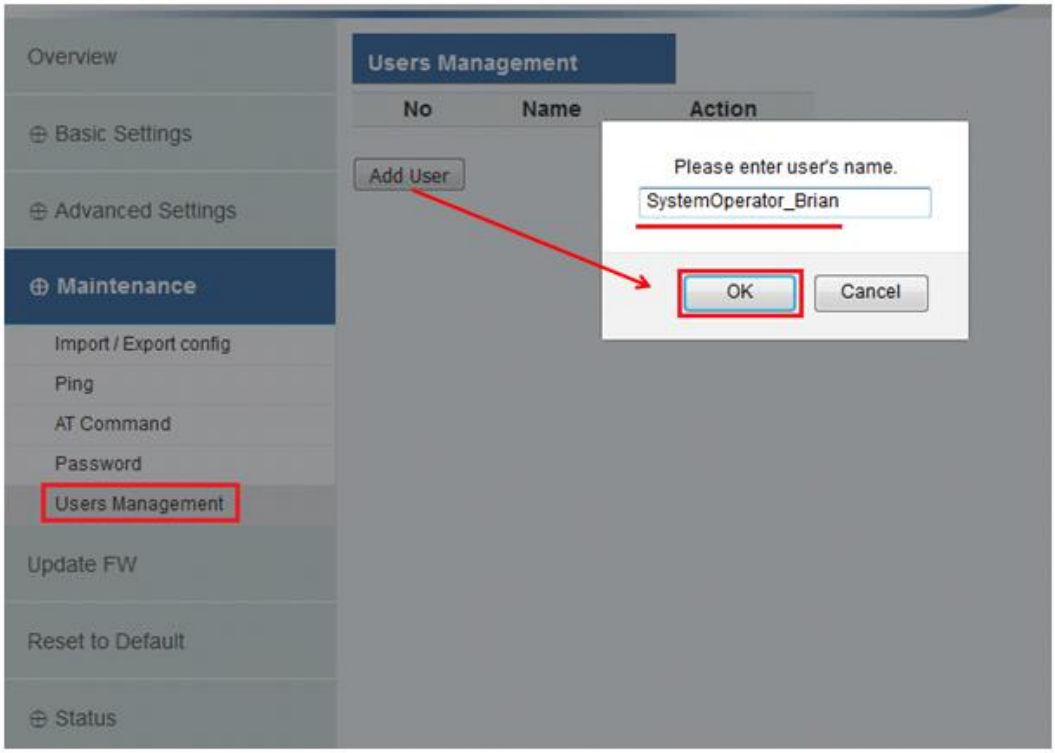
You can change the password as desired in the field.

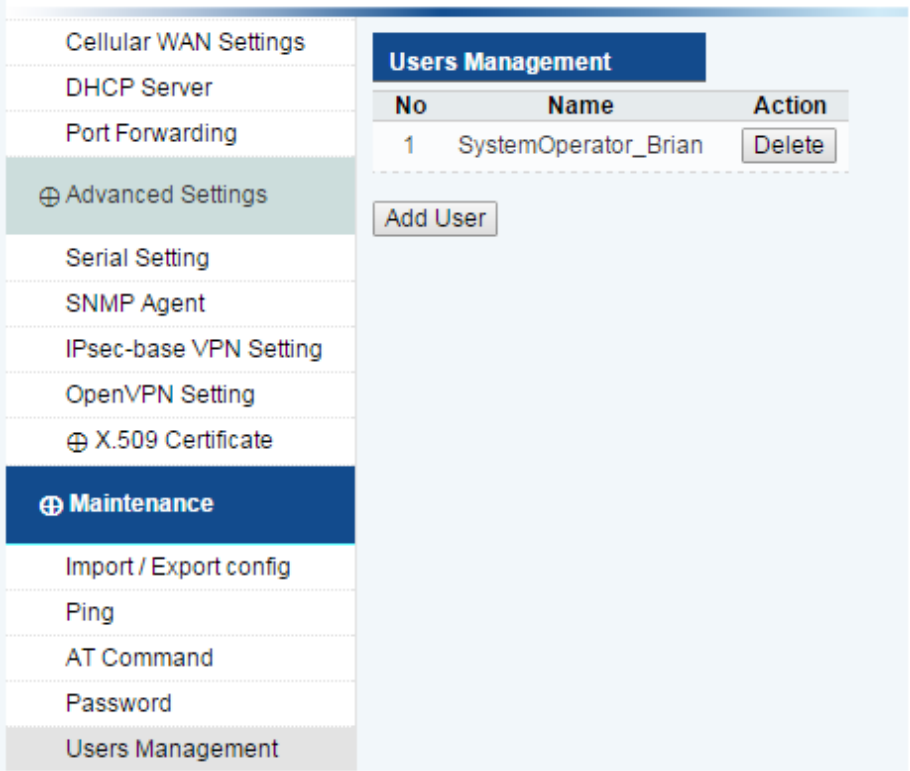


Item	Description
Current Password	Input current password.
New password	Input new password.
Confirm the new password	Input new password again.
Apply & Save	Click Apply to change password. Need to go to “save” then click on the save button to complete the process.

Note: The length of Username / Password field is limited and it is up to 36 characters input. No symbol is allowed.

