

Nvidia Driver Install on Proxmox LXC

1. Blacklist nouveau:

```
vi /etc/modprobe.d/blacklist-nouveau.conf
```

2. Paste, save and quit:

```
blacklist nouveau  
options nouveau modeset=0
```

3. Update initramfs:

```
update-initramfs -u
```

4. Check if nouveau is enabled:

```
lsmod | grep nouveau
```

5. Disable nouveau and verify:

```
rmmod nouveau  
lsmod | grep nouveau
```

6. Ensure GPU is visible:

```
lspci | grep NVIDIA
```

7. Download driver (check for most recent version compatible with nvidia-utils-xxx-server):

```
wget https://us.download.nvidia.com/XFree86/Linux-x86_64/550.90.07/NVIDIA-Linux-x86_64-550.90.07.run  
chmod +x NVIDIA-Linux-x86_64-550.90.07.run
```

8. Install build packages:

```
apt install build-essential pve-headers-$(uname -r)
```

9. Run installation:

```
./NVIDIA-Linux-x86_64-550.90.07.run
```

10. Check if installation was successful:

```
nvidia-smi
```

11. [optional] Turn on persistence mode if necessary (lowers IDLE power consumption):

```
https://docs.nvidia.com/deploy/driver-persistence/index.html  
nvidia-smi --persistence-mode=1 #only for current session  
nvidia-persistenced
```

12. After creating CT shut it down and edit lxc configuration file (location might be different):
`vi /etc/pve/nodes/pve/lxc/10001.conf`

13. run `ls -al /dev/nvidia*` to find out your VMID, in our case is 195,255

```
$ sudo ls -al /dev/nvidia*
```

```
root@pve:/home# ls -al /dev/nvidia*
crw-rw-rw- 1 root root 195,  0 Jan 31 02:03 /dev/nvidia0
crw-rw-rw- 1 root root 195, 255 Jan 31 02:03 /dev/nvidiactl
crw-rw-rw- 1 root root 508,  0 Jan 31 02:03 /dev/nvidia-um
crw-rw-rw- 1 root root 508,  1 Jan 31 02:03 /dev/nvidia-um-tools
```

14. Edit your lxc config, `/etc/pve/lxc/XXX.conf` append the following

```
lxc.cgroup2.devices.allow: c 195:* rwm
lxc.cgroup2.devices.allow: c 508:* rwm
lxc.mount.entry: /dev/nvidia0 dev/nvidia0 none bind,optional,create=file
lxc.mount.entry: /dev/nvidiactl dev/nvidiactl none bind,optional,create=file
lxc.mount.entry: /dev/nvidia-um dev/nvidia-um none bind,optional,create=file
lxc.mount.entry: /dev/nvidia-um-tools dev/nvidia-um-tools none bind,optional,create=file
```

Conf example

```
arch: amd64
cores: 4
features: nesting=1
hostname: immich
memory: 8096
mp0: nvme:105/vm-105-disk-1.raw,mp=/nvme/upload,size=500G
mp1: /zfs/media,mp=/mnt/media
nameserver: 192.168.3.1
net0: name=eth0,bridge=vmbr0,hwaddr=BC:24:11:E2:D3:5D,ip=dhcp,type=veth
onboot: 1
ostype: ubuntu
rootfs: nvme:105/vm-105-disk-0.raw,size=50G
swap: 2048
lxc.cgroup2.devices.allow: c 195:* rwm
lxc.cgroup2.devices.allow: c 508:* rwm
lxc.mount.entry: /dev/nvidia0 dev/nvidia0 none bind,optional,create=file
lxc.mount.entry: /dev/nvidiactl dev/nvidiactl none bind,optional,create=file
lxc.mount.entry: /dev/nvidia-um dev/nvidia-um none bind,optional,create=file
```

```
lxc.mount.entry: /dev/nvidia-uvm-tools dev/nvidia-uvm-tools none bind,optional,create=file
```

14. Push the nvidia driver to your LXC by selecting the LXC VMID

```
sudo pct push <VMID> ./NVIDIA-Linux-x86_64-550.90.07.run /root/NVIDIA-Linux-x86_64-550.90.07.run
```

15. Install Nvidia driver on LXC

```
sudo ./NVIDIA-Linux-x86_64-550.90.07.run --no-kernel-module
```

Test with nvidia-smi

```
Fri Jan 31 08:28:07 2025
+-----+
| NVIDIA-SMI 550.90.07                  Driver Version: 550.90.07          CUDA Version: 12.4         |
+-----+-----+-----+-----+-----+-----+
| GPU  Name                Persistence-M | Bus-Id  Disp.A | Volatile Uncorr. ECC |
| Fan  Temp   Perf          Pwr:Usage/Cap |           Memory-Usage | GPU-Util  Compute M. |
|=====  
|  0  NVIDIA GeForce GTX 1050 Ti      Off | 00000000:02:00.0 Off |          N/A         |
|  0%   40C    P0             N/A / 72W |  0MiB / 4096MiB |      0%      Default |
|                                     |                      |                      |
+-----+-----+-----+-----+-----+-----+
| Processes:                               |
|  GPU   GI    CI          PID    Type   Process name                      GPU Memory |
|        ID    ID                                   Usage   |
+-----+-----+-----+-----+-----+
| No running processes found              |
+-----+
root@openwebui:~#
```