Configuration in Modern Software Development

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Current best practice

Dockerfile:

```
FROM java:8
ADD discovery-microservice-0.1.0.jar app.jar
EXPOSE 8761
ENTRYPOINT ["java","-jar","/app.jar"]
```

pom.xml

```
[...]

<artifactId>discovery-microservice</artifactId>
<version>0.2.0</version>
<packaging>jar</packaging>
[...]
```

**Maven**

`pom.xml`

`bootstrap.yml`

`mongodb.conf`

`application.properties`
Current best practice

- Dockerfile
- Jenkinsfile
- `push`
- `trigger`
- `port='8081'`
- `build and run tests`
- `travis.yml`
- `deployment.yml`
- `ufw allow 8081`
- `docker-compose.yml`
- `server.xml`
- `build.gradle`
- `mongodb.conf`
- `application.properties`
- `bootstrap.yml`
- `EXPOSE 8081`
- `docker-compose.yml`
- `Dockerfile`
- `bootstrap.yml`
- `Docker image`
- `Jenkinsfile`
- `deploy`
- `deployment.yml`
- `push`
- `trigger`
- `port='8081'`
- `build and run tests`
- `travis.yml`
- `deployment.yml`
- `ufw allow 8081`
“An escape from configuration hell”

(Matt Welsh, http://matt-welsh.blogspot.com/2013/05/what-i-wish-systems-researchers-would.html)
How do developers cope with this?

Interviews with developers from different companies

- codecentric
  - IT consultants
  - 480 employees
  - 16 European locations

- REWE digital
  - e-commerce
  - 345,000 employees

- XCEPTANCE
  - experts for software testing
  - 42 employees
  - more than 250 customers
Configuration in daily work

Developer:
- Responsible for one or more services
- Configuration of environment is done by separate platform team

IT consultant:
- Builds up (and maintains) infrastructure
- New team for each project

70 %
10 %
Where is configuration stored?

- Configuration in same repository as code
- Optional: Additional configuration project for platform service-specific parameters

Environment-Jenkinsfile

Jenkinsfile
Upgrading frameworks breaks configuration

Example:
Upgrade Spring Boot 1.x to 2.x

- Consequences: performance problems, run time errors, ...
- Configuration problems with dependencies
Convention over configuration

- Define defaults
- Only configure what differs from default
- Reduces number of decisions
- Requires a great learning curve

```
SIMPLY EXPLAINED - PART 18: CONVENTION OVER CONFIGURATION
```
Types of configuration

- Technical configuration
- Domain-specific configuration
Future Work

- We need more interviews
- Generate theories
- Develop tools and methods for solving configuration problems
Configuration Network
Thank you for your attention!
Contact

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Images

Icons:
- Freepik
- Srip
- Eucalyp
- Smashicons
- Elegant Themes
- Yannick

Geek and Poke comic:
geek-and-poke.com