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# Setting up Eclipse CDT on Windows, Linux/Unix, Mac OS X

Max Berger

\$Date\$

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## Introduction

There are several freely available C and C++ development environments available. Most of them have the disadvantage that they are only available for one operating system. Eclipse, however, was written as a cross-platform development environment. Initially just written for Java, it also has a very good C/C++ development mode.

If you have already tried (and I assume failed, otherwise you wouldn't be reading this document) to install Eclipse CDT, you may want to go directly to the section called "Common Problems".

This document is frequently updated to reflect the latest information. However, screenshots are only taken if they are significantly different, so they may show older versions. If any information here is not current, please let me know.

## Other Resources

When looking for Instructions, I found the following websites:

- <http://eclipsewiki.editme.com/CDT>
- <http://eclipsewiki.editme.com/InstallingCDT>
- <http://wiki.eclipse.org/CDT/User/FAQ>
- <http://yongshin.blogspot.com/2005/11/how-to-use-cdt-and-mingw-for-eclipse.html>
- <http://www.cs.umanitoba.ca/~eclipse/7-EclipseCDT.pdf>

Newer versions of this paper can be found at:

- <http://max.berger.name/howto/cdt/> (HTML) and
- <http://max.berger.name/howto/cdt/cdt.pdf> (PDF)

## 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.

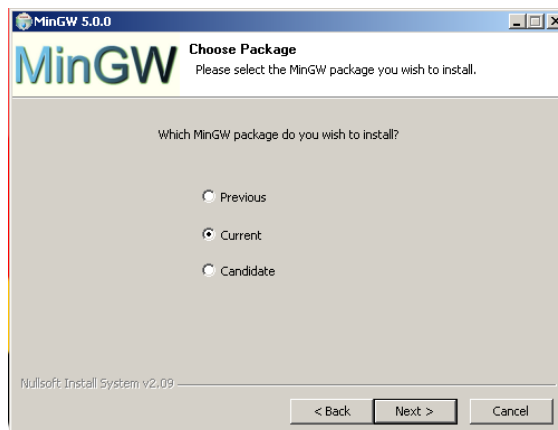
You may also download an older version, and follow the instructions given in the section called "Older Instructions":

- 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.

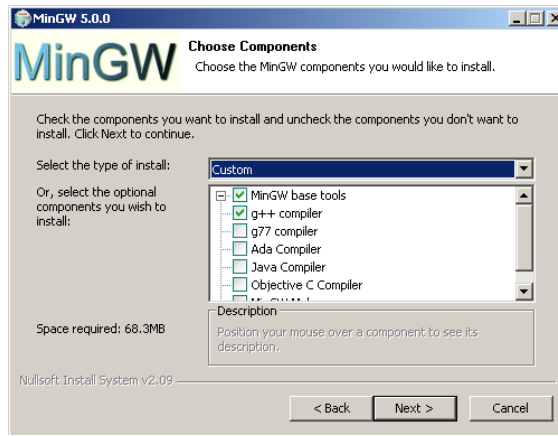
The first one of such options is which "MinGW" package to install. Any of those should work just fine, but I would recommend *Current*.

**Figure 1. MinGW 5 install**



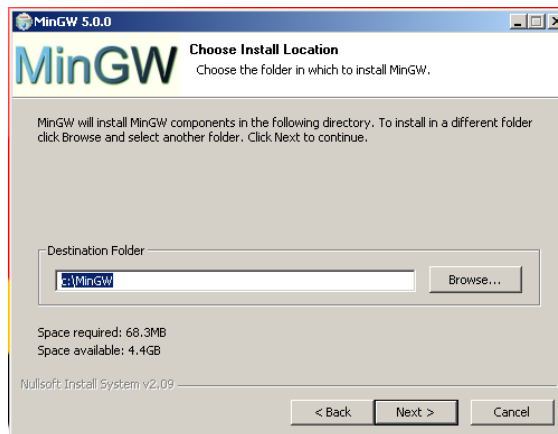
MinGW will ask which components to install. Either select **All** or at least make sure that you have the `g++` compiler checked. This is needed for C++ support.

**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:

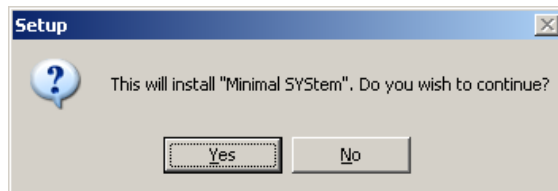
```
gdb --version
```

should print the gdb version. This is optional.

## MSYS

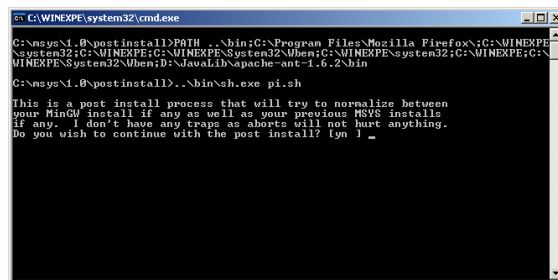
Unfortunately MinGW is not enough. We also need the MSYS tools from the same download page. Go there again, to the "Current" section and look for "MSYS Base System". Again, look for the file ending in .exe, as this time: "MSYS-1.0.11-rc-1.exe". You may have to expand the "Release Candidate" section. Or you may use the link here to MSYS-1.0.11-rc-1.exe. Download it and start it. You should get a window like this:

**Figure 4. MSYS install**



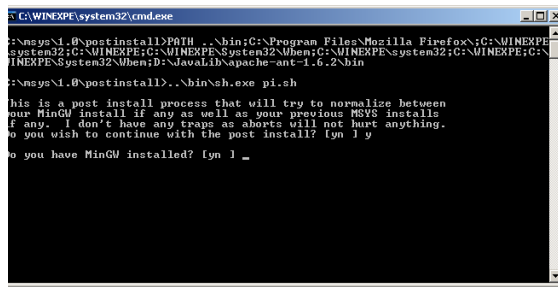
If you accept all the default options, after a while there should be a black and white window, similar to this:

**Figure 5. MSYS asking for postinstall**



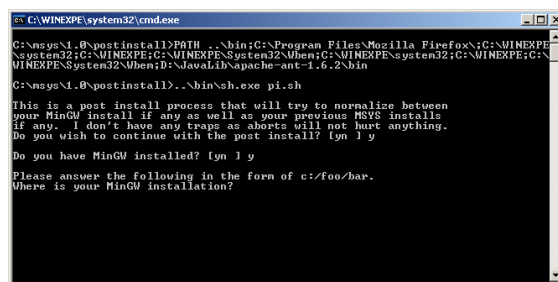
To continue the install type in y and then Enter. The next question reads like this:

**Figure 6. MSYS asking for MinGW**



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**



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:

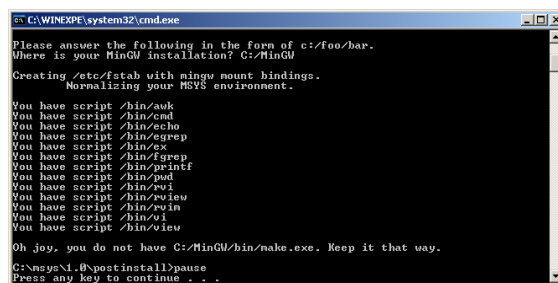
C:/MinGW

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.

Caveat2: The installer may be case sensitive. Please make sure you have written MinGW in the same capitalization as during your first install, in some cases you will have to enter c:/mingw (note capitalization!).

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

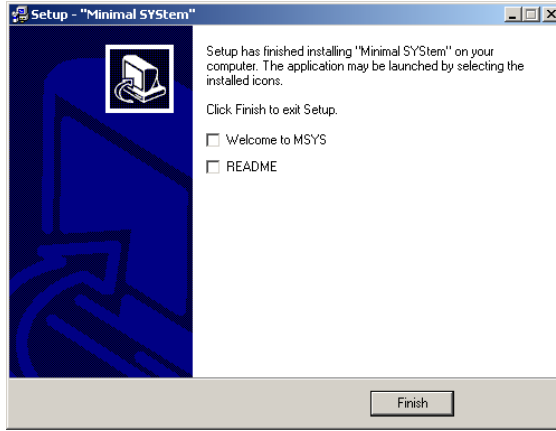
**Figure 8. MSYS installing correctly**



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.

