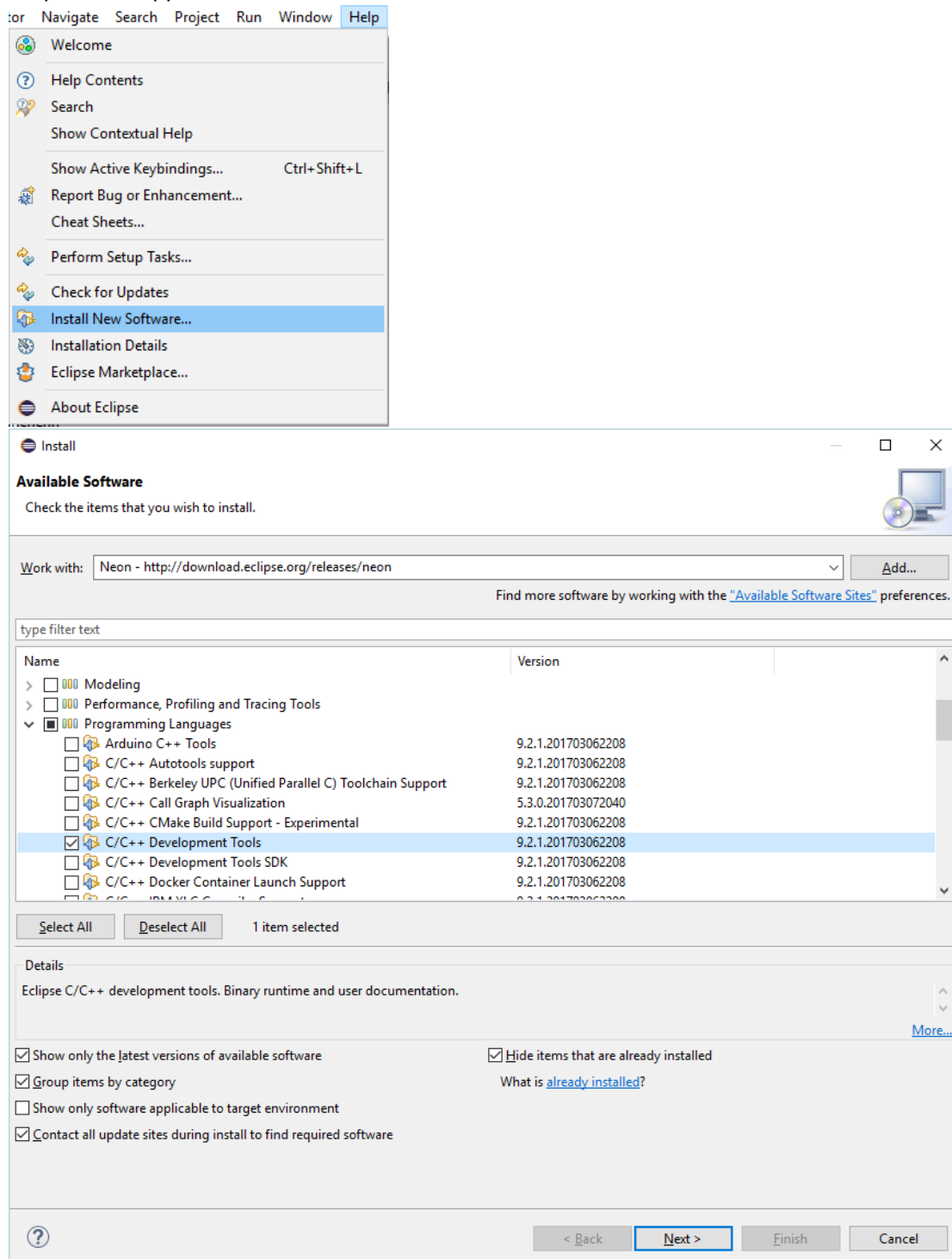# Required Tools for Compilation

To compile TDA Kernel DLL, you need the following tools:

- JDK (Java Development Kit)
- Eclipse
- Eclipse C++ support


- MinGW (for Windows systems); MinGW for both 32-bit and 64-bit targets can be obtained from http://mingw-w64.sourceforge.net/
  - *To be able to compile TDA Kernel native part for 32-bit and 64-bit Windows targets:*
    - MinGW (32-bit executables and target) and MinGW-w64 (32-bit executables, Win64 target) should be installed. Although other combinations are possible, we recommend this combination since it will work on both 32-bit and 64-bit Windows versions.
    - We assume that the names of g++ and other MinGW programs targeting Win32 are not decorated.

