Cygwin/XFree86 Frequently Asked Questions

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Questions and Answers

1. General Information

1.1. What is Cygwin/XFree86?

Cygwin/XFree86 is a port of XFree86 to Cygwin; Cygwin provides a UNIX-like API on the Win32 platform. At the time of writing, supported Win32 platforms are Windows 95, Windows 98, Windows Me, Windows NT 4.0, and Windows 2000. Windows CE, Windows 3.1, Windows 3.11, and Windows NT 3.51 are not supported.

1.2. What is Cygwin?

Cygwin tools are, in the words of the Cygwin homepage (http://cygwin.com/), "ports of the popular GNU development tools and utilities for Windows 95, 98, and NT. They function by using the Cygwin library which provides a UNIX-like API on top of the Win32 API." Cygwin provides the compiler (gcc), libraries, headers, and other utilities which build and support the operation of Cygwin/XFree86.

1.3. What is the X Window System?

[ScheiflerGettys92]

The X Window System, or X, is a network-transparent window system. With X, multiple applications can run simultaneously in windows, generating text and graphics in monochrome or color on a bitmap display. Network transparency means that application programs can run on machines scattered through the network.

1.4. What is XFree86?

XFree86, in the words of the XFree86 homepage, is "a freely redistributable open-source implementation of the X Window System that runs on UNIX(R) and UNIX-like (like Linux, the BSDs, Mac OS X (aka Darwin) and Solaris x86 series) operating systems and OS/2."

1.5. What is an X Server?

An X Server is a program that provides display and user input services to other programs. In comparison, a file server provides other programs with access to file storage devices. File servers are typically located in a remote location and you use the services of a file server from the machine that you are located at. In contrast, an X Server is typically running on the machine that you are located at; display and user input services may be requested by programs running on your machine, as well as by programs running on remote machines.

1.6. What is an X client?

An X client is a program that utilizes the display and user input services provided by an X Server. X clients may run on the same or disparate machine as the X Server that is providing display and user input services.

1.7. Why port XFree86 to Microsoft Windows?

Porting XFree86 to Microsoft Windows benefits many people and projects in many ways:

- Prior to Cygwin/XFree86 only commercial, closed source X Servers were available for Microsoft Windows.

- An X Server on Windows may be used to display the output of programs running on remote UNIX machines.

- Cygwin/XFree86, in conjunction with Cygwin, provides a complete compatibility layer for compiling and running UNIX applications on Microsoft Windows.

1.8. Is there a Cygwin/XFree86 newsgroup?

No, Cygwin/XFree86 does not have a newsgroup; however, we do have a mailing list. See Q: 1.9.

1.9. Is there a Cygwin/XFree86 mailing list?

Yes, Cygwin/XFree86 has a mailing list, namely, cygwin-xfree@cygwin.com. Visit the Cygwin Mailing Lists (http://cygwin.com/lists.html) page to subscribe to cygwin-xfree@cygwin.com as well as to read and search an online archive of the mailing list traffic.

> **Tip:** Post your X-related inquires to cygwin-xfree@cygwin.com only; do not post nor cross post your inquires to the cygwin@cygwin.com mailing list. Cygwin's mailing list is only for Cygwin API related inquires that are not handled by another more-specific list.

2. Installation

2.1. What versions of Windows does Cygwin/XFree86 run on?

Cygwin/XFree86 supports Windows 95, Windows 98, Windows Me, Windows NT 4.0, and Windows 2000 as of 2001-05-19. Windows XP will be supported when it is officially released.

Cygwin/XFree86 requires Cygwin to compile and run. Cygwin is not, as of 2001-07-10, available on Microsoft Windows CE, therefore Cygwin/XFree86 is not currently available on Microsoft Windows CE.

2.2. How is Cygwin/XFree86 installed?

The Cygwin/XFree86 User's Guide (http://xfree86.cygwin.com/docs/ug/cygwin-xfree-ug.html) thoroughly documents the installation process.

2.3. Which archives do I need to download and install?

The Cygwin/XFree86 User's Guide (http://xfree86.cygwin.com/docs/ug/cygwin-xfree-ug.html) lists the archives that need to be downloaded and installed.

