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Setting up a compiler

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Setting up a compiler

Unfortunately Eclipse only provides the Integrated Development Environment (IDE) but it is missing the actual compiler. To install a compiler, please follow the instructions for your operating system.

Windows compiler

Windows doesn't come with a build-in compiler. You could try to install Visual Studio, but it is tricky to get that working with Eclipse. Therefore we will install [MSYS](#). MSYS is part of the [MinGW](#) suite, which provides free development tools for Windows.

You will have to follow these 4 steps:

- Download and install MinGW
- Download and install MSYS
- Set your path environment variable
- Restart Eclipse if it was started.

MinGW

First, you need to download MinGW. You can either click through the websites mentioned above or go directly to the [MinGW download area](#). Look for the Package "Automated MinGW Installer". There, download the file ending in .exe. The file name should be something like "MinGW-5.1.4.exe". You can also download [MinGW Version 5.1.4](#) from the link given here.

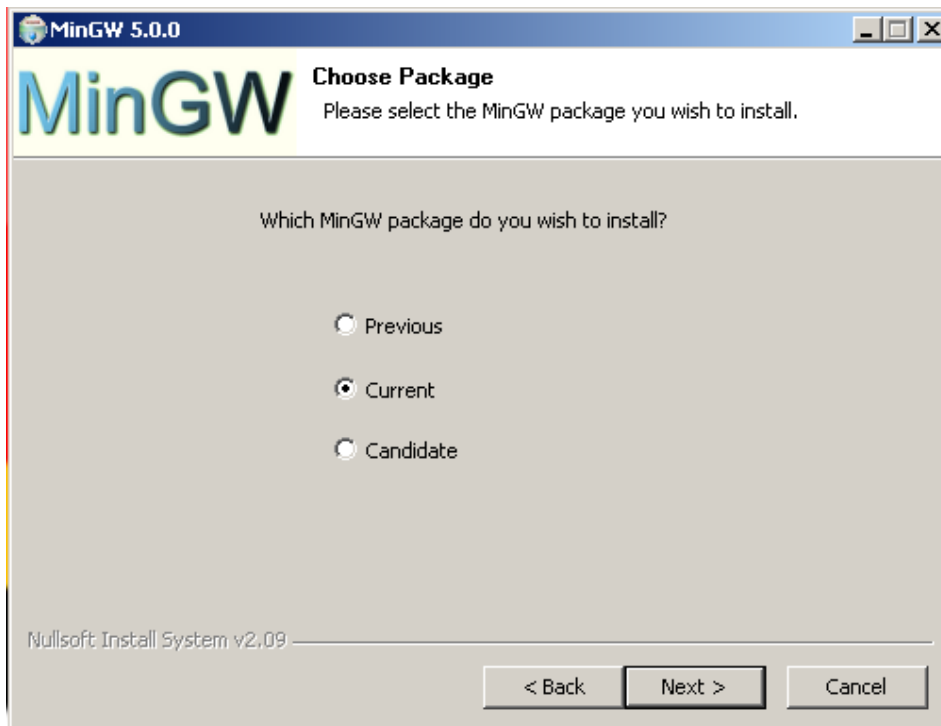
You may also download an older version, and follow the instructions given in [the section called "Older Instructions"](#):

- You may download [MinGW 4](#) and follow the instructions in [the section called "MinGW 4.x"](#).
- You may download [MinGW 3](#) and follow the instructions in [the section called "MinGW 3.1"](#).

Most of the options in the MinGW 5 installer are pretty straightforward. I will point out some of the more tricky options.

