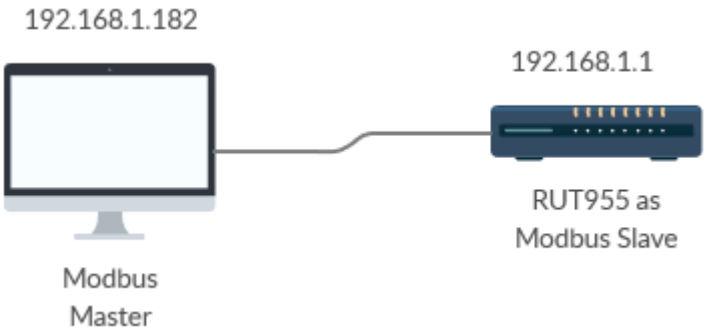
Modbus Guide



About Modbus TCP

Modbus TCP provides users with the possibility to set or get system parameters. The Modbus daemon acts as slave device. That means it accepts connections from a master (client) and sends out a response or sets some system related parameter in accordance with the given query.

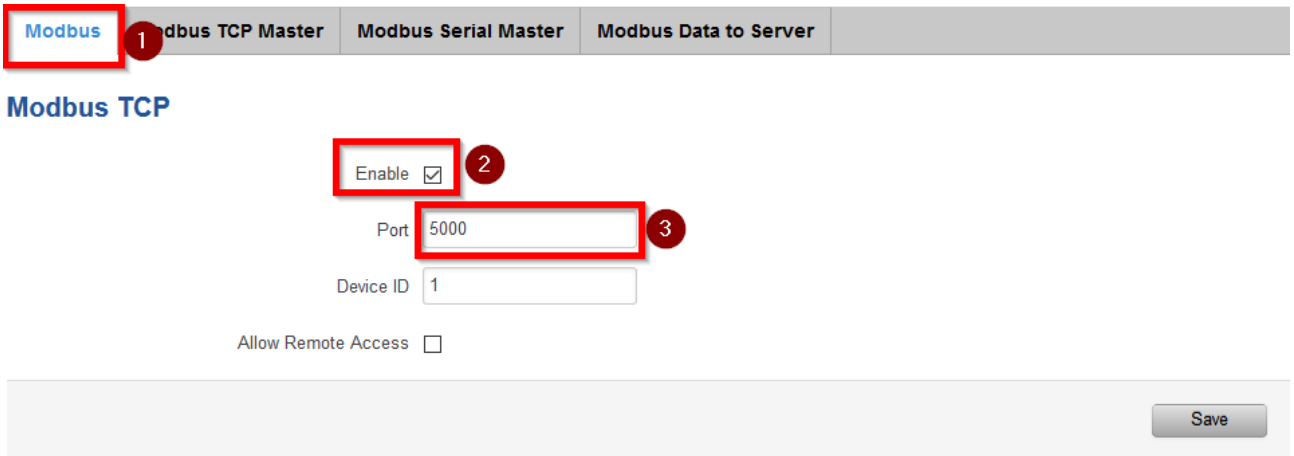
Device used throughout this guide will be RUT955

Prerequisites:

- **QmodMaster** (For Windows)

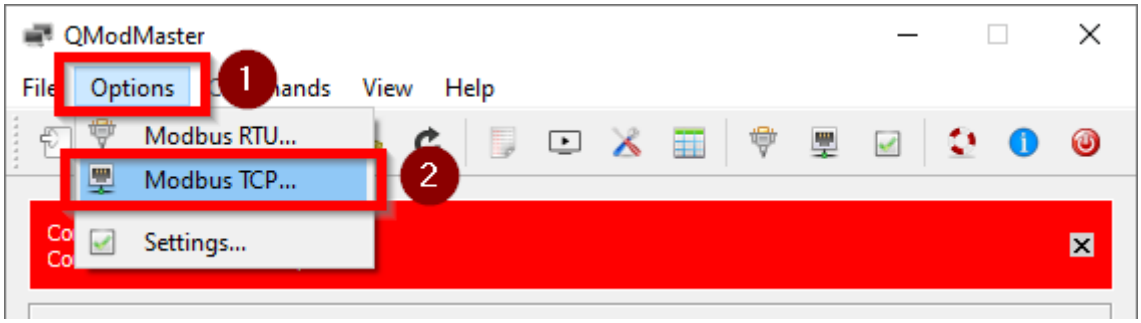
Enabling Modbus TCP on router.

