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Linux Display Managers^(/bael-search)

(LightDM, SLiM, XDM, GDM, SDDM, KDM, Ly): Install and Uninstall Guide

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1. Introduction

The display manager (DM) [\(/linux/display-managers-explained\)](/linux/display-managers-explained) is a graphical user interface (GUI) front-end for login information entry, which then often directs to an actual full-fledged GUI.

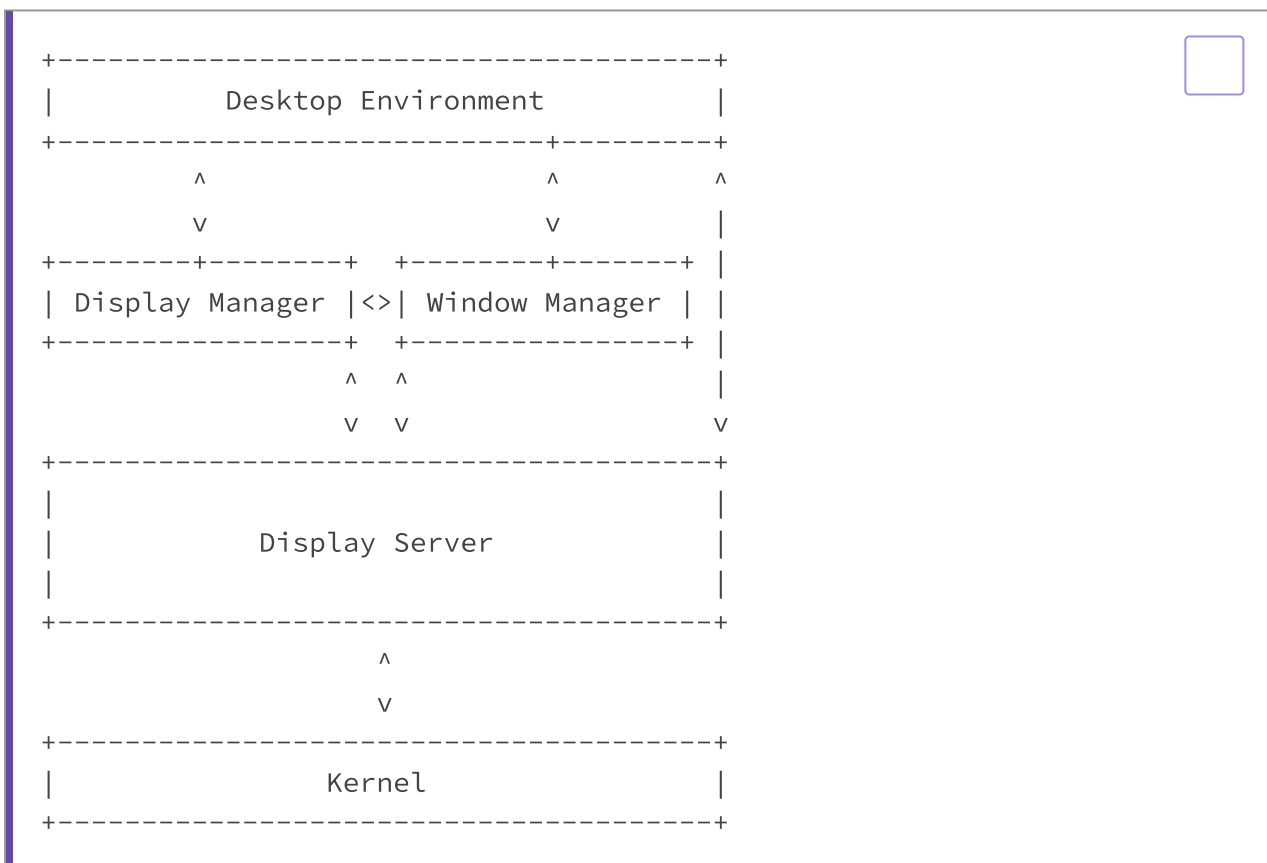
In this tutorial, **we go over some top choices for display managers**. First, we go through the hierarchy of displays and GUI options. After that, we proceed by looking at examples of graphical, console, and terminal interface examples of display managers.

For all installation, management, and removal procedures, [we have search](#) `sudo` (/linux/edit-etc-sudoers-using-script#sudo-configuration) privileges. In many GUI cases, a system needs to boot to the *graphical.target* (/linux/boot-process#run-levels) for a DM to work.

We tested the code in this tutorial on Ubuntu 22.04 (Jammy) with GNU Bash 5.2.15. It should work in most POSIX-compliant environments unless otherwise specified.

2. Display and GUI Hierarchy

Display servers (/linux/display-server-xorg-wayland#introduction) like X11 (/linux/x11), Wayland (/linux/display-server-xorg-wayland), Mir (<https://mir-server.io/>) are the middleware between the kernel and upper-level components:



Near the top of the hierarchy, we can have a window manager (WM) ([/linux/default-desktop-environment-start-up#display-manager-windows-manager-and-desktop-environment](https://www.baeldung.com/linux/default-desktop-environment-start-up#display-manager-windows-manager-and-desktop-environment)), a desktop environment (DE) ([/linux/default-desktop-environment-start-up#display-manager-windows-manager-and-desktop-environment](https://www.baeldung.com/linux/default-desktop-environment-start-up#display-manager-windows-manager-and-desktop-environment)), or both. ([/bael-search](#))

Before that is usually a display manager (DM). In a way, **display managers are login managers, as they are daemons that often comprise several components:**

