

Graphics Cards

Drivers for hardware accelerated desktop rendering, improving performance and fidelity.

The Linux graphics stack consists of several components, but the main component is the `mesa` package.

Manufacturer	OpenGL	Vulkan	Video acceleration
Intel	<code>mesa</code>	<code>vulkan-intel</code>	<code>intel-media-driver</code> , <code>libva-intel-driver</code>
AMD	<code>mesa</code>	<code>vulkan-radeon</code>	<code>libva-mesa-driver</code>
NVIDIA	<code>mesa</code> , <code>nvidia</code>	<code>nvidia-utils</code>	<code>libva-mesa-driver</code> , <code>nvidia-utils</code>

Intel

```
pacman -S mesa vulkan-intel intel-media-driver libva-intel-driver
```

AMDGPU

```
pacman -S mesa libva-mesa-driver vulkan-radeon
```

Nvidia

Nouveau open source driver

```
pacman -S mesa libva-mesa-driver  
yay -S nouveau-fw
```

Proprietary driver

```
pacman -S nvidia nvidia-utils
```

Early KMS

In order to enable early KMS with the proprietary driver, you will need to take additional steps.

The kernel modules of the proprietary kernel module need to be included explicitly in the `MODULES` array of your `/etc/mkinitcpio.conf` file (or a drop-in config file under `/etc/mkinitcpio.conf.d/`):

```
MODULES=(nvidia nvidia_modeset nvidia_uvm nvidia_drm)
```

Additionally, remove the `kms` hook from the `HOOKS` array. This is to prevent the unintentional loading of the `nouveau` kernel module.

Enable Kernel Mode Setting

By default, the `nvidia_drm` kernel module does not enable Kernel Mode Setting (KMS). In order for Wayland compositors to function properly, KMS must be explicitly enabled via a kernel command line argument at boot:

```
nvidia_drm.modeset=1
```

NOTE: Refer to [Boot Loader](#) for how to add the parameter to your boot configuration.

To verify that kernel mode setting is enabled:

```
cat /sys/module/nvidia_drm/parameters/modeset
```

`Y` means Kernel Mode Setting was enabled on boot.

`N` means Kernel Mode Setting was **not** enabled on boot.

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