Modbus Gateway

4G Series

USER MANUAL

Version 2.0

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4G Modbus RTU Gateway User Manual

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Table of Contents

1. Getting Start

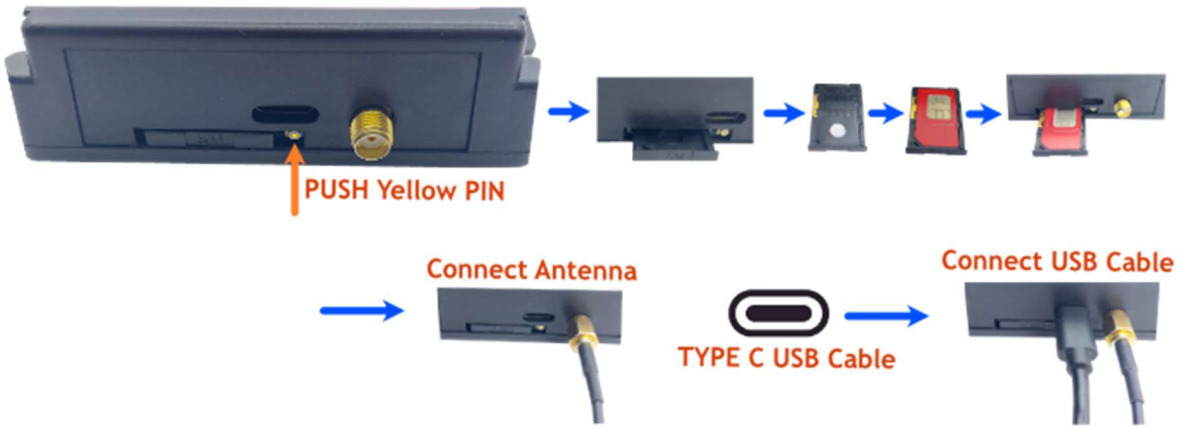
Received Items

1. Device
2. Antenna (2m)

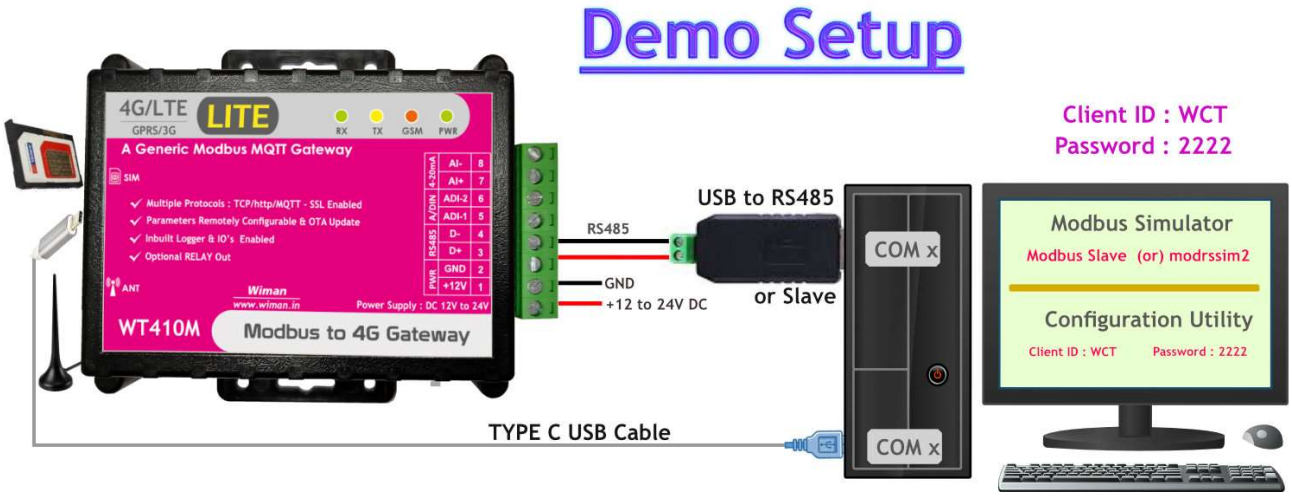
Required Items

1. Power Supply (12V to 24V DC) Minimum 1-Amps
2. Type C USB (Good Quality Cable)
3. SIM Card
4. Screw Driver

Connection Diagram



Simple Demo Connection, by Using Modbus Simulator instead of Using Real time Slave Device



Modbus Simulator : https://sourceforge.net/projects/modrssim2/

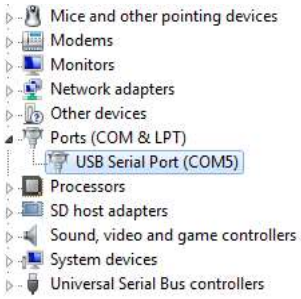
Modbus Scanner: https://www.win-tech.com/html/demos.htm

Make Setup

1. Insert SIM Card
2. Connect Antenna
3. Connect TYPE C USB Cable
4. Connect Slave Device or Simulator via USB to RS485
5. Power ON the device

Check COM Port in Device Manager

My Computer -> Right Click-> Manage ->Device manager

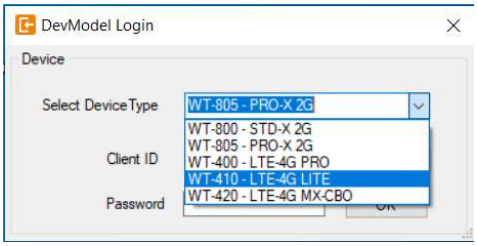


If No Driver ⚠ (Not Showing COM Number)

Please Install the Driver –

http://www.wch-ic.com/downloads/file/5.html?time=2023-01-05%2022:09:46&code=gksfTPRafdOFF4vEyW2g4ViBiDZAk56igU3uqpeJ

Open Configuration Utility



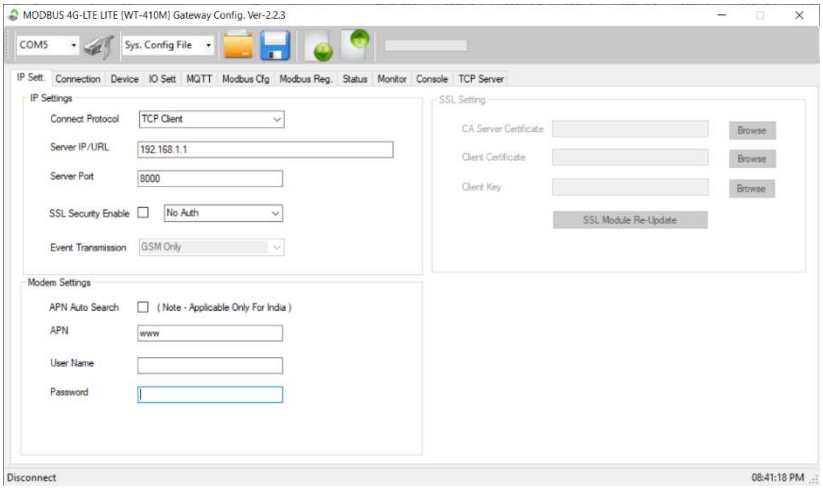
MODBUS_GPRS Config-V22x.exe

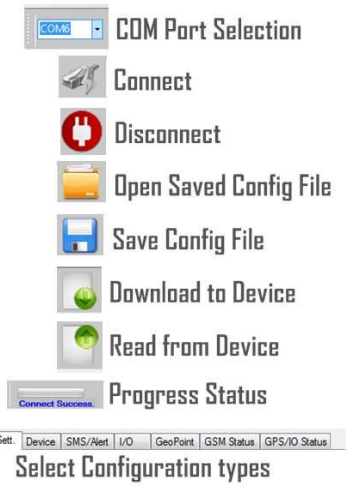
- Select Correct Model Number

Client ID: **WCT**

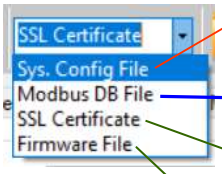
Password: **2222**

Menu Details

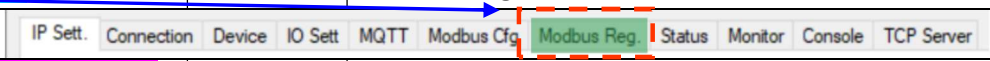


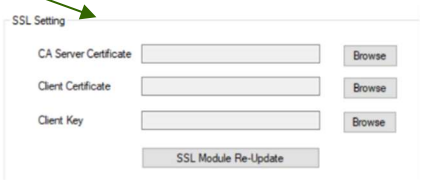


Configuration File Types (High Important - Select Correct File before Download)



