

## Install NativeCAM LinuxCNC 2.9.4, based on Debian 12 Bookworm

Thanks FernV, freemoore and Giovanni for their work to get NativeCAM running with LinuxCNC 2.9.4.

This guide based on NativeCAM-Python3-Debian-Installationguide2025-02-09 from **Giovanni**.

With this new version i want to share all from the LinuxCNC-Forum topic compact for an easy and fast installation.

I have made a LinuxCNC fresh install by using the installation image from LinuxCNC web site:

[https://www.linuxcnc.org/iso/linuxcnc\\_2.9.4-amd64.hybrid.iso](https://www.linuxcnc.org/iso/linuxcnc_2.9.4-amd64.hybrid.iso) (based on Debian 12 Bookworm)

This time I don't have tested this guide on the new Debian 13 Trixie installation (linuxcnc\_2.9.8-amd64.hybrid.iso and later ) or on an other architecture like ARM/Raspberry Pi

### 1. First install:

In the terminal:

if not done before:

```
( sudo dpkg -P raspi-firmware )
```

```
( sudo apt update && sudo apt upgrade && sudo apt autoremove )
```

```
sudo apt install python3-lxml git
```

2. Download NativeCAM from <https://github.com/freemoore/NativeCAM> mit:

```
git clone https://github.com/freemoore/NativeCAM
```

### 3. Copy it on the right place

Verify that the path /usr/share/linuxcnc/gladevcp/ is in your disk.

In the terminal you could type:

```
ls /usr/share/linuxcnc/
```

If there is no folder named gladevcp create it:

```
sudo mkdir /usr/share/linuxcnc/gladevcp
```

Then move the NativeCAM folder in: /usr/share/linuxcnc/gladevcp/ with:

```
sudo mv NativeCAM /usr/share/linuxcnc/gladevcp/
```

Now ncam.py should be in:

```
/usr/share/linuxcnc/aux_gladevcp/NativeCAM/ncam.py
```

In the terminal you could type to verify:

```
ls /usr/share/linuxcnc/gladevcp/NativeCAM/
```

### 4. Check where python path is

Open the terminal and type:

```
pi@raspberrypi:~ $ python3
```

```
Python 3.11.2 (main, Nov 30 2024, 21:22:50) [GCC 12.2.0] on linux
```

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

```
>>>
```

```
import sys
```

```
>>>
```

```
import pprint
```

```
>>>
```

```
pprint.pprint(sys.path)
```

should show this:

```
['  
'usr/lib/python311.zip',  
'usr/lib/python3.11',  
'usr/lib/python3.11/lib-dynload',  
'usr/local/lib/python3.11/dist-packages',  
'usr/lib/python3/dist-packages',  
'usr/lib/python3.11/dist-packages']  
>>>
```

Type `exit()` to exit python interpreter and return to terminal  
These are the places where python will search for modules.

**5. Now we need to add the NativeCAM folder** to the path by creating a symbolic link to the NativeCAM files.

Move in the directory:

```
cd /usr/lib/python3/dist-packages
```

Create symbolic links to the files in the NativeCAM folder:

```
sudo ln /usr/share/linuxcnc/gladevcp/NativeCAM/ncam.py -s
```

```
sudo ln /usr/share/linuxcnc/gladevcp/NativeCAM/ncam.glade -s
```

```
sudo ln /usr/share/linuxcnc/gladevcp/NativeCAM/pref_edit.py -s
```

### 6. Modify `hal_pythonplugin.py` file

using a text editor, in example:

```
sudo geany /usr/lib/python3/dist-packages/gladevcp/hal_pythonplugin.py
```

Add the line, in example, at the top:

```
from ncam import NCam
```

**7. Start LinuxCNC** the first time and select the right configuration. After that the \*.ini will copy in your home-drive

### 8. Using NativeCAM embedded in LinuxCNC with AXIS.

Add the following lines in your .ini file inside [DISPLAY] section and changing username as the yours. The .ini is in a place like:

```
/home/username/linuxcnc/configs/sim.axis/
```

```
[DISPLAY]
```

```
# required NativeCAM item :
```

```
NCAM_DIR = ncam
```

```
# required NativeCAM item :
```

```
PROGRAM_PREFIX = ncam/scripts/
```

```
# required NativeCAM item :
```

```
EMBED_TAB_NAME = NativeCAM
```

```
EMBED_TAB_COMMAND = gladevcp -x {XID} -U --catalog=mill /usr/share/linuxcnc/gladevcp/NativeCAM/ncam.ui
```

```
.....
```

```
[RS274NGC]
```

```
PARAMETER_FILE = linuxcnc.var
```

```
SUBROUTINE_PATH = ncam/my-stuff:ncam/lib/mill:ncam/lib/utilities
```

Now when run LinuxCNC, a NativeCAM tab should be available.

