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TUTORIAL

GCC Linux

Topics

1.1 GCC Compiler in Linux

1.2 Components of GCC

1.3 GCC Compiler Process

1.4 Run first C program by gcc

GCC Compiler in Linux

In Linux, the GCC stands for **GNU Compiler Collection**. It is a compiler system for the various programming languages. It is mainly used to compile the C and C++ programs. It takes the name of the source program as a necessary argument; rest arguments are optional such as debugging, warning, object file, and linking libraries.

GCC is a core component of the GNU toolchain. Various open-source projects are compiled using the GCC, such as Linux kernel and GNU tools.

It is distributed under the GPL (General Public License). The first version, **GCC 1.0**, was released in 1987. It was only for the C programming language, but in the same year, it was extended for the C++ programming language

. Later, it was developed for other programming languages such as Objective-C, Objective-C++, Fortran,Java, Ada,Go, and more. Its latest version has the much-improved implementation of the programming languages.It is the official partner of GNU OS; therefore, it has been adopted as the standard compiler of the Linux based systems.

Components of GCC

GCC is a portable tool, and it can run on many operating systems. Also, it can be ported to **Windows** by using some tools such as **Cygwin, MinGW, and MinGW-W64**. As it is a key component of GNU toolchain, it contains the following components for developing applications and operating systems:

1.GNU Compiler Collection (GCC): It is a compiler suite for many languages, such as C/C++ and Objective-C/C++.

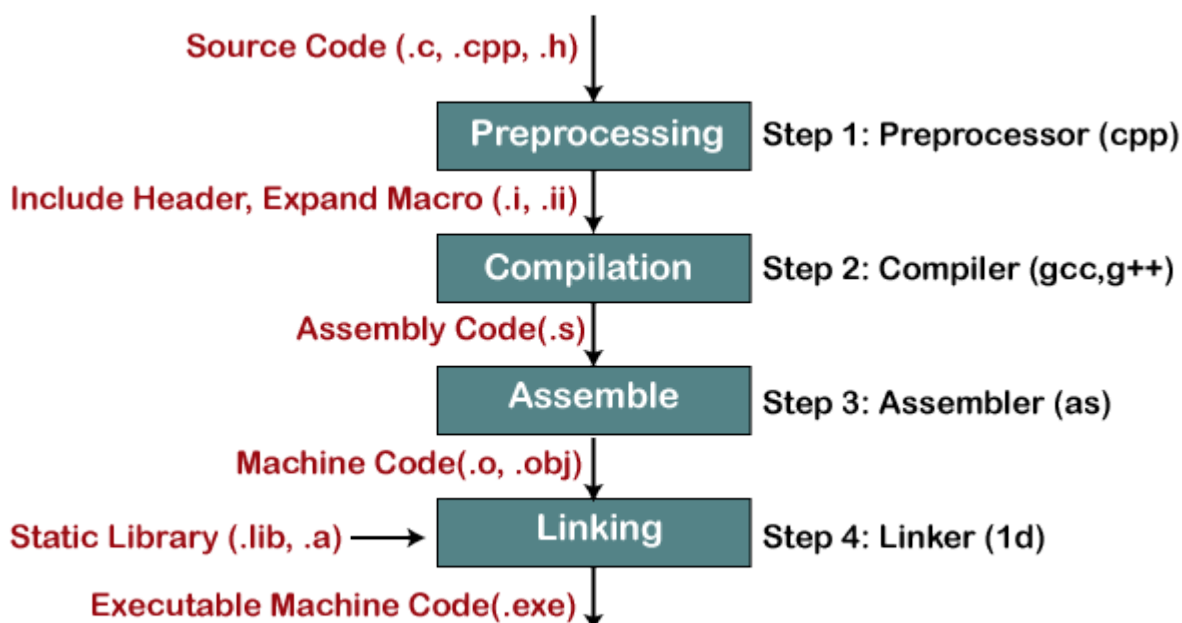**2. GNU Make:** It is an automation tool that is used to compile and build applications.

3. GNU Binutils: It is a suite that contains binary utility tools such as **linker** and **assembler**.

4. GNU Debugger (GDB). It is used to debug the applications.

5. GNU Autotools: It is a build system that contains some utility tools such as Autoconf, Autoheader, Automake, and Libtool.

6. GNU Bison: It is a parser generator as lex and yacc.

GCC Compiler Process

Run first C program by gcc

Create a basic [c program](#)"Hello world!". Create a file 'hello.c" and put below code in it:

```
#include <stdio.h>
int main() {
printf("Hello, world!\n");
return 0;
}
```

Now, compile the hello.c as follows:

```
gcc hello.c
```

If we directly run the hello.c, it will throw the error. Make it executable, the default executable file for the Linux system is a.out. To execute the file, execute the chmod command as follows:

```
chmod a+x a.out
```

Now, run the c program as:

```
./a.out
```