File Type	Extenssion	Description
Sys. Config File	.cfg	System Configuration Files (Tab Under) **IP Sett, Connection, Device, IO Sett, MQTT, Modbus Cfg**
Modbus DB File	.mdb	Modbus Register Mapping Details (Tab Under) **Modbus Reg**
SSL Certificate	.pem .crt .key	Compile SSL files to Single Upload
Firmware File	.rom	Device Firmware Update (Upgrade / Downgrade)





Understanding LED Patterns https:/www.youtube.com/watch?v=d9Iwqba09CM

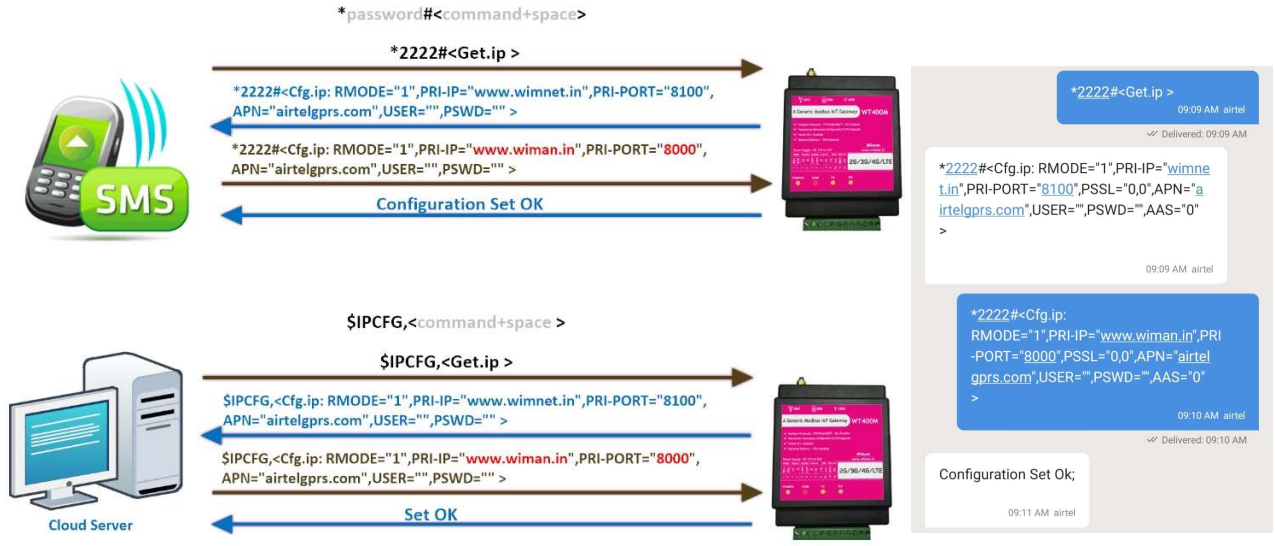
LED	NAME	DESCRIPTION
GREEN	POWER	Light when Power on the device
RED	GSM/CON	See LED Status / Connection State table below
GREEN	COM TX	Blink on data transmission in RS232/RS485 port
YELLOW	COM RX	Blink on data reception in RS232/RS485 port

LED Status	Connection State
Flashing (ON for 100ms and OFF for 100ms)	SIM Card not found
Flashing (ON for 1 sec and OFF for 1 sec)	Searching for GSM Network
Flashing (ON for 100ms and OFF for 3sec)	GSM Network Registered
Flashing 3times (ON for 100ms and OFF for 3sec)	GPRS IP Connected
Flashing 5times (ON for 100ms and OFF for 3sec)	GPRS IP Sending data
LED OFF	GSM Fault

Device Operation Flow

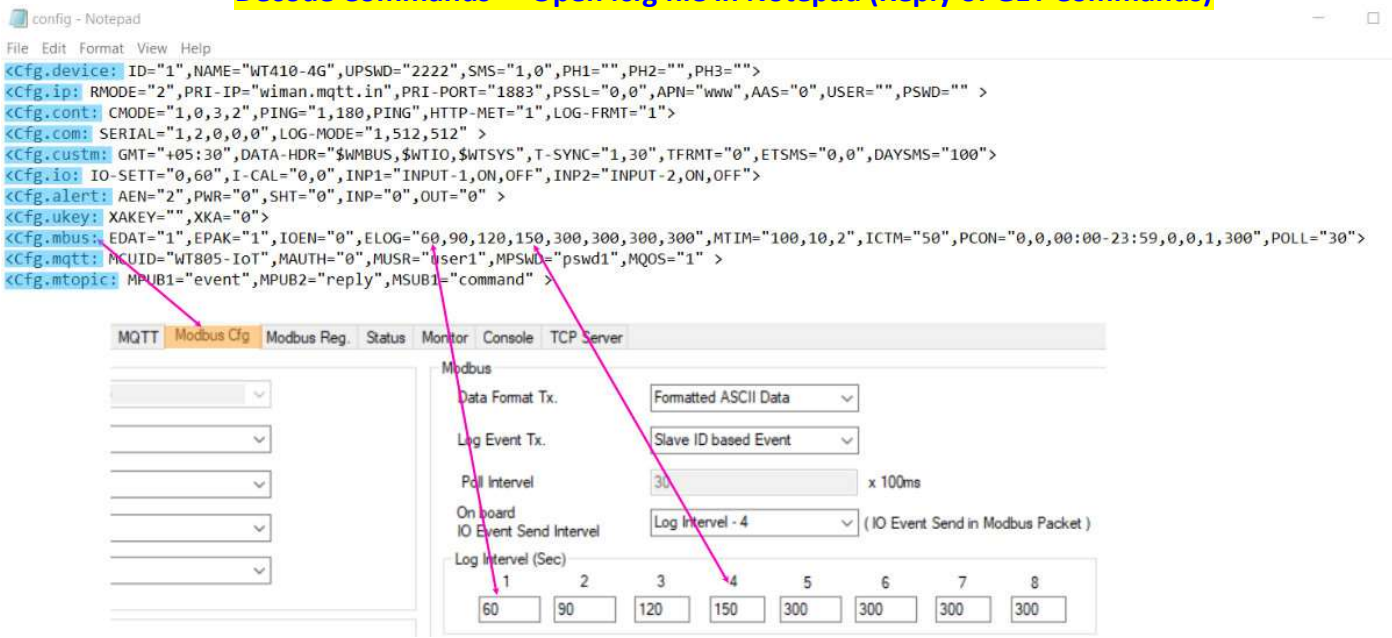
1. Power ON
2. Boot Mode (Takes 5 Seconds)
3. All LED Flash 1 Second – Indicates Entering Application Mode
4. Check SIM Card Presence
5. Network Searching (RED LED Flashing - ON for 1 sec and OFF for 1 sec)
6. Network Registered (RED LED Flashing - ON for 100ms and OFF for 3sec)
7. Server Connected (RED LED Flashing - 3 times ON for 100ms and OFF for 3sec)
8. Event Transmission (RED LED Flashing - 5 times ON for 100ms and OFF for 3sec)

SMS/Server Command Flow



Command Type	Example Command	Description
Get	<Get.ip >	Read the Current IP Address Settings from Device
Cfg	<Cfg.ip: xxxxxxxx >	Configure or update System Settings in device
Cmd	<Cmd.clrlog >	Command the device
Stat	<Stat.gsm >	Read the Status of GSM or IO Information
Info	<Info.sys >	Device the Complete Device information
DEVCMD	<DEVCMD: DREGCLR >	Device Command to Clear the Modbus Register Configuration

Decode Commands -> Open .cfg file in Notepad (Reply of GET Commands)

