

WebNMS IoT Gateway Deployment Guide

Realtech Gateway

Table of Contents

Introduction.....	1
Initial set-up for the device	3
Powering the device.....	3
Setting the date and time.....	4
Compatible Sensors.....	7
RS485.....	7
Limitations.....	8
Testing	8
Connecting the sensor to the device.....	10
Onboarding the device	11
Onboard the device in WebNMS server.....	11

Introduction

WebNMS IoT supported hardware deployment guide details the procedure involved in onboarding and deploying the Realtech gateway (R-gate). This document includes the following:

- Initial setup of the device - Details the procedure on how to start the device, update the date and time settings, and onboarding the device in the WebNMS server.
- Compatible sensors - Lists all the sensors that are applicable with the R-gate device.

Product Support

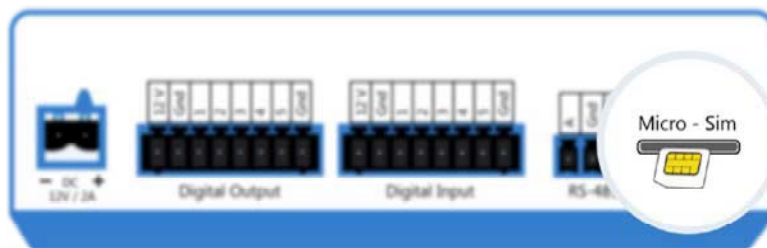
- For sale queries, send e-mail to iot-eval@webnms.com.
- For technical support queries, send e-mail to iot-support@webnms.com.
- For contact information, refer to our [Contact page](#).

Initial set-up for the device

- [Powering the device](#)
 - [Setting the date and time](#)
-

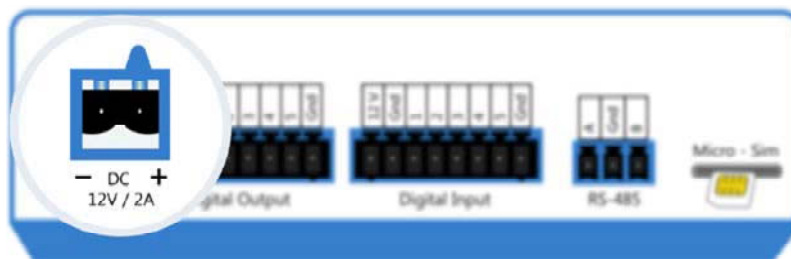
Powering the device

1. Insert the micro SIM in the SIM slot on the device.



2. Connect a 12V DC power supply (already provided with the R-gate) to the device. The R-gate will automatically switch on and the SIM LED status will be solid green.

Note: If the SIM is not inserted properly, the SIM LED status will be solid red.



3. Set the APN for the SIM by sending the following SMS:

```
>SETAPN:"<APN Detail>
```

Eg. for vodafone >SETAPN:"www"

4. If the SMS service is enabled for the SIM, you will receive the following acknowledgment SMS.

Eg: APN address set

Note:

- If the SIM settings are correct, the SIM LED display will continue to be in solid green. If the SIM settings done are incorrect, the SIM LED will display in blinking red.
- If unsure of the APN details, check with your service provider for the correct APN string.
- If the SMS service is not enabled for the SIM, then you won't receive the acknowledgement SMS.

Setting the date and time

1. Normally the device will automatically get the time in GMT from the NTP servers.
2. If the SIM has domain restrictions such that it can't acquire time from the NTP servers, then the user needs to set the time manually for the device in GMT by sending the following:

SMS : >SETRTC:HH:MM:SS , YY/MM/DD

Eg: The command to set the date as 4th Aug,2018 and time as 04 hours and 28 mins will be as follows:

>SETRTC:04:28:00,18/08/04 for 04.28AM 14th August, 2018

3. If the SMS service is enabled for the SIM, then you will receive the following SMS:

Real Time clock set

If you have successfully completed the above mentioned steps, then the initial setup for R-gate is completed and it can be connected to the sensors.

