

Setting up Environment for C/C++ (Windows)

Installation

Download

The following downloads are available (for Windows only).

*You will need a decompressor like [7-Zip](#) (free) to unzip .7z archives, but they are a lot smaller than .zip files.

Each version comes in 2 flavors:

- Win32 - i686 - Windows 32-bit version, runs natively on and compiles for Windows 32-bit (also runs on Windows 64-bit, but in 32-bit)
- Win64 - x86_64 - Windows 64-bit version, runs natively on and compiles for Windows 64-bit (will not run on Windows 32-bit)

Release versions

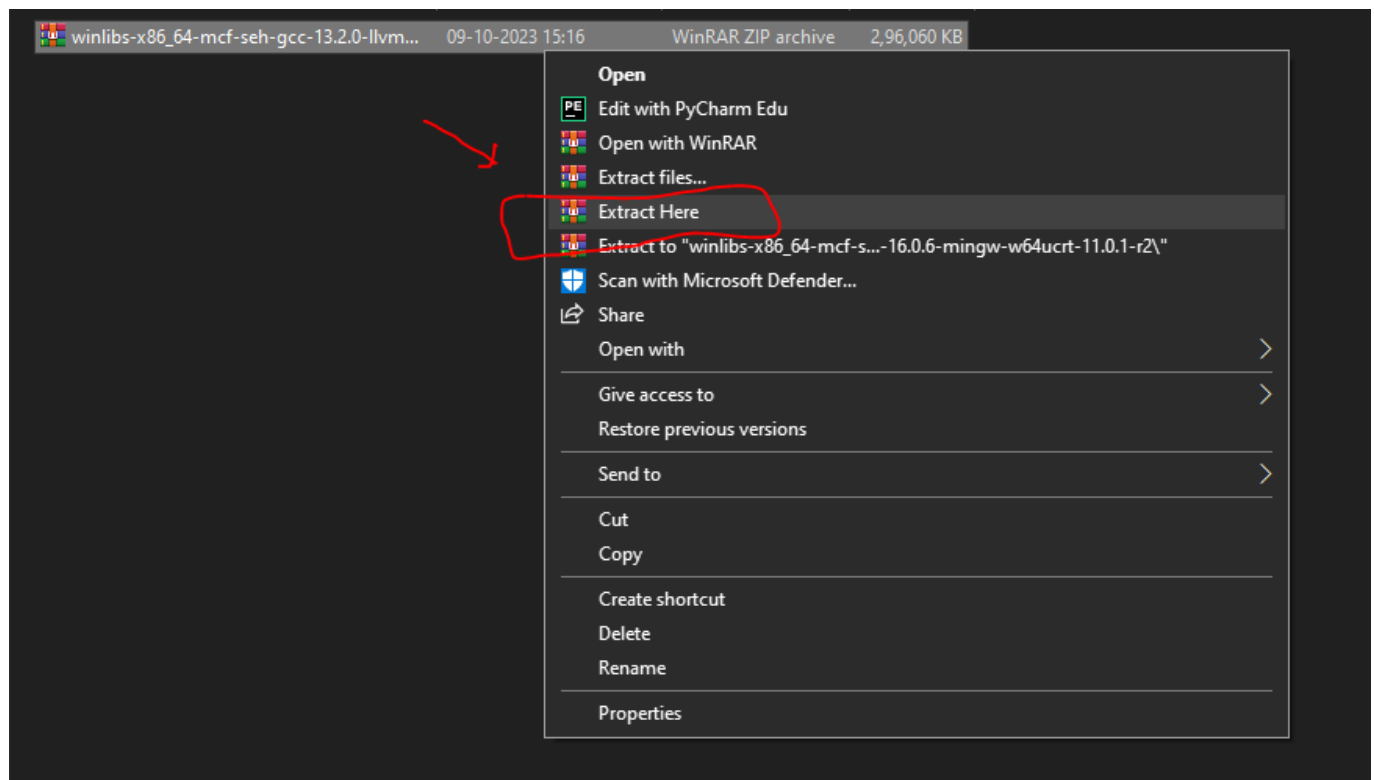
UCRT runtime

- ~~GCC 13.2.0 (with MCF threads) + LLVM/Clang/LLD/LLDB 16.0.6 + MinGW-w64 11.0.1 (UCRT) - release 2 (LATEST)~~
 - Win32: [7-Zip archive*](#) | [Zip archive](#) - without LLVM/Clang/LLD/LLDB: [7-Zip archive*](#) | [Zip archive](#)
 - Win64: [7-Zip archive*](#) | [Zip archive](#) - without LLVM/Clang/LLD/LLDB: [7-Zip archive*](#) | [Zip archive](#)
- GCC 13.2.0 (with POSIX threads) + LLVM/Clang/LLD/LLDB 16.0.6 + MinGW-w64 11.0.0 (UCRT) - release 1 (LATEST)
 - Win32: [7-Zip archive*](#) | [Zip archive](#) - without LLVM/Clang/LLD/LLDB: [7-Zip archive*](#) | [Zip archive](#)