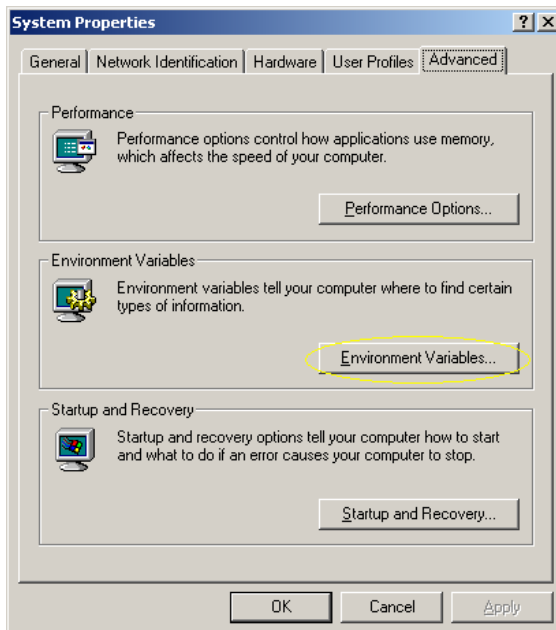
**Figure 9. MSYS is done**



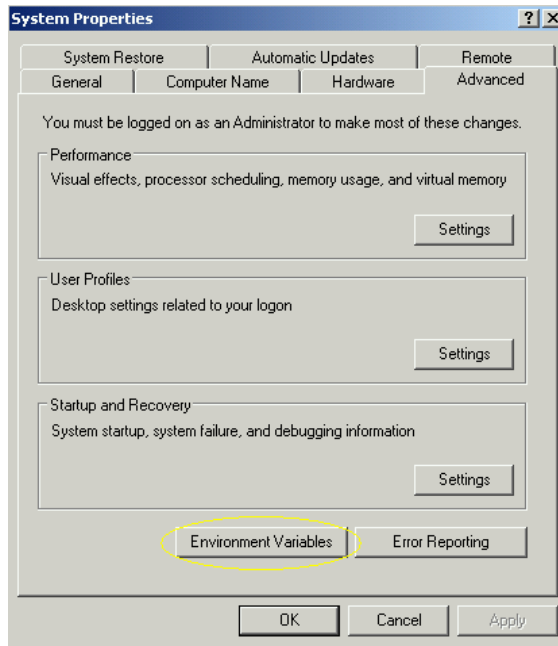
## Environment Variables

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:\msys1.0\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:\msys1.0\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.

# Setting up Eclipse

## Java

Eclipse was originally written for the Java platform. It still requires a Java Runtime Environment (JRE) or a Java Development Kit (JDK), version 1.5 or greater. You will most probably already have Java installed (it comes included in Mac OS X). However, if you don't have Java installed, and you are on Windows or Linux, you can download a JRE from Sun's Java website or from java.com. At the time of this writing the latest version was Java Runtime Environment (JRE) 6 update 14. Look for the section called "Java SE Runtime Environment (JRE)" and select "JRE 6 Update 14" (or similar). You will not need NetBeans, JDK, or EE, they are just bigger downloads with more programs. You may need the JDK if you want to do Java development.

To find out if you have Java installed, and which version it is, you can open a command prompt / shell and type in:

```
java -version
```

## Downloading Eclipse

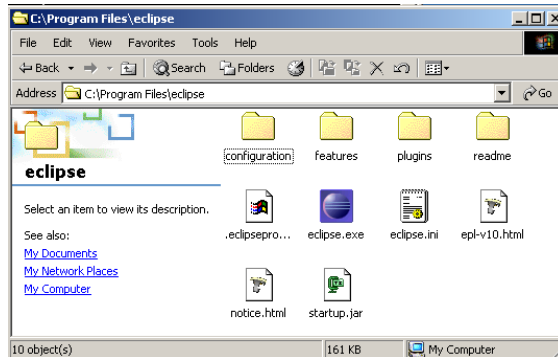
Eclipse is a modular software, but ever summer there are bundled released. The link is:

- <http://www.eclipse.org/downloads/>

I recommend the complete "Eclipse IDE for C/C++ Developers" bundle, which already contains the CDT. If you download a different bundle, you will probably have to install the CDT manually, as described in the section called “Installing the CDT”.

The file is about 79 MB in size, so it will take a while to download. You will end up with a .ZIP file. Use either FilZip or your favorite ZIP Program (Windows XP/Vista/7 and Mac OS X have .ZIP support build in) to unpack the file. Move the unpacked folder to any location, for example `C:\Program Files\ eclipse`. You can now start Eclipse by double-clicking it.

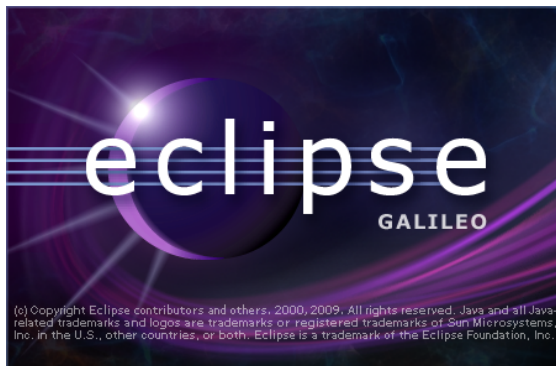
**Figure 12. Eclipse installed into C:\Program Files\eclipse**



## First Run of Eclipse

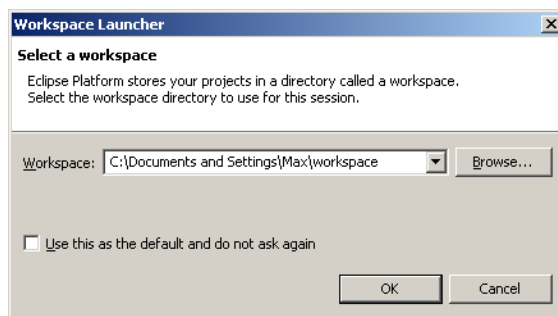
However you installed eclipse, you should now be able to run it. Double-click the icon or start the appropriate script in UNIX and Eclipse's splash-screen will appear:

**Figure 13. Eclipse splash screen**



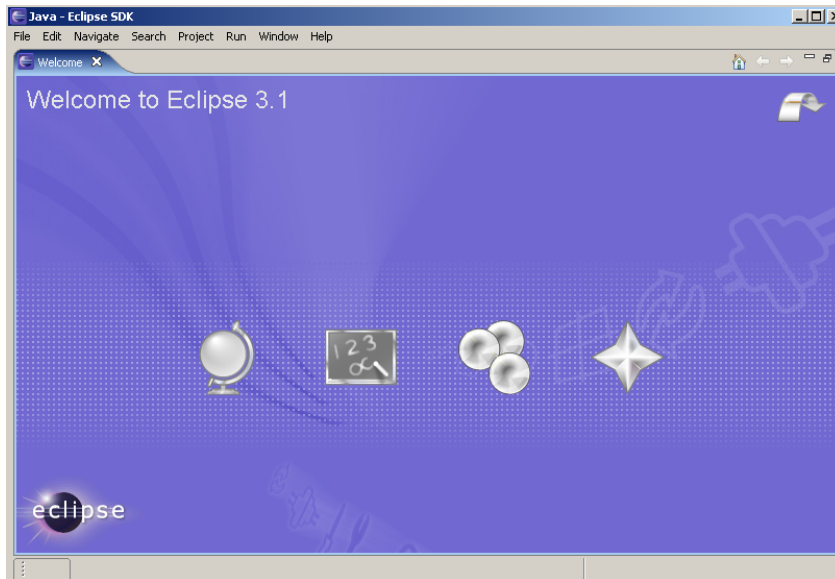
Immediately after that Eclipse will ask you for your workspace location. It defaults to a place within your personal settings. It is a good idea to use the default workspace, you may want to note where it is located.

**Figure 14. Eclipse asking for workspace**



If you always want to use the same workspace, you may select the Use this as the default... and you'll never have to worry about workspaces again. This is usually a good idea once you've used Eclipse for a while. Finally Eclipse starts up with the welcome screen:

**Figure 15. Eclipse welcome screen**



And if you select the "Go to the workbench" in the top right corner, then you are right in Eclipse. However, since we downloaded the runtime only, there are additional tools needed to start programming. We want to develop in C++, so we will just continue with the next section.