- login screen, i.e., *greeter*
- optional WM or DE selector
- optional session type selector
- remote options

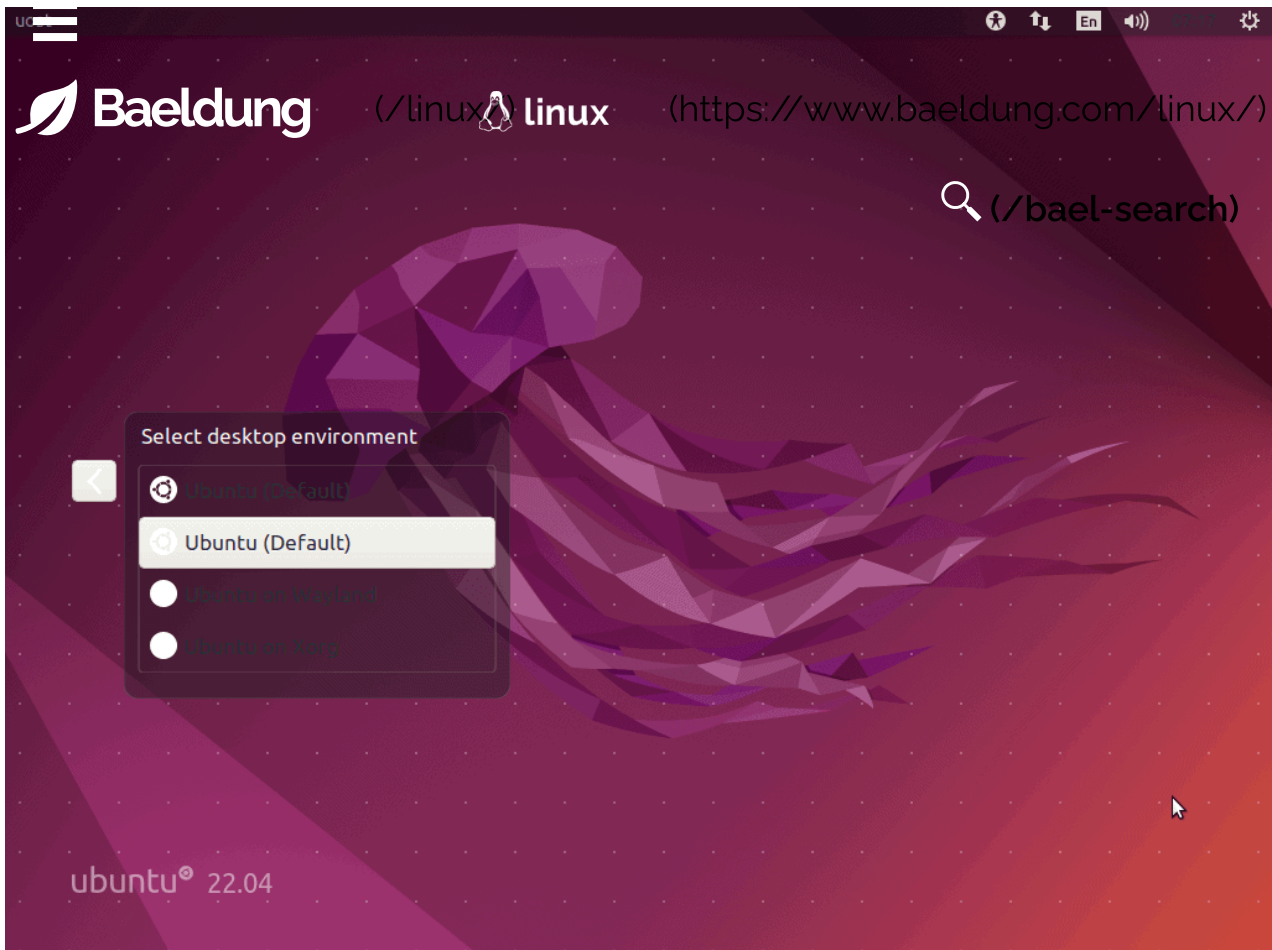
Because of their decoupling, we can decide on a display manager irrespective of the WM and DE. Still, several major desktop environments come with their own DM.

To facilitate this, **modern *systemd* (/linux/differences-systemctl-service#1-sysvinit-and-systemd) distributions provide the configurable *display-manager.service***, which can be modified to run many different display managers. Further, */etc/X11/default-display-manager* usually shows the current selection, and ***dpkg-reconfigure* (<https://manpages.debian.org/debconf/dpkg-reconfigure.8.en.html>) facilitates changes.**

Importantly, we should make sure display managers don't end up in conflict, so stopping, disabling, or modifying the *display-manager.service* and any other DM is part of the best practices when switching. Further, **we should ensure the system doesn't rely on a given DM before disabling or uninstalling it.**

3. LightDM (Lightweight Display Manager)

The cross-desktop lightweight display manager LightDM (<https://github.com/canonical/lightdm>) is independent of any DE:



It has several main features:

- support different display servers
- no GNOME dependencies
- support GTK and Qt
- low memory requirements
- fast performance
- remote login via **XDMCP**
(<https://www.x.org/releases/X11R7.6/doc/libXdmcp/xdmcp.html>)
and **VNC** (<https://wiki.debian.org/VNCviewer>)
- guest sessions

Now, let's work with LightDM.

