Build automation

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Agenda

Build automation

Gradle

Gradle usage example

Other build automation tools

Software build

Includes a number of tasks

- Compiling source code
- Running automated tests
- Copying resources
- Packaging the application
- …

These tasks are…

- …repetitive
- …run multiple times a day
- …expected to be as fast as possible
- …expected to work on different machines
- …ideal candidate for automation

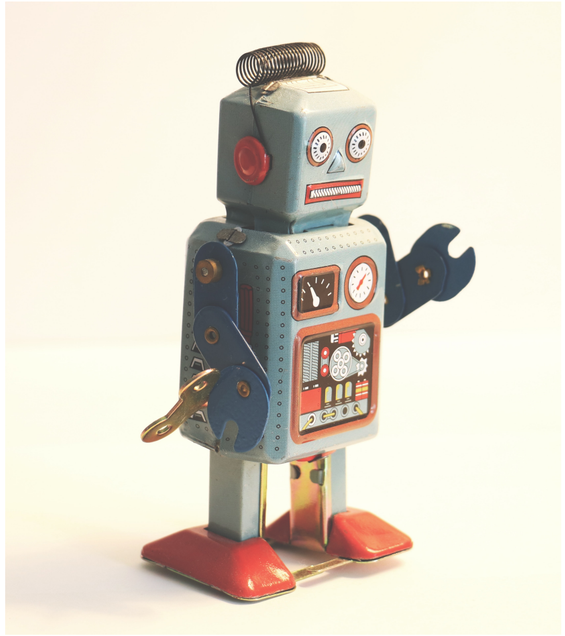
Build automation is the process of automating the creation of a software build and the associated processes

From https://en.wikipedia.org/wiki/Build_automation

Build automation

Build automation can bring a number of advantages.

- Accelerate compile and link processing
- Eliminate redundant tasks
- Minimize “bad builds”
- Save time and money



Gradle

Open-source build automation tool.

- Flexibility
- Performance
- Support for many popular languages and technologies

Some Gradle features

Gradle is designed to be flexible enough to build almost any type of software.

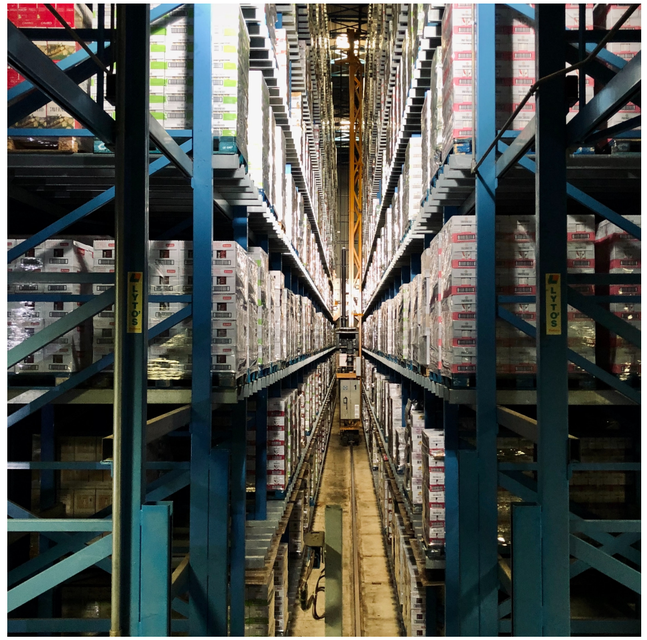
- High performance
- JVM foundations
- Extensibility
- IDE support

Picture from https://gradle.org

Dependency management

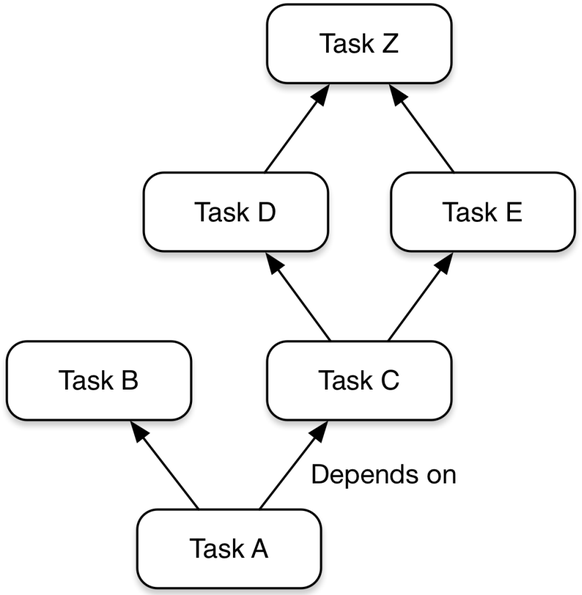
Gradle most notable restriction.

