AMIS SpringBoot 101

Overview and History and Spring & SpringBoot

Lucas Jellema
April 2018

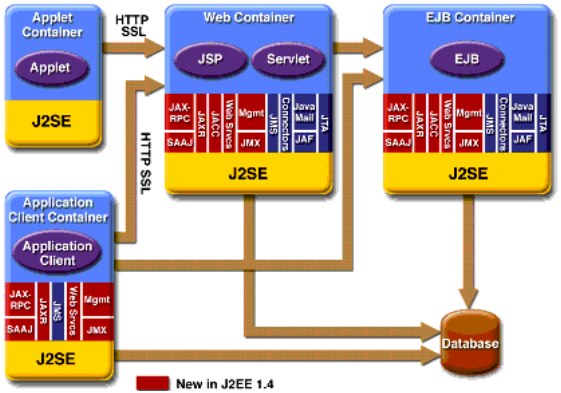
Agenda

- **Historie van Spring (Boot)** - Ontstaan en veranderingen over laatste jaren; wat zijn de gedachten achter (Spring)Boot
- **Spring Boot in de praktijk** - Een kort overzicht van praktijkervaringen opgedaan met Spring Boot in een Docker Container omgeving
- **Toelichting van de Labs** - Korte omschrijving van de Labs en do's en don'ts
- 17:45 – 18:30 Diner
- 18:30 – 21:00 Labs
  - 1 – Your First REST API in Spring Boot (& Getting Started)
  - 2 & 3 – Swagger API [Design First] and Swagger Hub
  - 4 – Running Spring Boot REST API in Docker
  - 5 – Testing Spring Boot REST API – unit & integration test
  - 6 – REST API using JPA and PostgreSQL Database
  - 7 – SOAP WebService using Spring Boot
  - 8 – Run Spring Boot Application (Lab 1 REST API) on Oracle Application Container Cloud

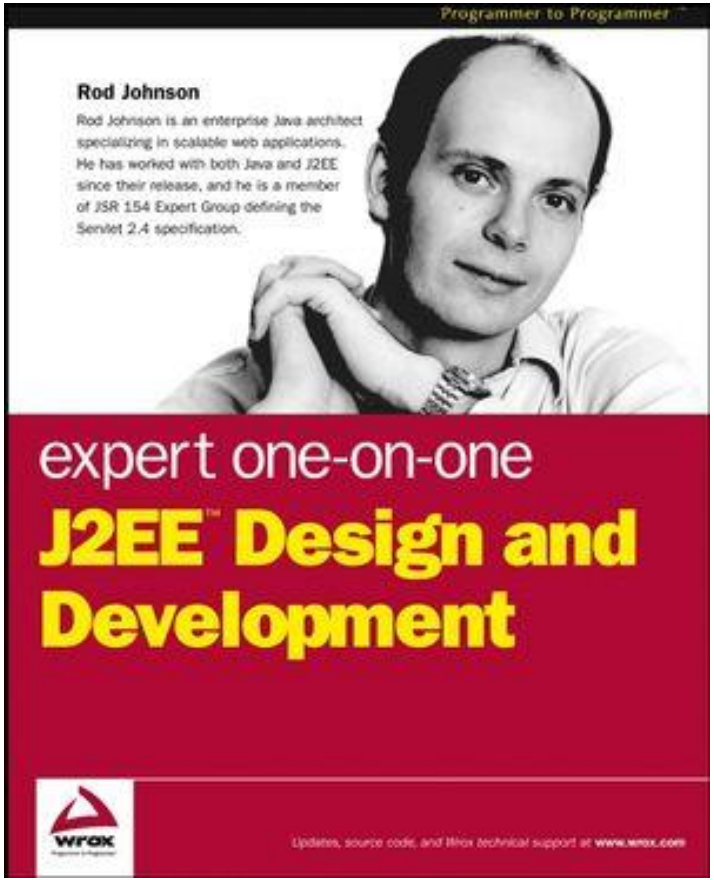
Java


J2EE

J2EE 1.4


Applet Container
Applet
J2SE
HTTP SSL
Web Container
JSP
Servlet
J2SE
EJB Container
EJB
J2SE
HTTP SSL
Application Client Container
Application Client
J2SE
Database
New in J2EE 1.4

