# Setting up Eclipse CDT

On Windows, Linux/Unix, OS X

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# Introduction

There are several freely available C and C++ development environments. Most of them have the disadvantage that they require one particular operating system. The Eclipse IDE 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 describes how to install everything necessary to develop with C or C++ using only free tools on the three major operating systems Windows, Linux, and Mac OS X. It uses the Eclipse IDE, which is the same on all operating systems, thus providing a consistent user experience once installed.

There are two versions of this document:

The free online version	The free version of Setting up Eclipse CDT on Windows, Linux/ Unix, Mac OS X [http://max.berger.name/howto/cdt] can be found on Max Bergers website [http://max.berger.name/]. It will always be the previous major revision of the document.
A paid eBook version	The eBook version of Setting up Eclipse CDT on Windows, Linux/Unix, Mac OS X is distributed through Amazon.com, Amazon.co.uk, and Amazon.de. It will always be the current major revision of the document.
	<ul> <li>Setting up Eclipse CDT on Window, Linux/Unix, Mac OS X on Amazon.com [http://www.amazon.com/gp/product/ B005NWQCJS/ref=as_li_ss_tl? ie=UTF8&amp;tag=maxbergername-20]</li> </ul>
	<ul> <li>Setting up Eclipse CDT on Window, Linux/Unix, Mac OS X on Amazon.co.uk [http://www.amazon.co.uk/gp/product/ B005NWQCJS/ref=as_li_ss_tl? ie=UTF8&amp;tag=httpmaxberg02-21]</li> </ul>
	<ul> <li>Setting up Eclipse CDT on Window, Linux/Unix, Mac OS X on Amazon.de [http://www.amazon.de/gp/product/ B005NWQCJS/ref=as_li_ss_tl? ie=UTF8&amp;tag=httpmaxberger-21]</li> </ul>
	<ul> <li>Setting up Eclipse CDT on Window, Linux/Unix, Mac OS X on Amazon.fr [http://www.amazon.fr/gp/product/ B005NWQCJS/ref=as_li_ss_tl? ie=UTF8&amp;tag=httpmaxberg06-21]</li> </ul>
	<ul> <li>Setting up Eclipse CDT on Window, Linux/Unix, Mac OS X on Amazon.it [http://www.amazon.it/gp/product/ B005NWQCJS/ref=as_li_ss_tl? ie=UTF8&amp;tag=httpmaxberg08-21]</li> </ul>
	<ul> <li>Setting up Eclipse CDT on Window, Linux/Unix, Mac OS X on Amazon.es [http://www.amazon.es/gp/product/ B005NWQCJS/ref=as_li_ss_tl? ie=UTF8&amp;tag=maxbergername-21]</li> </ul>

At this time, the eBook version contains updates for the following items which are not yet in the free version:

• There are no updates in the ebook version at this time.

Screenshots may still reflect older versions of the used software, they are only updated if there is a significant change.

# **Other Resources**

When looking for Instructions, I found the following websites:

- 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

# 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 [http://www.mingw.org/wiki/msys]. MSYS is part of the MinGW [http://www.mingw.org/] 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 + MSYS

First, you need to download MinGW. You can either click through the websites mentioned above or go directly to the MinGW download area [https://sourceforge.net/projects/mingw/files/]. Look for the Section "Automated MinGW Installer", then "mingw-get-inst". There, download the newest subdirectory. and in there download the file ending in .exe. The file name should be something like "mingw-get-inst-20110802.exe". You can also download mingw-get-inst-200110802.exe [http://sourceforge.net/projects/mingw/files/Automated%20MinGW %20Installer/mingw-get-inst-20110802.exe/download] from the link given here.

Make sure you install the program with Administrator Priviledges. Right-click on the downloaded file, and select "Run as Administrator".

Figure 1. MinGW-Get-Inst Setup

🕅 Setup - MinGW-Get	
	Welcome to the MinGW-Get Setu Wizard
	This will install MinGW-Get version 0.3-alpha-2.1 on your computer.
	It is recommended that you close all other applications before continuing.
	Click Next to continue, or Cancel to exit Setup.
	Next > Cancel

Make sure the second screen tells you that this is an Administrator install. If you don't get this screen, select "Cancel" and re-start as administrator.

#### Figure 2. Make sure you do an Administrator install

M	Setup - MinGW-Get	
	Administrator Install You have launched this installer as an Administrator.	
	Shortcuts will be created in the All Users Start Menu and/or Desktop. To install for yourself only, cancel this installation and relaunch without Administrative privileges.	
		_

The next screen asks you if you want up-to-date versions of the files. Tell the installer that you want do download the newest catalog data.

