

# USER MANUAL

## Edge Controller



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DISCLAIMER: This manual has been compiled with the utmost care. However, no rights can be derived from its content.

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## 1. What do you need?

The Edge Controller was developed as part of the Remote Engineer Support solution. The corresponding Client software establishes a VPN connection with the Edge Controller you have selected. The PC is then "directly" connected to the devices connected to the Edge Controller.

### 1. The Edge Controller

The Edge Controller comes standard with connectors for power and I/O, a network cable and a Wi-Fi antenna.

### 2. An Internet browser

The Edge Controller is configured with an Internet browser. This can be any internet browser. Remote Engineer advises using Google Chrome.

### 3. A computer

A computer is required to connect to the Edge Controller.

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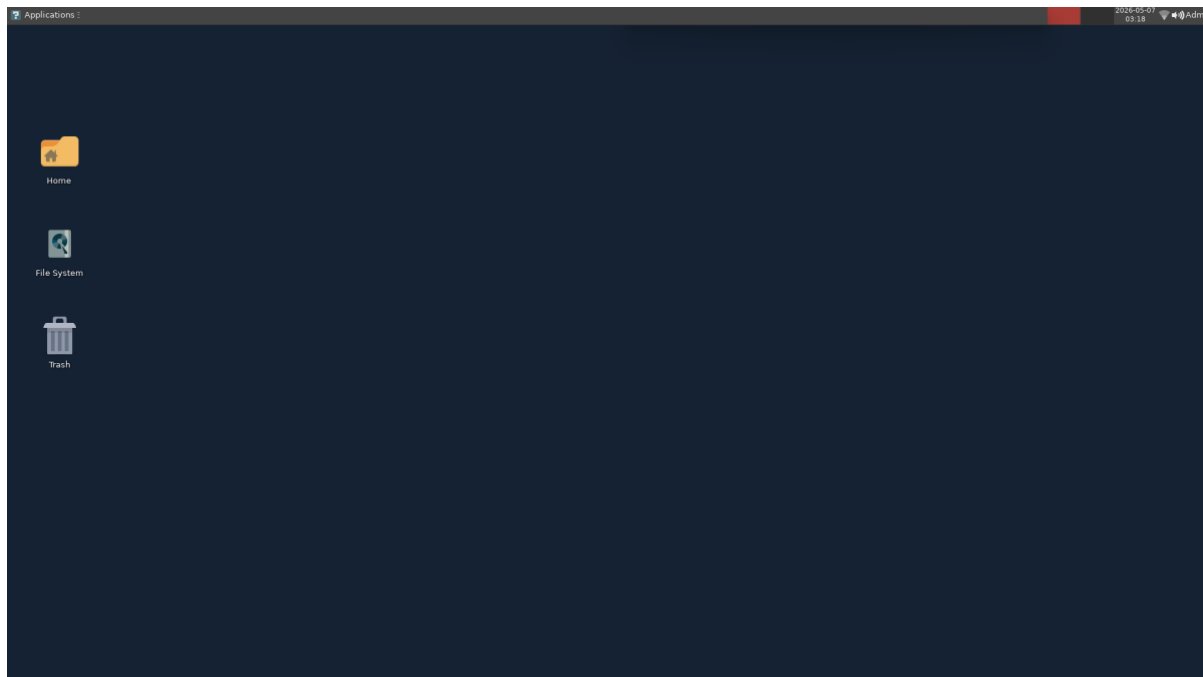
## 2. Getting started

To boot up and get to the home page of the Edge Controller, you need to follow these steps:

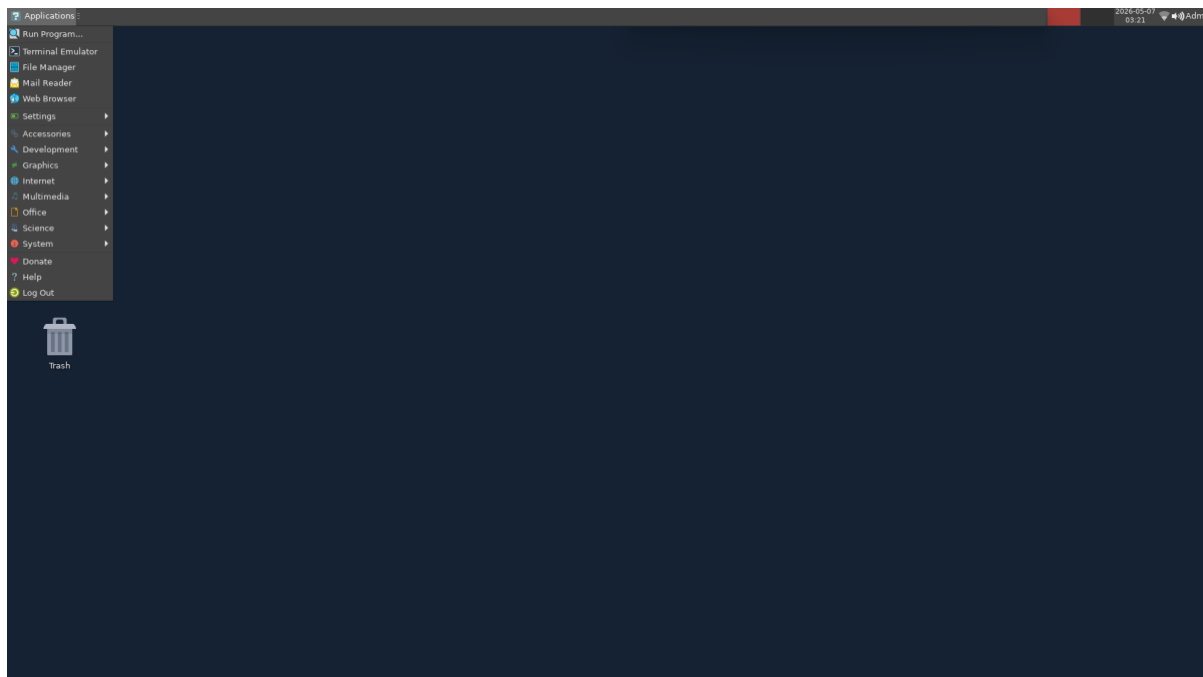
1. You connect the Edge Controller to the power network and connect the Edge Controller to a screen, a mouse, and a keyboard.
2. When the Edge Controller is on, the login screen appears.
3. Now log in with the default username (Admin) and password (REAdmin) or with the username and password combination you have set.

### 3. Home Page

After logging in, you'll be taken to the home screen of the Edge Controller. (desktop background may differ from preview view)



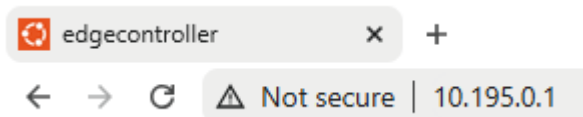
At the top right of the taskbar it says '**Applications**'. When clicked, the various programs available on the Edge Controller will be visible.



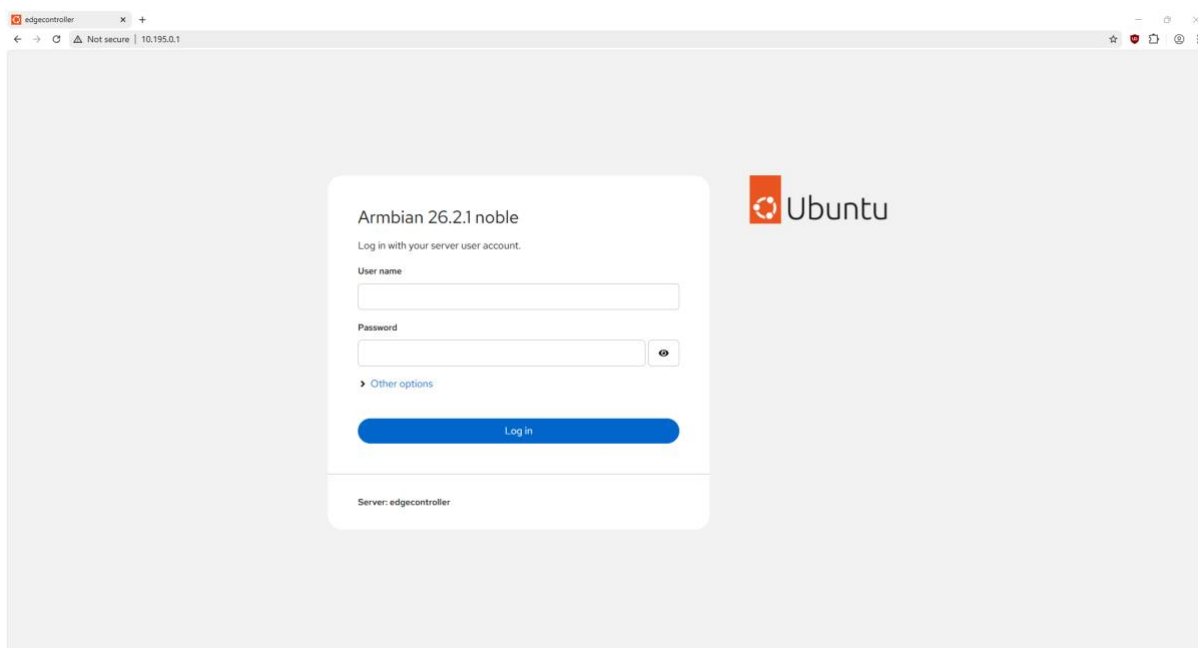
## 4. Log In

To configure the Edge Controller, first log in. Here's how.

1. Launch your internet browser and enter the default IP address (10.195.0.1 or the IP address you agreed upon) of the Edge Controller, as shown in the image below.