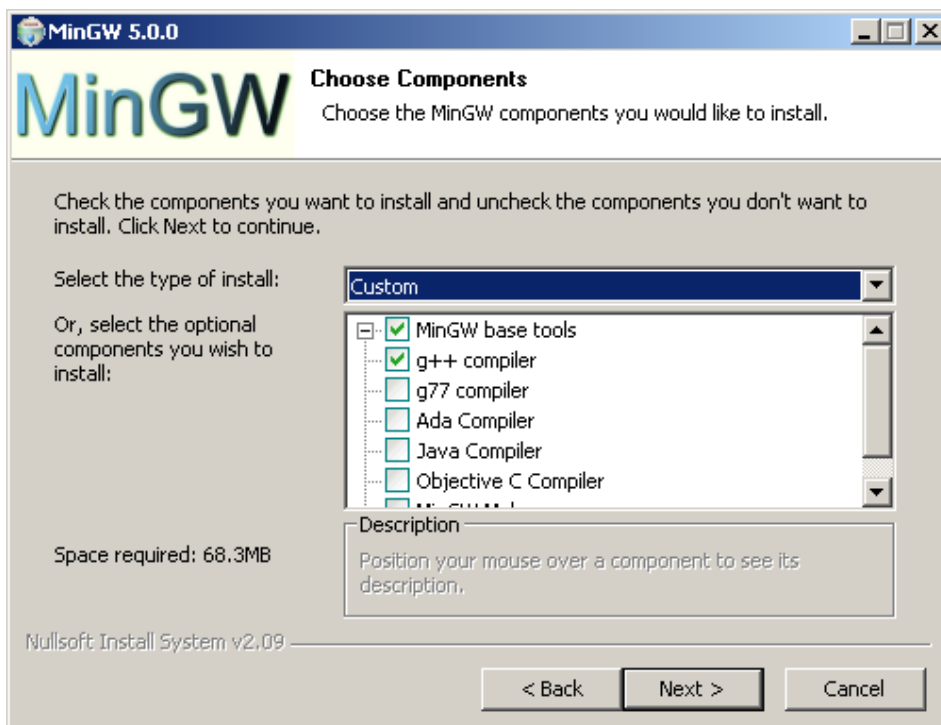
The first one of such options is which "MinGW" package to install. Any of those should work just fine, but I would recommend `Current`.

Figure 1. MinGW 5 install



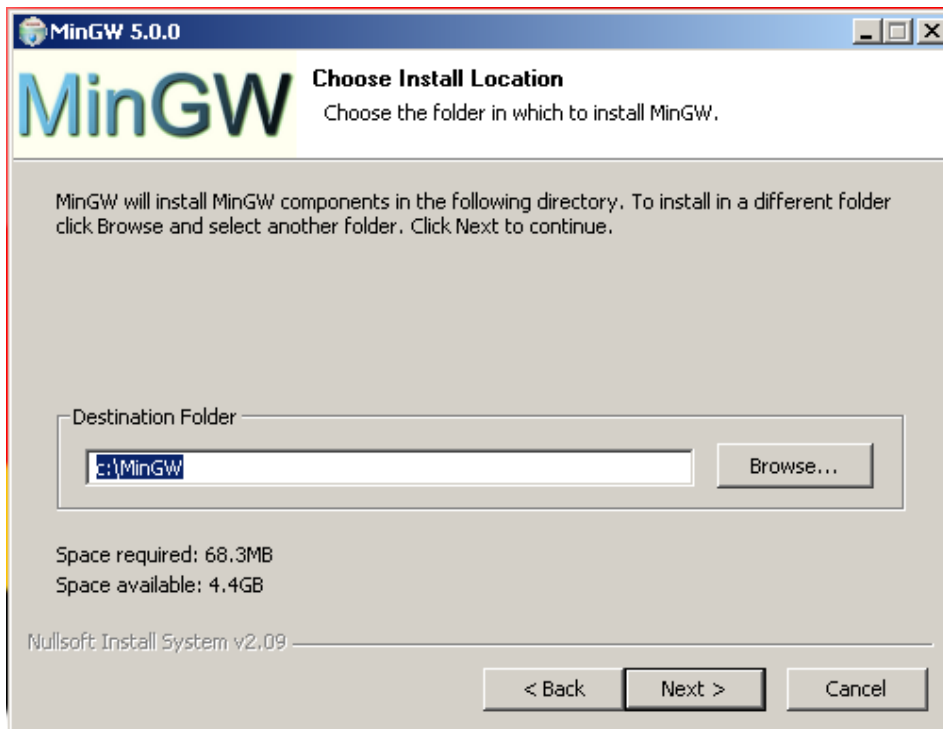
MinGW will ask which components to install. Either select `All` or at least make sure that you have the `g++` compiler checked. This is needed for C++ support.