1. Navigate to **Services > Modbus**
2. Check **Enable**
3. Enter port (In this example port 5000 will be used)
4. Leave Device ID as default
5. If you are going to connect Modbus master device to router from outside of your local network check **Allow Remote Access**, otherwise leave it unchecked.

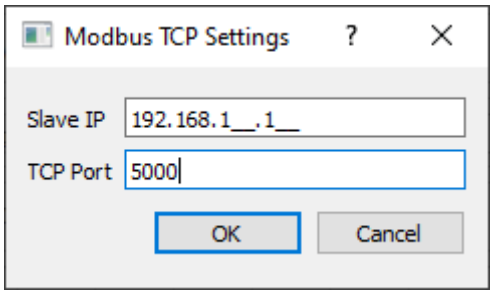


Connecting QmodMaster to router

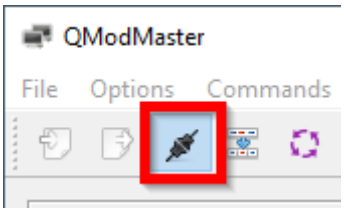
1. Open **QmodMaster**
2. Click Options > Modbus TCP



3. Enter your routers IP as a Slave IP and enter port which you chose while configuring the router and click OK.



4. Click connect



Now your PC's Modbus Master should be connected to your router's Modbus Slave.