Repository Catalogues	1
🕽 Setup - MinGW-Get	
Select Destination Location Where should MinGW-Get be installed?	
🕽 Setup - MinGW-Get	
Select Start Menu Folder Where should Setup place the program's shortcuts?	0
Colore will marke the anomaly device to the following Chert Mar	<b>E</b> -  d
🕽 Setup - MinGW-Get	
Choose which optional components of MinGW to install (the C compiler is alw installed)	iays
Ready to Install Setup is now ready to begin installing MinGW-Get on your computer. Click Install to continue with the installation, or click Back if you want to revi	iew or
change any settings.	
Installing: mingw-get pkginfo C Compiler C++ Compiler MSYS Basic System	*
Downloading latest repository catalogues	
Destination location: C: \MinGW	Ŧ
4	Þ

After selecting "Install", you have to wait for the installation process to complete.

#### Figure 9. Installer updating its catalogue files

C:\Mi	nGW\bin\mingw	-get.exe
Update	catalogue:	mingw32-make.xml
Update	catalogue:	mingw32-mingw-get.xml
Update	catalogue:	mingw32-mingw-utils.xml
Update	catalogue:	mingw32-mpc.xml
Update	catalogue:	mingw32-mpfr.xml
Update	catalogue:	mingw32-pdcurses.xml
Update	catalogue:	mingw32-pexports.xml
Update	catalogue:	mingw32-popt.xml
Update	catalogue:	mingw32-pthreads-w32.xml
Update	catalogue:	mingw32-runtime.xml
Update	catalogue:	mingw32-xz.xml
Update	catalogue:	mingw32-zlib.xml
Update	catalogue:	mingw32-base.xml
Update	catalogue:	mingw32-autotools.xml
Update	catalogue:	msys-package-list.xml
Update	catalogue:	msys-autoconf.xml
Update	catalogue:	msys-autogen.xml
Update	catalogue:	msys-automake.xml
Update	catalogue:	msys-bash.xml
Update	catalogue:	msys-binutils.xml
Update	catalogue:	msys-bison.xml
Update	catalogue:	msys-bzip2.xml
Update	catalogue:	msys-console.xml
Update	catalogue:	msys-core.xml



C:\MinGW\bin\mingw-get.exe	
862.97 kB / 862.97 kB http://prdownloads.sourc ?download	¦=====================================
1.79 MB / 1.79 MB	=====================================
ownload	
61.31 kB / 61.31 kB http://prdownloads.sourc	¦=====================================
1.32 MB / 1.32 MB http://prdownloads.sourc	¦=====================================
ad 91.45 kB / 91.45 kB http://pwdouploads_sourc	====================================
ad 20.72 kB / 20.72 kB	=====================================
http://prdownloads.sourc a?download	eforge.net/mingw/libstdc++-4.5.2-1
212.44 kB / 212.44 kB http://prdownloads.sourc	;=====================================
3.95 MB / 3.95 MB http://prdownloads.sourc	=====================================
wnload 3.35 MB / 5.14 MB	=====================================





Once the installation is complete, hit "Finish".

Checkpoint: You should be able to start MSYS by going to Start / Programs / MinGW / MinGW Shell. A console window should open. There, the following commands should give you some output:

```
gcc --version
g++ --version
make --version
```

Close the MSYS shell again. We'll make sure that these tools are available for all Windows programs in the next section.

#### **Environment Variables**

The next thing you need to do is set up your Path environment variable.

On Windows 2000/XP, right-click on  $M_Y$  Computer and select Properties. Then, select the Advanced tab. There should be a button called Environment Variables.

Figure 12. Finding Environment	t Variables	(Windows 2000)
--------------------------------	-------------	----------------

System Properties	? ×
General Network Identification Hardware User Profiles Advanced	1
Performance Performance options control how applications use memory, which affects the speed of your computer.	
Performance Options	
Environment Variables	
Environment variables tell your computer where to find certain types of information.	
<u>E</u> nvironment Variables	
Startup and Recovery	-
Startup and recovery options tell your computer how to start and what to do if an error causes your computer to stop.	
<u>Startup and Recovery</u>	
OK Cancel Apply	

<b>Figure 13. Finding Environment</b>	Variables	(Windows XP)
---------------------------------------	-----------	--------------

System Properties ?X
System Restore Automatic Updates Remote General Computer Name Hardware Advanced
You must be logged on as an Administrator to make most of these changes.
Visual effects, processor scheduling, memory usage, and virtual memory
Settings
User Profiles Desktop settings related to your logon
Settings
Startup and Recovery
System startup, system failure, and debugging information
Settings
Environment Variables Error Reporting
OK Cancel Apply

In Windows Vista / Windows 7, Click on the Windows Logo, right click on Computer, select Properties



Figure 14. Computer properties in Windows Vista / Windows 7

In the control panel, select "Advances system settings"