## 9. Using NativeCAM embedded in LinuxCNC with gmoccapy.

Add the following lines in your .ini file inside [DISPLAY] section and changing username as the yours. The .ini is in a place like:

/home/user/linuxcnc/configs/sim.gmoccapy/

[DISPLAY]

### Change to:

DISPLAY = gmoccapy

### Insert behind:

# required NativeCAM item :

NCAM\_DIR = ncam

# required NativeCAM item :

EMBED\_TAB\_NAME = right\_side\_panel

# required NativeCAM item :

EMBED\_TAB\_LOCATION = box\_right

# required NativeCAM item :

EMBED\_TAB\_COMMAND = gladevcp -x {XID} -U --catalog=mill /usr/share/linuxcnc/gladevcp/NativeCAM/ncam.ui

[RS274NGC]

RS274NGC\_STARTUP\_CODE = G17 G21 G40 G43H0 G54 G64P0.005 G80 G90 G94 G97 M5 M9

# required NativeCAM item :

PARAMETER\_FILE = linuxcnc.var

SUBROUTINE\_PATH = ncam/my-stuff:ncam/lib/mill:ncam/lib/utilities

### Delete all other in the [RS274NGC] section

Now when run LinuxCNC, a NativeCAM tab should be available.

More options you can see here:

[https://github.com/freemoore/NativeCAM/tree/master/configs/sim/gmoccapy/ncam\\_demo.2.8](https://github.com/freemoore/NativeCAM/tree/master/configs/sim/gmoccapy/ncam_demo.2.8)

**10. Optional: If it is needed to run NativeCAM standalone** from any place we need to add it to the command path.

cd /usr/bin/

sudo ln -s /usr/share/linuxcnc/gladevcp/NativeCAM/ncam.py /usr/bin/ncam

Now, to run the application simply type ncam.

To verify the path from which ncam is run:

which ncam

It should return: /usr/bin/ncam

You have the three options:

ncam --catalog=mill

ncam --catalog=lathe

ncam --catalog=plasma

## 11. Start with French or German as language:

Start from terminal as standalone:

```
export NATIVECAM_LOCALE=/usr/share/linuxcnc/gladevcp/NativeCAM/locale/  
export LANGUAGE=de  
ncam --catalog=mill
```

Start from a bash script as standalone:

```
#!/bin/bash  
export NATIVECAM_LOCALE=/usr/share/linuxcnc/gladevcp/NativeCAM/locale/  
export LANGUAGE=de  
ncam --catalog=mill
```

Start from a bash script integrated in LinuxCNC:

```
#!/bin/bash  
export NATIVECAM_LOCALE=/usr/share/linuxcnc/gladevcp/NativeCAM/locale/  
export LANGUAGE=de  
/usr/bin/linuxcnc '/home/user/linuxcnc/configs/sim.axis/axis_mm.ini'
```

## 12. Fix problem with save your preferences

replace the file `pref_edit.py` in the path `/usr/share/linuxcnc/gladevcp/NativeCAM/`

( <https://forum.linuxcnc.org/nativecam/53492-nativecam-on-linuxcnc-2-9-3?start=60#326152> )

## 13. Fix the lathe operation start

Replace the file `default_template.xml` in the path `/home/user/nativecam/catalogs/lathe/projects/`  
and

```
sudo geany /usr/share/linuxcnc/gladevcp/NativeCAM/cfg/lathe/material.cfg
```

Remove the line 84 "header h3". All the line, without leaving an empty line.

( <https://forum.linuxcnc.org/nativecam/53492-nativecam-on-linuxcnc-2-9-3?start=80#327780> )

## 14. Fix problems in turning and tool-change operations.

```
geany /usr/share/linuxcnc/gladevcp/NativeCAM/cfg/lathe/turning.cfg
```

search for the word "parent" (without quotes).

(maybe you could make a backup copy before editing)

I have found it in line 71, 99, 100

Place a semicolon (that it means comment) at the beginning of each line containing the word "parent".

Save the file.

Same procedure for the `tool-change.cfg` file.

```
geany /usr/share/linuxcnc/gladevcp/NativeCAM/cfg/lathe/tool-change.cfg
```

Please comment lines 76 to 80 and 198 to 203 containing "parent"

( <https://forum.linuxcnc.org/nativecam/53492-nativecam-on-linuxcnc-2-9-3?start=94#332430> )

## 15. Last and optional step:

replace `ncam.py` and `pref_edit.py` files when and if there are new updated (and hopefully fixed) versions.

Path: `/usr/share/linuxcnc/gladevcp/NativeCAM/`