Compatible Sensors

- [RS485](#)
 - [Limitation](#)
 - [Testing](#)
 - [Check the sensor with MODSCAN](#)
 - [Connecting the sensor to the device](#)
-

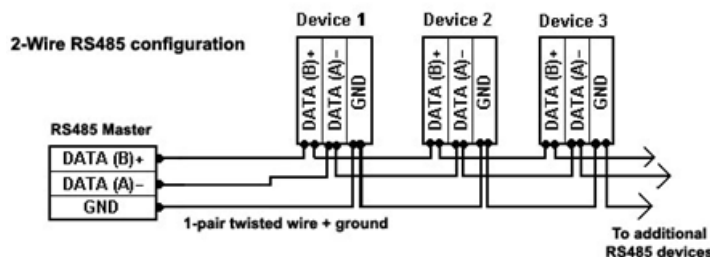
RS485

R-gate supports RS485 port and any device which communicates through RS485 using MODBUS RTU protocol can be connected. Examples of RS485 sensors are energy meters, humidity sensors, temperature sensors, etc.

MODBUS protocol

This protocol follows the master-slave arrangement in which each connected device will communicate using a unique address. One node that is assigned as the master node will initiate communication to one of the slave nodes (which will have a unique address). Only the intended slave node will respond to the initiated communication by the master node. Other nodes might receive the data but they won't acknowledge the received data.

MODBUS RTU - It is an open, serial protocol derived from the master/slave architecture. It is a widely accepted protocol due to its ease of use and reliability.



Limitations

The only limitation with the RS485 sensors is that it can be used only up to a range of 1200m.

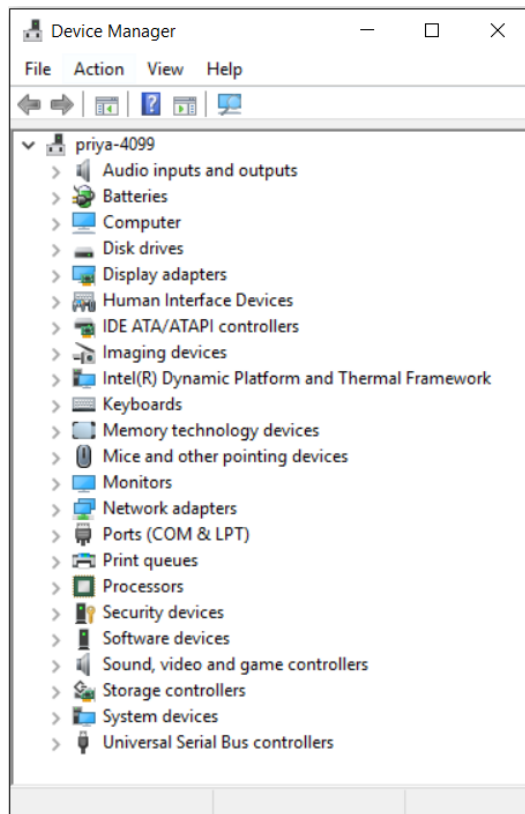
Testing

RS485 sensors should be tested before connecting to any gateway device. To test a RS485 sensor, use a USB to RS485 converter. Once the connection is established, check the sensor with MODSCAN. MODSCAN is third party software that is available for download online.