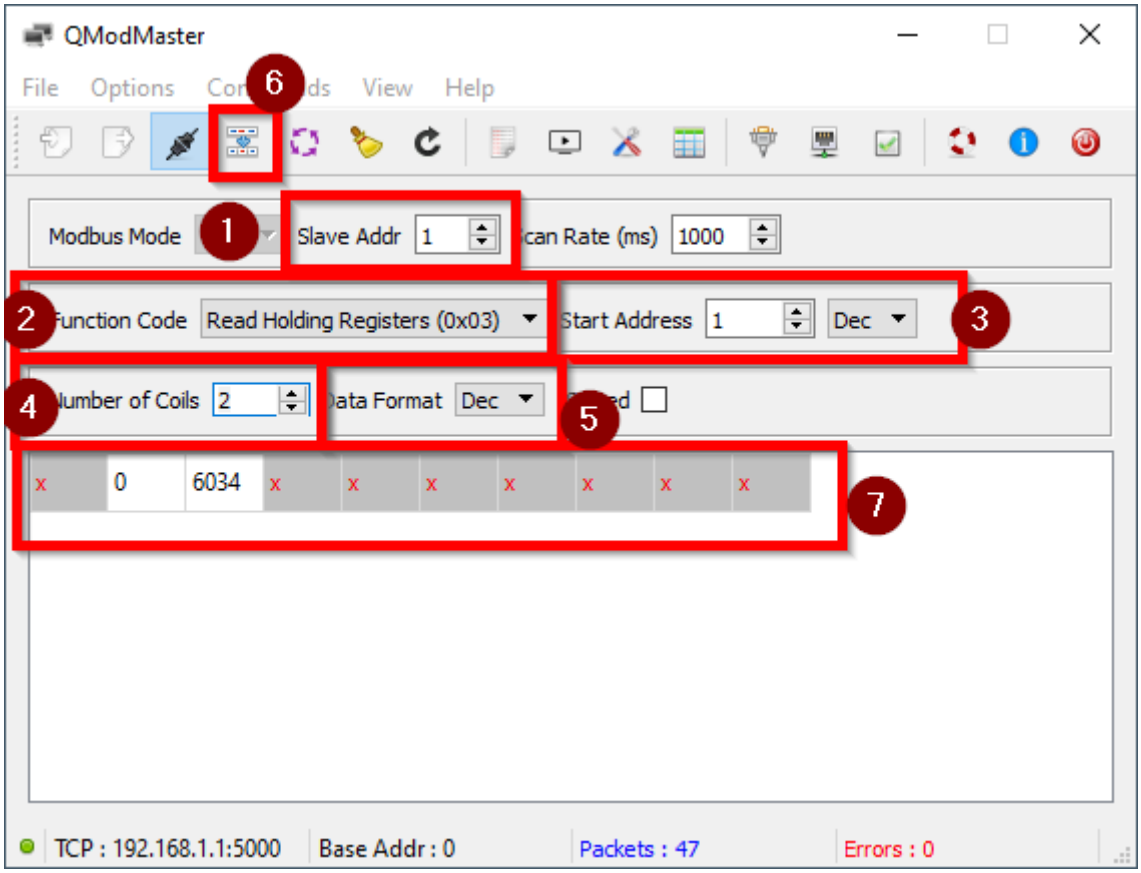
Getting Parameters

1. Getting integer parameters

You can find a list of parameters and their registers here:
https://wiki.teltonika.lt/view/RUT955_Modbus#Get_Parameters

Getting integer parameters:

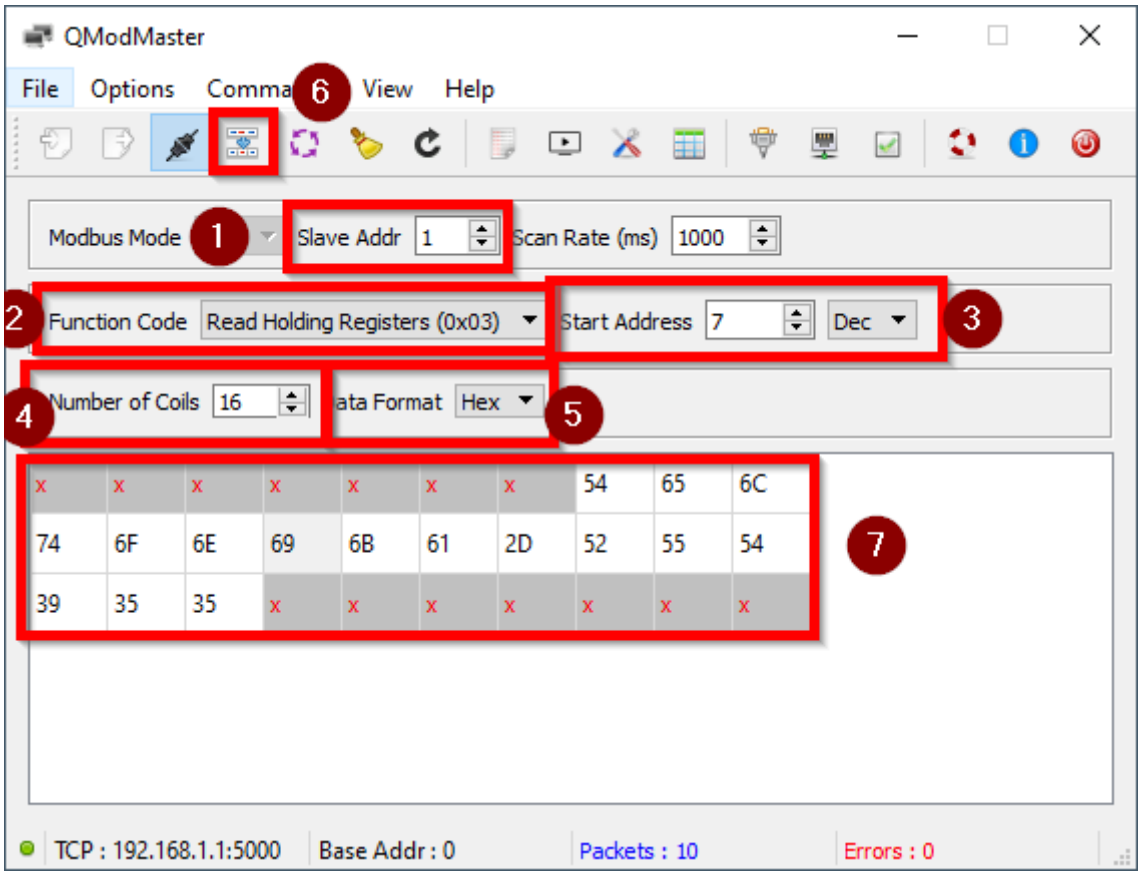
1. Type in same **Slave Addr** as in router's configuration
2. Select **Function Code** as **Read Holding Registers (0x03)**
3. Select **Start Address** according to parameter which you selected from list (For this example **System Uptime** parameter will be used with Register Address: **1**). And select **Dec**.
4. Select Number of Coils according to the parameter you selected from list (For this example **System Uptime** parameter will be used with **Number of Registers**: 2)
5. Select **Data Format** as **Dec**
6. Click **Read/Write** button
7. Results