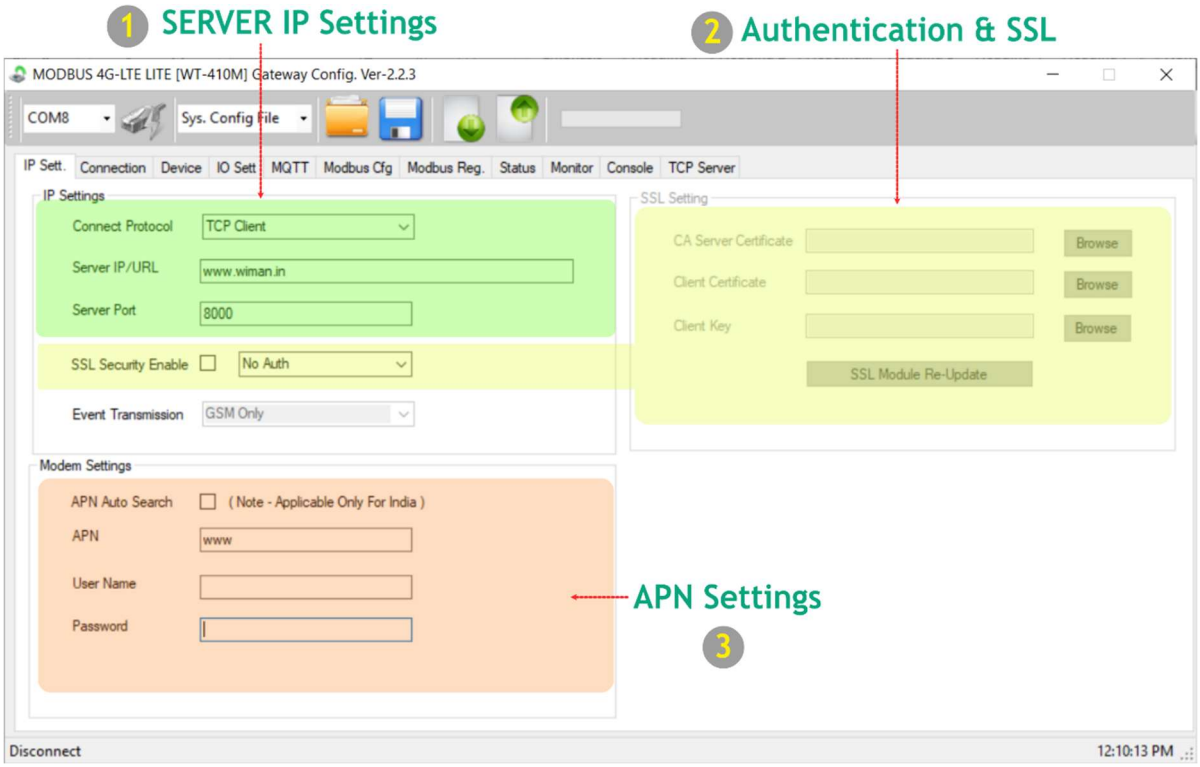


By SMS/Server Commands, We can update all System Configuration – Except Modbus Registers

Modbus Register Can Update via FTP, HFS, TCP Server Utility as a File Transfer (OTA)

.mdb file is encrypted – Non-Readable

2. IP Setting



1. Server IP Setting

Field Type	Description
Connection Protocol	Connection protocol selection **0**-LOGGER ,**1**-TCP Client ,**2**-MQTT Client ,**3**-HTTP Client
Server IP/URL	Cloud / Server IP / URL server to communicate **Server/MQTT Broker IP:** 118.139.162.202 **Domain Name:** www.wiman.in **HTTP URL:** http://wiman.in/ioc-web/Listener (For Default Port - 80) or http://wiman.in:8080/ioc-web/Listener (For Special Port Number)
Server Port	Server Port (TCP Client / MQTT)

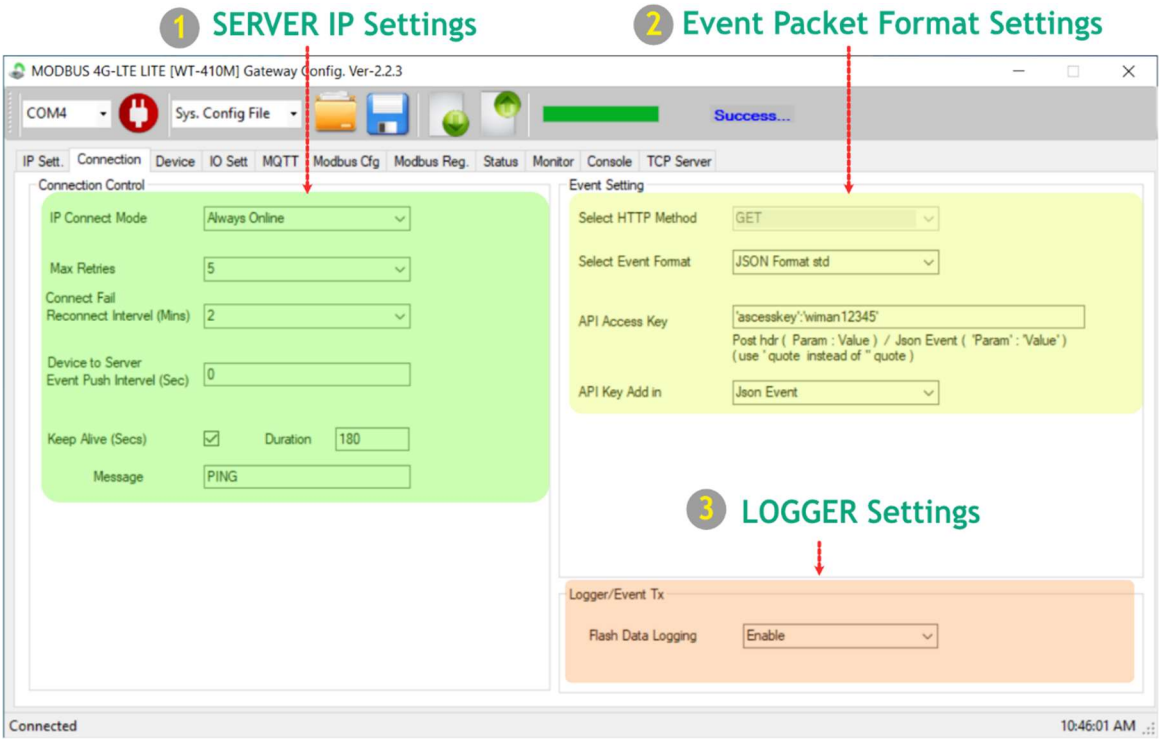
2. Authentication & SSL Setting

Field Type	Description
SSL Enable	Check to Enable SSL Option (*Server has to Support SSL)
SSL Setting	**0** – No Auth, **1** – Server Auth, **2** – Server & Client Auth
CA Server Certificate	Certificate Authority for Server Authentication
Client Certificate	Client Certificate for Client Authentication
Client Key	Encryption KEY method for Data Packet Encryption from server

3. APN Setting

Field Type	Description
APN Auto Search	Enable – Automatically Search as per Network * For India only
APN Name	If Special SIM, m2m Sim Please enter Correct APN
User Name	GPRS Username, default null * For Special SIM Cards
Password	GPRS Password, default null * For Special SIM Cards

3. Server Connection Setting



1. Server Connection Control Setting

Field Type	Default Value	Description
IP Connect Mode	Always Online	0-Connect On Demand: Open the Connection, Send the Event and Close the Connection 1-Always Online: Maintains the Server Connection, If Disconnected Retry for Connection
Max Retries	3	Maximum number of retries to try for IP Connection establishment ✓ If Server Connection is Disconnected Device Retries to Establish for Connection (Max 1 to 16)
Reconnect Interval	2	Time interval to Reconnect if connection Fails in Minutes (1 to 15) ✓ During Device Retries to Establish for Connection, Time to wait for First Retry to Second Retry in Mins.
Event Push Interval	0	Event data transmission to Server (interval in Seconds) ✓ Event data transmission Device to Server – Time Interval for One Event to Next Event in Secs. ✓ Keep 0, to take Modbus Polling Interval by default

Keep Alive (Secs)	180	Sending Custom Message in Specific interval **to maintain Server connection** If NO Event Sending for Certain Time Period - Server Connection will be closed. Sending Ping (Keep Alive Packets) to Server to Maintain Server Connection 0-Disable /1-Enable, Duration Interval to Send the Keep Alive Packets and Massage to Identify It is Ping (Keep Alive) Packet on Server Side.