Figure 2. MinGW 5 install (2)



When asked for the install folder, please do not change it. You will have a lot of trouble later on, especially if you chose a path that contains spaces.

Figure 3. MinGW 5 install (3)



That's already it for MinGW. There are two more steps: MSYS and the Environment Variables.

Checkpoint: To test if everything worked, please reboot. Then open up a terminal. (Start/Run, type CMD). Try these commands:

```
gcc --version
```

should print the version of gcc. If you get a "File not found", try logging out and logging back in, or even rebooting your computer. If it still does not work, you have not installed MinGW correctly. You may also need to set your environment variables manually (see below).

```
g++ --version
```

should print the version for g++. You did select the "g++ compiler" I hope. If not, install again!

GDB (optional!)

This section is completely optional. You may skip it and go directly to [the section called "MSYS"](#).

If you want to use the debugger, you may have to install it separately. This is the case with MinGW 5.0.2, it may be different in other versions. Download it from the same page, look for a package starting with gdb and ending with .exe. At the time of this writing (Apr 29) the current version was "gdb-5.2.1-1.exe". Install (double-click) that .exe, select all the default options (make sure you select the same MinGW directory as you did during the MinGW install).

I have received a report that gdb-6.3-2 does not work. So I would advise using the older version or waiting for a newer one.

Checkpoint:

```
gdb --version
```

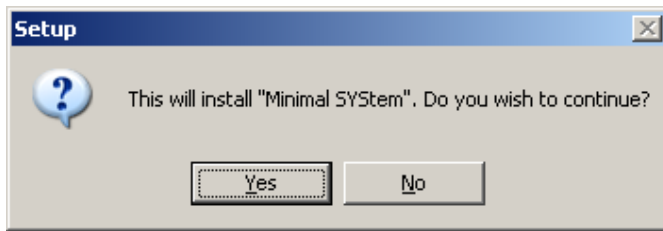
should print the gdb version. This is optional.

MSYS

Unfortunately MinGW is not enough. We also need the MSYS tools from the same download page. Go there

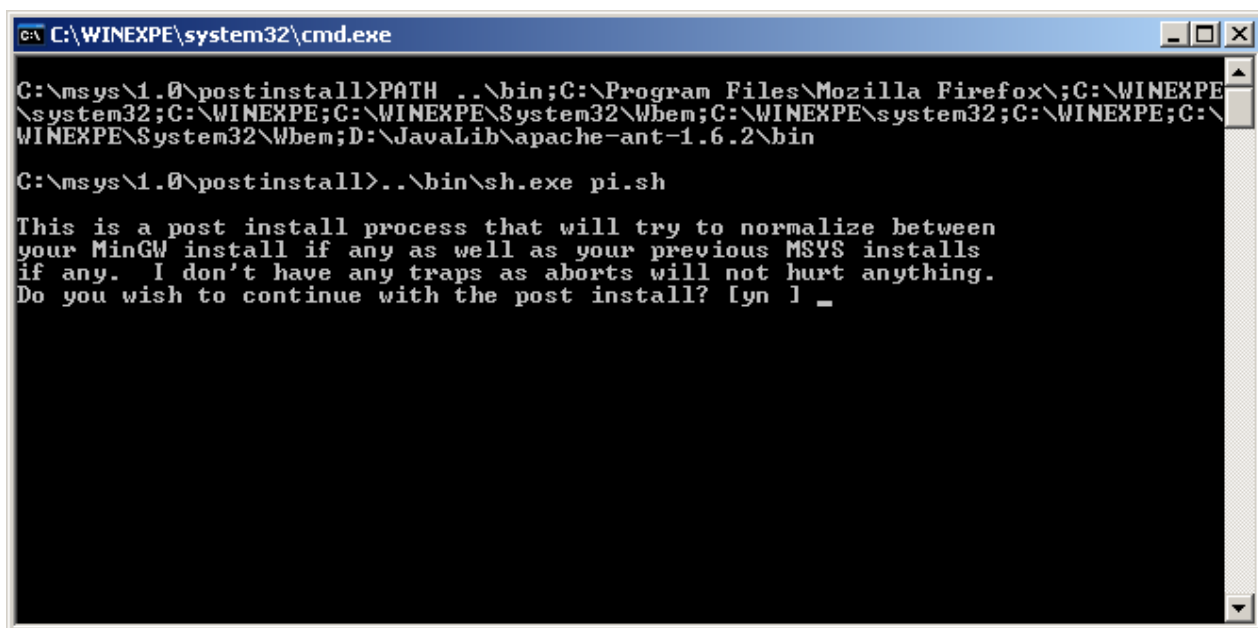
again, to the "Current" section and look for "MSYS". Again, look for the file ending in .exe, as this time: "Download MSYS-1.0.10.exe". You may have to expand the "View older releases in the Current package" section. Or you may use the link here to [MSYS-1.0.11-2004.04.30-1.exe](#). Download it and start it. You should get a window like this:

