Installing Eclipse C++ for Windows

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I. Introduction

This document is intended to assist the reader with the installation and configuration of Eclipse for C++. Because the 64bit Cygwin/Eclipse environment contains some issues that require workarounds the document addresses only the installation of the 32-bit versions which install and work very well in a 64-bit environment. Three components are required to successfully install Eclipse for C++:

- Sava Runtime Environment (JRE) or Java Development Toolkit (JDK).
- C++ compiler, debugger and make utility (using CYGWIN)
- Either Eclipse IDE for C/C++ Developer OR Eclipse IDE for Java developers and CDT, the C++ plug in for Eclipse

II. Installing and/or Enabling the 32-bit JRE (Java Runtime Environment)

If your computer utilizes a 32-bit Windows operating system (most Windows XP computers and many Windows 7 computers) then you will need to just confirm that JRE is installed and, if not, install it. If your computer utilizes a 64-bit Windows operating system (prevalent in many current Windows 7 computers) then you will need to determine not only whether or not JRE is installed but also if the installed version is 32-bit or 64-bit. If you are not sure whether or not your computer has a 32-bit or 64-bit operating system go to C:\ and look at the file structure. If there are BOTH a C:\Program Files and a C:\Program Files (x86) folders listed then you have a 64-bit operating system installed. If there is ONLY a C:\Program Files folder listed then you have a 32-bit operating system installed.

A. Windows 32-bit Operating System Environment

If your computer utilizes a Windows 32-bit operating system then you either have a 32-bit Java installed or no Java install. Look in the 'c:\Program Files' folder to see if you have a Java sub-folder (i.e. C:\Program Files\Java). If you do not have this sub-folder then you do NOT have Java installed and will need to install it; in which case, you can go to section IV, A for installation instructions. If you do have the folder then there should be another folder within Java called 'jrex' (most likely jre6 for Java Runtime Environment version 6) and your computer is ready for the next step, Cygwin installation (see part III, A).

B. Windows 64-bit Operating System Environment

If your computer utilizes a Windows 64-bit operating system then there are 4 configuration possibilities: no Java installed; only 32-bit Java installed; only 64-bit Java installed or both 32-bit and 64-bit versions of Java installed. In the 64-bit Windows environment you will have both a 'C:\Program Files' folder for 64-bit version programs AND a 'C:\Program Files (x86)' folder for 32-bit version programs. Determine which of the configurations is installed on your computer.

- 1. No Java installed: Neither C:\Program Files (x86)\Java nor C:\Program Files\Java exists
- 2. Only 32-bit Java installed: C:\Program Files (x86)\Java exists but C:\Program Files\Java does not exist
- 3. Only 64-bit Java installed: C:\Program Files (x86)\Java does not exist but C:\Program Files\Java does exist

4. Both 32-bit and 64-bit Java are installed: C:\Program Files (x86)\Java does exists and C:\Program Files\Java also exists

For 1 and 3 above go to Part V,A and follow the instructions to install 32-bit Java. For 2 above you can go on to Part III to install Cygwin. For 4 above you will need to confirm that the 32-bit Java is enabled and, if it is not, enable it. To do this go to Part V,B and follow the instructions to determine if your 32-bit Java is enabled and, if not, to enable it.

III. Set up a Compiler (Install Cygwin)

The Windows operating system doesn't have a built-in compiler. Therefore, **Cygwin's** version of **g++**, **gdb** (debugger) and **make** utility are used. We will install Cygwin (32-bit). This is done in 3 steps.

- Download and launch Cygwin
- Select and install packages
- Update PATH environment variables.

A. Step 1: Download and launch Cygwin

- 1. Go to <u>www.cygwin.com</u>, and download setup.exe from the Current Cygwin DLL version section.
- 2. Run application from local hard drive
- 3. Choose Next on first screen
- 4. Select "Install from Internet" and click Next

🔄 Cygwin Setup - Choose Installation Type	
Choose A Download Source Choose whether to install or download from the internet, or install from files in a local directory.	E
 Install from Internet (downloaded files will be kept for future re-use) Download Without Installing 	
O Install from Local Directory	
< Back Next	Cancel

- 5. Enter the root directory and click Next.
- 6. The most common Windows root directory is C:\cygwin. Install for: All Users.