3.1. Install and Configure

To install LightDM, we use *apt* (/linux/debian-installing-packages-url#1-apt-advanced-packaging-tool) to install the *lightdm* (<https://packages.debian.org/search?keywords=lightdm>) package:

```
$ apt-get install lightdm
```



Although it doesn't have its own greeter, there are many to choose from such as *lightdm-gtk-greeter* (<https://packages.debian.org/search?keywords=lightdm-gtk-greeter>), *lightdm-pantheon-greeter* (<https://packages.debian.org/search?keywords=lightdm-pantheon-greeter>), *lightdm-slick-greeter* (<https://packages.debian.org/search?keywords=lightdm-slick-greeter>), and *lightdm-slick-greeter* (<https://packages.debian.org/search?keywords=lightdm-slick-greeter>):

```
$ apt-get install lightdm-gtk-greeter
```



After that, we can configure via the `/etc/lightdm/lightdm.conf` file or component files within `/etc/lightdm/lightdm.conf.d/`.

Next, we set LightDM as the current display manager with *dpkg-reconfigure*:

```
$ dpkg-reconfigure lightdm
```



At this point, if our configuration is adequate, we should be able to use LightDM after the next reboot.

3.2. Disable and Uninstall

Alternatively, we can revert our *dpkg-reconfigure* choices.

If run as a service, we can control any DM:

```
$ systemctl stop lightdm.service  
$ systemctl disable lightdm.service
```



In this case, we use *systemctl* (`/linux/differences-systemctl-service#systemctlcommand`) to stop and disable LightDM.

As usual, we can remove LightDM with *apt*:

```
$ apt-get remove lightdm
```

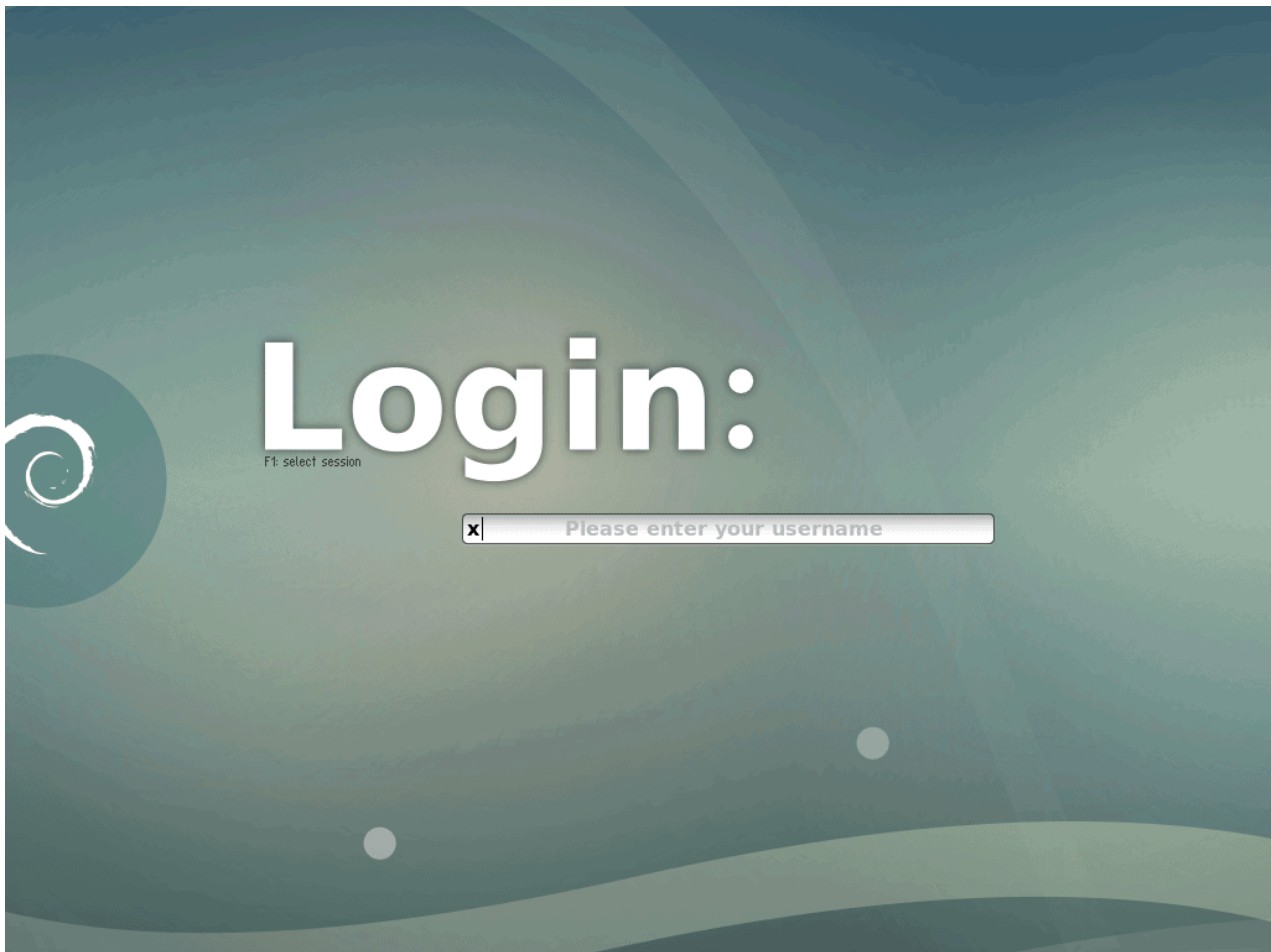


It's often good to first ensure we don't rely on it.