2.4. Can I use WinZip to extract Cygwin/XFree86 archives?

No. WinZip is not aware of Cygwin's symlink handling, nor does WinZip properly handle the end of line characters in Cygwin/XFree86's archives. Extracting Cygwin/XFree86's archives with a utility other than Cygwin's tar, gzip, and bzip2 will likely result in the X Server reporting that it cannot open a font file on startup; the server will shutdown immediately after giving this error.

2.5. bunzip2 reports: "It is possible that the compressed file(s) have become corrupted."

Short answer: the bzip2 files on the server are not corrupt.

Downloading the Cygwin/XFree86 archives using a web browser causes all sorts of problems, as web browsers sometimes attempt to "help" you by automatically decompressing downloaded files. However, the automatic decompression is broken in that the decompression process usually fails to remove the `.bz2` extension from the decompressed file. You may be able to simply rename the downloaded file, leaving off the `.bz2` extension; if that method fails, you will have to redownload the files, by using either a standard ftp client (e.g. **ftp** including with Cygwin), or by using your web browser and right-clicking the link to each file and choosing Save Target As..., Save Link As..., or a similarly named command. Choosing Save Target As..., Save Link As..., or a similarly named command instructs the web browser to save the file directly, without passing the file through any interpretation steps, thus preventing the web browser from automatically decompressing the files.

2.6. `Xinstall.sh` requests the file `Xmod.tgz`, which is not available on the mirror sites.

The `Xinstall.sh` script determines which files are required for installation by first determing the current operating system. The current operating system name is determined by running **uname**. For example, the name on Windows 2000 is `CYGWIN_NT-5.0`. The file `Xmod.tgz` is not required on Cygwin, but the file is required on other platforms. `Xinstall.sh` mistakenly requests `Xmod.tgz` on Cygwin when **uname** does not run, or runs but does not return recognizable output. You need to get **uname** working on your system before you can continue with installation of Cygwin/XFree86. The following are a couple of things to look at when trying to fix **uname**:

1. Run **uname** from the same Cygwin **bash** window that you ran `Xinstall.sh` in. Does **uname** return a string that starts with the characters `CYGWIN`? If so, try running `Xinstall.sh` using **sh ./Xinstall.sh**. If not, perhaps you have multiple copies of `cygwin1.dll` on your system; see Q: 6.8. for more information.

2. Run **uname** from the same Cygwin **bash** window that you ran `Xinstall.sh` in. If **uname** cannot be found, then run **cat /etc/setup/installed.db | grep sh-utils** to see if the sh-utils Cygwin package is installed. If no output is returned, then sh-utils is not installed and you must re-run Cygwin's Setup program to install sh-utils. If output is returned, then sh-utils is installed; perhaps try running `Xinstall.sh` using **sh ./Xinstall.sh**.

3. Configuration

3.1. Why isn't there an XF86Config file?

Cygwin/XFree86 uses an entirely different server executable than XFree86. Cygwin/XFree86 queries Windows for configuration information and accesses your hardware in a device independent manner through the Win32 API, whereas the XFree86 server must read detailed information about your hardware from a configuration file.

3.2. What are the command line arguments for XWin.exe?

The Cygwin/XFree86 User's Guide (http://xfree86.cygwin.com/docs/ug/cygwin-xfree-ug.html) documents the command line arguments for XWin.exe.

3.3. Why does XWin.exe ignore the display depth that I pass on the command line?

When running in windowed mode or GDI-based fullscreen mode, XWin.exe must run the X Server at whatever display depth Windows is currently using; in these cases the display depth passed on the command line is ignored. XWin.exe only uses the display depth parameter when running in a DirectDraw-based fullscreen mode, as DirectDraw allows applications to change the display resolution and depth when running in fullscreen mode.

3.4. I have a two button mouse, can I emulate a three button mouse?

Yes. Pass the `-emulate3buttons timeout_in_milliseconds` parameter to XWin.exe, where `timeout_in_milliseconds` is the, optional, maximum number of milliseconds between a button release and opposite button press that will trigger an emulated third button press.