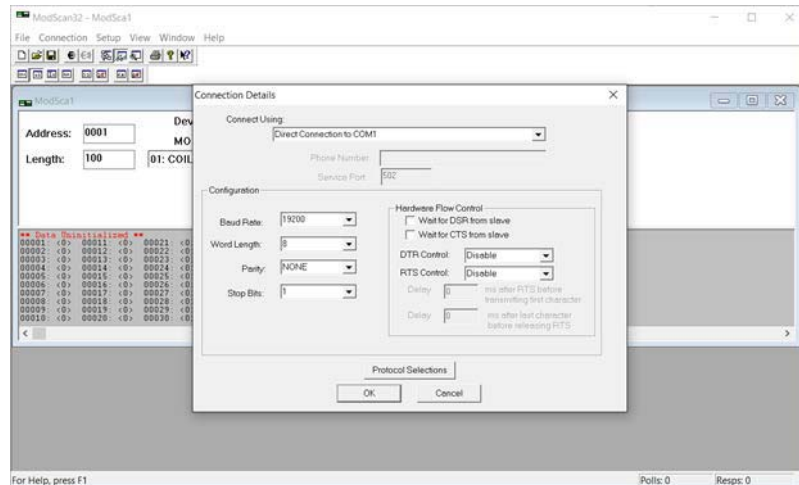
Checking the sensor with MODSCAN

To check the sensor with the MODSCAN, you need to know the COM port number of the USB converter. For checking the COM port number of the USB, follow the steps given below:

1. Open the control panel on your system.
2. Click on Device Manager. A pop-up window listing all the devices that are connected to the system will appear on the screen.



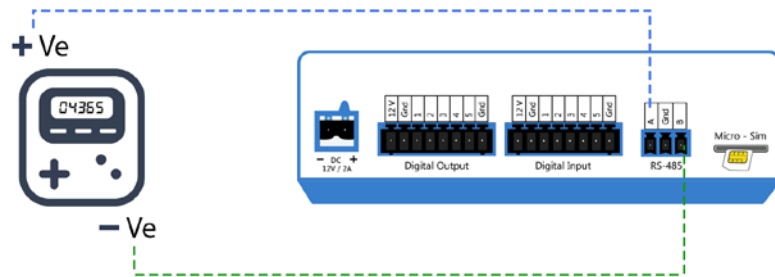
3. Double click on Ports (COM & LPT). A list of available serial and parallel port devices will be displayed on the screen. Your USB COM port should appear on the screen with the number assigned to it.
4. Open MODSCAN and click on the Connection tab. A new window will appear on the screen where all the details such as COM port number, baud rate, word length, parity, and stop bits are to be filled.



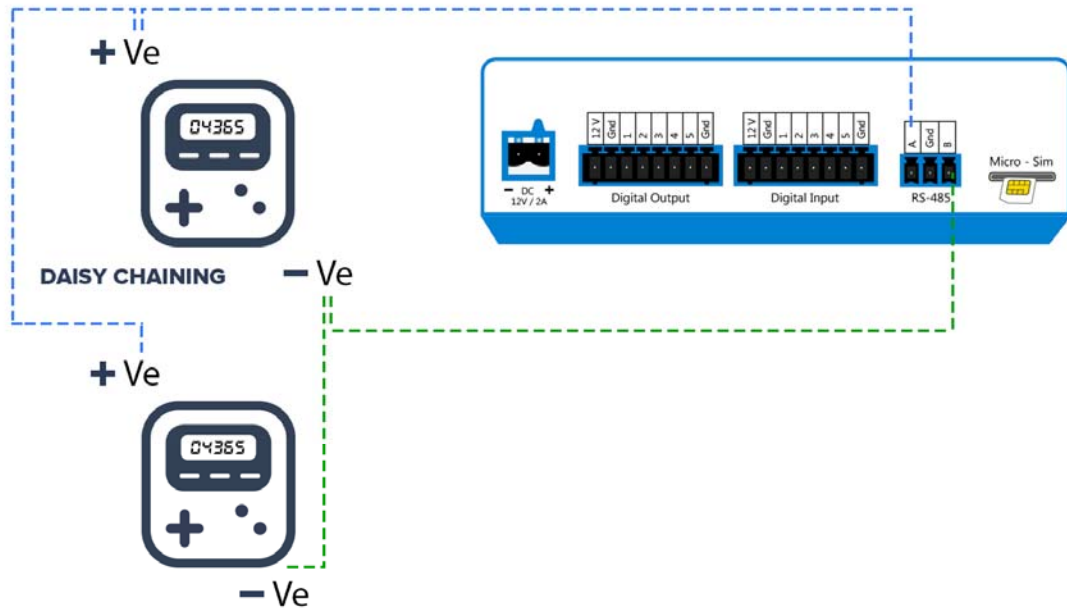
5. Fill all the details and click OK.
6. Click on the Connect button to establish the connection. Once the connection is established, it will show the true value as given by the manufacturer.
7. If it displays the true value, then the sensor can be connected to the gateway device.
8. If it does not display the true value, then the sensor is damaged and should be replaced.