4. SLiM (Simple Login Manager)

The Simple Login Manager (SLiM) (<https://github.com/iwamatsu/slim>) is mainly tailored for X11:

([/bael-search](#))



It supports several specific features:

- DE-independent
- external theming
- external configuration
- PNG panel customization
- PNG and JPEG backgrounds
- standard XFT and *freetype* fonts

First, let's install SLiM.

4.1. Install and Configure

To install SLiM, we use the *slim* (<https://packages.debian.org/search?keywords=slim>) package:

```
$ apt-get install slim
```



The self-explanatory configuration file is at `/usr/etc/slim.conf` (<https://www.baeldung.com/linux/>)

After setup, we can start *slim* as a `[d]aemon`:

([bael-search](#))

```
$ slim -d
```



Either way, SLiM runs `$HOME/.xinitrc` (`/linux/default-desktop-environment-start-up#setup-procedure`) by default, so a correct configuration there is paramount.

4.2. Disable and Uninstall

We can stop and disable SLiM in the usual manner:

```
$ systemctl stop slim.service  
$ systemctl disable slim.service
```



If the DM doesn't work out, we can remove the package:

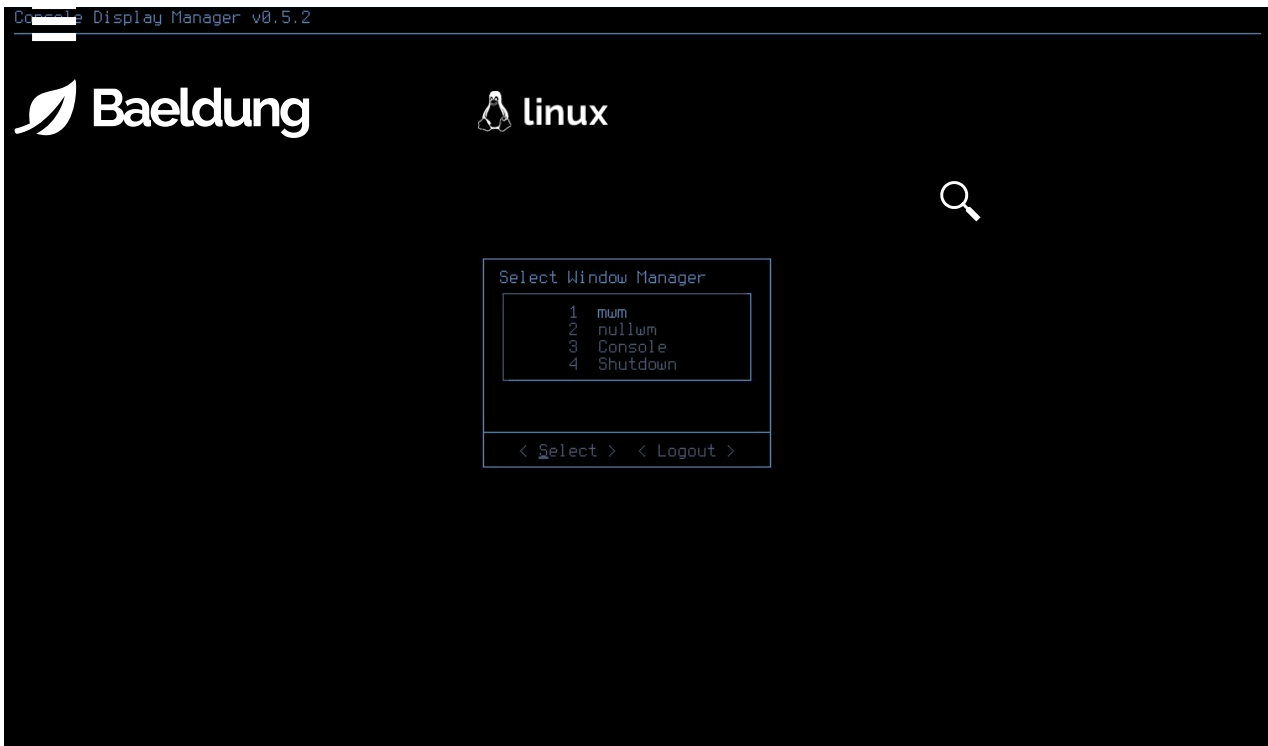
```
$ apt-get remove slim
```



Now, let's move on to an alternative solution.

5. CDM (Console Display Manager)

The Console Display Manager (CDM) (<https://github.com/evertiro/cdm>) is minimalistic and fast:



Its main forte is minimalism, but it does have features:

- X11-independent
- pure Bash
- extremely small footprint
- minimal dependencies
- multi-user
- multi-session
- works with any DE or WM

To begin with, we can get and deploy CDM.

5.1. Install and Configure

To install CDM, we download or clone the latest repository content (<https://github.com/evertiro/cdm>) and run *install.sh*:

```
$ bash install.sh
```

The configuration can be in one of several files, in order of precedence:

- direct input **RC (/linux/rc-files)** file
- *\$HOME/.cdmrc*
- *\$XDG_CONFIG_HOME/cdm/cdmrc*
- */etc/cdmrc*

Initially, we can run CDM by hand:

```
cdm <PROFILE> (/linux/) (https://www.baeldung.com/linux/)
```

However, to start CDM automatically, we append **(/bael-search)**
`/usr/share/doc/cdm/profile.sh` to our profile:

```
$ cat /usr/share/doc/cdm/profile.sh >> $HOME/.profile
```

It's usually best to back up our original profile before making changes.

5.2. Disable and Uninstall

To begin with, reverting the `.profile` additions is very important if we want to disable or remove CDM.

