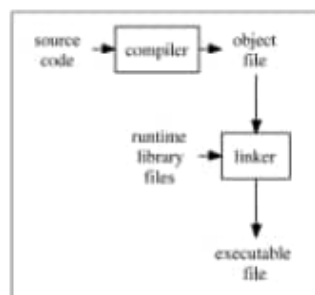


of op codes. Therefore, programming languages were invented to make it easier for humans to write computer programs.

Programming languages are for humans to read and understand. The program (source code) must be translated into machine language so that the computer can execute the program (as the computer only understands machine language). The way that this translation occurs depends on whether the programming language is a compiled language or an interpreted language.

### Compiled languages (e.g. C, C++)

The following illustrates the programming process for a compiled programming language.



A compiler takes the program code (source code) and converts the source code to a machine language module (called an object file). Another specialized program, called a linker, combines this object file with other previously compiled object files (in particular run-time modules) to create an executable file. This process is diagrammed below. Click **Initial build** to see an

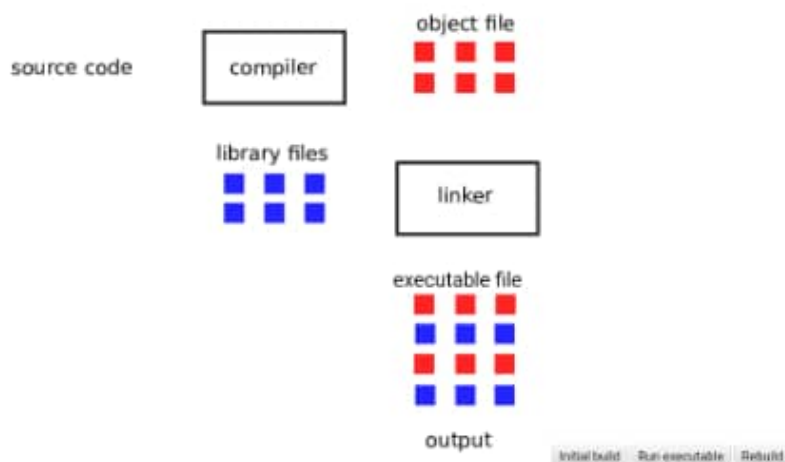


Show simplified view





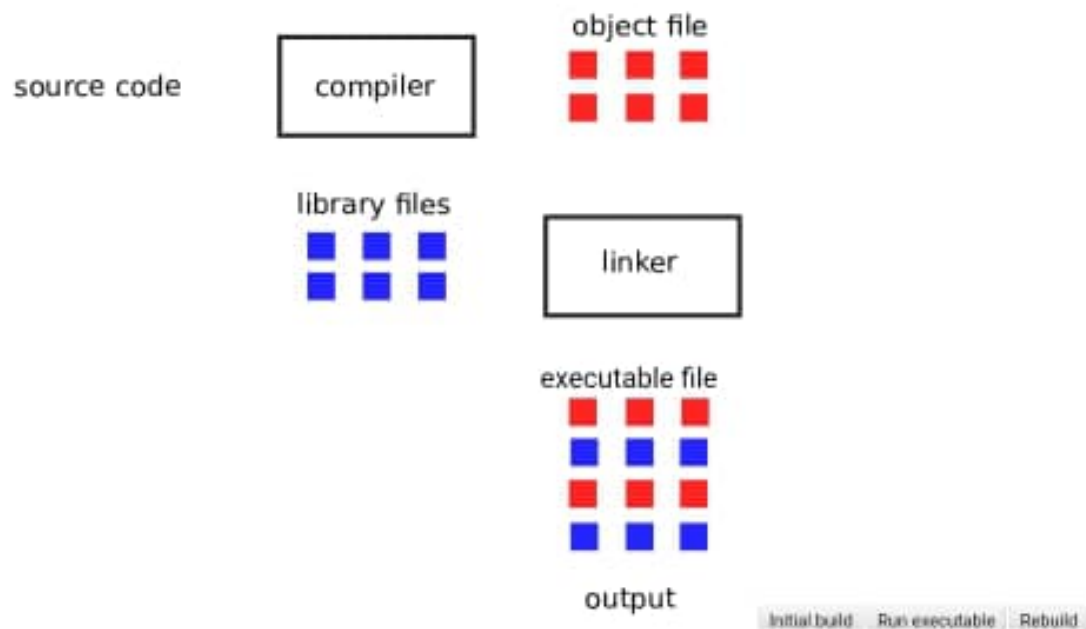
A compiler takes the program code (source code) and converts the source code to a machine language module (called an object file). Another specialized program, called a linker, combines this object file with other previously compiled object files (in particular run-time modules) to create an executable file. This process is diagrammed below. Click **Initial build** to see an animation of how the executable is created. Click **Run executable** to simulate the running of an already created executable file. Click **Rebuild** to simulate rebuilding of the executable file.



So, for a compiled language the conversion from source code to machine executable code takes place before the program is run. This is a very different process from what takes place for an interpreted programming language.

This is somewhat simplified as many modern programs that are created using compiled languages makes use of dynamic linked libraries

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So, for a compiled language the conversion from source code to machine executable code takes place before the program is run. This is a very different process from what takes place for an interpreted programming language.

This is somewhat simplified as many modern programs that are created using compiled languages makes use of dynamic linked libraries or shared libraries. Therefore, the executable file may require these dynamic linked libraries (Windows) or shared libraries (Linux, Unix) to run.