Cygwin/X Frequently Asked Questions

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Questions and Answers

1. General Information

1.1. What is Cygwin/X?

Cygwin/X is a port of the X Window System to Cygwin; Cygwin provides a UNIX-like API on the Win32 platform.

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/X.

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 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.

1.5. 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.

1.6. Why port the X Window System to Microsoft Windows?

Porting X Window System to Microsoft Windows benefits many people and projects in many ways:

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

1.7. Is there a Cygwin/X newsgroup?

No, Cygwin/X does not have a newsgroup; however, we do have a mailing list. See Q: 1.8.

1.8. Is there a Cygwin/X mailing list?

Yes, Cygwin/X 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/X run on?

Cygwin/X supports Windows 95, Windows 98, Windows Me, Windows NT 4.0, Windows 2000, Windows XP, and Windows Server 2003 as of 2003-12-29.

Cygwin/X requires Cygwin to compile and run. Cygwin is not, as of 2003-12-29, available on Microsoft Windows CE, therefore Cygwin/X is not currently available on Microsoft Windows CE.

2.2. How is Cygwin/X installed?

The Cygwin/X User's Guide (http://xfree86.cygwin.com/docs/ug/cygwin-xfree-ug.html) thoroughly documents the installation process. Installation is performed through Cygwin's **setup.exe** program.

3. Configuration

3.1. Is there an XF86Config file?

There is limited support for configuration via XF86Config. This includes the path settings for FontPath and RgbPath and the configuration of on U.S. keyboard layouts. For more information see Q: 4.2.

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

The Cygwin/X 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. Logging into AIX via XDMCP causes the keyboard to function as if **AltGr** is permanently pressed.

[Pavel Rybnicek] The X Keyboard Extension doesn't work with AIX. The X Keyboard Extension is enabled by default, so you must disable it with the *–kb* parameter. An example command line follows.

XWin.exe –kb –query *aix_hostname_or_ip_address*

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

Some keyboard layouts are configured according to the Windows keyboard settings. For these layouts no special change is needed. For all other layouts there is the possibility to configure the layout via a configfile. A sample file can be obtained from here (http://www.tu-chemnitz.de/~goal/xfree/XF86Config.bz2). Unpack the file and copy it to /etc/X11/XF86Config.

```
$ cd /tmp
$ wget http://www.tu-chemnitz.de/~goal/xfree/XF86Config.bz2
$ bzip2 -d XF86Config.bz2
$ cp XF86Config /etc/X11/XF86Config
```

The sample configures a german layout. To configure it for your layout, change these lines from the "InputDevice" section.

```
Option "XkbRules"   "xfree86"
Option "XkbModel"   "pc105"
Option "XkbLayout"  "de"
```

Instead of "de" set "XkbLayout" to the code which represents your keyboard layout (e.g. Australia = au, Deutschland = de, France = fr, Japan = jp, United Kingdom = uk).

4.3. 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.

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

See Q: 4.2.

4.5. I have configured Cygwin/X for my non-U.S. keyboard layout, but how do I get **bash** to display accents and/or umlauts?

(Heinz Peter Hippenstiel) Add the following lines to .inputrc in your Cygwin home directory (e.g. /home/harold/):

```
set meta-flag on
set output-meta on # to show 8-bit characters
set convert-meta off # to show it as character, not the octal representation

# Mapping for German umlauts
"\M-a": "ä"
"\M-A": "Ä"
"\M-o": "ö"
"\M-O": "Ö"
"\M-u": "ü"
"\M-U": "Ü"
"\M-s": "ß"
# (TODO: Mapping for accents?)
```

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

See Q: 4.5.

4.7. Why doesn't my Linux, UNIX, *NIX, or *BSD machine present a login screen when using *-query* for XDMCP?

[Mika Laitio] For security reasons, XDMCP is not enabled by default on most Linux, UNIX, *NIX, and *BSD distributions (Red Hat, Mandrake, SuSE, FreeBSD, NetBSD, etc.) by default. You have to manually enable remote logins to your X Display Manager (**xdm**, **kdm**, or **gdm**). The location of the proper config file is distribution/OS dependent, but a short list of known config file locations is given in Table 1. You must change the line:

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

to:

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

> **Tip:** Changing anything other than the Xdmcp line shown above is generally not needed and only makes it more likely that you will make an incorrect change to a setting, which means that each of these changed settings will have to be considered during the process of debugging the problem. Thus, it is generally wise to not change any other settings unless you really know what you are doing, in which case you should not have to ask for help on the mailing list.

