Installation Guide for XFree86 3.1.1

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Contents

1 Building XFree86

> **NOTE:** Refer to the appropriate OS-specific README file before attempting to build XFree86. These files contain additional information that you may need to successfully build under your OS.

We highly recommend using GCC-2 to build XFree86. Do not use version 2.6.0 or 2.4.x versions prior to 2.4.5 due to bugs that cause either build or execution failures. Most of the XFree86 3.1.1 binary kits are built with GCC 2.4.5, 2.5.8 or 2.6.3. Use of GCC's -m486 option will yield approximately 5% better performance on a 486, with no degradation (other than larger binaries) on a 386. (gcc-2 is available from prep.ai.mit.edu and other sites archiving GNU source.)

1. You need the following:
   - X Consortium X11R6 distribution with fixes 01-11 applied.
   - `XFree86-3.1.1.diff.gz`
   - `XFree86-contrib-3.1.1.diff.gz` (an optional patch for some of the X Consortium's "contrib" distribution)
   - If upgrading from XFree86 version 3.1 you will only need the `3.1-3.1.1.diff.gz` patch, and optionally the `contrib-3.1-3.1.1.diff.gz` patch.
   - The full XFree86 source tree requires about 110MB. An additional 110MB (more for OSs without shared libraries) is required to build everything. About 45-55MB (for OSs with shared libraries) is required to install the full distribution. It is possible to reduce the space required by removing some parts which are not essential to the build process:

xc/test	13MB
xc/doc/hardcopy	8MB
xc/doc/specs	11MB

If you don't need to build the fonts, `xc/fonts` can be removed saving 30MB. If you don't want to build PEX or XIE you can remove:

xc/programs/Xserver/XIE	3MB
xc/programs/Xserver/PEX5	2MB

A few more MB can be freed by removing unnecessary directories under `xc/programs/Xserver/hw/`.

- It is possible to configure a cut-down source tree for building only the XFree86 servers. Building from a cut-down source tree requires about 40-45MB of disk space. The files/directories required to do this are listed in the ServersOnly file (which can be found in `xc/programs/Xserver/hw/XFree86/doc/`).
- The `XFree86-3.1.1-contrib.diff.gz` patch provides patches to a small part of the X Consortium's contrib distribution. It mostly covers those clients which were in the core distribution of X11R5, but were moved to the contrib distribution for X11R6. To use this patch, you need to have the following files/directories from the final X Consortium R6 contrib release (not the initial contrib-0 version):

```
contrib/Imakefile
contrib/programs/Imakefile
contrib/programs/ico/
contrib/programs/listres/
contrib/programs/showfont/
contrib/programs/viewres/
contrib/programs/xbiff/
contrib/programs/xcalc/
contrib/programs/xditview/
contrib/programs/xedit/
contrib/programs/xev/
contrib/programs/xeyes/
contrib/programs/xfontsel/
contrib/programs/xgc/
contrib/programs/xload/
contrib/programs/xman/
contrib/programs/xmessage/
```

2. If you are starting from the stock X Consortium PL11 distribution, go to the directory above your `xc` directory, and run:

```
gzip -d < XFree86-3.1.1.diff.gz | patch -p -E
```

If you are installing in an unmodified tree there shouldn't be any problems. Check for any patch rejections and resolve them. If you've modified some files (e.g. `xf86site.def`, `site.def`) you should rename them, and restore the standard versions before patching. If you don't have backups of the originals, individual files can be easily obtained from *ftp.x.org:/pub/R6untarred* (`ftp://ftp.x.org/pub/R6untarred`).

If you are patching a tree that you've previously used, make sure you run "`make clean`" from the `xc` directory before applying the diffs.

If you are using the patch for the contrib code, go to the directory above your `contrib` directory, and run:

```
gzip -d < XFree86-3.1.1-contrib-diff.gz | patch -p -E
```

3. If you are starting from the XFree86 3.1 distribution, go to the directory above your `xc` directory, and run:

   ```
   gzip -d < 3.1-3.1.1.diff.gz | patch -p -E
   ```

   If you are installing in an unmodified tree there shouldn't be any problems. Check for any patch rejections and resolve them. If you've modified some files (e.g. `xf86site.def`, `site.def`) you should rename them, and restore the standard versions before patching. If you don't have backups of the originals, individual files for version 3.1.1 can be easily obtained from *ftp.xfree86.org:/pub/XFree86/3.1.1/untarred* (`ftp://ftp.xfree86.org/pub/XFree86/3.1.1/untarred`).

   If you are patching a tree that you've previously used, make sure you run "`make clean`" from the `xc` directory before applying the diffs.

   If you are using the patch for the contrib code, go to the directory above your `contrib` directory, and run:

   ```
   gzip -d < contrib-3.1-3.1.1-diff.gz | patch -p -E
   ```

4. Read through `config/cf/xf86site.def`. Set the various parameters to suit your configuration. If it is your first build, you should set **BuildFonts**, **InstallXdmConfig**, **InstallXinitConfig** to **YES** (as well as **InstallFSConfig** if you are building the Font Server).

   If you are using a cut-down source tree for building only the servers, set **BuildServersOnly** to **YES**.