 - Win64: [7-Zip archive*](#) | [Zip archive](#) - without LLVM/Clang/LLD/LLDB: [7-Zip archive*](#) | [Zip archive](#)

Download the mingw toolchain from [here](#).

Unpacking

Extract the source files from the zipped/compressed files.



Copy the folder named `mingw64` or `mingw32` depending on your installation.

mingw64	13-08-2023 01:30	File folder	
winlibs-x86_64-mcf-seh-gcc-13.2.0-llvm...	09-10-2023 15:16	WinRAR ZIP archive	2,96,060 KB

Paste this folder into your user directory which resides in the **C:** drive.

An example of such a path is **C:/Users/<USER_NAME>**. Here **USER_NAME** is the name of the user.

Getting PATH

Once you finish pasting the folder into your user directory navigate inside the folder (**mingw64** or **mingw32**).

You should be able to see the following directory structure:

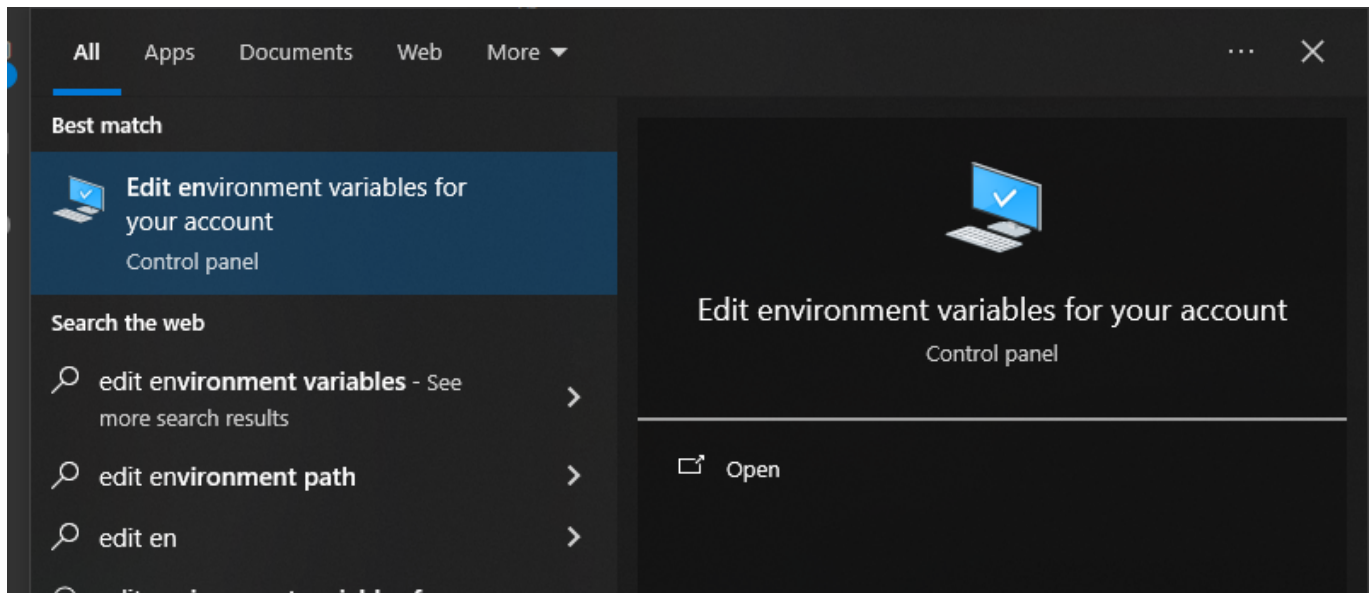
Name	Date modified	Type	Size
bin	09-10-2023 15:31	File folder	
include	09-10-2023 15:31	File folder	
lib	09-10-2023 15:31	File folder	
libexec	09-10-2023 15:32	File folder	
share	09-10-2023 15:32	File folder	
x86_64-w64-mingw32	09-10-2023 15:32	File folder	
version_info	13-08-2023 01:30	Text Document	1 KB