- 7. Enter a temporary installation directory and click Next.
- 8. The preferred location is **Desktop** because it is easy to locate.

Cygwin Setup - Select Local Package Directory	X
Select Local Package Directory Select a directory where you want Setup to store the installation files it downloads. The directory will be created if it does not already exist.	
Local Package Directory	
C:\Documents and Settings\bn1060\Desktop Browse	
< Back Next > Cancel	

9. Select "Direct Connection" and click Next.

Cygwin Set	up - Select Connection Type
Select Your Setup nee the approp	Internet Connection ds to know how you want it to connect to the internet. Choose riate settings below.
	 Direct Connection
	Use Internet Explorer Proxy Settings Use HTTP/FTP Proxy:
	Proxy Host
	Port 80
	<back next=""> Cancel</back>

10. Select a download site and click Next.

🗲 Cygwin Setup	- Choose Download Site(s)
Choose A Dow Choose a site	nload Site e from this list, or add your own sites to the list
	Available Download Sites:
	http://wirrors.163.com http://cygwin.mirrors.paic.com http://cygwin.mirrors.paic.com http://cygwin.skazkaforyou.com http://cygwin.skazkaforyou.com http://mirrors.mission.com http://mirrors.mission.com http://mirror.its.uidaho.edu http://mirror.its.uidaho.edu http://mirror.its.uidaho.edu http://mirror.its.uidaho.edu
User URL:	Add
	< Back Next > Cancel

B. Step 2: Select and install packages

Note: g++ compiler, gdb (debugger) and make utility are the minimum requirements for installing Eclipse for C++. However, you may wish to choose other packages. Other packages you may want to install are opennssh, emacs, vi, etc.. The more packages you install, the longer it will take. Therefore, it is recommended that you install the following and add other packages later.

1. Click on and expand Devel

œ	Cygwin Se	tup - Select	Packages					
	Select Pac Select pa	kages ackages to inst	all					E
	Search		Clear	🔿 Кеер 🔘	Prev	💿 Curr 🛛 🔘	Exp View	Category
	Category	Current	New	B.	. S.,	Size	Package	<u>^</u>
	🗉 All 🚯 De	efault						
	E Acces	sibility 🚯 Defa	ult					_
	🕀 Admin	🚯 Default						
	🗄 Archiv	/e 💔 Default						
	🗄 Audio	😯 Default						
	🗄 Base -	😯 Default						
	🗄 Datab	ase 🚯 Defaul						
	🗆 🗆 Devel	🚯 Default						
			😯 Skip	ηία	n/a	157k	ELFIO: ELF file	reader and
			😯 Skip	ηία	n/a	2,132k	SWI-Prolog: Pro	olog Interpr
			😯 Skip	n/a	n/a	849k	XmHTML-devel	l: A widget
			😯 Skip	ηία	n/a	104k	aalib-devel: An	ascii art lib
			😯 Skip	n/a	n/a	170k	asciidoc: Text b	based docu
			😯 Skip	n/a	n/a	141k	astyle: Artistic S	tyle is a rei
			😯 Skip	ηία	n/a	115k	autobuild: Gene	erate summ
			😯 Skip	ηία	n/a	4k	autoconf: Wrap	per scripts
			😯 Skip	ηία	n/a	200k	autoconf2.1: St	able versic
			😯 Skip	ηία	n/a	955k	autoconf2.5: D	evelopmen
			😯 Skip	ηία	n/a	3k	automake: Wra	pper script
			😯 Skip	ηία	n/a	714k	automake1.10:	(1.10) a to 🤜
	<							>
	Hide obso	lete packages						
_								
					(< Back	Next >	Cancel

 Scroll down until you find gcc-g++: C++ compiler. Select that package by clicking on Skip. Also select gcc-core: C compiler by clicking on Skip.

