HOW TO INSTALL ECLIPSE ON WINDOWS O.S.

Eclipse is an open source development platform that support many programming languages. Without plugins Eclipse only compiles Java source code. But we will use CDT plugin for Eclipse for C support. Eclipse comes without a C compiler, so we will use MinGW compiler which is a minimal GNU for Windows.

To install Eclipse follow these three steps:

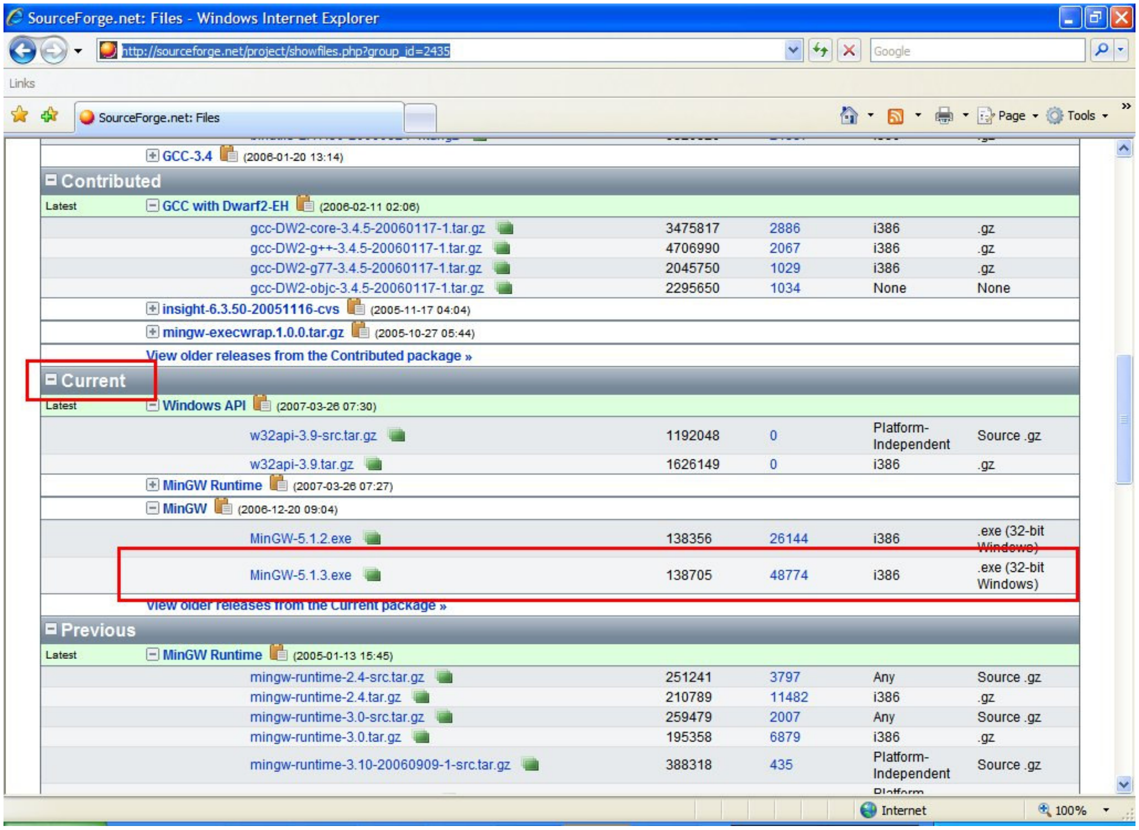
1- **First you need to install JDK. This is Java Development Kit needed for Eclipse. Download and install JDK 6 from the link below: http://java.sun.com/javase/downloads/index.jsp**

2- **Install MinGW as instructed below.**

3- **Install and run Eclipse with CDT plugin as instructed below.**

STEP 2: How to install MinGW Compiler

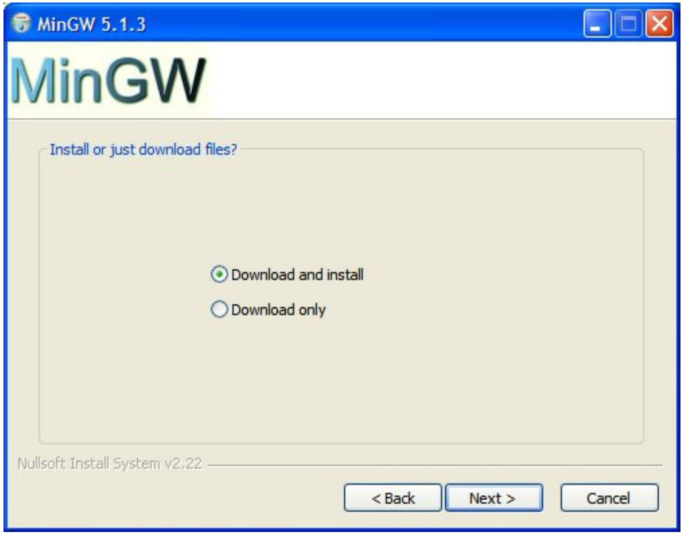
1- Download minGW installer from the link below: http://sourceforge.net/projects/mingw/



	GCC-3.4 (2006-01-20 13:14)				
Contributed					
Latest	GCC with Dwarf2-EH (2006-02-11 02:06)				
	gcc-DW2-core-3.4.5-20060117-1.tar.gz	3475817	2886	i386	.gz
	gcc-DW2-g++-3.4.5-20060117-1.tar.gz	4706990	2067	i386	.gz
	gcc-DW2-g77-3.4.5-20060117-1.tar.gz	2045750	1029	i386	.gz
	gcc-DW2-objc-3.4.5-20060117-1.tar.gz	2295650	1034	None	None
	insight-6.3.50-20051116-cvs (2005-11-17 04:04)				
	mingw-execwrap.1.0.0.tar.gz (2005-10-27 05:44)				
	View older releases from the Contributed package »				
Current					
Latest	Windows API (2007-03-26 07:30)				
	w32api-3.9-src.tar.gz	1192048	0	Platform-Independent	Source .gz
	w32api-3.9.tar.gz	1626149	0	i386	.gz
	MinGW Runtime (2007-03-26 07:27)				
	MinGW (2006-12-20 09:04)				
	MinGW-5.1.2.exe	138356	26144	i386	.exe (32-bit Windows)
	MinGW-5.1.3.exe	138705	48774	i386	.exe (32-bit Windows)
	View older releases from the Current package »				
Previous					
Latest	MinGW Runtime (2005-01-13 15:45)				
	mingw-runtime-2.4-src.tar.gz	251241	3797	Any	Source .gz
	mingw-runtime-2.4.tar.gz	210789	11482	i386	.gz
	mingw-runtime-3.0-src.tar.gz	259479	2007	Any	Source .gz
	mingw-runtime-3.0.tar.gz	195358	6879	i386	.gz
	mingw-runtime-3.10-20060909-1-src.tar.gz	388318	435	Platform-Independent	Source .gz

SourceForge.net: Files - Windows Internet Explorer
http://sourceforge.net/project/showfiles.php?group_id=2435
Google
Links
SourceForge.net: Files
Page
Tools
Internet
100%

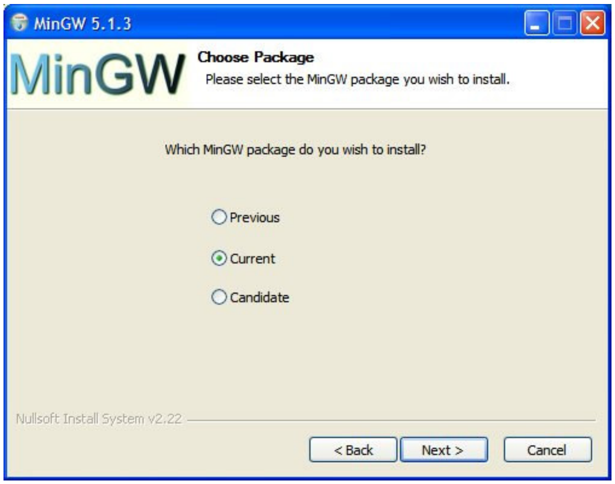
2- The file you download is an online installer, it will download and install the components that you select. Now I recommend you to create a new folder and move the file in it, because the installer downloads the program components in the same directory, so if you don't move it to a new folder, your folder will be mixed up.



Install or just download files?

● Download and install
○ Download only

Select Download and install.

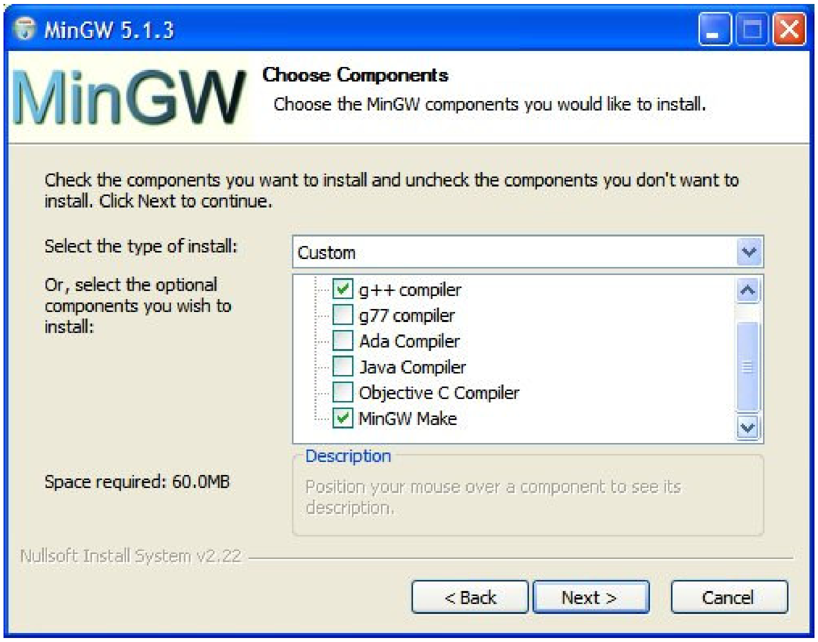


Choose Package
Please select the MinGW package you wish to install.

Which MinGW package do you wish to install?

○ Previous
● Current
○ Candidate

Install Current release.



MinGW 5.1.3

Choose Components

Choose the MinGW components you would like to install.

Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.

Select the type of install: Custom

Or, select the optional components you wish to install:

- ☑ g++ compiler
- □ g77 compiler
- □ Ada Compiler
- □ Java Compiler
- □ Objective C Compiler
- ☑ MinGW Make

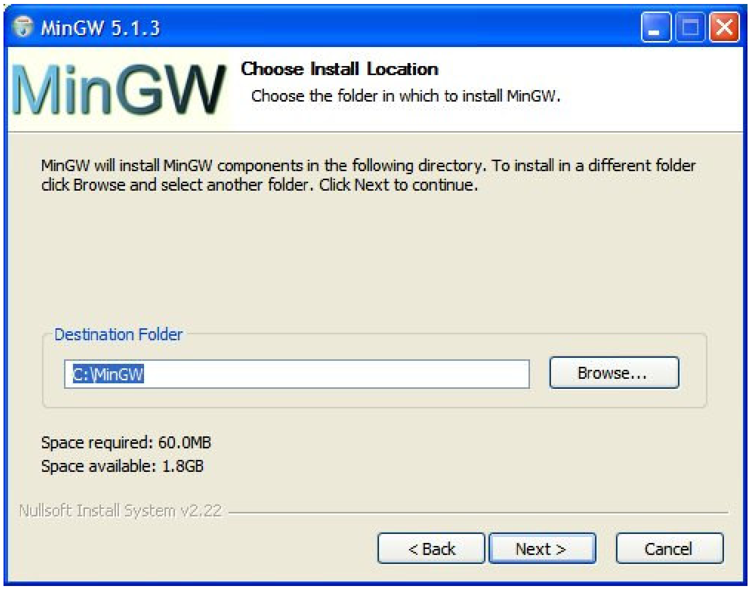
Description

Position your mouse over a component to see its description.