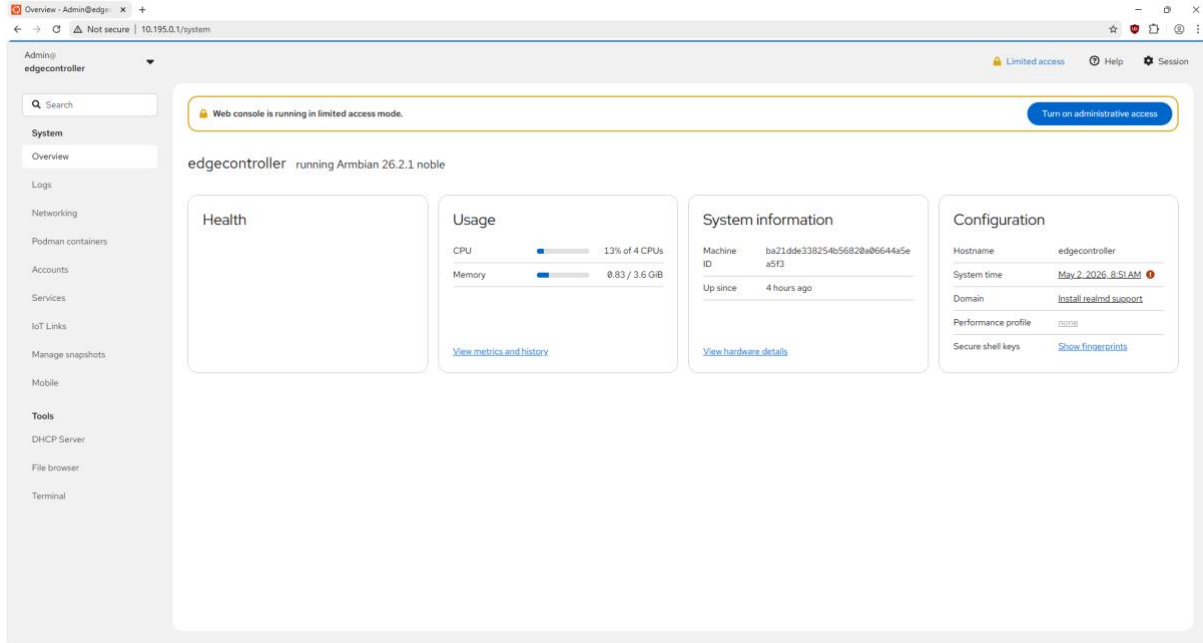
2. Enter it. The following login screen will appear.



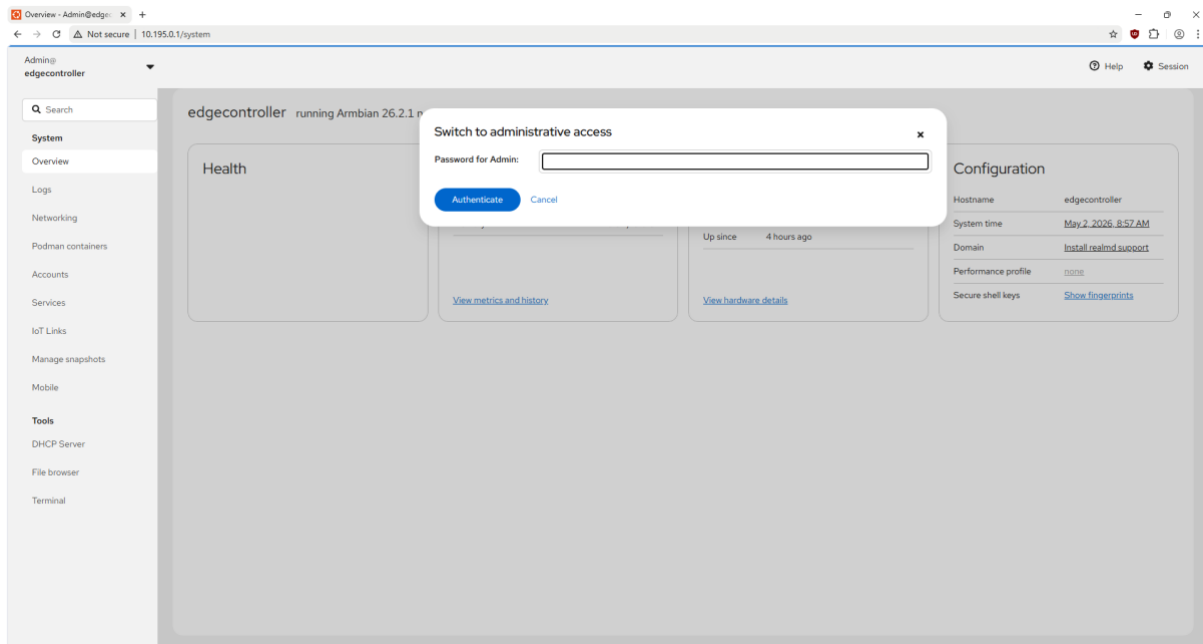
3. Now log in with the default username (Admin) and password (REAdmin) or with the username and password combination you have set.

## 5. Overview

After logging in, you will be taken to the overview screen of the Edge Controller. Here you can see the data related to the current status.

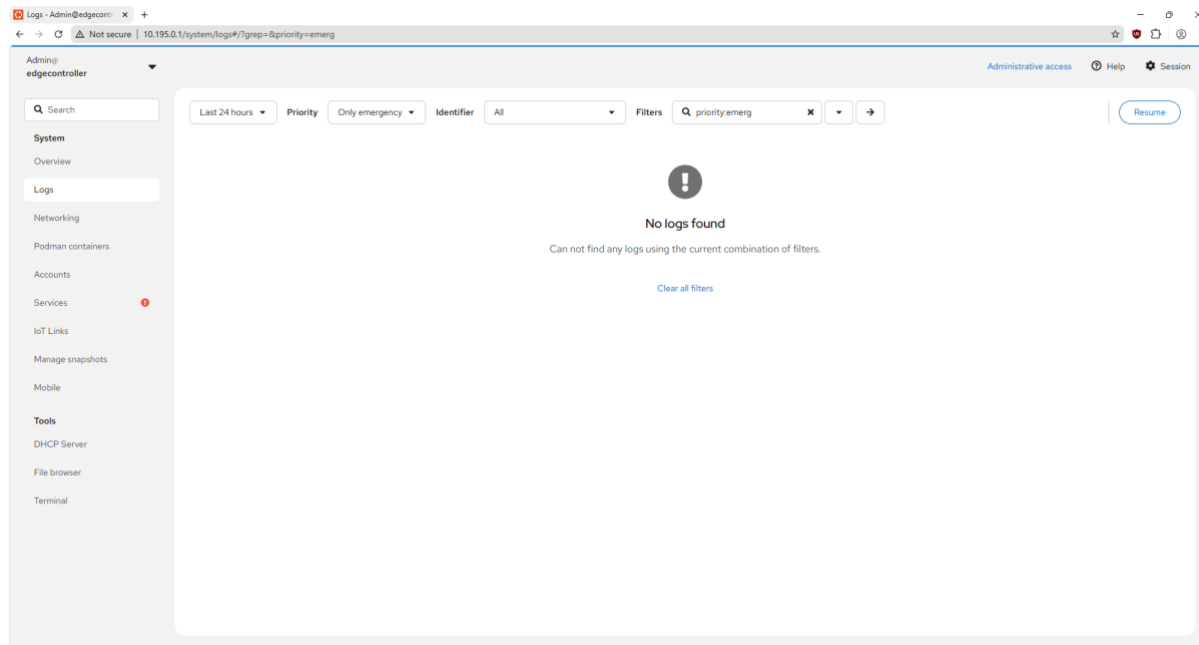


Via the menu items visible in the left side of the overview, you can navigate to the various functionalities of the web interface. By default, a user logs in without administrative access. By clicking on the 'Turn on administrative access' button, a second login window will appear in which this can be activated.



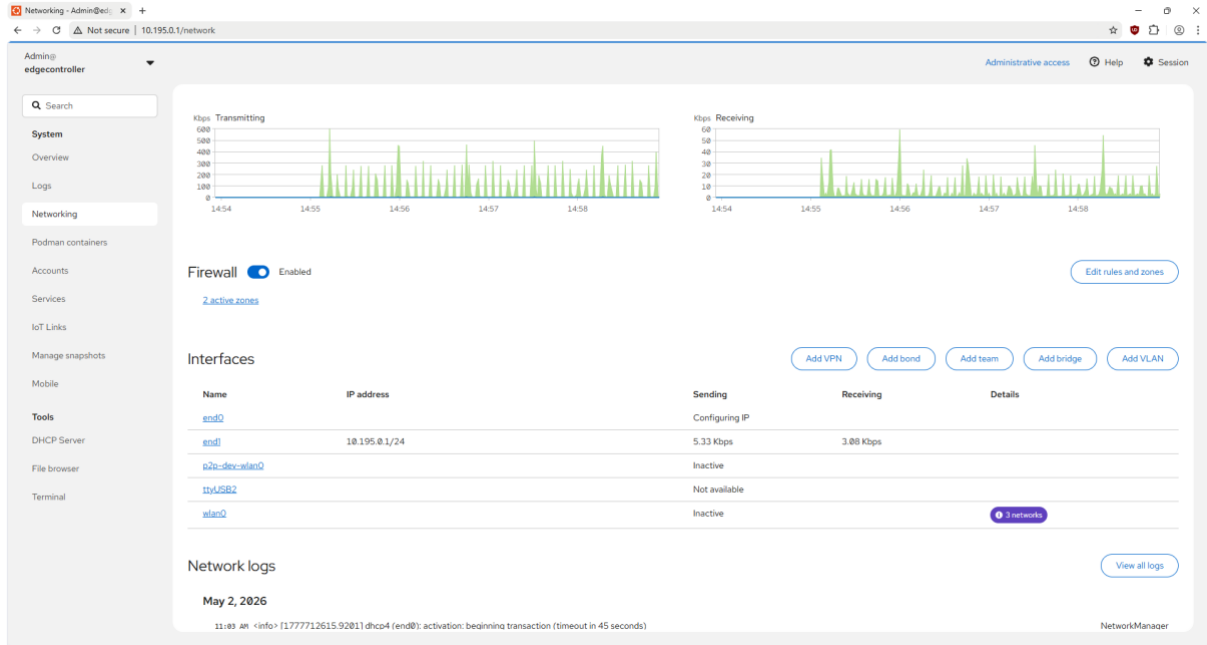
## 5.1. Logs

Under the menu item 'Logs' you can find the system log files of the Edge Controller. These can be filtered with the buttons and drop-down menus.