## Installing the CDT

### Note

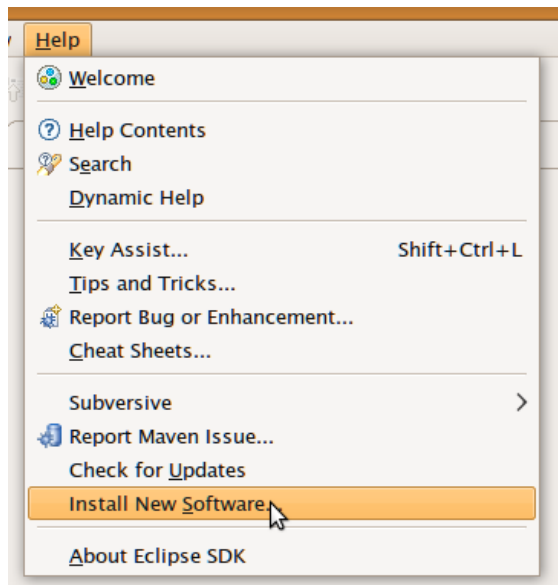
This is only required if you did not download the CDT version as described above. Please check if you are able to create a new C++ project (as described in the section called "Hello, World!") before going through this section!

### Note

This section described the current (3.5) version of Eclipse. For the previous version (3.4) Please see the section called "Installing the CDT").

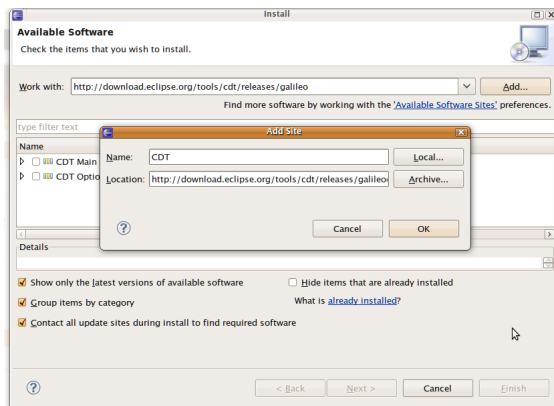
In the "Help" menu select "Install New Software..."

**Figure 16. Select Install New Software... from the help menu**



This will show you the list of available software update sites. If you are lucky you already have the CDT update site configured. Search for an entry which contains the String "cdt", for example `http://download.eclipse.org/tools/cdt/releases/galileo`. If CDT is not available, add it (using the "Add..." button), adding `http://download.eclipse.org/tools/cdt/releases/galileo` (the address may be different in future versions of Eclipse, this is for 3.5!)

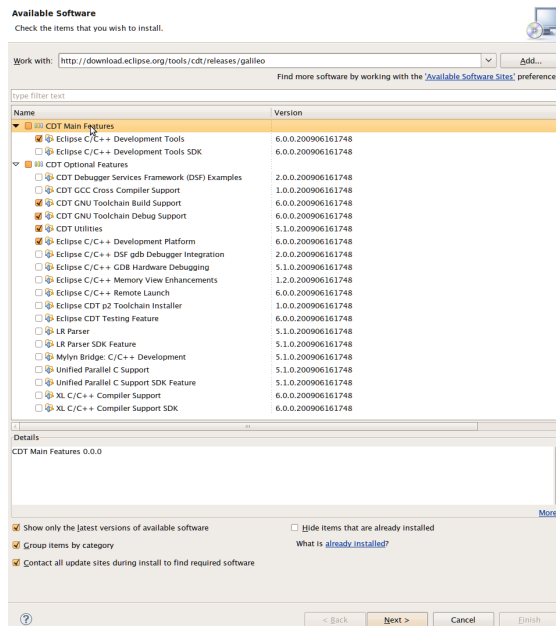
**Figure 17. Available Software Update page with Add... opened**



When you have found the CDT site, it will give you two entries: CDT Main Features and CDT Optional Features. Expand both, and find the latest version of the CDT. Make sure you select at least the following:

- Eclipse C/C++ Development Tools
- CDT GNU Toolchain Build Support
- CDT GNU Toolchain Debug Support
- Eclipse C/C++ Development Platform

**Figure 18. Select CDT from the Update Site**



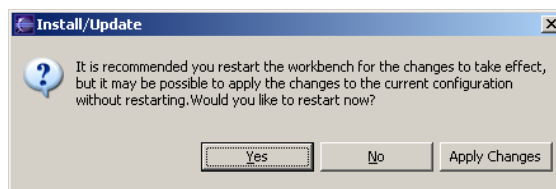
The select "Next..."

You will have to confirm the selection with "Next".

And accept the license agreement with "Finish".

Downloading and installing will take a while. Once its done it will ask you to restart Eclipse. This is a good idea, so select "Yes".

**Figure 19. Restarting the workbench**



Once Eclipse has restarted you now need to configure it for your computer.

## Configuring the CDT

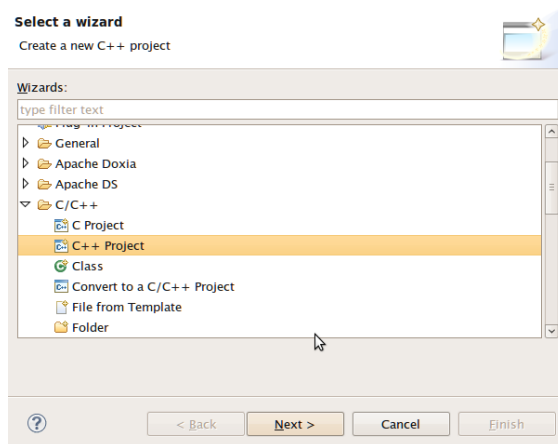
Fortunately, this is very easy. If your path is set correctly, there should be absolutely nothing you need to configure. This is especially true if you followed these instructions for Windows systems.

On some Unix systems you might have to change your "make" program to "gmake". You will find the setting in Window / Preferences. Then expand "C / C++", then "Make" and select "New Make Projects". At build command, de-select "use default" and at "Build command" enter "gmake".

## Hello, World!

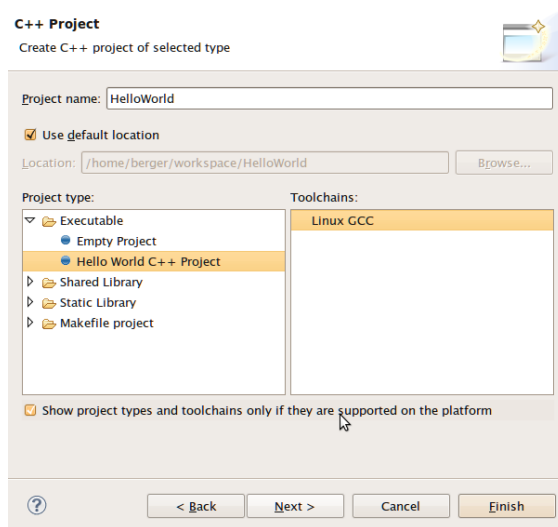
Once you are in Eclipse, you are given an empty workspace. You now have to start a new project. To do so, select "File" / "New" / "Project...". Expand the section "C++" and select "C++ Project", then click "Next >".

**Figure 20. New Project screen**



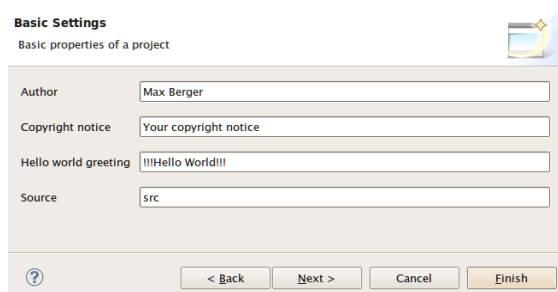
On the next screen, you have to give your project a name. In this case, it will be "HelloWorld", however, you may use any name you like. Also, you have to select a toolchain, if you followed my instructions you are using the GNU Toolchain, and it should automatically give you the right option. Click "Next".

**Figure 21. New Project Name**



The next screen contains some Basic settings. Fill in what you like:

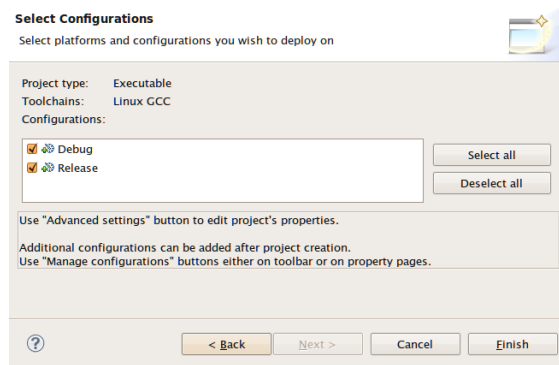
**Figure 22. Basic Settings**



## Setting up Eclipse CDT on Windows, Linux/Unix, Mac OS X

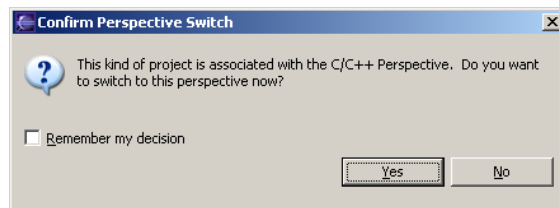
In the last setting you can chose output formats, it is always good to have a release and a debug configuration. Click "Finish".