Space required: 60.0MB

Nullsoft Install System v2.22

Select "**MinGW base tools**", "**g++ compiler**" and "**MinGW Make**".



MinGW 5.1.3

Choose Install Location

Choose the folder in which to install MinGW.

MinGW will install MinGW components in the following directory. To install in a different folder click Browse and select another folder. Click Next to continue.

Destination Folder: C:\MinGW

Space required: 60.0MB

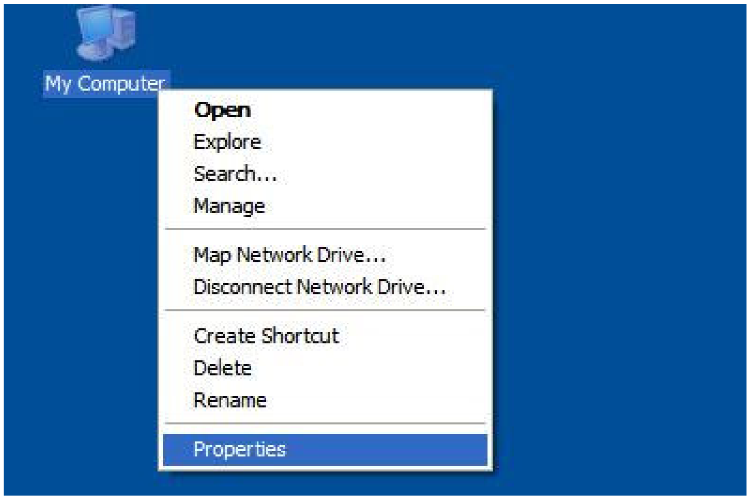
Space available: 1.8GB

Nullsoft Install System v2.22

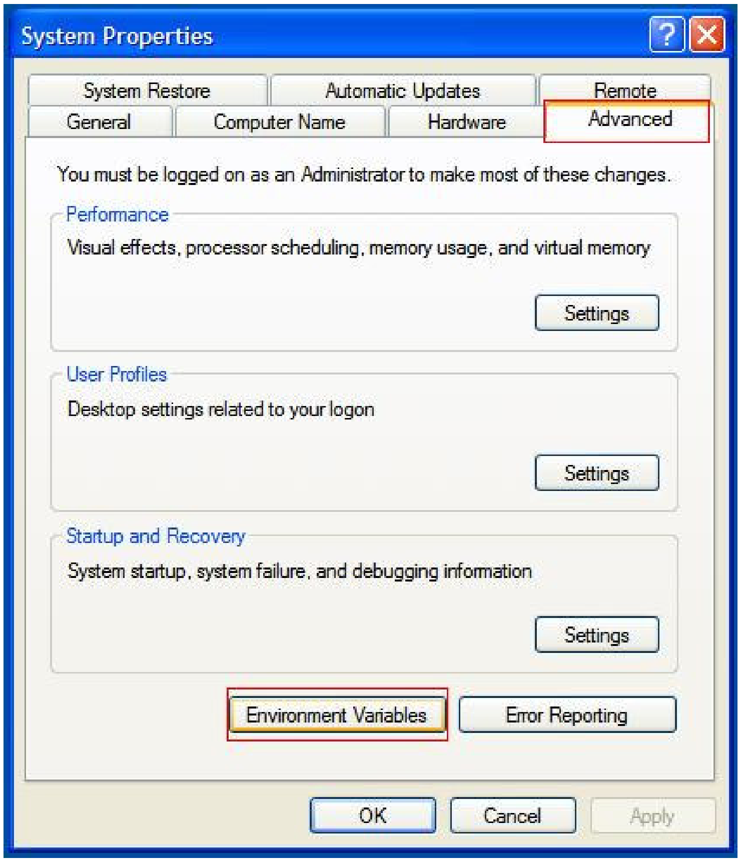
Install to "MinGW" directory. After this step it will download and install the components from internet.

3- To run the MinGW compiler commands from every path from the console, we need to point the binary folder to the system. This is done as follows:

   a- Right click "My Computer", from the menu select properties.



b- System properties will open. Select "Advanced" menu from the top. Then select "Environmental Variables".

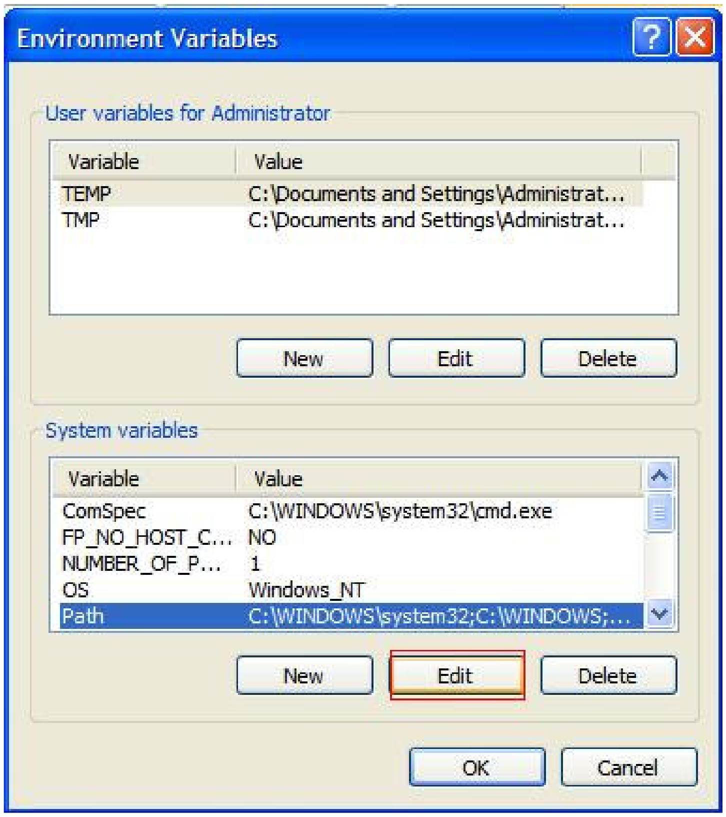


You must be logged on as an Administrator to make most of these changes.

Visual effects, processor scheduling, memory usage, and virtual memory

Desktop settings related to your logon

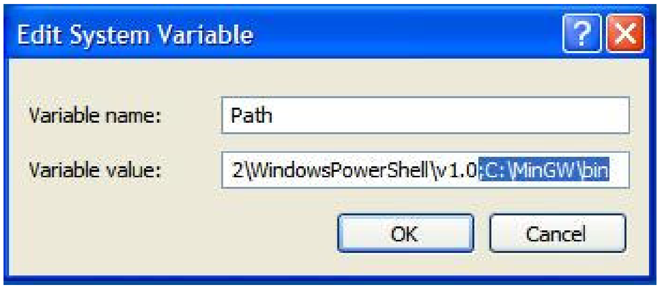
System startup, system failure, and debugging information c- Select “Path” from System variables and select Edit.



Variable	Value
TEMP	C:\Documents and Settings\Administrat...
TMP	C:\Documents and Settings\Administrat...

Variable	Value
ComSpec	C:\WINDOWS\system32\cmd.exe
FP_NO_HOST_C...	NO
NUMBER_OF_P...	1
OS	Windows_NT
Path	C:\WINDOWS\system32;C:\WINDOWS;...

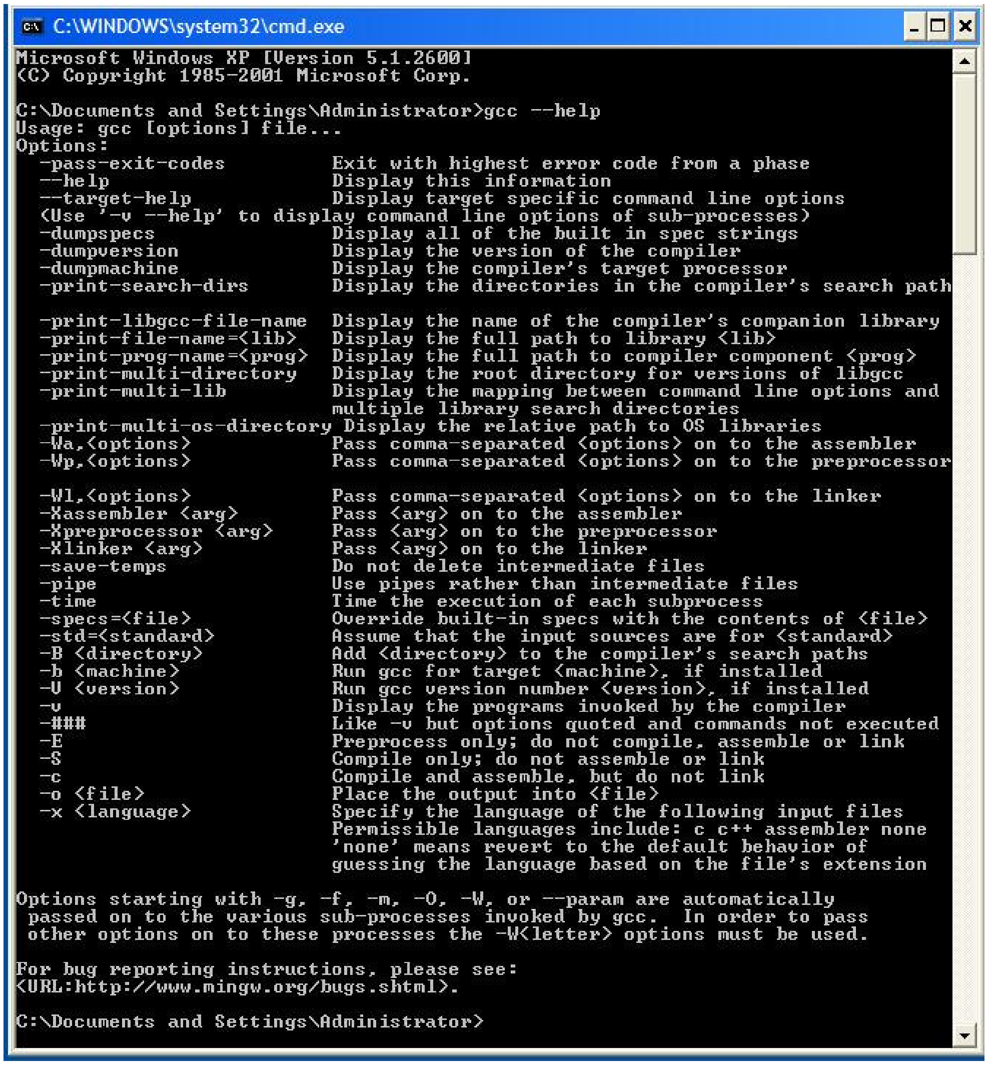
d- Please be careful at this step. Click Variable value box, press End key to be sure you are at the end, then type “;C:\MinGW\bin”. There is no space before or after it.