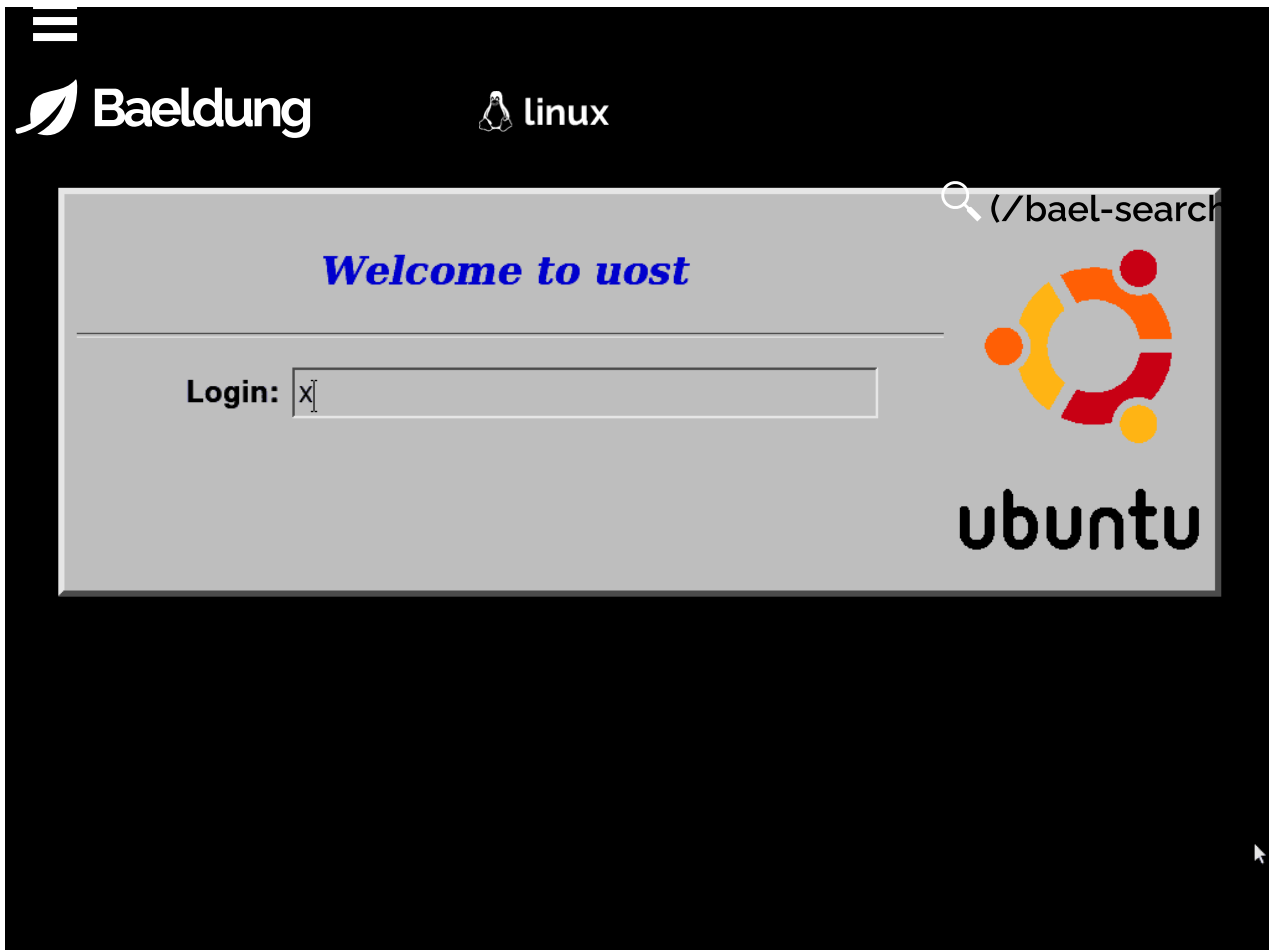
After doing so, we can use the provided `uninstall.sh` script:

```
$ bash uninstall.sh
```

At this point, CDM should be unavailable.

6. XDM (X Display Manager)

The X Display Manager (XDM) (<https://www.x.org/releases/X11R7.6-RC1/doc/man/man1/xdm.1.xhtml>) is the native DM for X11 (</linux/display-managers-explained#x-display-manager-xdm>):



Its features are basic but stable:

- XDMCP support
- remote login

Because it's so rudimentary but fundamental, XDM is usually available but unused on most systems.

6.1. Install and Configure

To install XDM, we use the *xorg-xdm* (<https://packages.debian.org/search?keywords=xorg-xdm>) package:

```
$ apt-get install xorg-xdm
```

Critically, **XDM is incompatible with other major display managers.**

Still, to ensure XDM is the active DM, we can use *dpkg-reconfigure*:

```
$ dpkg-reconfigure xdm
```

Unlike many of its modern counterparts, XDM only executes the `$HOME/.xsession` file, which is expected to run the actual desktop environment. ([/linux/](https://www.baeldung.com/linux/)) (<https://www.baeldung.com/linux/>)

Despite this, XDM is very configurable via resource files and shell scripts.