Figure 4. MSYS install



If you accept all the default options, after a while there should be a black and white window, similar to this:

Figure 5. MSYS asking for postinstall



To continue the install type in y and then Enter. The next question reads like this:

Figure 6. MSYS asking for MinGW

```

C:\WINEXPE\system32\cmd.exe

C:\msys\1.0\postinstall>PATH ..\bin;C:\Program Files\Mozilla Firefox\;C:\WINEXPE
\system32;C:\WINEXPE;C:\WINEXPE\System32\Wbem;C:\WINEXPE\system32;C:\WINEXPE;C:\
WINEXPE\System32\Wbem;D:\JavaLib\apache-ant-1.6.2\bin

C:\msys\1.0\postinstall>..\bin\sh.exe pi.sh

This is a post install process that will try to normalize between
your MinGW install if any as well as your previous MSYS installs
if any. I don't have any traps as aborts will not hurt anything.
Do you wish to continue with the post install? [yn ] y

Do you have MinGW installed? [yn ] _

```

Which you can also answer with y Enter. The next question is a little bit more tricky:

Figure 7. MSYS asking for path to MinGW

```

C:\WINEXPE\system32\cmd.exe

C:\msys\1.0\postinstall>PATH ..\bin;C:\Program Files\Mozilla Firefox\;C:\WINEXPE
\system32;C:\WINEXPE;C:\WINEXPE\System32\Wbem;C:\WINEXPE\system32;C:\WINEXPE;C:\
WINEXPE\System32\Wbem;D:\JavaLib\apache-ant-1.6.2\bin

C:\msys\1.0\postinstall>..\bin\sh.exe pi.sh

This is a post install process that will try to normalize between
your MinGW install if any as well as your previous MSYS installs
if any. I don't have any traps as aborts will not hurt anything.
Do you wish to continue with the post install? [yn ] y

Do you have MinGW installed? [yn ] y

Please answer the following in the form of c:/foo/bar.
Where is your MinGW installation?

