Qortal Core Setup Guide ~ Raspberry Pi 4

NEWBIE "COMFY" EDITION

Created by Anthony Clark, 06 March 2021 @ 3:17 pm AEST | Last updated 12 March 2021 @ 11:04 am AEST.
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Need help? 🤕

Have you read the whole guide… but you're still stuck and can't find a solution? Ask your questions or just say 'hi' in one of the Qortal support or community channels:

Telegram

Qortal Official Tech Support

Qortal Project Official (English) Chat

Qortal Project Official (Chinese) Chat

Qortal Project Official (French) Chat

Qortal Project Official (German) Chat

Qortal Project Official (Spanish) Chat

Discord

Qortal Project Official Discord Community Server

Qortal Website

Welcome! 👋

This document will guide you through the complete process of setting up and running a Qortal Core node on a Raspberry Pi 4 (RPi4) mini computer. This guide is designed to be very clear and easy to follow, especially for people who are not familiar with using the terminal or command line on a computer. If you have never even heard of those things, that's okay! Just follow the steps exactly as written and you will have success.

While a RPi4 can be used without many accessories, this guide is specifically for people who prefer a "comfortable desktop experience" (keyboard, mouse, monitor) for their RPi4. Therefore we will be recommending you acquire these components in Section A. If you are a more advanced user and do not need these extras, then refer to this guide:

If you get stuck or need clarification, feel free to contact the Qortal Community via the **Need help?** section at the beginning of this guide.

Section A - Acquire your computer and accessories for running Qortal.

As mentioned earlier, this guide is specifically for running Qortal on a RPi4 *and* is designed for people who like a "comfortable desktop experience".

Note: the Raspberry Pi is a very customizable computer, with many different accessories available for it; however, we have written this guide to help you get up and running as fast and smoothly (and frustration-free) as possible. Feel free to experiment with other parts or configurations if you wish, but we cannot guarantee you will have the "fast, smooth, non-frustrating" experience you would have if you choose to do so.

Here is a list of the components you will need to purchase:

- Official Raspberry Pi 4 Desktop Kit
    - [Link to buy from PiHut](#) - $161.00 USD
        - This reseller ships to the USA, UK, Europe, Germany, Spain, France, Italy, India, and Australia.
    - [Link to buy from PiAustralia](#) - $240.90 AUD
        - If you live in Australia and want to receive your RPi4 faster (and get free shipping), order from this reseller.
    - [Link to buy from BuyaPit](#) - $134.95 CAD
        - If you live in Canada and want to receive your RPi4 faster, order from this reseller.

- - Link to buy from Amazon USA
    - Link to buy from Amazon Canada
    - Link to buy from Amazon Australia
    - [Link to buy from PiAustralia](#) - $34.00 AUD
  - Raspberry Pi 4 Armor Case with Dual-Fan
    The 'Armor Case' is a heat sink and dual-fan case that replaces the standard Raspberry Pi 4 case that comes with the desktop kit. This is essential for long term use, as the heat built up from running Qortal on your RPi4 will degrade its performance and eventually wear it out.
    - [Link to buy from Geekworm](#) - $15.99 USD
    - [Link to buy from DFRobot](#) - $17.90 USD
    - [Link to buy from Amazon USA](#) - $#
    - Link to buy from Amazon Canada - $#
    - Link to buy from Amazon Australia - $#
  - Monitor with HDMI connector
    - [to do: find a reasonably priced monitor to recommend]
    - #
    - #
  - MicroSD Card 256 GB (Extreme / Durable / High Endurance)
    - [Link to buy from Amazon USA](#) - $41.40 USD
    - Link to buy from Amazon Canada - $#
    - Link to buy from Amazon Australia - $#

Section B - Assemble your computer.