Search Clear		🚫 Keep	0	Prev 💿 Cur	r 🔿 Exp 🛛 View Catego	iry	
Category	Current	New	B	S.,	Size	Package	
		🚯 Skip	n/a	nía	23k	diffstat: Generate statistics on d	iff
		🚯 Skip	n/a	n/a	177k	distoc: A fast, free, distributed C	20
		🚯 Skip	n/a	nía	282k	dmalloc: A malloc debugger.	
		🚯 Skip	n/a	nía	2,128k	doxygen: A documentation syst	en
		🚯 Skip	n/a	nía	38k	dpatch: Patch maintenance sys	te
		🚯 Skip	n/a	nía	62k	emacs-ocaml: Emacs mode for	Oł
		🚯 Skip	n/a	n/a	?	eventlog: Structured event logg	jin
		🚯 Skip	n/a	n/a	375k	flac-devel: Free Lossless Audio	С
		🚯 Skip	n/a	n/a	241k	flex: A fast lexical analyzer gene	era
		🚯 Skip	ηία	nía	152k	flexdll: Creates DLLs with runtim	ie
		🚯 Skip	n/a	n/a	1k	gcc: C compiler upgrade helper	
		🚯 Skip	n/a	n/a	6,706k	gcc-ada: Ada compiler	
		3.4.4-999	\times		3,630k	gcc-core: C compiler	
		3.4.4-999	\boxtimes		7,829k	gcc-g++: C++ compiler	
		🚯 Skip	n/a	n/a	1,976k	gcc-g77: Fortran compiler	
		🚯 Skip	n/a	n/a	2,181k	gcc-gdc: D compiler	
<							>

3. Scroll down until you find **gdb: The GNU debugger**. Select that package by clicking on Skip.

Cygwin Setup - Select Packages							
Select Pac Select p	:kages ackages to insta	all					
Search			🚫 Кее	• •	Prev 💿 Cur	r OExp View Category	
Category	Current	New	B	S.,	Size	Package	
		🚯 Skip	ηία	n/a	286k	gcc4: GCC Release series 4 com	
		🚯 Skip	ηία	n/a	13,417k	gcc4-ada: Ada (GNAT) subpacka	
		🚯 Skip	ηία	ηία	9,622k	gcc4-core: Core C compiler subpa	
		🚯 Skip	ηία	nía	4,862k	gcc4-fortran: Fortran subpackage	
		🚯 Skip	ηία	nía	5,354k	gcc4-g++: G++ subpackage	
		😯 Skip	ηία	n/a	43,859k	gcc4-java: Java subpackage	
		🚯 Skip	ηία	n/a	6,814k	gcc4-objc: Objective C and Objec	
		🚯 Skip	ηία	nía	5k	gccmakedep: Xorg preprocessor	
		6 .8-2	\boxtimes		4,420k	gdb: The GNU Debugger	
🚯 Skip		ηία	n/a	5k	gdk-pixbuf2-wmf: Windows Metaf		
		🚯 Skip	ηία	n/a	22k	gendef: Generates exports definiti	
	0.17-11	🚯 Кеер	nja		174k	gettext: GNU Internationalization I	
		🚯 Skip	n/a	nía	2,015k	gettext-devel: GNU Internationaliz	
		🚯 Skip	ηία	n/a	2,725k	git: Fast Version Control System -	
		🚯 Skip	ηία	n/a	15k	git-completion: Fast Version Contr	
		🚯 Skip	ηία	n/a	185k	git-gui: Fast Version Control Syste	
<		 				>	
V Hide obse	olete packages						
					< Ba	ck Next > Cance	