The Road to Spring



October 2002

POJO

Spring History

- J2EE Design and Development – by Rod Johnson, 2002
  - Introducing the i21 framework
- First release of Spring: Spring 2004
- Spring 1.2.4: August 2005
- Open Source
  - Interface21 – small company with most core committers
  - Contributions from Oracle and other parties
  - Spawned many sub-projects

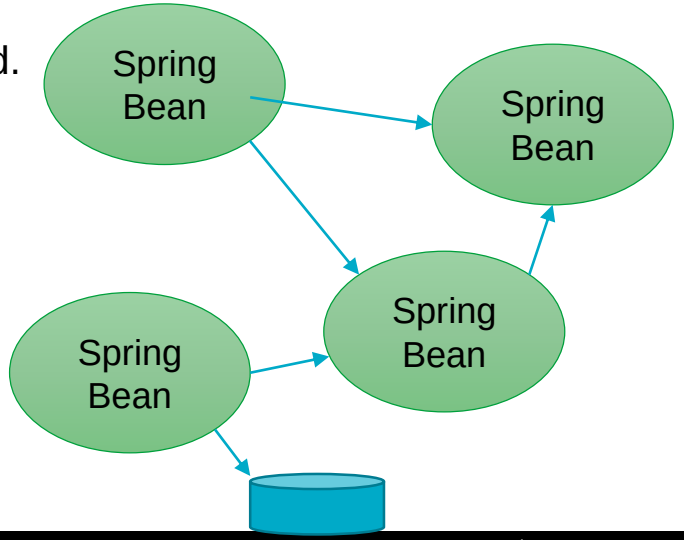
Spring – Power to the POJO
Introductie tot het Spring Framework

Lucas Jellema

Oracle Consulting –
Java Professional Community,
maandag 29 augustus 2005

Spring Fundamentals

- Power to the POJO
- Convention over configuration
- Open for extension, closed for modification
- Inversion of Control aka Dependency Injection
  - Objects are more cohesive because they are no longer responsible for obtaining their own collaborators.
  - When used with interfaces, code is very loosely coupled.



Spring Fundamentals

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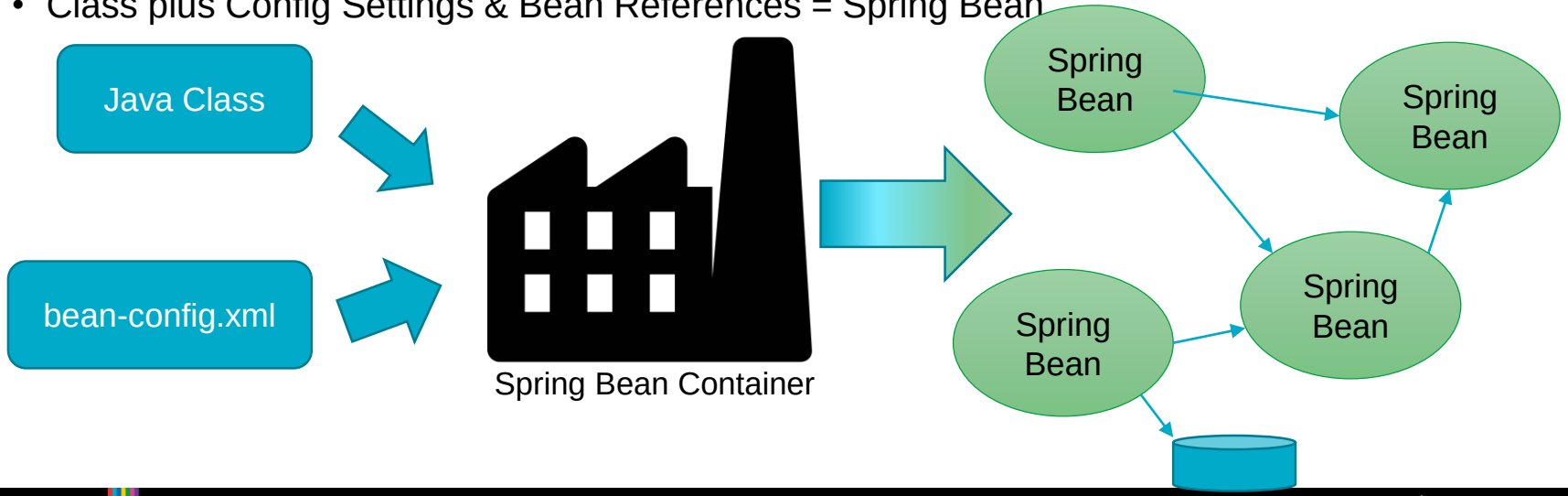
- Bean Factory
  - Class plus Config Settings & Bean References = Spring Bean