3.9.4 User management



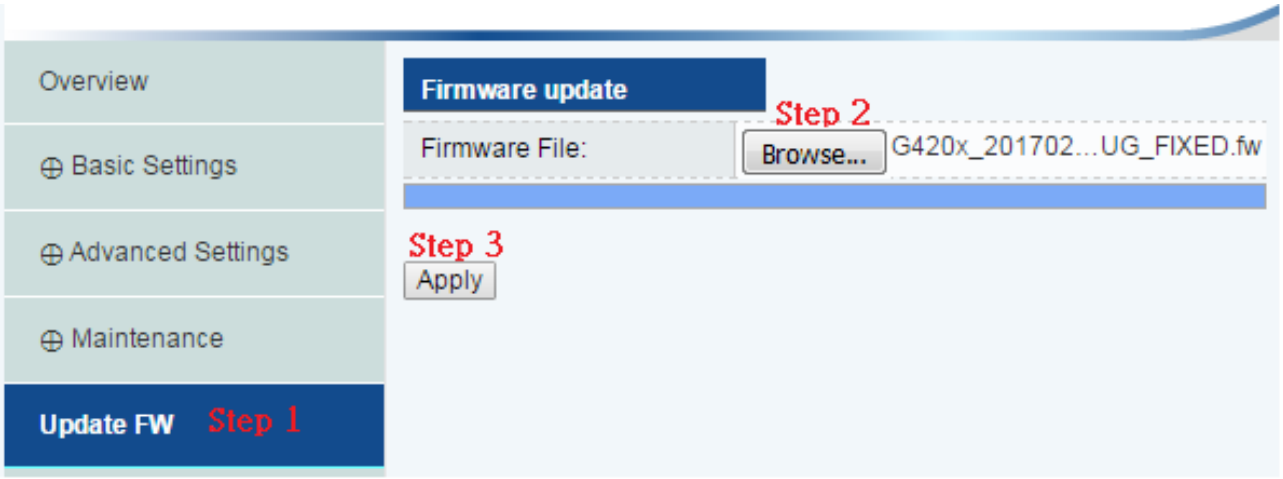


Item	Description
Current Password	Input current password.
New password	Input new password.
Confirm the new password	Input new password again.
Apply & Save	Click Apply to change password. Need to go to “save” then click on the save button to complete the process.

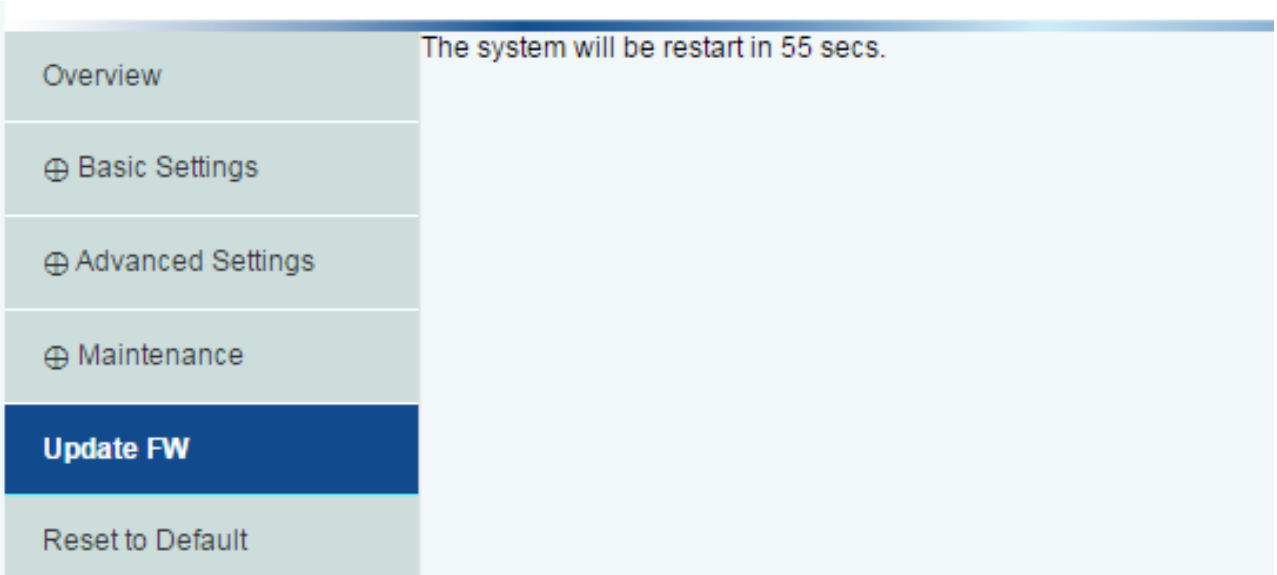
3.10 Update FW

The MLB-G420X can be enhanced with more value-added functions by installing firmware upgrades. Please download the latest release firmware from MLiS website.

1.



2.



