MBus Gateway TCP

Introduction

This document is quick start to MBus Gateway. MBUS Gateway is designed for easy integration of M-BUS and TCP/MQTT/SNMP networks. With this device, M-BUS slave devices can be seamlessly added into an existing Modbus TCP network. It also has a remote web access panel that allows you to manage groups of devices. That makes integration customizable and easy.

1. Powering up

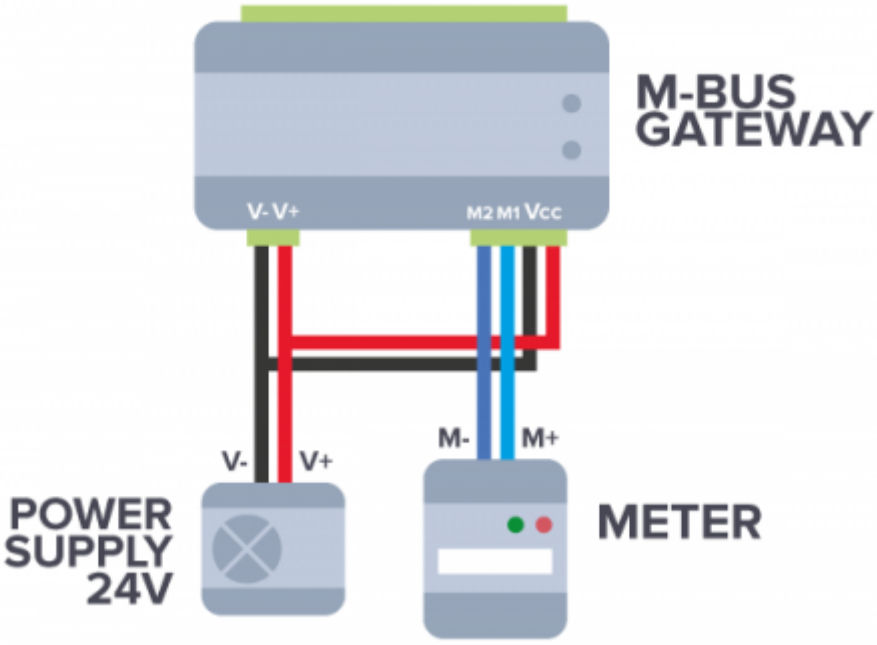
To proceed this manual you need:

- Power Supply (24VDC, min. 20W)
- ETH cable
- PC with free ETH port

The first step is connect the power supply to the device and the meter to “M+” and “M-” connectors.

Remember! Please connect power supply to VCC on mBus side.

*M1 ⇒ M+
*M2 ⇒ M-



1.2 Login to the device

1.2.1 Device directly connected to the PC

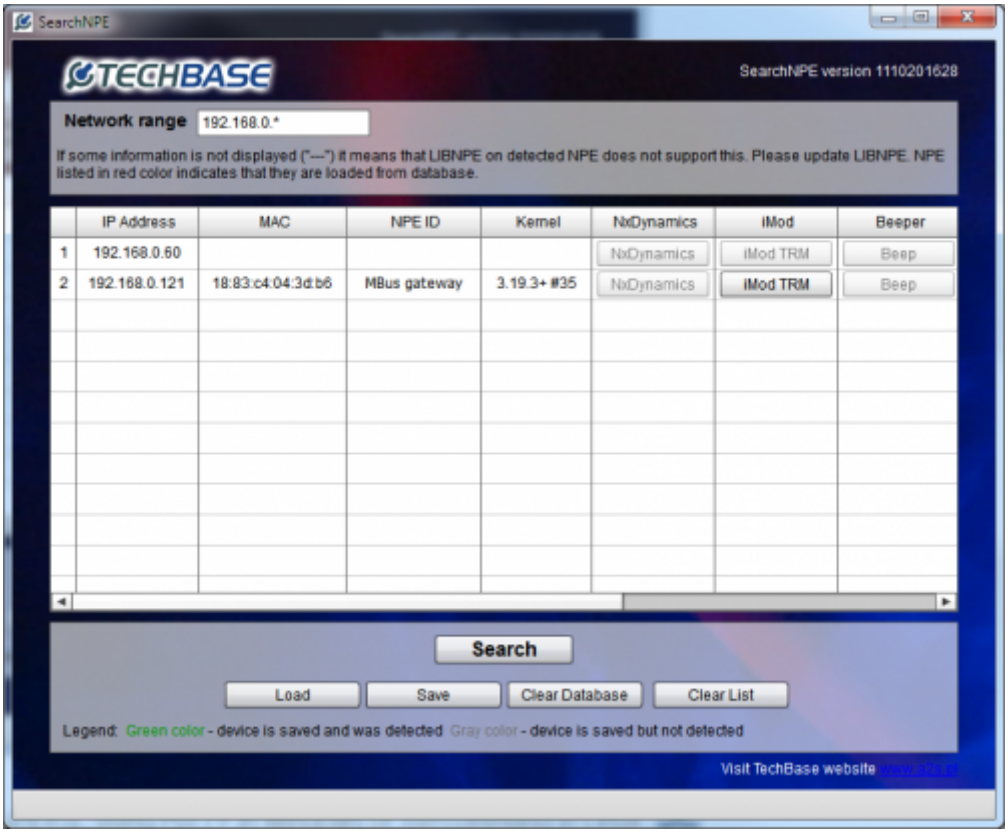
You can connect your MBus Gateway device directly to the PC, but first you need to setup static IP address on your PC in network settings. The IP address you set on PC must be in subnet “0”, eg. 192.168.0.111