Download Raspberry Pi Imager onto your second computer and burn RaspberryPi Os 32bit to your sd card.Here's the [link](#) to Raspberry Pi Imager.
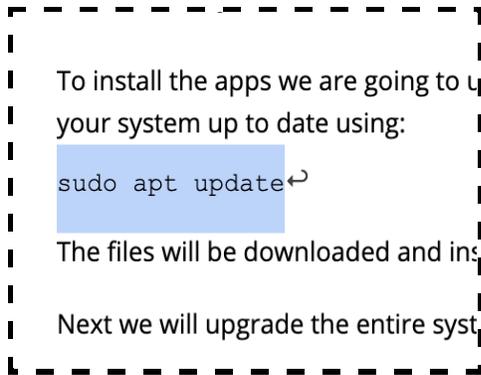Here is a link to a complete guide on how to set up the Pi and peripherals.
[How to set up your new Raspberry Pi 4 and peripherals](#)
[How to install Armor Case on your Raspberry Pi 4](#)

Now that your machine is set up with Raspberry Pi OS, a keyboard and mouse, we can install Qortal. We will be using the Terminal application found in the top left menu to install everything.
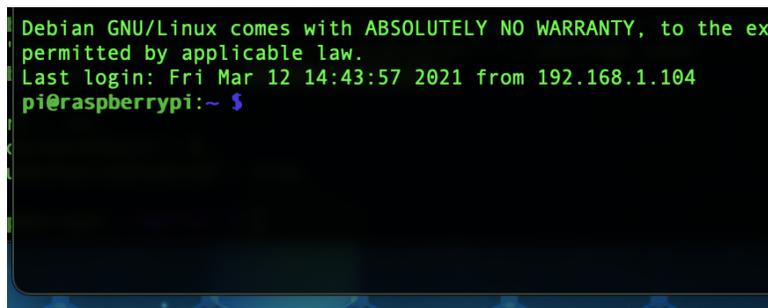
Section C - Install required apps on your Raspberry Pi 4.

For clarity all commands to be typed by you are followed by ↵ symbol to denote pressing enter key. Simply copy and paste the relevant text from this guide into the terminal like this.
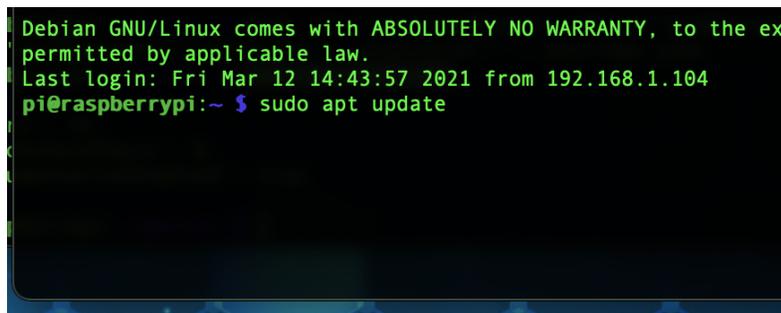
To install the apps we are going to ¦
your system up to date using:

`sudo apt update`↵

The files will be downloaded and ins¦

Next we will upgrade the entire syst¦

Right click copy
Then right click in terminal

```
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the ex
permitted by applicable law.
Last login: Fri Mar 12 14:43:57 2021 from 192.168.1.104
pi@raspberrypi:~ $
```

