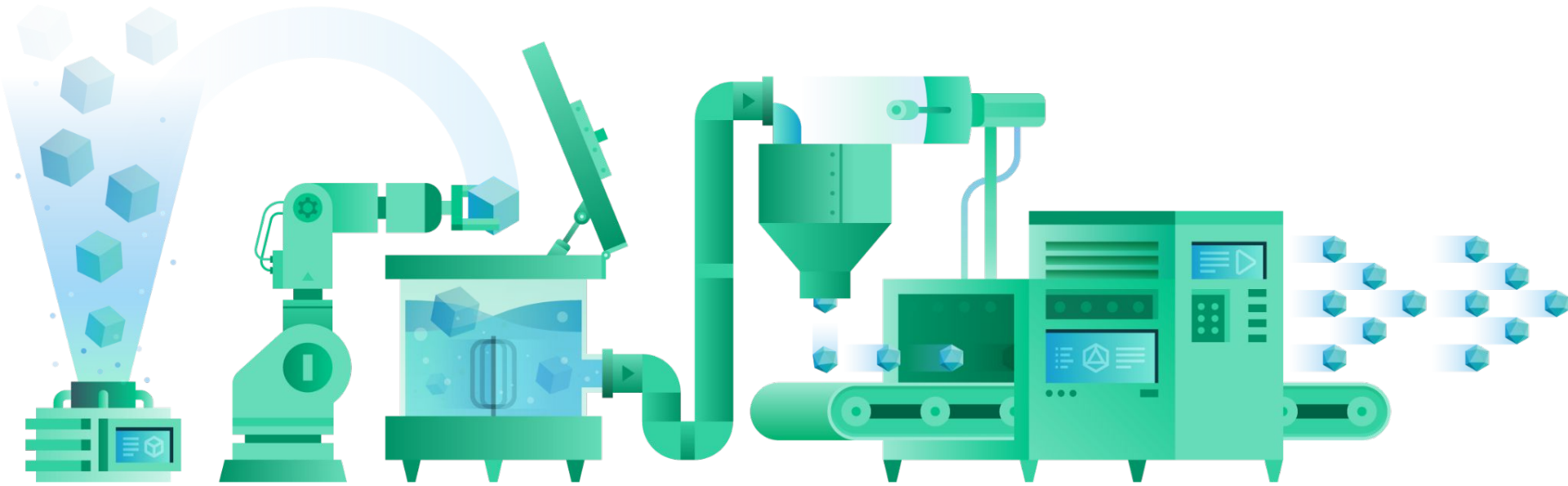




Matthias Colin

Build Automation tool



<https://gradle.org/>

Build Automation tool

- Successor of Apache Ant and Apache Maven (XML)
- Supported Language:
 - Java, Kotlin, Groovy, Scala
 - C/C++
 - JavaScript
 - Other: plugin system
- Configuration written in Groovy (build.gradle) or Kotlin (build.gradle.kts)
- Tasks: directed acyclic graph
- Runs on the JVM
- Multi projects builds, parallel, incremental, caching
- Apache License 2.0

History

Founder and CEO: Hans Dockter

- 2008/04: version 0.1
- 2012/06: version 1.0
- 2014/07: version 2.0
- 2016/08: version 3.0
- 2017/06: version 4.0
- 2018/11: version 5.0
- 2019/11: version 6.0
- 2021/04: version 7.0
- 2023/02: version 8.0

Tasks

All phases of build process (CI)

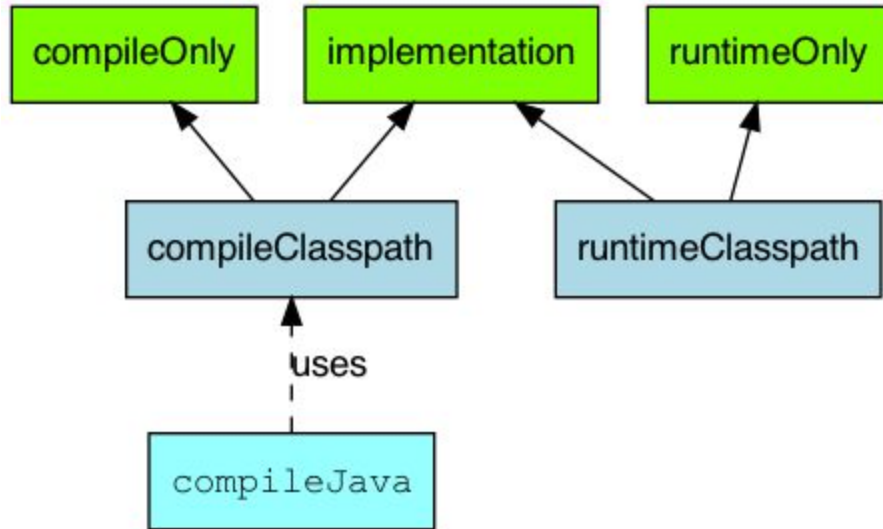
- dependencies
- code generation
- compilation
- tests
- code quality
- packaging
- publishing