- We assume that the names of g++ and other MinGW programs targeting Win64 are `x86_64-w64-mingw32-<program>.exe`.
- All these programs should be accessible from the `PATH` environment variable.
  - If you want to compile Windows binaries on a Linux system, you have to install Linux-versions of MinGW-w32 and/or MinGW-w64 (not considered in this document)

You can switch between target configurations in Eclipse:
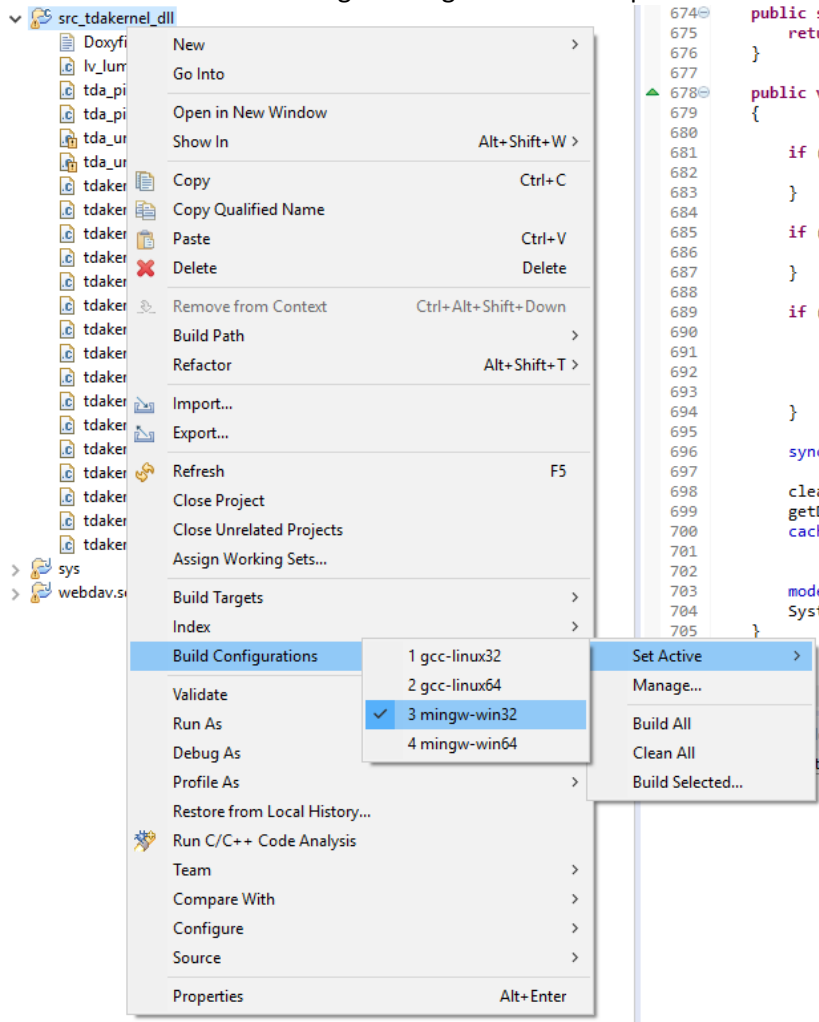
Then build the project:
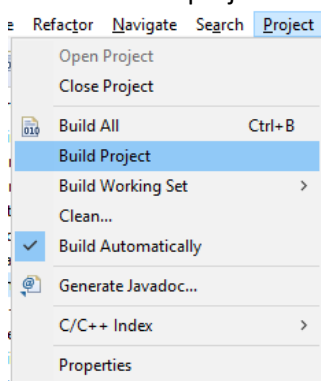
Notes on MacOS targets

On MacOS, -rpath option is not supported by linker. More info on compiling the TDA Kernel .dylib with correct install path: https://blogs.oracle.com/dipol/dynamic-libraries,-rpath,-and-mac-os

On MacOS, you can compile both 32-bit and 64-bit versions of TDA Kernel native library. However, Apple and Oracle do not ship 32-bit Java version for MacOS anymore. Thus, if you wish to stick to 32-bit version, you will have to compile 32-bit OpenJDK by your own.