And choose paste

```
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the ex
permitted by applicable law.
Last login: Fri Mar 12 14:43:57 2021 from 192.168.1.104
pi@raspberrypi:~ $ sudo apt update
```
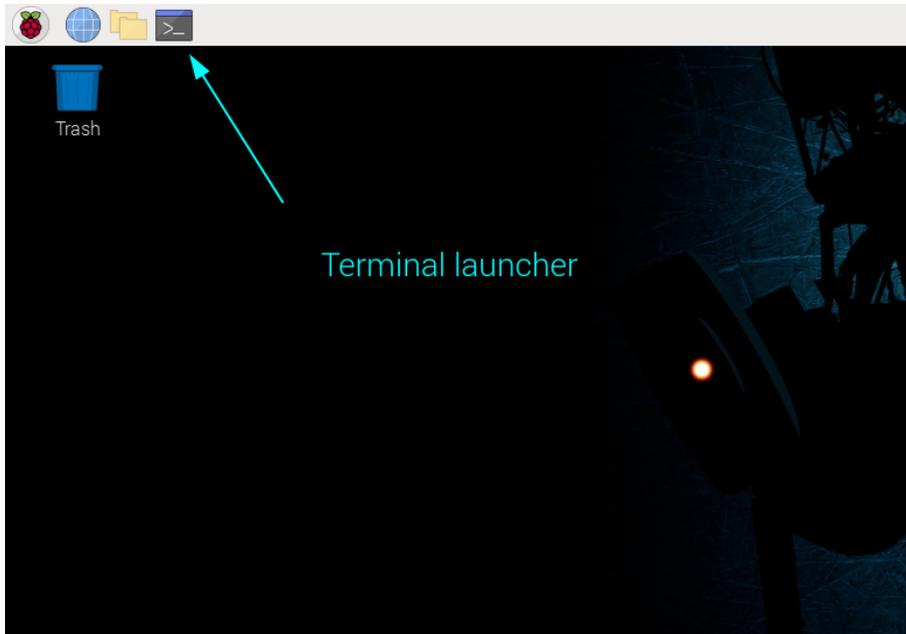
Press enter and off you go.

You will need Java installed on the raspberry pi as well as 7zip.

To install them, open a terminal window by navigating to the start menu and opening the Terminal app or simply click the launcher as indicated below.

In the Terminal window,get your system up to date using:

```
sudo apt update
```

The files will be downloaded and installed.

Next we will upgrade the entire system to the latest version using:

```
sudo apt full-upgrade
```