Dependency management

- Repository to use
- Scope: depends on plugins
- Exemple in Java:
 - annotationProcessor
 - compileOnly, implementation, runtimeOnly
 - testCompileOnly, testImplementation, testRuntimeOnly

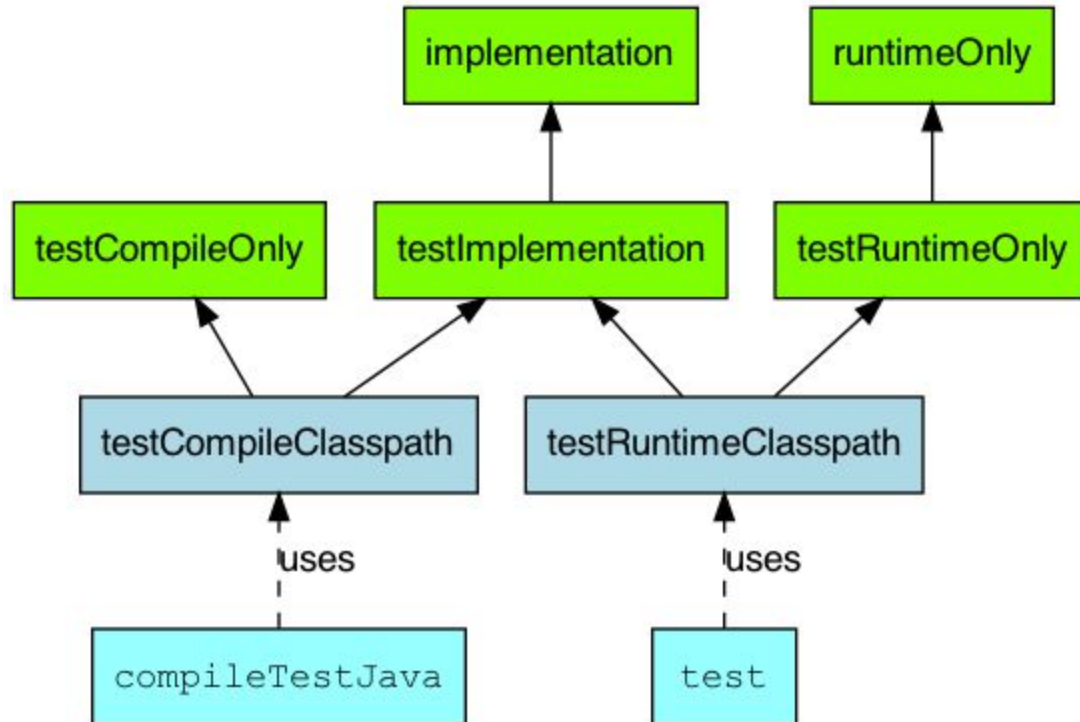
Tasks and dependencies Java

https://docs.gradle.org/current/userguide/java_plugin.html#sec:java_plugin_and_dependency_management

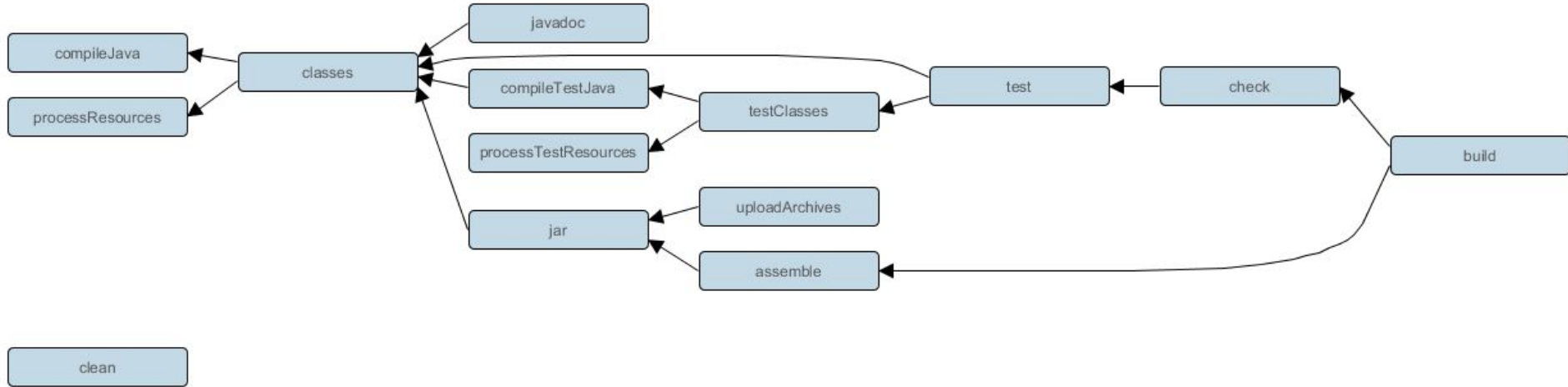


Tasks and dependencies Java (test)

