

The following steps were tested using the ubuntu-18.04.5-desktop-amd64.iso image file and Oracle VM VirtualBox 6.1 running on Windows 10:

After creating a new virtual machine in VirtualBox and installing Ubuntu 18.04 from iso file the following steps were performed:

This procedure assume a clean Ubuntu 18.04 install, the state of your linux may vary from this.

Steps to install and run ALICE with libsmu and python bindings:

After creating a working folder (ALM-Software was chosen) to start in.

Using a Browser:

Download libsmu-1.0.2-ubuntu-18.04-amd64.deb file

from:

<https://github.com/analogdevicesinc/libsmu/releases/download/v1.0.2/libsmu-1.0.2-ubuntu-18.04-amd64.deb>

to working folder

Download alice version-1.3 source code zip file

from:

<https://github.com/analogdevicesinc/alice/archive/Version-1.3.zip>

and unzip (extract) to working folder

Open a terminal in working folder, type the following commands:

1. ~\$ sudo apt-get update
2. ~\$ sudo apt-get install git python3-pip libusb-1.0
3. ~\$ sudo python3 -m pip install numpy
4. ~\$ sudo apt-get install idle3 tk

Verify numpy and tKinter

~\$ python3

Python 3.6.9 (default, Jul 17 2020, 12:50:27)

[GCC 8.4.0] on linux

Type "help", "copyright", "credits" or "license" for more information.

```
>>> import numpy
>>>
>>> import tkinter
>>>
>>> exit()
exit Python
```

Verify can see m1k USB device (plug in m1k to a usb port)

```
~$ lsusb
```

```
Bus 001 Device 003: ID 064b:784c Analog Devices, Inc. (White Mountain DSP)
```

5. ~\$ sudo apt-get install libboost-all-dev

6. ~\$ sudo python3 -m pip install cython

7. ~\$ sudo dpkg -i libsmu-1.0.2-ubuntu-18.04-amd64.deb libboost errors

8. Unplug / replug m1k from usb port (i.e. do a power cycle / reattach)

Test installed libsmu for smu cli

```
~$ smu
```

smu: utility for managing M1K devices

```
-h, --help          print this help message and exit
--version          show libsmu version
-l, --list-devices  list supported devices currently attached to the system
-p, --hotplug-devices  simple session device hotplug testing
-s, --stream-samples  stream samples to stdout from a single attached device
-d, --display-calibration  display calibration data from all attached devices
-r, --reset-calibration  reset calibration data to the defaults on all attached devices
-w, --write-calibration <cal file> write calibration data to a single attached device
-f, --flash <firmware image> flash firmware image to a single attached device
```

More testing m1k with smu

```
~$ smu --version
```

```
1.0.2
```

```
~$ smu -l
```

```
ADALM1000: serial 2031205050485230313530303830313 : fw 2.17 : hw F
```

9. ~\$ git clone https://github.com/analogdevicesinc/libsmu.git

10. ~\$ cd libsmu/bindings/python

11. ~\$ python3 setup.py build

12. ~\$ sudo python3 setup.py install

Back out to working folder:

```
cd ..
```

```
cd ..
```

```
cd ..
```

Verify pysmu

```
~$ python3
```

```
Python 3.6.9 (default, Jul 17 2020, 12:50:27)
```

```
[GCC 8.4.0] on linux
```

```
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> import pysmu
```

```
>>> exit()
```

```
exit python
```

13. ~\$ cd alice-Version-1.3

Run ALICE:

14. ~\$ python3 ./alice-desktop-1.3.pyw

**Note:** When using the libsmu-1.0.2-ubuntu-18.04-amd64.deb on Ubuntu 20.04 (which is built using Ubuntu 18.04) will report an error about libboost, ignore that, however because of the "failed" install other installs attempted after that will not work until failed install is removed, that will cause libsmu to be removed.