# What is CMake ?

Chat GPT Answer

CMake, which stands for "Cross-Platform Make," is an open-source build system and configuration management tool. It is designed to help software developers build, test, and package their projects across different platforms and build environments in a consistent and efficient manner. CMake is widely used in the software development industry, particularly for C and C++ projects, but it can be used for other programming languages as well.

Here are some key features and aspects of CMake:

1. Cross-Platform: CMake is designed to be platform-agnostic, meaning it can generate build scripts and configuration files for various build systems and operating systems, including Unix-like systems (Linux, macOS), Windows, and others.

2. Declarative Language: CMake uses a domain-specific language that is declarative in nature. Developers create CMakeLists.txt files, which specify how the project should be built, what the dependencies are, and various project settings. CMake then processes these files to generate build scripts for the chosen build system (e.g., Makefiles, Visual Studio solutions).

3. Dependency Management: CMake allows you to define project dependencies and find required libraries and packages automatically. This simplifies the process of setting up and building complex projects.

4. Build System Independence: CMake can generate build files for a variety of build systems, such as Make, Ninja, Visual Studio, Xcode, and more. This flexibility makes it easier to work with the referred build system of your choice.

5. Integration with IDEs: CMake integrates with many popular integrated development environments (IDEs), making it easier to manage and build your projects from within your preferred development environment.

6. Extensibility: CMake can be extended with custom modules and scripts to accommodate specific project requirements or build processes.

7. Cross-Compilation: CMake supports cross-compilation, allowing you to build software for a target platform different from the one you are currently working on.

CMake is widely used in the development of open-source and proprietary projects due to its versatility and ability to simplify the build process, especially for projects that need to be built on multiple platforms. It has become a standard tool in the C and C++ development ecosystems, and it is also used in various other programming languages.