Control Panel 🕨	System and Security    System
Control Panel Home	View basic information about your
🛞 Device Manager	Windows edition
🛞 Remote settings	Windows 7 Ultimate
System protection	Copyright © 2009 Microsoft Corporation.
Advanced system settings	Service Pack 1
See also	
Action Center	
Windows Update	
Performance Information and	
	System

Figure 15. Finding the System Properties in Winows Vista / Winows 7

Finally, click on "Environment Variables"

System Properties					×
Computer Name	Hardware	Advanced	System Protection	Remote	
You must be log	You must be logged on as an Administrator to make most of these changes.				
Visual effects,	processor s	cheduling, m	emory usage, and vir	tual memo	ry
				Settings	
User Profiles					
Desktop settir	ngs related to	o your logon			
				S <u>e</u> ttings	
Startup and R	ecovery				
System startur	o, system fai	lure, and deb	ugging information		
				Settings	
			Environme	ent Variable	
		ОК	Cancel		pply

Figure 16. Environment Variables in Windows Vista / Windows 7

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 text in there, append ;C:\MinGW\bin;C:\MinGW\msys \1.0\bin; (or your appropriate paths, e.g. ;C:\msys\1.0\bin;C:\mingw\bin if you installed MinGW 5 / MSys 1.0.11) 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:\MinGW\bin;C:\MinGW\msys\1.0\bin (or your appropriate paths, see

paragraph above). Then select OK multiple times. Again, if there was a setting before, do not delete it, but rather append your path!

nvironment Variables	<b>X</b>
User variables for Ma	x
Variable	Value
PATH	C:\MinGW\bin;C:\MinGW\msys\1.0\bin
TEMP	%USERPROFILE%\AppData\Local\Temp
TMP	%USERPROFILE% \AppData \Local \Temp
l	New <u>E</u> dit <u>D</u> elete
System variables	
Variable	Value
C_EM64T_REDI	C:\Program Files (x86)\Common Files\In
C_IA32_REDIST11	C:\Program Files (x86)\Common Files\In
CLASSPATH	.;C:\Program Files (x86)\QuickTime\QTS
ComSpec	C:\Windows\system32\cmd.exe
	Ne <u>w</u> Edit Delete
	OK Cancel