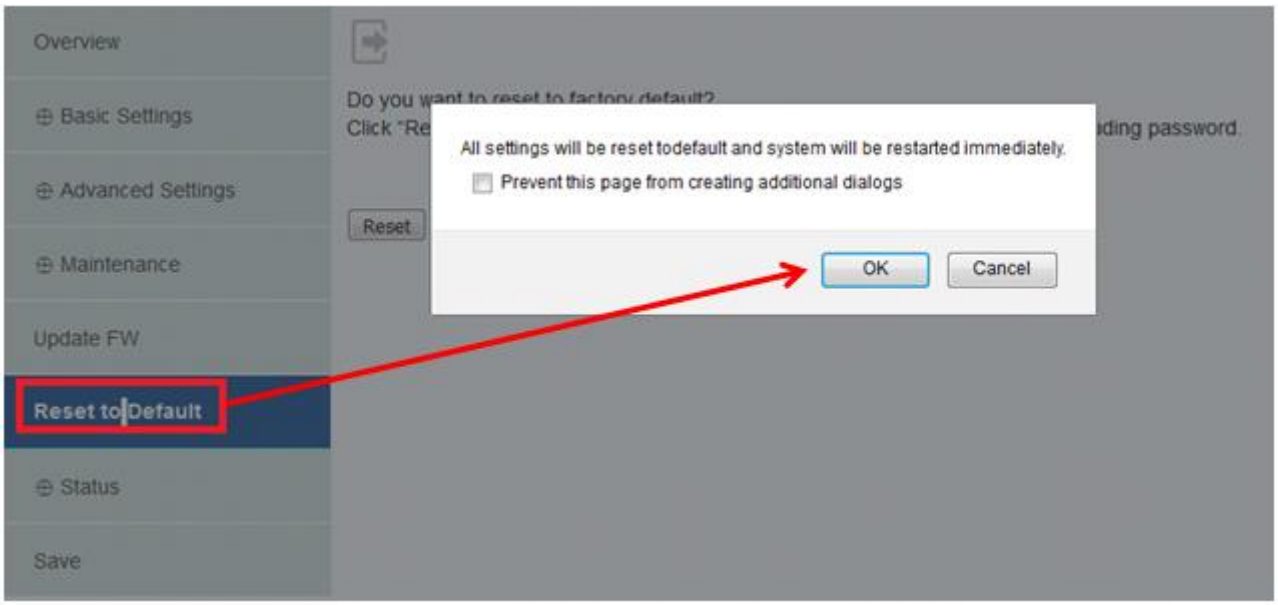
3.

Item	Description
Firmware File	Click to load the firmware file
Upload	Click to upgrade the firmware

Note: Do Not power down the device during the firmware upgrade process.

3.11 Reset to Default

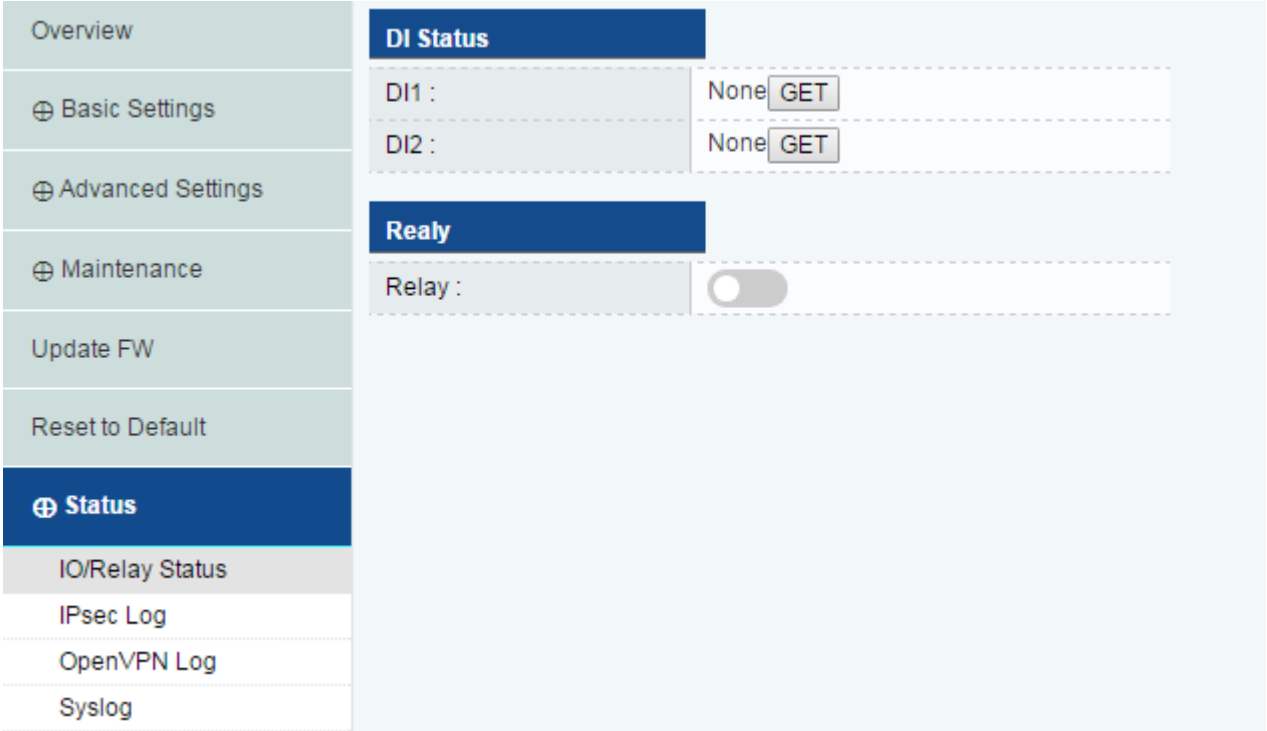
All the configuration will be reset to the factory default value.



Item	Description
Reset	Click to reset MLB-G420X to default.