Now navigate to the **bin** folder and copy the path so final path would be of the following format **C:/Users/<USER_NAME>/[mingw64 or mingw32]/bin**.

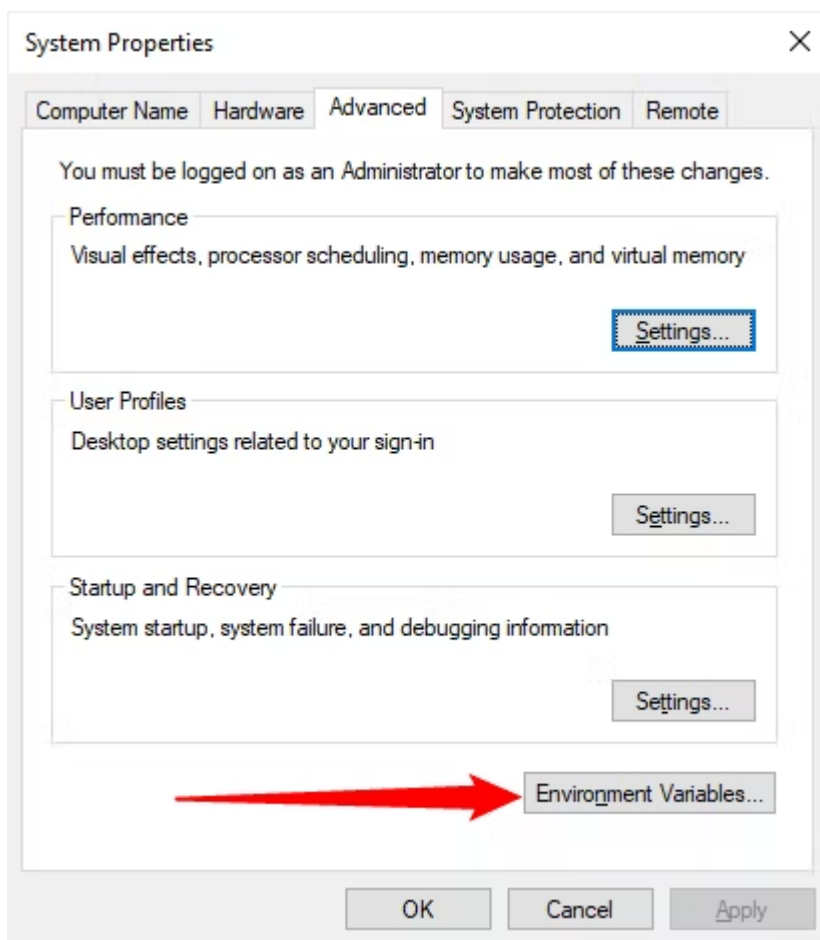
C:\Users\ [REDACTED] \mingw64\bin\				
Name	Date modified	Type	Size	
addr2line	13-08-2023 01:30	Application	1,153 KB	
amdgpu-arch	13-08-2023 01:30	Application	49 KB	