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 complier 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
g++ --version
gcc --version
```

Each one of these 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

### Mac OS X up to Snow Leopard (10.6)

The developer tools 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 [https://developer.apple.com/].

### Mac OS X Lion (10.7) and Newer

To get the compiler, you have to install developer tools (Xcode) from the App Store. After downloading, you have to run the installer to actually install the developer tools.

#### Note

If you have upgraded to Lion from an older version of OS X, you have to redo both of these steps (download + install). Upgrading to Lion breaks your existing developer tools. Again: You have to do this after an upgrade to Lion, even if you have previously installed the developer tools!

#### Figure 18. Find XCode in App Store



# Xcode

Xcode provides everything developers need to cr iPad. Xcode 4 has been streamlined to help you interface design, coding, testing, and debugging analyzes the details of your project to identify m

## Neue Funktionen von Version 4.1.1

After you've downloaded developer tools (Xcode), you have to go to your Applications folder and run the installer.

#### Figure 19. Run the Xcode installer from Applications



During the install, you may encounter the following error messages:

In order to continue installation,	You may need to do two things:		
application: iTunes	1. Close iTunes, see if that helped.		
	2. In a Terminal window, type: killall iTunesHelper		
No matching processes belonging to you were found	This can happen if your Unix username contains a space. The workaround is to create an admin user to be used during the installation.		
	1. Open system preferences, go to "Users and groups"		
	2. Unlock the user preferences, type in you password		
	3. Click on "+" to create a new user		
	• For "New account" select "Administrator"		
	• For fullname and account name enter something in all lower cases without spaces, e.g. "admin".		
	• In der Dropdownmenu for "new account" change "Standard" to "Administrator".		
	• Log out, and log back in as your new admin user.		
	• Try installing again.		
	• Log out, log back in as your normal user		
	• Delete the admin user (System preferences, Users and Groups, unlock, select the admin user, click on "-")		

After Xcode has finished installing, you can open up a terminal (Applications / Utilities / Terminal) and check if g++, gcc and make are working:

gcc --version
g++ --version
make --version

# **Setting up Eclipse**

On Windows XP and later, this may be a good point in time to create a system restore point. This may safe you trouble in the long run if the installation fails.

## 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 until 10.6 and will be auto-installed in Mac OS X 10.7/Lion). 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 [http://java.sun.com/javase/] or from java.com [http://www.java.com]. At the time of this writing the latest version was Java Runtime Environment (JRE) 7 [http://java.sun.com/javase/downloads/index.jsp]. Look for the section called "Java SE Runtime Environment (JRE)" and select "JRE 7" (or similar). You will not need NetBeans, JDK, or EE, they are just larger downloads with more programs. You may need the JDK if you want to do Java development.

Note: There may be an incompatibility between Eclipse Helios and Java 1.6 update 21 [http://blog.max.berger.name/2010/07/eclipse-helios-and-java-16u21-deadlocks.html].

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 86 MB in size, so it will take a while to download. You will end up with a .ZIP file. Use either FilZip [http://www.filzip.com/] 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 20. Eclipse installed into C:\Program Files\eclipse

🔁 C:\Program Files\eclipse				
File Edit View Favorites Tools	s Help			
🗢 Back 👻 🤿 👻 🔂 🧟 Search	🔁 Folders 🛛 🛞	) R R ;	X ທ ≣•	
Address 🔄 C:\Program Files\eclipse				
eclipse	(configuration)	features	plugins	readm
Select an item to view its description.				F
See also:	.eclipsepro	eclipse.exe	eclipse.ini	epl-v10.
My Documents My Network Places My Computer	1	P		
	notice.html	startup.jar		
, 10 object(s)		161 KB	🖳 My C	omputer

# **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 21. 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 22. Eclipse asking for workspace

000		Workspace Launcher		
Select a wor	kspace			
Eclipse store Choose a wo	s your projects in a folder orkspace folder to use for t	called a workspace. this session.		
Workspace:	/Users/may/Documents/	workspace		-
Workspace.	/ osers/ max/ bocaments/	Torropace		
Use this as the default and do not ask again				
			Cancel	

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:





And if you select the "Go to the workbench" (the backward arrow) on the right, then you are inside Eclipse.

If you downloaded the "Eclipse IDE for C/C++ Developers" you can skip the next section and go straight to the section called "Configuring the CDT".

If you have downloaded a different package, there are additional tools needed to start programming. We want to develop in C++, so we will 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, 3.6, and 3.7) 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 24. Select Install New Software... from the help menu

	<u>H</u> elp		
	<u>ര</u> യ	elcome	
	<u>е</u>	elp Contents	
4	🚀 S <u>e</u>	arch	
	D	ynamic Help	
	<u>K</u> e	ey Assist	Shift+Ctrl+L
	Ţ	ps and Tricks	
	🧃 Re	port Bug or Enhancement	
	<u>C</u> l	neat Sheets	
	Su	Ibversive	>
	🚚 Re	port Maven Issue	
	C	neck for <u>U</u> pdates	
	In	stall New <u>S</u> oftware	
	A	oout Eclipse SDK	

This will show you the list of available software update sites. CDT is part of the standard release, so you can select an update site matching your eclipse version.

Please note: It is important to install the right Version of CDT for your version of eclipse:

• For Eclipse 3.7 (Indigo): Use http://download.eclipse.org/tools/cdt/ releases/indigo

- For Eclipse 3.6 (Helios): Use http://download.eclipse.org/tools/cdt/ releases/helios
- For Eclipse 3.5 (Galileo): Use http://download.eclipse.org/tools/cdt/ releases/galileo

Figure 25. Available Software Update page with Add... opened

			Install
Available Softwa	ire		
Check the items th	at you wish	n to install.	
Work with: http://	/download.	eclipse.org/tools/cdt/re	leases/galileo
		Find n	nore software by
type filter text			Add Site
Name			
Difference CDT Main	<u>N</u> ame:	CDT	
🕨 🗆 💷 CDT Optio	Location:	http://download.eclips	e.org/tools/cdt/
			_
<	?		
Details			
Show only the la	test versior	ns of available software	🗌 <u>H</u> ide
Group items by a	ategory		What i
Contact all updat	te sites dur	ing install to find require	ed software
		5	
?			< <u>B</u> ack

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:

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

Do not select all items! Some of these require dependencies from other projects, which may not be installed and thus fail to install. Select only the features you need!



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 27. Restarting the workbench

🧲 Insta	all/Update			×
?	It is recommended y but it may be possib without restarting.\	you restart the workl ble to apply the chan Nould you like to resl	pench for the char ges to the current tart now?	nges to take effect, configuration
		Yes	No	Apply Changes

Once Eclipse has restarted you may 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 true if you followed these instructions for Windows or Mac OS X.

On some Unix systems you might have to change your "make" program to "gmake". You will find the setting in Window / Preferences (Eclipse / Preferences on Mac OS X). Then expand "C / C++", then "New CDT Project Wizard", "Makefile Project" and select "Builder Settings". In the section "builder", de-select "use default build command" and for "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 28. New Project screen

## Select a wizard

Create a new C++ project

<u>W</u> izards:			
type filter text			
- ring minoject			
👂 🗁 General			
👂 🗁 Apache Doxia			
👂 🗁 Apache DS			
▽ 🗁 C/C++			
🔂 C Project			
C++ Project			
🕝 Class			
Convert to a	C/C++ Project		
👕 File from Ter	nplate		
😂 Folder			
		3	
?	< <u>B</u> ack	<u>N</u> ext >	Cancel

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.

- For Windows, select "MinGW GCC"
- For Linux, select "Linux GCC"
- For Mac OS X, select "MacOSX GCC"
- Do not use "Cross GCC"! Unfortunately this option may be selected by default if you create an empty project!

Click "Next".

Figure 29. New Project Name

# C++ Project

Create C++ project of selected type

Project name: HelloWorld	
✓ Use <u>default location</u> Location: /home/berger/workspace/HelloW	/orld
Project type:	Toolchains:
▽ 🗁 Executable	Linux GCC
Empty Project	
Hello World C++ Project	
👂 🗁 Shared Library	
👂 🗁 Static Library	
👂 🗁 Makefile project	
🖸 Show project types and toolchains only if	f they are supported on the p
	2
(?) < <u>B</u> ack <u>N</u>	lext > Cancel

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

#### Figure 30. Basic Settings

# **Basic Settings**

Basic properties of a project

Author	Max Berger
Copyright notice	Your copyright notice
Hello world greeting	!!!Hello World!!!
Source	src
?	< Back Next > Car
0	

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

#### Figure 31. New Project Platforms

## Select Configurations

Select platforms and configurations you wish to deploy on



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 32. Perspective Switch

Confirm Perspective Switch	x
This kind of project is associated with the C/C++ Perspective. Do you war to switch to this perspective now?	ht
<u>Remember my decision</u>	
<u>Y</u> es <u>N</u> o	

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.

If eclipse does not auto-build, you have to turn on "build automatically" in the Project Menu, or click the "Build All" button after every change.

#### Figure 33. Make sure "Build Automatically" is enabled

Open Project Close Project		
Build All Build Configurations Build Project	жв ▶	
Build Working Set Clean	•	
✓ Build Automatically		
Make Target	►	
Properties		

Figure 34. If you turn off autobuild, you have to click the "build" button on the toolbar





Figure 35. 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 on Windows). 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 36. 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:

Please note if you are reading the online version: Some problems may covered in a newer version of this document, please refer to the section called "Introduction".

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

Make sure you have done the following things:

- Installed the CDT
- · Installed (not just downloaded) MinGW and MSYS with Administrator privileges
- 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.

# How to fix most of the common errors on Lion (Mac OS X 10.7)

Make sure you have done the following this:

- Downloaded XCode from App Store
- Installed XCode using the "Install XCode button"

Both of these steps are important, in particular when you upgraded from an earlier version of Mac OS X. Upgrading to Lion breaks your existing developer tools! Read also the full description in the section called "Mac OS X Compiler". It also covers problems during the XCode install.

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

You have just tried the 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 [http://www.mingw.org/mingwfaq.shtml#faq-mingw32-make.exe] 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!

# Undefined symbols for architecture x86\_64 (OS X 10.7)

Make sure you have done the steps in the section called "How to fix most of the common errors on Lion (Mac OS X 10.7)".