4. Usage

4.1. Why is twm the only window manager included with Cygwin/XFree86?

twm resides in the XFree86 source tree, therefore it is compiled and released with Cygwin/XFree86 automatically. Other window managers are available, but they reside in other source trees and are therefore not released with the core Cygwin/XFree86 archives.

4.2. What precompiled window managers are available?

XFCE and vtwm are available

4.3. How do I use a non-U.S. keyboard layout?

See Q: 4.4. to obtain a modmap for your keyboard layout.

4.4. Where can I find an xmodmap for my non-U.S. keyboard layout?

You can try using an xmodmap file for your keyboard layout from a GNU/Linux distribution (e.g. RedHat).

Or, you can use **xkeycaps** to automatically generate a modmap for one of over 208 different layouts. See the xkeycaps home page (http://www.jwz.org/xkeycaps/) to download and for more information.

4.5. How do I get my non-U.S. keyboard modmap to be installed when using xdmcp?

This answer assumes that your non-U.S. keyboard modmap is located in `/etc/X11` and is called `xmodmap.country_code`, where `country_code` is your two-letter standardized country code (e.g. Australia = au, Deutschland = de, France = fr, Japan = jp, United Kingdom = uk).

First, you must create a script that tells **xmodmap** to load the modmap for your non-U.S. keyboard layout. One way to run **xmodmap** on X Server startup when using *xdmcp* is to add the following two lines to `/etc/X11/xdm/XSetup`:

#!/bin/sh

/usr/X11R6/bin/xmodmap /etc/X11/xmodmap.country_code

Now you must tell xdm to run the screen setup script on startup. In `/etc/X11/xdm/xdm-config`, add the following line:

DisplayManager*setup: /etc/X11/xdm/Xsetup

4.6. I have installed a modmap for my non-U.S. keyboard layout, but how do I get **bash** to display accents and/or umlauts?

Add the following two lines to `.inputrc` in your Cygwin home directory (e.g. `/home/harold/`):

set output-meta On # to show 8-bit characters

set convert-meta Off # to show it as character, not the octal representation

4.7. How do I put **bash** into "8 bit" mode?

See Q: 4.6.

4.8. Why doesn't Linux-Mandrake 8.1 present a login screen when using `-query` for XDMCP?

[Mika Laitio] For whatever reason, XDMCP is not enabled by default when using Linux-Mandrake (http://linux-mandrake.com/) 8.1's default X Display Manager, kdm. You can enable XDMCP for kdm by editing the file `/usr/share/config/kdm/kdmrc` and changing:

```
[Xdmcp]
Enable=false
```

to:

```
[Xdmcp]
Enable=true
```


4.9. Why does Cygwin/XFree86 not display the XDM login prompt on Solaris when I try to open an XDMCP session with a remote Solaris machine?

See also Q: 4.10. and Q: 6.15.

[David Dawson] For whatever reason, certain versions of Solaris need fonts that are not provided by Cygwin/XFree86; the result is that you may see the Solaris background tile and the hourglass cursor, but the XDM login prompt will never appear. The simplest solution is to point Cygwin/XFree86 at the font server that is usually running on the Solaris machine. You'll need a command line similar to the following to start your XDMCP session and to connect to the Solaris font server:

```
XWin.exe -query solaris_hostname_or_ip_address -fp
tcp/solaris_hostname_or_ip_address:7100
```

> **Note:** The `-fp` parameter is a general X Server parameter, it is not specific to Cygwin/XFree86; therefore, the `-fp` is documented in the X Server documentation (http://www.xfree86.org/current/Xserver.1.html). For additional information about fonts, see Fonts in XFree86 (http://www.xfree86.org/current/fonts.html).

The standard port number for a font server is 7100, however, you may need to ask your system administrator what the font server port number is if you cannot connect to a font server on port 7100. It is also possible that your Solaris machine is not running a font server, in which case you will need to consult your Solaris documentation for instructions on how to run a font server.

4.10. Why does Cygwin/XFree86 freeze when I try to open an XDMCP session with a remote Solaris machine?

See also Q: 4.9. and Q: 6.15.