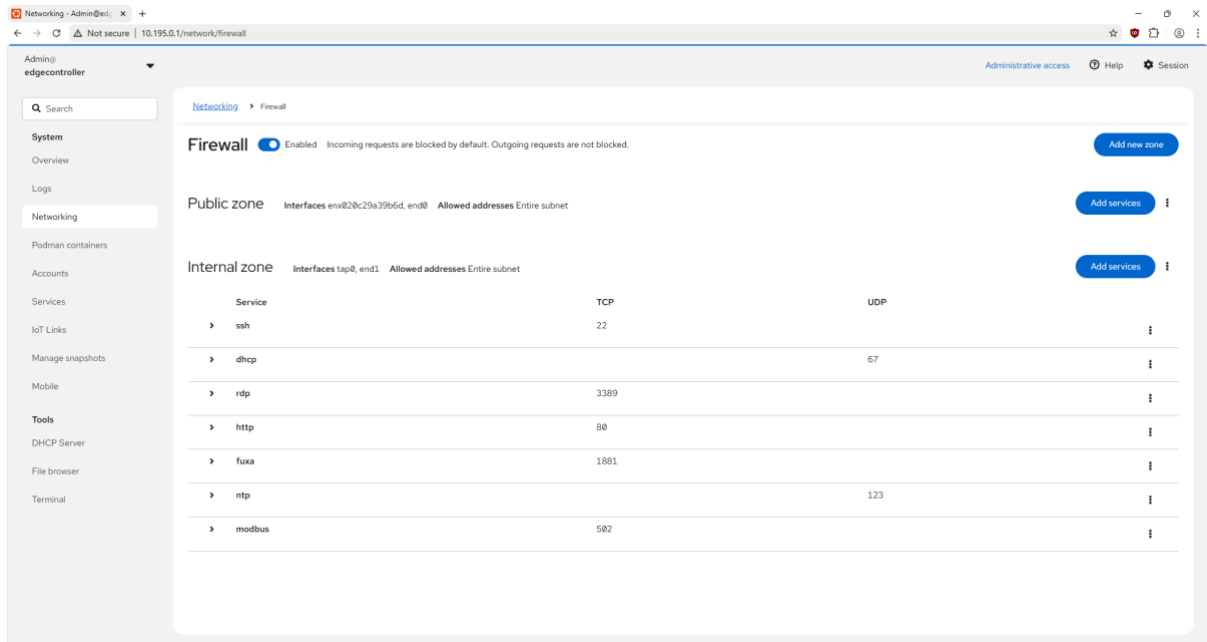
## 5.2. Networking

Under the menu item 'Networking' you can find an overview of the different network interfaces of the Edge Controller.



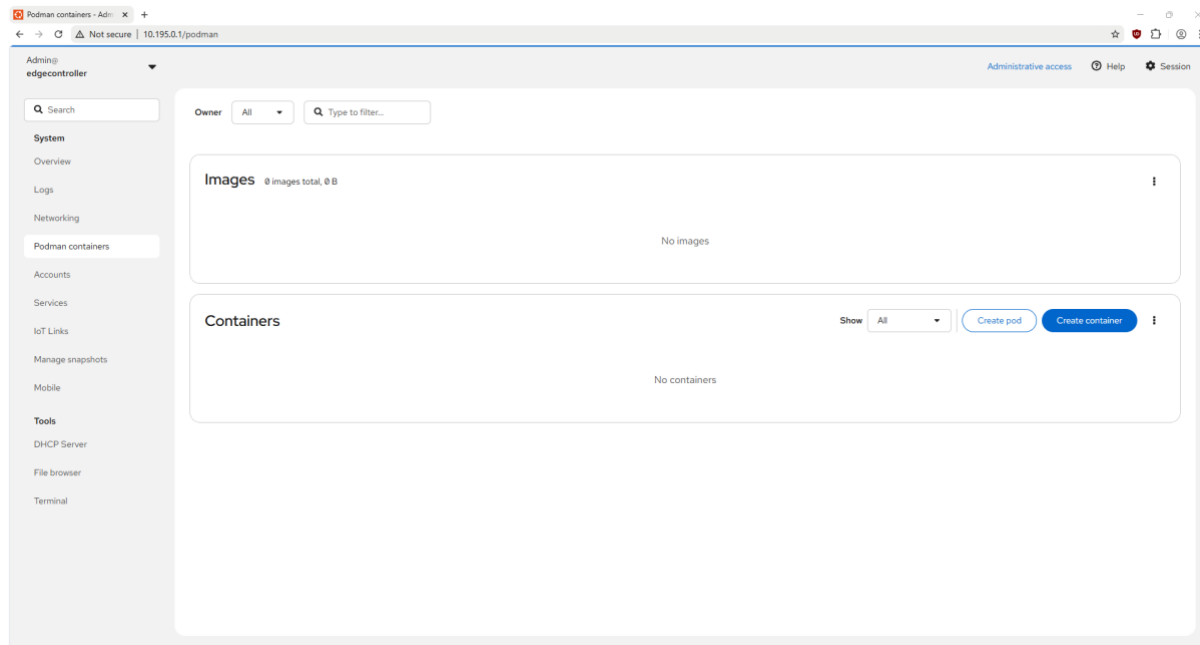
### 5.2.1. Firewall

By pressing the 'Edit rules and zones' button you will be taken to the firewall overview. This allows specific ports to be opened in the different firewall zones of the Edge Controller.

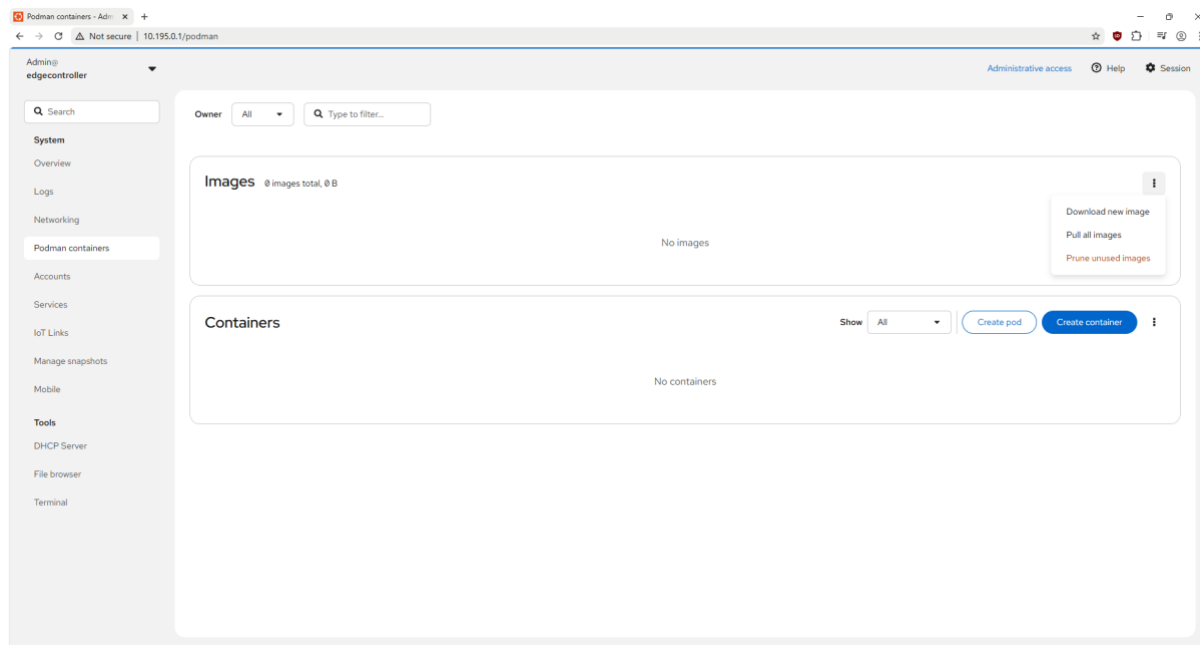


### 5.3. Podman containers

Under the menu item 'Podman containers' you can find an overview of active docker images and containers.

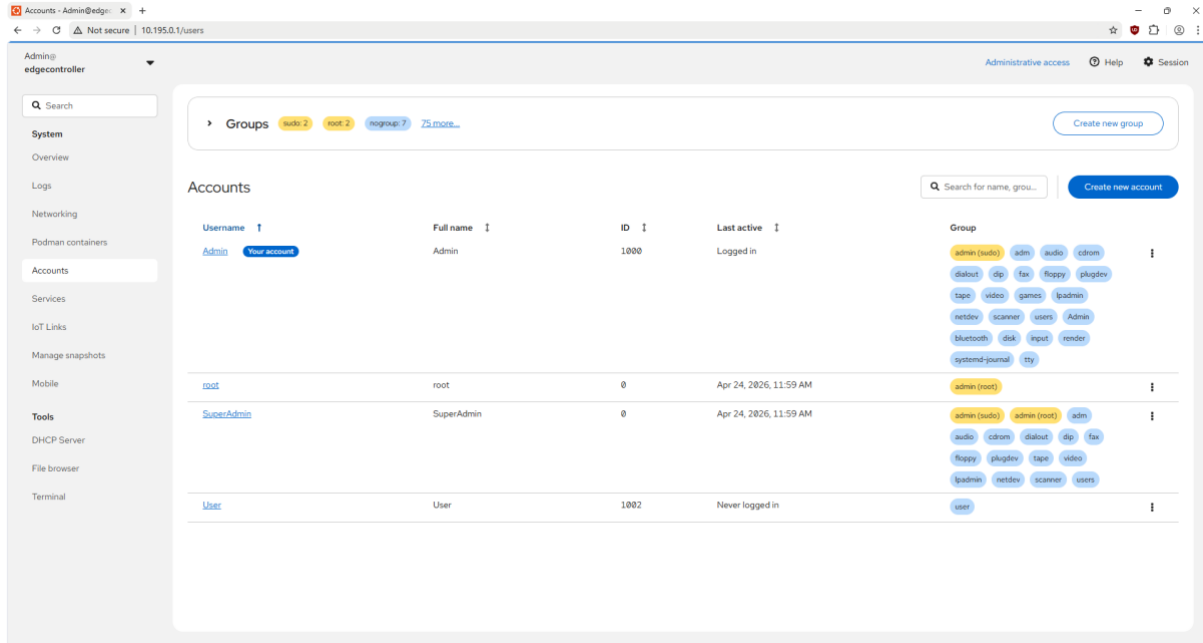


Via the menu symbol of the 'Images' item, existing docker images can be downloaded to the Edge Controller.