4. Scroll down until you find **make: The GNU version of the "make" utility**. Select that package by clicking on Skip.

E Cygwin Setup - Select Packages							
Select Pa Select	a ckages packages to ir	nstall				E	
Search		Clear			(◯ Keep ◯ Prev ⊙ Curr ◯ Exp View Category	
Category	/ Current	New	B	S.,	Size	Package	
		🚯 Skip	nja	n/a	170k	libwmf-devel: Windows Metafile library - (development)	
		🚯 Skip	nja	n/a	210k	libwmf-doc: Windows Metafile library - (documentation)	
		🚯 Skip	nja	nía	51k	libwrap-devel: Host-based access restrictions on tcp services (
		🚯 Skip	nja	n/a	2,054k	libxerces-c-devel: (devel) A validating XML parser written in a p	
		🚯 Skip	nja	n/a	677k	libxml2: XML C parser and toolkit (runtime and applications)	
		🚯 Skip	nja	n/a	293k	libxml2-devel: XML C parser and toolkit (development)	
		🚯 Skip	nja	n/a	2,367k	logiweb: A system for electronic distribution of mathematics	
		3.81-2	\boxtimes		350k	make: The GNU version of the 'make' utility	
		🚯 Skip	nja	n/a	24k	makedepend: X.Org Makefile dependency tool	
		🚯 Skip	nja	n/a	1,099k	mercurial: Python based distributed version control system (DV	
		🚯 Skip	nja	n/a	4,447k	mingw-binutils: Binutils for MinGW.org Win32 toolchain	
		🚯 Skip	nja	nía	?	mingw-gee: (mingw) GCC for MinGW.org Win32 toolchain (sou	
		🚯 Skip	nja	nía	7,529k	mingw-gcc-core: (mingw) GCC for MinGW.org Win32 toolchair	
		🚯 Skip	nja	n/a	4,668k	mingw-gcc-fortran: (mingw) GCC gfortran for MinGW.org Win3:	
		🚯 Skip	nja	n/a	9,299k	mingw-gcc-g++: (mingw) GCC g++ for MinGW.org Win32 toolc	
		\Lambda Skip	nía	nía	6.828k	_minaw-acc-obic: (minaw) GCC obic and obic++ for MinGW.ora	
<							
🗹 Hide ob	osolete packag	es					
						< Back Next > Cancel	

- 5. After selecting all desired packages, click **Next**.
- 6. Click **Next** on the **Resolving Dependencies** window and the downloadinstallation should begin.

Dependencies are packages that you may not have selected but are utilized by those packages you did select so they are required to make things work.

Cygwin S	Setup - Resolving Dependencies								
Resolving The fo	Resolving Dependencies The following packages are required to satisfy dependencies.								
binutils	(2.20.51-2) The GNU assembler, linker and binary utilities Required by: gcc-core, gcc-g++								
gcc-ming	gw-core (20050522-3) Mingw32 support headers and libraries for GCC Required by: gcc-core, gcc-mingw-g++								
gcc-ming	gw-g++ (20050522-3) Mingw32 support headers and libraries for GCC C++ Required by: gcc-g++	•							
<									
💌 Select n	equired packages (RECOMMENDED)								
	< Back Next >	Cancel							

7. Click Finish on the Installation Status and Create Icon window.

C. Step 3: Update PATH environment variables

1. Open System Control Panel: (If you are using Windows 7 use the View by: Large icons view)

Select Start → Control Panel → System

2. Under the "Advanced" tab of "System Properties", select "Environmental Variables"



3. Under "System variables", select PATH and click on Edit.

User variables for csdept
Variable Value
TEMP %USERPROFILE%\AppData\Local\Temp
TMP %USERPROFILE%\AppData\Local\Temp
New Edit Delete
System variables
Variable Value
OS Windows_NT
Path C:\Program Files\Java\jre6\bin;C:\Orad
PATHEXT .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;
PHPRC C:\Program Files (x86)\PHP\
New Edit Delete
OK Cancel

4. Append ";C:\cygwin\bin" to Variable Value and click Ok. Notice the leading ';'. It is required. Exit out of the Control Panel when finished.