Variable name: Path

Variable value: 2\WindowsPowerShell\v1.0;C:\MinGW\bin

To check if everything is allright, go to Command Prompt. Click Start then select Run. Type “cmd”. Command prompt will open. Type “gcc --help”. If you don’t see a screen like below, do the steps again carefully.

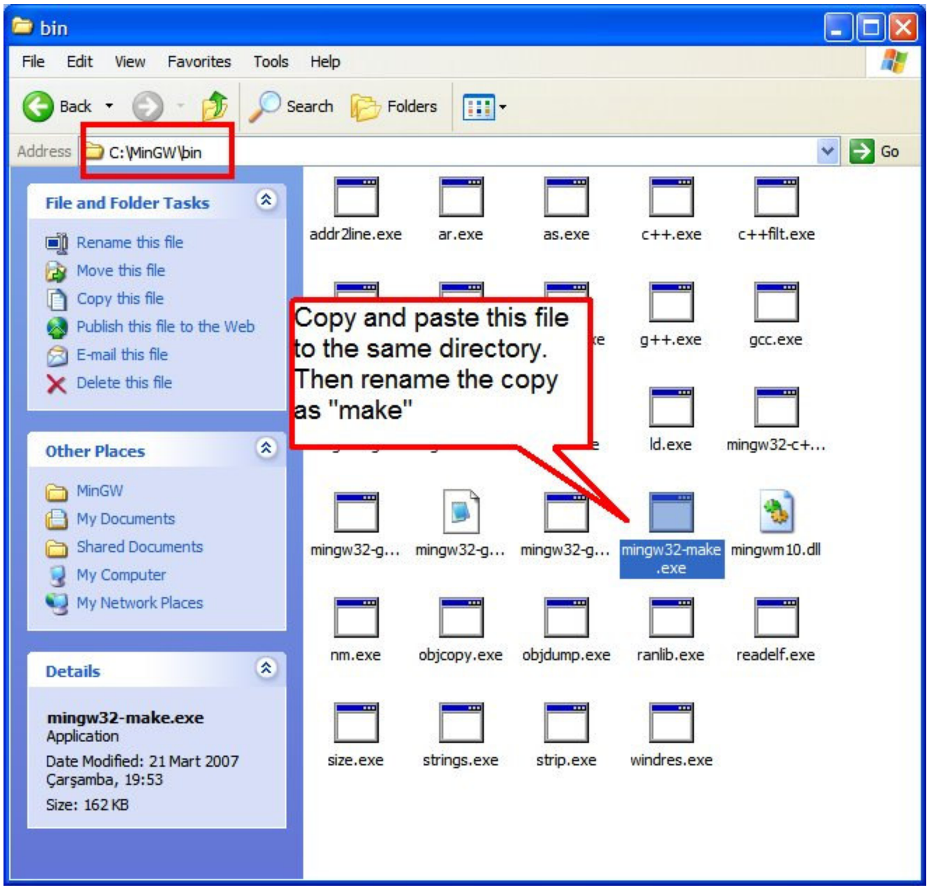


```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>gcc --help
Usage: gcc [options] file...
Options:
  -pass-exit-codes         Exit with highest error code from a phase
  --help                   Display this information
  --target-help            Display target specific command line options
  (Use '-v --help' to display command line options of sub-processes)
  -dumpspecs               Display all of the built in spec strings
  -dumpversion             Display the version of the compiler
  -dumpmachine             Display the compiler's target processor
  -print-search-dirs       Display the directories in the compiler's search path

  -print-libgcc-file-name  Display the name of the compiler's companion library
  -print-file-name=<lib>   Display the full path to library <lib>
  -print-prog-name=<prog>  Display the full path to compiler component <prog>
  -print-multi-directory   Display the root directory for versions of libgcc
  -print-multi-lib         Display the mapping between command line options and
                           multiple library search directories
  -print-multi-os-directory Display the relative path to OS libraries
  -Wa,<options>            Pass comma-separated <options> on to the assembler
  -Wp,<options>            Pass comma-separated <options> on to the preprocessor

  -Wl,<options>            Pass comma-separated <options> on to the linker
  -Xassembler <arg>        Pass <arg> on to the assembler
  -Xpreprocessor <arg>     Pass <arg> on to the preprocessor
  -Xlinker <arg>           Pass <arg> on to the linker
  -save-temps              Do not delete intermediate files
  -pipe                    Use pipes rather than intermediate files
  -time                    Time the execution of each subprocess
  -specs=<file>            Override built-in specs with the contents of <file>
  -std=<standard>          Assume that the input sources are for <standard>
  -B <directory>           Add <directory> to the compiler's search paths
  -b <machine>             Run gcc for target <machine>, if installed
  -V <version>             Run gcc version number <version>, if installed
  -v                       Display the programs invoked by the compiler
  -###                     Like -v but options quoted and commands not executed
  -E                       Preprocess only; do not compile, assemble or link
  -S                       Compile only; do not assemble or link
  -c                       Compile and assemble, but do not link
  -o <file>                Place the output into <file>
  -x <language>            Specify the language of the following input files
                           Permissible languages include: c c++ assembler none
                           'none' means revert to the default behavior of
                           guessing the language based on the file's extension

Options starting with -g, -f, -m, -O, -W, or --param are automatically
 passed on to the various sub-processes invoked by gcc.  In order to pass
 other options on to these processes the -W<letter> options must be used.

For bug reporting instructions, please see:
<URL:http://www.mingw.org/bugs.shtml>.

C:\Documents and Settings\Administrator>
```

Now you have the same gcc compiler that exists in Linux. Now you can compile your files with gcc in Windows.

Some useful hints:

- You can drag and drop a file onto Command Prompt, you don't need to type all the path. Just type "gcc" to console and then drag and drop the C file onto the Command Prompt, full path of the file will be written by Command Prompt.
- Default output files in Linux is called "a.out", but in Windows they are called "a.exe". To run them just double click to "a.exe" file, or again drag and drop "a.exe" onto Command Prompt and press Enter.



mingw32-make.exe
Application
Date Modified: 21 Mart 2007 Çarşamba, 19:53
Size: 162 KB

Copy and paste this file to the same directory. Then rename the copy as "make"

Eclipse has a managed make property that is useful if you don't want to write your own make files. But it uses the command "make" which is named as "mingw32-make" in MinGW compiler. You can change this every time you create a project in Eclipse or I recommnend you a shortway. Take a copy of "mingw32-make.exe" file which exists in "C:\MinGW\bin" directory and rename the copy of mingw32-make file to "make.exe".

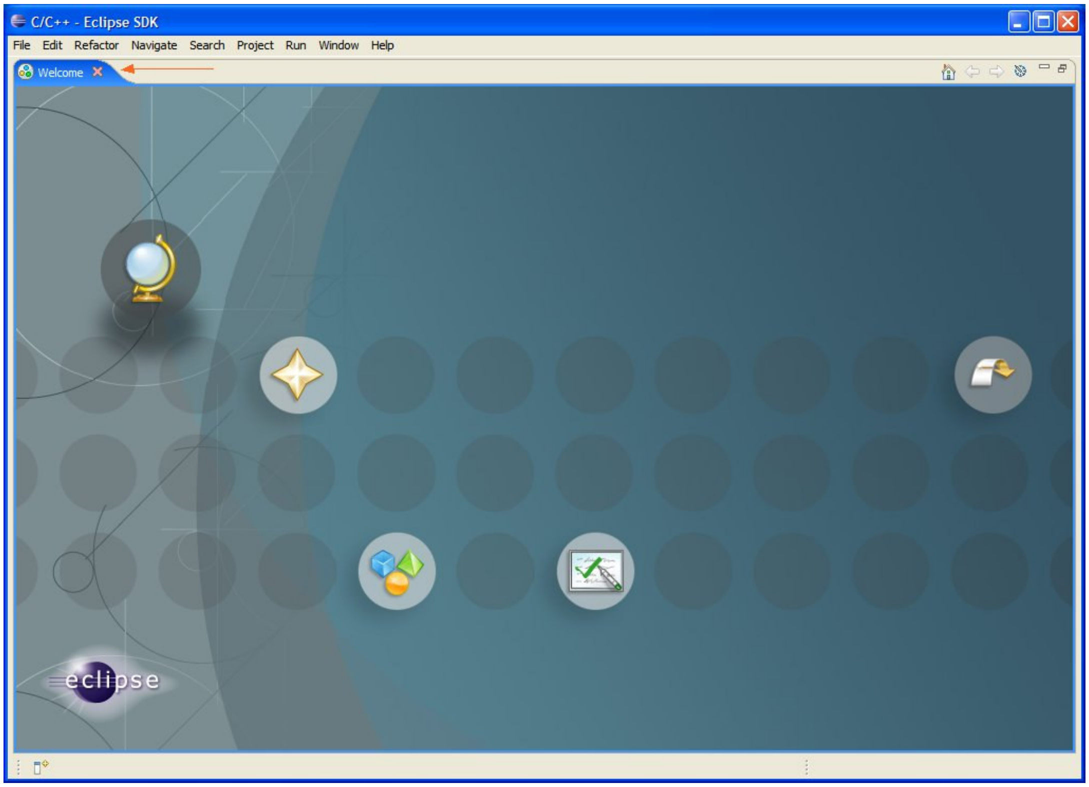
STEP 3: How To Install ECLIPSE

1- Download the latest release of **Eclipse SDK** from the link below:
http://www.eclipse.org/downloads/
It will download a zip file named like: "eclipse-SDK-3.x.x-win32.zip"

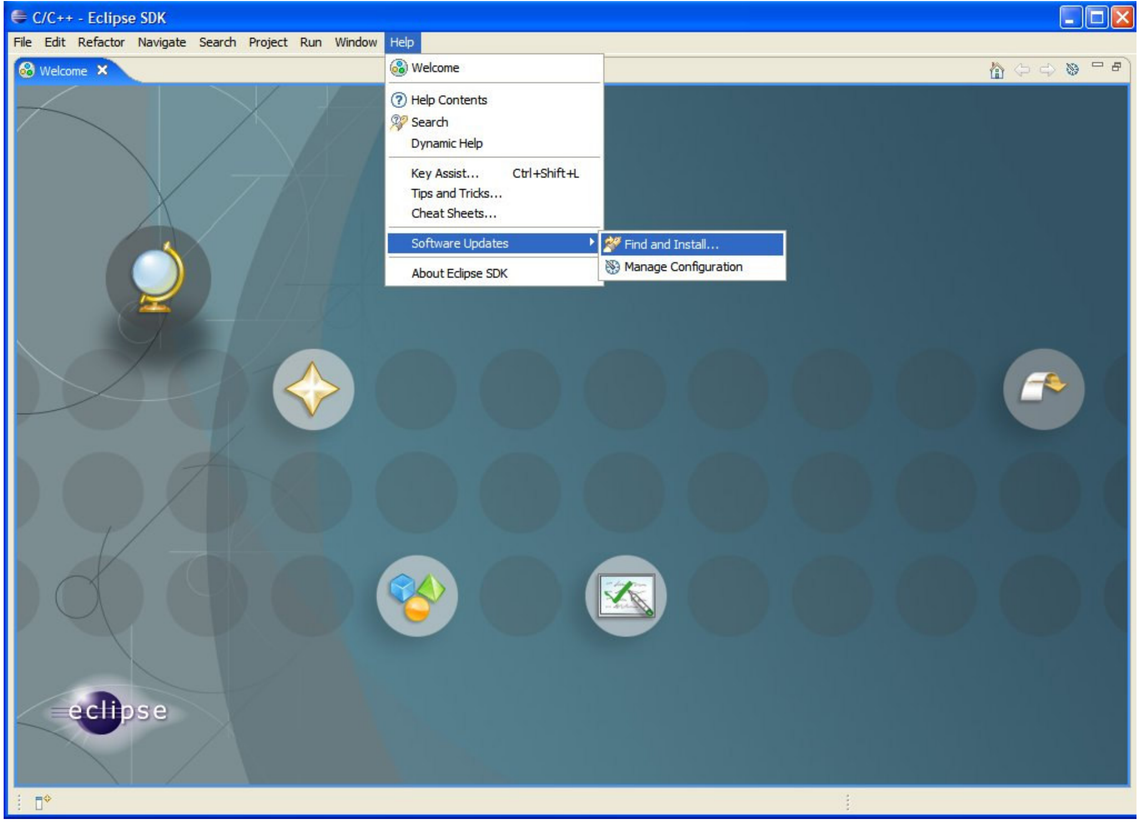
Extract the contents of the zip file to any directory you wish. There is no installation file for Eclipse, it is ready to use. Now go to the folder you extract the zip, there is an "eclipse.exe" file in the folder, just click it to start Eclipse. When you open, it will ask a folder to save in your projects, select any folder or just keep as it is. Then you will see the welcome screen as below:

Close welcome screen from the tab.