Solaris appears to not support certain display bit depths, such as 24 bits per pixel. Change your Windows display bit depth to 8, 16, or 32 and try logging in again. File a complaint with Sun if this issue is important to you, or change your Solaris machines to use XFree86 instead of the Solaris X Window System.

4.11. Where can I find more information about XDMCP (X Display Manager Protocol).

See the Linux XDMCP HOWTO (http://www.linuxdoc.org/HOWTO/XDMCP-HOWTO/) for more information about XDMCP.

5. Troubleshooting

5.1. Is there a log file that I can look at for diagnostic information and error messages?

Yes. The Cygwin/XFree86 log file is located at `/tmp/XWin.log`. You will find solutions to the most common error messages in the Section called *Error and Warning Messages*.

5.2. I have a specific error message, what does it mean?

See the Error and Warning Messages section for help with specific error messages. Return to this section if you do not find a specific answer for the error message that you have.

5.3. I have a specific error message that is not addressed in the Error and Warning Messages section.

Search the Cygwin/XFree86 mailing list archives (http://cygwin.com/ml/cygwin-xfree/) to see if the error message has already been reported and/or addressed. Report the error message to the Cygwin/XFree86 mailing list (cygwin-xfree@cygwin.com), how the error message was caused, and the behavior of the X Server after the error message was generated (exit, freeze, etc.), only if the error message has not been reported, if the circumstances that produced the error message are significantly different from other reports, or if you have additional information regarding the error message to contribute.

5.4. My bug report the Cygwin/XFree86 mailing list was ignored. What do I do now?

Some bug reports are deliberately ignored by project members if the bug in question was recently dealt with; did you search the mailing list archives (project-url-ml-search;) for a solution to your problem before submitting your bug report? Some bug reports are ignored if they do not contain sufficient information to understand the situation that produces the bug; did your bug report have enough information? Some bug reports are missed or forgotten, thus some valid bug reports do not receive a reply; simply resubmit such bug reports that have not received a response within 7 days of submission.

6. Error and Warning Messages

6.1. Cygwin/XFree86 is extremely slow, especially when using XDMCP to connect to remote machines.

[Dr. Edward Wornar] Certain programs that are installed by various drivers and software packages can consume an incredible amount of system resources and processing time. One known example of such a program is `ATI2evxx.exe`, a utility installed with some ATI Technologies graphics card drivers. Answers That Work (http://www.answersthatwork.com/) has information on `ATI2evxx.exe` on their Task List Programs - A (http://www.answersthatwork.com/Tasklist_pages/tasklist_a.htm) page. You may want to try disabling, one-by-one, `ATI2evxx.exe` and other such programs until you find the program that is causing the slowdown.

6.2. A required DLL file: cygncurses5.dll cannot be found

Upgrading from ncurses-5.2-5 to ncurses-5.2-7 requires following some special instructions (http://cygwin.com/ml/cygwin-announce/2001/msg00124.html); failure to follow those instructions will cause the above error message when running various Cygwin and Cygwin/XFree86 programs.

6.3. _XSERVTransmkdir: Owner of /tmp/.X11-unix should be set to root

This warning message can be ignored; it does not cause any known problems.

6.4. error opening security policy file /usr/X11R6/lib/X11/xserver/SecurityPolicy

From http://xfree86.org/, "This is a only a warning message, and is mostly harmless. If your server is failing to startup, this is not the reason. Check the other messages."

6.5. Fatal server error: could not open default font 'fixed'

This error results from the end of line characters on the font files being incorrect. There are two known ways of installing the fonts that causes the end of line characters to be incorrect:

1. Using `Xinstall.sh` to install Cygwin/XFree86 on a text-mode Cygwin mount rather than binary-mode mount. You will need to change your default Cygwin mount mode to binary-mode and rerun the `Xinstall.sh` script to reinstall Cygwin/XFree86. You can change your Cygwin default mounts to binary-mode by rerunning Cygwin's `setup.exe` and setting Default Text File Type to UNIX; this works even if there are no packages that need to be installed or updated by `setup.exe`. See the Cygwin User's Guide section on Text and Binary modes (http://cygwin.com/cygwin-ug-net/using-textbinary.html) for more information on Cygwin mount modes.