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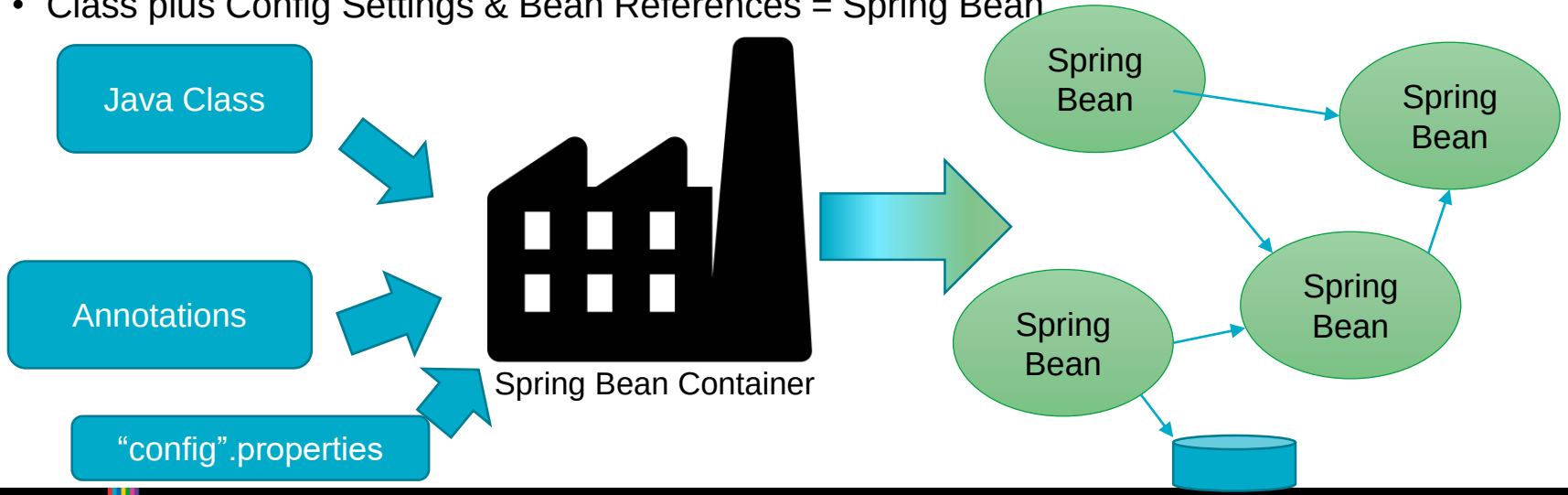