Connection parameters:

> **Default IP address:** 192.168.0.101
> **Port:** 22
> **Login:** root
> **Password**: techbase

1.2.2 Device connected to LAN network

You can connect gateway device to the same LAN network as your PC and device will get IP Address from DHCP server. You can find the device in the network using SearchNPE. Please use SSH terminal to connect to the device e.g. using PuTTY in Windows or *ssh* command in Linux.



If you know IP address of the device, you can connect by SSH terminal, eg Putty. You can find PuTTY at following address: http://the.earth.li/~sgtatham/putty/latest/x86/putty.exe

> **Port:** 22
> **Login:** root
> **Password**: techbase

2. Configuration MBus gateway by SSH

2.1 Update your device to latest version

Please update your device to latest version:

```
softmgr update imod -b x500cm3-test
```

2.2 Scan mbus network

MBus gateway can scan mbus network to find all the meters that are connected to the device. To scan mbus network and generate configuration please use following command:

```
imod scan mbus -p /dev/ttySC0 -tcp-access 1502
```

MBus gateway create configuration file named **“MBusScan.xml”**. Generated configuration use /dev/ttySC0(COM2) for M-Bus reading and 1502 TCP port to share parameters via Modbus TCP. This configuration is contained all the available parameters detected during a scan.

Your configuration file is should look like this:

```
root@raspberrypi:/mnt/mtd/iMod/config# cat MBUSScan.xml
<?xml version="1.0" encoding="UTF-8" ?>
<imod version="" parameter_db="false">
        <group name="MBUS channels group">
                <access-channel name="Modbus_SMBUS">
                        <protocol name="MODBUS"/>
                        <port>"ET-1502-TCP"</port>
                </access-channel>

                <source-channel name="MBUS_COM1">
                        <protocol name="MBUS"/>
                        <port>"COM1-2400-8E1"</port>
                        <property name="device-id" value="17-MODEL_UNKNOWN"/>
                        <property name="device-id" value="18-MODEL_UNKNOWN"/>
                        <property name="device-id" value="41-MODEL_UNKNOWN"/>
                        <property name="device-id" value="251-MODEL_UNKNOWN"/>
                        <gap>"0"</gap>
                        <cycle>"60"</cycle>
                        <read-timeout>"1500ms"</read-timeout>
                </source-channel>

        </group>

        <group name="MBUS_COM1:41 parameters group">
                <parameter type="int32">
                        <id>"MBUS_67296041_41_0"</id><!--Actual value: 0 (Integer)-->
                        <scale>10e3</scale>
                        <unit>"Wh"</unit>
                        <description>"UNKNOWN"</description>
                        <comment>"INST_VAL"</comment>
                        <source-channel channel-name="MBUS_COM1" parameter-id="41-0"/>
                        <access-channel channel-name="Modbus_SMBUS" parameter-id="300"/>
                </parameter>

                <parameter type="int32">
                        <id>"MBUS_67296041_41_1"</id><!--Actual value: 0 (Integer)-->
                        <scale>10e3</scale>
                        <unit>"Wh"</unit>
                        <description>"UNKNOWN"</description>
                        <comment>"INST_VAL"</comment>
                        <source-channel channel-name="MBUS_COM1" parameter-id="41-1"/>
                        <access-channel channel-name="Modbus_SMBUS" parameter-id="302"/>
                </parameter>

       </group>

</imod>
```

Check that the generated file is correct parameters.