2. Event Packet Format Setting

Field Type	Default Value	Description
Http Method	POST	Two commonly used methods for a request-response between a client and server **0 - GET** - Requests data from a specified resource **1 - POST** - Submit data to be processed to a specified resource
Event Format	JSON Std	Two commonly used Event Packet format **0 - CSV** – Standard Readable String Event, can handle large number of Parameters **1 - JSON Std**- Standard Nested JSON Format with tag name for each parameter **2 - JSON Plain**- Standard JSON format with Single Curly Bracket
API Access Keys	NULL	Access Key tokens, Combined with Event Data for Internal Verification Post Header Format - tag name: value JSON Event Format - 'tag name': 'value'
API Key Add in	Disabled	Two methods to Add Access KEY in Events **0 - Disable** – Disable the Add KEY functionality **1 - Post Header**- Add Access KEY in Header Part of JSON Event Packet **2 - JSON Event**- Add Access KEY in JSON Event as a Normal Parameter tag

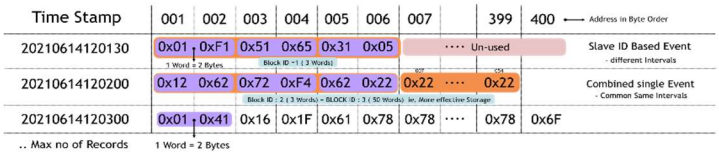
JSON Event: { ascesskey:wiman12345,"data":{ "imei":"860057064326324","uid":1,"dtm":"20230108103554","seq":1,"sig":23,"msg":"log",
"modbus": [{"sid":1,"stat":0,"rcnt": 3,"reg1":0,"reg2":0,"reg3":0 }] }}

3. Logger Setting

Field Type	Default Value	Description
Flash Data Logging	Enable	Two commonly used methods for Logging and Sending Data to Cloud If Network Issues or Server issue/down – Device will log the Data **0 - Disable** – Disable the Logger Option **1 - Enable** – Send Offline data in between the Live Data, Live data not disturbed **2 – FIFO Event Tx** – Send all OFFLINE data in FIFO mode, Get Live Data after Log Clear

Logging Method

Timestamp is Header
YYYYMMDDHHMMSS
Record Size Max : 400 Bytes
If Exceed, takes next record



Example Backup Day Calculation :

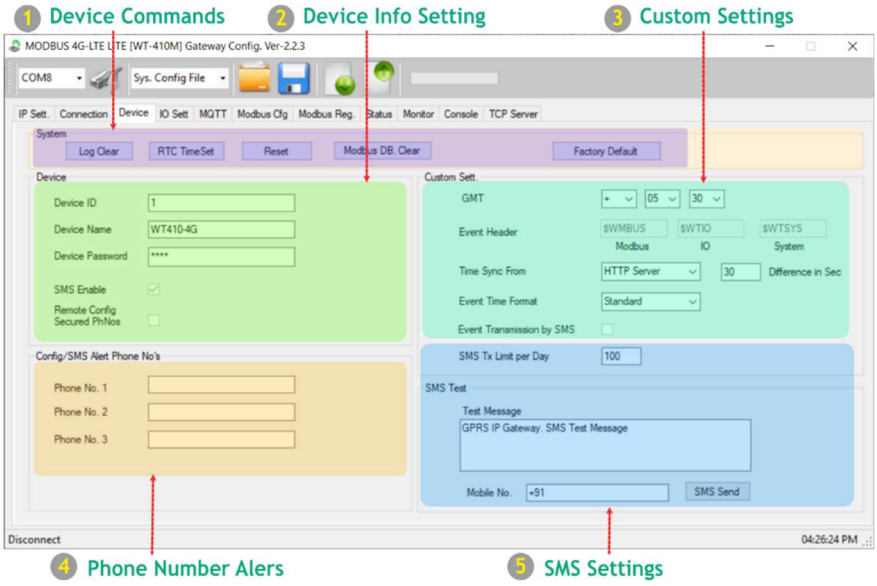
Combined Single Configuration
Interval SET = 60 Seconds
Per Day Consume Record = 60 Min x 24 Hr = 1440 Records Per Day
Backup Storage in Days =17000 Total Records / 1440 per day = 11.8 Days

Depends on :

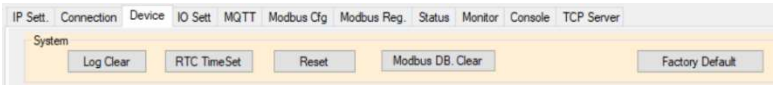
- Number of tags configured
- Slave ID or Combined Single Based
- Polling Interval

SMS/IP and Server Related Commands	
<Get.ip >	Read and Configure the Server IP and APN Details
<Get.cont >	Read and Configure the Server connections and Protocol Method
<Get.ukey >	Read and Configure the API Key – Authorization KEY for https, Post Header / JSON Event

4. Device Setting



1. Device Command



Field Type	Description
Log Clear	Erase All Offline log memory.
RTC Time Set	Update Device RTC time Sync with PC (Utility Connected PC)
Reset	Device Soft RESET
Modbus DB Clear	Erase the Existing Modbus Configuration in the Device
Factory Default	Load Default Configuration Setting, i.e., Erase Existing Configurations

* If Forgot Device Password, then Only Solution is Factor Default

SMS/IP Command (Commanding the device – to do action)	
<Cmd.sysrst >	To perform the device reset / reboot
<Cmd.clrlog >	To erase the system LOG memory.
<Cmd.default>	Default to factory configuration – Erase all system configuration

2. Device Info Setting

Field Type	Default Value	Description
Device ID	1	Unique No given to the device (5 Digit Max) Numeric Value
Device Name	WT-410M	To identify - Name of the Device
Device Password	2222	Alpha Numeric 4 Character.
SMS Enable	1	1 - Enable/ 0 - Disable Remote SMS Configuration option, By default Enabled
Remote Config Secured PhNos	0	SMS Secure Options: 1 - Enable/ 0 - Disable Access Secured Numbers Entered below Phone No 1, 2 and 3
Phone No.1 ,2, 3	<Mobile Number>	Secured device Access of selected Mobile Numbers for device configuration

* SMS Enable & Remote Config Secured disabled in Utility, we can enable disable via SMS/IP/Console command. To avoid config mistake

Device and Custom Setting Related Commands	
<Get.custm >	Read and Configure the Custom Settings
<Get.device >	Read and Configure the Device Related Settings

3. Custom Setting

Field Type	Value	Description
GMT	+ 05 30	Set the GMT time format, change based on Device Location
Header Enable	$WMBUS $WTIO $WTSYS	Enable IP Header string in Start Header for CSV Event Format $WMBUS – Modbus Data Event Packet Header $WTIO – IO(Input/Output) Data Event Packet Header $WTSYS – System and Alert Event Data Packet Header * Refer CSV Protocol Manual for more Information
Time Sync From	GSM	Device Time Sync from (0-None, 1- GSM, 2-Http Server, 3-IP Command) Three different options to Sync time for Internal RTC timing
Difference in Secs	30	Time Sync Difference in Secs If exceeds this difference, device will sync on above options
Event Time Format	standard	0 - Standard - YYYYMMDDHHMMSS ex: "dtm":"20230108122824" 1 - ISO 8601 - "dtm":"2023-01-08T10:19:17.000+05:30" (* Only in JSON)

1. GSM Network Time

During GSM network registration the GSM module will get the current time from the Network, also it depends on Network. Some network may not provide the time settings.

2. HTTP Server time

Once connected to the Server Device wills automatically Synchronized with Http Server, the server time is taken from the event response packet.