- Maven repositories
- Ivy repositories
- Filesystem

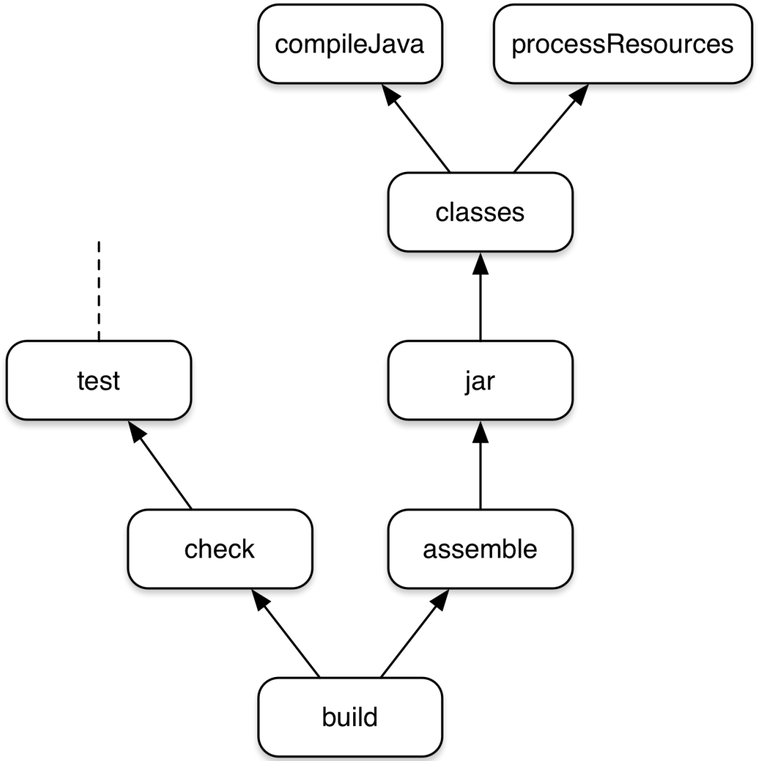


Tasks

Generic task graph



Partial task graph for a standard Java build



Picture from https://docs.gradle.org/current/userguide/what_is_gradle.html

Gradle Plugins

Add useful features to Gradle.

- Add new tasks
- Configure the project according to conventions
- Extend core objects and objects from other plugins

Let’s try Gradle

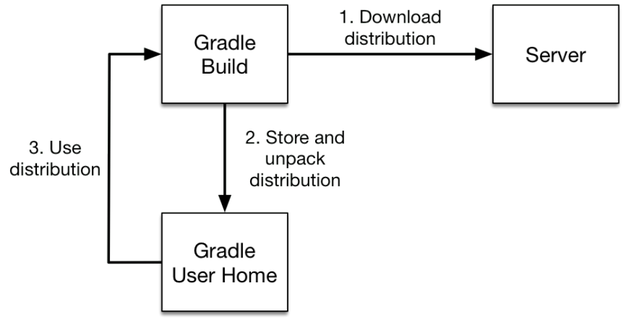
Write a Java program that prints on the standard output the string “Hello *name*!”, where *name* is the first program argument, or “Hello stranger!” when no argument is provided.

- Create a new Java project using IntelliJ Gradle plugin
- Look at the project structure and files
- Write the program
- Run some tasks

Gradle Wrapper

A script that invokes a declared version of Gradle, downloading it beforehand if necessary.

- Recommended way to execute Gradle build
- Developers can get up and running quickly
- Standardizes a project on a given Gradle version

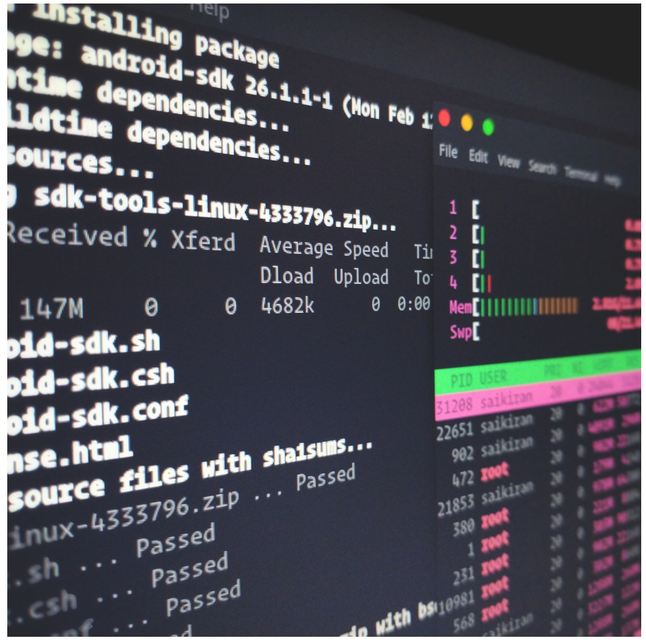


Picture from https://gradle.org

Other build automation tools

Gradle is only one of the available tools for build automation.

- make
- MSBuild
- Apache Ant
- Apache Maven
- ...



References

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https://en.wikipedia.org/wiki/Build_automation

What is Gradle?

https://docs.gradle.org/current/userguide/what_is_gradle.html

Gradle User Manual

https://docs.gradle.org/current/userguide/userguide.html

Go automate!

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