README for X11R6.9 on OpenBSD

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1. What and Where is X11R6.9?

The X.Org Foundation X11R6.9 is an Open Source version of the X Window System that supports several UNIX(R) and UNIX-like operating systems (such as Linux, the BSDs and Solaris x86) on Intel and other platforms.

See the Copyright Notice.

The sources for X11R6.9 are available from http://wiki.x.org

X11R6.9 builds on most architectures supported by OpenBSD. See section *Building on other architectures* (section 7., page 3) for details.

2. Bug Reports for This Document

Use the X.Org Bugzilla at http://bugs.freedesktop.org to submit comments or suggestions about this file, using the xorg product.

3. New OS dependent features

See the Release Notes for non-OS dependent new features in X11R6.9.

- Switch the the Xinput-aware kbd driver for keyboard input

3.1 New OS related features in X.Org 6.8

- Support for Propolice in modules.
- Server support for OpenBSD/amd64.

4. Configuring X for Your Hardware

The `/etc/X11/xorg.conf` file tells the X server what kind of monitor, video card and mouse you have. You *must* create it to tell the server what specific hardware you have.

You'll need info on your hardware:

- Your mouse type, baud rate and its /dev entry.
- The video card's chipset (e.g. ATI Radeon, nVidia GeForce 4/MX etc).
- Your monitor's sync frequencies.

The recommended way to generate an `xorg.conf` file is to use the `xorgcfg` utility. The xorgconfig text utility is still there for the (few) cases where xorgcfg can't be used. Also, there is a sample file installed as `/usr/X11R6/lib/X11/xorg.conf.eg`, which can be used as a starting point.

For details about the `xorg.conf` file format, refer to the *xorg.conf(5)* manual page.

Once you've set up a xorg.conf file, you can fine tune the video modes with the `xvidtune` utility.

4.1 About mouse configuration

X11R6.9 has support for the mouse driver included in the new **wscons** console driver. Specify "`wsmouse`" as the protocol and "`/dev/wsmouse`" as the device in `/etc/X11/xorg.conf` with a PS/2 or USB mouse.

See README.mouse for general instruction on mouse configuration.

5. Running X

5.1 Starting xdm, the display manager

To start the display manager, log in as root on the console and type: "`xdm -nodaemon`".

You can start xdm automatically on bootup by adding the line:

```
xdm_flags=""            # for normal use: xdm_flags=""
```

in `/etc/rc.conf.local`.

5.2 Running X without the display manager

The easiest way for new users to start X windows is to type: "`startx >& startx.log`". Error messages are lost unless you redirect them because the server takes over the screen.

To get out of X windows, type: "`exit`" in the console xterm. You can customize your X by creating `.xinitrc`, `.xserverrc`, and `.twmrc` files in your home directory as described in the xinit and startx man pages.

6. Kernel Support for X

OpenBSD's GENERIC kernels have all support for running X enabled.

6.1 Console drivers

The server supports wscons, the standard OpenBSD/i386 console driver.

6.2 Aperture Driver

By default OpenBSD includes the BSD 4.4 kernel security feature that disables access to the `/dev/mem` device when in multi-user mode. But the X server requires linear access to the display memory in most cases.

OpenBSD requires the aperture driver to be enabled for all X servers, because the aperture driver also controls access to the I/O ports of the video boards.

To enable the aperture driver, once included in the kernel, set

```
machdep.allowaperture=2
```

in `/etc/sysctl.conf`. See the xf86(4) manual page for details.

Another (less recommended) way to enable linear memory and I/O ports access is to disable the kernel security feature by initializing `securelevel` to -1 in `/etc/rc.securelevel`.

> **Caveat:** the aperture driver only allows one access at a time (so that the system is in the same security state once X is launched). This means that if you run multiple servers on multiple virtual terminals, only the first one will have linear memory access. Set `securelevel` to -1 if you need more that one X server at a time.

6.3 MIT-SHM

OpenBSD supports System V shared memory. If X detects this support in your kernel, it will support the MIT-SHM extension.

7. Rebuilding the X Distribution

You should configure the distribution by editing xc/config/cf/host.def before compiling. To compile the sources, invoke ‘‘make World’’ in the xc directory."

Note that OpenBSD project now has its own source tree, with some local modifications. You may want to start with this tree to rebuild from sources. The OpenBSD XF4 source tree is available by anoncvs from all OpenBSD anoncvs servers. See http://www.openbsd.org/anoncvs.html for details on anoncvs.

X11R6.9 compiles on most OpenBSD architectures. The X.Org X server builds and run on the following systems. On other architectures supported by OpenBSD, only client side libraries and applications are supported.

7.1 OpenBSD/alpha

The X server is known to work on some VGA cards in alpha machines that support BWX I/O, with OpenBSD 3.2 and higher.

The following cards have been successfully tested for now:

- 3DLabs Permedia 2 (8, 15, 16 and 24 bits depth)
- ATI Rage Pro (works with ’Option "NoAccel"’)
- Cirrus Logic CL5430 (works with ’Option "NoAccel"’)
- Cirrus Logic GD5446 (8, 16 and 24 bits depth)
- Matrox MGA 2064 (8, 16 and 24 bits depth)

Note that this version of doesn’t work on TGA cards. The version shipped with OpenBSD 3.1 and higher includes an OS-specific driver *wsfb* that is used to support TGA cards.

7.2 OpenBSD/macppc

The X server is currently known to work on most of the G4 Macs and iBooks with ATI or nVidia cards. Other machines are more or less untested.

Use xorgconfig to build a /etc/X11/xorg.conf file before starting the server for the first time.

For the Titanium Powerbook G4, you can try the following mode line in `/etc/X11/xorg.conf` to match the flat panel resolution:

```
Modeline "1152x768" 64.995 1152 1213 1349 1472  768 771 777 806 -HSync -VSync
```

7.3 OpenBSD/sparc

OpenBSD 3.2 on sparc switched to the wscons device driver and now uses the OS specific *wsfb* driver in the X server. This driver is not included in X11R6.9. Please use the version shipped with OpenBSD instead.

7.4 OpenBSD/sparc64

This version only has support PCI based machines using ATI cards on OpenBSD/sparc64. Note that the version shipped with OpenBSD has support for the X server on both SBus and UPA (unaccelerated) based cards.

8. Thanks

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