3. By Server IP Command

By Sending Get time IP Command to Get the Server Time for synchronization

Syantax	<DEVCMD: RTC=HH,MM,SS,DD,MM,YYYY >
SMS Command	*2222#<DEVCMD: RTC=12,55,00,08,01,2023 >
Server IP Command	$IPCFG,<DEVCMD: RTC=12,55,00,08,01,2023 >

Example CSV Packet

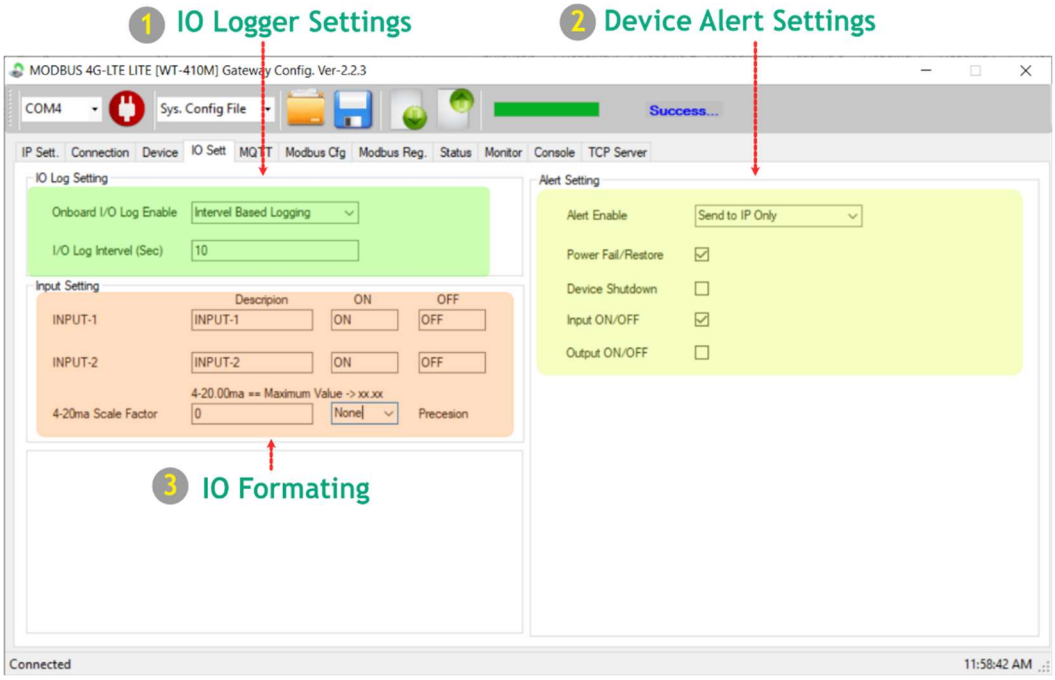
Login : $WTLOGIN,P10,860057064326324,WT-410M,W4G LITE,HW:1.0,SW:1.0.49,12345,Prakash,1.0,Airtel,0,08#
Alert Packet : $WTSYS,P10,860057064326324,20230108132736,DR:0,Device Reset,0,72#
Modbus Event : $WMBUS,P10,860057064326324,20230108133250,31,1,1,1:0:3:0:0:0,8,11#
IO Event : $WTIO,P10,864547034434618,20230108133250,25,1,0,0:0:8:15.19:0:1:1:0.00:4.59:15.37:0.00,21,5D#
* Refer CSV Protocol Manual for more Information

Example Date Format Events

ISO 8601: { "ascesskey":"wiman12345","data":{ "imei":"860057064326324","uid":12345,
"dtm":"2023-01-08T13:40:20.000+05:30","seq":6,"sig":26,"msg":"log","modbus": [{ "sid":1,"stat":0,"rcnt":3,
"reg1":0,"reg2":0,"reg3":0 }] }}

Standard: { "ascesskey":"wiman12345","data":{ "imei":"860057064326324","uid":12345,
"dtm":"20230108132736","seq":6,"sig":26,"msg":"log","modbus": [{ "sid":1,"stat":0,"rcnt":3,
"reg1":0,"reg2":0,"reg3":0 }] }}

5.IO Setting



1. IO Logger Setting

Field Type	Value	Description
IO Enable	Disable Disable Intervel Based Logging	Enable / Disable IO Packet with Logger Disable – Disable IO Functionality Interval Based Logging – Set Interval to log the IO Status * Refer Protocol Document for more reference
Log Interval	Log Intervel (Secs) 60	Set Log Interval for Log the IO Status

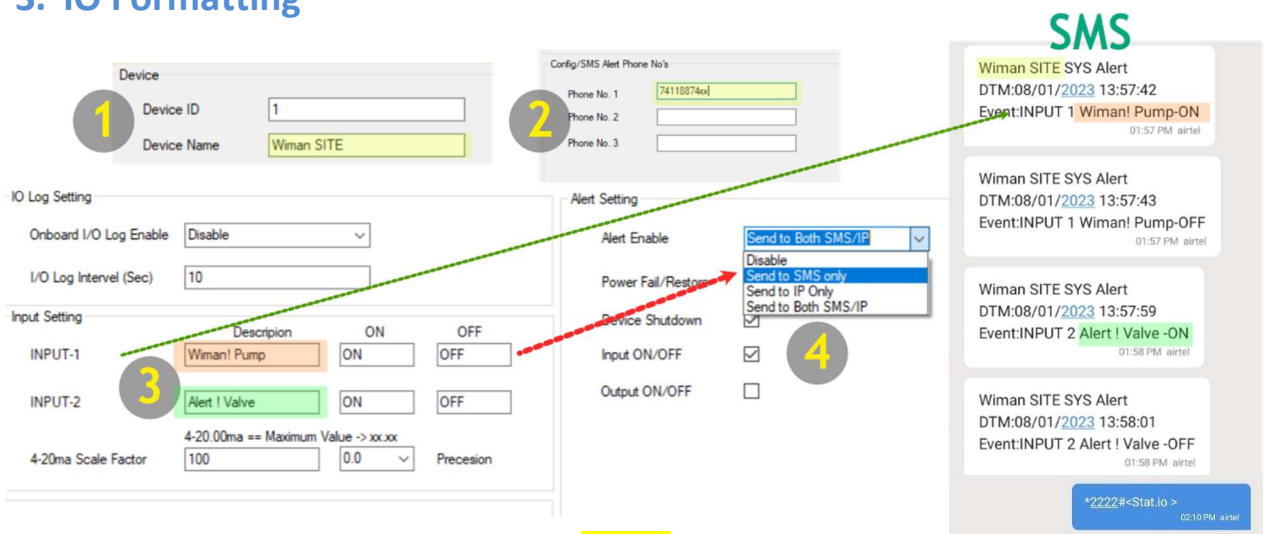
2. Device Alert Setting

Field Type	Value	Description
Alert Enable	Disable Disable Send to SMS only Send to IP Only Send to Both SMS/IP	Enable / Disable - Alert Mode Settings Send to SMS Only – Send Alert in SMS Only Send to IP Only – Send Alert to Server Only Send to Both SMS/IP– Send Alert to Both SMS and Server
Option Check	Power Fail/Restore Device Shutdown Input ON/OFF Output ON/OFF	Power Fail/Restore – Mains Power Fail / Restore Alert Device Shutdown-Operating in Battery, Device Shutdown Alert will send Once Battery too low. Input ON/OFF - Alert Send - Digital Input State change Output ON/OFF - Alert Send - Digital Output State change

Example Alert Packets : * Refer Protocol Manual

Power Restore: {"data":{ "imei":"860057064326324","uid":12345,"dtm":"20230108122824","seq":0,"msg":"sys","alert":"PU:0","info":"Device Power UP"}}
Device Reset : {"data":{ "imei":"860057064326324","uid":12345,"dtm":"20230108122816","seq":1,"msg":"sys","alert":"DR:0","info":"Device Reset"}}
DI1 ON : { "data":{ "imei":"860057064326324","uid":12345,"dtm":"20230108122548","seq":5,"msg":"sys","alert":"II:1:1","info":"INPUT"}}
DI1 OFF : { "data":{ "imei":"860057064326324","uid":12345,"dtm":"20230108122550","seq":6,"msg":"sys","alert":"II:1:0","info":"INPUT"}}

3. IO Formatting



4 -20mA Scale Factor: Set 4 to 20mA to Scale to **0 to 100**

Example IO Packets :