```

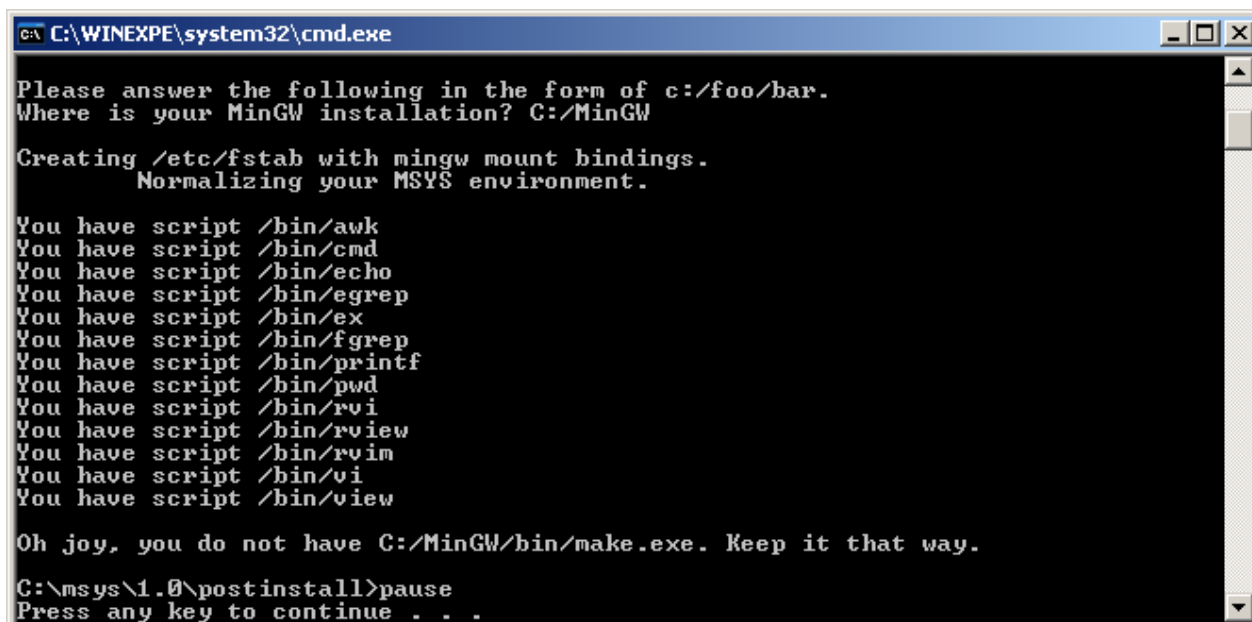
What they want to know is where you installed MinGW to and that you replace all backward slashes (\) by forward slashes (/). If you followed the instructions, the answer here will be:

```
C:/MinGW
```

Caveat: If you have not used the default paths, but instead have installed MinGW in a different location, such as C:/Program Files/MinGW, where the path contains spaces and / or is longer than 8 characters you may have to replace that particular path component with its DOS short pathname, such as C:/PROGRA~1/mingw.

The very last question just asks you to press a key:

Figure 8. MSYS installing correctly



```
C:\WINEXPE\system32\cmd.exe

Please answer the following in the form of c:/foo/bar.
Where is your MinGW installation? C:/MinGW

Creating /etc/fstab with mingw mount bindings.
Normalizing your MSYS environment.

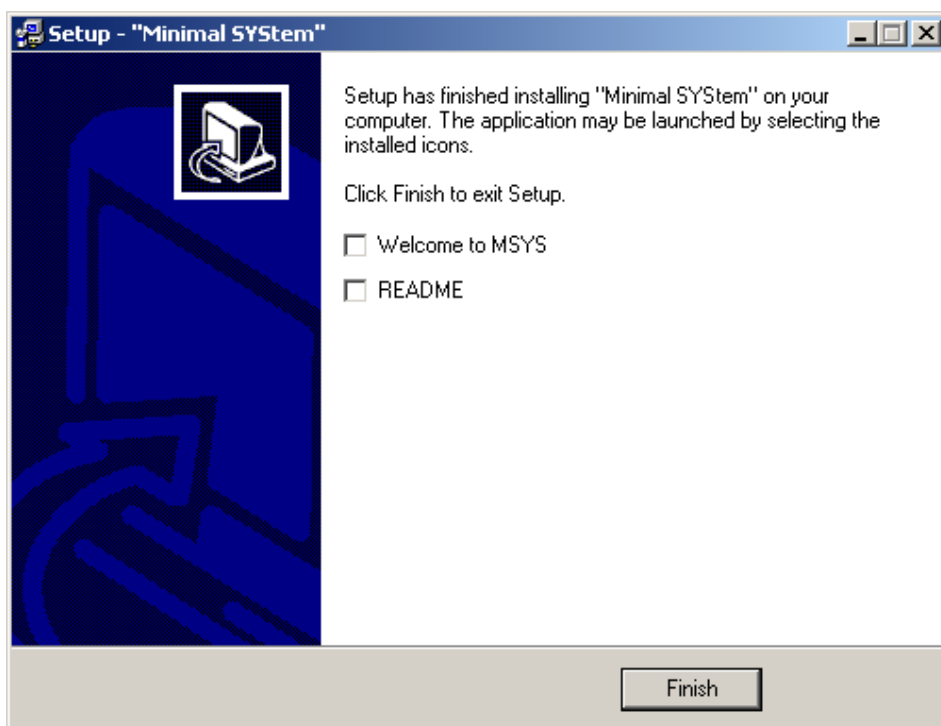
You have script /bin/awk
You have script /bin/cmd
You have script /bin/echo
You have script /bin/egrep
You have script /bin/ex
You have script /bin/fgrep
You have script /bin/printf
You have script /bin/pwd
You have script /bin/rvi
You have script /bin/rview
You have script /bin/rvin
You have script /bin/vi
You have script /bin/view

Oh joy, you do not have C:/MinGW/bin/make.exe. Keep it that way.

C:\msys\1.0\postinstall>pause
Press any key to continue . . .
```

