

command-line execution flow on a Linux system

System Prerequisites (Run Once):

1. sudo apt update
2. sudo apt install -y python3 python3-pip nodejs npm curl
3. python3 --version
4. pip3 --version
5. node --version
6. npm --version

Backend Setup (Flask + SocketIO + OPC UA)

1. cd backend
2. python3 -m pip install --upgrade pip --break-system-packages
3. pip3 install flask flask-jwt-extended flask-socketio eventlet opcua --break-system-packages
4. cd ..

Frontend Setup (Node.js)

1. cd frontend
2. curl -fsSL https://deb.nodesource.com/setup_18.x | sudo -E bash -

3. sudo apt install -y nodejs
4. node -v
5. npm -v
6. npm install
7. cd ..

Final Execution

Terminal 1:

```
cd backend
```

```
python3 run.py
```

Terminal 2:

```
cd frontend
```

```
npm run dev
```