Step-by-step instructions for Ubuntu 20.04.2 (Focal Fossa)

❗ **Note**

These instructions can be used almost unchanged on Ubuntu 18.04 (Bionic Badger). We note differences where they occur.

Dependencies

Install the CARTA backend and other required packages

```
# Add CARTA PPA
sudo add-apt-repository ppa:cartavis-team/carta
sudo apt-get update

# Install the beta backend package with all dependencies
sudo apt-get install carta-backend-beta

# Install additional packages
sudo apt-get install nginx g++ mongodb make curl
```

Set up directories and permissions

Ensure that all users who should have access to CARTA belong to a group that identifies them (assumed here to be called `carta-users`).

```
# create a 'carta' user to run the controller
sudo adduser --system --home /var/lib/carta --shell=/bin/bash --group carta

# add 'carta' user to the shadow group (only required for PAM UNIX authentication)
sudo usermod -a -G shadow carta

# log directory owned by carta
sudo mkdir -p /var/log/carta
sudo chown carta: /var/log/carta

# config directory owned by carta
sudo mkdir -p /etc/carta
sudo chown carta: /etc/carta

# edit sudoers file to allow passwordless sudo execution of
# /usr/local/bin/carta-kill-script and /usr/bin/carta_backend
# by the carta user
sudo visudo -f /etc/sudoers.d/carta_controller
```

An example sudoers configuration is provided in the configuration section.

Configure nginx

A sample configuration file is provided in the configuration section. This should be adapted to your server configuration. The relevant part of the config is for forwarding `/` to port 8000.

Install CARTA controller

ⓘ Note

Currently supported versions of NodeJS are v12, v14 and v16. In the example below we install the latest LTS version of NodeJS from the NodeSource repo. Do not pass the `--unsafe-perm` flag to `npm` if using a local install.

```
# Install the latest NodeJS LTS repo
curl -fsSL https://deb.nodesource.com/setup_lts.x | sudo -E bash -

# Install NodeJS, NPM and tools required to compile native addons
sudo apt-get install -y nodejs build-essential

# Install carta-controller (includes frontend config)
sudo npm install -g --unsafe-perm carta-controller@beta

# Install PM2 node service
sudo npm install -g pm2

# Switch to carta user
sudo su - carta

# Generate private/public keys
cd /etc/carta
openssl genrsa -out carta_private.pem 4096
openssl rsa -in carta_private.pem -outform PEM -pubout -out carta_public.pem
```

Configure controller

Edit `/etc/carta/config.json` to customise the appearance of the dashboard and other options. A sample configuration file is provided in the configuration section.

Run controller

This should be executed as the `carta` user.

```
pm2 start carta-controller
```

Create pm2 startup script

This service will start the controller automatically after a reboot. Please refer to the pm2 documentation for detailed instructions. You should run `pm2 startup` as `carta`, execute the generated command as a user with `sudo` access, and finally run `pm2 save` as `carta` to save the running controller process.