2.2.1 Parameters in configuration

In configuration file you can find parameters like following this one.

```
<parameter type="int32">
        <id>"MBUS_67296041_41_1"</id><!--Actual value: 0 (Integer)-->
        <scale>10e3</scale>
        <unit>"Wh"</unit>
        <description>"UNKNOWN"</description>
        <comment>"INST_VAL"</comment>
        <source-channel channel-name="MBUS_COM1" parameter-id="41-1"/>
        <access-channel channel-name="Modbus_SMBUS" parameter-id="302"/>
```

```
</parameter>
```

Following part of the configuration is responsible for mapping mbus to modbus. In this example parameter **1** from meter with ID **41** is mapping on modbus parameter ID **302**. You can change modbus ID in this place.

```
        <source-channel channel-name="MBUS_COM1" parameter-id="41-1"/>
        <access-channel channel-name="Modbus_SMBUS" parameter-id="302"/>
```

2.3 Run configuration

Properly configuration file have name - **MainConfig.xml**, so the next step is change name of configuration file to MainConfig.xml. To do this please do following steps:

```
cd /mnt/mtd/iMod/config
mv MBUSScan.xml MainConfig.xml
```

The last step is run the iMod:

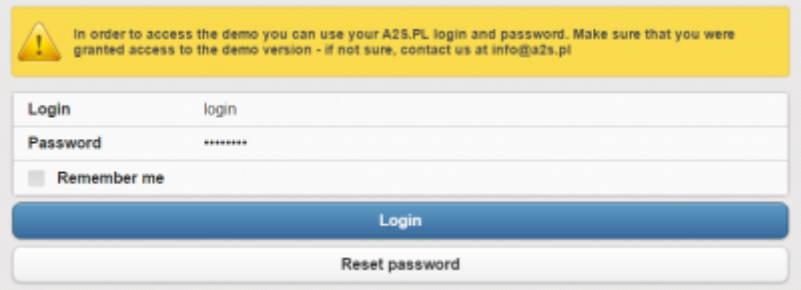
```
imod start
```

3. Alternative configuration way MBUS Gateway via Cloud

3.1 Login to iModcloud

Alternative way is configuration by **iModCloud**. Login into **iModCloud** with your account or create new account.

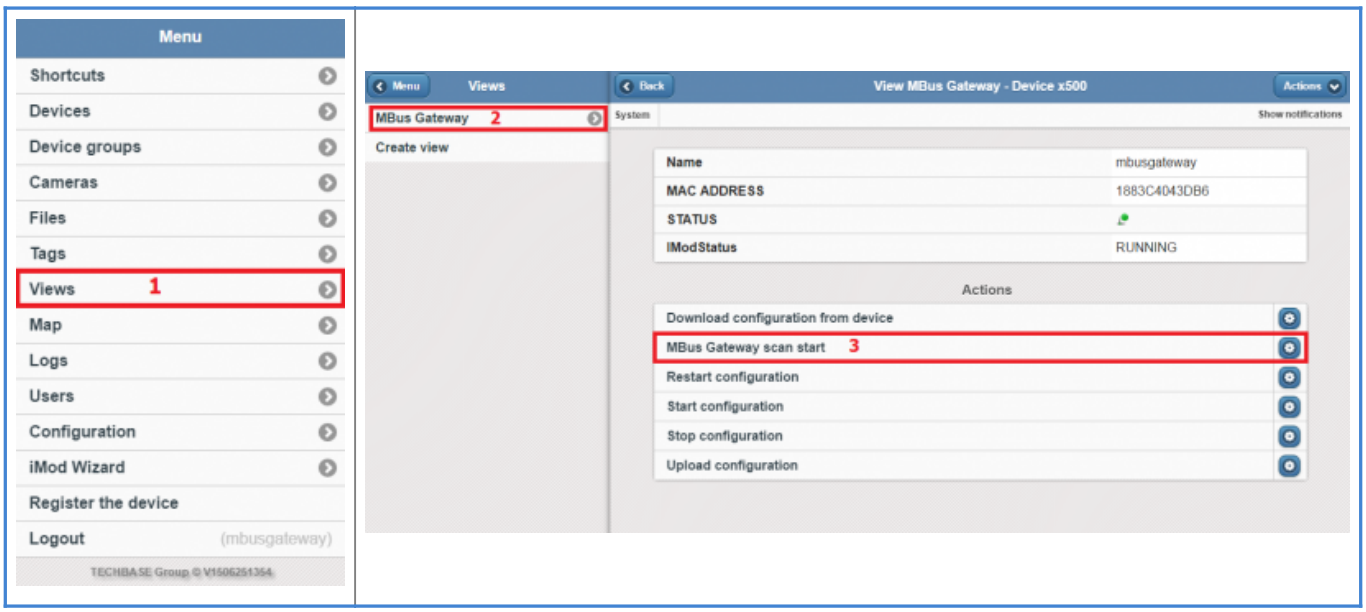
How to create new account and add device in iModCloud.