**Figure 23. New Project Platforms**



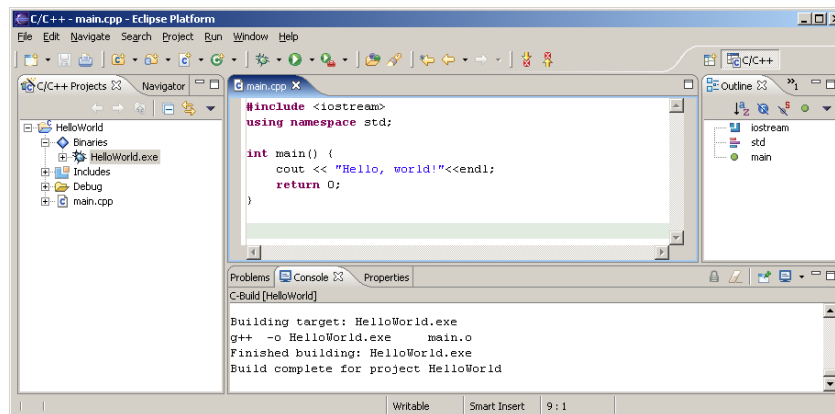
Eclipse will now generate a few things, and then ask you if you want to switch to the C/C++ Perspective. This is a good idea, so say yes.

**Figure 24. Perspective Switch**



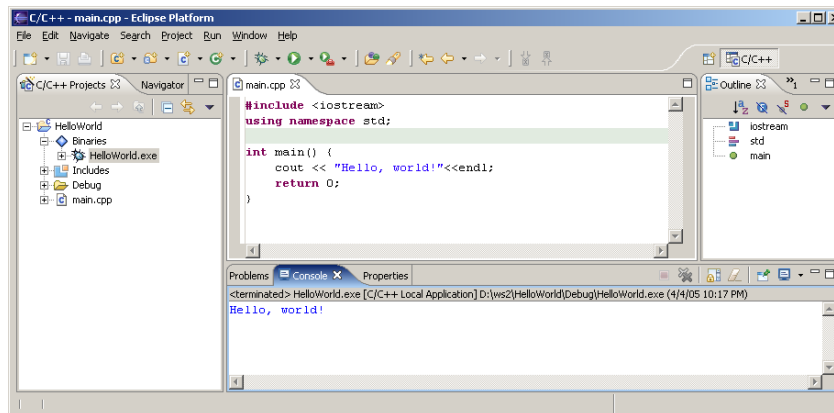
Great. You have a project now, and it does contain some sample code! You will immediately get an editor window for your project. Eclipse will also auto-build your project every time you save.

**Figure 25. Example Hello World application**



Now here comes the tricky part: On the left pane, select "C/C++ Projects", expand "Binaries" and you should see and executable (HelloWorld.exe). Now right-click that executable, and select "Run" / "Run Local C/C++ Application". If everything goes well your output will be in the bottom right window in the "Console" tab and it should say "Hello, World".

**Figure 26. Running the example Hello World application**



Congratulations! You have successfully installed a compiler, a build system and an IDE. You have successfully created, edited, compiled and run a project. You should now be able to start your own projects!

## Common Problems

If you have followed these instructions everything should work. However, you may have ran into trouble, and then decided to look for the manual (at least, that's the way I would have done it). So now you have a problem and need an answer:

### How to fix most of the errors on Windows

Make sure you have done the following things:

- Installed the CDT
- Installed (not just downloaded) MinGW
- Installed (not just downloaded) MSYS
- Set up your path environment variable

Especially made sure you did the last step. You *will* need to restart eclipse (full restart with shutdown, File / Restart is not sufficient). This solves about 99% of all support mails I've got so far.

### Build error (Exec error:Launching failed), CreateProcess: make -k all error=2,

You have just tried to build the hello world program, and you get this error message instead of an executable. This means that **make** is not in your path. Open up a command prompt (In OS X: Terminal in Applications/Utilities, in Windows: Start/Run, type in cmd) and type in **make**. If that doesn't work, try **gmake**.

If **gmake** worked, see the section called "Configuring the CDT".

If neither worked, make sure you install make (See the section called "Setting up a compiler") and set your path (See the section called "Environment Variables" in the case of Windows).



To check your path (on windows), open up **cmd** and type in **echo %path%**. This should show the path to MSYS and MinGW. Also, make sure that you restarted Eclipse (or cmd if you are testing) after setting your path.

If you are on Windows, and you have installed MinGW, but not MSYS, you may have an executable called **mingw-make**. In this case you have to go to the section called “Configuring the CDT” and configure appropriately. It is possible to just use mingw-make and no MSYS at all, however, mingw-make has some limitations. Eclipse CDT managed makefiles may or may not work with it. Please see the MinGW FAQ for more information.

## **/bin/sh: line 1: g++: command not found, Error launching external scanner info generator**

This error message means that g++ is either not installed or not in your path. Check your path settings as described in the section called “Build error (Exec error:Launching failed), CreateProcess: make -k all error=2,”, but this time try the commands: **gcc --version** and **g++ --version**. If gcc works, but g++ doesn't, it means you have only installed the C and not the C++ version of the gcc compiler, which happens quite frequently on Linux distributions. Check if you have all needed packages installed, and check the section called “Setting up a compiler”.

If you are on windows, and neither of them worked, install MinGW and set your path environment variable. If only gcc one worked, reinstall MinGW and don't forget to select the C++ compiler!

## **No output or only sometimes output**

If you are on windows and use Eclipse 3.1 with CDT 3.0.0 there is a bug. See the section called “Configuring the CDT”.

Please note that debug sessions in Windows have their own console window (a black console window) and do not appear in the regular Eclipse console. If you're running a debug session, please watch which windows appear in your task bar.

## **Error launching 'cygpath' command**

If you followed these instructions you have installed MSYS instead of cygwin. You may safely ignore this error message.

## **I do not have the option to start a C++ project**

You have not installed the CDT. See the section called “Installing the CDT”.

## **Error 1, open output file blabla.exe: Permission denied**

Every time I start Eclipse on my laptop, I can only compile and run a program once. After that it asks if I want to run it with errors every time. The compiler says this:

```
Building target: Project01Test.exe
Invoking: GCC C++ Linker
g++ -oProject01Test.exe ./test.o
C:\MinGW\bin\..\lib\gcc\mingw32\3.4.2\..\..\..\mingw32\bin\ld.exe: cannot
open output file Project01Test.exe: Permission denied
collect2: ld returned 1 exit status
make: *** [Project01Test.exe] Error 1
make: Target `all' not remade because of errors.
```

Build complete for project Project01Test

Answer: Your program may still be running. Try stopping it by using the small red square on the console window (the one for your program). Another way is switching to the "Debug" perspective, selecting your running program, and stopping it there (also the small red square).

## The debugger doesn't work (on windows, with MinGW)

Unfortunately gdb is not included in the current (4.1.1 or 5.0.2) version of MinGW. See the section called "GDB (optional)".

## Incorrect command line argument: -k'

Make sure you are using the make programs provided by MinGW. If your output in the console shows something like:

```
make -k clean all
MAKE Version 5.2 Copyright (c) 1987, 2000 Borland
Incorrect command line argument: -k
```

Then you have make installed from a previous installation of Borland C++. You have several choices:

- Adjust your PATH environment variable to have the MinGW / MSYS installation come before Borlands tools. Please be warned that this may break your Borland tools!
- Remove the path to the Borland tools from your PATH. This will definitely break your Borland tools.
- Download "mingw32-make". This is an option when installing MinGW. Make sure you set your make setting to be "mingw32-make". If you still get an error, try setting it for the build settings in your project. In this case you may even skip the installation of MSYS, but you will get limited functionality.

