webdyn
flexitron group

# TITAN ROUTER

## Application Note 69

Sending data to
the eSight platform

www.webdyn.com

# Sending data to the eSight platform

## 1. Scenario Details

TITAN routers have all the typical functionalities of 4G/3G/2G routers, as well as a series of added features that make them one of the most feature-packed routers on the market.

One of the added features is the datalogger, where the TITAN router can store a number of types of records in its non-volatile memory in JSON format. These records can come from MODBUS readings, SERIAL data captures via the RS232 / RS485 ports, or GPS positions, etc. These JSON-type records are stored in the TITAN router's internal non-volatile memory and can subsequently be sent to remote platforms via protocols such as HTTP, HTTPS, MQTT, MQTTS, FTP and FTPS.

As mentioned, the TITAN router stores the JSON registers in its internal memory in a proprietary format by default. This can sometimes be a problem when communicating with platforms that expect to receive information in a certain format (i.e. a format other than JSON, the one used by the TITAN router).

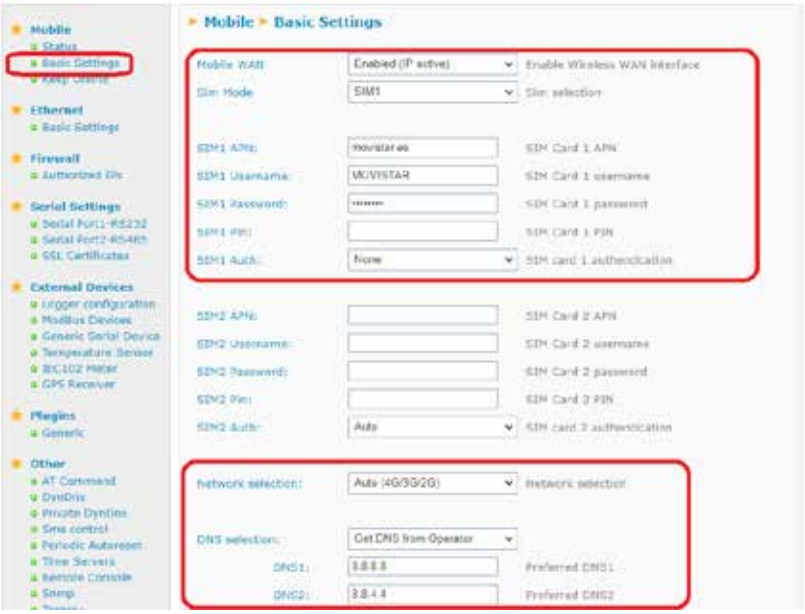
In this application note, we will guide you through an entire example of how send to data to the well-known MRI eSight platform (https://www.mrisoftware.com/products/esight-energy-management-software).

In this particular case, we will assume that 2 registers are to be read from 2 PLCs with Modbus communications connected to a Webdyn - EasyTunnel via their RS485 port.


More specifically, the aim is for the WebDynEasytunnel device to read the Modbus registers with addresses 40000 and 40001 of PLC1, and registers 40000 and 40001 of PLC2 every minute. In both PLCs, register 40000 corresponds to the measured temperature, and register 40001 to the humidity level. The readings taken must be stored in the internal non-volatile memory of the Webdyn EasyTunnel (in its datalogger), which must send the read data to the MRI eSight platform whenever possible (coverage, IP connectivity, etc.). Communication with the PLCs is carried out via an RS485 bus with a 9600,8,N,1 configuration.