3.12 Status

3.12.1 IO/Relay Status

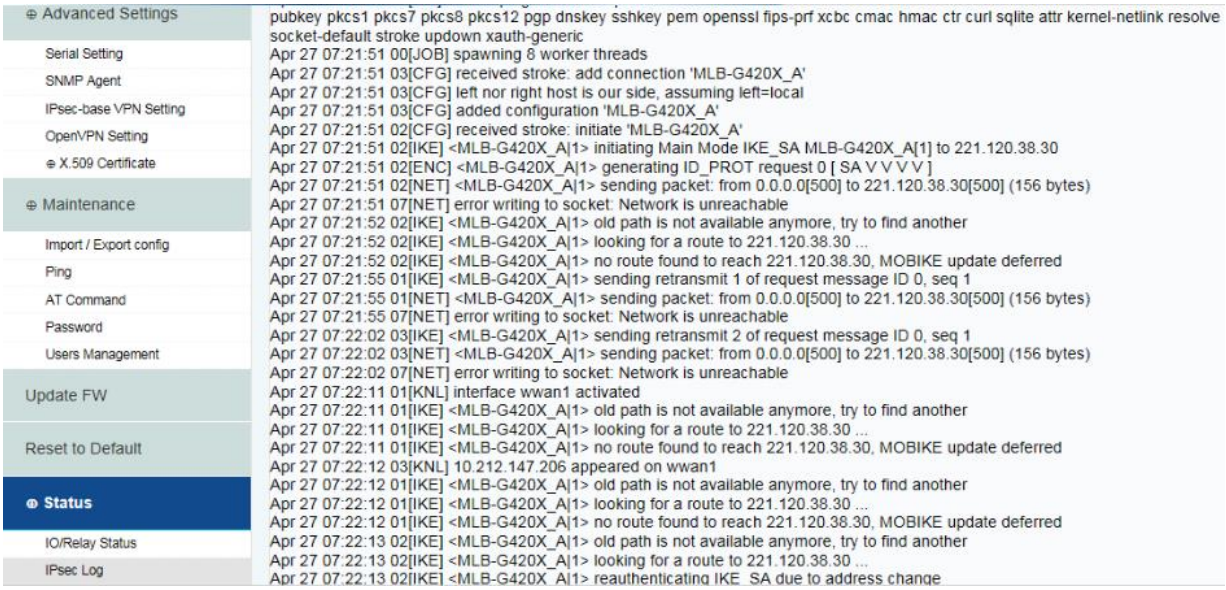


Item	Description
DI1	Click GET to obtain the status of DI1.
DI2	Click GET to obtain the status of DI2.
Relay	Trigger the Relay to enable/disable relay.

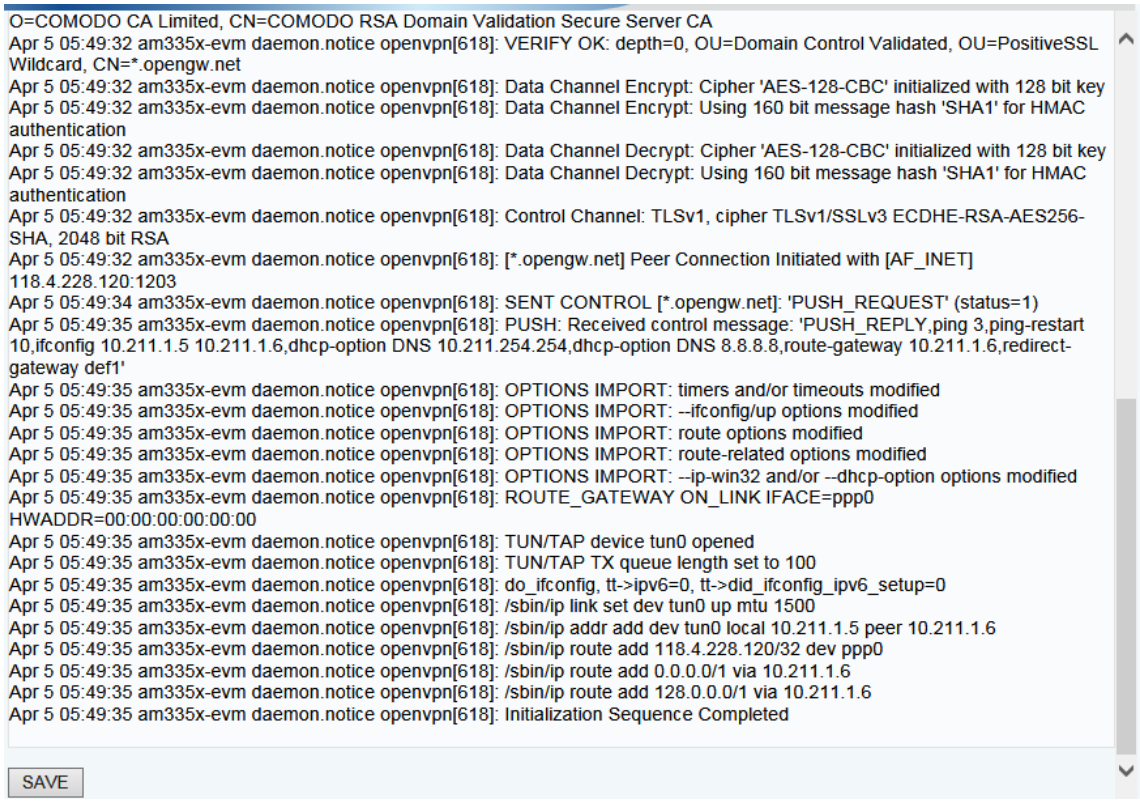
Note: The default status of Relay is “Normal Open”.