## A Java Runtime Environment (JRE) or Java Development Kit (JDK) must be available...

There are several possible reasons for that:

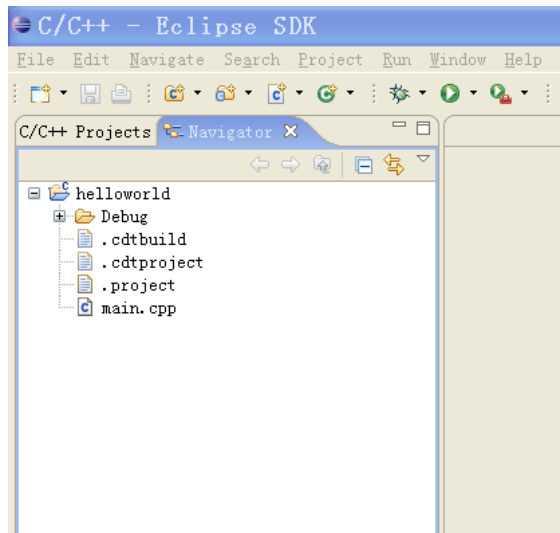
- You have not installed Java. Please see the section called "Java".
- Your "path" environment is messed up (Windows). Please see the section called "Environment Variables". Make sure **C:\windows\system32** is in your path (should be there by default).
- java.com has a button called `verify installation`.

## I have no binaries

If you have no binaries folder, then two things may have happened

- You are not looking at the C/C++ Project view. Make sure you are in the C++ perspective and "C/C++ Projects" is active. An example of this situation is shown in Figure 27, "The Navigator view instead of the C/C++ Projects view": Click on "C/C++ Projects" to fix.
- Your program didn't compile. Check the output of the "Console" Window. It is either an error in your program or a configuration error. For configuration errors, check the other problems.
- If you do have a binaries folder, then make sure you run your program by right-clicking (on the mac: hold down ctrl and click) on the binary, and then selecting Run / Run as C/C++ Application. Just hitting the run button will only work after you have done that at least once!

**Figure 27. The Navigator view instead of the C/C++ Projects view**



## Unable to access jarfile startup.jar

This problem happens on Windows when you moved Eclipse out of its directory instead of creating a shortcut. Please move it back into the Eclipse directory, then drag'n'drop it using the right mouse button, where you can select "Create Shurtcut"

## Problems when CYGWIN is installed on Windows

I personally do not recommend the installation of cygwin, but rather the installation of MinGW and MSYS as described in the section called "Windows compiler". However, the following problems have been reported by users:

### Binaries require cygwin.dll

Eclipse prefers to use cygwin if it is installed, and will do everything to manipulate the path to include cygwin if it is installed. Binaries will therefore by default be linked against the cygwin libraries. Possible workarounds:

- add `-mno-cygwin` to your compiler settings
- Overwrite the path variable in eclipse: In the Project Properties: C/C++ Build -> Environment -> User Variables -> New. Select PATH, remove the cygwin directory and select Replace as Operation.

## Launch failed Reason: Unable to set working directory

Your workspace or your eclipse installation may use a path with includes spaces, such as `C:\Documents and Settings`. Eclipse sometimes fails in this case. Try creating your workspace in a different directory.

## Problems not covered here

If you are still having trouble, you may try and send me an email. Please be aware that I may not respond to every email, as I am doing this support mainly as a hobby (unless you're in my class). Make sure your email includes the following. Please send the complete output!

- The contents of your PATH environment variable (in Windows: **echo %PATH%**. In Linux / Mac OS X: **echo \$PATH**).
- Version of GCC you're using (**gcc --version**)
- Version of Make you're using (**make --version** or **gmake --version**)
- Version of Eclipse you're using
- Version of the CDT you're using
- The complete output of your "Console" window (at the bottom of eclipse) when your error occurs.
- The steps you did so before the problem occurred.

## Older Instructions

Sometimes you may not be happy with the current version of a certain program. I have left instructions for the older versions here in case you need them:

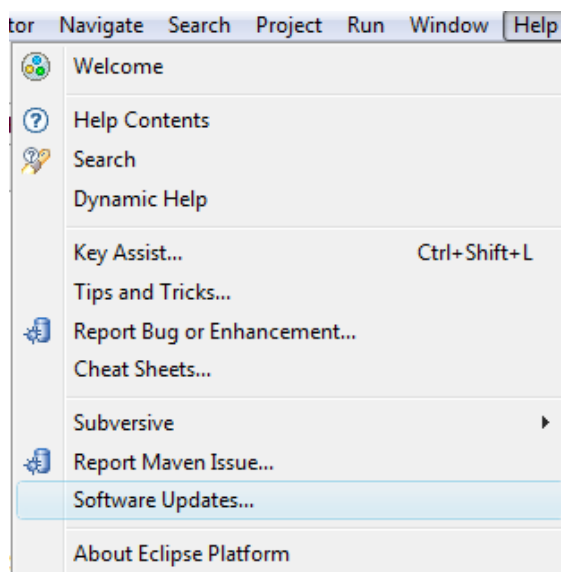
## Installing the CDT on Eclipse 3.4

### Note

This is only required if you did not download the CDT version as described above. Please check if you are able to create a new C++ project (as described in the section called "Hello, World!") before going through this section!

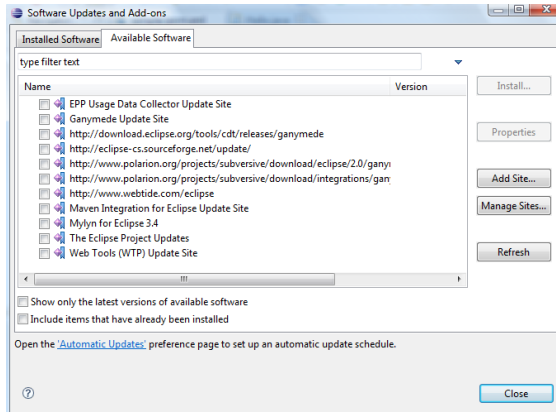
In the "Help" menu select "Software Updates..."

**Figure 28. Select Software Updates... from the menu**



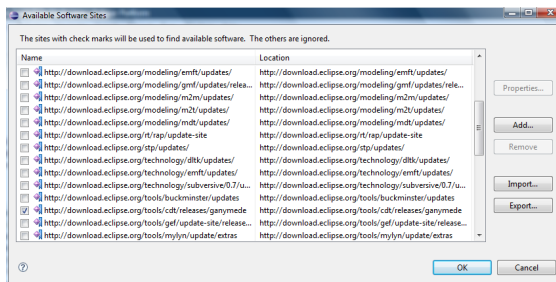
This will show you the list of available software update sites. If you are lucky you already have the CDT update site configured. Search for an entry which contains the String "cdt", for example <http://download.eclipse.org/tools/cdt/releases/ganymede>.

**Figure 29. Main Software Update page**



If there is no site for cdt available, go to "Manage Sites", and you will get a list of sites.

**Figure 30. Manage Software Update sites**



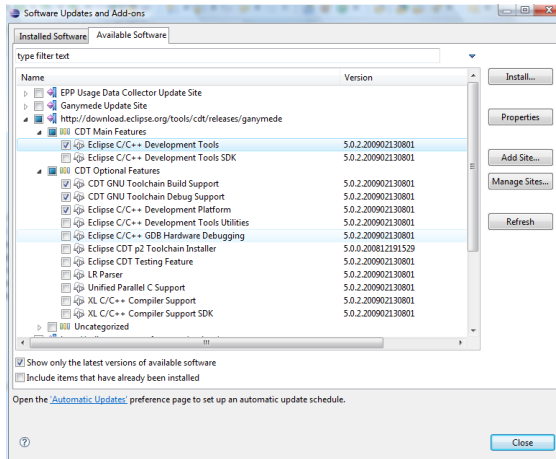
Again, search for a site containing "CDT". If there is no site available, add it (using the "Add..." button), adding <http://download.eclipse.org/tools/cdt/releases/ganymede> (the address may be different in future versions of Eclipse, this is for 3.4!)

Also, make sure the checkbox next to the Address is checked. Otherwise the site is configured, but ignored by Eclipse. Leave this page and go back to the main Software update page.

Expand the CDT site, and find the latest version of the CDT. Make sure you select at least the following:

- Eclipse C/C++ Development Tools
- CDT GNU Toolchain Build Support
- CDT GNU Toolchain Debug Support
- Eclipse C/C++ Development Platform

**Figure 31. Select CDT from the Update Site**

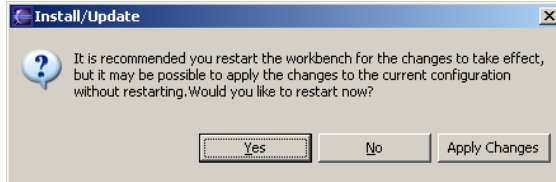


The select "Install..."

You will have to confirm the selection with "Finish"

Downloading and installing will take a while. Once its done it will ask you to restart Eclipse. This is a good idea, so select "Yes".

