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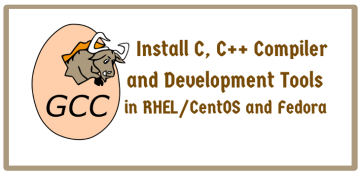
How to Install GNU GCC (C and C++ Compiler) and

20 Linux YUM (Yellowdog Updater, Modified) Commands

Development Tools in RHEL/CentOS and Fedora

by Gabriel Cánepa | Published: September 25, 2015 | Last Updated: September 30, 2015

Nowadays, as a system administrator or engineer you can't feel satisfied by knowing how to use the CLI and troubleshoot GNU/Linux servers, but will need to go one step further into the development area as well to stay at the top of your game. If you're considering a career in kernel development or applications for Linux, then C or C++ is the best place to start.



Install C C++ Compiler and Development Tools in RHEL/CentOS and Fedora

Read Also: Install C, C++ and Build Essential Tools in Debian/Ubuntu/Mint

In this article we will explain how to install Gnu C and C++ compilers and it's related Development tools such as automake, autoconf, flex, bison, etc. in Fedora and CentOS / RHEL systems.

What is Compiler?

In simple words, a compiler is a software program that transforms statements written in a source language into a target language that the machine's CPU can understand and execute.

In Fedora and derivatives (actually, that is true for the entire Linux distro ecosystem as well), the most well-known C and C++ compilers are gcc

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and **g++**, respectively, both developed and supported actively by the Free Software Foundation as part of the GNU project.

Installing GCC (C++ Compiler and Development Tools

If **gcc** and / or **g++** and it's related **Development Tools** are not installed in your system by default, you can install the latest available from the repositories as follows:

```
# yum group install
# dnf group install
```

Before we dive into writing **C** or **C++** code, there's another tool to boost your development toolset that we want to show you.

Speeding up C and C++ Compilations in Linux

When you as part of the development process, have to recompile several times after making changes to the source code it's great to have a compiler cache to speed up future recompilations.

In Linux, there's an utility called **ccache**, which speeds up recompilation by caching previous compilations and detecting when the same compilation is being done again. Besides **C** and **C++**, it also supports **Objective-C** and **Objective-C++**.

Ccache has only a few limitations: it's only useful while recompiling a single file. For other types of compilations, the process will end up running the actual compiler. The same thing happens if a compiler flag is not supported.

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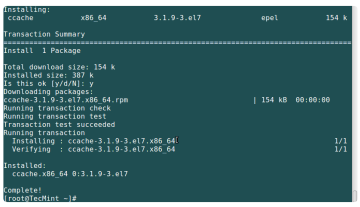
The bright side is that in any event it will not interfere with the actual compilation and will not throw an error – just fall back to the actual compiler.

Let's install this tool:

```
# yum install ccache
```



CCache – Speed Up C and C++ Compilations in Linux

and see how it works with an example.

Testing GNU C Compiler with a simple C++ Program

As an example, let's use a simple **C++** program that calculates the area of a rectangle after its length and width have been provided as inputs.

Open your favorite text editor and enter the following code, then save as `area.cpp`:

```
#include <iostream>
using namespace std;
int main()
{
float length, width,
cout << "Enter the l
cin >> length;
cout << "Now enter t
cin >> width;
area = length*width;
cout <<"The area of
return 0;
}
```

To compile the above code into an executable named area in the current working directory use the **-o** switch with **g++**:

```
# g++ area.cpp -o ar
```

If you want to take advantage of **ccache**, just prepend the above command with **ccache**, as follows:

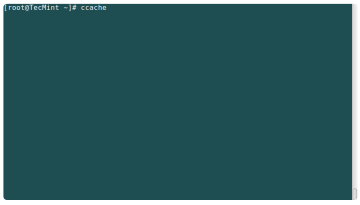
```
# ccache g++ area.cp
```

Then run the binary:

```
./area
```

Sample Output

```
Enter the length of
Now enter the width:
The area of the rect
```



Compile C++ Code in Linux

Don't let this simple example make you think that **ccache** is not useful. You will come to know what a great tool **ccache** is when recompiling a large source code file. The same principle applies for C programs as well.

Summary

In this article we have explained how to install and use the **GNU compilers** for **C** and **C++** in Fedora-based distributions.

In addition, we showed how to use a compiler cache to speed up recompilations of the same code. While you can refer to the online man pages for **gcc** and **g++** for further options and examples, we look forward to hearing from you if you have any questions or comments.

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Gabriel Cánepa is a GNU/Linux sysadmin and web developer from Villa Mercedes, San Luis, Argentina. He works for a worldwide leading consumer product company and takes great pleasure in using FOSS tools to increase productivity in all areas of his daily work.

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Spork Schivago

June 15, 2017 at 11:57 pm

Could someone please explain how to install the various programming man pages? For example, on OpenSuSE, I can type something like:

```
# man 3 printf
```

And see the man page for the printf function. After installing the Development Tools in CentOS, I cannot do this.

Thank you!

Reply

> **Spork Schivago**
>
> June 16, 2017 at 12:04 am
>
> I believe I figured it out.
>
> ```
> # yum install man-pages libstdc++-docs
> ```
>
> The man-pages package provides the man pages for the standard C library, and the libstdc++-docs provides the man pages for C++ and the HTML documentation.
>
> Thanks!
>
> Reply

R@5001

September 25, 2016 at 4:15 pm

Thank you for your article

Reply

lmorales April 13, 2016 at 9:08 pm

very useful. thanks

Reply

Gabriel A. Cánepa

April 14, 2016 at 5:57 pm

@lmorales,
Great to know!

Reply

Sumeet

September 28, 2015 at 6:20 pm

Thanks man, great article

Reply

Gabriel Cánepa

September 30, 2015 at 9:01 pm

@Sumeet,
Thank you for your comment. Stay tuned!

Reply

Jalal Hajigholamali

September 27, 2015 at 10:38 am

Hi,
Very nice article…
Thanks a lot

Reply

Gabriel Cánepa

September 30, 2015 at 9:01 pm

@Jalal,
I appreciate your taking the time to drop a thank you note. Best of luck!

Reply

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