2. Getting text parameters

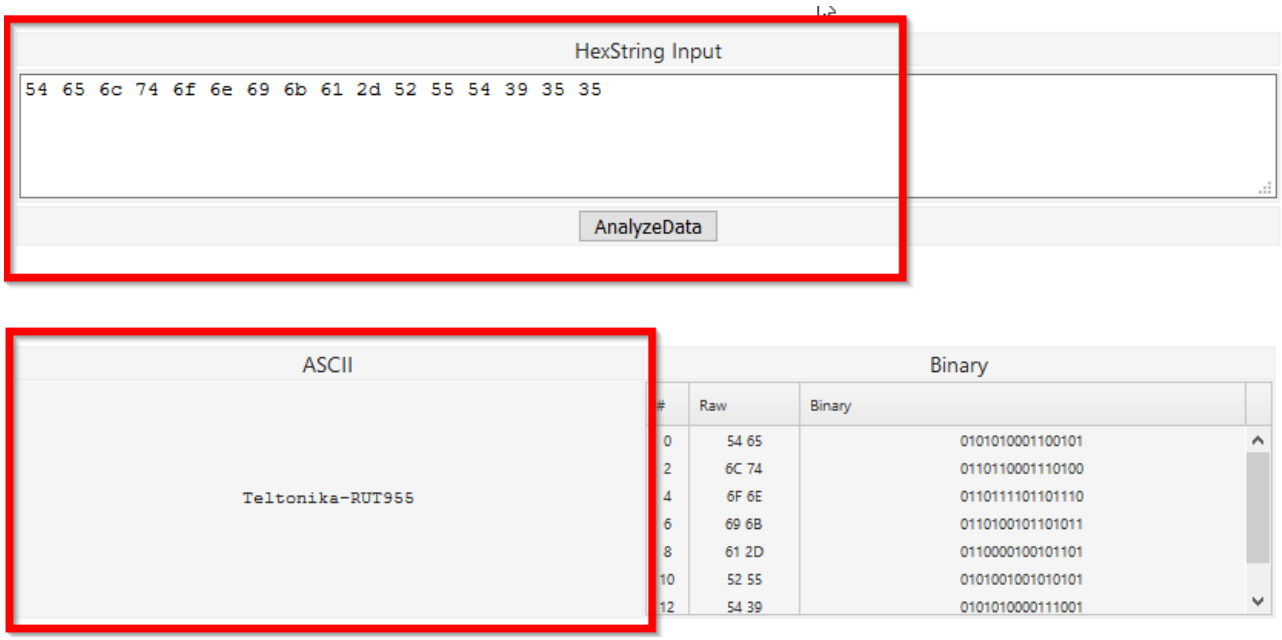
Getting text parameters:

8. Type in same **Slave Addr** as in router's configuration
9. Select **Function Code** as **Read Holding Registers (0x03)**
10. Select **Start Address** according to parameter which you selected from list (For this example System hostname parameter will be used with Register Address: **7**). And select **Dec**.
11. Select Number of Coils according to the parameter you selected from list (For this example System hostname parameter will be used with **Number of Registers**: 16)
12. Select **Data Format** as **Hex**
13. Click **Read/Write** button
14. Results