Connecting the sensor to the device

RS485 sensors can be connected to the gateway device by connecting d+ to A and d- to B in the RS485 section. One ground wire from the sensor will be connected to the ground pin, i.e. pin G. Once the sensor is connected to the gateway device, new configuration is to be created in the WebNMS server. Refer to the [User & Admin Guide](#).



Connecting a single sensor to the R-gate



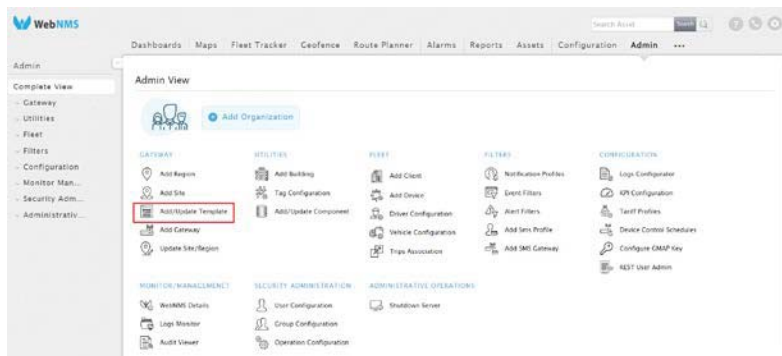
Connecting multiple sensors to the R-gate

Onboarding the device

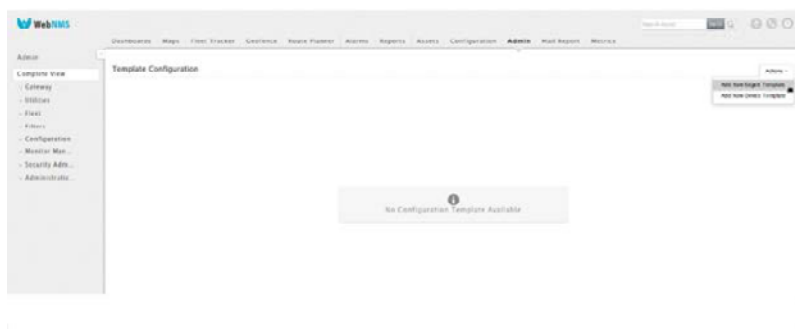
- [Onboard the device in WebNMS server](#)
-

Onboard the device in WebNMS server

1. As a pre-requisite to onboard the R-gate in the WebNMS server, you will need to add the basic asset heirarchy i.e. [Add Organization](#), [Add Region](#), and [Add Site](#).
2. To create a new template for R-gate, go to Admin>Gateway>Add/Update template.

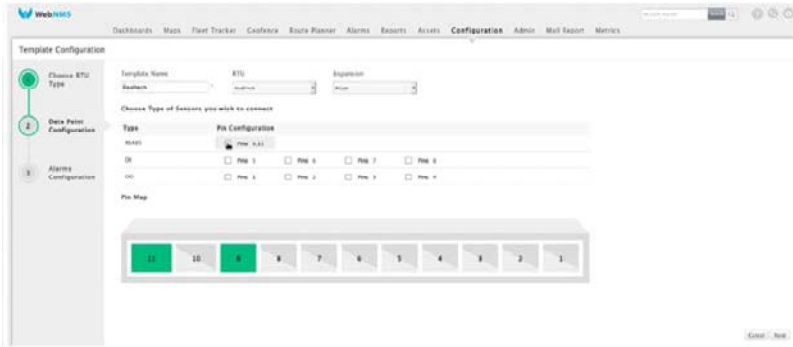


3. Click on the Actions>Add new EdgeX template.



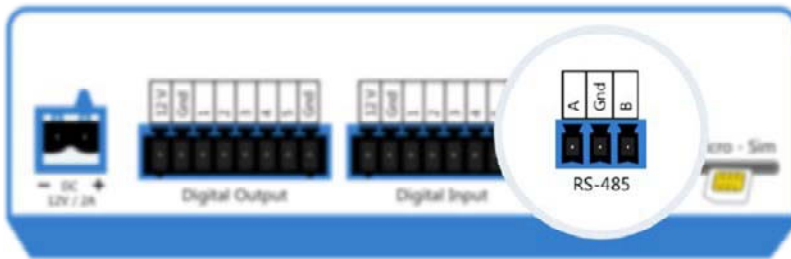
4. Give proper name to the template.
5. Select Realtech from the RTU select dropdown.