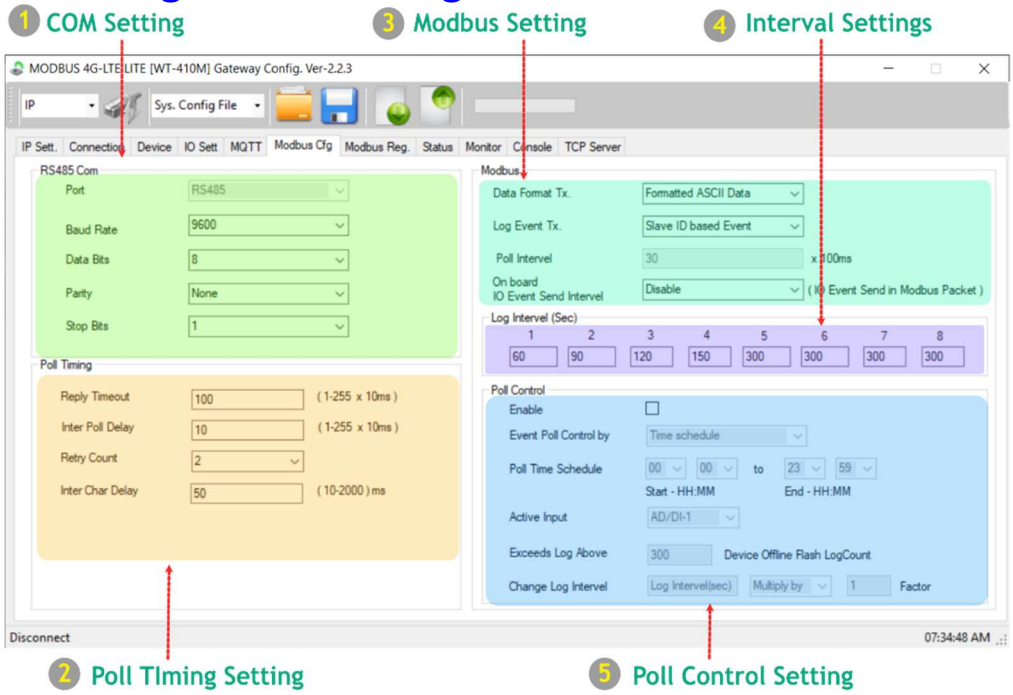
{"data":{ "imei":"860057064326324",
"uid":1,
"dtm":"20230108103810",
"seq":37,
"sig":23,
"msg":"log",
"io": { "di1":0,"di2":0,"op1":0,"a1":0.00,"a2":0.00,"s1":0.00,"p1":0},
"dev": {"sysv":12.14}}}

di1	**DI1**	ADI-1 : Digital Status (0 – OFF / 1 – ON)
di2	**DI2**	ADI-2 : Digital Status (0 – OFF / 1 – ON)
Op1	**DO1**	Relay ON / OFF Status
a1	**AI1**	ADI-1 : Analog Voltage Level – Max 24V DC IN
a2	**AI2**	ADI-2 : Analog Voltage Level – Max 24V DC IN
s1	**ICH1**	4 to 20mA Analog Chanel Current in mA
P1	**PUL1**	Pulse Counter Value

IO Related Command

<Get.io >	Configure the IO Format Settings
<Get.alert >	Configure the Alert Related Settings
<Stat.io >	Read the Status of IO (Current Status)
<DEVCMD:PULCNT=0 >	RESET the Pulse Counter Value (* Like Totalizer)

6. Modbus Configuration Setting



1. Serial COM Setting

Field Type	Value	Description
Port	RS485/RS232	For Modbus Polling/Transparent use RS485/R S232 to communicate with Slave devices – Hardware is different
Baud Rate	9600	**0**-2400,**1**-4800,2-9600,**3**-19200, **4**-38400, **5**-57600, **6**-115200
Data Bits	8	0 – 8 By default 8 Bits
Parity	none	**0**-none, **1**-even, **2**-odd
Stop Bits	1,0	**0**-1, **1**-2

2. POLL Timing Setting

Field Type	Value	Description
Reply Timeout	100	Once Device Initiate Poll Request, Device waits for Reply. Wait time for Reply
Inter Poll Delay	10	If Multiple Slave Connected, Set Delay to Poll 1st slave to 2nd slave. Wait time to Poll One Slave to Next Slave.
Retry Count	2	If No Reply from Slave, Device will Retry again to Poll same Slave. Set how many maximum retry of Poll request.
Inter Char Delay	50	Slave Will Reply stream of Characters, this delay will help to wait master to receive till timeout of delay.

COM Related Command

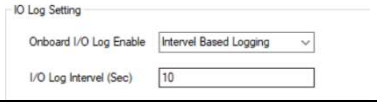
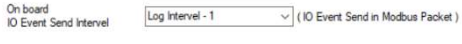
<Get.com >	Configure the Baud rate Settings and Logger Option
<Get.mbus >	Configure the Alert Related Settings

3. Modbus Setting

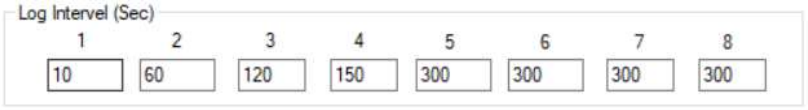
Field Type	Value	Description
Data Format Tx	Formatted ASCII Data	Formatting of Tx Packets in Device 0- Raw Hex Value: Data Read from Device as Raw Hex, Send this Raw value to Server without any Conversion. Ex:0102030405060708090A0B0C 1- Formatted ASCII Data: Covert this Raw Hex to Readable Format (Float, int etc.,) with Parameter separations. Ex: 230.45:50.12:120.6:0.00:123 (Refer Protocol Doc) 2- Formatted Hex Data: Format Order of Hex data Using Parameter Separator without Data type Conversion. Ex:04030201,08070605,0C0B0A09
Log Event Tx	Slave ID Based Event	Creating Event Packet in Device. 0- Combined Single Event: Combine all Slave ID Data in to Single Event Packet – Single Packet Generated 1- Slave ID Based Event: Each Slave ID has Separate Event Packet – Multiple Packet Generated 2- Group ID Based Event : Grouping of Multiple Blocks (diff slave id) to single event but have to maintain same interval and Should maintain Order Sequence Ex: Not 1st Block and 5th Block
On Board Event Send Interval	Log Interval - 1	We can assign any one of Predefined Interval to the IO, to Send Event and Log the Event also if Network or Server Offline mode

Raw Hex Value *Only in CSV format	Data Read from Device as Raw Hex, Send this Raw value to Server without any Conversion. Ex: $WMBUS,P10,868324027873749,20170519165008,18,1,1,1:0:36:C0DEB120E3D7436A0000000000000000947B429C199A436B0000000007AE436BB5C3431C00000000,7,63#
Formatted ASCII Data	Covert this Raw Hex to Readable Format (Float, int etc.,) with Parameter separations. Ex: $WMBUS,P10,868324027873749,20170519165601,0,1,1,1:0:9:237.02:0.00:0.00:79.00:237.23:0.00:237.16:158.13:0.00,1,30#
Formatted Hex Data	Format Order of Hex data Using Parameter Separator without Data type Conversion. Ex: $WMBUS,P10,868324027873749,20170519170239,16,1,1,1:0:9:436CFD71:00000000:00000000:429DFAE1:436D35C3:00000000:436D2148:431E1C29:00000000,7,2B#

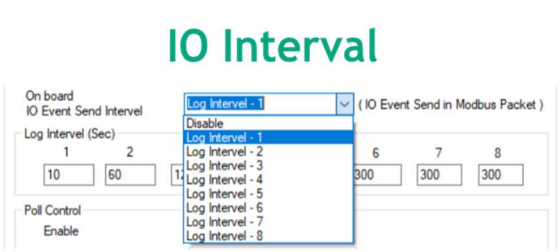
IO Sett, Modbus IO Log Difference (* Refer Protocol Document)

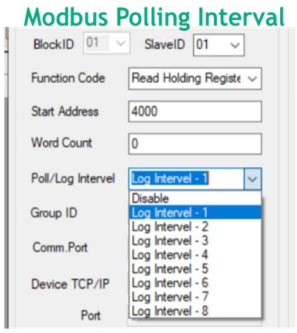
	
{ ascesskey:wiman12345, "data":{ "imei":"860057064326324", "uid":1,"dtm":"20230108104024", "seq":6, "sig":21, "msg":"io", "io": { "di1":0,"di2":0,"op1":0,"a1":0.00,"a2":0.00,"s1":0.00,"p1":0},"dev": {"sysv":12.15}}}	{ ascesskey:wiman12345, "data":{ imei":"860057064326324", "uid":1,"dtm":"20230108103810", "seq":37, "sig":23, "msg":"log", "io": { "di1":0,"di2":0,"op1":0,"a1":0.00,"a2":0.00,"s1":0.00,"p1":0},"dev": {"sysv":12.14}}}
Cannot Combined with Modbus Event Packet	Can Combined with Modbus Event, in Combined single Event

4. Interval Setting



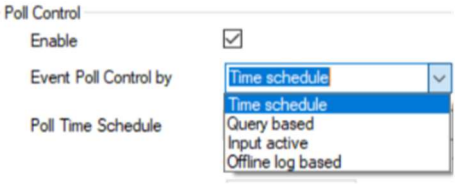
Predefine Interval to Assign for Event Generation for Mobus and IO Events

