**Rose Engine Task Automation System (RETAS)**

**Software Installation and Setup**

**Version 0.01**

**23 November 2023**

# Overview

This document is for installing and setting up LinuxCNC on the Raspberry Pi 4.

# Prerequisites

This set of instructions requires you have the following.

1. A computer connected to the internet with Windows, macOS, or Linux.
2. A microSD card reader/writer on that computer.
3. A Raspberry Pi 4B
4. A Mesa 7C81 RPI FPGA board

# Instructions

| # | Instructions and Comments |
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| 1 | Download and install the latest Raspberry Pi Imager (version 1.8.1 or later). This is available at <https://www.raspberrypi.com/software/>.  The Raspberry Pi Imager is used to create the boot disk for the Raspberry Pi using the image downloaded in step 2. |
| 2 | Download the LinuxCNC image file,  LinuxCNC 2.9.1 Raspberry Pi OS based on Debian 12 Bookworm  This is available at <http://linuxcnc.org/downloads>. The file which gets downloaded is  linuxcnc-2.9.1-bookworm-rpi.img.xz  Be sure to get the one for the Raspberry Pi. It is probably not the 1st one on the list. |
| 3 | Create the boot disk for the Raspberry Pi using the Raspberry Pi Imager on the computer from step 1 above.   1. Insert the microSD card into the computer. 2. Start the Raspberry Pi Imager.    1. Choose Device = Raspberry Pi 4    2. Choose OS = Use Custom (the bottom selection), then select the file you downloaded (linuxcnc-2.9.1-bookworm-rpi.img.xz).    3. Choose Storage = the microSD card you just added. Be sure to not select your computer’s main hard drive.    4. Click Next    5. There is no need to set the options here: they get ignored anyway. Click the button to build the image onto the microSD card. |
| 4. | Install the microSD card into the Raspberry Pi and start the Raspberry Pi. When presented with the login screen, login with these credentials:  Username = cnc  Password = cnc |
| 5. | Set some system options.   1. Open a terminal session 2. sudo menu-config    1. Set the system name to “linuxcnc”    2. Wi-Fi is not active by default. Activate it and connect to your network if desired. |
| 6. | Update the system   1. sudo apt-get update 2. sudo apt-get upgrade 3. sudo autoremove 4. sudo reboot |
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| 99 | Disable the options no longer needed when the system is deployed for use on the rose engine.   1. Wi-Fi is not needed, so disable it.    1. Open a terminal session    2. sudo menu-config |

# Modification History

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| Version | Date | Comments |
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