2. Manually installing the Cygwin/XFree86 archives using a non-Cygwin aware archival extraction program, such as WinZip. You should be installing Cygwin/XFree86 with the `Xinstall.sh` script, rather than manually extracting the Cygwin/XFree86 archives. See Q: 2.4. for more information regarding WinZip.

6.6. Could not init font path element /usr/X11R6/lib/X11/fonts/`*`/, removing from list!

See Q: 6.5. and Q: 2.4.

6.7. The procedure entry point _check_for_executable could not be located

Programs that you are attempting to use were compiled against a newer version of Cygwin than is currently on your system. Run Cygwin's setup program to update your installation to the latest version.

6.8. Exception: STATUS_INTEGER_DIVIDE_BY_ZERO

You are most likely running your primary Windows display at a bit depth that requires palettized color, most likely 8 bits per pixel, in conjunction with a release of Cygwin/XFree86 that does not support palettized color modes. Palettized color support was added to Cygwin/XFree86 on 2001-06-05. You may either install a newer version of Cygwin/XFree86 that supports palettized color, or you may run your primary Windows display at 15, 16, 24, or 32 bits per pixel.

See Q: 6.9.

6.9. Exception: STATUS_ACCESS_VIOLATION

`cygwin1.dll` uses a shared memory section amongst all loaded copies of `cygwin1.dll`; unfortunately, the layout and usage of the shared memory section changes between versions of `cygwin1.dll`. Loading two different versions of `cygwin1.dll` will cause the shared memory section to become corrupted, which almost always results in an Exception: STATUS_ACCESS_VIOLATION. You must search your filesystem(s) and remove all copies of `cygwin1.dll` except the copy in `/bin`. You must remove the different versions of `cygwin1.dll` even if they are not in your path, as programs that depend on `cygwin1.dll` attempt to load the file from the local directory before searching other paths; thus, it is rather easy, and common, for multiple versions of `cygwin1.dll` to become loaded at the same time if they exist on a particular system.

6.10. XDMCP fatal error: Session declined No valid address

Cygwin/XFree86 is sometimes unable to determine which local network interface's address should be reported to the *XDMCP* server; in these cases you need to pass `-from local_host_name_or_ip_address` to XWin.exe to specify which interface address to report.

6.11. Xlib: connection to "`local_host_name_or_ip_address`:0.0" refused by server Xlib: Maximum number of clients reached

Cygwin/XFree86 queries getdtablesize () for the maximum number of client connections allowed; by default Cygwin returns 32 from getdtablesize (). Cygwin/XFree86 Server Test Series (http://xfree86.cygwin.com/devel/shadow/) release Test44 (http://xfree86.cygwin.com/devel/shadow/changelog.html), released on 2001-08-15, changes the maximum number of clients from 32 to 1024 by passing the square of getdtablesize () to setdtablesize ().

6.12. XIO: fatal IO error 104 (Connection reset by peer) on X server "127.0.0.1:0.0"

See Q: 6.11.

6.13. Cannot Open Display: 127.0.0.1:0.0

Certain classes of software, such as that used for *Virtual Private Networking* and *fire-walling* may cause the IP address 127.0.0.1, or other local adapter addresses, to be redirected, to become inoperable in some way, or to be operated in a manner that violates the defined operation of IP address.

As a potential remedy, try removing all instances of such software; this may not always fix the problem though, as some software may leave artifacts even after uninstallation is completed. The only way to be sure that you have not found a Cygwin/XFree86 bug is to install Windows on a freshly formatted hard drive, followed by Cygwin and Cygwin/XFree86, and finally add your other software one application at a time until Cygwin/XFree86 stops working.

Some products that have been reported to cause problems:

> **Note:** These products may not cause problems in all configurations. However, the Cygwin/XFree86 project has neither the time, ability, nor resources to help you correctly configure your third-party software.