In case of issues, we can check the `/var/log/xdm.log` log file. ([baeld-search](#))

6.2. Disable and Uninstall

Same as with others, we can disable XDM via its service:

```
$ systemctl stop xdm.service
$ systemctl disable xdm.service
```

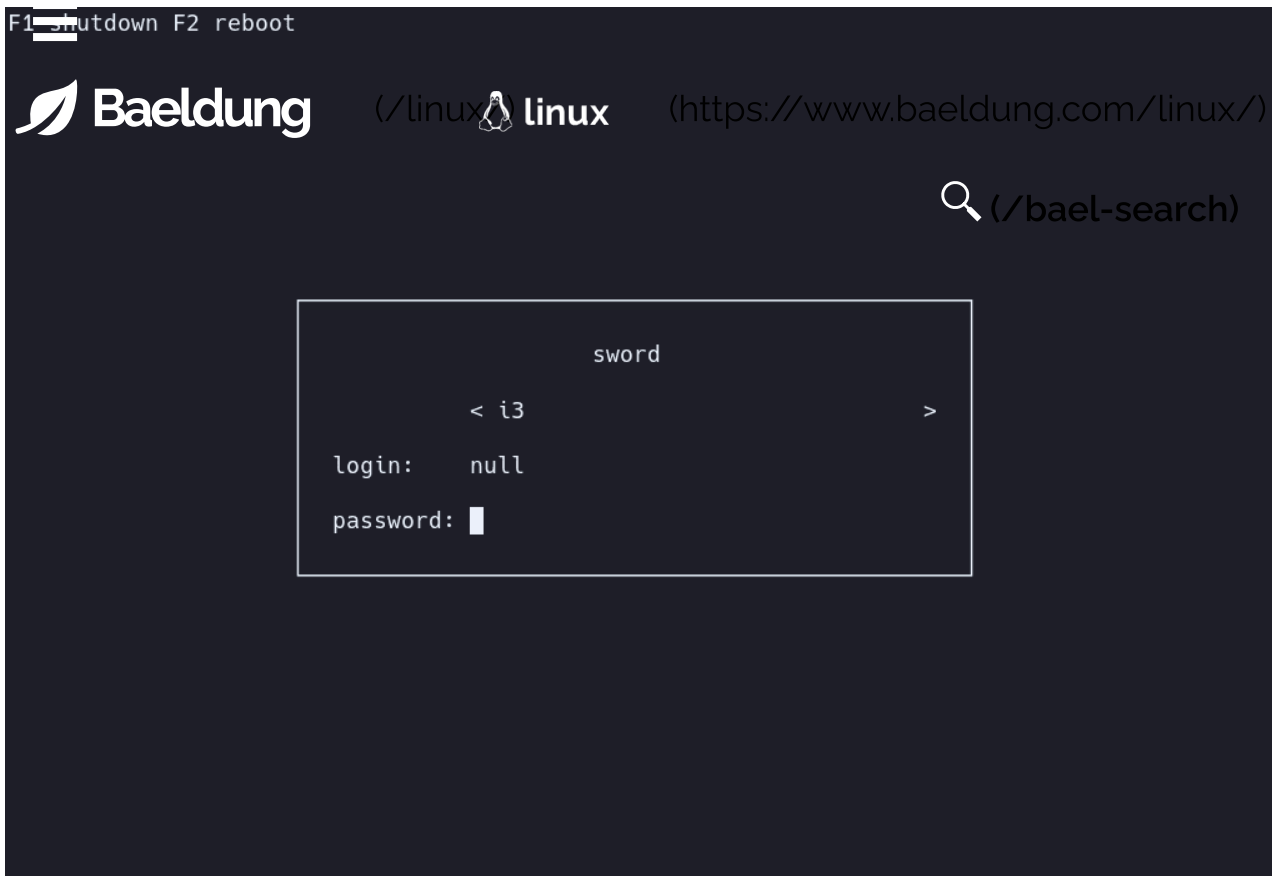
Since we installed it as a package, we can also remove it with *apt*:

```
$ apt-get remove xorg-xdm
```

Naturally, configuring a replacement display manager should now be a priority.

7. Ly

The Ly (<https://github.com/fairyglade/ly>) terminal user interface (TUI) display manager has a vast array of tested desktop environments (<https://github.com/fairyglade/ly#support>) that includes all major ones:



Let's check its features:

- lightweight
- robust
- *ncurses*-like (no *ncurses* dependency)
- very basic dependency list
- written in C

This display manager is a mix between options like CDM and the high-end LightDM.

7.1. Install and Configure

To install Ly, we first ensure all dependencies are in place:

```
$ apt-get install build-essential libpam0g-dev libxcb-xkb-dev
```

After that, we download or clone the latest repository content (<https://github.com/fairyglade/ly>) with `-recurse-submodules` and then use `make` (</linux/change-install-dir-make-install#using-configure-parameters>).

```
$ make
```



At this point, Ly is ready for deployment. ^(/linux/) (<https://www.baeldung.com/linux/>)

Should we want to try it out first, we can do so via *run*: ^(/bael-search)

```
$ make run
```



Once ready, we can install the provided *systemd* service file:

```
$ make install installsystemd
```



Then, we *enable* the service:

```
$ systemctl enable ly.service
```



To support TTY ^(/linux/pty-vs-tty#what-is-a-tty) switching, we usually need to disable the *getty* ^(/linux/tty-restore-broken-terminal#tty-generator) service:

```
$ systemctl disable getty@tty2.service
```



The self-explanatory configuration file resides at */etc/ly/config.ini*.

7.2. Disable and Uninstall

Since it's a *systemd* service, we can control Ly with *systemctl*:

```
$ systemctl stop ly.service  
$ systemctl disable ly.service
```



To remove Ly, we can use the *uninstall* target:

```
$ make uninstall
```



Notably, we may want to reenable the *getty* service.