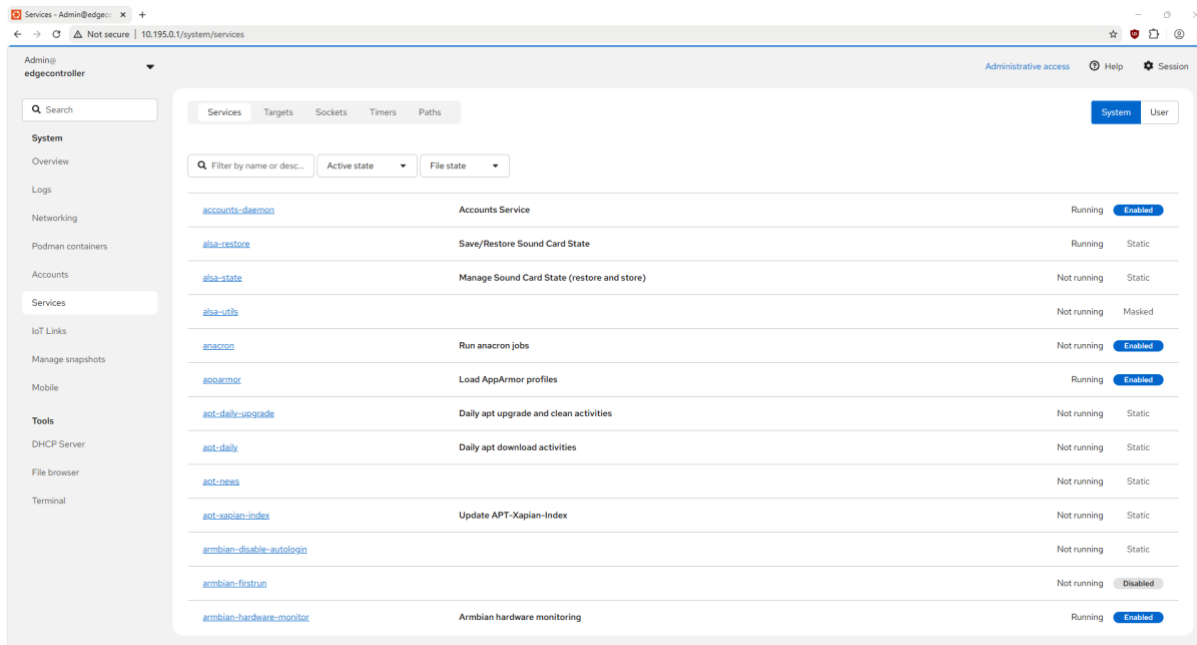
## 5.4. Accounts

Under the menu item 'Accounts' you can find an overview of all user accounts present on the Edge Controller, the rights they have and to which user group they belong.



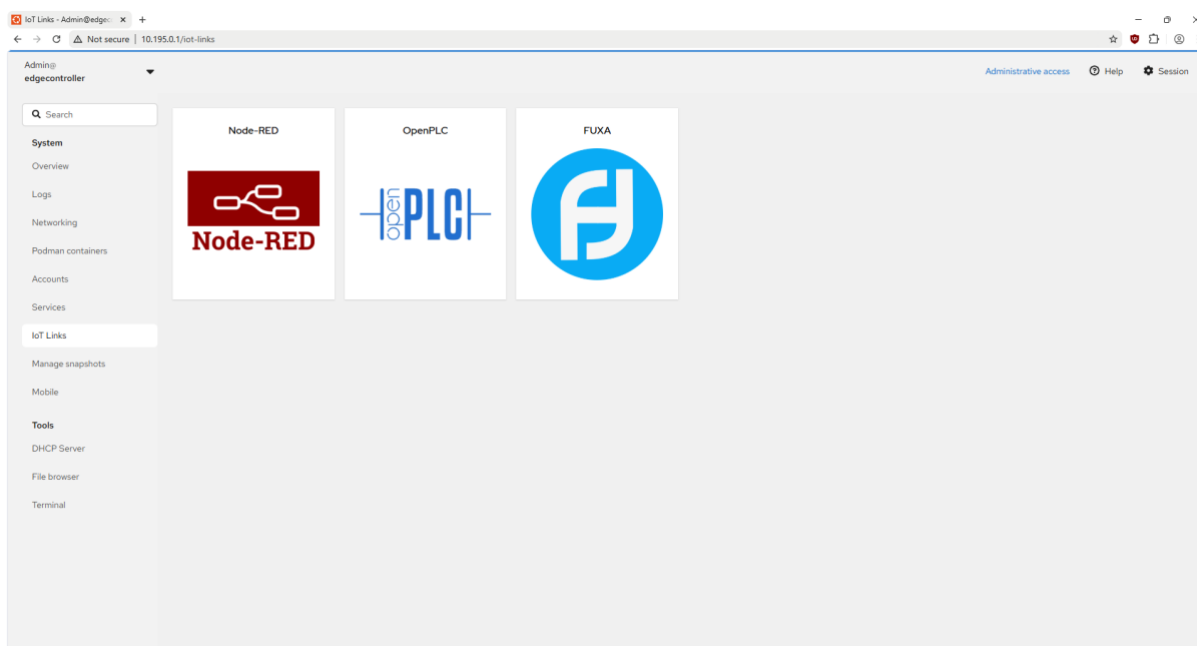
## 5.5. Services

Under the menu item 'Services' you can find an overview of all software services present on the Edge Controller. Service can be enabled/disabled via this menu.



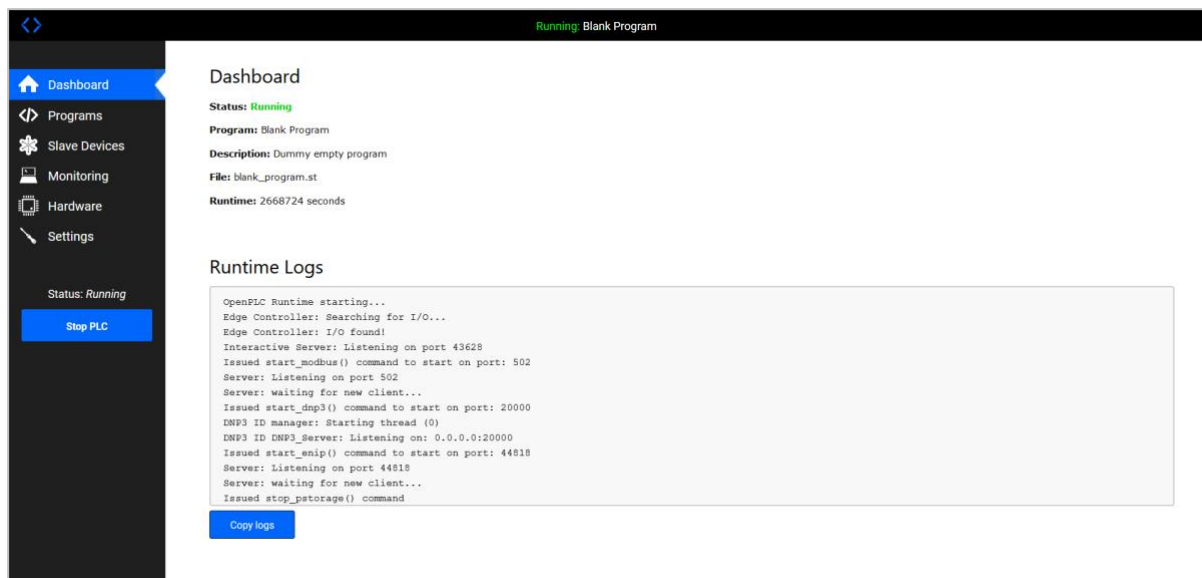
## 5.6. IoT Links

Under the menu item 'IoT Links' you can find an overview of the added IoT services of the Edge Controller.



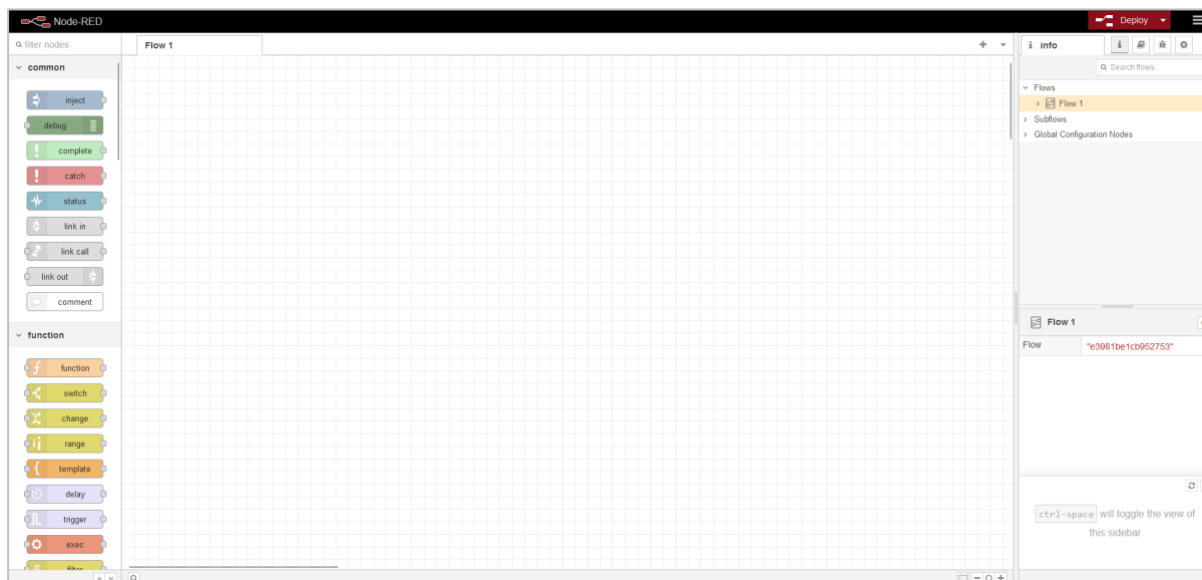
## 5.6.1. OpenPLC

In the Open PLC environment, you can upload a self-made PLC program that is programmed according to the IEC 61131-3 standard. This reads and controls the inputs and outputs of the Edge Controller.