Table 1. Known XDM, KDM, and GDM Configuration File Locations

Distribution/OS	Version	Display Manager	Location
Debian GNU/Linux	Unstable	kdm	/etc/kde3/kdm/kdmrc
Debian GNU/Linux	Unstable	gdm	/etc/X11/gdm/gdm.conf
Linux Mandrake	8.1	kdm	/usr/share/config/kdm/kdmrc
SuSE	8.2	kdm	/opt/kde3/share/config/kdm/kdmrc

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

See also Q: 4.9. and Q: 6.16.

[David Dawson] For whatever reason, certain versions of Solaris need fonts that are not provided by Cygwin/X; 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/X 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/X; 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.

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

See also Q: 4.8. and Q: 6.16.

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.

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

See the Linux XDMCP HOWTO (http://en.tldp.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/X 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/X 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/X 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/X 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.

5.5. X11Forwarding does not work with openssh

Before establishing the ssh connection the xserver must be started and the environment variable *DISPLAY* must be set for ssh.

```
$ DISPLAY=localhost:0.0
$ export DISPLAY
$ ssh -X remotehost
```

or

```
$ DISPLAY=localhost:0.0 ssh -X remotehost
```

Make sure you're not starting ssh with the parameter *-x*. This disables *X11Forwarding*. The correct parameter is *-X* (uppercase).

Check that X11Forwarding is not disabled in the openssh client configuration. The configfiles are by default ~/.ssh/config and /etc/ssh/ssh_config. The file in the home directory overrides settings in the global one. The configfile is split into various sections starting with "Host *wildcard*". The section applies to all hosts where *wildcard* matches the hostname. If this section contains an entry "ForwardX11 no" then X11Forwarding is disabled. To enable it change the entry to

```
ForwardX11 yes
```

Check that X11Forwarding is not disabled in the ssh server configuration. The configfile is by default /etc/ssh/ssh_config. If there is an entry "X11Forwarding no" then X11Forwarding is disabled. If you have write access to the config file then change it to

```
X11Forwarding yes
```

Otherwise ask your you admin to change this for you.

5.6. Loading XKB keymaps fails

First check if you are able to change the server to another layout via XKB. The german layout will be good for testing:

```
setxkbmap de -model pc105
```

This worked if pressing "Shift" and "8" produces "(" instead of "*". If it worked then you can skip the next paragraph.

There is currently a problem with the /tmp directory mounted in textmode. You can change the setting to binmode with:

```
mount -b "$(cygpath -m /tmp)" /tmp
```

If this fails with an errormessage stating unsufficient rights, try

```
mount -b -u "$(cygpath -m /tmp)" /tmp
```

Not all keyboard layouts are tested very well and some contain errors or do not work at all. To test if the compiling of your layout works start

```
xkbcomp -w 3 -xkm -m de /etc/X11/xkb/keymap/xfree86 localhost:0.0
```

(replace the "de" with your layout code). This may produce warnings, but must not produce errors. If there are errors then please report them to the mailinglist.

5.7. I have Windows XP with Powertoys installed and AltGr does not work. What can I do?

Update to version 4.3.0-29, or later, of the XFree86-xserv package, which includes a fix for this problem.

5.8. XWin has very poor performance. What's the reason?

Most likely you have installed some kind of personal firewall, VPN software or any other software that modifies the TCP/IP stack of Windows. Especially Webwasher and some other filtering software are known to slow down the network traffic.

5.9. The option -nounixkill has no effect. How can i prevent the server shutdown an Ctrl-Alt-BackSpace?

There is a keybinding to Ctrl-Alt-BackSpace which is named TerminateServer. Remove this binding and Ctrl-Alt-BackSpace will have no effect.

```
xmodmap -e "keycode 22 = BackSpace"
```

5.10. Is there a Focus-Follows-Mouse feature (Auto-Focus)?

This is a setting of the windowmanager used. The default windowmanager twm has no such feature. But with fvwm2 this can be achieved with the this configuration entry:

```
Focus FocusFollowsMouse
```

Other windowmanagers (eg. windowmaker) have similar features too.

5.11. I have Microsoft Services for Unix installed and can't type anything. Help me!!!

Microsoft Services for Unix set some environment variables which points Cygwin/X to outdated or not existing files. These variables are

```
XAPPLRESDIR
XCMSDB
XKEYSYMDB
XNLSPATH
```

To have Cygwin/X work correctly you have to unset at least *XKEYSYMDB*.