3.12.2

IPSec Log

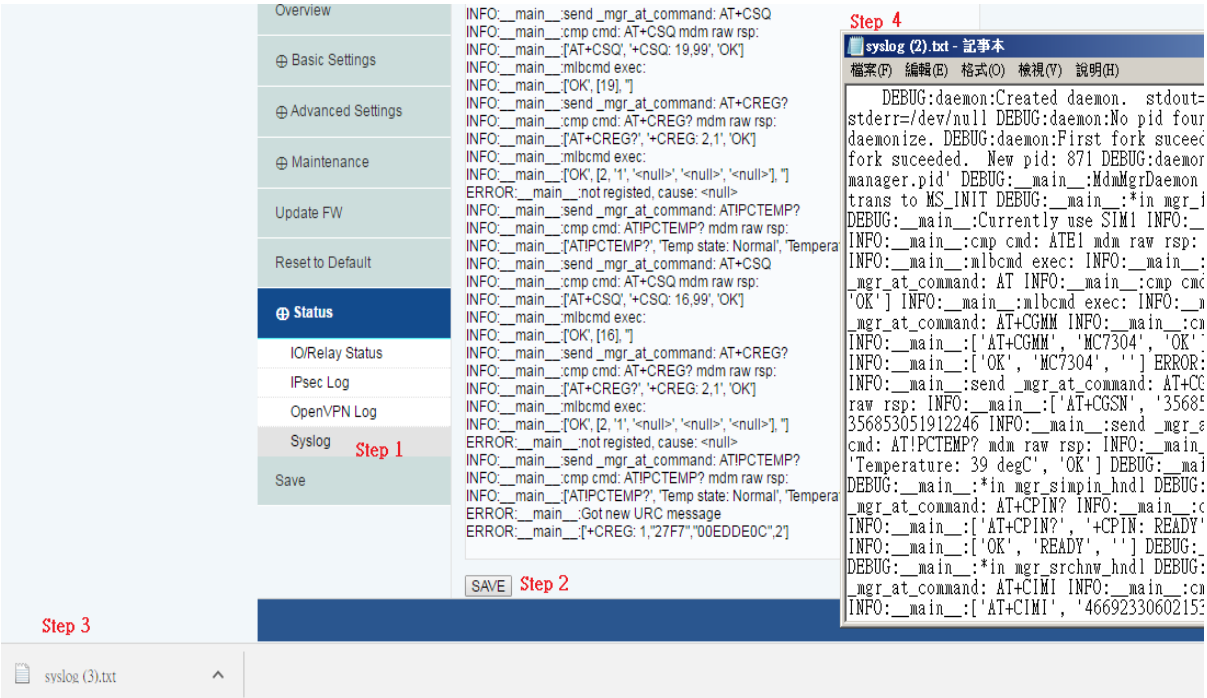


OpenVPN Log



Syslog

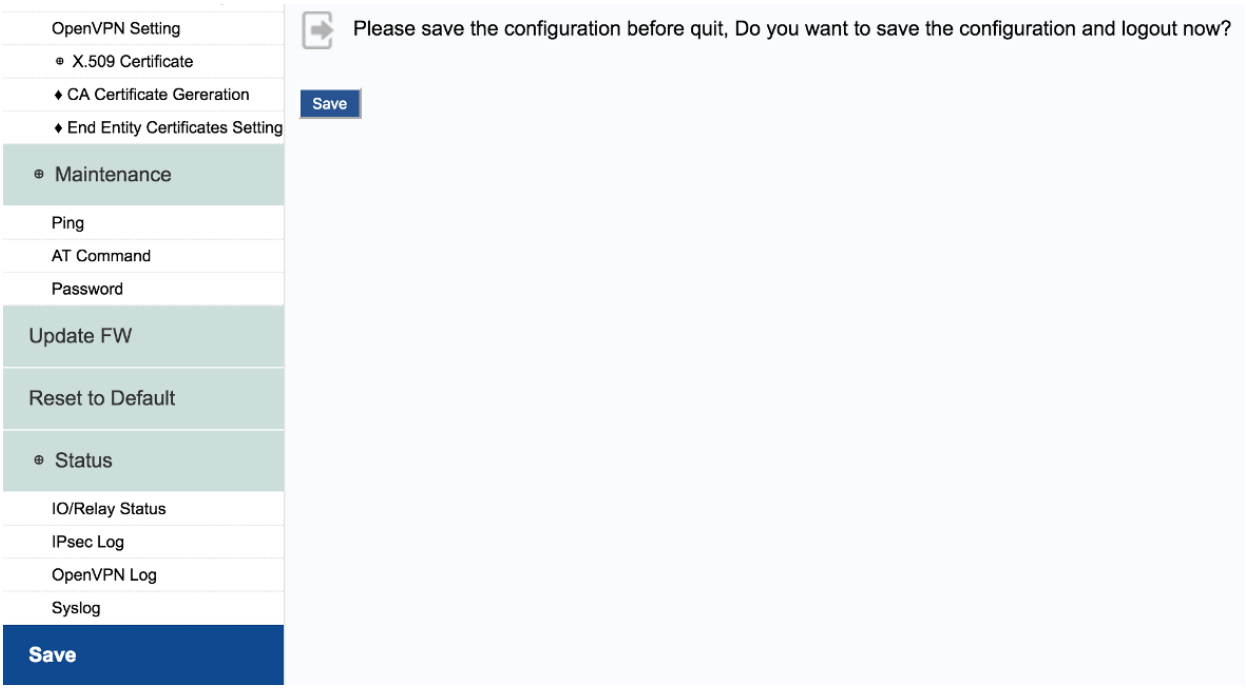
Please provide us the syslog in the text file upon request for further diagnosis and analysis purpose.