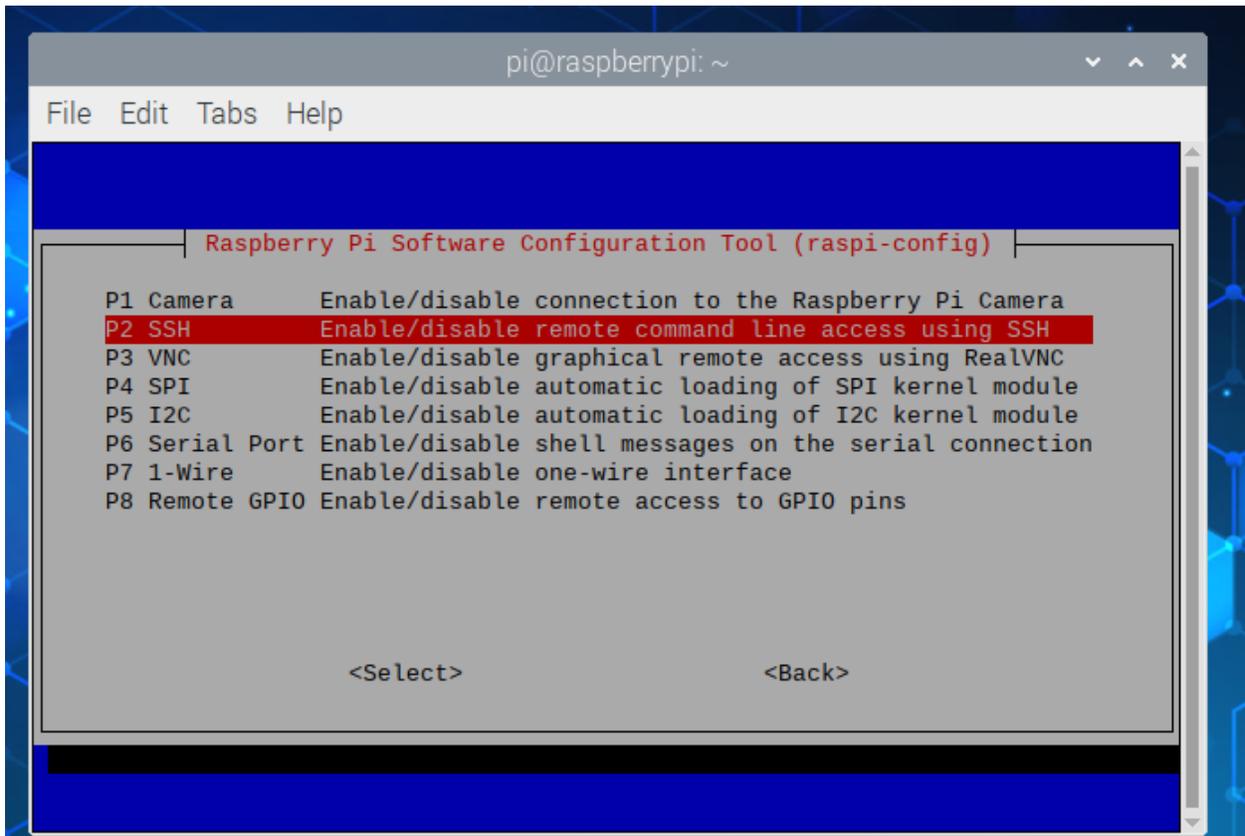It will check what's needing to be upgraded and a prompt will appear, type y and press enter.
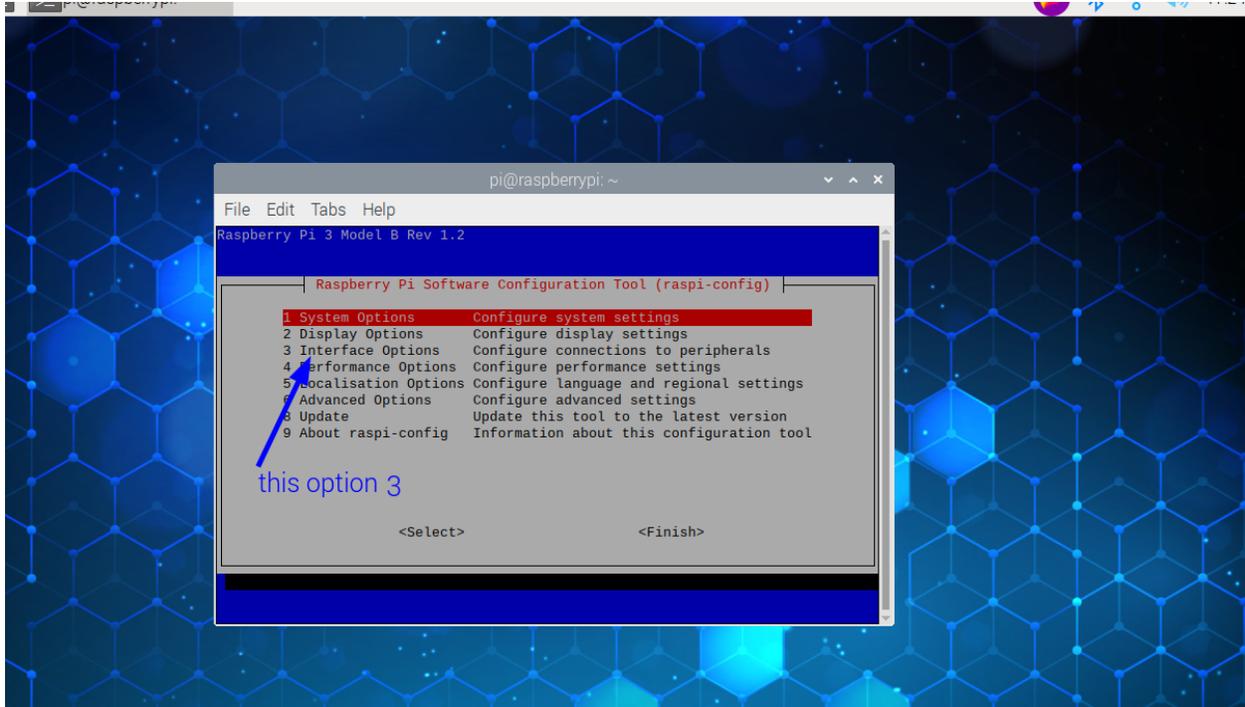
```
y
```

Now we will configure the system to allow remote access via ssh and enable RealVNC to view your Raspberry desktop using a remote computer:

```
sudo raspi-config
```

Use your arrow to navigate and enter to select as shown below.