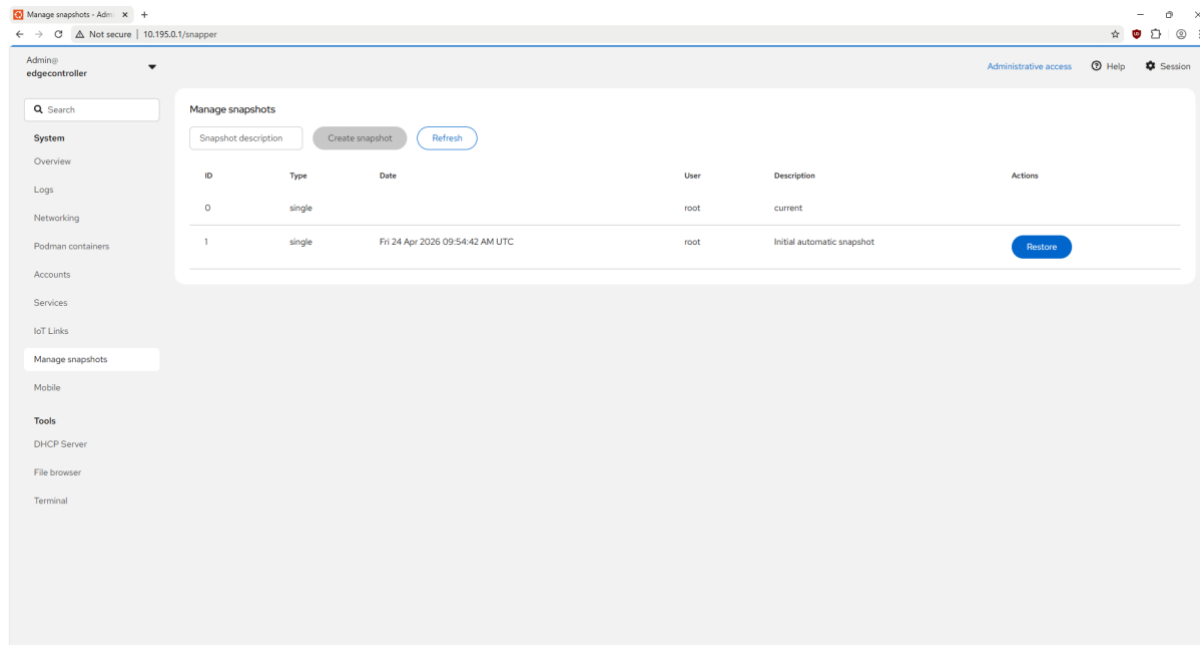
## 5.6.2. Node-Red

In the Node-RED environment, you can use Javascript and a graphical user interface to develop a program that runs on the Edge Controller.



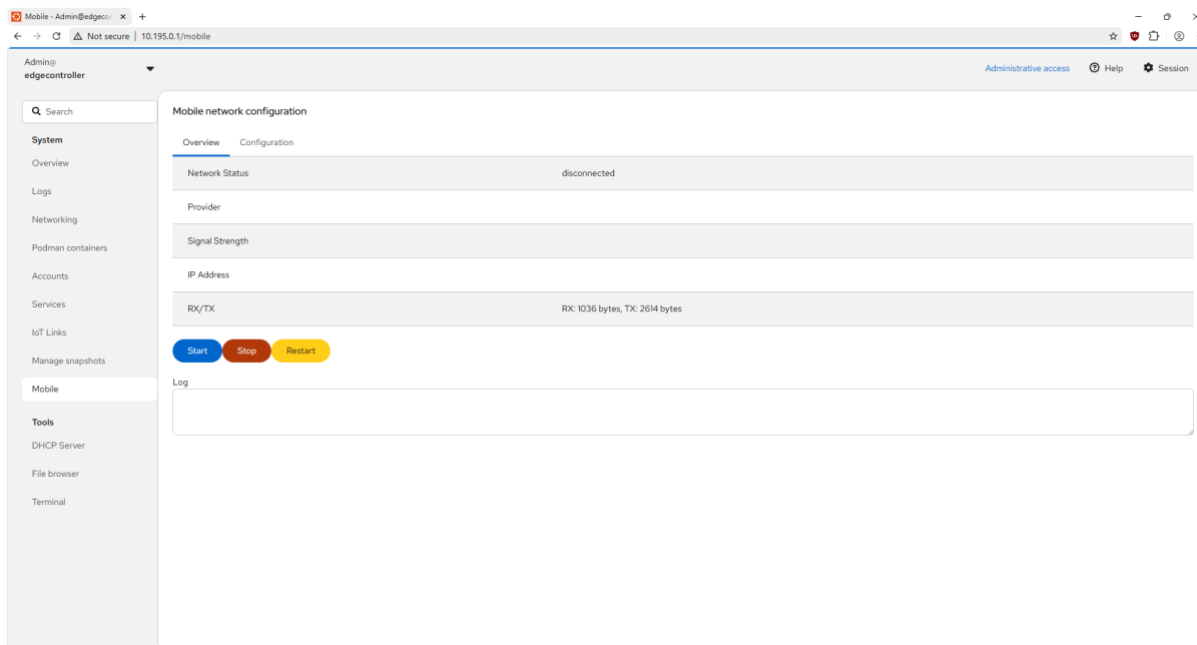
## 5.7. Manage snapshots

Under the menu item 'Manage snapshots' you can find an overview of backups made of the system. It is possible to make new backups and restore them via this menu.

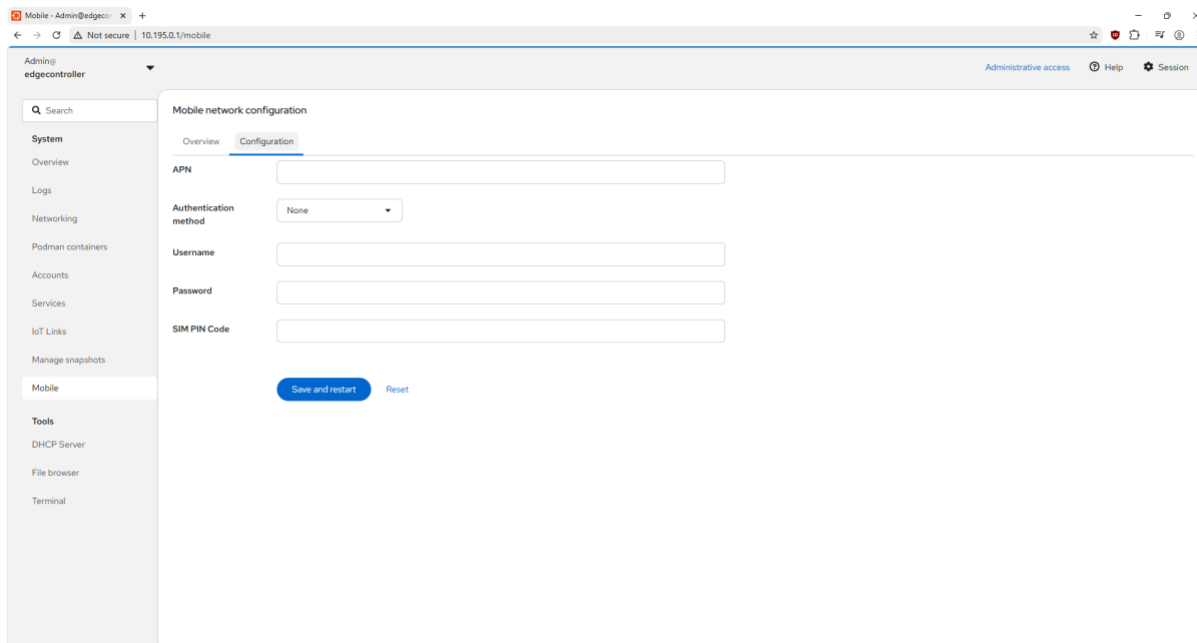


## 5.8. Mobile

Under the menu item 'Mobile' you can find an overview of the current state of the mobile connection. To use the mobile connection, an activated SIM card must be placed in the SIM tray of the Edge Controller.

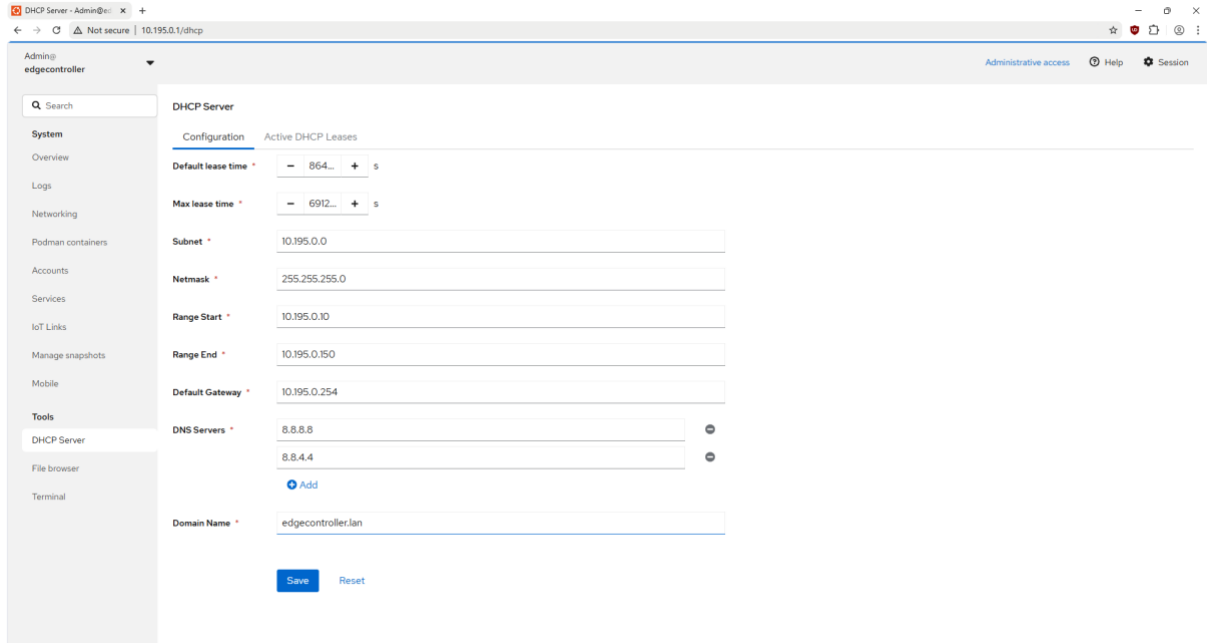


Via the 'Mobile' page, you can then configure network and SIM card specific settings by clicking on the 'Configuration' button.



