# Installation and Configuration of Node-RED on Ubuntu 16.04 LTS

## References

1. <https://diyprojects.io/node-red-installation-configuration-ubuntu-16-04-lts/#.WkmDhjdOmUk>
2. <https://www.digitalocean.com/community/tutorials/how-to-connect-your-internet-of-things-with-node-red-on-ubuntu-16-04>
3. <https://www.digitalocean.com/community/tutorials/initial-server-setup-with-ubuntu-16-04>

## Prerequisites

1. Install Ubuntu (Desktop or Server) 16.04 LTS 64-bit
2. Install helper tools
   1. Install VMware Tools as required
   2. Installing ‘run-as-administrator’ may be helpful.
      1. sudo add-apt-repository ppa:noobslab/apps
      2. sudo apt-get update
      3. sudo apt-get install open-as-administrator
3. Open a terminal session and have super user creds

## Basic Install Procedure

1. Install Node.js & verify version
   1. sudo apt-get install nodejs-legacy
   2. node -v
      1. Output = “v4.2.6”
2. Install Node Package Manager (npm)
   1. sudo apt-get install npm
   2. npm -v
      1. Output = “3.5.2”
3. Install Node-RED & allow the default port (1880)
   1. sudo npm install -g --unsafe-perm node-red node-red-admin
   2. sudo ufw allow 1880
   3. Note: you can now manually run Node-RED:
      1. To run Node-RED, run the ‘node-red’ command. Can be accessed via http://localhost:1880
      2. To stop Node-RED, press ‘Ctrl+C’

## Setup to Run as a Service

1. Create a user account to run Node-RED as.
   1. sudo adduser nreddaemon
      1. Set the password to ‘nreddaemon’
   2. sudo usermod -aG sudo nreddaemon
2. Create the service definition file
   1. Open an empty file named node-red.service
      1. sudo nano /etc/systemd/system/node-red.service
   2. Enter the following text:

[Unit]

Description=Node-RED

After=syslog.target network.target

[Service]

ExecStart=/usr/local/bin/node-red-pi --max-old-space-size=128 -v

Restart=on-failure

KillSignal=SIGINT

# log output to syslog as 'node-red'

SyslogIdentifier=node-red

StandardOutput=syslog

# non-root user to run as

WorkingDirectory=/home/nreddaemon/

User= nreddaemon

Group= nreddaemon

[Install]

WantedBy=multi-user.target

* 1. Save and close by pressing ‘Ctrl+X’ then ‘Y’

1. Enable the service
   1. sudo systemctl enable node-red

## Useful Packages to Install for Node-RED

1. Lodash
2. DocxTemplater
3. Async
4. Opcua

## Maintenance Commands

1. Start & Stop the Service
   1. sudo systemctl start node-red
   2. sudo systemctl stop node-red

## Miscellaneous

1. Not sure if this path is important or not:
   1. /usr/local/lib/node\_modules/node-red/settings.js
2. Manual access to the Node-RED configuration files.
   1. To open the folder with the config files:
      1. Open a terminal session and run following command:
         1. nautilus /home/nreddaemon/.node-red/
      2. Note ‘/home/nreddaemon/’ is the WorkingDirectory from the service script above.
   2. Edit ‘settings.js’ to add addition require() statements to the global variables.
   3. Edit ‘flows\_*MACHINENAME*.json’ to inject code into a Node-RED flow or the whole flow.
      1. Note: *MACHINENAME* = the machine name of the VM. In my case, it is UbuntuDktp.