ſ	Edit System Variable	X
	Variable name:	Path
	Variable value:	IySQL\MySQL Server 5.1\bin <mark>;C:\cygwin\bin</mark>
		OK Cancel

IV. Install/Configure Eclipse

Two steps are required:

- Downloading Eclipse
- Run Eclipse

A. Step 1: Downloading Eclipse

- 1. Go to <u>www.eclipse.org/downloads</u>
- 2. Select Eclipse packages for either **Window** or **Linux**
- 3. Select the **"Eclipse IDE for C/C++ Developers"** bundle.

<u>Note</u>: This bundle already contains **CDT** (Eclipse C/C++ Development Tools). If you download a different bundle, you may need to install the **CDT** manually.

The Eclipse version must be compatible with the Java version. If you install the **32 bit** Java version, you need to download the **32 bit** Eclipse version



4. Select a mirror site to download eclipse-cpp-indigo-incubation-win32.zip.

B. Step 2: Run Eclipse

 Unzip eclipse-cpp-indigo-incubation-win32.zip and extract all files to a desired directory. The preferred directory is C:\.

Extract - C:\Doc	uments and Settings\bn1060\Wy	Documents\Downloads\eclipse-o	:pp-in 🔀
Extract to:	C/V	~	🔊 🛅
Desktop My Documents	Desktop My Computer Social Disk (C:) Desktop Desktop	: 17d77c20f7b92ad9 tings	
My Computer My Network Places	Files Selected files/folders All files/folders in current folder All files/folders in archive Files in Archive:	Open Explorer window Overwrite existing files Skip older files	Extract Cancel Help

- 2. Run Eclipse by going to the directory where zip file was extracted and select eclipse.exe C:\eclipse\eclipse.exe
- 3. Select the location for Eclipse workspace and click **Ok.**

🖨 Workspace Launcher	
Select a workspace	
Eclipse stores your projects in a folder called a workspace. Choose a workspace folder to use for this session.	
Workspace: C:\Documents and Settings\bn1060\workspace	Browse
Use this as the default and do not ask again	
	OK Cancel

C. Installing CDT (C/C++ Development Tools) Manually

If you install a different Eclipse bundle, for example "<u>Eclipse IDE for Java EE Developers</u>", instead of "Eclipse IDE for C/C++ Developers" bundle described in part 2, you must install CDT manually. This section will guide you to perform that task.

Assume **Eclipse IDE for Java EE Developers** is installed.

- 1. Step 1: Select CDT link
 - a. Go to http://www.eclipse.org/cdt/ to find link to CDT

b. You have to find an equivalent version of CDT for the Eclipse bundle that you installed. For example, the current one is CDT 8.0 for Eclipse Indigo

c. Select the corresponding CDT link: http://download.eclipse.org/tools/cdt/releases/indigo/

2. Step 2: Install CDT:

- a. Run eclipse.exe
- b. Select Help → Install New Software

c. Select Add.

💽 Install	
Available Software Select a site or enter the location of a site.	
Work with: ⁰ type or select a site Find more software by working with the <u>"Available Software Sit</u>	Add
type filter text	
Name Version	
① ① There is no site selected.	
< III	۱.
Select All Deselect All Details	
Show only the latest versions of available software 🔲 Hide items that are already installed	1
Group items by category What is <u>already installed</u> ?	
Show only software applicable to target environment	
Contact all update sites during install to find required software	
(?) < Back Next > Finish	Cancel

- d. Type CDT in the Name field.
- e. Type <u>http://download.eclipse.org/tools/cdt/releases/indigo/</u> for the Location, and click **OK.**

f. Select CDT Main Feature.

Under CDT Optional Features, select

- C/C++ Development Platform
- ✤ C/C++ GNU Toolchain Build Support
- ✤ C/C++ GNU Toolchain Debug Support
- g. Click Next