Navigate to the finish button and select and press enter.
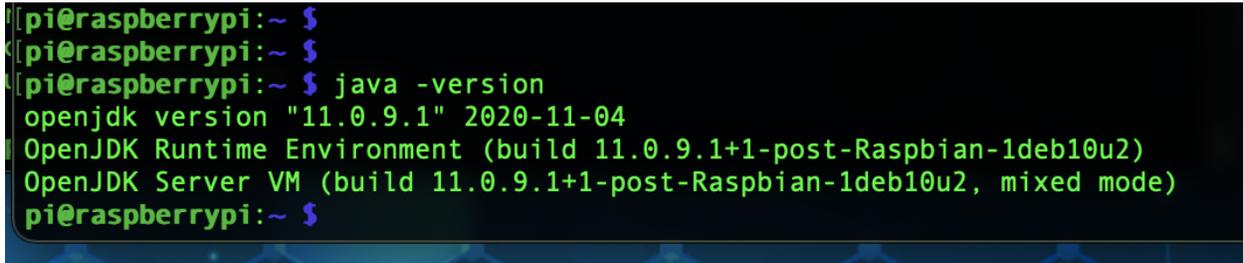
You will find yourself back in the terminal window.

Now that your system is up to date, let's install Java:

```
sudo apt install default-jdk↵
```

To check if it's installed properly, type:
```
java -version↵
```
This will display your currently installed version of java and display something like

Assuming all went well and Java is installed, we now install 7zip:
```
sudo apt-get install p7zip-full -y↵
```
It will be done shortly.

Section E - Install Qortal Core on your Raspberry Pi 4.

In the terminal:
```
wget https://github.com/Qortal/qortal/releases/download/v1.4.3/qortal-1.4.3.zip↵
```
This will download the core zip file to your PI.
Now we unzip it with:
```
unzip qortal-1.4.3.zip↵
```
Then enter the newly unzipped Qortal directory using:
```
cd qortal↵
```
Now we will download the zipped database file:

Type the command
```
ls↵
```
This will show you a list of all the files in the Qortal folder.
It should look like this

```
[pi@raspberrypi:~ $ unzip qortal-1.4.3.zip
 Archive:  qortal-1.4.3.zip
    creating: qortal/
   inflating: qortal/log4j2.properties
   inflating: qortal/qortal.jar
  extracting: qortal/settings.json
   inflating: qortal/start.sh
   inflating: qortal/stop.sh
[pi@raspberrypi:~ $ cd qortal
[pi@raspberrypi:~/qortal $ ls
 log4j2.properties  qortal.jar  settings.json  start.sh  stop.sh
 pi@raspberrypi:~/qortal $
```

To download the database type:

wget https://qortal.tmgoxford.com/db.7z ↵

Be patient. It's a huge file and will take a while to complete.
When it's done downloading, your prompt will reappear and you can continue installing.
Extract the database:
7z x db.7z↵
This will also take quite some time.
When it's done extracting, your prompt will reappear and you can continue.
Now you must grant permissions to the scripts in the folder so you can run them.
chmod a+x *.sh↵
Next we edit the configuration file to optimize for raspberry pi

echo -en echo -en "{\n\"maxPeers\": 32,\n\"minBlockchainPeers\":
8,\n\"apiDocumentationEnabled\": true\n}\n\"" > settings.json

Let's make sure it did what is required, let's display the settings.json file by:
cat settings.json↵
You should get the following

```
[pi@raspberrypi:~/qortal $ ls
 log4j2.properties  qortal.jar  settings.json  start.sh  stop.sh
[pi@raspberrypi:~/qortal $ chmod  a+x *.sh
[pi@raspberrypi:~/qortal $ echo -en "{\n\"maxPeers\": 32,\n\"minBlockchainPeers\"]
 : 8,\n\"apiDocumentationEnabled\": true\n}\n\"" > settings.json
[pi@raspberrypi:~/qortal $ cat settings.json
 {
 "maxPeers": 32,
 "minBlockchainPeers": 8,
 "apiDocumentationEnabled": true
 }
 "pi@raspberrypi:~/qortal $
```

Assuming all went well to this point you can now start the core:
./start.sh↵

It should tell you it's passed the java version check and give you the PID
Passed Java version check
qortal running as pid (whatever PID digits it assigns)

A moment or two later the logo will appear, center screen

and after about 20-30 seconds a small Qortal icon will appear in the top right section of your screen.