   Set the defines to specify which server(s) you want to build:

   ```
   Colour SVGA server (XF86_SVGA):           XF86SVGAServer
   16 colour (S)VGA server (XF86_VGA16):     XF86VGA16Server
   ET4000/W32 accelerated server (XF86_W32): XF86W32Server
   Monochrome server  (XF86_Mono):           XF86MonoServer
   S3 accelerated server (XF86_S3):          XF86S3Server
   8514/A accelerated server (XF86_8514):    XF86I8514Server
   Mach8 accelerated server (XF86_Mach8):    XF86Mach8Server
   Mach32 accelerated server (XF86_Mach32):  XF86Mach32Server
   Mach64 accelerated server (XF86_Mach64):  XF86Mach64Server
   P9000 accelerated server (XF86_P9000):    XF86P9000Server
   AGX accelerated server (XF86_AGX):        XF86AGXServer
   ```

   To build a dual headed Mono+VGA2 server, set **XF86MonoDualServer** to **YES**.

   To build a dual headed Mono+VGA16 server, set **XF86VGA16DualServer** to **YES**.

   Set **ServerToInstall** to the server you want linked to `X`. If this isn't specified, it will default to the first one in the above list which is being built.

The drivers you wish to include in the server are also selected in `xf86site.def`. The drivers used for the SVGA server are set by the **XF86SvgaDrivers** parameter. This should be a list of the driver directory names (in lower case). The ordering determines the order in which the drivers are probed at startup. The default is to include all supplied drivers. Similarly the following parameters specify drivers for the other servers:

```
XF86Vga16Drivers          XF86_VGA16
XF86Vga2Drivers           XF86_Mono (vga2 drivers)
XF86MonoDrivers           XF86_Mono, XF86_VGA16 (other mono drivers)
```

The SVGA, VGA16 and VGA2 screens each have "generic" drivers, and these should always be last in the list because their probe will succeed for any VGA card.

5. If you want to be able to format the XFree86 documentation (which is now in LinuxDoc/SGML form), you will need to get and install linuxdoc-sgml-1.1.tar.gz plus the patches which can be found on *ftp.xfree86.org:/pub/XFree86/3.1.1/LinuxDoc* `(ftp://ftp.xfree86.org/pub/XFree86/3.1.1/Linuxdoc)`. Check in the `xf86site.def` file and uncomment the appropriate Linuxdoc options.

6. Before building the distribution, read through the OS-specific `README` file in `xc/programs/Xserver/hw/xfree86/doc` that is relevant to you. Once those OS-specific details have been taken care of, go the `xc` directory and run "`make World`" with the **BOOTSTRAPCFLAGS** set as described in the OS-specific README.

7. If all goes well, that will finish successfully in anything from two to twelve hours depending on your system. You should check `World.Log` to see if there were any problems. If there weren't any then you can do a "`make install`" and a "`make install.man`". Make sure you have enough space in `/usr/X11R6` for the install to succeed. If you want to install on a filesystem other than `/usr`, make a symbolic link to `/usr/X11R6` before installing.

   To install the binary Link Kit (in `/usr/X11R6/lib/Server`), run:

   ```
   make install.linkkit
   ```

8. To build the subset of the contrib release supported by XFree86, make sure that you have first built and installed the core distribution. Then go to the `contrib` directory and run "`xmkmf -a; make`". When that is completed you can do a "`make install`" and a "`make install.man`".

2 Using and configuring XFree86

1. Add `/usr/X11R6/bin` to your **PATH** and `/usr/X11R6/man` to your **MANPATH**.

2. Set up an `XF86Config` file. The default locations for this file are: `/etc/XF86Config`, `/usr/X11R6/lib/X11/XF86Config.`*hostname*, and `/usr/X11R6/lib/X11/XF86Config`. There is a sample file installed as `/usr/X11R6/lib/X11/XF86Config.eg`, and this can be used as a starting point. The `xf86config` utility can also be used to generate an `XF86Config` file.

   For details about the `XF86Config` file format, refer to the *XF86Config(4/5)* manual page.

3. If you use a `${HOME}/.xserverrc` file with xinit, make sure that the script exec's the server (e.g "`exec /usr/X11R6/bin/XF86_SVGA`" rather than just "`/usr/X11R6/bin/XF86_SVGA`"). If you don't do this, the server may not exit when your last client finishes.

3 Reconfiguring the server (source distribution)

To build a different set of servers or servers with a different set of drivers installed:

1. Make sure the source for any new drivers is in the correct place (e.g., driver source for the SVGA server should be in a subdir of `xc/programs/Xserver/hw/xfree86/vga256/drivers`).
2. Change the settings of the server defines (eg **XF86SVGAServer** as described above) in `xf86site.def` to specify which servers you wish to build. Also, change the driver lists to suit your needs.
3. From `xc/programs/Xserver`, run:

```
make Makefile
make Makefiles
make depend
make
```

4 Reconfiguring the server (binary distribution)

If you have installed the server Binary LinkKit, it is possible to reconfigure the drivers and some of the extensions in the servers. For details of how to do this, please refer to the *README.LinkKit* `(LinkKit.html)` file.

`$XConsortium: INSTALL.sgml,v 1.4 95/01/27 16:14:24 kaleb Exp $`
`$XFree86: xc/programs/Xserver/hw/xfree86/doc/sgml/INSTALL.sgml,v 3.6 1995/01/28 16:01:30 dawes Exp $`