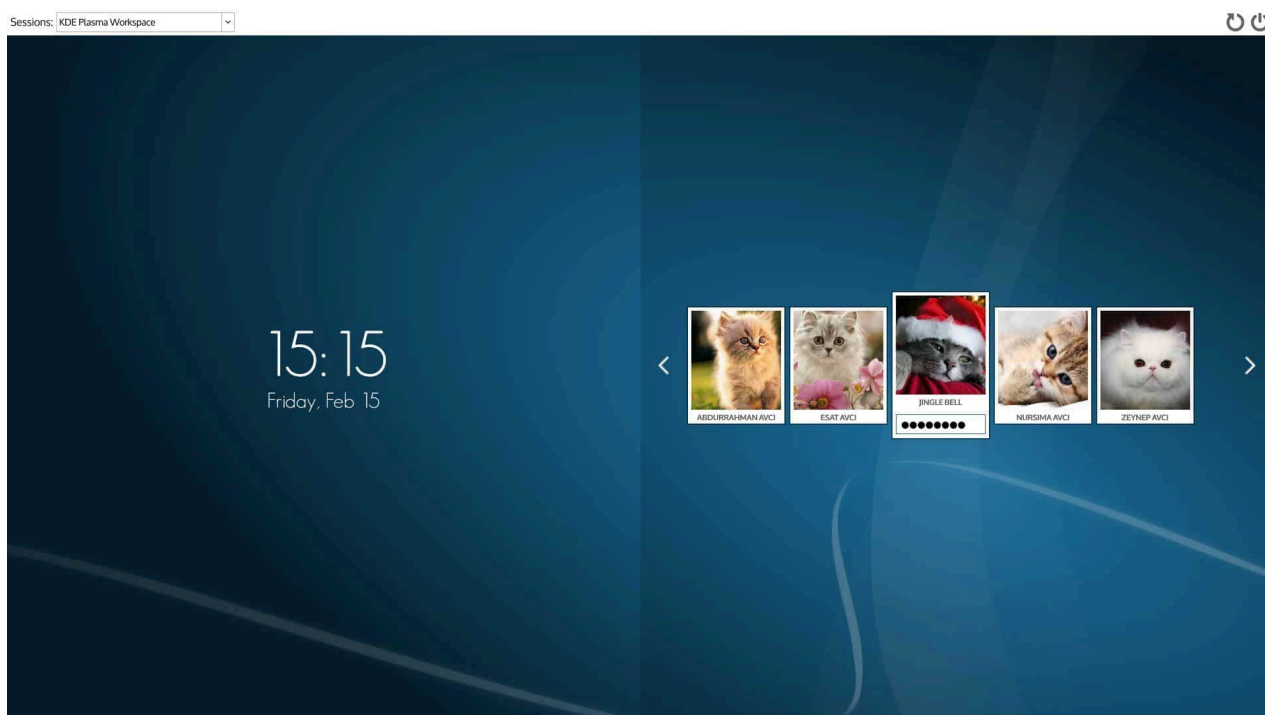
8. Simple Desktop Display Manager (SDDM) and KDE Display Manager (KDM)

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The Simple Desktop Display Manager (SDDM)

[\(/bael-search\)](#)

(<https://github.com/sddm/sddm>) is the successor and replacement of the KDE Display Manager (KDM):



It offers some special features:

- support X11 and Wayland
- autologin
- modern and prettified look
- DPI settings (HiDPI)
- highly customizable
- Qt-based

So, let's see the installation, management, and removal procedures for SDDM.

8.1. Install and Configure

Initially, to install SDDM, we use *apt*:

```
$ apt-get install sddm
```



Then, we ensure it's selected as the current DM with *dpkg-reconfigure sddm*:

```
dpkg-reconfigure sddm (https://www.baeldung.com/linux/)
```

Usually, the configuration file is */etc/sddm.conf*.

([/bael-search](#))

```
$ cat /etc/sddm.conf
[...]  
[Autologin]  
User=<USERNAME>  
Session=<DENAME>.desktop  
Relogin=false
```

Here, we replace the *USERNAME* and *DENAME* with the appropriate user and desktop environment names.

In addition, */usr/lib/sddm/sddm.conf.d/* and */etc/sddm.conf.d/* may also contain settings.

8.2. Disable and Uninstall

Let's stop and disable SDDM:

```
$ systemctl stop sddm.service  
$ systemctl disable sddm.service
```