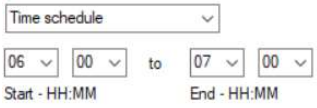
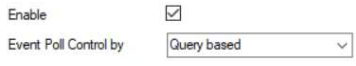
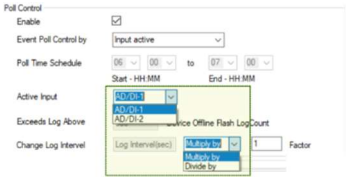
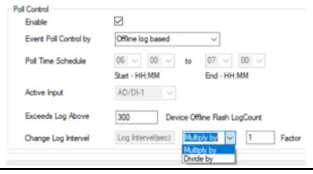


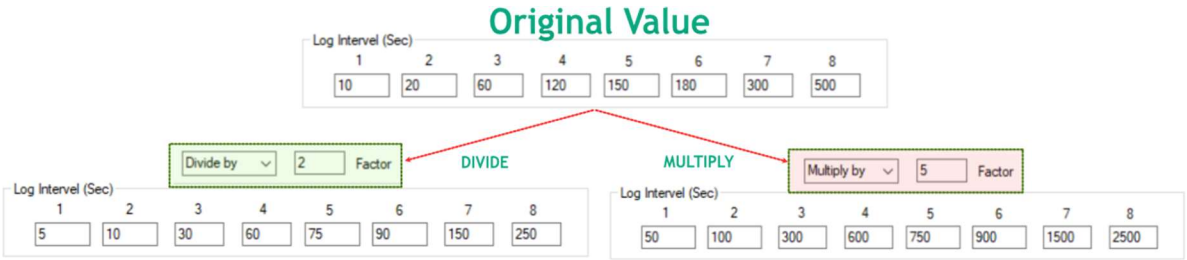


5. POLL Control Setting

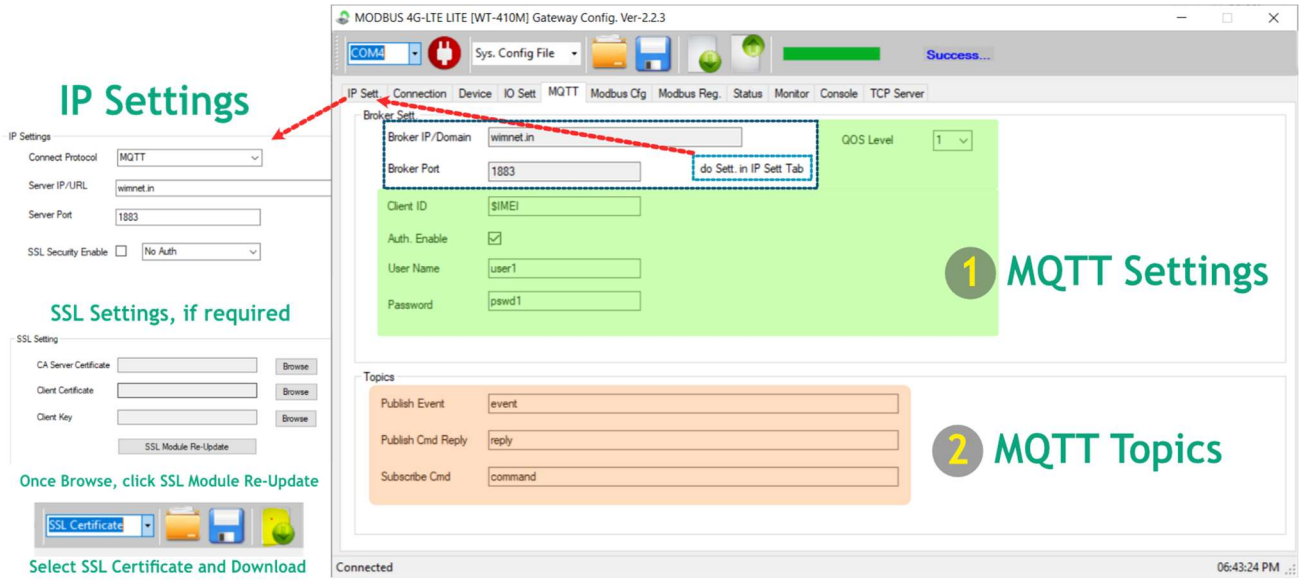
Additional Features to control the Polling Concept And Auto adjust the Polling Interval based on IO Status and LOG Count based, it helps to utilize log memory more efficient way



Time Schedule		Device will Do the Polling/Active at the Specified time only, remaining time Device will be IDLE
Query Based		Device will always IDLE, By sending command request to Get the Current Data (only in MQTT and TCP) Command: **<Cmd.mbrd >**
Input Active		Based on DI Status, LOG Interval can Change Automatically IF DI = 1 All Log Interval will change by the Scale Factor Multiply = Increase Divide = Decrease
Offline Log Based		Based on LOG Count, LOG Interval can Change Automatically. During Server/Network offline time, increase log Interval value it helps to Get more LOG days Multiply = Increase Divide = Decrease



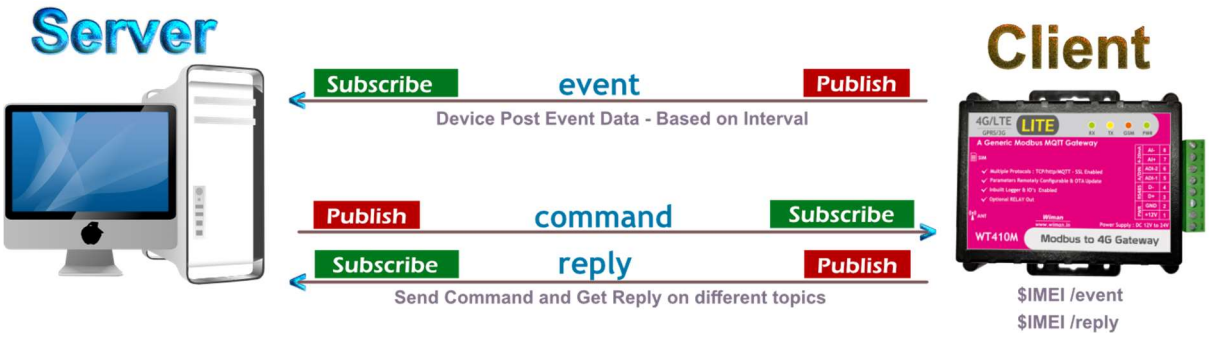
7. MQTT Setting



1. MQTT Setting

Field Type	Value	Description
Client ID	**$IMEI** Or 23 Char Alpha Numeric	**$IMEI** will replace the Device IMEI number in the Client ID filed, IMEI will be unique ID * Don't Use same Client ID for all Devices
Auth Enable	Enable	MQTT Broker Authentication Option for more secure
User Name	User1	Enter Broker User credentials
Password	Pasw1	Enter Broker Password credentials
QOS Level	1	Assign MQTT Quality of Service (QoS) Level = 0,1,2

2. MQTT Topics



* Before Connecting to Device, please verify the Server connection by MQTT Clients like – MQTT BOX, MQTT Lens, MQTT X Web, MQTT Explorer etc

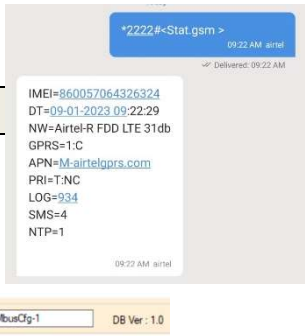
MQTT Related Command

<Get.mqtt >	Read and Configure the MQTT settings – user, password, id
<Get.mtopic >	Read and Configure the MQTT topics