- Aventail Connect
- Zonealarm PC Firewall from Zonelab

6.14. Fatal server error: negative sized edge?

A compilation bug, due to the -ansi build flag, in the Type1 font library caused this bug to be present in all Cygwin/XFree86 `XWin.exe` builds between 2001-05-06 and 2001-08-03. The -ansi build flag was removed on 2001-08-03 and subsequent builds do not contain the bug. All Server

Test Series releases from Test23 to Test41 contain the bug. Test42 was the first recent Server Test Series release that did not contain the bug. Remedy the bug by either installing the most recent Server Test Series release or by updating your entire Cygwin/XFree86 installation.

6.15. Login to CDE on Solaris via XDMCP hangs Cygwin/XFree86.

See also Q: 4.9. and Q: 4.10.

Install the recommended set of patches (http://www.sun.com/bigadmin/patches/indexRec.html) for your version of Solaris.

6.16. Out of environment space

Increase your Windows environment space by following the instructions provided by Microsoft (http://support.microsoft.com/support/kb/articles/Q230/2/05.ASP).

6.17. Too many parameters

See Q: 6.16.

7. Porting Software

7.1. Is there a list of software that has been ported to Cygwin/XFree86?

Yes, see the Cygwin/XFree86 - Ported Software (http://xfree86.cygwin.com/ported-software.html) page.

7.2. How do I start porting software to Cygwin/XFree86?

Cygwin/XFree86 provides a software interface that is very similar to the software interface provided by GNU/Linux and other UNIX systems. Most software packages will compile on Cygwin/XFree86 without any changes at all. To begin with, try to compile a given software package following that package's compilation instructions for GNU/Linux.

7.3. Are there common problems encountered when porting software to Cygwin/XFree86?

One common problem encountered when porting software to Cygwin/XFree86 is due to Cygwin's inability to distinguish between files with the same name but different capitalization (e.g. XvMC.h and xvmc.h), which is due to a Windows' limitation.

Example 1. Include Problems

This example is based off an error that actually occurred in the XFree86 source code tree in `xc/programs/Xserver/Xext/xvmc.c`. `xvmc.c` included `XvMC.h`, as shown below:

```
#include "XvMC.h"
```

The intention was to include the file `xc/include/extensions/XvMC.h`. Unfortunately, there was a file named `xc/programs/Xserver/Xext/xvmc.h` that ended up getting included instead of the desired file, because the precompiler searched the local directory, `xc/programs/Xserver/Xext/`, before searching the rest of the include path. Cygwin can't distinguish between `XvMC.h` and `xvmc.h`, so `xvmc.h` ended up being included in `xvmc.c`. The build process on Cygwin broke because the contents of `XvMC.h` were entirely different than the contents of `xvmc.h`.

The solution was to change the include to specifically reference the desired header:

```
#include "../../../include/extensions/XvMC.h"
```

8. Contributing

8.1. Are there step-by-step instructions for contributing to Cygwin/XFree86?

Yes. The Cygwin/XFree86 Contributor's Guide
(http://xfree86.cygwin.com/docs/cg/cygwin-xfree-cg.html) has step-by-step instructions for
obtaining the source, building the source, building debug versions of the source, and even
cross-compiling under Linux.

8.2. Where do I get the Cygwin/XFree86 source code?

Cygwin/XFree86 source code is contained in, and distributed with, the XFree86 source tree.
Periodically the Cygwin/XFree86 project releases a snapshot of the XFree86 source code that is
known to compile. Read-only CVS access to the XFree86 source tree (http://xfree86.org/cvs/) is
also available from the XFree86 project.

8.3. Do I need to be a member of XFree86 to contribute to Cygwin/XFree86?

No. Cygwin/XFree86 only needs one developer that is a member of the XFree86 organization; as
of 2001-05-22 we have three members. XFree86 members have very few privileges over
non-members; specifically, XFree86 members do not generally have CVS write access, so you
aren't really missing out on anything if you aren't an XFree86 member.

Exceptional Cygwin/XFree86 contributers may occasionally be nominated for membership to
XFree86.

8.4. Are there editors for Windows that understand and preserve UNIX end of line characters?

Yes. Emacs and XEmacs are available for Windows; they both understand and preserve UNIX end
of line characters.