3. Converting results from HEX to ASCII

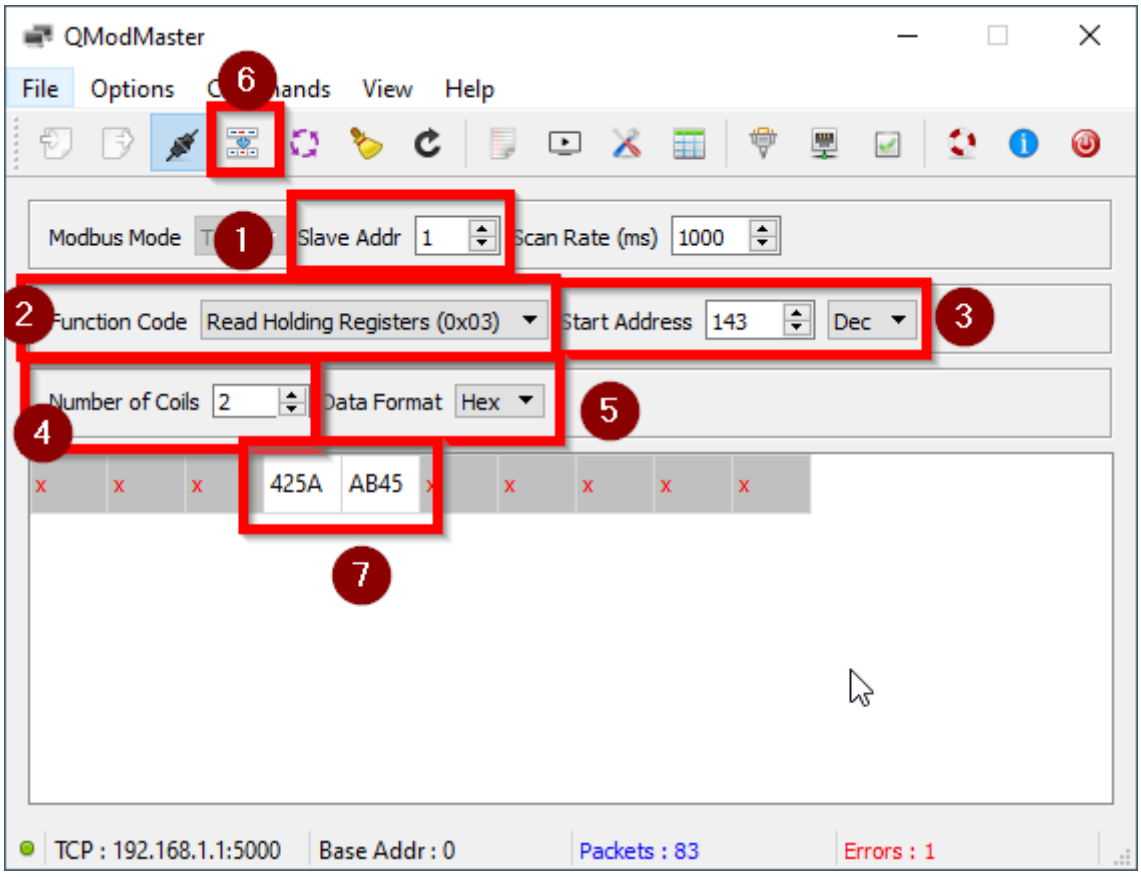
To convert results, we have got from router to human readable form we will use online HEX to ASCII converter. https://www.scadacore.com/tools/programming-calculators/online-hex-converter/