Where you can press any key you like to continue. Setup will come back and ask you if you want to read a welcome note and the README file. You probably don't want either one, but it does not hurt to look. Anyways, once you hit "Finish" you are done with the setup. Now you have to set up your Path environment variable.

Figure 9. MSYS is done



Environment Variables

The next thing you need to do is set up your Path environment variable. To do so, right-click on *My Computer* and select *Properties*. Then, select the *Advanced* tab. There should be a button called *Environment Variables*.

Figure 10. Finding Environment Variables (Windows 2000)

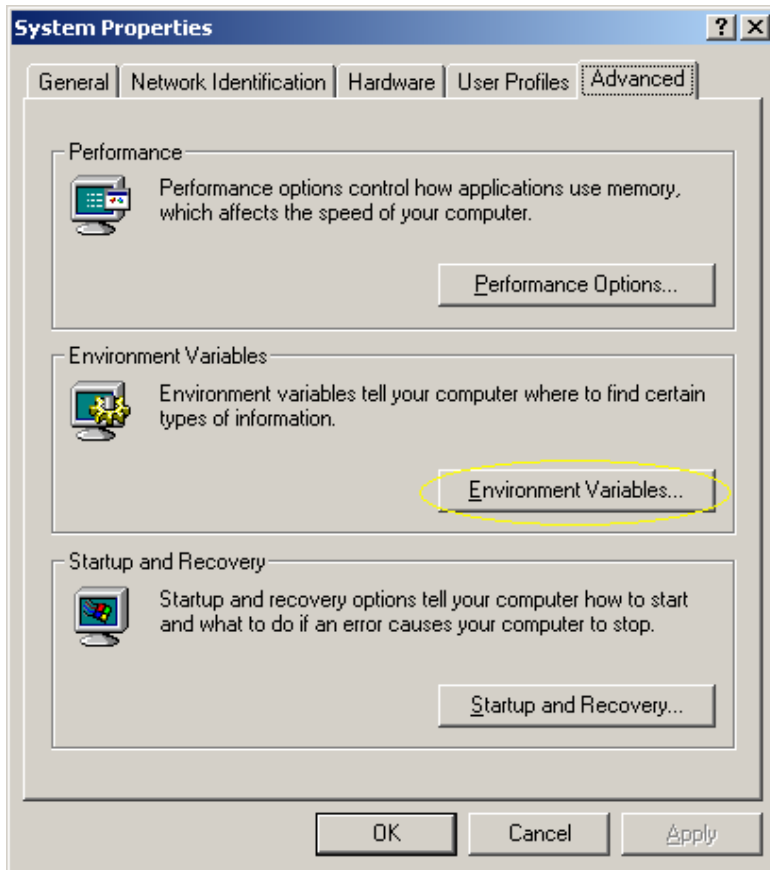
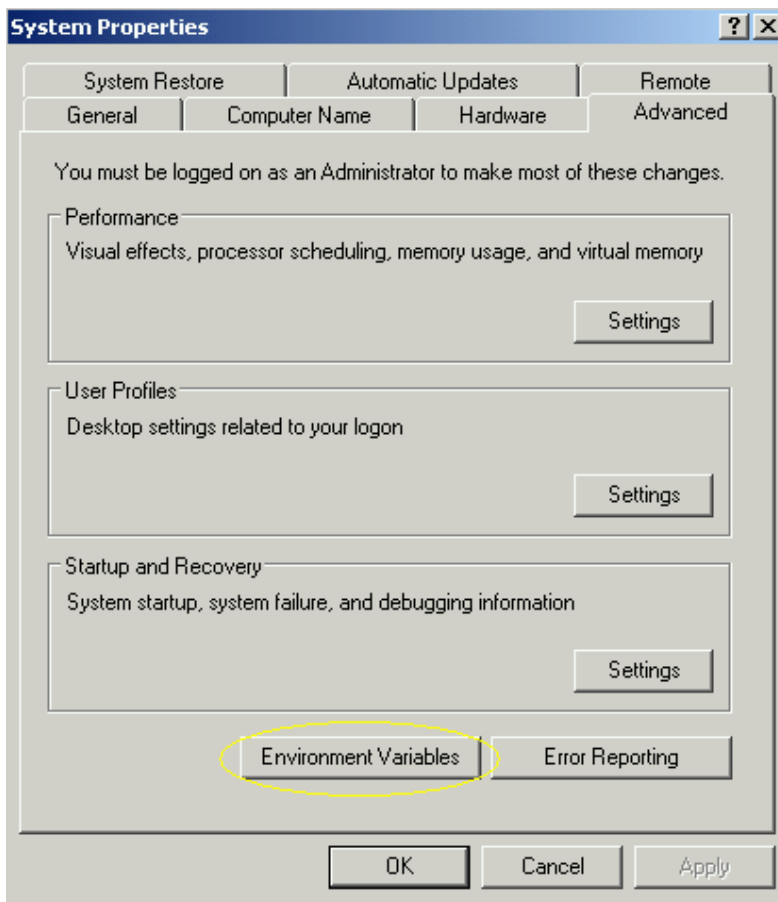