See the GNU Mirror List (http://www.gnu.org/order/ftp.html) for a mirror near you; Emacs is
located under `gnu/pub/windows/emacs/`.

See the XEmacs Download Page (http://xemacs.org/Download/index.html) to download XEmacs
for Windows.

8.5. How should I generate patches for Cygwin/XFree86?

Only submit patches that have UNIX end of line characters. See Q: 8.4. for information on editors
for Windows that are aware of UNIX end of line characters.

Generally it is better for us if you generate your patches against the XFree86 CVS tree. For
example, run **cvs -z4 diff -U3 hw/xwin/** from `xc/programs/Xserver/` to generate a diff file for
all the modified files in `hw/xwin/`. CVS is smart enough to only generate diffs for files that are in
the CVS repository; for example, CVS diff will not create diffs for Emacs temporary files.

In the case that you have modified a single file, create the diff with **cvs -z4 diff -U3 `file_name`**.

8.6. Where do I submit patches for Cygwin/XFree86?

Submit patches for Cygwin/XFree86 to the cygwin-xfree@cygwin.com mailing list.

See Q: 8.5. for more information on generating patches.

8.7. Where does Cygwin/XFree86's X Server source reside in the XFree86 source tree?

Cygwin/XFree86's X Server source code resides primarily in `xc/programs/Xserver/hw/xwin/`.

8.8. How is compilation of Cygwin/XFree86 configured?

XFree86 uses platform independent Imakefiles to generate platform dependent Makefiles. Cygwin/XFree86 specific parameters used to compile the Makefiles are contained in `/xc/config/cf/cygwin.cf`.

8.9. How do I compile Cygwin/XFree86 after I have unpacked a source snapshot or after I have checked out the XFree86 CVS tree?

Note: Capitalization is important in the following command.

Open a Cygwin window, change to the `xc/` directory, and run **make World**

8.10. How do I recompile just XWin.exe if I have confined my changes to `xc/programs/Xserver/hw/xwin/`?

Note: Capitalization is important in the following commands.

Change the current directory to `xc/programs/Xserver/hw/xwin/`.

Run **make Makefile** if you have modified `hw/xwin/Imakefile`.

Run **make depend** if you have modified the list of included files in any of the source files in `hw/xwin/`.

Change the current directory to `xc/programs/Xserver/`.

Run **make XWin.exe** to rebuild the server executable.

8.11. Why doesn't XFree86 use GNU's **autoconf**?

XFree86 does not use **autoconf** because **autoconf** was not available when the X Window System project was started in 1984.

8.12. What compiler does Cygwin/XFree86 use, and which compilers are supported?

Cygwin/XFree86 uses the gcc compiler from the Free Software Foundation. Cygwin/XFree86 source code is mostly ANSI C compliant, but we cannot guarantee that Cygwin/XFree86 will compile with any other compiler, nor can we afford to support compilers other than gcc.

See the GCC Home Page (http://gcc.gnu.org) for more information on gcc.

8.13. Is cross-compiling from a non-Cygwin platform supported?

Cross-compiling from a non-Cygwin platform is not for beginners; as such, you should only be cross-compiling if you know what you are doing. You may submit simple questions regarding cross-compiling to the Cygwin/XFree86 mailing, but do not always expect an answer, as we may not currently have a subscriber that is actively cross-compiling.

See CrossGCC Frequently Asked Questions (http://www.objsw.com/CrossGCC/) for more information on cross compiling with gcc.

8.14. Where can I get help for installing DocBook on Cygwin?

See SGML for Windows NT: Setting up a free SGML editing and publishing system on Windows NT/Cygwin (http://ourworld.compuserve.com/homepages/hoenicka_markus/cygbook1.html) by Markus Hoenicka.

8.15. How can I build a debug version of the XFree86 CVS tree?

Simple: instead of running `make World` from `xc/`, run `config/util/makeg.sh World` from `xc/` instead. **makeg.sh** is a script that wraps **make** and creates a debug build for you, without you having to change any configuration files. Essentially, **makeg.sh** passes `-g` to **gcc** for every object and executable target.