**Figure 32. Restarting the workbench**

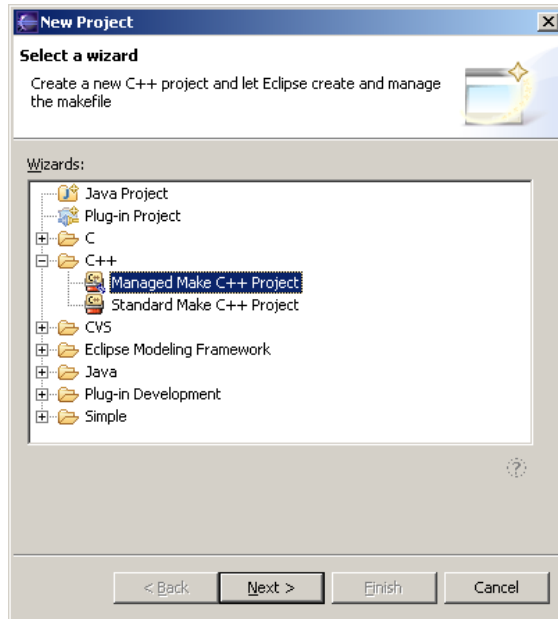


Once Eclipse has restarted you now need to configure it for your computer.

## Hello, World! in older versions of CDT

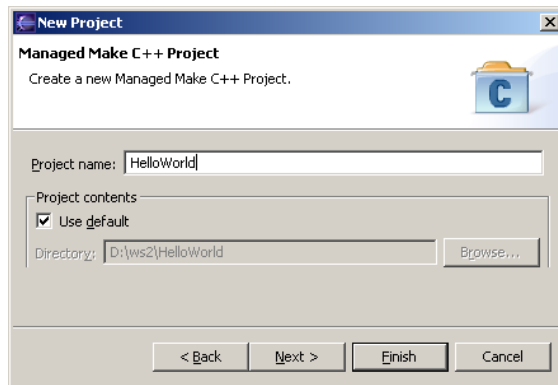
Once you are in Eclipse, you are given an empty workspace. You now have to start a new project. To do so, select "File" / "New" / "Project...". Expand the section "C++" and select "Managed Make C++ Project", then click "Next >".

**Figure 33. New Project screen**



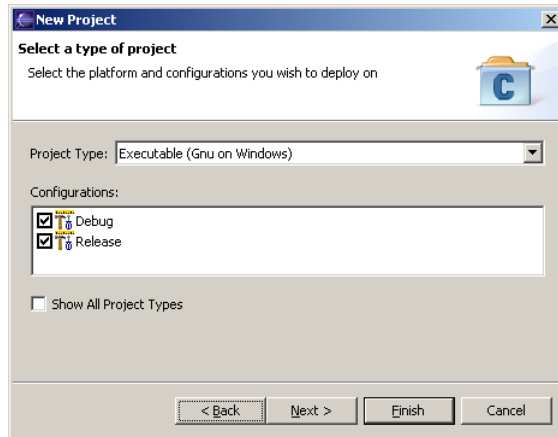
On the next screen, you have to give your project a name. In this case, it will be "HelloWorld", however, you may use any name you like. Leave the "Use default" in "Project Contents" checked.

**Figure 34. New Project Name**

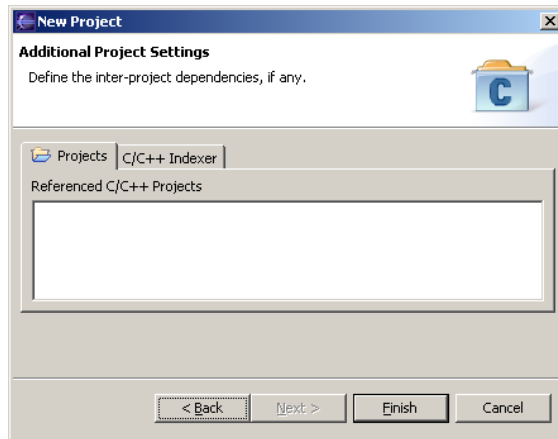


The next two settings about "Project Type" and additional settings are usually OK, so we'll just leave them:

**Figure 35. New Project Platforms**

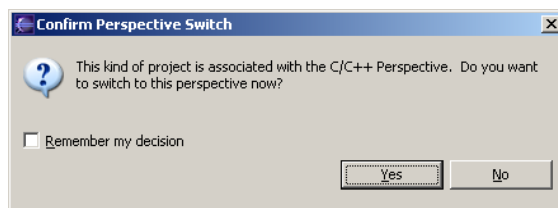


**Figure 36. New Project Settings**



Eclipse will now generate a few things, and then ask you if you want to switch to the C/C++ Perspective. This is a good idea, so say yes.

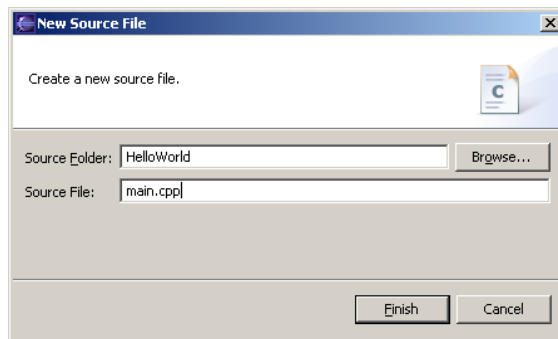
**Figure 37. Perspective Switch**



Great. You have a project now. However, it currently does not have any files. So select "File" / "New" / "C Source File". It will then ask you for the name of the file, type in something like "main.cpp".

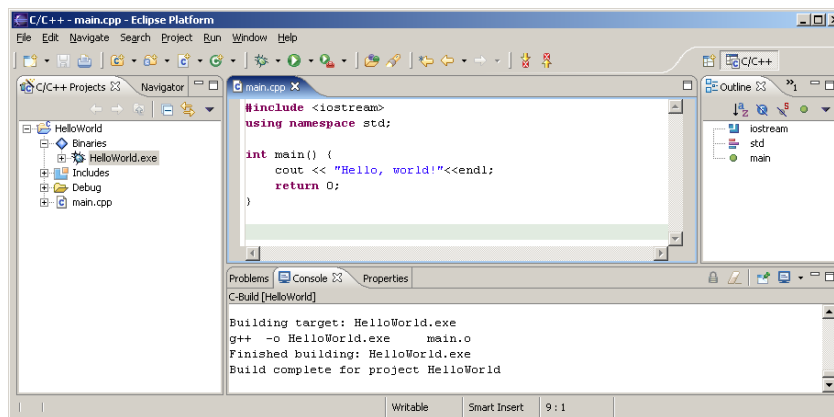


**Figure 38. Create a new Source File**



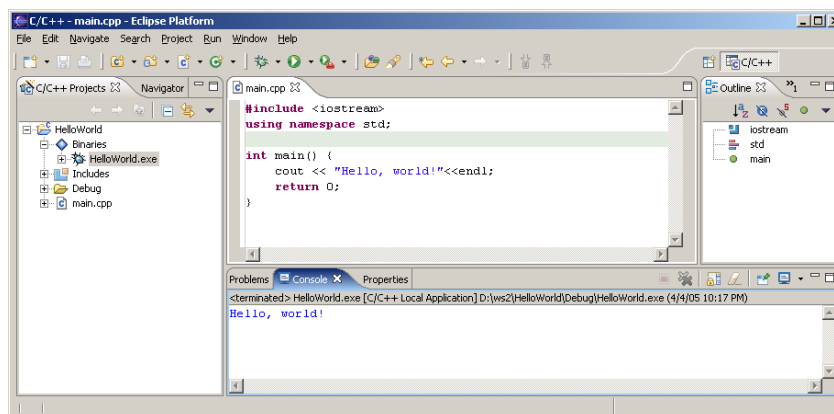
You will immediately get an editor window for your file. Eclipse will also auto-build your project every time you save. So type in something like this and hit save, and it should compile automatically:

**Figure 39. Example Hello World application**



Now here comes the tricky part: On the left pane, select "C/C++ Projects", expand "Binaries" and you should see and executable (HelloWorld.exe). Now right-click that executable, and select "Run" / "Run Local C/C++ Application". If everything goes well your output will be in the bottom right window in the "Console" tab and it should say "Hello, World".

**Figure 40. Running the example Hello World application**



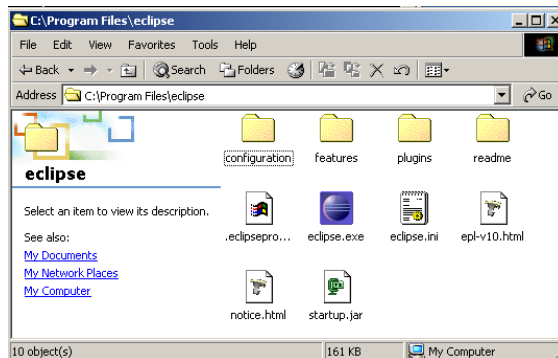
Congratulations! You have successfully installed a compiler, a build system and an IDE. You have successfully created, edited, compiled and run a project. You should now be able to start your own projects!