## 5.9. DHCP Server

Under the menu item 'DHCP Server' you can find the configuration of the dhcp server present on the Edge Controller.

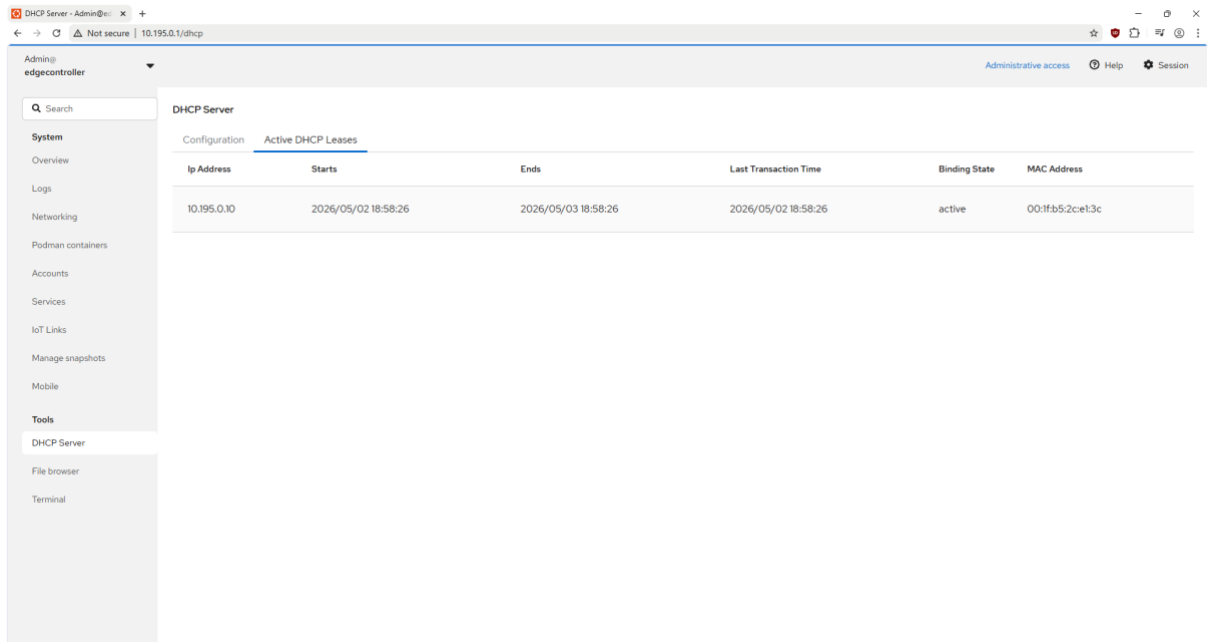


The screenshot shows the DHCP Server configuration page in the Edge Controller interface. The page is titled "DHCP Server" and has two tabs: "Configuration" (selected) and "Active DHCP Leases". The configuration fields are as follows:

Field	Value
Default lease time	864 s
Max lease time	6912 s
Subnet	10.195.0.0
Netmask	255.255.255.0
Range Start	10.195.0.10
Range End	10.195.0.150
Default Gateway	10.195.0.254
DNS Servers	8.8.8.8, 8.8.4.4
Domain Name	edgecontroller.lan

Buttons for "Save" and "Reset" are located at the bottom of the configuration section.

By clicking on the 'Active DHCP Leases' button, a list of current DHCP leases can be displayed.

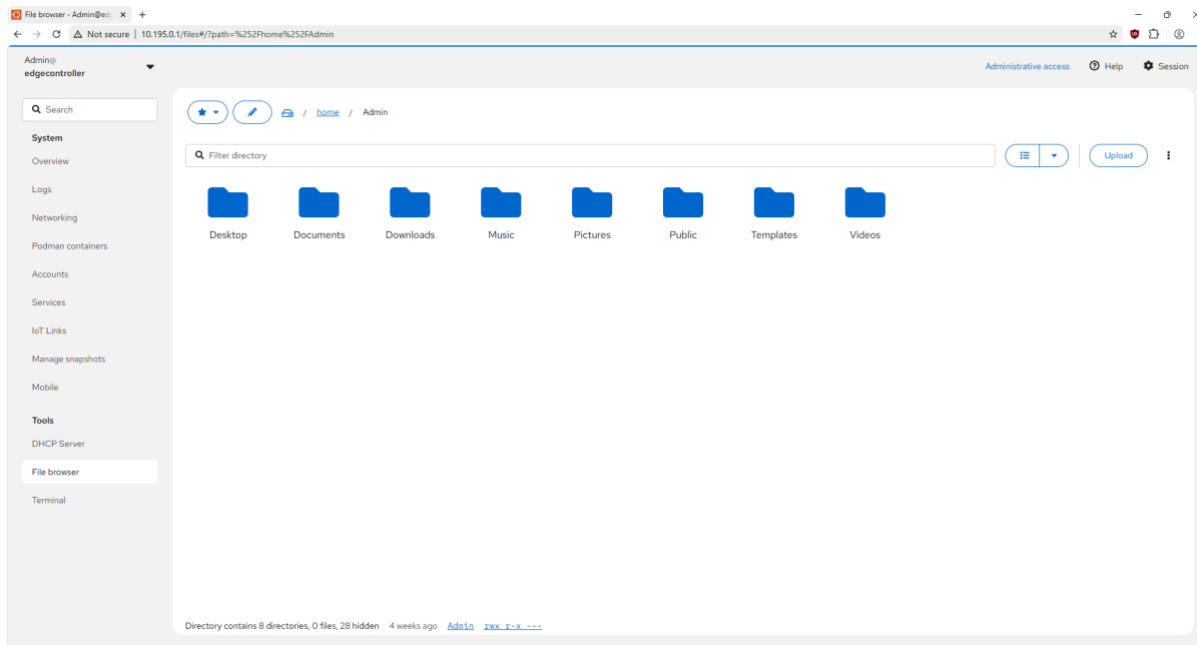


The screenshot shows the "Active DHCP Leases" page in the Edge Controller interface. The page displays a table with the following data:

Ip Address	Starts	Ends	Last Transaction Time	Binding State	MAC Address
10.195.0.10	2026/05/02 18:58:26	2026/05/03 18:58:26	2026/05/02 18:58:26	active	00:1f:b5:2c:e1:3c

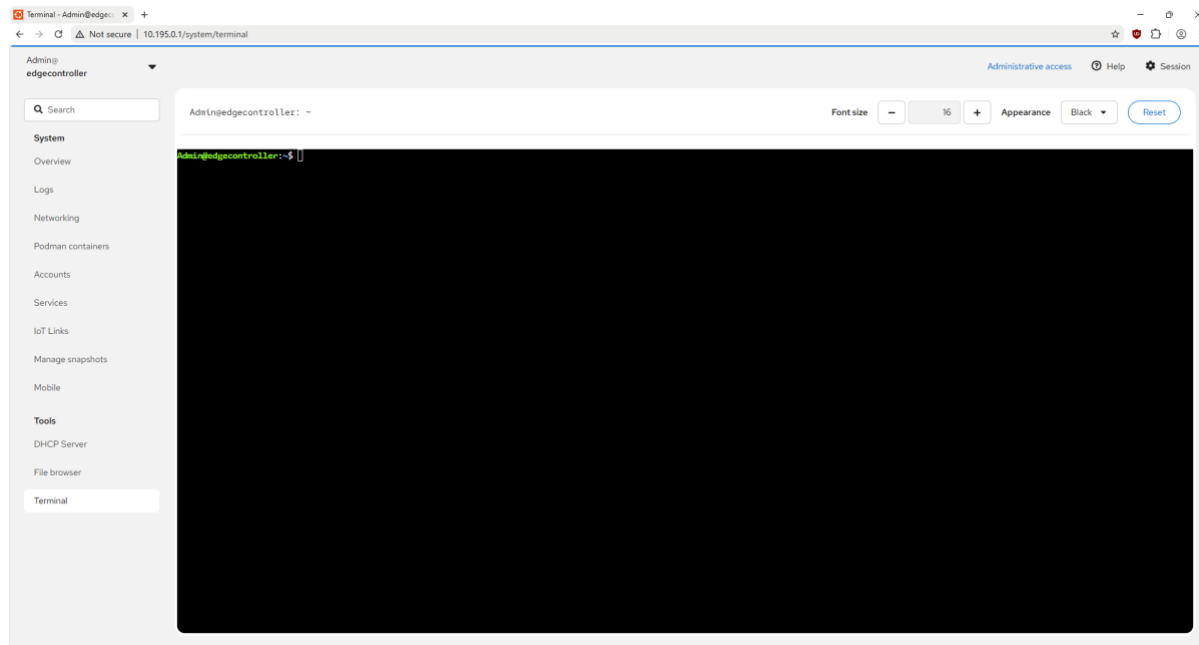
## 5.10. File browser

Under the menu item 'File browser' you can find a full file browser for interaction with the file system of the Edge Controller.



## 5.11. Terminal

Under the menu item 'Terminal' you can find an interactive shell for executing terminal commands on the Edge Controller.



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## 6. Edge Controller reset

You can reset the Edge Controller by pressing and holding the 'BUTTON' button for twenty seconds. The Edge Controller will then restart. CAUTION! During the recovery procedure, the "LED" LED will flash. Leave the Edge Controller energized during the procedure!