Reported by Juan Medina, Pavel Rozenboim

6. Error and Warning Messages

6.1. IBM ThinkPad's with a TrackPoint mouse doesn't allow simulated mouse wheel scrolling.

[Gerald S. Williams] The TrackPoint driver tries to send scroll up/down messages to the default scrollbar in a window. Cygwin/X does not use Windows scrollbars for X Client windows, so we must configure the TrackPoint driver to send standard WM_MOUSEWHEEL messages to the Cygwin/X window. This can be done by editing the TrackPoint configuration file that can be found either in `%SYSTEM_ROOT%\System32\tp4table.dat` or `%SYSTEM_ROOT%\System32\tp4scrol.dat`. Add the following to the "Pass 0 rules" section:

```
; X Windows
*,*,XWin.exe,*,*,cygwin/xfree86,WheelStd,0,9
```

6.2. Cygwin/X 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.

6.3. 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/X programs.

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

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

6.5. 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."

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

Nudge the mailing list if a new answer is not provided by 2003/01/31.

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

See Q: 6.6..

6.8. 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.

6.9. 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/X that does not support palettized color modes. Palettized color support was added to Cygwin/X on 2001-06-05. You may either install a newer version of Cygwin/X that supports palettized color, or you may run your primary Windows display at 15, 16, 24, or 32 bits per pixel.

See Q: 6.10.

6.10. 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.

6.11. XDMCP fatal error: Session declined No valid address

Cygwin/X 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.

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

Cygwin/X queries getdtablesize () for the maximum number of client connections allowed; by default Cygwin returns 32 from getdtablesize (). Cygwin/X Server Test Series (http://xfree86.cygwin.com/devel/server/) release Test44 (http://xfree86.cygwin.com/devel/server/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 ().

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

See Q: 6.12.

6.14. 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/X bug is to install Windows on a freshly formatted hard drive, followed by Cygwin and Cygwin/X, and finally add your other software one application at a time until Cygwin/X stops working.

Some products that have been reported to cause problems:

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

- Aventail Connect
- Zonealarm PC Firewall from Zonelab

6.15. 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/X `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/X installation.

6.16. Login to CDE on Solaris via XDMCP hangs Cygwin/X.

See also Q: 4.8. and Q: 4.9.

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

6.17. 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).

6.18. Too many parameters

See Q: 6.17.

7. Porting Software

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

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

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

Cygwin/X 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/X 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/X?

One common problem encountered when porting software to Cygwin/X 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/X?

Yes. The Cygwin/X 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/X source code?

Cygwin/X source code is contained in, and distributed with, the X.org source tree.

8.3. 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.

8.4. How should I generate patches for Cygwin/X?

Only submit patches that have UNIX end of line characters. See Q: 8.3. 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 X.org 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***.

8.5. Where do I submit patches for Cygwin/X?

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

See Q: 8.4. for more information on generating patches.

8.6. Where does Cygwin/X's X Server source reside in the X.org source tree?

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

8.7. How is compilation of Cygwin/X configured?

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

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

Note: Capitalization is important in the following command.

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

8.9. 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.

8.10. Why doesn't the X Window System use GNU's **autoconf**?

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

8.11. What compiler does Cygwin/X use, and which compilers are supported?

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

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

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

Cross-compiling from a non-Cygwin platform is described in the Cygwin/X Contributor's Guide (http://xfree86.cygwin.com/docs/cg/cygwin-xfree-cg.html)

8.13. 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.

8.14. How can I build a debug version of the X.org 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/X source code?

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

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

9.2. What licenses apply to the X Window System 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/X linking to Cygwin would be the subject of endless discussion.

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

Cygwin/X proper doesn't have a single copyright holder, as Cygwin/X is made up of two parts, namely Cygwin and the X Window System; 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/X source code.

9.5. Whom holds the copyright on the X Window System source code?

Each source code file in the X Window System typically has its own license and copyright statement. Therefore, there is not a general rule for determining whom holds the copyright on a particular X Window System 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/X 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/X, 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.

X11 Forwarding

Some SSH programs like OpenSSH provide a feature where in addition to the normal text channel opened between the local and the remote host another encrypted channel is opened for the communication between

the X11 client and the X11 server. The SSH server will act as proxy-server for the X11 clients and will forward all communication to the X11 server.

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