

COMPENG 4DK4 C Code Build Instructions

The labs introduce and use discrete-event simulation to characterize various computer network scenarios. Code written in the C programming language is provided and is modified to perform various experiments.

The provided simulation code should be runnable using virtually any C/C++ compiler. Some care is needed when compiling the code and importing it into various development systems. Here are some guidelines.

First, download and unzip the provided files into a code directory. Then, depending on your OS, use the following instructions.

1. WINDOWS

Microsoft offers Visual Studio 2022 (with C++) for free at

<https://visualstudio.microsoft.com/vs/features/cplusplus/>

Download the Community 2022 version.

During installation, install the components shown in the image:

VS_Installed_Components.jpg.

You can create a project as follows:

1. In the Visual Studio 2022 start page, click on "Continue without code →".
2. Create a new "Project From Existing Code", i.e., File > New > Project From Existing Code ...
3. Use "Visual C++" as the type of project. Click Next.
4. Pick a Project file location and Project name. **Do not use the unzipped code directory as the project file location.**
5. Then "Add files to the project from these folders", pointing it to the unzipped code directory. Click Next and make sure that you select the Project type to be "Console application project". Then click Finish.
6. Click on the Solution Explorer tab to navigate through the source and header files. You should be able to build the executable from the drop down menus.
7. Once you build the executable, you can run it from inside Visual Studio or you can run it directly from a console (e.g., PowerShell) window.
8. You can also do the compiling/linking/running by starting the "Developer PowerShell", i.e., Tools > Command Line > Developer PowerShell. Then use the cl.exe compiler, i.e., inside the command window, navigate to your unzipped code directory and "cl.exe *.c" will build an executable (It will have a .exe extension). Then run it from the command window.

2. macOS (Mac)

If you have a Mac, you may want to use the Xcode integrated development

environment, which is available free with macOS. You will have to install it from the App Store. The command line compiler tools are also part of Xcode.

3. macOS (Mac) or Linux

If you are using Linux or a Mac, you can build in a terminal window, i.e., on the Mac, open Utilities > Terminal window. Then on a Mac or Linux, cd to your code directory and use `"cc *.c -Wall -lm"`. Then run the executable file, i.e., type `./a.out`. Alternately, you can use the provided Makefile. It is located in the "makefiles" subdirectory. Copy it to the code directory and type `"make clean; make"` in the code directory. You can then run the executable by typing `"./run"`. Another Linux alternative is to use cmake. In this option, copy "CMakeLists.txt" from the makefiles directory to the code directory, then type `"cmake ."` followed by `"make"`. This should produce the "run" executable.

Let me know if you experience any problems compiling or running the code.