If you have an account, please contact us via http://support.techbase.eu/ to provide the appropriate MBus Gateway template for iModCloud. Then you can run to the next step.

3.2 Start MBus Gateway

Go to **MBus Gateway view (1,2)** and run **MBus Start action (3)**.



Generating configuration may take a several minutes or even one hour. So please waiting for note about finish in notification bar.

FAQ

1. Can I change the modbus TCP port in the configuration?

In this configuration, default TCP port for modbus TCP is 1502.

Yes. It's simple to change this. There are three ways to change this by SSH, FTP or iModCloud.

SSH

You need to edit configuration file by **nano** (or similiar text editor). To do this please connect to device by SSH, go to location of configuration file

```
cd /mnt/mtd/iMod/config
```

and type

```
nano MainConfig.xml
```

FTP

Use FTP Client to edit file. Go to **/mnt/mtd/iMod/config** and edit configuration file.

login: pi password: raspberry

Locate this piece of configuration:

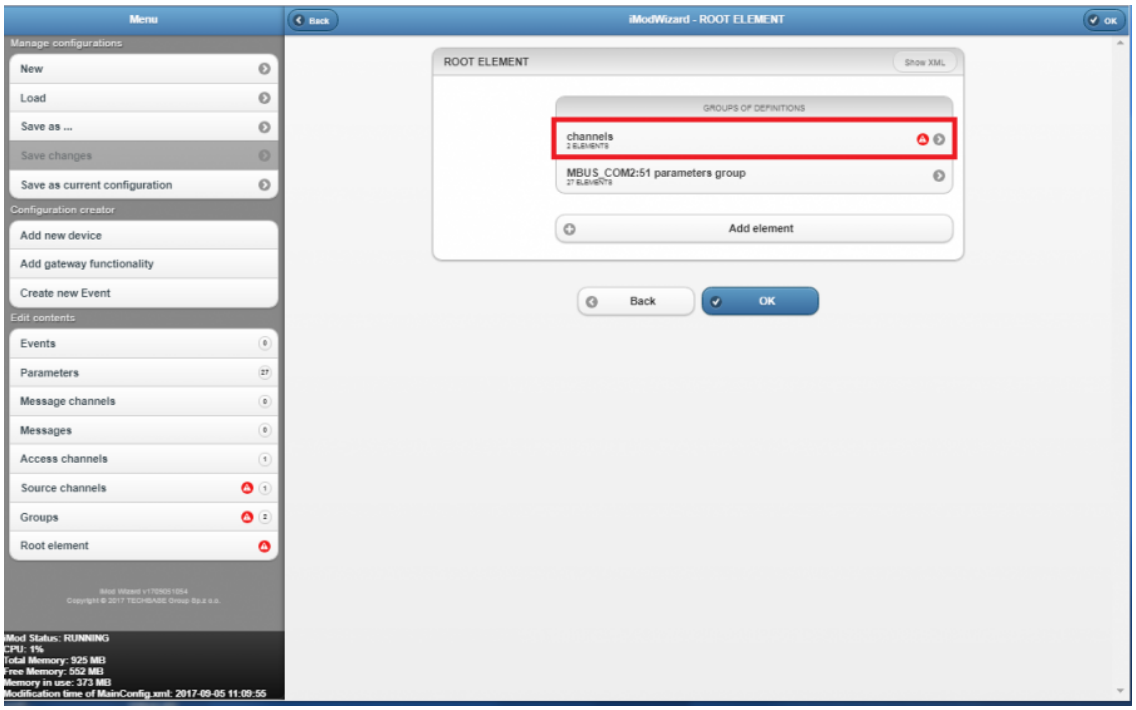
```
<access-channel name="Modbus_SMBUS">
       <protocol name="MODBUS"/>
       <port>"ET-1502-TCP"</port>
</access-channel>
```

