

LinuxCNC for Rose Engine Task Automation System (RETAS)

Software Installation and Setup

**Version 0.01
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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
- 5.

Instructions

#	Instructions and Comments
1	<p>Download and install the latest Raspberry Pi Imager (version 1.8.1 or later). This is available at https://www.raspberrypi.com/software/.</p> <p>The Raspberry Pi Imager is used to create the boot disk for the Raspberry Pi using the image downloaded in step 2.</p>
2	<p>Download the LinuxCNC image file,</p> <p style="text-align: center;">LinuxCNC 2.9.1 Raspberry Pi OS based on Debian 12 Bookworm</p> <p>This is available at http://linuxcnc.org/downloads. The file which gets downloaded is</p> <p style="text-align: center;">linuxcnc-2.9.1-bookworm-rpi.img.xz</p> <p>Be sure to get the one for the Raspberry Pi. It is probably not the 1st one on the list.</p>
3	<p>Create the boot disk for the Raspberry Pi using the Raspberry Pi Imager on the computer from step 1 above.</p> <ol style="list-style-type: none">a. Insert the microSD card into the computer.b. Start the Raspberry Pi Imager.<ol style="list-style-type: none">i. Choose Device = Raspberry Pi 4ii. Choose OS = Use Custom (the bottom selection), then select the file you downloaded (linuxcnc-2.9.1-bookworm-rpi.img.xz).iii. Choose Storage = the microSD card you just added. Be sure to not select your computer's main hard drive.iv. Click Nextv. There is no need to set the options here: they get ignored anyway. Click the button to build the image onto the microSD card.

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#	Instructions and Comments
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. a. Open a terminal session b. sudo menu-config i. Set the system name to "linuxcnc" ii. Wi-Fi is not active by default. Activate it and connect to your network if desired.
6.	Update the system a. sudo apt-get update b. sudo apt-get upgrade c. sudo autoremove d. sudo reboot
99	Disable the options no longer needed when the system is deployed for use on the rose engine. a. Wi-Fi is not needed, so disable it. i. Open a terminal session ii. sudo menu-config b.

Modification History

Version	Date	Comments