https://docs.gradle.org/current/userguide/java_plugin.html#sec:java_plugin_and_dependency_management



Plugin Java: tasks directed graph



Debugging: useful args or tasks

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

<https://docs.gradle.org/current/userguide/logging.html>

- Tasks
 - dependencies
 - properties
 - projects
 - javaToolchain
- Args
 - --scan : publish a full detailed report on gradle.org
 - --profile : publish a detail report on local disk
 - --stacktrace, --full-stacktrace
 - --status
 - -q, -i, -w, -d : log levels

Tasks

Elements

- Properties: arguments of this task
- Actions
- Input: file or directory to work with
 - Ex: javaCompile: src
- Output: file or directory produced by this task
 - Ex: jar: build/libs/project.jar

Write Tasks

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

- Class Java, Groovy or Kotlin
- Task Ad Hoc: tasks.register in build.gradle

File Tasks

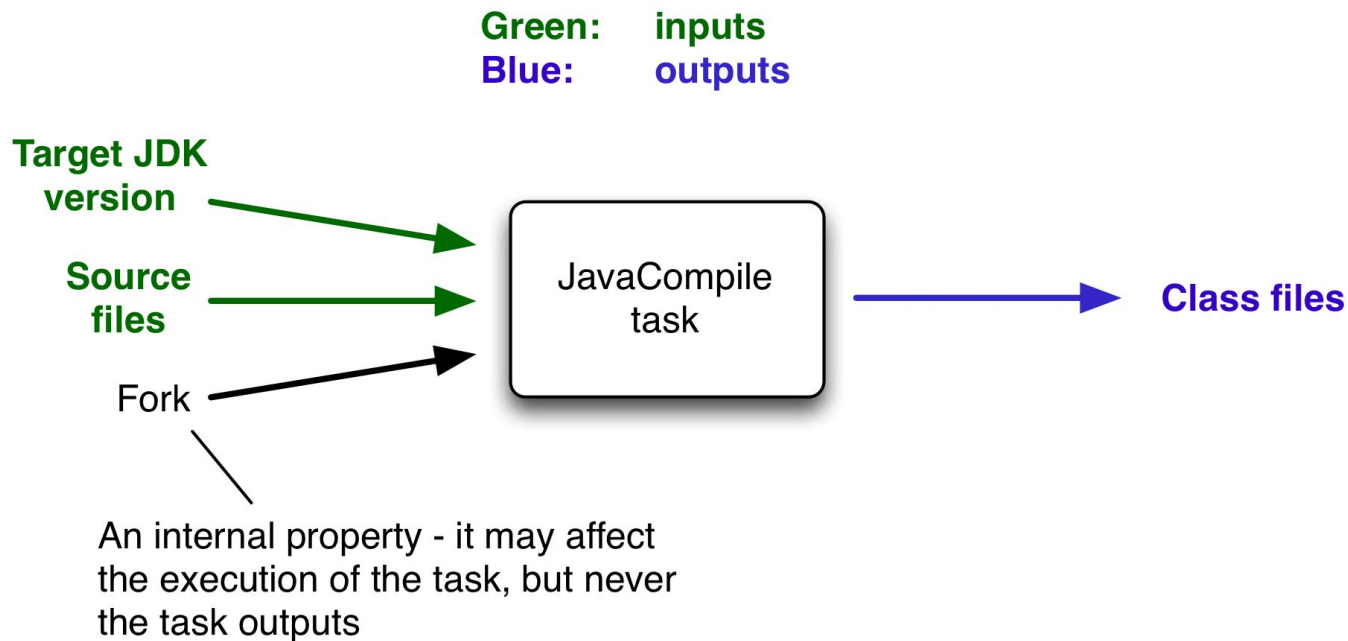
https://docs.gradle.org/current/userguide/working_with_files.html

Predefined Tasks

- Copy
- Delete
- Zip, Tar

Tasks dependencies

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



Multi projects

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

Directory buildSrc with common logic

Full example here:

https://docs.gradle.org/current/samples/sample_convention_plugins.html