## Eclipse 3.1 with CDT 3.0

### Downloading Eclipse 3.1

Now we are finally ready to install Eclipse. Go to the Eclipse website and look for "Downloads". It will automatically try to figure out your OS and give you an option like "Download now: Eclipse Platform SDK 3.1, Windows.". Do it. You will receive a .ZIP file. Use either FilZip or your favorite ZIP Program (Windows XP and Mac OS X have .ZIP support build in) to unpack the file. Move the unpacked folder to any location, for example C:\Program Files\eclipse. You can now start Eclipse by double-clicking it.

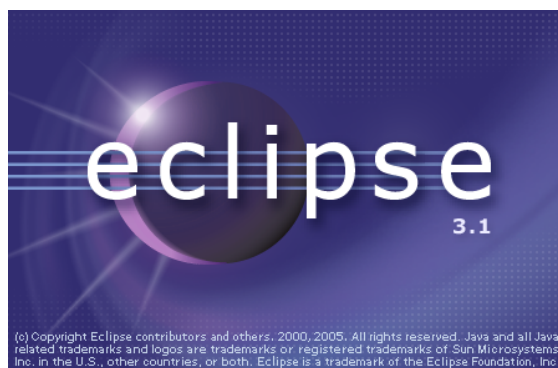
**Figure 41. Eclipse installed into C:\Program Files\eclipse**



### First Run of Eclipse

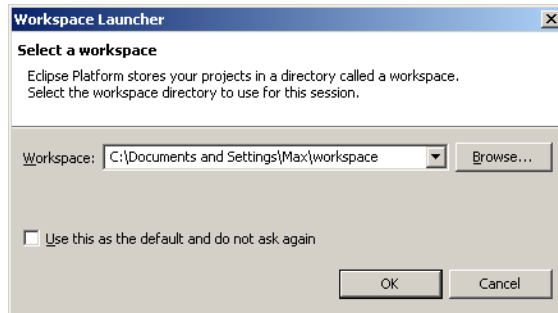
However you installed eclipse, you should now be able to run it. Double-click the icon or start the appropriate script in UNIX and Eclipse's splash-screen will appear:

**Figure 42. Eclipse splash screen**



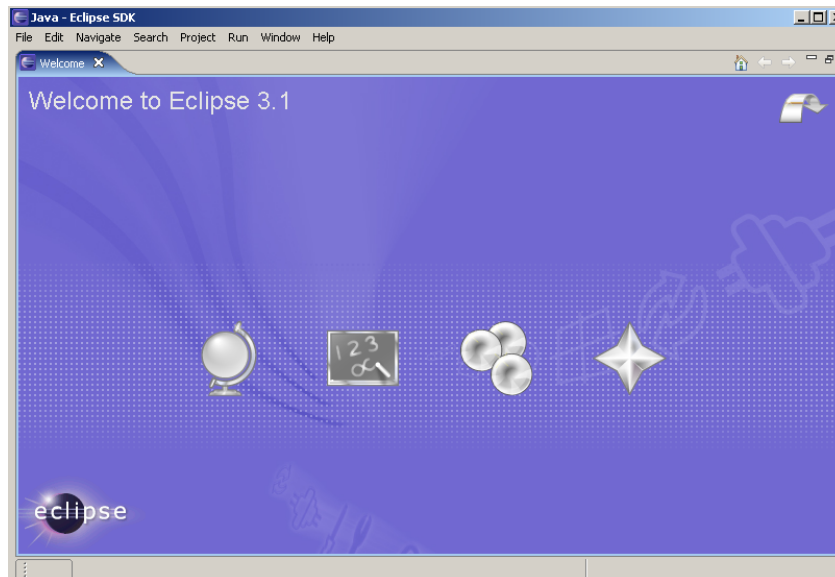
Immediately after that Eclipse will ask you for your workspace location. It defaults to: C:\Program Files\eclipse\workspace which is actually very bad. Depending on where you want to use Eclipse, please set your workspace to the appropriate folder. If you are in a computer lab, check their policy on personal home folders. If you are on your own computer, a place within your personal settings is usually best:

**Figure 43. Eclipse asking for workspace**



If you always want to use the same workspace, you may select the Use this as the default... and you'll never have to worry about workspaces again. This is usually a good idea once you've used Eclipse for a while. Finally Eclipse starts up with the welcome screen:

**Figure 44. Eclipse welcome screen**



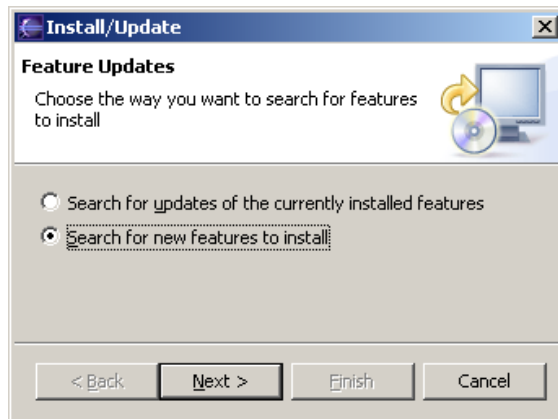
And if you select the "Go to the workbench" in the top right corner, then you are right in Eclipse and you can start developing in Java. However, since we want to develop in C++ just continue with the next section.

## Installing the CDT

Eclipse by default comes with support for programming Java, the support for C/C++ (the C Development Toolkit) has to be installed as an update.

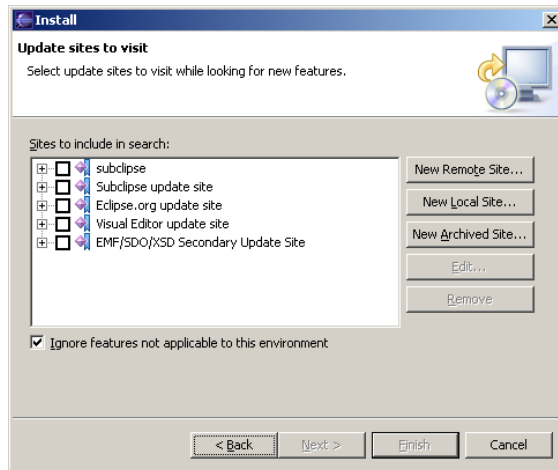
In the "Help" menu select "Software Updates" and the "Find and Install...". You should get something like:

**Figure 45. Find and Install software updates**



Select "Search for new features to install", and then "Next >". You should get:

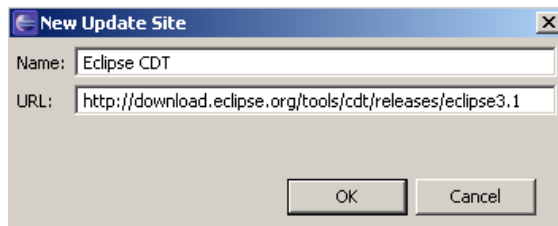
**Figure 46. Select update sites**



Leave "Ignore features not applicable to this environment" checked and de-select all update sites (you will probably have less in there than I do). Select "New Remote Site" and then enter the following information:

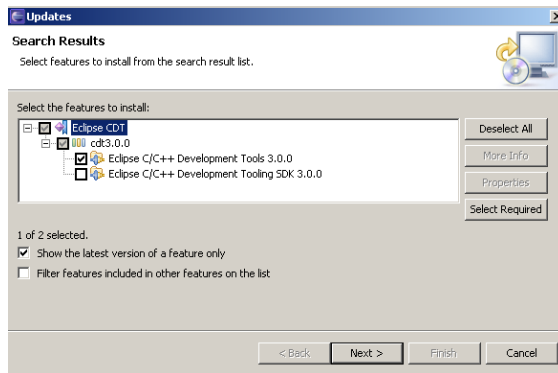
Note: What name you enter does not matter. Here is the URL for cut-n-paste: <http://download.eclipse.org/tools/cdt/releases/eclipse3.1>

**Figure 47. Add new update site**



Hit "OK". Now select "Eclipse CDT" and then "Next >". It should connect to the Eclipse CDT update site and look for the newest version. Then it displays a window like this one:

**Figure 48. Select CDT to install**



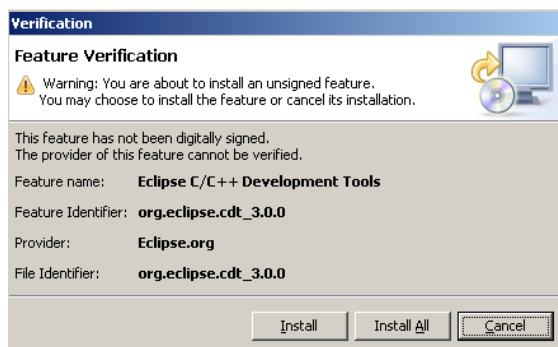
Select the latest version of the "Eclipse C/C++ Development Tools". (3.0.1 at the time of this writing) Do not select any other features. Hit "Next >".