9. Licenses, Patents, Trademarks, and Copyrights

9.1. What licenses apply to Cygwin/XFree86 source code?

Cygwin/XFree86 proper isn't covered by a single license, as Cygwin/XFree86 is made up of two parts that are covered by distinct licenses: Cygwin and XFree86.

See Q: 9.2. and Q: 9.3. for more information regarding the licenses that apply to Cygwin/XFree86.

9.2. What licenses apply to the XFree86 source code?

XFree86 source code is generally licensed under an X11 style license (http://www.x.org/terms.htm), which is certified by the Free Software Foundation (http://www.fsf.org/philosophy/license-list.html#GPLCompatibleLicenses) as compatible with the GNU GPL.

9.3. What license applies to Cygwin source code?

Cygwin source code is licensed under a modified version of the GNU GPL. Cygwin's license modification specifically allows third-party software under an open source license to be linked with Cygwin without requiring that the source code for the third-party software be distributed under the terms of the GNU GPL. Cygwin's developers went to great trouble to obtain this modification and should be thanked for doing so, as without it the modification, Cygwin/XFree86 linking to Cygwin would be the subject of endless discussion.

9.4. Whom holds the copyright on the Cygwin/XFree86 source code?

Cygwin/XFree86 proper doesn't have a single copyright holder, as Cygwin/XFree86 is made up of two parts, namely Cygwin and XFree86; each part follows a different scheme in regards to whom will hold the copyright on source code.

See Q: 9.5. and Q: 9.6. for more information regarding whom holds the copyright on Cygwin/XFree86 source code.

9.5. Whom holds the copyright on the XFree86 source code?

Each source code file in XFree86 typically has its own license and copyright statement. Therefore, there is not a general rule for determining whom holds the copyright on a particular XFree86 source file, as each author is free to assign the copyright to someone else, to some group, or to keep the copyright themselves. You must inspect the source code file in question to determine whom holds the copyright for that file.

9.6. Whom holds the copyright on the Cygwin source code?

RedHat (http://redhat.com/) owns the copyright on the Cygwin source code. RedHat requires that copyright be assigned to RedHat for non-trivial changes to Cygwin. You must fill out a copyright transfer form if you are going to contribute substantial changes to Cygwin.

9.7. What license applies to Motif?

Motif is a closed source product produced by The Open Group (http://www.opengroup.org/). However, The Open Group released Open Motif (http://www.opengroup.org/openmotif/) on 2000-05-15 under a public license, The Open Group Public License (http://www.opengroup.org/openmotif/license), that allows Open Motif to be distributed with and used on Open Source platforms. As of 2001-07-10, Cygwin/XFree86 does not qualify as a platform that Open Motif can be distributed with and used on. However, the Open Motif FAQ (http://www.opengroup.org/openmotif/faq.html) states, "[...] we hope to be able to make a distribution under a license complying with the Open Source guidelines sometime in the future. For now this is as close as to Open Source as we could get."

9.8. Isn't "XWin" trademarked by StarNet Communications?

No. A quick search at the United States Patent and Trademark Office (http://www.uspto.gov/) for "XWin" turns up one dead record and one live record. The live record is for a logo belonging to a rock crusher manufacturer based out of Belgium. Neither trademark affects Cygwin/XFree86, as the dead record is no longer enforceable, while the live record is in an unrelated and distinct industry; there cannot be confusion between rock crushers and computer programs.

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Glossary

F

firewall

Firewall software attempts to protect an internal network from intrusions originating from an

external network.

V

Virtual Private Network

Virtual Private Networks are encrypted tunnels through which private data can be safely transmitted over a private network (e.g. the Internet).

X

X Display Manager

An X Display Manager presents a graphical login screen to X users. Often an XDM will allow the user to select a desktop environment or window manager to be for their login session. Some X Display Managers are xdm, gdm (Gnome Display Manager), and kdm (KDE Display Manager).

X Display Manager Control Protocol

XDMCP allows XDM to process logins for users remote to the machine that XDM is running on; login sessions will be run on the machine running XDM. For example, at a university you may use XDMCP to login to an X session running on an engineering department computer from your dorm room.

See Also: X Display Manager.

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