Item	Description
IPSec Log	Record the IPSec log.
OpenVPN Log	Record the OpenVPN log.
Syslog	Record the syslog.

3.13 Save

Please make sure to complete this step in order to update all the configuration changes after you click on apply on each function's setting page.



Item	Description
Save	Click **Save** button to save all setting you configure. Then MLB-G420X will reboot.

Note: Do not power down the device during the save process.

4 OPERATING NOTE

4.1 Power on the Modem

After plugin the power adapter, the modem is usually fully operational within 60 seconds, after powering it up. Depending on the signal strength of the network in the area, logging into a network may take longer and is outside the control of the modem.

4.2 Reset to default

Press reset button, it will be reset to default. All of temporary data buffer will be clear.

4.3 External input x2

External signal input source, positive signal are DI1 and DI2, negative signal are COM_1 are COM_2. Power input range is +12V~+48V, it will be determined as positive. It can be used for alert.

4.4 External Relay x1

Non positive and negative signal relay output, maximum power input voltage range is with load voltage 40V and maximum load current is 2.0A. It can be used for beeper.

4.5 DB9 Connector

The RS-232/422/485 connector is DB9 male type, please refer to table 4.

4.6 Install SIM card

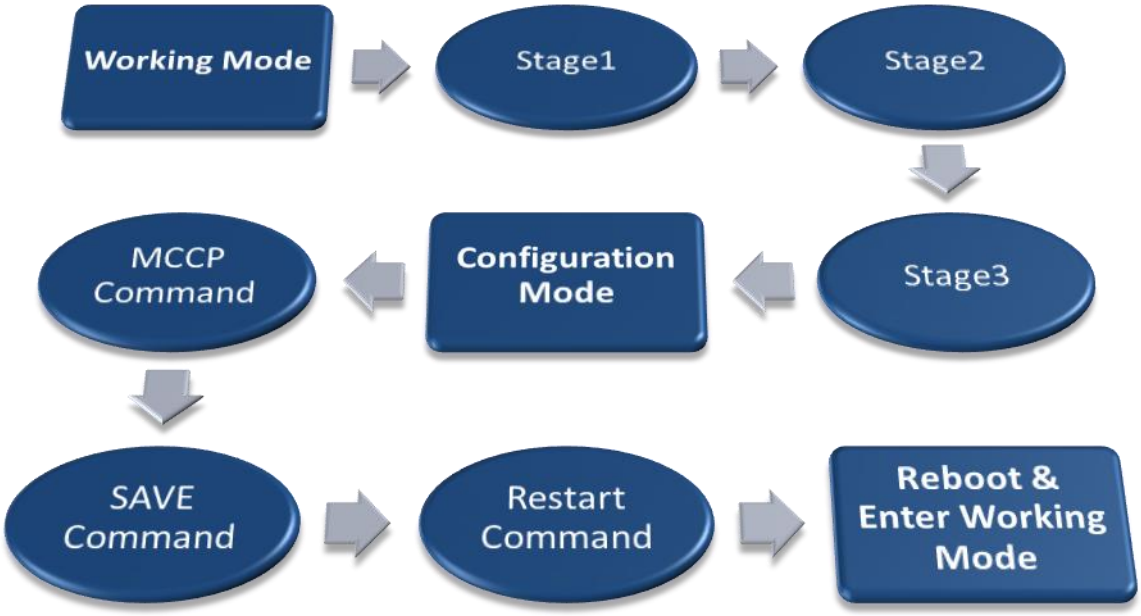
Please turn to back view, screw open the cover, then user will see SIM card holder. Please use SIM card faces to PCB board and put it into holder, please screw the cover back.

5 MLiS Cellular Control Protocol (MCCP)

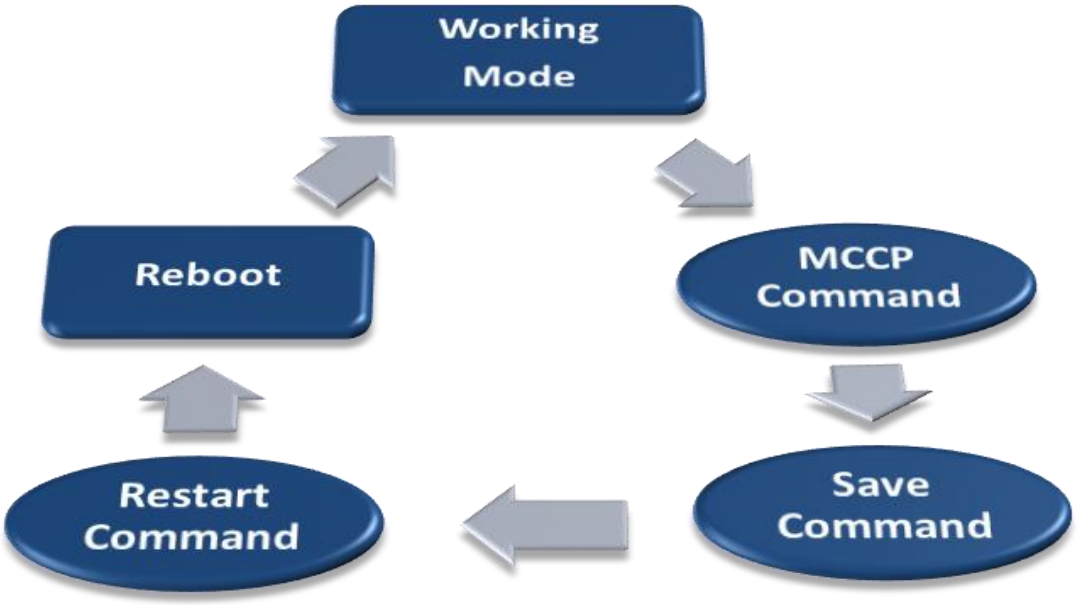
MLiS user can remotely control MLB-G420X through MLiS Cellular Control Protocol. MLiS Cellular Control Protocol is open to MLiS user.
The MCCP should be converted to hexadecimal then count with checksum. If any question about MCCP, please feel free to contact us. support.mlis@schmidtelectronics.com