If the problem still persist, and you are trying to compile C++ code, make sure your source files actually have an extension of ".cc" or ".cpp".

## 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 Envrionment (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 [http://www.java.com] has a button called verify installation.

# I have no binaries

If you have no binaries folder, then one of several 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 37, "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.
- AutoBuild is turned off. Turn it on as described in Figure 33, "Make sure "Build Automatically" is enabled".
- If you do have a binaries folder, then make sure you run you 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 37. 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 read the online version of this document, check out the section called "Introduction". You problem may be covered in a newer version of this document.

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. 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:

# MinGW 5, MSYS 1.0.11

This is the old MSYS/MinGW installation used before the new mingw-get-inst was available.

## MinGW 5.x

First, you need to download MinGW. You can either click through the websites mentioned above or go directly to the MinGW download area [https://sourceforge.net/projects/mingw/files/]. 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 [http://downloads.sourceforge.net/mingw/MinGW-5.1.4.exe? modtime=1209244789&big\_mirror=1] 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 [http://prdownloads.sourceforge.net/mingw/MinGW-4.1.0.exe? download] and follow the instructions in the section called "MinGW 4.x".
- You may download MinGW 3 [http://prdownloads.sourceforge.net/mingw/MinGW-3.1.0-1.exe? download] 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.

🎲 MinGW 5.0.0		_
MinGW	<b>Choose Package</b> Please select the MinGW package you wish to install.	
Which	n MinGW package do you wish to install?	
	C Previous	
	<ul> <li>Current</li> </ul>	
	C Candidate	
Nullsoft Install System v2.09 —		
	< Back Next >	Iancel

#### Figure 38. 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 39. MinGW 5 install (2)

🎲 MinGW 5.0.0	
MinGW	<b>Choose Components</b> Choose the MinGW components you would like to install.
Check the components you install. Click Next to continu	want to install and uncheck the components you don't want to ie.
Select the type of install:	Custom
Or, select the optional components you wish to install:	<ul> <li>MinGW base tools</li> <li>g++ compiler</li> <li>g77 compiler</li> <li>Ada Compiler</li> <li>Java Compiler</li> <li>Objective C Compiler</li> </ul>
Space required: 68.3MB	Position your mouse over a component to see its description.
Nullsoft Install System v2.09 -	
	< Back Next > Cancel

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 40. MinGW 5 install (3)

🎲 MinGW 5.0.0				
MinGW	Choose Install Locati Choose the folder in wh	i <b>on</b> hich to install M	inGW.	
MinGW will install MinGW cor click Browse and select anot	nponents in the following her folder. Click Next to d	directory. To ii continue.	nstall in a diff	erent folder
Destination Folder			Bro	wse
Space required: 68.3MB Space available: 4.4GB				
Nullsoft Install System v2.09 –	<	Back	Next >	Cancel

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 1.0.11".

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 1.0.11**

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.exe". You may have to expand the "Release Candidate" section. Or you may use the link here to MSYS-1.0.11.exe [http://downloads.sourceforge.net/mingw/ MSYS-1.0.11.exe]. Download it and start it. You should get a window like this:

#### Figure 41. MSYS install



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

#### Figure 42. MSYS asking for post-install

#### 🚳 C:\WINEXPE\system32\cmd.exe

C:\msys\1.0\postinstall>PATH ..\bin;C:\Program Files\Mozil] \system32;C:\WINEXPE;C:\WINEXPE\System32\Wbem;C:\WINEXPE\sy 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 b your MinGW install if any as well as your previous MSYS ins if any. I don't have any traps as aborts will not hurt any Do you wish to continue with the post install? [yn ] \_

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

### Figure 43. MSYS asking for MinGW

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

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

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

'his is a post install process that will try to normalize be our MinGW install if any as well as your previous MSYS inst f any. I don't have any traps as aborts will not hurt anyt o you wish to continue with the post install? [yn ] y

o you have MinGW installed? [yn ] 🔔

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

#### Figure 44. MSYS asking for path to MinGW

C:\WINEXPE\system32\cmd.exe
C:\msys\1.0\postinstall>PATH ..\bin;C:\Program Files\Mozill \system32;C:\WINEXPE;C:\WINEXPE\System32\Wbem;C:\WINEXPE\sy 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 h your MinGW install if any as well as your previous MSYS ins if any. I don't have any traps as aborts will not hurt any 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.

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:



🔤 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 ou 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 have script You /bin/pwd You have script /bin/rvi You have script /bin/rview You have script /bin/rvim You have script /bin/vi You have script /bin/view Oh joy, you do not have C:/MinGW/bin/make.exe. Keep it that 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 46. MSYS is done



# 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 47. Select Software Updates... from the menu

This will show you the list of available software update sites. If you are luck 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 48. Main Software Update page