In the next window, you will have to "accept" the license, and then select "Next >".

It will again show you an overview, which you can just accept and select "Finish".

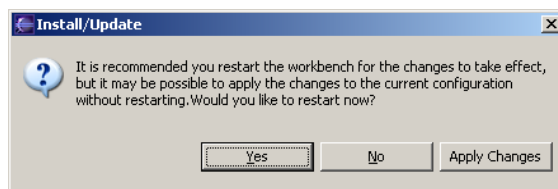
It will warn you that the Eclipse CDT is an "unsigned feature". But you can just ignore that and select "Install All".

**Figure 49. Unsigned JAR**



Downloading and installing will take a while. Once its done it will ask you to restart Eclipse. This is a good idea, so select "Yes".

**Figure 50. Restarting the workbench**



Once Eclipse has restarted you now need to configure it for your computer.

Eclipse 3.1 with CDT 3.0.0 (and 3.0.1) has a bug on windows! If you are on windows, please close eclipse, and delete the file spawner.dll in eclipse\plugins\org.eclipse.cdt.core.win32\_3.0.0\os\win32\x86. This bug

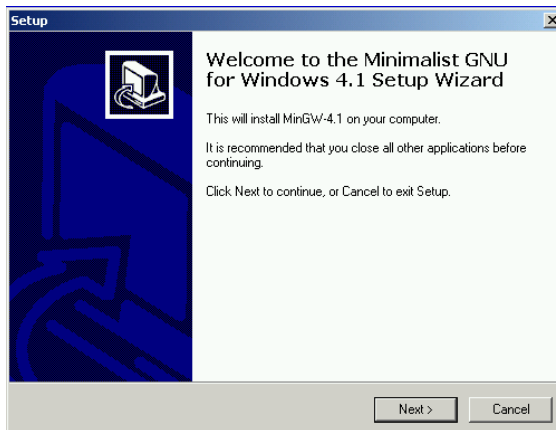
appears every time you try and run short programs (they will not show any output). More information is available in Eclipse Bug 102043. This bug is fixed in CDT 3.0.2.

## MinGW 4.x

MinGW 4.x comes with a new installer that asks much more questions than the old one. The current (Aug 05) version is MinGW 4.1.1.

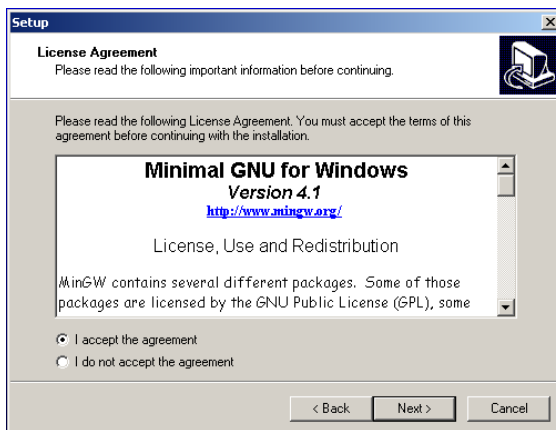
Please note: The MinGW 4.x installer downloads parts of the MinGW suite during the install! You must have an internet connection during the install. If this is not an option for you, download the last version (3.1)

**Figure 51. MinGW 4.1 install**



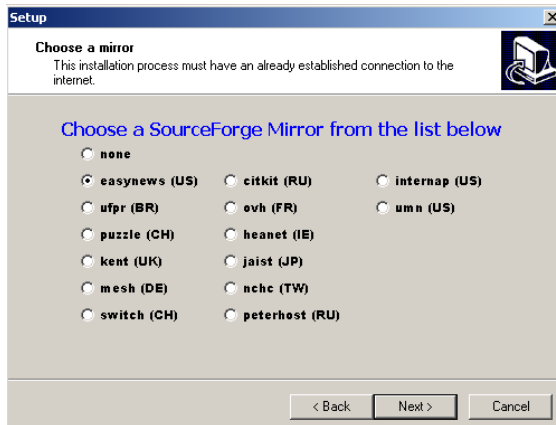
Most installation options are pretty straight forward. You will have to accept the license agreement:

**Figure 52. MinGW licence**



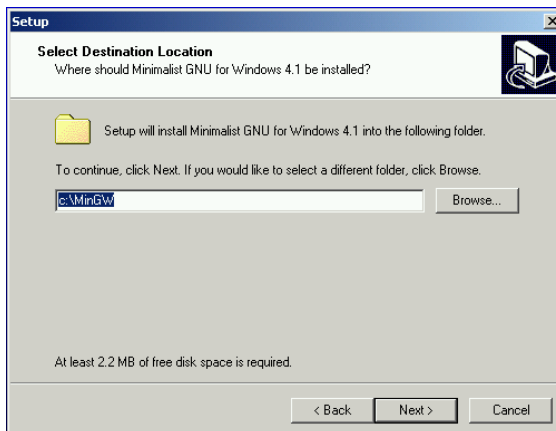
It will ask you for a download mirror. Of course, you should pick one close to your country. If you are installing from home in the us, use a commercial mirror, if you are installing from a university connection, chose a university mirror.

**Figure 53. Mirror Selection**



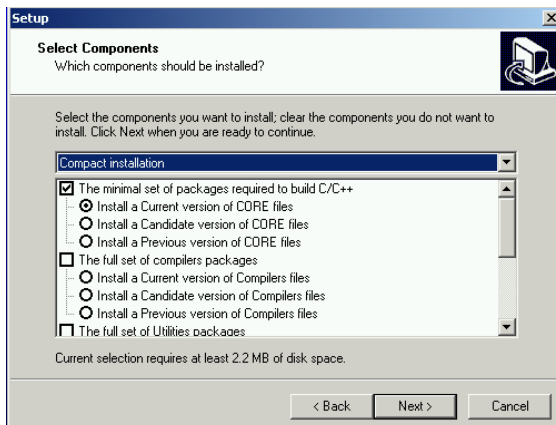
When installing MinGW, it is advisable to use the default directory `C:\MinGW`. Do not use a path that contains spaces, this will give you problems later on.

**Figure 54. MinGW installation directory**



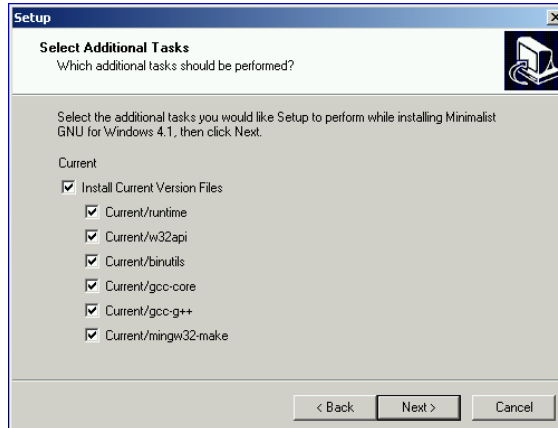
If all you need MinGW for is compiling your programs from within Eclipse, the Compact install should be enough:

**Figure 55. MinGW installation components**



Next, it will ask you for additional tasks to perform. Select all of them:

**Figure 56. Additional Tasks**

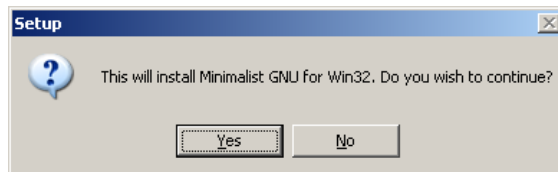


MinGW will download and install your selected components. After a little while your installation is done. You will now need to install MSYS.

## MinGW 3.1

At the time of this writing this was "Download MinGW-3.1.0-1.exe", but the version number may be higher now. Once downloaded, start the program. It should look similar to this:

**Figure 57. MinGW 3.1 install**



If you accept all the default options MinGW should install just fine.

## Feedback

Do you have any comments how this document could be improved? Email the author. I'll be happy to make any changes that make the setup of the Eclipse CDT easier, or include information that is missing in this paper.

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