Installing a C compiler

C programs are initially created as plain text files, saved with a ".c" file extension. These can be written in any plain text editor such as Windows' Notepad application – no special software is needed.

In order to execute a C program it must first be "compiled" into byte code that can be understood by the computer. A C compiler reads the original text version of the program and translates it into a second file, which is in machine-readable executable byte format.

If the text program contains any syntax errors these will be reported by the compiler and the executable file will not be built.

One of the most popular C compilers is the GNU C Compiler (GCC) that is available free under the terms of the General Public License (GPL). It is included with almost all distributions of the Linux operating system. The GNU C Compiler is used to compile all the examples in this book into executable byte code.

To discover if you already have the GNU C Compiler on your system type **gcc -v** at a command prompt. If it is available the compiler will respond with version information:


```
user> gcc -v
Using built-in specs.
Thread model: posix
gcc version 4.6.1 (Ubuntu/Linaro 4.6.1-9ubuntu3)
user>
```

If you are using the Linux operating system and the GNU C Compiler is not available install it from the distribution disk or online repository, or ask your system administrator to install it.
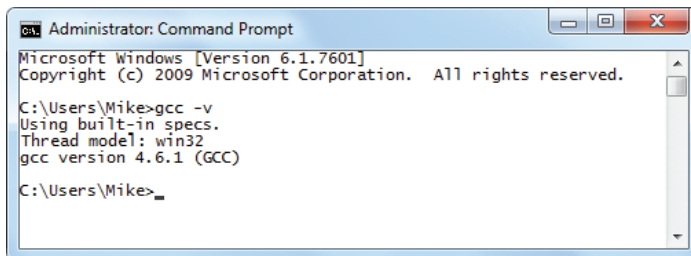
If you are using the Windows operating system and the GNU C Compiler is not already available you can download and install the Minimalist GNU for Windows (MinGW) package, which includes the GNU C Compiler, by following the steps opposite.

"GNU" is a recursive acronym for "Gnu's Not Unix" and it is pronounced "guh-new". You can find more details at **www.gnu.org**.

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Don't forget

When a C compiler is installed the standard C library header files (listed on the previous page) will also be installed.

1 Launch a web browser and navigate to the MinGW project page at **http://sourceforge.net/projects/mingw**

2 On the MinGW project page, click on the Download button to download the "Automated MinGW Installer" – this is named similar to **mingw-get-inst-xxx.exe**

3 Double-click the downloaded Automated MinGW Installer and agree the License terms

4 Accept the suggested installation location at **C:\MinGW** then click the Next button to start the installation process

When installation has completed the GNU C Compiler executable can be found in the sub-directory at **C:\MinGW\bin**. It is convenient to add this location to your system path so the compiler can be easily run from any directory on your system.

5 Launch the Environment Variables dialog by clicking the System icon in Control Panel, then select the Advanced tab and push the Environment Variables button

6 Find the Path variable then Edit the end of its statement line to add **;C\MinGW\bin;**

7 To test the availability of the GNU C Compiler, at a command prompt type **gcc -v** then hit Return to see the compiler respond with version information

```
Administrator: Command Prompt                         [  ][ ][ X ]

Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\Mike>gcc -v
Using built-in specs.
Thread model: win32
gcc version 4.6.1 (GCC)

C:\Users\Mike>_
```

Beware

The MinGW installation steps provided here are correct at the time of writing but may be subject to change. Refer to **www.mingw.org** for the latest details. Further download and installation assistance is available via the **Support** link on the MinGW projects page at **sourceforge.net**.

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Hot tip

Because C++ is an extension of C any C++ development tool can also be used to compile C programs.