Give it a minute or two to start making connections and then hover your mouse over the icon. Connection data will appear, synchronization %, number of peers you are connected to and the current block height you are at.

CONGRATULATIONS. Your node is up and running.

# To stop it gracefully at any point open a terminal:
```
cd /qortal↵
./stop.sh↵
```

Currently it is not easy to setup the User Interface (UI) on the raspberry pi. You can connect the running core on your Raspberry Pi to a second computer that has theUI installed with the following method :
On Mac, open the terminal application and tell the mac to set up an SSH connection to your pi using the following command to connect the correct ports:
```
ssh -L 22391:127.0.0.1:12391 pi@your pi's local ip address↵
```
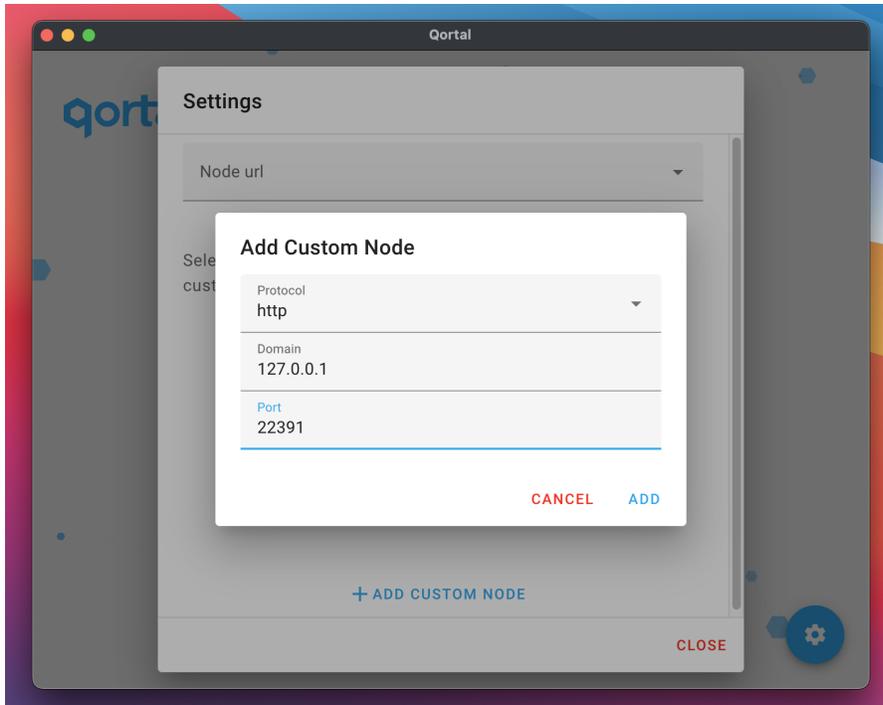
This takes the output from port 12391 on your pi to port 22391 on your Mac
Now we open the UI on the Mac and follow the steps to use this new connection.
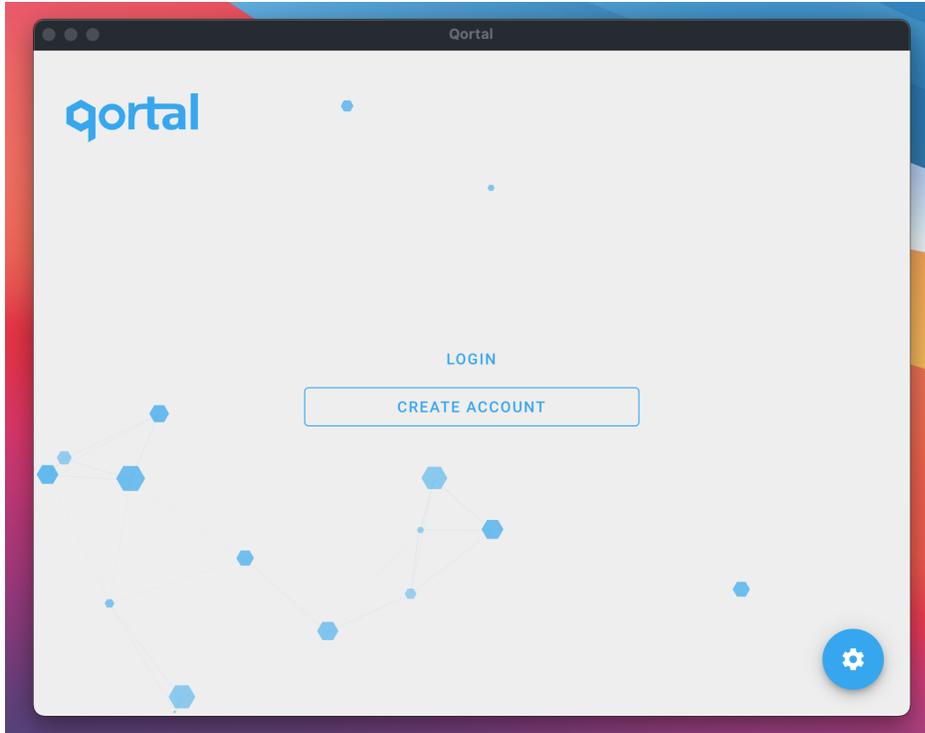
Select add custom node
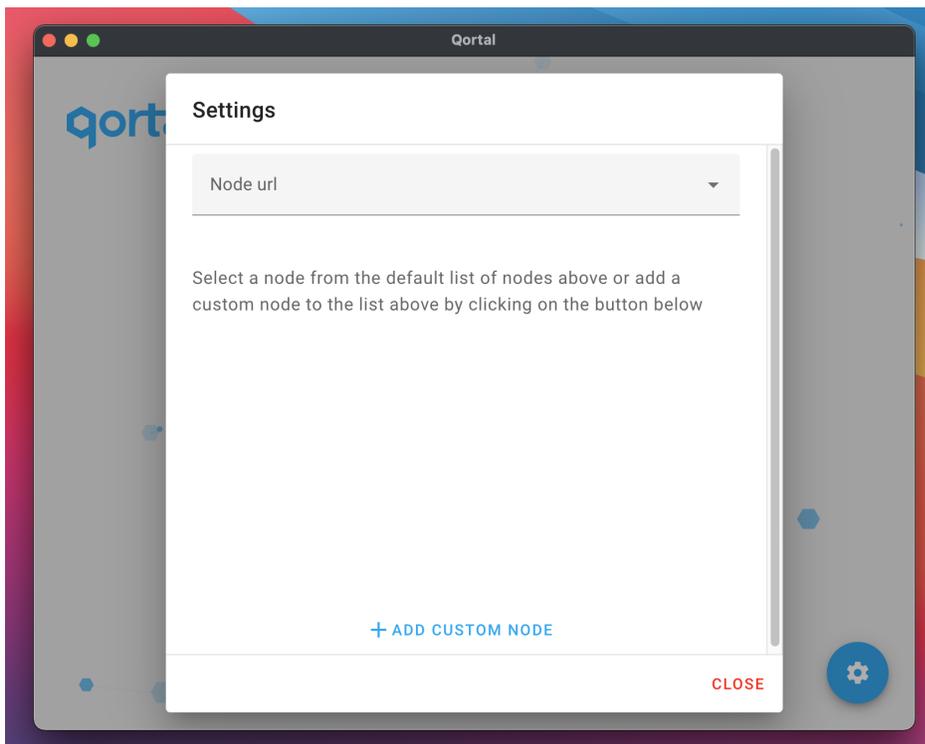
In each dropdown menu, select the following options
Protocol=Http, Domain=127.0.0.1, port=22391

Click add and on the Settings page select your newly added node. Login as usual if you have an account, or follow the steps presented to create an account if you don't have one yet..

An expanded version of this guide will be available soon, with the next steps and a list of useful commands.