MLB-G420X MCCP (SMS / Host via internet / Host via RS232)	
Initial Step	
Protocol	**Action**
MLB-CONFIGSTAGE1	Waiting for : IN STAGE1
HEX: 4D 4C 42 2D 43 4F 4E 46 49 47 53 54 41 47 45 31 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 9D	
MLB-CONFIGSTAGE2	Waiting for : IN STAGE2
HEX: 4D 4C 42 2D 43 4F 4E 46 49 47 53 54 41 47 45 32 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 9C	
MLB-CONFIGSTAGE3	Waiting for : MLB-G420X into configuration mode
HEX: 4D 4C 42 2D 43 4F 4E 46 49 47 53 54 41 47 45 33 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 9B	
Notice : The wireless terminal will exit the configuration mode automatically when wireless terminal does not get any MCCP exceed 12 seconds in working mode.	

MCCP Setting Process via Internet/RS-232



MCCP Setting Process via SMS (using admin phone number)



Connection Profile		
Write	**Command Header**	MLB-CONNECTIONPROFILE
	Connection Type	1. Transparent Client Packing Mode 2. Transparent Client Fast Mode 3. Transparent Server Packing Mode 4. Transparent Server Fast Mode 5. Socket UDP Client Mode 6. Socket TCP Client Mode 7. Socket TCP Server Mode
	Connection Index	0 ~ 4
	IP Address	ex: 192.168.1.1: 36000 Maximum 37 chars
	Enabled bit	0. Disabled 1. Enabled
	End Tag	Z
	Example: MLB-CONNECTIONPROFILE: 6, 2, 192.168.100.99: 27000, 1, Z set 192.168.100.99 port 27000 to profile 2 for TCP Client Mode (enabled).	
Read	**Command Header**	MLB+CONNECTIONPROFILE:
	Connection Type	1. Transparent Client Packing Mode 2. Transparent Client Fast Mode 3. Transparent Server Packing Mode 4. Transparent Server Fast Mode 5. Socket UDP Client Mode 6. Socket TCP Client Mode 7. Socket TCP Server Mode
	Connection Index	0 ~ 4
	End Tag	Z
	Response Format	Response +: {IP}: {Port}, {Disable (0)/ Enable (1) bit}
	Example: Send --> MLB+CONNECTIONPROFILE: 6, 2, Z Response +: 192.168.99.22:54321,1 (Socket TCP Client Mode at Index 2 IP 192.168.99.22:54321 has been enabled)	

UART Setting		
Write	**Command Header**	MLB-UARTSETTING
	UART Type	1. RS232 2. RS485 3. RS422
	Baud rate	0. 230400 1. 115200 2. 57600 3. 38400 4. 19200 5. 6. 9600 7. 4800 8. 2400 9. 1200 10. 300 11. 110
	Parity Bit	1. None 2. ODD 3. EVEN
	Stop Bit	1. 1-bit 2. 2-bit
	HW Flow Control	0. Disable 1. Enable
	DTR Level	0. High Level 1. Low Level
	RTS Level	1. High Level 2. Low Level
	End Tag	Z
	Example: MLB-CONNECTIONPROFILE: 6, 2, 192.168.100.99: 27000, 1, Z set 192.168.100.99 port 27000 to profile 2 for TCP Client Mode (enabled)	
Read	**Command Header**	MLB+UARTSETTING
	UART Type	1. RS232 2. RS485 3. RS422
	Baud rate	0. 230400 1. 115200 2. 57600 3. 38400 4. 19200

		5. 9600 6. 4800 7. 2400 8. 1200 9. 300 10. 110
	Parity Bit	1. None 2. ODD 3. EVEN
	Stop Bit	1. 1-bit 2. 2-bit
	HW Flow Control	0. Disable 1. Enable
	DTR Level	1. High Level 2. Low Level
	RTS Level	1. High Level 2. Low Level
	End Tag	Z
	Response format	Response +: {UART Mode }, {Baud rate}, {Parity Bit}, {Stop Bit}, {HW Flow Control (Disable / Enable)}, {DTR (H/L)}, {RTS (H/L)}
	Example: Send --> MLB+UARTSETTING: Z Response +:1, 1, 2, 2, 0, 0, 1 (UART Mode is RS232 at 115200 / ODD / 2Bits / H/W flow control disabled / DTR at Low / RTS at High)	