Software Updates and Add-ons		
Installed Software Available Software		
type filter text		
Name		
<ul> <li>EPP Usage Data Collector Update Site</li> <li>Ganymede Update Site</li> <li>http://download.eclipse.org/tools/cdt/releases/ganymede</li> <li>http://eclipse-cs.sourceforge.net/update/</li> <li>http://www.polarion.org/projects/subversive/download/eclipse/2.0/ganyi</li> <li>http://www.polarion.org/projects/subversive/download/integrations/ganyi</li> <li>http://www.webtide.com/eclipse</li> <li>Maven Integration for Eclipse Update Site</li> <li>Mylyn for Eclipse 3.4</li> <li>The Eclipse Project Updates</li> </ul>		
<ul> <li>Show only the latest versions of available software</li> <li>Include items that have already been installed</li> </ul>		
Open the <u>'Automatic Updates'</u> preference page to set up an automatic update schedule		
$\odot$		

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



Name	Location
📄 📢 http://download.eclipse.org/modeling/emft/updates/	http://download
📄 📢 http://download.eclipse.org/modeling/gmf/updates/relea	http://download
📄 🔩 http://download.eclipse.org/modeling/m2m/updates/	http://download
📄 🔩 http://download.eclipse.org/modeling/m2t/updates/	http://download
📄 🔩 http://download.eclipse.org/modeling/mdt/updates/	http://download
📄 🔩 http://download.eclipse.org/rt/rap/update-site	http://downloa
📄 🔩 http://download.eclipse.org/stp/updates/	http://download
📄 🔩 http://download.eclipse.org/technology/dltk/updates/	http://downloa
📄 🔩 http://download.eclipse.org/technology/emft/updates/	http://downloa
🔲 🖏 http://download.eclipse.org/technology/subversive/0.7/u	http://downloa
📄 🔩 http://download.eclipse.org/tools/buckminster/updates	http://downloa
📝 🔩 http://download.eclipse.org/tools/cdt/releases/ganymede	http://downloa
🔲 🖏 http://download.eclipse.org/tools/gef/update-site/release	http://downloa
http://download.eclipse.org/tools/mylyn/update/extras	http://downloa

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 50. Select CDT from the Update Site

Software Updates and Add-ons	
Installed Software Available Software	
type filter text	
Name	1
▷ 🔲 🐳 EPP Usage Data Collector Update Site	
b Canymede Update Site	
<ul> <li>Image: Image: Arrow of the second seco</li></ul>	
Eclipse C/C++ Development Tools	5
Eclipse C/C++ Development Tools SDK	5
Image: CDT Optional Features	
🕼 🖓 CDT GNU Toolchain Build Support	5
🔽 🌆 CDT GNU Toolchain Debug Support	5
📝 抑 Eclipse C/C++ Development Platform	5
Eclipse C/C++ Development Tools Utilities	5
Eclipse C/C++ GDB Hardware Debugging	5
Eclipse CDT p2 Toolchain Installer	5
Eclipse CDT Testing Feature	5
LR Parser	5
Unified Parallel C Support	5
XL C/C++ Compiler Support	5
□ ↓ XL C/C++ Compiler Support SDK	5
▷ □ 00 Uncategorized	
< III	
Show only the latest versions of available software	
Include items that have already been installed	
Open the <u>'Automatic Updates'</u> preference page to set up an automatic upda	ite schedule.
(?)	

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 51. Restarting the workbench

🧲 Inst	all/Update			×
?	It is recommended but it may be possi without restarting.	you restart the work ble to apply the chan Would you like to res	bench for the cha ges to the curren tart now?	inges to take effect, it configuration
		<u>Y</u> es	No	Apply Changes

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 >".





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 53. New Project Name

New Project	×
Managed Make C++ Project	
Create a new Managed Make C++ Project.	C
Project name: HelloWorld	
Project contents	
✓ Use <u>d</u> efault	
Directory; D:\ws2\HelloWorld	Browse
	1
<u> </u>	

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

## Figure 54. New Project Platforms

🚝 New Project	×
Select a type of project Select the platform and configurations you wish to deploy on	C
Project Type: Executable (Gnu on Windows) Configurations:	•
☑ Tá Debug ☑ Tá Release	
Show All Project Types	
<u> </u>	Cancel

**Figure 55. New Project Settings** 

New Project	×
Additional Project Settings Define the inter-project dependencies, if any.	
C	
🗁 Projects 🛛 C/C++ Indexer	
Referenced C/C++ Projects	
<u> &lt; Back</u> <u>N</u> ext > <u>Finish</u> Cancel	

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 56. Perspective Switch**

Confirm Perspective Switch	×I
This kind of project is associated with the C/C++ Perspective. Do you want to switch to this perspective now?	
Remember my decision	
<u>Y</u> es <u>N</u> o	

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 57. Create a new Source File

Source File	×
Create a new source file.	C
Source Eolder: HelloWorld Source File: main.cpp	Br <u>o</u> wse
	<u>F</u> inish Cancel

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 58. 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 59. 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 [http://www.eclipse.org/ downloads/] 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 [http://www.filzip.com/] 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 60. Eclipse installed into C:\Program Files\eclipse

🔁 C:\Program Files\eclipse				
File Edit View Favorites Tools	; Help			
🗢 Back 👻 🤿 👻 🔂 🎯 Search	🔁 Folders 🛛 🛞	)哈哈)	× ທ ≣•	
Address 🔄 C:\Program Files\eclipse				
	(configuration)	features	plugins	readm
eclipse	_			
Select an item to view its description.				1.
See also:	.eclipsepro	eclipse.exe	eclipse.ini	epl-v10.
My Documents				
My Network Places	<b>*</b>	Contract		
My Computer	Ly-	<b>2</b>		
	notice.html	startup.jar		
10 object(s)		161 KB	📃 My C	omputer

## 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 61. 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 62. Eclipse asking for workspace

000	Workspace Launcher		
Select a wo	rkspace		
Eclipse store Choose a we	es your projects in a folder called a workspace. orkspace folder to use for this session.		
Workspace:	/Users/max/Documents/workspace		,
