

– General Linux 2 – Install & Configure X

(Linux Professional Institute Certification)

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```
.~.  
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@._.@
```

\$Id: gl1.110.1.slides.tex,v 1.3 2003/05/30 05:04:32 waratah Exp \$

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1.110.1 Install & Configure XFree86

1.110.2 Setup a display manager

1.110.4 Install & Customize a Window Manager Environment

Install & Configure XFree86

Objective

Candidate should be able to configure and install X and an X font server. This objective includes verifying that the video card and monitor are supported by an X server, as well as customizing and tuning X for the videocard and monitor. It also includes installing an X font server, installing fonts, and configuring X to use the font server (may require a manual edit of `/etc/X11/XF86Config` in the "Files" section)

Install & Configure XFree86

Key files, terms, and utilities

XF86Setup

xf86config

xvidtune

/etc/X11/XF86Config

.Xresources

Install & Configure XFree86

Resources of interest

:

:

The Linux Desktop GUI

- On Linux, the graphical desktop is controlled by 4 different types of software:
 - The X server - hardware interface
 - A window manager - windows, icons etc
 - Desktop manager - file manager, control panel etc
 - The application itself (the x-client)
- Only the X server & X-client are mandatory

Window Managers

- Some window managers are:
 - AfterStep - Light resource usage
 - Blackbox - Fast & simple
 - Enlightenment - Resource intensive
 - FVWM - Not so popular anymore
 - IceWM - Emulates OS/2 & windows
 - Sawfish - default for Gnome
 - Window Maker

Desktop Environments

- There are two main Desktops are:
 - KDE
 - Gnome

Starting X

- The X server is an executable called 'X'
- Usually a link:

```
$ ls -l 'which X'
```

```
lrwxrwxrwx    ...    /usr/bin/X11/X -> XFree86
```

- You can start X in several ways:
 - X directly - (not very useful)
 - xinit - X & one X-term client
 - startx - X & desktop (KDE or Gnome)

X Server Screen references

When X starts, it associates itself with a *display & screen*. The syntax for this is: `:display.screen'`

- Display is 0 for the first X server, 1 for the next etc.
- Screen is 0 for the first screen on a multihead card
- The default for display & screen are both 0

Example:

`:0.1`

The second screen (head) on X server 0

`:1.0` or `:1`

The first screen on the second X server

Starting X directly

- The syntax for X is:

```
X [:display.screen] [options]
```

Examples:

```
$ X ↵
```

Start X on display 0, screen 0

```
$ X :1 ↵
```

Start X on display 1, screen 1

```
$ X :1.1 ↵
```

Start X on display 1, screen 1

Starting X using xinit

- The syntax for xinit is:

```
xinit [[client] options ] [--[server] [display]  
options ]
```

Examples:

```
$ xinit ↵
```

Start X and one xterm on display 0, screen 0

```
$ xinit -- :1 ↵
```

Start X and 1 xterm on the second display

```
$ xinit /usr/X11R6/bin/xcalc -- :1 ↵
```

Start X and xcalc on the second display

```
$ xinit /usr/bin/startkde -- :1 ↵
```

Start X and kde on the second display

Starting X using startx

- startx is a wrapper for X and your favourite desktop
- it has the same syntax as xinit
- On RedHat, default desktop is in /etc/sysconfig/desktop

Examples:

```
$ startx ↵
```

Start X and the default desktop on display 0, screen 0

```
$ startx -- :1 -depth 16 ↵
```

Start X and desktop on the second display in 16 bit colour

```
$ startx /usr/bin/startkde -- :1 ↵
```

Start X and the kde desktop on the second display

Running X-clients remotely

- An X-client can be told to direct its output to a given display in one of two ways:
 - By using the DISPLAY environment variable
 - By using the -display option on the command line

- A remote display is specified using the syntax:

```
hostname:display.screen
```

Example:

```
node12.c222:1.0
```

Refers to the first screen on the second display of host node12.c222

Running X-clients remotely

- Using the `-display` option

```
$ xcalc -display node12.c222:1.0 ↵
```

- Using the `DISPLAY` environment variable

```
$ export DISPLAY=node12.c222:1.0 ↵
```

```
$ xcalc ↵
```

Both methods will run `xcalc` on the second display of host `node12.c222`. Note that in the second case, the `DISPLAY` variable is exported so it will apply to all X-clients started on that terminal.

Controlling access to the X server

- By default, an X server will only accept connections from clients running on the same host as the server.
- Remote access can be granted using the `xhost` command
 - `xhost +` - Disable access control (any host is OK)
 - `xhost -` - Enable access control (only listed hosts)
 - `xhost +hostname` - Allow hostname to connect
 - `xhost -hostname` - Disallow hostname from connecting
- `xhost` uses host based access control
- `xhost` must be run on the X server.

Testing access to the X server

- As a client, you can see if you have permission to connect to a remote X server by:
 - Setting & exporting the DISPLAY variable to the desired X server
 - running xhost without any arguments
- Example:- See if node12.c222 is available to us for display

```
$ export DISPLAY=node12.c222:1.0 ↵
```

```
$ xhost ↵
```

```
xhost: unable to open display "node12.c222:.0"
```

The X server

- There are two versions of the X server:
- X version 3:
 - Uses the configuration file `/etc/X11/XF86Config`
 - Has different X executables for different cards
- X version 4:
 - Uses the configuration file `/etc/X11/XF86Config-4`
 - Has only one executable for all video cards (XFree86)

The X server

- To tell which version you are running do the following:

Example:

```
$ ls -l `which X` ←
```

```
lrwxrwxrwx    .... /usr/bin/X11/X -> XF86_SVGA
```

Using X version 3 on an SVGA card

```
$ ls -l `which X` ←
```

```
lwxrwxrwx    .... /usr/bin/X11/X -> XFree86
```

Using X version 4.

Version 3 drivers

The version 3 drivers are specific to a particular card type. Some of the more common drivers are:

- XF86_3DL - 3D Labs video cards
- XF86_8514 - 8514 video cards
- XF86_AGX - AGX video cards
- XF86_FB - Generic frame buffer device for non-specific cards
- XF86_Mach64 - ATI Mach 64 video cards
- XF86_S3 - S3 based video cards
- XF86_S3V - S3 virge video cards
- XF86_SVGA - VESA Super VGA cards
- XF86_VGA16 - 16 colour VGA cards

The X server

- The X server:
 - is the interface to the graphics card
 - allows X clients to display information
 - can run multiple instances on a single card
 - accepts **local or remote** X-clients