

Maven, Ant, Gradle

What is a Build Automation Tool? Build tools are commonly known as programs that **automate the process of building an executable application/file from source code (src)**. This building process includes activities like **compiling, linking, and packaging the source code into an executable form** or file (**build**).

The ensure the execution of the file/application happens in synchronized manner/harmony therefore avoid any break of the build, or application. Basically, build automation is the act of scripting or automating a wide variety of tasks that software developers do in their day-to-day activities like:

1. **Downloading dependencies/plugins to compile, link, and package the source code into java artifact (Build). Maven is java based.**
2. Compiling **source code (src)** into **binary code** (Changing the source code to a computer language code).

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BINARY CODE ALPHABET

A	01000001	N	01101110
B	01100010	O	01101111
C	01100011	P	01110000
D	01100100	Q	01110001
E	01100101	R	01110010
F	01100110	S	01110011
G	01100111	T	01110100
H	01101000	U	01110101
I	01101001	V	01110110
J	01101010	W	01110111
K	01101011	X	01111000
L	01101100	Y	01111001
M	01101101	Z	01111010

3. Packaging that binary code in a way that has executable steps
4. Running tests looking for errors. If no errors, the build is validated
5. Jenkins Logs – they are used for troubleshooting purposes.
6. EFK – cluster logs
7. It prevents the breaking of the build whenever developers push new changes or codes.

Build Automation Tool – Maven (java based src/project/job) and Gradle (java and python src/project/job)

First tasks – Compile the source code

Second step – link the source code together into an executable application/file/build

Third step – packing the source code into an executable application/file/build.

Fourth Step – convert the package src into binary code.

Fifth Step – arrange the binary code into an executable file/application/build

Final Step – to ensure the executable binary code cannot break even with new changes added.

The final product of the build like maven can be an artifact of java.

various people are working on various projects, they do not break anything. And to make sure that when you make your changes, they don't break anything either.