and change port number between <port> tags. (e.g. form 1502 to 2502). After change please save file and restart imod by

> imod start

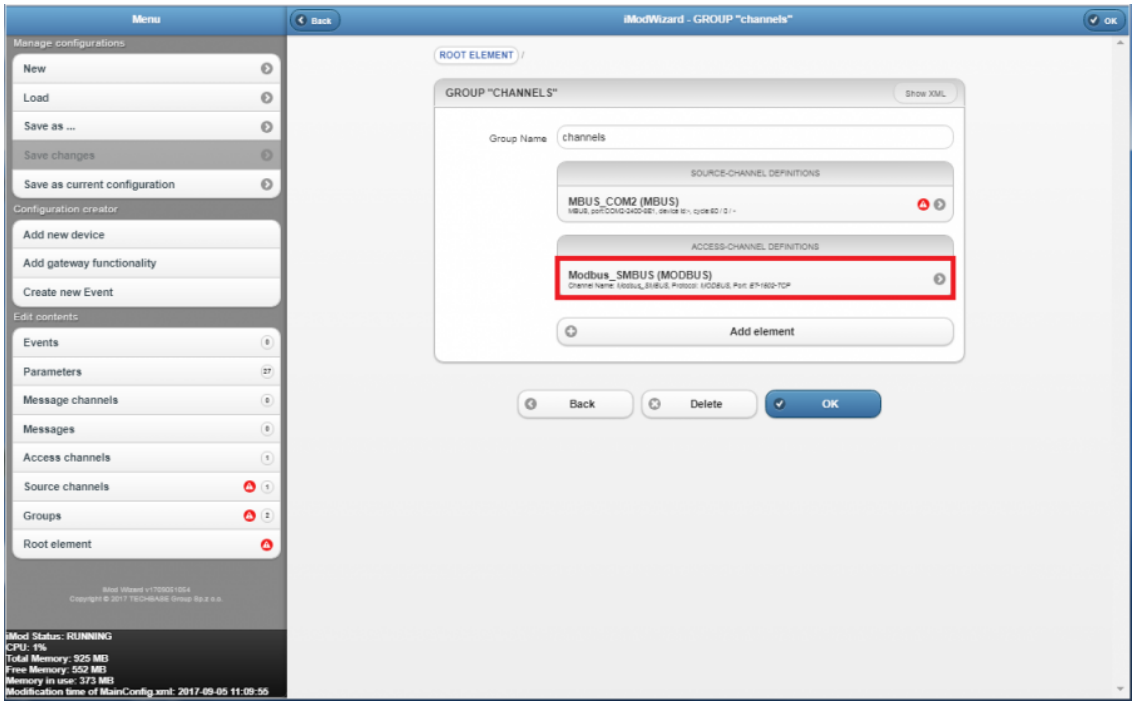
iMod Wizard

iMod Wizard allow to simple edit and install configuration on MBus Gateway. iMod Wizard is working in web browser, please open you web broweser and type IP address of your device to the address bar.

