X-Windows in Unix

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Graphical User Interface

GUI is an artifact that facilitates availing OS facilities with the aid of widgets. The widgets basically are windows and icons which provide us with a clue to whatever we may be able to do.

*X11 version library package* – Unix (as also Linux) provides X-graphics library support to both OS and applications.
X-Window System

*X-Windows* facilities operation over a set of networked computers by defining a protocol

- **X-servers and clients**
  - X-server supports bitmapped display and comes up as soon as a user logs onto a machine
  - X-client supports communication with keyboard, mouse and provides the basic interface for the user

- **Window managers**
  - Supports all operations within a window
Some Standard X-Clients

- **xclock**: A clock display. Numerical or an analog display for the current time.
- **xbiff**: A Berkeley support program that displays mail status with a flag up, to show the arrival of new mail.
- **xterm**: A new terminal window. With –c option the window can receive and display console messages.
Hosts

- The *X-protocol* requires to maintain a host-table in the `/etc/hosts/` file.
- Only the machines listed in this table can set up a display on a host.
Example - 1

For instance, my machine
SE-0 has the following host table entries:
# Internet host table
#
127.0.0.1 localhost
172.21.36.10 SE-0 loghost
210.163.147.1 a463-2.info.kochi-tech.ac.jp a463-2 canna-server loghost
210.163.147.2 main.info.kochi-tech.ac.jp a464-1 printer-server-host
172.21.36.20 SE-P0
172.21.36.2 SE-1
172.21.36.11 SE-2
.
.
172.21.36.17 SE-10
#

The host-table entries may be modified to add or delete hosts by using the xhost command as shown below. To add an additional host:
xhost +addhostname
To delete an additional host:
xhost -deletehostname
Selecting a Host for Display

The command to open a window on the hostname

```
xterm DISPLAY hostname:0.0
```

The command to set the display from a remote computer

```
setenv DISPLAY hostname:0.0
```
X-Utilities

- showrgb
- xcalc
- xclipboard
- xclock
- xhost
- xload
- xmag
- xpr
STARTUP

- .Xsessions and .Xdefaults files - These files are usually located under X11 directory.
  
  This may be with commands like:

  `xterm -sb &` (For launching a terminal with a scroll bar)
  `xclock &` (For launching a clock)
  `xterm -iconic` (For launching an iconised terminal)

- xdm (the display manager) - to launch favorite applications on logging in.

- .xinitrc files: helpful for xinit in starting the X- server on the host.
Motif and X

- *Motif* - most favored X-Windows interface on Unix-based systems.
- *mwm* - the Motif window manager