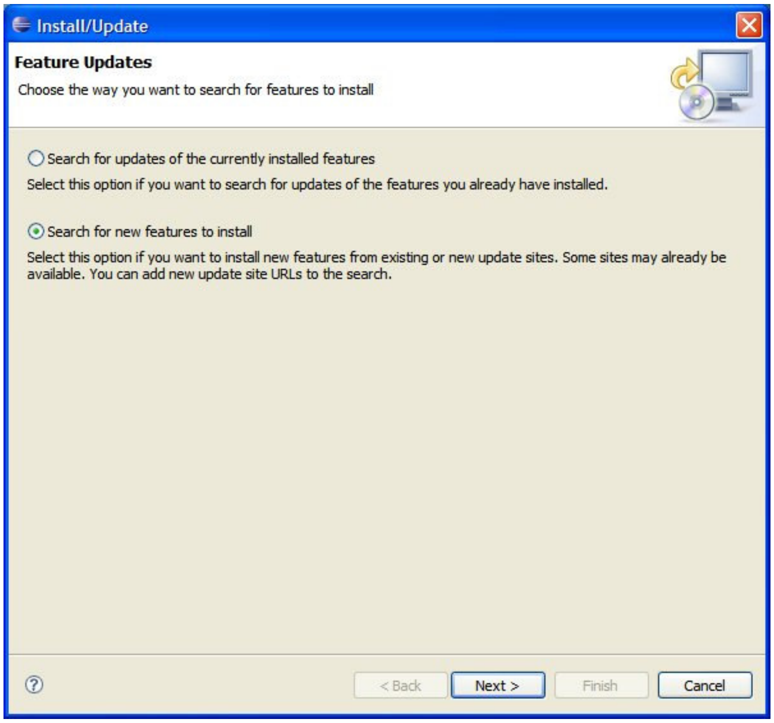
Eclipse with CDT plugin



Now Eclipse is ready to compile and run Java code. But we need to install CDT plugin to enable Eclipse to support C/C++ code.



Select “Help / Software Updates / Find and Install”



Install/Update

Feature Updates

Choose the way you want to search for features to install

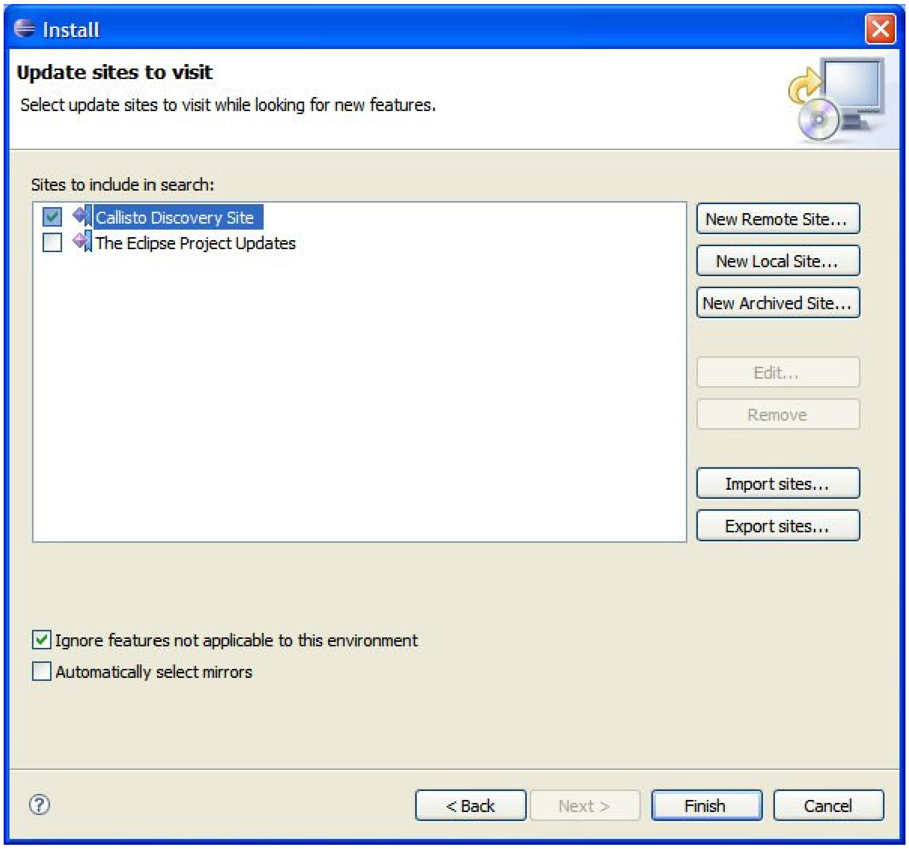
○ Search for updates of the currently installed features

Select this option if you want to search for updates of the features you already have installed.

● Search for new features to install

Select this option if you want to install new features from existing or new update sites. Some sites may already be available. You can add new update site URLs to the search.

Select “Search for new features to install”.



Install

Update sites to visit

Select update sites to visit while looking for new features.

Sites to include in search:

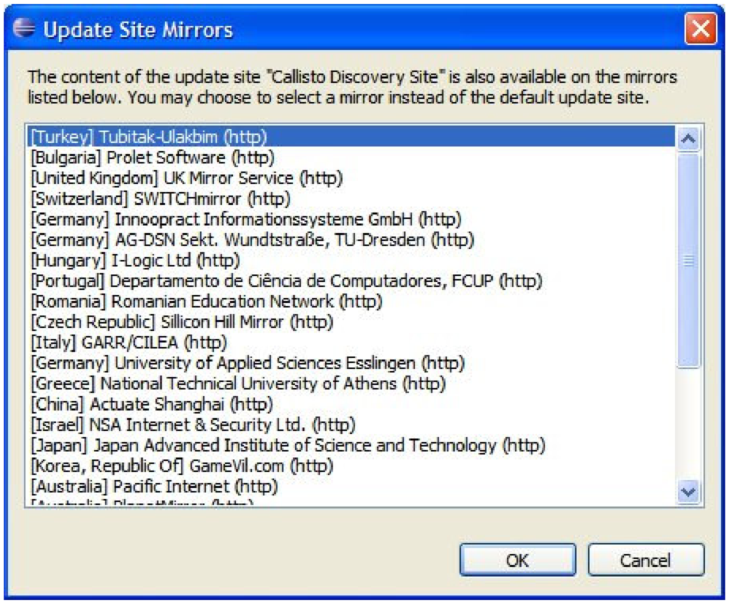
☑ Callisto Discovery Site

☐ The Eclipse Project Updates

☑ Ignore features not applicable to this environment

☐ Automatically select mirrors

Select “Callisto Discovery Site” and finish.

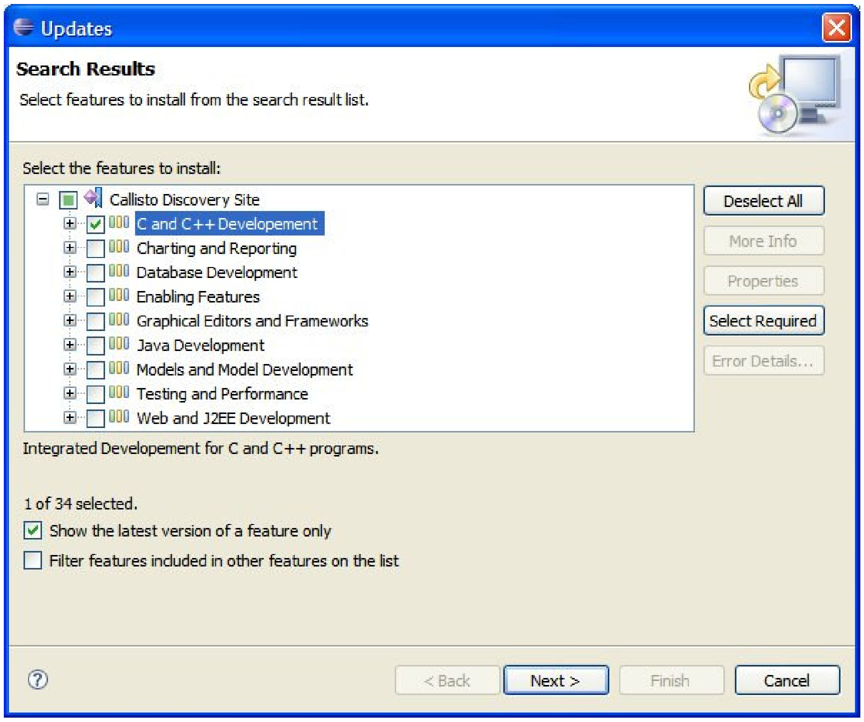


Update Site Mirrors

The content of the update site "Callisto Discovery Site" is also available on the mirrors listed below. You may choose to select a mirror instead of the default update site.

- [Turkey] Tubitak-Ulakbim (http)
- [Bulgaria] Prolet Software (http)
- [United Kingdom] UK Mirror Service (http)
- [Switzerland] SWITCHmirror (http)
- [Germany] Innoopract Informationssysteme GmbH (http)
- [Germany] AG-DSN Sekt. Wundtstraße, TU-Dresden (http)
- [Hungary] I-Logic Ltd (http)
- [Portugal] Departamento de Ciência de Computadores, FCUP (http)
- [Romania] Romanian Education Network (http)
- [Czech Republic] Sillicon Hill Mirror (http)
- [Italy] GARR/CILEA (http)
- [Germany] University of Applied Sciences Esslingen (http)
- [Greece] National Technical University of Athens (http)
- [China] Actuate Shanghai (http)
- [Israel] NSA Internet & Security Ltd. (http)
- [Japan] Japan Advanced Institute of Science and Technology (http)
- [Korea, Republic Of] GameVil.com (http)
- [Australia] Pacific Internet (http)
- [Australia] PlanetMirror (http)

Select a mirror to download.



Updates

Search Results

Select features to install from the search result list.