Note: Expansion should reflect as R-gate once you have selected RTU as Realtech.



6. Choose the type of sensor as RS485.

Note: Currently R-gate supports only RS485 port and devices connecting through MODBUS RTU. For detailed information on how the sensors are connected through RS485 port, refer to [Compatible Sensors](#).

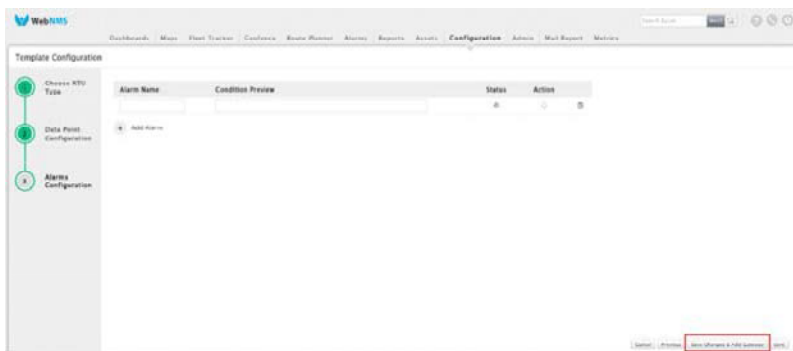


7. Click Next.

8. Configure the MODBUS RS485 details as given in the [User & Admin guide](#).

Note: You do not have to configure the alarm configurations while creating the template as R-gate doesn't support alarms.

9. Click Save Changes & Add Gateway.



Note: If you click only Save, you will be redirected to Admin tab and then you can select Add gateway option to do the gateway configuration.

10. Follow the steps given in the [User & Admin guide](#) to add the R-gate in the Add gateway.
11. If you change the gateway mobile number, make sure that you change the mobile number given in the configuration page in WebNMS server (when your service provider remains the same).

Note: In case, if you have changed your service provider, refer to [Powering the device](#) to change the APN settings accordingly.

Activate the device using WebNMS server

1. Once you have completed configuring the R-gate, it can be activated either directly from WebNMS server itself using the 'Activate via SMS' option or can be done manually.
2. To activate the device from the WebNMS server, click on the 'Activate via SMS' button on the bottom right corner of the Gateway configuration page.
3. A pop-up box will appear on the screen. Click 'Activate' to activate the device.

Note: 'Activate via SMS' button will be available for the devices that have the RTU configuration status as 'New'. RTU configuration status is the status flag reflecting the ongoing or latest configuration activity done. Detailed information about the various states of RTU configuration status is given in the [User & Admin guide](#).

Activate the device using the manual SMS option

1. To activate the device manually, send a SMS via a mobile with the following command:

```
>IP:"<ServerIP>"PORT:"<ServerPort>"DVCNME:"<DeviceName>
```

If the WebNMS server is running on IP 119.21.45.37, the port is 9080, and the Device name is ZOHOT1, then the command will be as follows:

```
Eg: >IP:"117.20.43.38"PORT:"9083"DVCNME:"ZOHOT1"
```

Note: Make sure that the arbitrary strings are the same as given in the WebNMS server configuration.

2. If the SMS was successfully sent, you will receive the following acknowledgement:

Host configuration set

3. Once the configuration is received, the RTU configuration status in the WebNMS server will change from 'New' to 'Sync'. R-gate will start to transmit the configured data at periodic intervals as per the configuration.

R-gate is successfully deployed once all the above mentioned steps are done. In case you have any issues or queries regarding the deployment, you can contact us at iot-support@webnms.com.