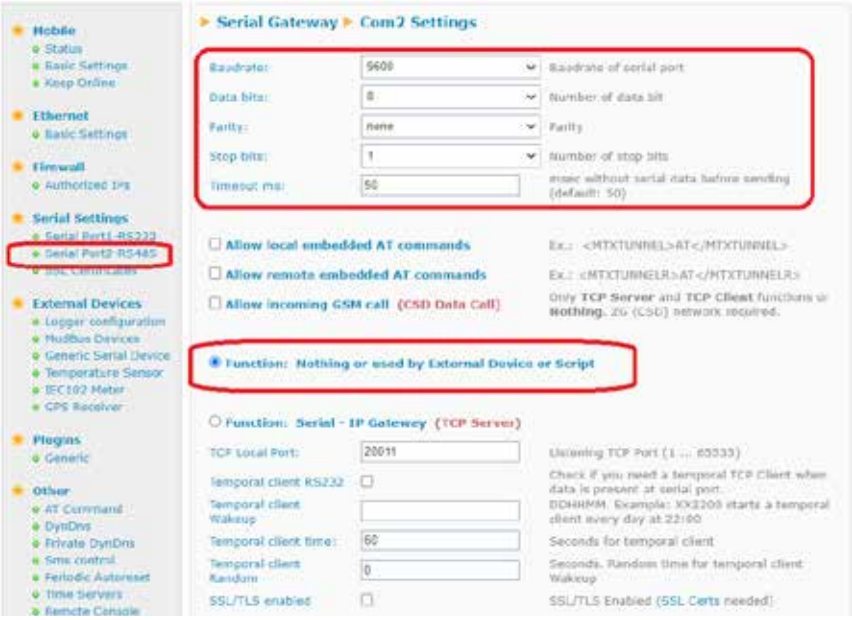
## 2. WAN mobile configuration

The Webdyn EasyTunnel must communicate with the MRI eSight platform via 4G/3G/2G communications, so the "Mobile>Basic Settings" section must be configured correctly according to the SIM card used.