Select the features to install:

- ⊟ ■ Callisto Discovery Site
  - ⊞ ☑ C and C++ Developement
  - ⊞ □ Charting and Reporting
  - ⊞ □ Database Development
  - ⊞ □ Enabling Features
  - ⊞ □ Graphical Editors and Frameworks
  - ⊞ □ Java Development
  - ⊞ □ Models and Model Development
  - ⊞ □ Testing and Performance
  - ⊞ □ Web and J2EE Development

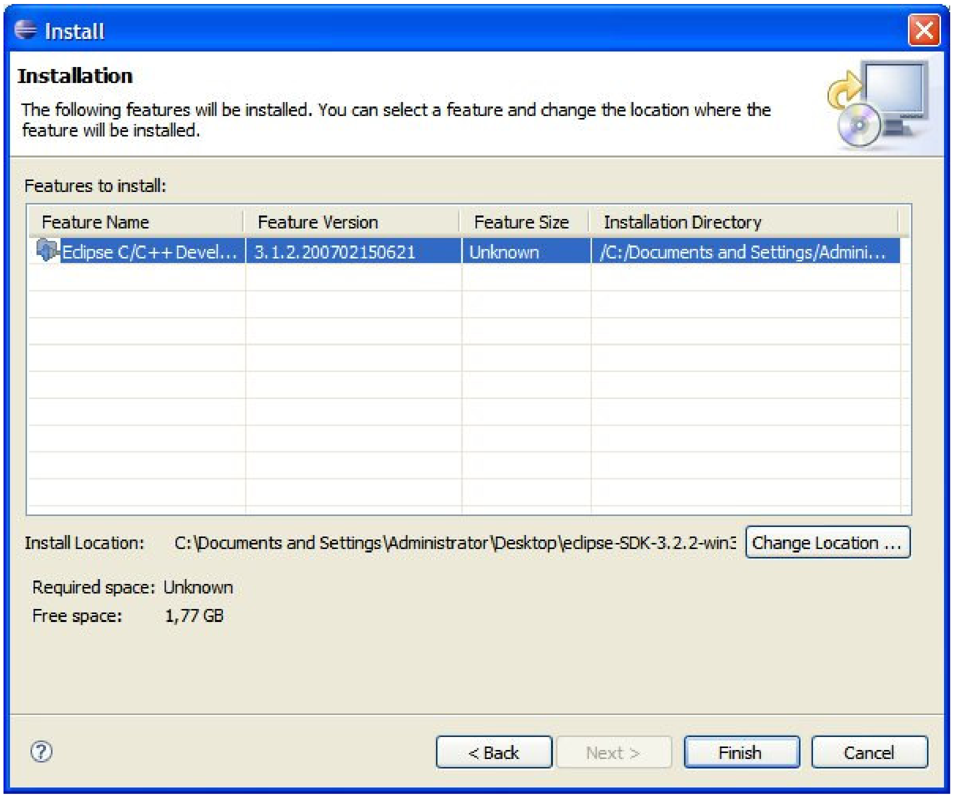
Integrated Developement for C and C++ programs.

1 of 34 selected.

☑ Show the latest version of a feature only

□ Filter features included in other features on the list

Select only “C and C++ Development”. This includes the CDT Plugin for Eclipse.



Installation

The following features will be installed. You can select a feature and change the location where the feature will be installed.

Features to install:

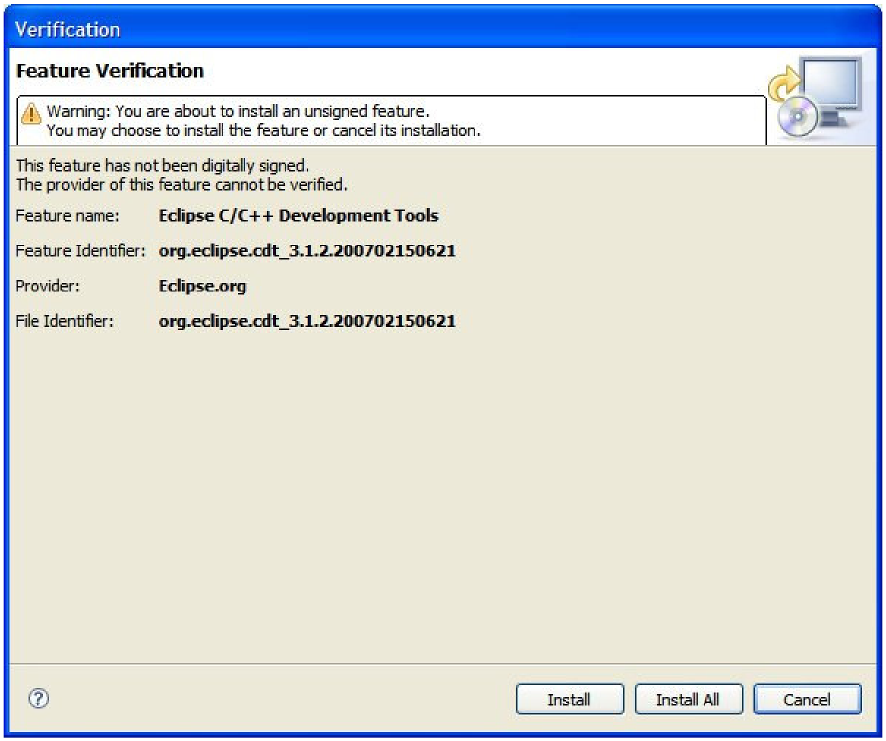
Feature Name	Feature Version	Feature Size	Installation Directory
Eclipse C/C++ Devel...	3.1.2.200702150621	Unknown	/C:/Documents and Settings/Admini...

Install Location: C:\Documents and Settings\Administrator\Desktop\eclipse-SDK-3.2.2-win3

Required space: Unknown

Free space: 1,77 GB

After you select Finish, it will download the plugin from internet.



Feature Verification

Warning: You are about to install an unsigned feature.
You may choose to install the feature or cancel its installation.

This feature has not been digitally signed.
The provider of this feature cannot be verified.

Feature name: **Eclipse C/C++ Development Tools**

Feature Identifier: **org.eclipse.cdt_3.1.2.200702150621**

Provider: **Eclipse.org**

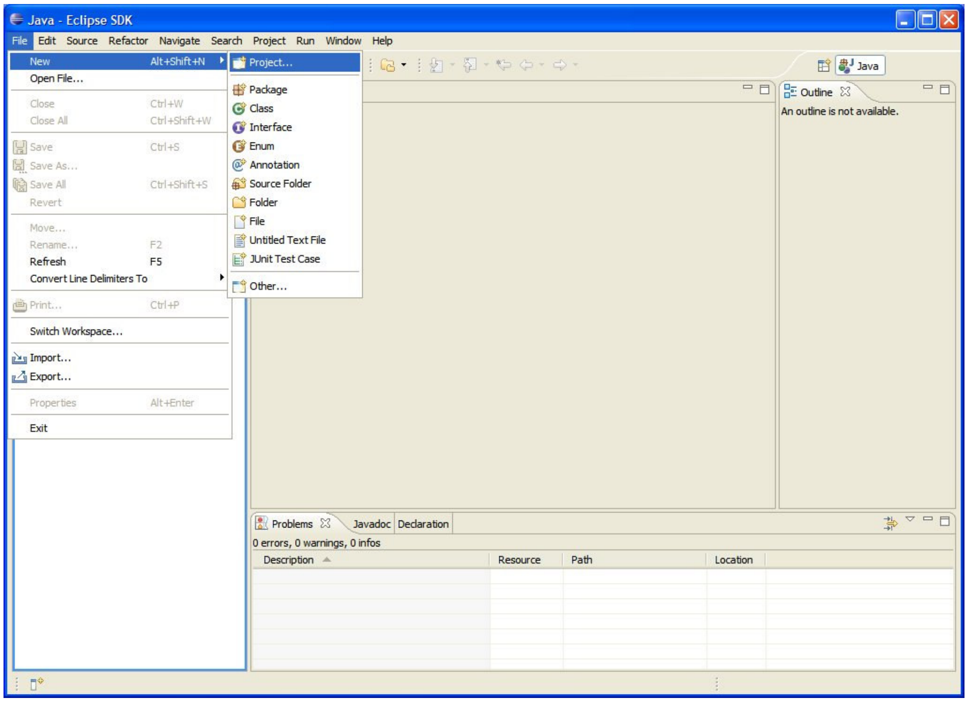
File Identifier: **org.eclipse.cdt_3.1.2.200702150621**

Select Install to install the downloaded CDT plugin. After the installation you need to restart Eclipse.

HOW TO USE ECLIPSE AS A C COMPILER

Now Eclipse is ready to use. We installed all the components. Now we will see how to create and compile C projects.

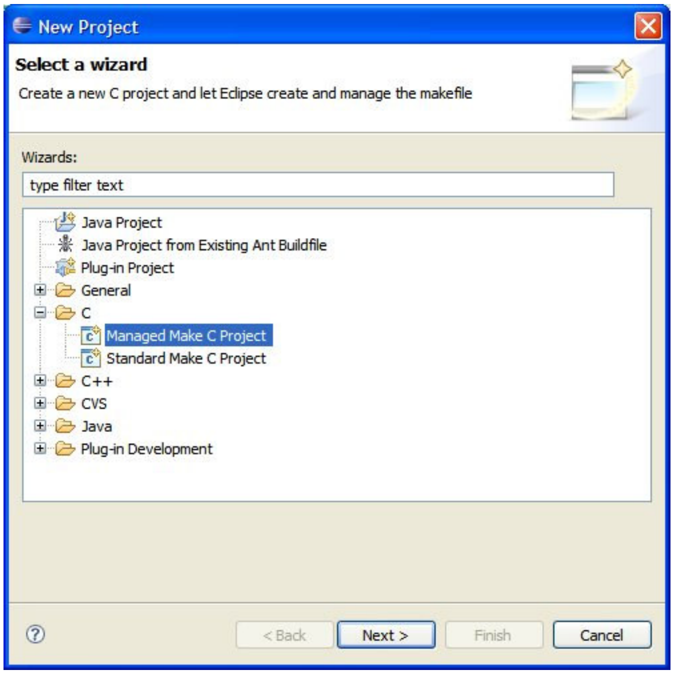
From file menu select new project:



An outline is not available.