S Install	
Available Software Check the items that you wish to install.	
Work with: CDT - http://download.eclipse.org/tools/cdt/releases/indigo/ Find more software by working with the <u>"Avai</u>	✓ Add ilable Software Sites" preferences.
type filter text	
Name	Version 🔺
 CDT Main Features C/C++ Development Tools C/C++ Development Tools SDK IIII ODT Optional Features C/C++ Development Platform C/C++ Development Platform C/C++ DSF GDB Debugger Integration C/C++ GCC Cross Compiler Support C/C++ GDB Hardware Debugging C/C++ GNU Toolchain Build Support C/C++ GNU Toolchain Debug Support C/C++ GNU Toolchain Debug Support Select All Deselect All S items selected 	8.0.0.201106081058 8.0.0.201106081058 2.1.0.201106081058 8.0.0.201106081058 1.0.0.201106081058 7.0.0.201106081058 7.1.0.201106081058 7.1.0.201106081058 7.1.0.201106081058
Show only the latest versions of available software Hide items that are Group items by category What is <u>already inst</u> Show only software applicable to target environment	← e already installed <u>alled</u> ?
Contact all update sites during install to find required software	
Rext >	Finish Cancel

h. Accept the License Agreement and click **Finish.**

V. Appendix

A. Installing 32-bit Java

1. Go to http://www.java.com/en/download/manual.jsp#win and click on Windows 7, XP Offline (32-bit)

vailable Operating Systems	Java Downloads for All Opera	ting Systems	
Windows	Recommended Version 6 Update 26		
Linux	Select the file according to your operating system computer.	n from the list below to get t	he latest Java for your
Coppie	> Remove Older Versions	> What is J	ava?
	By downloading Java you acknowledge that you license agreement	have read and accepted the	e terms of the <u>end user</u>
	By downloading Java you acknowledge that you license agreement	have read and accepted the	e terms of the <u>end user</u>
	By downloading Java you acknowledge that you license agreement Windows Which should I ch Windows 7. XP Offline (32-bit)	have read and accepted the pose? Instructions	e terms of the <u>end user</u> <u>Verify Now</u>
	By downloading Java you acknowledge that you license agreement Windows D Which should I ch Windows T. XP Offine (32-bit) Resize: 10 0 MB	have read and accepted the 00582 Instructions	terms of the <u>end user</u> <u>Verify Now</u> After installing Java, restart your browser an

- 2. Save the file to a temporary location on your computer. Double-click on the filename to execute it and follow the instructions.
- 3. Open the Control Panel on your computer and you should now see a Java icon. Click on it to open the Java Control Panel. If you click on View you should be able to see your new installation listed.

B. Making 32 bit Java Available after the 64 bit version is installed:

- 1. In the Windows Control Panel, click on Java to open the Java Control Panel
- 2. Click on the Java tab
- 3. Click on View. If ONLY the 64 bit version (look at the version number displayed in the java version command executed in a Windows command prompt for comparison) is listed then you will need to add the 32 bit version to the list.

Java Runtime Ve	rsions				
User System					
Platform	Product	Location	Path	Runtime P	Enabled
1.6	1.6.0_17	http://java.sun.com/products/autodl/j2se	C:\Program Files\Java\jre6\bin\javaw.exe		
			Find	Add	Remo
			Find	Add	Remo

- 4. Click on Find and you will see a message indicating that you must indicate the location of installed Java Runtime Environments. The 32 bit Java should be already installed but was removed from the Java Control Panel when the 64 bit Java was installed. Click on Next.
- 5. Navigate to "C:\Program Files (x86)\Java" and you should see a jreX folder.

		Sava Raname Environmenta		
Look in:	Java		•	
9	퉬 јгеб			
lecent Items	File name:	C:\Program Files (x86)\Java		
	Files of type:	All Files		•

6. Click on the folder and then click on Next. It will be added to the list. Make sure the Enabled box is checked.

Java Runtin User Svs	ne Versions .tem				
Platform	Product	Location	Path	Runtime Parameters	Enabled
1.6	1.6.0_26	http://java.s	C:\Program Files (x86		V
1.6	1.6.0_17	http://java.s	C:\Program Files\Java		V
			Find	Add	Remove

C. 64-bit Java Work Around

If you installed the **Java 64 bit version 1.6.0** your Eclipse CDT may crash after you attempt to run your application. The following is a solution:

Open the **eclipse.ini** file in your extracted eclipse folder Append "-XX:-UseCompressedOops"