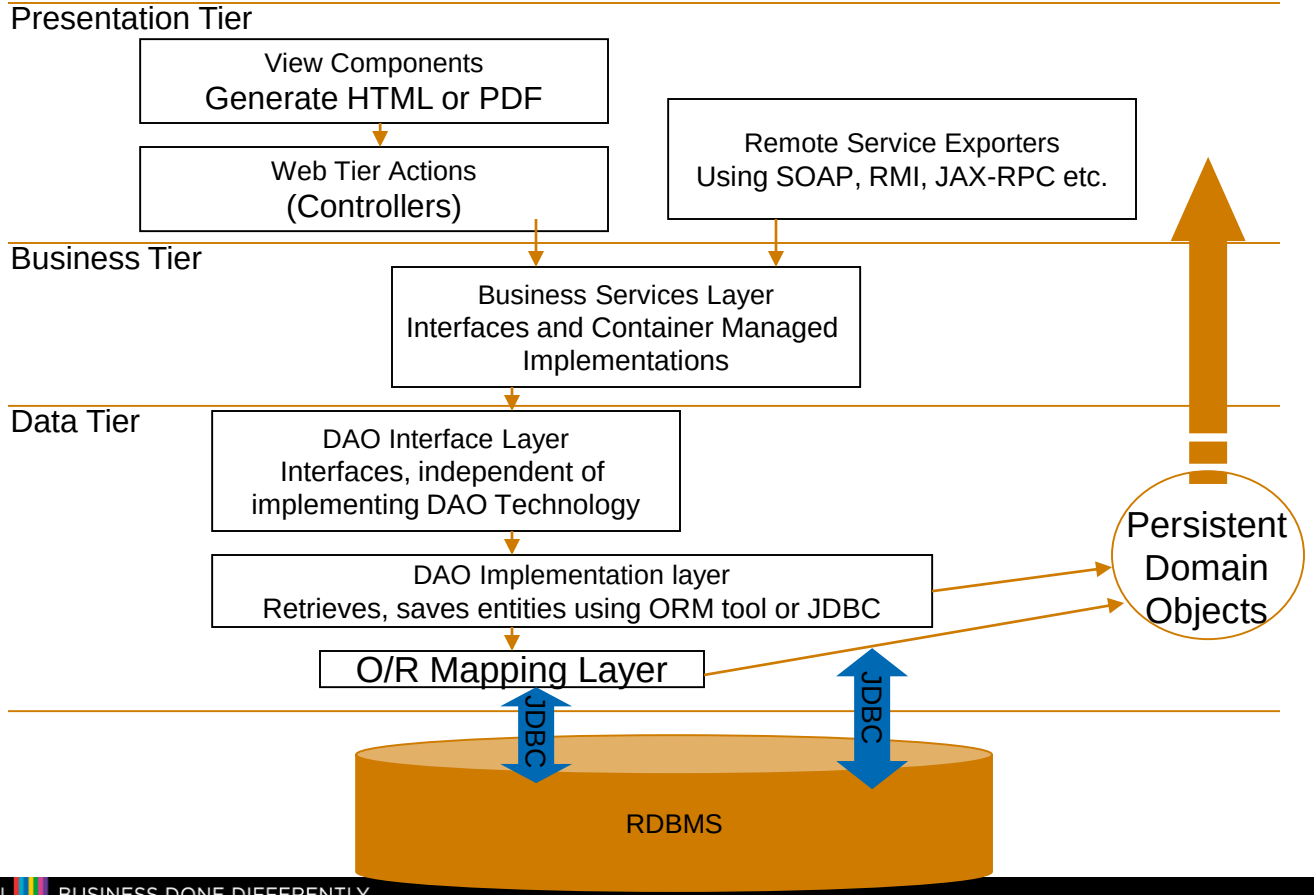
Template Pattern

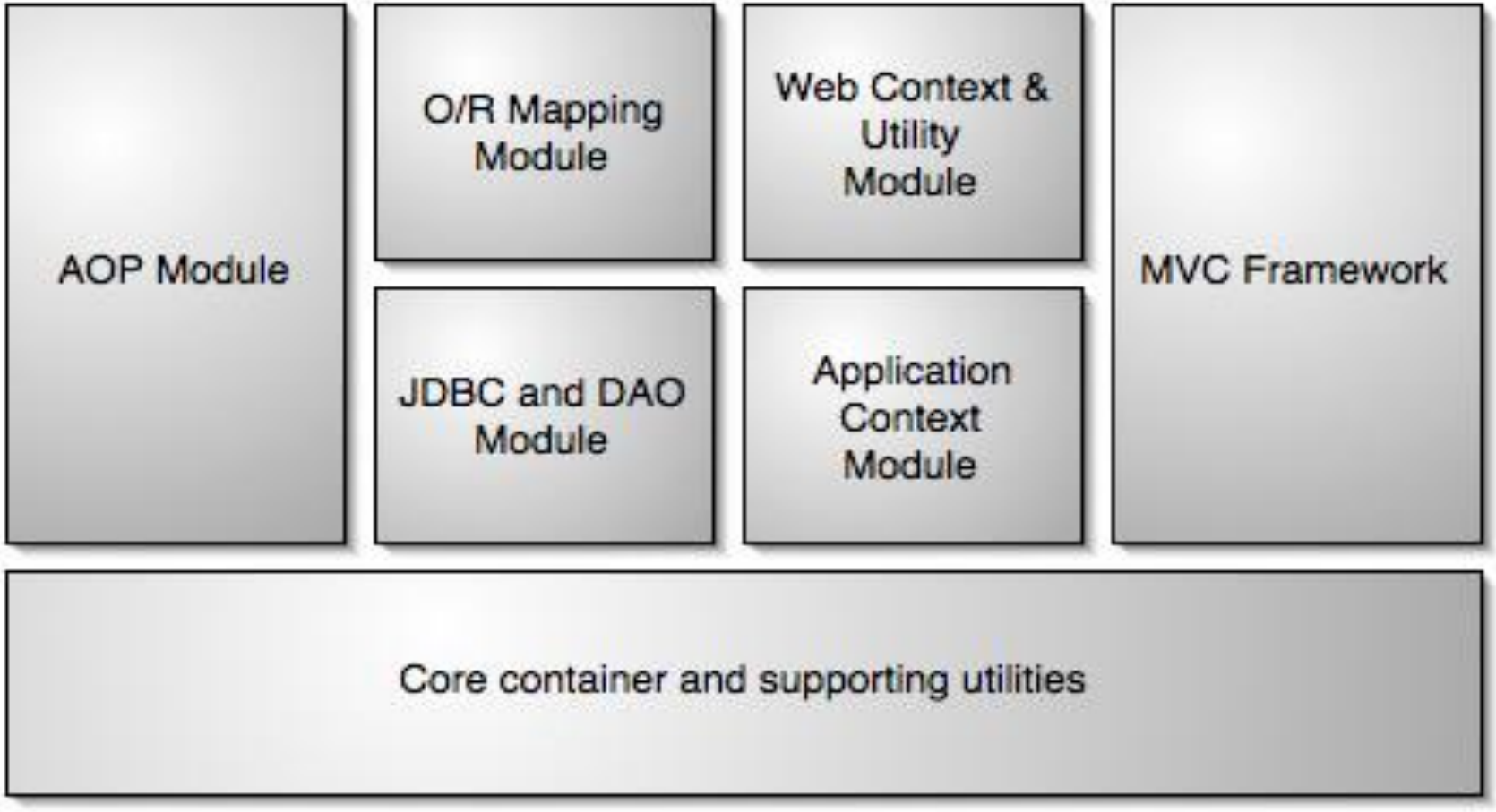
- Operations largely follows a standard algorithm
- At certain steps, specialization or customization is required
- Several implementations
  - Abstract ‘hook’ methods that sub-class may override
  - Parametrize behaviour and have invoker provide the details
    - Such as the SQL Query
- For example: Spring JDBC Templates
  - Implement all JDBC wiring
  - Parametrize the query and the result-handling