0 errors, 0 warnings, 0 infos

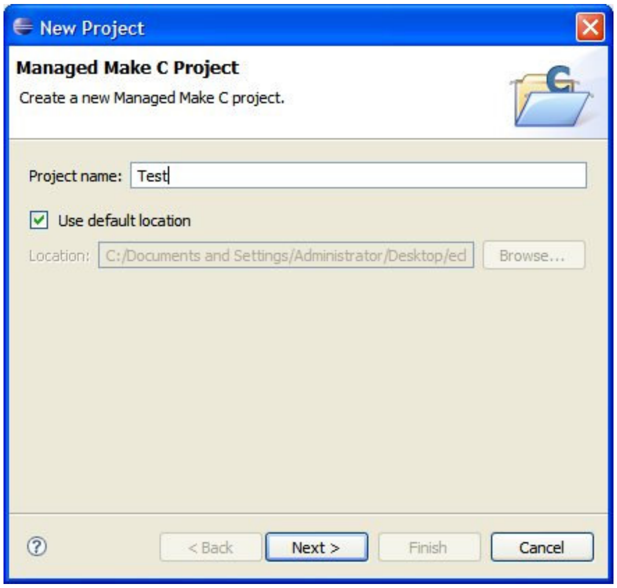
Select Managed Make C Project and click next:



Select a wizard

Create a new C project and let Eclipse create and manage the makefile

Give a name for your project:



New Project

Managed Make C Project

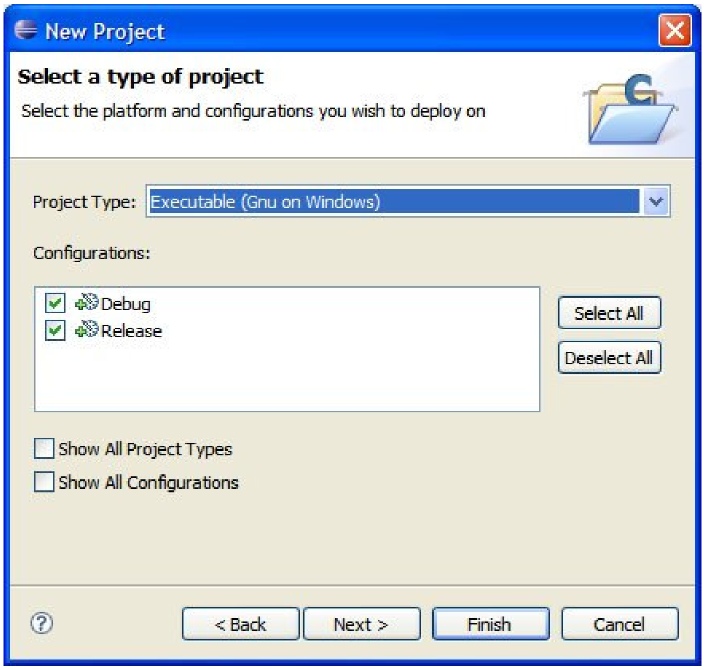
Create a new Managed Make C project.

Project name: Test

☑ Use default location

Location: C:/Documents and Settings/Administrator/Desktop/ed

Don’t change anything, click finish.



New Project

Select a type of project

Select the platform and configurations you wish to deploy on

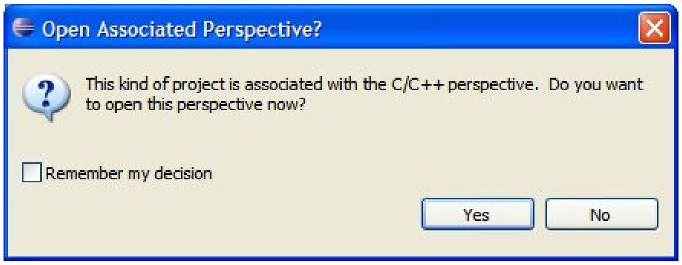
Project Type: Executable (Gnu on Windows)

Configurations:

☑ Debug
☑ Release

□ Show All Project Types
□ Show All Configurations

Select yes.

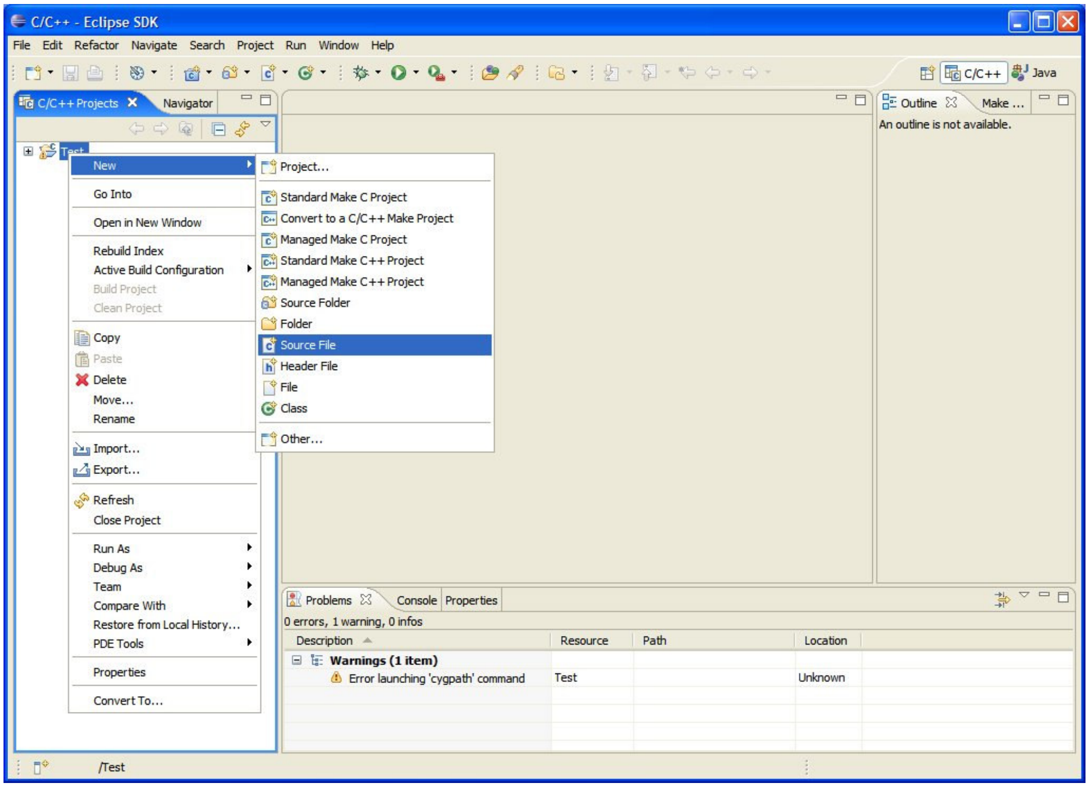


Open Associated Perspective?

This kind of project is associated with the C/C++ perspective. Do you want to open this perspective now?

□ Remember my decision

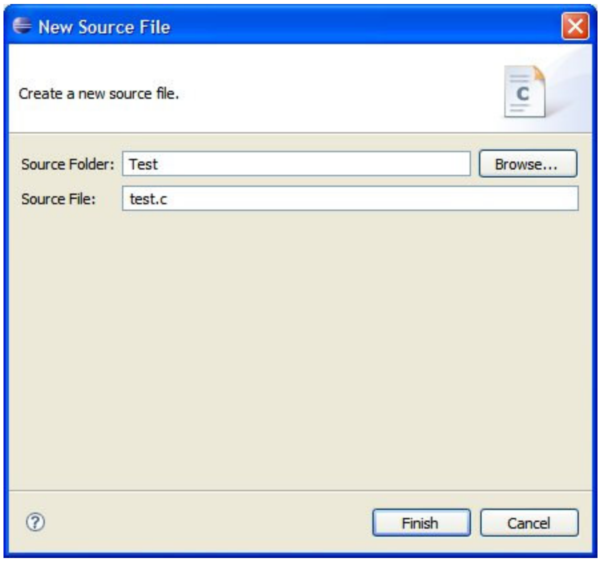
Now our project folder is ready. We need to add source files in it. Right click on project folder and create new Source file.



0 errors, 1 warning, 0 infos

Description	Resource	Path	Location
Warnings (1 item)			
Error launching 'cygpath' command	Test		Unknown

Give a name to your source file and add an extension ".c" which is default extension of C source files.

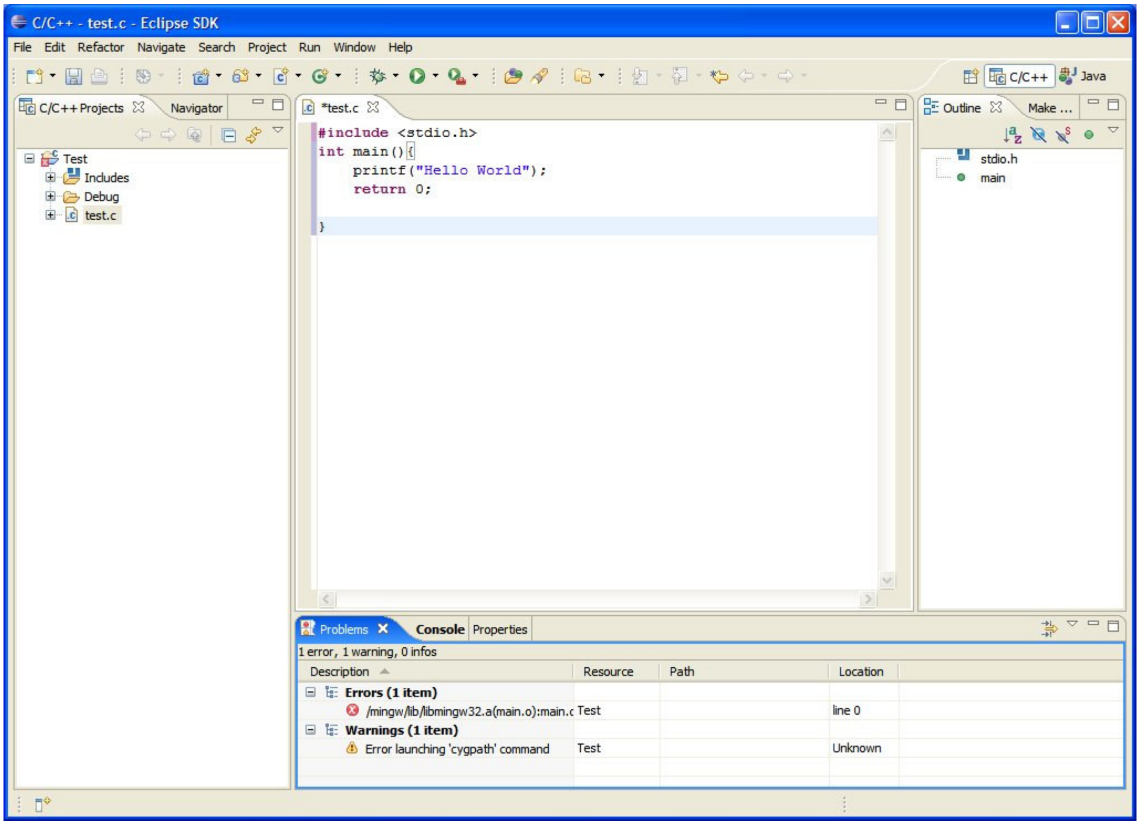


Create a new source file.

Source Folder: Test

Source File: test.c

Now your source file will open. I typed some simple code to test if it will work. At the moment you save your source file, it will be automatically compiled by Eclipse. Just press Ctrl+S to save source file.