🗌 Use this a	as the default and do not ask again		
		Lancel	_

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 63. 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 64. Find and Install software updates

🚝 Install/Update	×			
Feature Updates Choose the way you want to search for features to install				
<ul> <li>Search for updates of the currently installed features</li> <li>Search for new features to install</li> </ul>				
< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cancel			

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

### Figure 65. Select update sites

🚝 Install	2
<b>Update sites to visit</b> Select update sites to visit while looking for new features.	
Sites to include in search:	New Remote Site New Local Site New Archived Site Edit Remove
, Ignore features not applicable to this environment	
< <u>Back</u> <u>N</u> ext > E	Einish Cancel

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 66. Add new update site

E New	v Update Site	×
Name:	Eclipse CDT	
URL:	http://download.eclipse.org/tools/cdt/releases/eclipse3.1	

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 67. Select CDT to install

## Search Results

Updates

Select features to install from the search result list.

Select the features to install:	
Clipse CDT  Clipse CDT  Clipse Clipse C/C++ Development Tools 3.0.0  Clipse C/C++ Development Tooling SDK 3.0.0  Clipse C/C++ Development Tooling SDK 3.0.0	
<ul> <li>1 of 2 selected.</li> <li>✓ Show the latest version of a feature only</li> <li>✓ Filter features included in other features on the list</li> </ul>	
<back next=""></back>	Finish

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 68. Unsigned JAR

Verification	
Feature Verifie Warning: You You may choos	cation are about to install an unsigned feature. the to install the feature or cancel its installation.
This feature has no The provider of thi	ot been digitally signed. s feature cannot be verified.
Feature name:	Eclipse C/C++ Development Tools
Feature Identifier:	org.eclipse.cdt_3.0.0
Provider:	Eclipse.org
File Identifier:	org.eclipse.cdt_3.0.0
	Install Install All

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 69. Restarting the workbench

🦲 Insta	all/Update			×
2	It is recommended but it may be possi without restarting.	you restart the workt ible to apply the chang Would you like to rest	ench for the chan ges to the current art now?	ges to take effect, configuration
		Yes	No	Apply Changes

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 eclise\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 [https://bugs.eclipse.org/bugs/ show\_bug.cgi?id=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)

Setup	
	Welcome to the Minimalist GNU for Windows 4.1 Setup Wizard This will install MinGW-4.1 on your computer. It is recommended that you close all other applications before continuing. Click Next to continue, or Cancel to exit Setup.
	Next > Cancel

## Figure 70. MinGW 4.1 install

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

## Figure 71. MinGW license

5etup	
License Agreement Please read the following important information before continuing.	<u>@7</u>
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	;
Minimal GNU for Windows Version 4.1 http://www.mingw.org/	
License, Use and Redistribution	
MinGW contains several different packages. Some of those packages are licensed by the GNU Public License (GPL), some	<b>_</b>
<ul> <li>I accept the agreement</li> <li>I do not accept the agreement</li> </ul>	
< Back Next >	Cancel

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 72. Mirror Selection**

Setup			
<b>Choose a mirror</b> This installation process must H internet.	have an already establish	ed connection to the	<u> </u>
Choose a Source	Forge Mirror fr	om the list be	low
🖲 easynews (US)	🔿 citkit (RU)	🔿 internap (U	S)
🔿 ufpr (BR)	🔿 ovh (FR)	🔿 umn (US)	
C puzzle (CH)	🔿 heanet (IE)		
🔿 kent (UK)	🔿 jaist (JP)		
🔿 mesh (DE)	🔿 nchc (TW)		
🔿 switch (CH)	🔘 peterhost (RU)		
	< Bac	k Next>	Cancel

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 73. MinGW installation directory

Setup			
Select Destination Location Where should Minimalist GNU for Windows 4	4.1 be installed?		<b>2</b> 2
Setup will install Minimalist GNU for	Windows 4.1 int	to the following fo	older.
To continue, click Next. If you would like to a	select a different	folder, click Brov	vse.
c:\MinGW		В	rowse
At least 2.2 MB of free disk space is required	I.		
	< Back	Next >	Cance

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



Setup	
Select Components Which components should be installed?	<b>2</b> 1
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.	
Compact installation	•
<ul> <li>The minimal set of packages required to build C/C++</li> <li>Install a Current version of CORE files</li> <li>Install a Candidate version of CORE files</li> <li>Install a Previous version of CORE files</li> <li>The full set of compilers packages</li> <li>Install a Current version of Compilers files</li> <li>Install a Candidate version of Compilers files</li> <li>Install a Candidate version of Compilers files</li> <li>Install a Previous version of Compilers files</li> </ul>	
Current selection requires at least 2.2 MB of disk space.	
< Back Next > C	ance

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

### Figure 75. Additional Tasks

Setup		
Select Additional Tasks Which additional tasks should be performed?	1?	1
Select the additional tasks you would like Se GNU for Windows 4.1, then click Next.	etup to perform while installing Minimalist	
Current		
Install Current Version Files		
Current/runtime		
🔽 Current/w32api		
Current/binutils		
Current/gcc-core		
Current/gcc-g++		
Current/mingw32-make		
	< Back Next > Car	ncel

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 76. MinGW 3.1 install

Setup	×
?	This will install Minimalist GNU for Win32. Do you wish to continue?
	Yes <u>N</u> o

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.