Adding to System Path

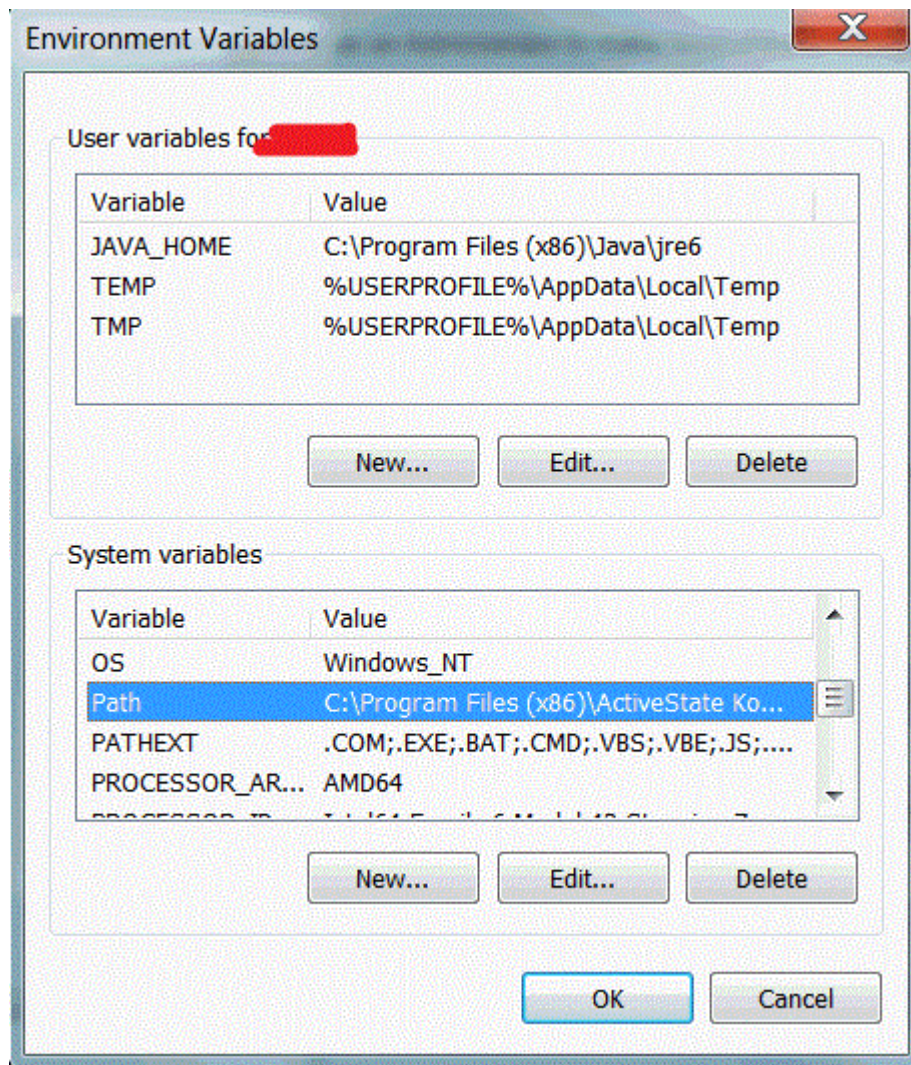
Navigate to search bar in the taskbar and type along the lines of **edit environment variables** and you should see the following setting:



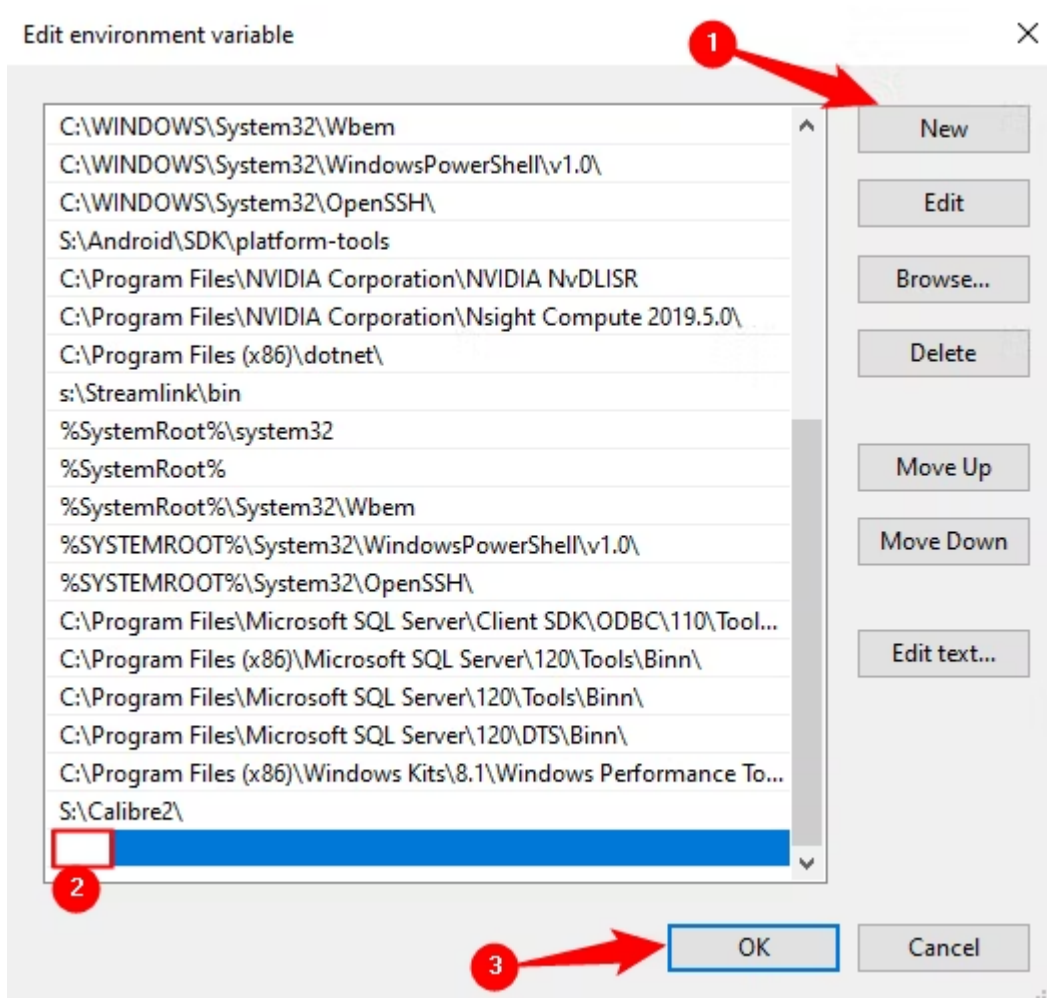
On clicking a popup window should open, click the button labeled **Environment Variables**.



Now on the bottom half of the window you should see a section named **System Variables** that contains a list of entries. Double click on the entry named **PATH**.



You should now be able to add the path copied before as a new entry.



Once the path is added save all your changes and we are done! 🎉

Verifying

Open a terminal and enter the following command `gcc --version` you should be able to see the following output.

```
C:\Users\...>gcc --version
gcc (MinGW-W64 x86_64-ucrt-mcf-seh, built by Brecht Sanders) 13.2.0
Copyright (C) 2023 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

Running a Programme Barebones

Here is a simple C program that prints `Hello, World!` to the terminal.

```
#include <stdio.h>

int main() {
    printf("Hello, World!");
    return 0;
}
```

Now create a `main.c` file and paste the above into it. Now open a terminal in same directory as the `main.c` file.

Note

You can use `cd` to navigate between folders.

Once you are sure you are in the same directory run the following command `gcc main.c && .\a.exe`. Your terminal should display the following:

```
C:\Users\student.MIT-ICT-LAB5-01>mingw64\bin\gcc main.c && .\a.exe
Hello, World!
C:\Users\student.MIT-ICT-LAB5-01>
```

Note To compile `C++` files you would use the following command `g++ main.c && .\a.exe`.