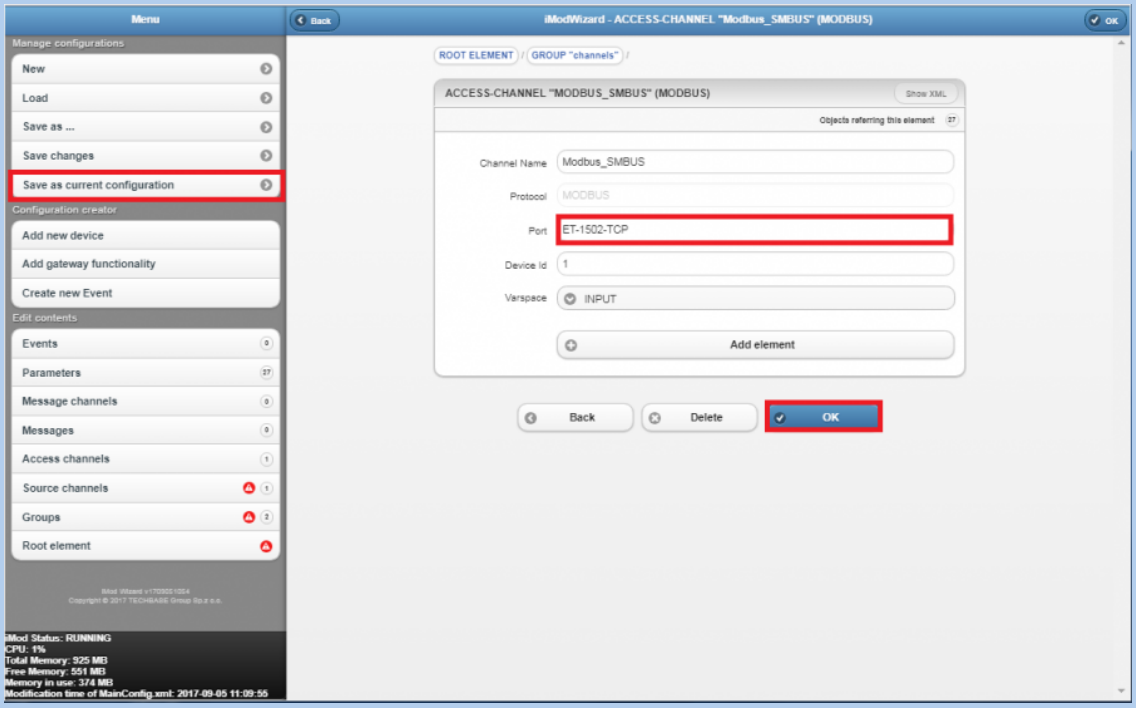
1. Select the “channels” group	

In this view you can see two channels: Source-channel - for read data from mbus device, Access-channel - for share the data via Modbus-TCP

2. Select “Modbus_SMBUS (MODBUS)



3. In port field you can change TCP port number.
4. Select “OK” to confirm.
5. Click “Save as current configuration”.



Troubleshooting

If you have problem with detection meters. First you need to check connection and then use mbus_scan. If you connect your meter in correct way, result of mbus_scan should look like in this example:

```
root@raspberrypi:/mnt/mtd/iMod/config# mbus_scan /dev/ttySC0 2400 p254
MBUS:Address: p41
MBUS:Address type: 1
MBUS:Sending short message
MBUS:Waiting for response: 2000
```

```
0x68 0x32 0x32 0x68 0x08 0x29 0x72 0x41 0x60 0x29 0x67 0x2d 0x2c 0x30 0x04
0x9d 0x00 0x00 0x00 0x03 0x06 0x00 0x00 0x00 0x43 0x06 0x00 0x00 0x00 0x03
0x14 0x00 0x00 0x00 0x42 0x6c 0xff 0x1c 0x02 0x2d 0x00 0x00 0x01 0xff 0x21
0x10 0x04 0xa5 0xff 0x21 0x97 0xe2 0x08 0x00 0xda 0x16
MeterID: 67296041
-----------------------------------------------------------------------
Received MBus Data:
address: 41
deviceType (medium): HEAT
version: 48
manufacturer: KAM
---------------------------------1-----------------------------------
VIB: 0x06
VariableDataBlock:
OBIS Code: 6-1:1.0.0*255
Data Information Block: 0x03
Value Information Block: 0x06
Data Bytes: 0x00 0x00 0x00
Data Field: 3
Function Field: INST_VAL
Data: 0
Scaler: 3
Unit: Wh
Description: UNKNOWN
```