

# Running Xorg Environments in Xwayland

This is a how-to guide for running an Xorg window manager or desktop environment in a Wayland compositor<sup>1)</sup> on Slackware 15.0 and beyond.

At the time of writing (December 2023), this is a purely academic question for most – if not all – users. As both KDE Plasma and Xfce continue to move in the direction of Wayland, however, it is not impossible that full X servers become unavailable on Slackware in future years. Xwayland provides a workaround, if an imperfect one. The process of running an Xorg environment from inside a rootful<sup>2)</sup> Xwayland session is straightforward:

- Choosing a Wayland compositor
- Configuration
- Running the Wayland compositor
- Starting the Xorg environment on Xwayland

All outside packages mentioned here can be found on [SlackBuilds Online](#).

Being able to read `xorg.conf` is not one my goals, nor achieving a bug-for-bug compatibility with Xorg - Xwayland with !901 (merged) allows to run a full X11 desktop, even the most legacy ones (I demoed it internally here using CDE from an XDMCP remote connection for the fun ).<sup>3)</sup>

## Choosing a Wayland compositor

The following considerations are important in choosing a Wayland compositor to run the Xwayland server:

- Lightweight
- Stacking window management



The following two conditions can be ignored if the Xwayland version exceeds 22.1.3.

- Able to suppress client-side decorations
- Compatible with [wlroots](#) for [wlr-randr](#), a drop-in `xrandr` replacement.

This how-to will use [labwc](#) as an example. `labwc` is a lightweight, `wlroots`-based compositor with OpenBox-style configuration.

## General Configuration

General configuration requirements are limited. It is only necessary to ensure that Xwayland-capable programs open under Xwayland rather than Wayland, and that `startx` does something productive.

## Forcing Xwayland

Any program opening in Wayland mode will be managed by the Wayland compositor directly. This can result in the appearance of poorly-behaved windows with incorrect decoration and the non-appearance of system tray items. Place the following lines in `/etc/environment`<sup>4)</sup> to control gtk and qt applications :

```
GDK_BACKEND=x11
QT_QPA_PLATFORM=xcb
```

For X keyboard maps other than US, it may also be necessary to specify a keymap here:

```
XKB_DEFAULT_LAYOUT=jp    # e.g.
```

### startx

Instructions for starting an X session should be contained in `$HOME/.xinitrc` because `startx` will launch Xwayland. `xwmconfig` can set up an `xinitrc` file for the preferred Xorg environment if need be.

## Configuring labwc

### For Slackware 15.0

Create an autostart file at `$HOME/.config/labwc/autostart` to launch an Xwayland server with `startx`:

```
#!/bin/sh

DISPLAY=:1 startx -- /usr/bin/Xwayland
```

This variant closes labwc after quitting the Xorg environment to return cleanly to tty or the display manager:

```
#!/bin/sh

DISPLAY=:1 startx -- /usr/bin/Xwayland &
wmpid=$!
wait $wmpid
pkill -x labwc
```

To stop labwc from decorating the Xwayland server window, write the following to a file at `$HOME/.config/labwc/rc.xml`:

```
<labwc_config>
  <core>
```

```
<decoration>client</decoration>
</core>
</labwc_config>
```

If auto-starting xset tends to fail, try adding a few seconds of sleep before startx.

## For Other Versions

These changes reflect post-15.0 Xwayland development:

- Rootful Xwayland windows are no longer decorated, so `rc.xml` is unnecessary.
- The initial geometry of the Xwayland server must be specified. Replace the Xwayland line in the autostart script above with the following:

```
DISPLAY=:1 startx -- /usr/bin/Xwayland -fullscreen -geometry 1920x1200
```

Ideally, the `geometry` option will match the dimensions of the monitor. `xrandr` can change the resolution afterwards.

## Running

The Wayland compositor should be known to the display manager for runlevel 4 users, assuming that its package includes a desktop file. Runlevel 3 users can run the Wayland compositor directly from the command line:

```
$ /usr/bin/labwc
```

Once the autostart script has started the Xorg environment, the following commands can verify that the process worked:

```
$ pgrep Xorg
$ pgrep Xwayland
```

If there is at least one Xwayland process and no Xorg process, feel free to take a screenshot (optional) and tell your friends (not advised).

## Caveats

The following caveats bear mentioning:

- Mouse pointer warping does not work. EdgeScroll in Fvwm is an example of an impacted feature.
- `xrandr` is non-functional in Xwayland versions before 22.1.3, and an extra program such as `wl-randr` would be needed for screen management. Effectively, this restricts the choice of compositor to those based on `wlroots`.
- GPU memory usage is slightly higher relative to running an ordinary xserver.
- Wayland-only programs and any other program that runs in Wayland mode will be managed by

the Wayland compositor rather than the X11 environment.

- Neither xinput nor synclient will work to adjust input device settings; instead, use the file `$HOME/.config/labwc/rc.xml`. See the LIBINPUT section in labwc-config(5) for details.
- If an input device does not work in the chosen Wayland compositor, running an Xwayland server will not cause it to start working.
- xbacklight does not work; echoing values to `/sys/class/backlight/*/brightness` may be a workaround, depending on the system.
- If audio sharing fails, try using pipewire with [wireplumber](#)<sup>5)</sup>.

The above list is non-exhaustive.

## Sources

- Xwayland(1)
- labwc(1)
- labwc-config(5)
- [xserver, Issue #1173: Xwayland: Improve rootfull mode for legacy X11 environments](#)

[howtos](#), [window managers](#), [desktop environments](#), [wayland](#), [xwayland](#), [xorg](#), [x11](#), [labwc](#)

<sup>1)</sup>

In Wayland terms, the “compositor” is the program responsible for displaying and managing windows. KWin is the only Wayland compositor included in Slackware 15.0.

<sup>2)</sup>

“Rootful” here means that the Wayland compositor does not manage the Xwayland window.

<sup>3)</sup>

Olivier Fourdan, xserver issue [#1332](#)

<sup>4)</sup>

Any file that controls the user profile can be used.

<sup>5)</sup>

No separate package is needed on post-15.0 systems.

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