4. Getting float parameters

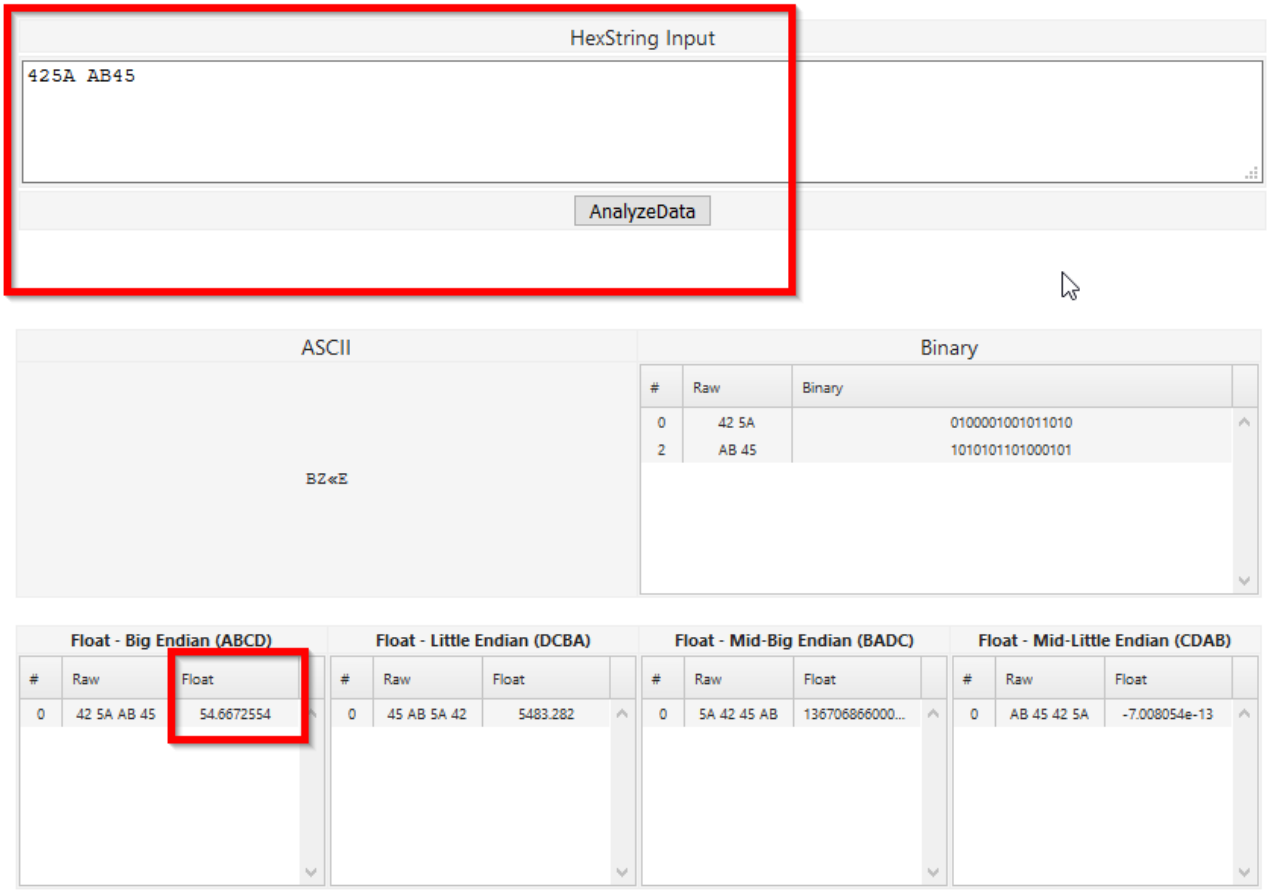
Getting text parameters:

1. Type in same **Slave Addr** as in router's configuration
2. Select **Function Code** as **Read Holding Registers (0x03)**
3. Select **Start Address** according to parameter which you selected from list (For this example **GPS latitude coordinate** parameter will be used with Register Address: **143**). And select **Dec**.
4. Select Number of Coils according to the parameter you selected from list (For this example **GPS latitude coordinate** parameter will be used with **Number of Registers**: 2)
5. Select **Data Format** as **Hex**
6. Click **Read/Write** button
7. Results



5. Converting HEX format to Float format

To convert results, we have got from router to human readable form we will use online HEX to Float converter. https://www.scadacore.com/tools/programming-calculators/online-hex-converter/



Setting Parameters

List of parameters you can set: https://wiki.teltonika.lt/view/RUT955_Modbus#Set_Parameters

Setting parameters:

1. Select slave device address
2. Select **Function Code** as **Write Single Register (0x06)**
3. Select Start Address you want to set from the list. (For this example, **Digital Output 2** with Register Address **202** will be used)
4. Select Data Format as **Hex**
5. Change address according to list (For this example value is either **0001 or 0000**)
6. Click **Read/Write** and value should be written successfully (With **Digital Output 2** there should be audible *click* coming from the router)