Electronics I - Program Installation Guide

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1 Introduction

This document contains the links and instructions for installing the required programs for Electronics I course. If you are using a laptop provided by University of Helsinki, you will need administrator rights to install new programs. The following page gives instructions to get these rights:

https://wiki.helsinki.fi/display/it4sci/Administrator+(sudo)+rights+in+Cubbli+Linux

After you have succesfully received your sudo rights, restart the computer. The next steps won't work before restarting.

If you have problems installing the programs, or if you want more instructions on how to use them, you can contact your course assistant Petteri Salminen (petteri.salminen@helsinki.fi).

2 Scopy

Scopy is the program for ADALM2000, the combined signal generator and oscilloscope which we will use for hands-on tasks during the exercise sessions. Note that the newest version of Scopy is 1.4.1.

2.1 How to install on Ubuntu – Step by step

1. Insert the following commands to the terminal :

   ```
   sudo add-apt-repository ppa:alexlarsson/flatpak
   sudo apt update
   sudo apt install flatpak
   flatpak remote-add --if-not-exists flathub https://flathub.org/repo/flathub.flatpakrepo
   ```

2. Download Scopy-v1.4.1-Linux-x86-64.zip

3. Unzip the file and install it with the following command :

```
flatpak install Scopy-v1.4.1-Linux-x86-64.flatpak
```

2.2 Running the program

You might need to use SUDO to run the program. This can be done with the following command:

```
sudo -i flatpak run org.adi.Scopy
```

This might take a while.

3 Wine

Wine is software which enables the use of Windows applications on Linux. If you are using Linux (i.e. fuxiläppäri) you need to install Wine to use LTspice.

3.1 How to install on Ubuntu – Step by step

1. Insert the following commands to the terminal :

```
sudo dpkg --add-architecture i386
sudo mkdir -pm755 /etc/apt/keyrings
sudo wget -O /etc/apt/keyrings/winehq-archive.key https://dl.winehq.org/wine-builds/winehq.key
```

2. Check your Ubuntu release version and download the corresponding Wine version. Check your Ubuntu version with the following command:

```
cat /etc/os-release
```

   (a) If you have Ubuntu 18.04, use the following command:
```
sudo wget -NP /etc/apt/sources.list.d/ https://dl.winehq.org/wine-builds/ubuntu/dists/bionic/winehq-bionic.sources
```
   (b) If you have Ubuntu 20.04:
```
sudo wget -NP /etc/apt/sources.list.d/ https://dl.winehq.org/wine-builds/ubuntu/dists/focal/winehq-focal.sources
```
   (c) If you have Ubuntu 22.04:
```
sudo wget -NP /etc/apt/sources.list.d/ https://dl.winehq.org/wine-builds/ubuntu/dists/jammy/winehq-jammy.sources
```
   (d) If you have Ubuntu 22.10:
```
sudo wget -NP /etc/apt/sources.list.d/ https://dl.winehq.org/wine-builds/ubuntu/dists/kinetic/winehq-kinetic.sources
```

3. Insert following commands to the terminal to finish the installation :

```
sudo apt update
sudo apt install --install-recommends wine-stable
```

4 LTspice

LTspice is a circuit simulation program which we will be using in the exercises.

4.1   How to install on Ubuntu – Step by step

1. Install **Wine** as instructed in this document

2. Go to https://www.analog.com/en/design-center/design-tools-and-calculators/ltspice-simulator.html

3. Download LTspice for Windows 10 64-bit and forward

4. Open the directory containing the .msi file with terminal

5. Run the .msi file with the following command:
   ```
   wine msiexec \LTspice64.msi
   ```

6. LTspice installation window should pop up now. Follow the instructions on it to finish the installation.

5   KiCad - optional

KiCad is an open-source electronics design program which can be used to draw the schematics and create the PCB layout.

5.1   How to install on Ubuntu – Step by step

Find and install KiCad from your favorite Package Manager, or go to this page and follow the instructions.