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## 7. Technical support

Congratulations! Your Edge Controller is installed and the basic configuration is configured. For advanced settings and more detailed information, please refer to the user manual.

### Remote Engineer Technical Support

Remote Engineer provides technical support between 08:00-18:00 (CET) from Monday to Friday. Customers in Europe can get technical support using the information below:

Website: [www.remoteengineer.eu](http://www.remoteengineer.eu)

Email: [helpdesk@remoteengineer.eu](mailto:helpdesk@remoteengineer.eu)

Phone number: +31 566 796 515

With wireless products and control systems constantly evolving, it is imperative for Remote Engineer to release updated software from time to time in order to continue to take advantage of new technologies and meet industry standards. For the latest software, firmware, drivers, and technical support available, please visit Remote Engineer's website: [www.remoteengineer.eu](http://www.remoteengineer.eu).

## 8. Declaration of conformity

This device meets the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied with this guideline:

- EN 60950-1: 2001

Safety of Information Technology Equipment

- EN 300328 V1.6.1:2004

Technical requirements for spread-spectrum radio equipment

- EN 301489-1 V1.4.1:2002, EN301 489-17 V1.2.1:2002

EMC requirements for wide spectrum radio equipment

- EN 50371: 2002

### Usage

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor and office use.

### Limited use

This device is a 2.4 GHz wireless transceiver, intended for indoor and office use in all EU and EFTA member states, except in France, Belgium and Italy where restrictive use applies.

In Italy, the end-user must apply to the national spectrum authorities for authorisation to use the equipment for the establishment of outdoor radio links.

In Belgium, there is a restriction on outdoor use. The frequency range in which outdoor activity is allowed in Belgium is 2460 - 2483.5 MHz.

This device must not be used for setting up outdoor radio communications in France. For more information, please visit <http://www.anfr.fr/> and/or <http://www.art-telecom.fr>

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## 9. Warranty

### Remote Engineer Warranty Statement

Remote Engineer products come with a 1-year limited warranty from the date of purchase.

Remote Engineer guarantees proper operation if used under the right conditions. This warranty does not include non-Remote Engineer installed components. If the Remote Engineer products malfunction during the warranty period, Remote Engineer will, at its option, repair or replace the product at no charge, provided that the product has not been subjected to misuse, abuse, or unauthorized changes, modifications, or repairs. When returning a product, we ask you to send the original proof of purchase. Return requests cannot be processed without a valid proof of purchase. When shipping returned products to Remote Engineer is the responsibility of the buyer.

All expressed and implied warranties for the Remote Engineer's line of products, including, but not limited to, the warranties of merchantability and fitness for a particular purpose, are limited to the period mentioned.

In no event shall Remote Engineer be liable in any way by the user for any damages, including lost profits, lost savings, or other incidental or consequential damages arising out of the use of, or inability to use, the Remote Engineer products.

Remote Engineer reserves the right to revise or update its products, software, or documentation without the obligation to notify any person or entity.

### Important Notice

Be sure to keep your proof of purchase to get warranty and support. All defective products must be returned with a copy of the proof of purchase. In no event shall Remote Engineer's liability exceed the price charged for the product for direct, indirect, special, incidental, or consequential damages arising out of the use of the product, its associated software, or documentation. Remote Engineer will not offer refunds for any product.

### Contact details

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Tel: +31 566 796 515,

[sales@remoteengineer.eu](mailto:sales@remoteengineer.eu)

# I. Attachments

## a. IO Interaction

### Modbus/OpenPLC addresses IO Edge Controller

Table 1: Modbus addressing of input/output IO of Edge Controller

Modbus data type	Data Type	OpenPLC address	Modbus data address
Discrete output coils	Digital Outputs	%QX0.0 - %QX0.7	0 - 7
Discrete input contacts	Digital Inputs	%IX0.0 - %IX1.7	0 - 15
Analog input registers	Analog Inputs	%IW0 - %IW3	0 - 3
Holding registers	Analog Outputs	%QW0 - %QW1	0 - 1

### Wiring and control of digital inputs and outputs of the Edge Controller

The Edge Controller has 16 digital input and 8 digital output pins, these can be used/wired as shown in Figure 1: Connection example of a digital output and Figure 2: Connection example digital input. All digital outputs/inputs are connected to a common ground.

In Figure 1: Connection example of a digital output : a relay is connected to digital output pin 0.

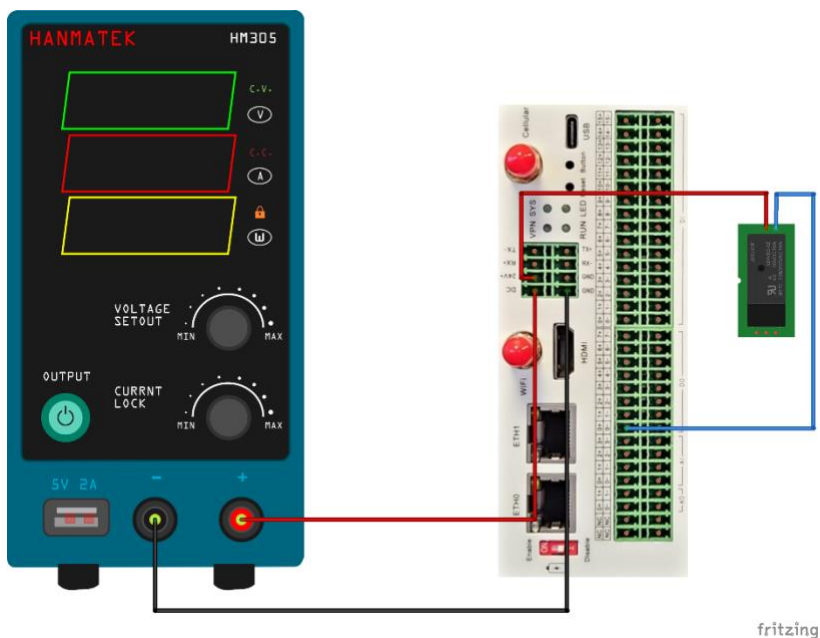


Figure 1: Connection example of a digital output

In Figure 2: Connection example digital input is a Hall effect sensor connected to the Edge Controller to digital input pin 0 and the ground pin is connected to one of the negative pins of the digital output/input prongs that function as a common ground.

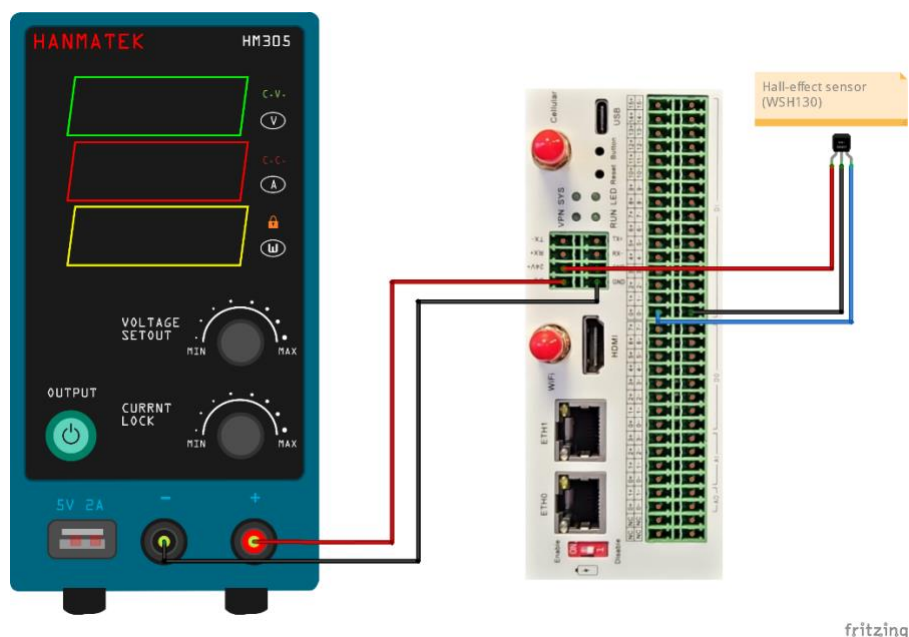
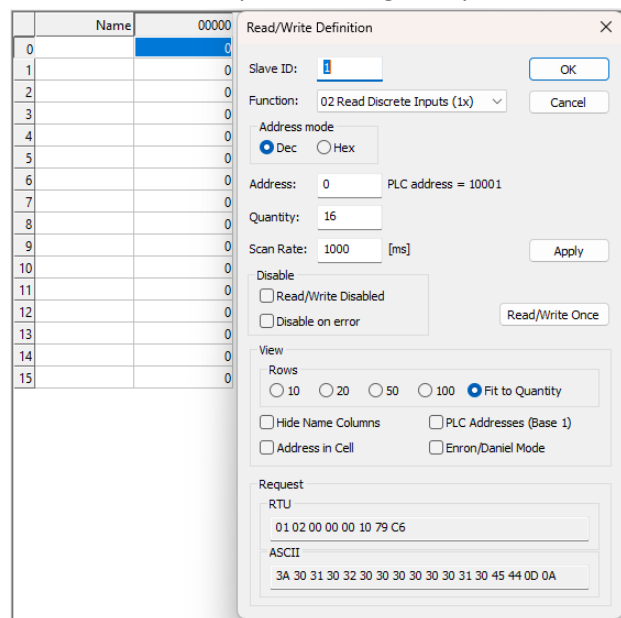


Figure 2: Connection example digital input

The digital output/input can be controlled/read with OpenPLC, NodeRED (with Modbus) or Modbus.