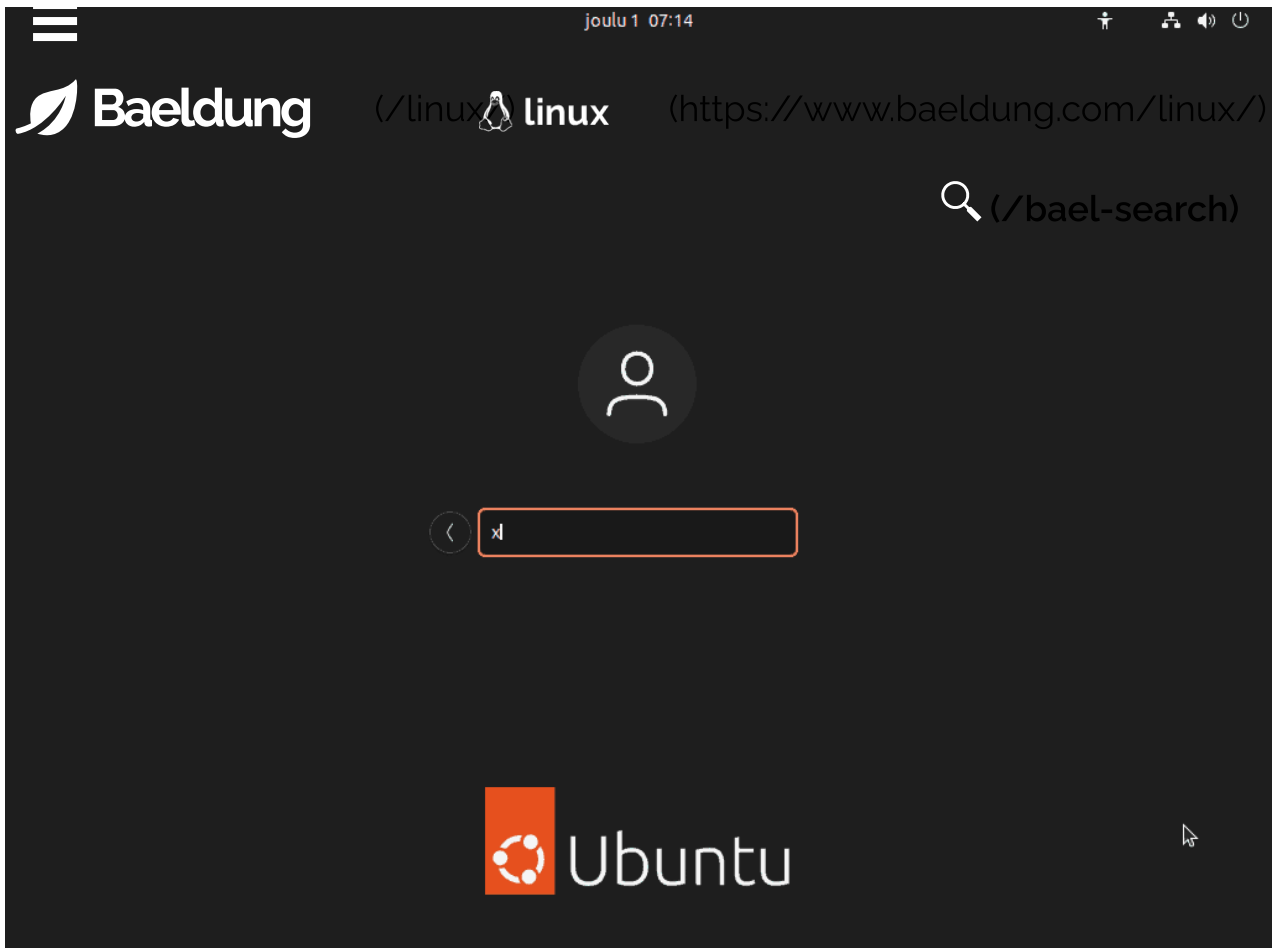
Then, we can uninstall:

```
$ apt-get remove sddm
```

At this point, we should pick a new DM.

9. GNOME Display Manager (GDM)

The GNOME Display Manager (GDM) (<https://github.com/GNOME/gdm>) is the native DM for the GNOME DE but works with many other desktop environments as well:



GDM has a number of features:

- robust
- written from scratch
- WM and DE selector
- user assist
- XDMCP support
- face browser (image user selection)
- comprehensive logging

The latest iteration of GDM as of this writing is GDM3.

9.1. Install and Configure

First, let's install GDM:

```
$ apt-get install gdm3
```

Next, we can configure any desired settings in `/etc/gdm/gdm.conf`.

Then, we can set it as the current DM:

```
dpkg-reconfigure gdm3
```



Naturally, we should ensure there is support for our DE and no conflict with other display managers.

(/bael-search)

9.2. Disable and Uninstall

Again, we can manipulate the GDM service:

```
$ systemctl stop gdm3.service
$ systemctl disable gdm3.service
```



To uninstall, we employ *apt*:

```
$ apt-get remove gdm3
```



In case of issues, we can check the logs in `/var/log/gdm` or `$HOME/.cache/gdm`.

10. LXDM

The LXDM display manager (<https://github.com/GalliumOS/lxdm>) is a lightweight alternative to major display managers:



It has no support for XDMCP and a very rudimentary featureset:

- autologin
- basic theming
- individual user preferences
- face icons

Although basic, this is the native DM for the minimalist LXDE (<http://lxde.org/>) desktop environment.

10.1. Install and Configure

To install LXDM, we use the *lxdm* (<https://packages.debian.org/search?keywords=lxdm>) or *lxdm-gtk3* (<https://packages.debian.org/search?keywords=lxdm-gtk3>) packages:

```
$ apt-get install lxdm || apt-get install lxdm-gtk3
```

As usual, *dpkg-reconfigure* can set this new DM as the default:

```
dpkg-reconfigure lxdm
```



All configuration files are under `/etc/lxdm/` with the main one being `/etc/lxdm/lxdm.conf`.

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10.2. Disable and Uninstall

To stop and disable, we use the `lxdm.service`:

```
$ systemctl stop lxdm.service
$ systemctl disable lxdm.service
```



An uninstall can be performed via the package:

```
$ apt-get remove lxdm || apt-get remove lxdm-gtk3
```



Overall, LXDM is a good option for lightweight environments.

11. Summary

In this article, we talked about display managers, their role, and several specific examples along with their installation, configuration, and uninstallation procedures.

In conclusion, the choice of a display manager depends less on the desktop environment and more on the needs of the user.

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