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# Linux Windowing Environment

On Linux Blender supports both X11 and Wayland for official releases.

When Wayland is detected, it is the preferred system, otherwise X11 will be used.

## Hint

The current “Windowing Environment” is listed in Topbar ► Blender ► About Blender.

## X11

This is the windowing environment that has been used most widely on Linux & Unix systems.

There are no near-term plans to deprecate or remove X11 support.

## Wayland

Support for Wayland is a more recent addition, so there may be configurations that have not been tested yet. Please report a bug if you experience problems.

Blender has been tested with Gnome-Shell (mutter), KDE (plasma) & SWAY (wroots) based compositors.

## Requirements

### Gnome-Shell

Under Gnome-Shell the `libdecor` library is required. This is available as a package on most Linux distribution.

If the library isn't found X11 will be used as a fallback.

## Troubleshooting

Detailed Wayland output can help to track down problems. Launch Blender from the [command-line](#) with additional arguments:

### Blender's Wayland Logging

```
blender --log "ghost.wl.*" --log-level 2
```

### Wayland Built-In Logging

```
WAYLAND_DEBUG=1 blender
```

### Disable Wayland (forcing X11)

```
WAYLAND_DISPLAY="" blender
```

### Disable libdecor (forcing borderless windows under Gnome-Shell)

Uninstall `libdecor`, then run Blender with an empty X11 display variable.

```
DISPLAY="" blender
```

## Environment Variables

### XCURSOR\_THEME

The cursor theme to use (must refer to a locally installed cursor).

### XCURSOR\_SIZE

**Cursor Size**

The cursor size, defaults to 28, you may wish to increase the size on Hi-DPI displays.

**Known Limitations**

**Gnome Shell's Fractional Scaling (before version 44)**

Versions of Gnome-Shell prior to 44 don't fully support fractional scaling.

Using fractional under older versions of Gnome-Shell may result in glitches such as a [small cursor size](#).

**NVIDIA GPU**

Currently NVIDIA drivers don't fully support features needed for Wayland. Graphical glitches and flickering are common problems. In some cases there can be [crashes on startup](#). This is not specific to Blender, so NVIDIA users may want to use X11 until driver support improves.

**Feature Comparison**

Feature	X11	Wayland	Notes
Smooth Scroll	✗	✓	Smooth scrolling with track-pads.
Multi-Touch Gestures	✗	✓	Track-pad and tablet support for pinch to zoom, pan and orbit.
Reliable Cursor Warping	✗ *1	✓	Cursor warping is used while transforming and orbiting the viewport for e.g.
Window Positioning	✓	✗ *2	Needed for dragging between windows and restoring window positions on file load.

Other features which both systems support such as Hi-DPI, 3D-mouse, tablet input, ... etc. have been left out of this list.

\*1 In X11 fast cursor motion may exit the window bounds while the cursor is grabbed (transforming for e.g.).  
\*2 Wayland doesn't support setting the window position, as this is a design decision it's unlikely to be supported (see issues for [position](#)).