Modbus read example of the digital inputs:



### Modbus write example of digital outputs:

	Name	00000
0		1
1		0
2		0
3		0
4		0
5		0
6		0
7		0

05 (0x05) Write Single Coil

Slave ID:

Address:

Value  
 On  Off

Result  
Response ok  
 Close dialog on "Response ok"

Use Function  
 05: Write Single Coil  
 15: Write Multiple Coils

Request  
RTU  
  
ASCII

### Modbus read example of digital outputs:

	Name	00000
0		0
1		0
2		0
3		0
4		0
5		0
6		0
7		0

Read/Write Definition

Slave ID:

Function:

Address mode  
 Dec  Hex

Address:  PLC address = 00001

Quantity:

Scan Rate:  [ms]

Disable  
 Read/Write Disabled  
 Disable on error

View  
Rows  
 10  20  50  100  Fit to Quantity  
 Hide Name Columns  PLC Addresses (Base 1)  
 Address in Cell  Enron/Daniel Mode

Request  
RTU  
  
ASCII

### Node-RED read example of digital inputs:

**Edit Modbus-Read node**

Delete Cancel Done

**Properties** [Settings] [Optionals]

Name:

Topic:

Unit-Id:

FC:

Address:

Quantity:

Poll Rate:

Delay to activate input

Server:

### Node-RED write example of digital outputs:

**Edit Modbus-Read node**

Delete Cancel Done

**Properties** [Settings] [Optionals]

Name:

Topic:

Unit-Id:

FC:

Address:

Quantity:

Poll Rate:

Delay to activate input

Server:

Node-RED write example of digital outputs:

**Edit Modbus-Write node**

Delete Cancel Done

**Properties** [Settings] [Optionals]

Name:

Unit-Id:

FC:

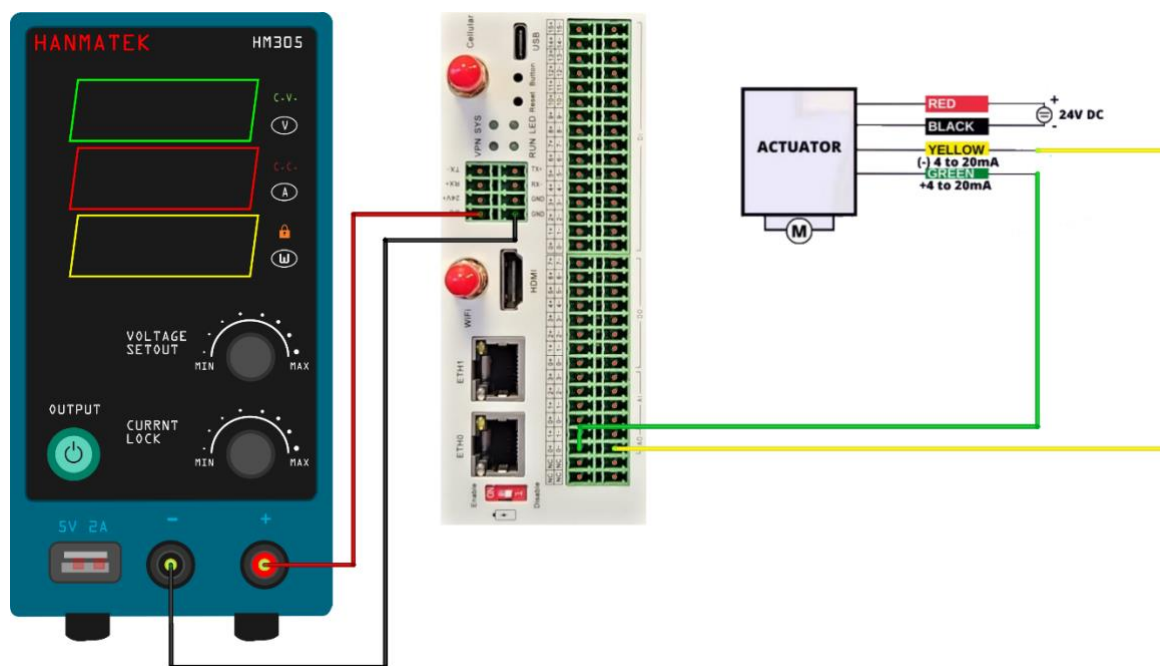
Address:

Delay to activate input

Server:



In Figure 4: example of wiring/connecting analog output is an actuator connected to the positive and negative pins of analog output 0. By changing the value of this output between 4 and 20 mA, the actuator can be operated.

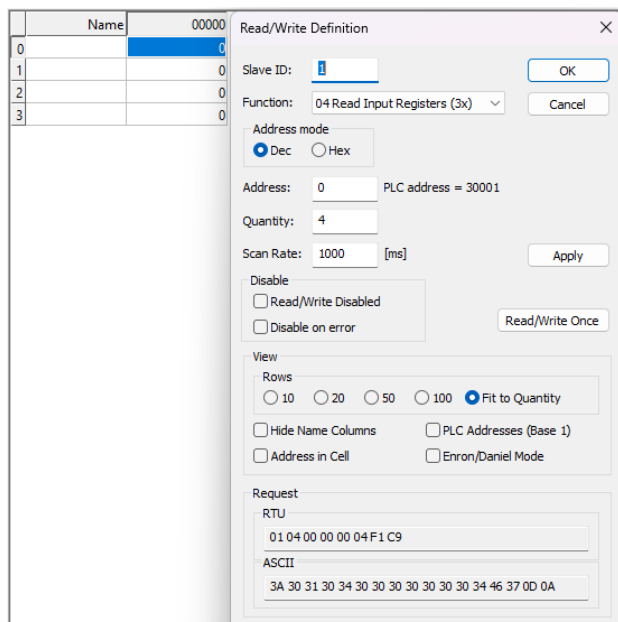


fritzing

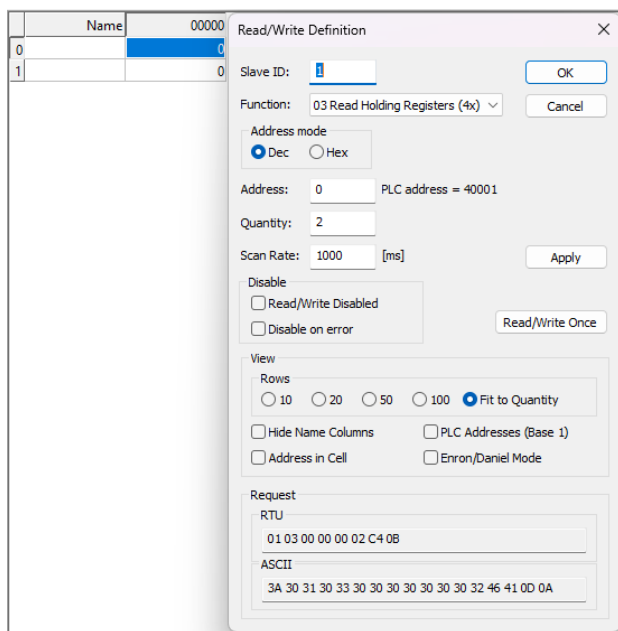
Figure 4: example of wiring/connecting analog output

The analog output/input can be controlled/read with OpenPLC, NodeRED (with Modbus) or Modbus.

Modbus read example of analog input:

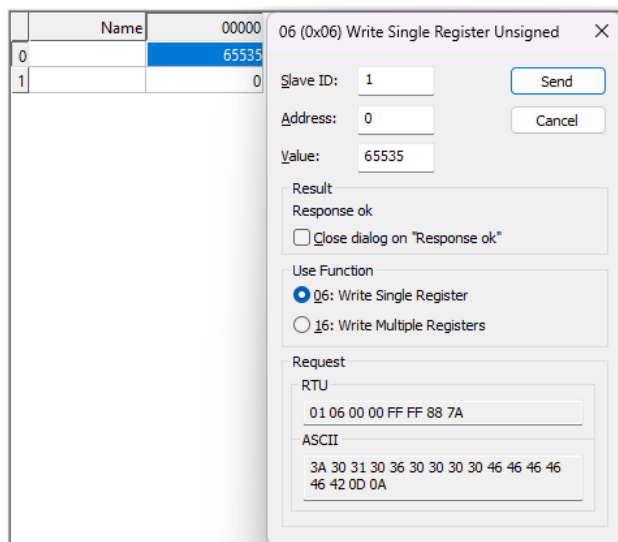


### Modbus read example of analog output:



The value representing the analog input from 0 – 20mA is a 16-bit unsigned integer (65535 = 20mA, 0 = 0mA).

### Modbus write example analog output:



The value that the analog output represents from 0 – 20mA is a 16-bit unsigned integer. (65535 = 20mA, 0 = 0mA).

### Node-RED read example analog input:

**Edit Modbus-Read node**

Delete Cancel Done

**Properties** [Settings] [Optionals]

Name: analog in

Topic: Topic

Unit-Id:

FC: FC 4: Read Input Registers

Address: 0

Quantity: 4

Poll Rate: 1 second(s)

Delay to activate input

Server: localhost

### Node-RED read example analog output:

The screenshot shows the configuration window for a 'Modbus-Read' node in Node-RED. The window title is 'Edit Modbus-Read node'. At the top, there are buttons for 'Delete', 'Cancel', and 'Done'. Below this is a 'Properties' section with a gear icon and icons for help, save, and refresh. The 'Settings' tab is active, and the 'Optional' tab is also visible. The configuration fields are as follows:

- Name: Name
- Topic: Topic
- Unit-Id: (empty)
- FC: FC 3: Read Holding Registers (dropdown)
- Address: 0
- Quantity: 2
- Poll Rate: 1 (dropdown) second(s) (dropdown)
- Delay to activate input:
- Server: localhost (dropdown) [edit icon]

### Node-RED write example analog output:

The screenshot shows the configuration window for a 'Modbus-Write' node in Node-RED. The window title is 'Edit Modbus-Write node'. At the top, there are buttons for 'Delete', 'Cancel', and 'Done'. Below this is a 'Properties' section with a gear icon and icons for help, save, and refresh. The 'Settings' tab is active, and the 'Optional' tab is also visible. The configuration fields are as follows:

- Name: Name
- Unit-Id: (empty)
- FC: FC 6: Preset Single Register (dropdown)
- Address: 0
- Delay to activate input:
- Server: localhost (dropdown) [edit icon]

---

## Calibration of analogue input/output values

It is possible that the read/written value of the inputs/outputs of the Edge Controller deviates from the expected values. In that case, calibration is a possibility to restore this. Calibration can be done by software by adjusting a number in the following files on the Edge Controller:

'/etc/io/inputCorrection' and '/etc/io/outputCorrection'

The default calibration value in these files is 1, shown by the setup in Figure 3: Analog Input Use/Testing To mimic, the correct output/input value can be achieved by adjusting the calibration value.