Figure 11. Finding Environment Variables (Windows XP)



In the environment variables, there are two sections, one for the local user (you) and one for the system. Depending on whether you want the paths to be set for everyone, or for you, do one of the following:

Warning: I had reports of people deleting their existing Path environment variable! Please be very careful when editing an existing value! By default, Windows has the whole line selected, resulting in overwriting what was in there!

If you want to set it for everyone, look for the variable `Path` in the section `System variables`. Click `Edit`. There should already be some stuff in there, append `;C:\msys\1.0\bin;C:\mingw\bin` (or your appropriate paths) to it, and select `OK` multiple times. Please make sure that you do not overwrite what was in there!

If you just want to set it for you, look for `Path` in the upper section. It is very likely not there yet. So select `New...` and enter `C:\msys\1.0\bin;C:\mingw\bin` (or your appropriate paths). Then select `OK` multiple times. Again, if there was a setting before, do not delete it, but rather append your path!

There seems to be a problem with a very long `PATH` environment variable on some systems. According to reports, Eclipse will fail to compile and build, where as compiling and building from a command window may work fine. In this case, try to prepend the path to MinGW and MSYS rather than appending it.

Congratulations. Now you have a compiler and make set up on your computer. Continue with [the section called "Setting up Eclipse"](#).

Checkpoint: Open up a command terminal (`cmd`) and type:

```
make --version
```

This should work now. If not, you have either not installed MSYS correctly or not set your path environment variable. Also, try logging out and back in.

Linux / Unix Compiler

In most Linux and Unix distributions the compiler is already installed. Check if you can run

```
g++ --version
```

and either

```
make --version
```

or

```
gmake --version
```

If both of them (`g++` and either `make` or `gmake`) work then you are already done. If not, please install those. This may be very different depending on which Linux or Unix distribution you have. Install the tools and continue with [the section called "Setting up Eclipse"](#).

Mac OS X Compiler

On Mac OS X you can also try the commands explained in [the section called "Linux / Unix Compiler"](#) to check if you have the necessary tools installed. If not, you will need to install the developer tools. They are either on one of your Mac OS X CDs that came with your computer, or you can download them at: [Apple's developer connection](#).

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