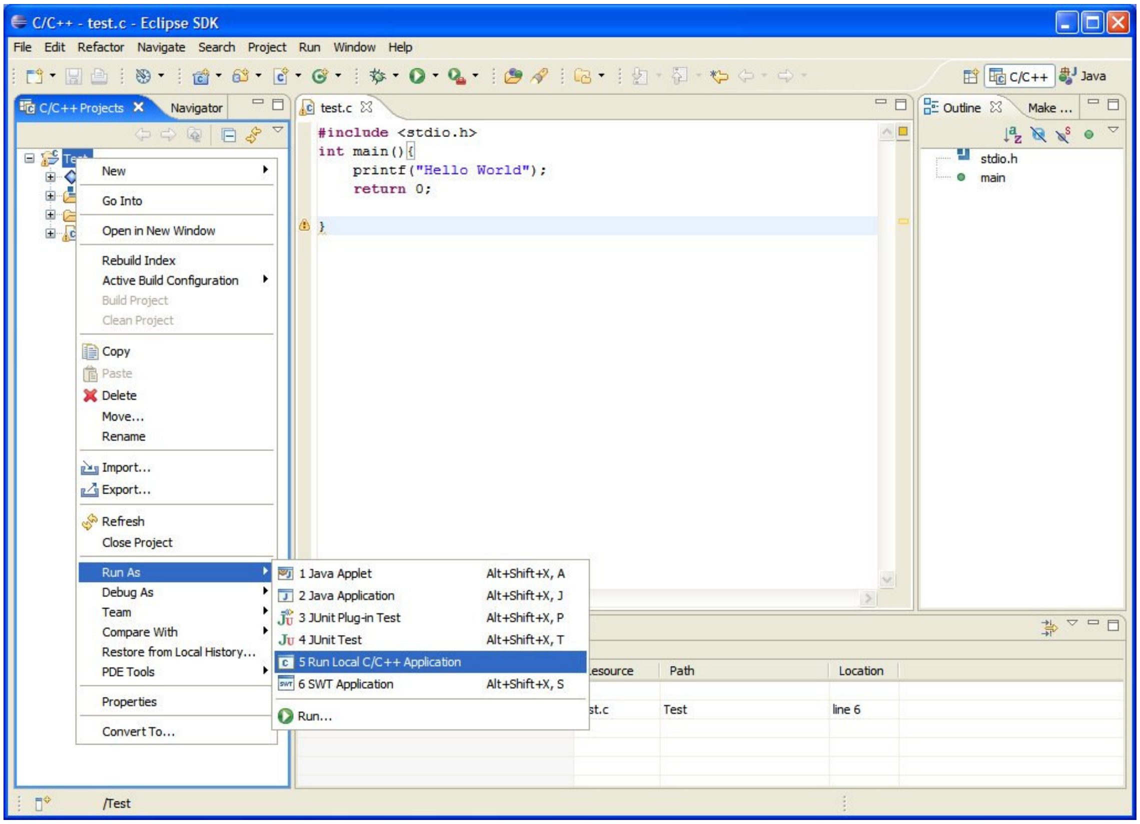


```
#include <stdio.h>
int main(){
    printf("Hello World");
    return 0;

}
```

1 error, 1 warning, 0 infos

Description	Resource	Path	Location
Errors (1 item)			
/mingw/lib/libmingw32.a(main.o):main.c	Test		line 0
Warnings (1 item)			
Error launching 'cygpath' command	Test		Unknown

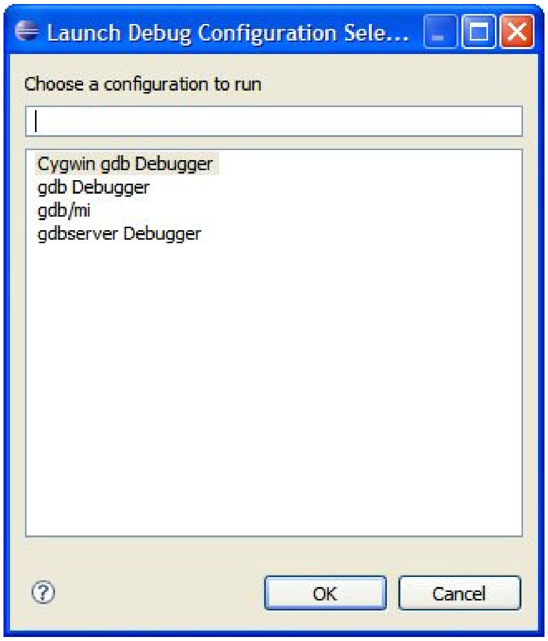
Now we will run the program and see the output. Right click project folder Run As Local C/C++ Application.


C/C++ - test.c - Eclipse SDK
File Edit Refactor Navigate Search Project Run Window Help
C/C++ Projects
Navigator
test.c
Outline
Make ...
C/C++
Java
stdio.h
main
New
Go Into
Open in New Window
Rebuild Index
Active Build Configuration
Build Project
Clean Project
Copy
Paste
Delete
Move...
Rename
Import...
Export...
Refresh
Close Project
Run As
Debug As
Team
Compare With
Restore from Local History...
PDE Tools
Properties
Convert To...
1 Java Applet Alt+Shift+X, A
2 Java Application Alt+Shift+X, J
3 JUnit Plug-in Test Alt+Shift+X, P
4 JUnit Test Alt+Shift+X, T
5 Run Local C/C++ Application
6 SWT Application Alt+Shift+X, S
Run...
/Test

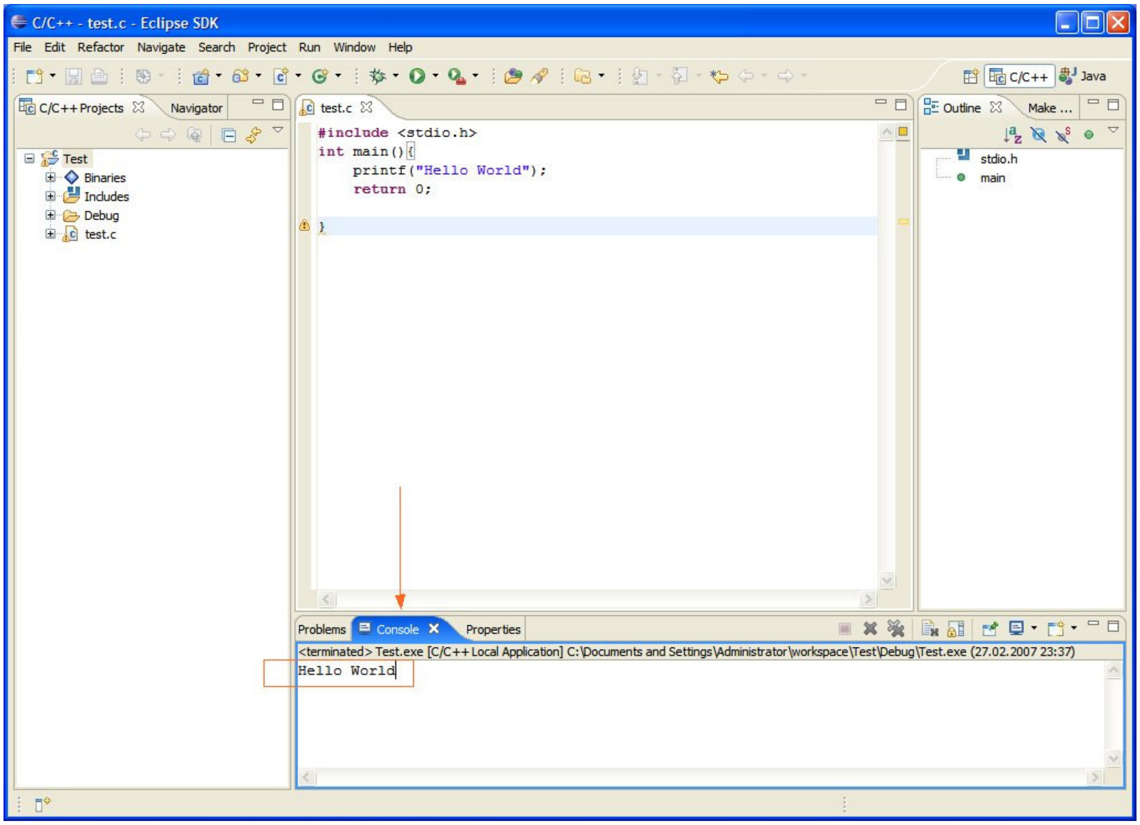
```
#include <stdio.h>
int main(){
    printf("Hello World");
    return 0;

}
```

...esource	Path	Location
...st.c	Test	line 6

Now it will ask for which Debugger we will use. We will use Cygwin Debugger.Select Cygwin and click OK.


Launch Debug Configuration Sele...
Choose a configuration to run
Cygwin gdb Debugger
gdb Debugger
gdb/mi
gdbserver Debugger
OK
Cancel

Finally our source code is compiled and it is ready to run. We will see the output from the console screen.

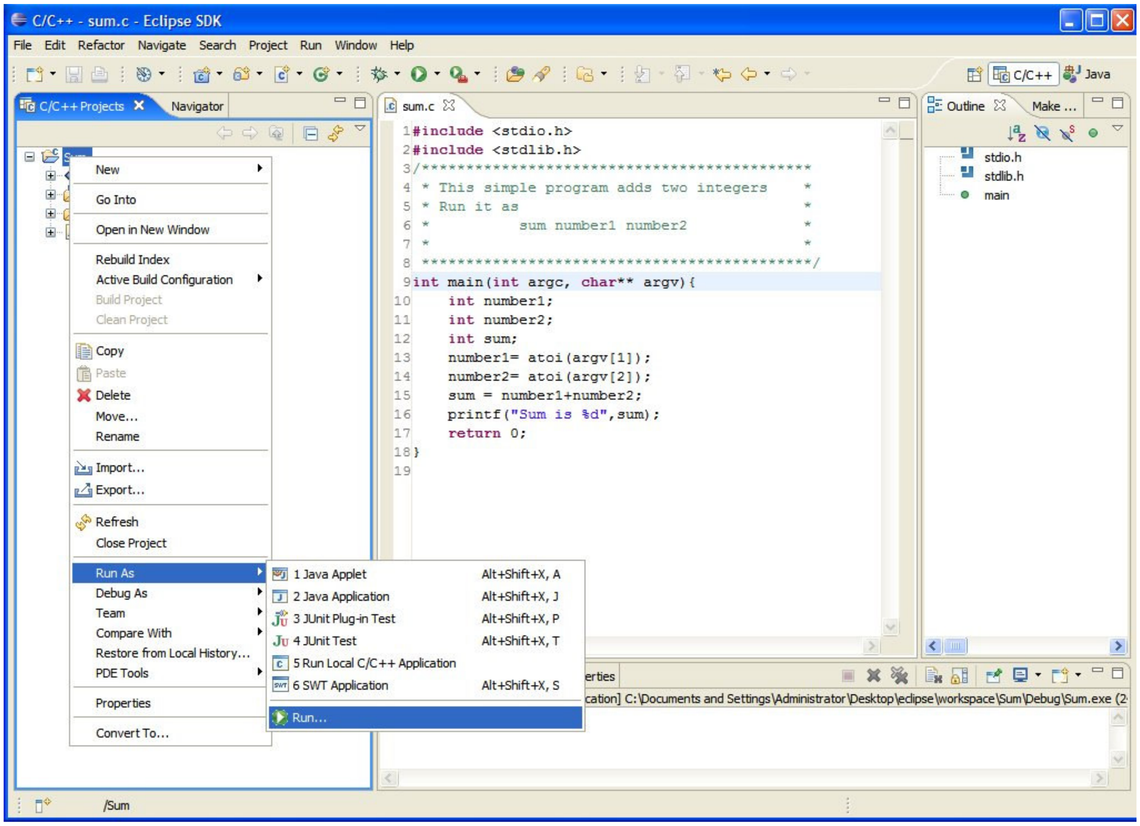


```
#include <stdio.h>
int main(){
    printf("Hello World");
    return 0;

}
```

```
<terminated> Test.exe [C/C++ Local Application] C:\Documents and Settings\Administrator\workspace\Test\Debug\Test.exe (27.02.2007 23:37)
Hello World
```

What if your main function needs arguments to run?