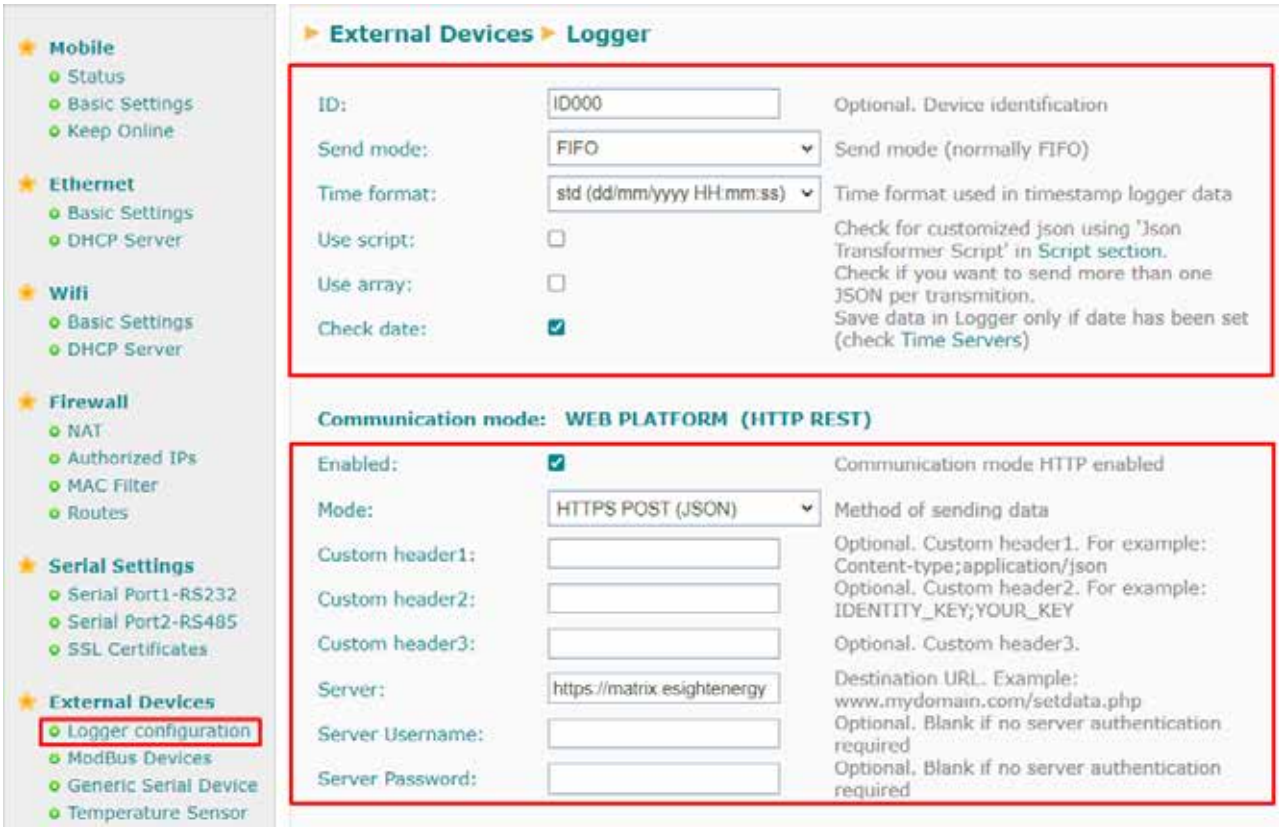

# 3. Configuring the RS485 serial port

The two PLCs will connect to 9600,8,N,1 via the RS485 serial port, so the "Serial Settings> Port2-RS485" section must be configured by setting the parameters as shown below.




# 4. Logger configuration

The next step is to configure the internal datalogger of the WebDyn EasyTunnel. Go to the “External Devices > Logger configuration” menu. The configuration should be similar to the one shown in the screenshot below:

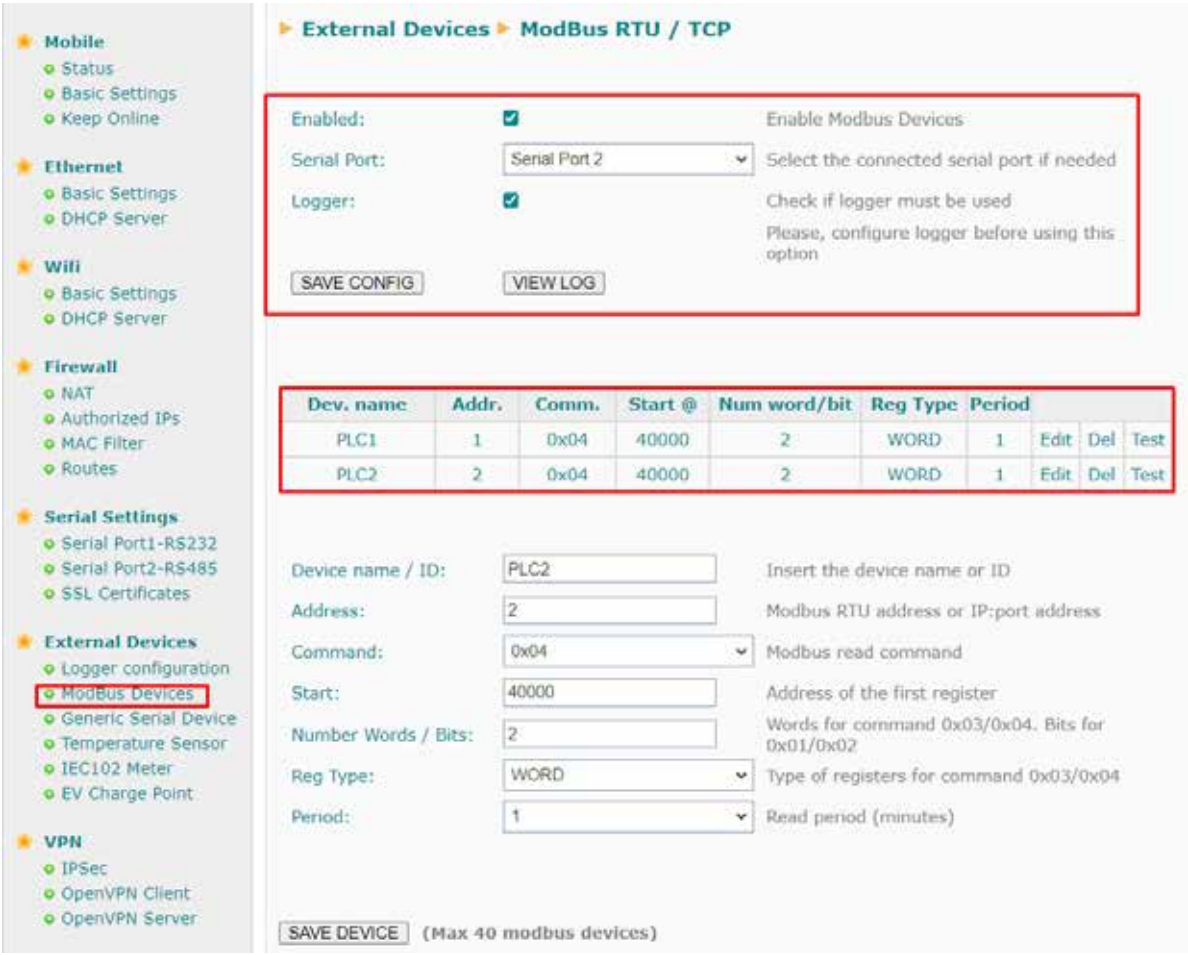



The following parameters are particularly important:

- "ID" will provide the register with a unique identifier. This serves as the first part of a unique identifier (eSight import code).
- "Send mode": select FIFO.
- "Time format": you must select the "std" format.
- "Check date": check the box.
- "Mode": select HTTPS POST (JSON).
- "Server": enter the server URL here and put your eSight webhook in the box.

# 5. Configuring the Modbus section

In this configuration section ("External Devices > Modbus Devices"), you will configure the Modbus readings to be performed on the 2 PLCs.




You will also enable the Modbus service by checking the “Enabled” box. You must select “Serial Port 2”, since the reading will be made via the RS485 port. You must then check the “Logger” box, since the Modbus registers read from the PLCs must be stored in the internal datalogger of the Webdyn EasyTunnel.

Two devices must also be created, which we have called PLC1 and PLC2 in this example, serving as the second part of a unique identifier (eSight import code). In the “address” field, you must indicate the Modbus address of each of the PLCs, so “1” in PLC1 and “2” in PLC2. The Modbus command you will use to read registers 40000 and 40001 will be 0x04, so select 0x04 in the “Command” field. The register that will start to be read in both PLCs is register 40000, so enter 40000 in the “Start” field. The aim is to read 2 Modbus registers from each PLC (40000 and 40001), so enter 2 in the “Number Words” field. Select “WORD” for the register type (“Reg Type”) and 1 for the “Period”, because we want to receive readings from the Modbus registers every minute.

# 6. Configuration in eSight

The standard JSON format generated by the Webdyn EasyTunnel with the data read will take the following format:

{“IMEI”:”869101054286683”,”TYPE”:”MODB”,”TS”:”2022-11-11T12:17:00Z”,”ID”:”PLC1”,”A”:”1”,”ST”:”40000”,”N”:”2”,”V”:[225,62],”P”:”ID000”},

{“IMEI”:”869101054286683”,”TYPE”:”MODB”,”TS”:”2022-11-11T12:17:01Z”,”ID”:”PLC2”,”A”:”2”,”ST”:”40000”,”N”:”2”,”V”:[225,62],”P”:”ID000”}

You must therefore create a short script to adapt the format to the needs of the eSight platform. Here is a potential example code:

```
let inJSON = JSON.parse(inData);

let meter_id = inJSON.ID;
let site_name = inJSON.P;
let timestamp = inJSON.TS;
let value = inJSON.V[0];                    // May need to change/remove indexing

let r = new eS.MeterReading();
r.MeterIdentifier = site_name + “_” + meter_id;
r.Timestamp = timestamp;
r.Value = value;

outData.push(r)
// Un-comment above line when device is setup
```

Any questions?

Please direct your enquiries to soporte@matrix.es