

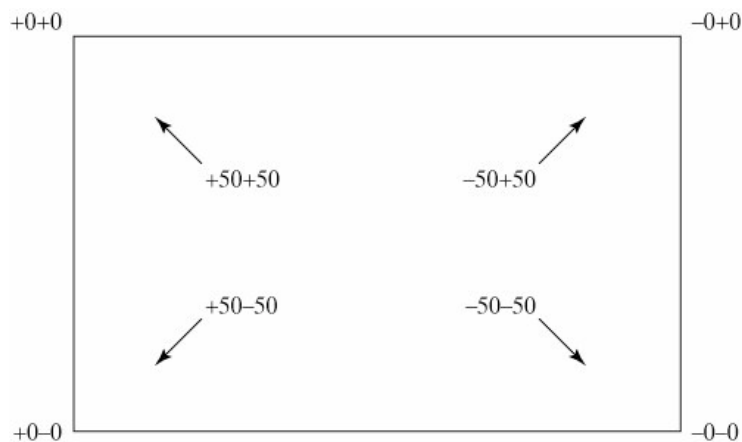
Desktop +

- Read Chapter 10
- Screen layout
 - called geometry
 - it is a bitmap with certain size of pixels
 - typical size is 1920 x 1200
 - addressing pixels
 - specific position on screen, e.g., 500 x 200
 - position relative to corner of screen

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Desktop +

- Screen layout
 - e.g., +50+50 is 50 pixels away from the upper left corner of the screen in both X and Y direction



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X Window System security

- Who can have access to your screen?
 - X server running a system only allows X client on that system to talk to it.
 - X server does not allow connections from other X clients unless you explicitly allow it.

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X Window System security

- *Utility: **xhost** [+|-][hostname]*
 - The **xhost** command allows or denies access to the X server on a system.
 - With no arguments, **xhost** prints its current settings and which hosts (if any) have access.
 - By specifying only +, you can give access to all hosts, or by specifying only -, deny access to all hosts.
 - When a hostname is specified after a + or -, access is granted or denied, respectively, to that host.

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X Window System security

- *Utility: **xhost** [+|-][hostname]*

- For example: `$ xhost +bluenote`

allows X clients running on system "bluenote" to write to the display on the system where the **xhost** utility was run. Later, when whatever you needed to run is finished, you can disallow access with the command:

```
$ xhost -bluenote
```

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X Window System security

- *Utility: **xhost** [+|-][hostname]*

You can allow any X client on the network to write to your display with the command:

```
$ xhost +
```

You can also take away access to all remote X clients with:

```
$ xhost -
```

- Where does it make sense to do this?

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Desktop Environment

- All programs that manage and render the desktop, e.g., the icons, windows etc.
 - menus providing access to objects, tasks, or applications
 - icons representing devices or other objects in the system
 - status bars or areas where real-time status data is displayed
 - a cursor controlled by a mouse providing navigation among and interaction with desktop objects

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Desktop Environment

- Most common Linux desktops
 - The Common Desktop Environment (CDE) was one of the first true DEs for UNIX system
 - CDE is based in large part on Hewlett-Packard's Visual User Environment (VUE) and Sun Microsystem's OpenWindows.

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Desktop Environment

- Most common Linux desktops
 - The GNU Network Object Model Environment (GNOME) is the GNU Project's contribution to desktop environment.
 - Like other GNU software, it is freely available, is included in most Linux distributions.

Desktop Environment

- Most common Linux desktops
 - The K Desktop Environment (KDE) has been developed by a loose group of programmers around the world.
 - KDE is included in most Linux distributions

Window Managers

- A window manager is a program (an X client) that communicates with the X server and with the keyboard and mouse on the system.
- It provides the interface for the user to give instructions to the X server about what to do with the windows.
- Window manager provides “look and feel” of desktop

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Window Managers

■ Focus

- Focus is the term used to describe which window is currently selected or active.
- e.g. if you type on keyboard, the window with focus is where the data will be sent.
- Typically the window with focus has different border, e.g., highlighted, darker shade etc.

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Window Managers

- Many choices, e.g.,

- dtwm

- The Desktop Window Manager (dtwm) is part of the CDE, and is similar to vewwm, discussed below, but supports a virtual desktop.

- fvwm

- fvwm is popular in the Linux community because of its free availability and because it is very customizable. fvwm is included in some Linux distributions.

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Window Managers

- Many choices, e.g.,

- gnome-wm

- The GNOME Window Manager (gnome-wm) is the window manager used with the GNU Network Object Model Environment (GNOME).

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Window Managers

- Many choices, e.g.,

- icewm

- The ICE Window Manager (icewm) is another grassroots, popular window manager.
 - It is small, fast, and easily customizable to resemble Windows so that PC users can feel comfortable using a Linux system.
 - icewm is included in some Linux distributions.

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Window Managers

- Many choices, e.g.,

- kwm

- The K Window Manager (kwm) is used with the K Desktop Environment (KDE).
 - While not required, it is recommended over other window managers for use with KDE because of its tight integration with KDE functionality.
 - kwm is included in just about all Linux distributions.

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Window Managers

- Many choices, e.g.,

- mwm

- The Motif Window Manager (mwm) is one of the first major window managers.

- olwm

- Sun Microsystems' OpenLook Window Manager (olwm) and OpenLook Virtual Window Manager (olvwm) run on Sun systems and can be used with CDE.

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Window Managers

- Many choices, e.g.,

- twm

- Tom's Window Manager (twm) and Tom's Virtual twm (tvtwm) were written by Tom LaStrange to correct some of the things he didn't like about mwm.
 - twm is included in many Linux distributions.
 - twm is also sometimes called the Tab Window Manager.

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Window Managers

- Many choices, e.g.,
 - `vewm`
 - The VUE Window Manager (`vewm`) is from Hewlett-Packard and runs under HP's Visual User Environment (VUE) desktop.

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Client Applications

- Many choices, e.g.,
 - Utility: `xclock [-digital]`
 - The `xclock` command provides a simple clock on your desktop. The default is an analog clock. If the `-digital` argument is specified, a digital clock is displayed instead.
 - Utility: `xterm`
 - The `xterm` command starts a terminal window on the desktop.

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Client Applications

- X Client Arguments, e.g.

- geometry

- \$ xclock -geometry 100x100-10+10

- XxY defines size, +X+Y offset

- color

- \$ xterm -foreground cyan -background black

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Networking Capability

- One can display information from an X client on one computer on an X server running on another.

- This is useful when you are working on a remote server and need to display all your X applications on your local desktop.

- on X client specify **-display**

- this tells client which X server to contact to display its widgets

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Networking Capability

- Start xterm on host “eternium”
 - `$ xterm -display eternium:0.0`
 - `:0.0` identifies a display
 - if the user on eternium has used the **xhost** command to allow access, then the X terminal window will be displayed on eternium

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Networking Capability

- Alternative
 - `$ export DISPLAY="eternium:0.0"`
 - `$ xterm`
 - This is useful when you are working on a remote server and need to display all your X applications on your local desktop.

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