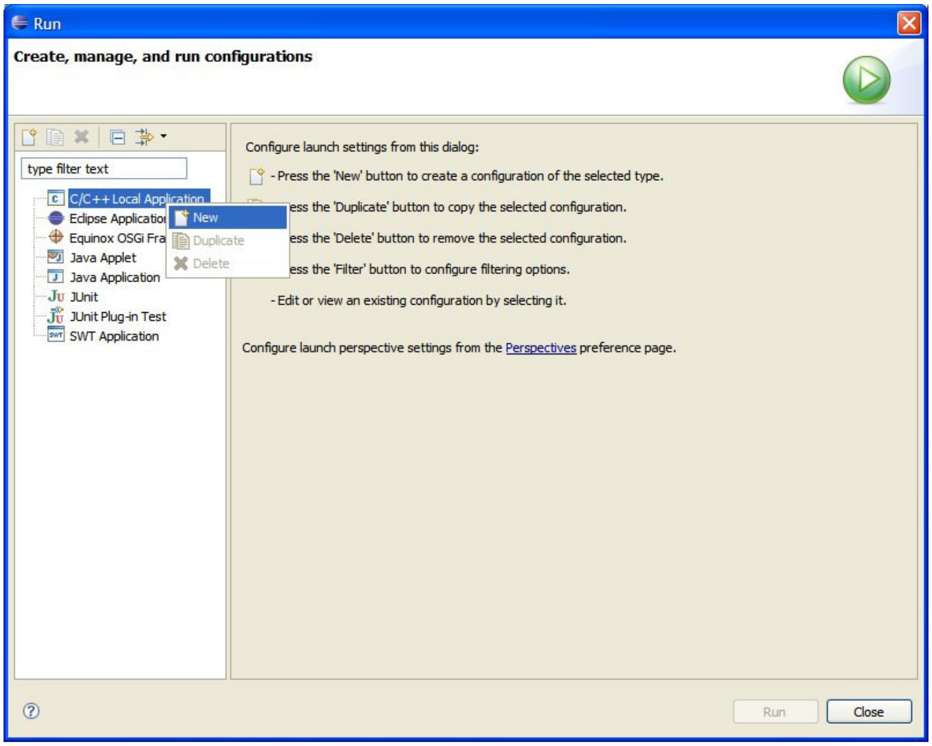
The small program above has a main function which does not need any arguments to run. So we run it using the procedure “Run as / Run Local C/C++ Application”, this procedure runs the program without arguments.
Now if our main function takes arguments to run, apply the procedure below :


C/C++ - sum.c - Eclipse SDK
File Edit Refactor Navigate Search Project Run Window Help
C/C++ Projects
Navigator
sum.c
Outline
Make ...
stdio.h
stdlib.h
main
C/C++
Java
New
Go Into
Open in New Window
Rebuild Index
Active Build Configuration
Build Project
Clean Project
Copy
Paste
Delete
Move...
Rename
Import...
Export...
Refresh
Close Project
Run As
Debug As
Team
Compare With
Restore from Local History...
PDE Tools
Properties
Convert To...
1 Java Applet Alt+Shift+X, A
2 Java Application Alt+Shift+X, J
3 JUnit Plug-in Test Alt+Shift+X, P
4 JUnit Test Alt+Shift+X, T
5 Run Local C/C++ Application
6 SWT Application Alt+Shift+X, S
Run...
erties
/Sum

```
#include <stdio.h>
#include <stdlib.h>
/**********************************************
 * This simple program adds two integers     *
 * Run it as                                 *
 *          sum number1 number2              *
 *                                           *
 **********************************************/
int main(int argc, char** argv){
    int number1;
    int number2;
    int sum;
    number1= atoi(argv[1]);
    number2= atoi(argv[2]);
    sum = number1+number2;
    printf("Sum is %d",sum);
    return 0;
}
```

```
cation] C:\Documents and Settings\Administrator\Desktop\eclipse\workspace\Sum\Debug\Sum.exe (2
```

Right click your project and select “Run As / Run”.



Create, manage, and run configurations

Configure launch settings from this dialog:

- Press the 'New' button to create a configuration of the selected type.

ess the 'Duplicate' button to copy the selected configuration.

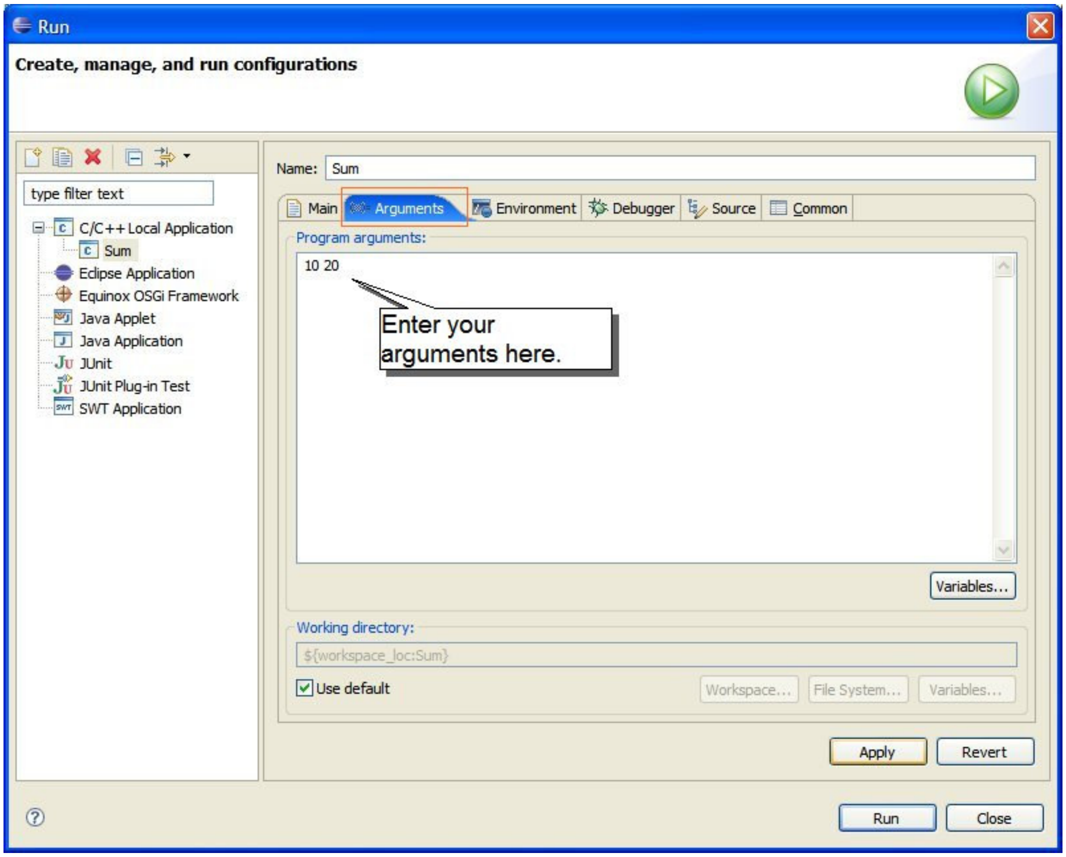
ess the 'Delete' button to remove the selected configuration.

ess the 'Filter' button to configure filtering options.

- Edit or view an existing configuration by selecting it.

Configure launch perspective settings from the Perspectives preference page.

Right click to “C/C++ Local Application” and select “New”, your new application will be created automatically.



Run

Create, manage, and run configurations

Name: Sum

Program arguments:

10 20

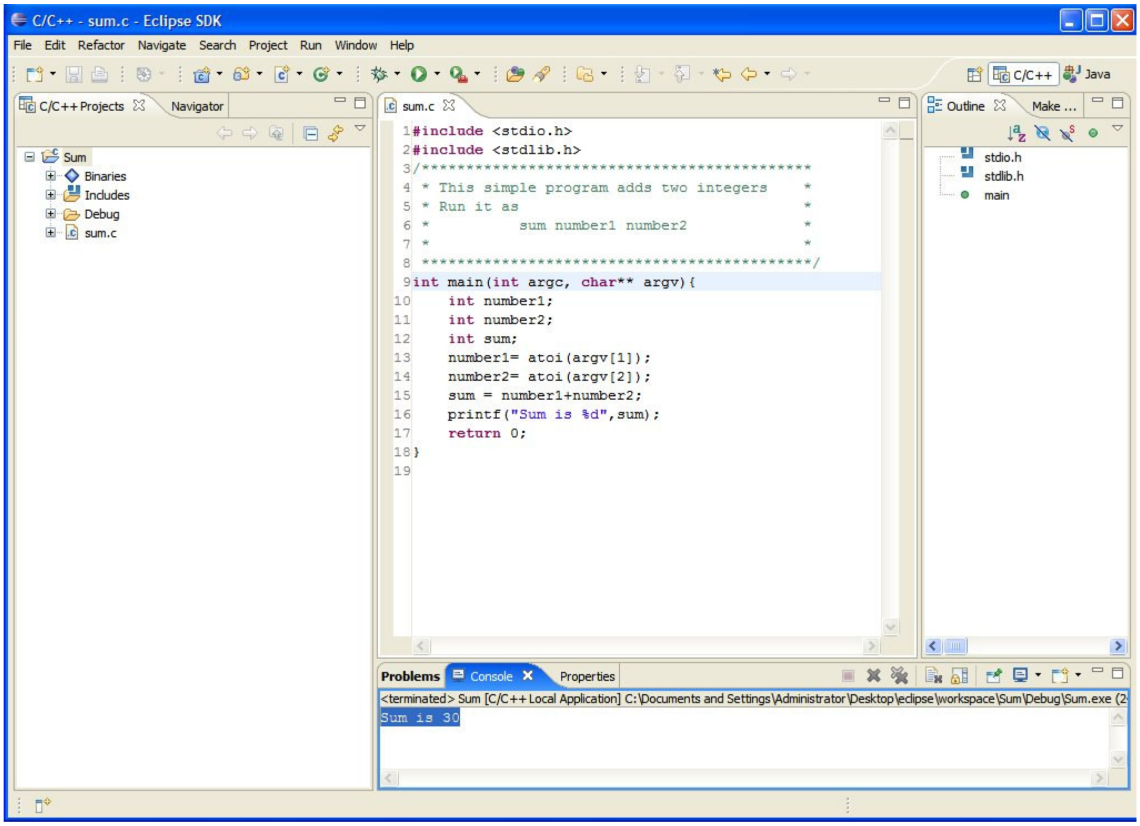
Enter your arguments here.

Working directory:

${workspace_loc:Sum}

☑ Use default

Select "Arguments" from the tabs, enter needed arguments for your program, here my simple addition program takes two arguments and gives their sum.Finally "Apply" and "Run".



```c
#include <stdio.h>
#include <stdlib.h>
/*********************************************
 * This simple program adds two integers    *
 * Run it as                                *
 *          sum number1 number2             *
 *                                          *
 *********************************************/
int main(int argc, char** argv){
    int number1;
    int number2;
    int sum;
    number1= atoi(argv[1]);
    number2= atoi(argv[2]);
    sum = number1+number2;
    printf("Sum is %d",sum);
    return 0;
}
```

```
<terminated> Sum [C/C++ Local Application] C:\Documents and Settings\Administrator\Desktop\eclipse\workspace\Sum\Debug\Sum.exe (2
Sum is 30
```

Now from the Console you can see the output of your program.

Remarks:

- You should create a new project for each of your programs. There must be only one main function in each project.
- Eclipse shows compilation errors and warnings. Complilation errors are shown with red marks and warnings are shown with yellow marks. You can see the explanation of that error or warning if you point your mouse on the error mark.