8. Commands

1. Status Commands

Status Command	Description
*2222#<Stat.gsm >	Read the Status of GSM Connection Status
IMEI=860057064326324 DT=08-01-2023 19:59:24 NW=Airtel-R FDD LTE 31db GPRS=1:C APN=M-airtelgprs.com MQT=C-OK,1 PRI=T:NC LOG=1 SMS=9 NTP=1	IMEI=Device IMEI Number DT=Current Data and Time NW= Network Operator Name, Network Type, Signal Strength GPRS= Internet Attached: C = Connect / NC = Not Connect APN= APN M=Manual / A=Auto – APN Name Configured or Auto Assigned MQT= MQTT Connection C – OK = Connect / FAIL = Not Connect, Number of Retry for Connection PRI= T=TCP / H=Http: CONT = Connected / NC = Not Connected LOG= Device Internal Offline LOG Count SMS= Per Day SMS LOG Count NTP= Network Time Protocol – 1 = OK, 2 = Failed
*2222#<Info.sys >	Read the Read Hardware and Software Version Information
DM=WT-410M IMEI=860057064326324 Boot=1.0 Fw=W4G LITE,HW:1.0,SW:1.0.49 Sys=OK Mdb=MbusCfg-1 CId=WCT BOn=Nov 5 2022 16:48:05	DM= Device Model Number IMEI= Device IMEI Number Boot= Hardware Boot Ver Fw=Kernal Name, Hardware Ver, Software Ver Sys= System Configuration Status Mdb=Modbus Configuration Name CId=Client ID BOn=Firmware Compiled Date and Time
*2222#<Dbug.mbcom >	Read the Modbus Communication Transaction Status
WT Wiman SITE Cmd Max=4 Slave Max=3 BOVF=0 SlvId TxCnt ErrCnt Stat Tms DCnt --- 1 1 0 0 120 11 2 1 0 0 120 11 2 1 0 0 110 11 3 1 0 0 100 11	WT Wiman SITE - Device Name Cmd Max= Number of Blocks/Index Slave Max=Maximum Number of Slaves BOVF= Buffer Over Flow, Exceeds Packet Size SlvId TxCnt ErrCnt Stat Tms DCnt Slave ID | TX Count | Error Count | Error Status | Reply Response msec | Data - Byte length --- 1 1 0 0 120 11
*2222#<Stat.io >	Read the Current Status of IO
WT Wiman SITE SYS:12.16V DI1:OFF DI2:OFF DO1:OFF AI1:0.00 AI2:0.00 ICH1:0.0 PUL1:0	WT Wiman SITE - Device Name SYS: System Voltage DI1: Input 1 - ON/OFF Status DI2: Input 2 - ON/OFF Status DO1: Relay ON/OFF Status AI1: Input 1 Analog Voltage value AI2: Input 1 Analog Voltage value ICH1:4 to 20mA Current Value PUL1:Pulse Counter Value – Cumulative (* Optional HW Option)



2. Control Commands

Control Command	Description
*2222#<Cmd.sysrst >	Command to Reboot the device
*2222#<Cmd.default>	Restore Factory Default Settings
*2222#<Cmd.clrlog >	Command to Clear the data Logger
*2222#<Cmd.mbrd >	Send Current Event Data, Used in POLL Control Query Based
*2222#<DEVCMD: DREGCLR >	Clear the Modbus slave and register configuration settings
*2222#<DEVCMD: RTC=12,55,00,08,01,2023 >	Set the RTC time in device Manually.

3. Configuration Commands

Command	Description
*2222#<Get.ip >	Primary Server Configuration, SSL, APN Configuration
*2222#<Cfg.ip: RMODE="2",PRI-IP="wimnet.in",PRI-PORT="1883",PSSL="1,2",APN="airtelgprs.com",AAS="0",USER="",PSWD="" >	
*2222#<Get.device >	Device information and Protection Configuration
*2222#<Cfg.device: ID="1",NAME="Wiman SITE",UPSWD="2222",SMS="1,0",PH1="",PH2="",PH3="">	
*2222#<Get.cont >	Device and Server Connection Configuration
*2222<Cfg.cont: CMODE="1,0,5,2",PING="1,180,PING",HTTP-MET="0",LOG-FRMT="1">	
*2222#<Get.com >	Serial Communication Configuration
*2222#<Cfg.com: SERIAL="1,2,0,0,0",LOG-MODE="1,512,512" >	
*2222#<Get.custm >	Time Setting Configuration
*2222#<Cfg.custm: GMT="+05:30",DATA-HDR="$WMBUS,$WTIO,$WTSYS",T-SYNC="1,30",TFRMT="0",ETSMS="0,0",DAYSMS="100">	
*2222#<Get.mbus >	Modbus Data Packing Configuration
*2222#<Cfg.mbus: EDAT="2",EPAK="1",IOEN="1",ELOG="10,60,120,150,300,300,300,300",MTIM="100,10,2",ICTM="50", PCON="0,1,06:00-07:00,0,0,1,300",POLL="30">	
*2222#<Get.io >	IO Enable and Interval Configuration
*2222#<Cfg.io: IO-SETT="0,10",I-CAL="100,1",INP1="Wiman! Pump,ON,OFF",INP2="Alert ! Valve ,ON,OFF">	
*2222#<Get.alert >	IO Alert Configuration
*2222#<Cfg.alert: AEN="3",PWR="1",SHT="1",INP="1",OUT="0" >	
*2222#<Get.ukey >	API Key Configuration, Post Header, JSON Event
*2222#<Cfg.ukey: XAKEY="'ascesskey':'wiman12345'",XKA="0">	
*2222#<Get.mqttt >	MQTT Credential Configuration
*2222#<Cfg.mqtt: MCUID="$IMEI",MAUTH="1",MUSR="user1",MPSWD="pswd1",MQOS="1" >	
*2222#<Get.mtopic >	MQTT Topic Configuratiom
*2222#<Cfg.mtopic: MPUB1="event",MPUB2="reply",MSUB1="command" >	

4. FTP Update Commands

Command	*2222#<Cfg.ftp: FCFG="0",SERV="wimnet.in",PORT="21",FUSR="user1",FPSD="pass1",PATH="/4G/", FILE="W4GV1049.rom",UPDT="1" >	
Field Type	**Value**	**Description**
SERV	wimnet.in	Server name
PORT	21	FTP port number
FUSR	user1	FTP username
FPSD	pass1	FTP password
PATH	/4G/	File path name
FILE	W4GV1049.rom	File name
UPDT	1	0 – Enable, 1- Enable to run ftp configuration

Free FTP Servers

https://www.drivehq.com/

https://www.filegenie.com/

5. HFS Update Commands

Command	*2222#<Cmd.hfdl: HURL="http://wimnet.in:8080/WimanHFS/ W4GV1049.rom",UPDT="3" >	
Field Type	**Value**	**Description**
HURL	http://wimnet.in:8080/WimanHFS/ W4GV1049.rom	HFS File Link
UPDT	3	By Default, 3

Free HFS Servers

https://www.rejetto.com/hfs/

All these Commands can be executed from SMS / Server IP Commands

***2222#<>** / **$IPCFG,<>**

Important Tab Functions to Quick Start

1. Configure Server IP Setting (TCP or Http or MQTT)
2. Assign Proper APN – AUTO / Manual (If m2m SIM, enter correct APN)
3. Choose Correct Data Packet Format – CSV / JSON Std
4. Assign Correct Baud Rate of your Slave Devices
5. Configure Correct Modbus Address Mapping (*Refer Mapping Video/Manual)
6. Assign Proper Interval for Slave devices
7. Download Sys Config file
8. Download Modbus DB file
9. Restart the Device
10. Wait for 8 Sec, Disconnect and Connect COM port again
11. Click LOG Monitor ON and Modbus Read

9. Troubleshoot

Problem	Cause	Resolution
Device **Not Power ON**	➢ Input Power Supply Damage ➢ Reverse Polarity ➢ May Device Damaged	✓ Check with Multi meter, Input Voltage should Not < 11V ✓ AMPS rating Not < 1A ✓ Change Other Power Supply Spare to Verify
No SMS Reply But SMS Delivered	➢ Plan Expired ➢ Wrong Password ➢ Busy with Sending Data ➢ May Number Wrong	✓ Check Validity, Plan, Password, Correct Number ✓ Try After Some Time, If Data getting on Server ✓ Network Issue -Peak Hours, Try After Some Time
No Data to Server But SMS Working	➢ Data Plan Expired ➢ May Send, with Communication Error ➢ Slave Error – Platform Discard Packet ➢ May Network Issue	✓ Check Data Validity, Plan ✓ Try <Stat.gsm > Network Status ✓ Try <Dbug.mbcom > for Slave Status
MQTT Server	➢ Same Client ID on Multiple device ➢ Broker Down ➢ Credentials, QOS Level	✓ Try <Stat.gsm > - See Connection Retry Status ✓ If retry More, Client ID issue. ✓ Check with MQTT Client Software to Verify connection