Internet Setting		
Write	**Command Header**	MLB-INTERNETSETTING
	APN	
	User Name	Maximum 31 chars
	Password	Maximum 31 chars
	Internet Service Type	1. Transparent Client Packing Mode 2. Transparent Client Fast Mode 3. Transparent Server Packing Mode 4. Transparent Server Fast Mode 5. Socket UDP Client Mode 6. Socket TCP Client Mode 7. Socket TCP Server Mode
	End Tag	Z

	Example:
	MLB-INTERNETSETTING: internet, user123, pass456, 2, Z
	set APN = "internet" // User Name = "user123" //
	Password = "pass456"
	Internet connection type = "Transparent Client Fast Mode"	

Read	**Command Header**	MLB+INTERNETSETTING
	End Tag	Z
	Response format	Response +: {APN}, {User Name}, {Password}, {Internet connection type }
	Example: Send --> MLB+INTERNETSETTING: Z Response +: internet, user, pass, 4 (APN=internet /User Name = user/Password=pass/Current Service Type is Transparent Server Fast Mode)"	

Phone Setting		
Write	**Command Header**	MLB-PHONESETTING
	Phone Event	1. Reboot 2. Connection Off-Line 3. DIO1 Event 4. DIO2 Event 5. Relay Event 6. Admin
	Phone Number	Format: +886 935123456 Maximum 19 chars
	Enabled	0. Disabled 1. Enabled
	End Tag	Z
Read	**Command Header**	MLB+PHONESETTING:
	Phone Event	1. Reboot 2. Connection Off-Line 3. DIO1 Event 4. DIO2 Event 5. Relay Event 6. Admin
	End Tag	Z
	Response format	Response +: {Phone Number}, {Phone Event}
	Example: Send --> MLB+PHONESETTING: 2, Z Response +: +886935123456,1 (+886935123456 is the event of Off-Line that has been enabled)"	

Reconnect Setting		
Write	**Command Header**	MLB-RECONNECTSETTING:
	Connection Retry Time	0. No Retry 9999. No limitation Range (0 ~ 9999)
	Retry Time Interval	Range (1 ~ 50) Minute
	End Tag	Z
Read	**Command Header**	MLB+RECONNECTSETTING:
	End Tag	Z
	Response format	Response +: { Retry Time }, { Retry Time Interval }
	Example: Send --> MLB+RECONNECTSETTING: Z Response +: 9999,5 (Connecting maximum retry time is no limit and retry interval is 5 minutes)"	

Heartbeat Setting		
Write	**Command Header**	MLB-HEARTBEATSETTING
	Heart Beat Time	0. No Heart Beat Range (0 ~ 9999) Second
	Heart Beat String	Maximum 15 chars
	Sending Type	0. Send to profile 0 1. Send to all profiles
	End Tag	Z
Read	**Command Header**	MLB+RECONNECTSETTING:
	End Tag	Z
	Response format	Response +: { Retry Time }, { Retry Time Interval }
	Example: Send --> MLB+RECONNECTSETTING: Z Response +: 9999,5 (Connecting maximum retry time is no limit and retry interval is 5 minutes)"	

Packing Setting		
Write	**Command Header**	MLB-PACKINGSETTING:
	Device ID	ex: Hello Maximum 19 chars
	Packing Header	ex: 123 Maximum 3 chars
	Packing Enabled bit	0: Disabled 1: Enabled
	End Tag	Z
Read	**Command Header**	MLB+PACKINGSETTING:
	End Tag	Z
	Response format	Response +: {ID}, {Header}, {Packing (Enable/Disable)}
	Example: Send --> MLB+PACKINGSETTING: Z Response +:ID_123,MST,1 (The device ID is " "ID_123"") (Packing header will be ""MST"" and has been enabled)"	

Report DIO Setting		
Write	**Command Header**	MLB-REPORTDIOXSETTING
	Report path	1. Via SMS 2. Via Internet
	End Tag	Z
Read	**Command Header**	MLB+REPORTDIOXSETTING
	End Tag	Z
	Response Format	Response +: { Retry Time }, { Retry Time Interval }
	Example: Send --> MLB+REPORTDIOXSETTING: Z Response +: SMS (The DIO status will be reported via SMS)	

Get DIO		
Write	**Command Header**	MLB-GETDIOX
	DIO Number	1. DIO1 2. DIO2
	End Tag	Z

Set Relay		
Write	**Command Header**	MLB-SETRELAY
	Relay Level	0. Low 1. High
	End Tag	Z

Save Parameters		
Write	**Command Header**	MLB-SAVEPARAMETERS:
	End Tag	Z

Restart		
Write	**Command Header**	MLB-RESTART:
	End Tag	Z

SALES CONTACT

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6 ORDERING INFORMATION

MLiS Product

MLB-G420X: The MLIS Dual-Band 2G/3G wireless terminal

Power Adaptor

MLA-PSP-100: Input: AC 100 ~ 240V Output: 9V/1.3A DC jack 5.5/2.1
MLA-PSP-101: US Adapter Plug
MLA-PSP-104: British Adapter Plug
MLA-PSP-103: European Adapter Plug
MLA-PSP-102: Australia Adapter Plug
MLA-CAB-001: DC Jack power line 5.5/2.1

Cable

MLA-CAB-101: DB9 connector for RS232 (female)

Antenna

MLA-ANT-002: Magnet standalone antenna
MLA-ANT-001: PCB antenna
MLA-ANT-005: Magnet 850/900MHz-1800/1900MHz -2100MHz
5- band antenna with male SMA connector1.5dBi

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