(2005:) Spring's recommended Application Guidelines and Architecture

- Program against interfaces
  - For example Service Interface, DAO Interfaces
  - Typically no interfaces for Domain Classes
- No configuration "plumbing" in your classes
  - Have configuration details injected
- Domain Classes are used through all tiers
  - No Struts ActionForms to wrap domain classes
  - Controllers use Business Service methods to create or manipulate Domain Objects
  - [No DTOs]
- Practice "Test driven development" (using Mock dependency injection by Spring during testing)
  - Agile Software Engineering methods, such as XP
  - First design and develop a test based on interfaces
    - Before implementing the interfaces
    - Before starting to resolve a bug
  - Automated Unit Testing for every class in the application

Spring's recommended architecture




AOP Module
O/R Mapping Module
Web Context & Utility Module
MVC Framework
JDBC and DAO Module
Application Context Module
Core container and supporting utilities

Spring History

Rod Johnson publishes the book Expert One-on-One J2EE Design and Development. The code in the book later becomes spring.

Oct 2002

Mar 2004

Spring Framework

Rod and team releases spring framework 1.0 under Apache 2.0 license. Soon it is adopted by a large number of Java developers.

Rod Johnson, Juergen Hoeller, Keith Donald and Colin Sampaleanu co-founded spring consulting company, Interface21.

Aug 2004

Oct 2006

Spring 2.0

Spring 2.0 was released. It had features such as simplified XML configuration, Java 5 support and support for dynamic languages.

Interface21 company renamed to SpringSource. Spring 2.5 was released with features such as annotation configuration.

Nov 2007

springsource By vmware

Aug 2009

SpringSource acquired by VMWare for $420 million. Prior to acquisition, SpringSource had acquired Covent and Hyperic.

Java EE 6

Spring 3.0 was released with features such support for expression language, java based bean configuration and Java EE6.

Dec 2009

Jul 2012

Rod Johnson leaves spring team. Spring framework's popularity highly influenced the Java EE platform evolution. Spring now powers a large number of apps.

Spring History

Apr 2013 — VMWare, EMC and GE create a new company named Pivotal. All spring applications are moved to this new company.

Dec 2013 — Pivotal releases spring 4.0. Major features included support for Java 8, groovy DSL for bean definitions and websockets.

Apr 2014 — Pivotal releases spring boot 1.0. Spring boot enabled quick spring app development with starter projects and auto configuration.

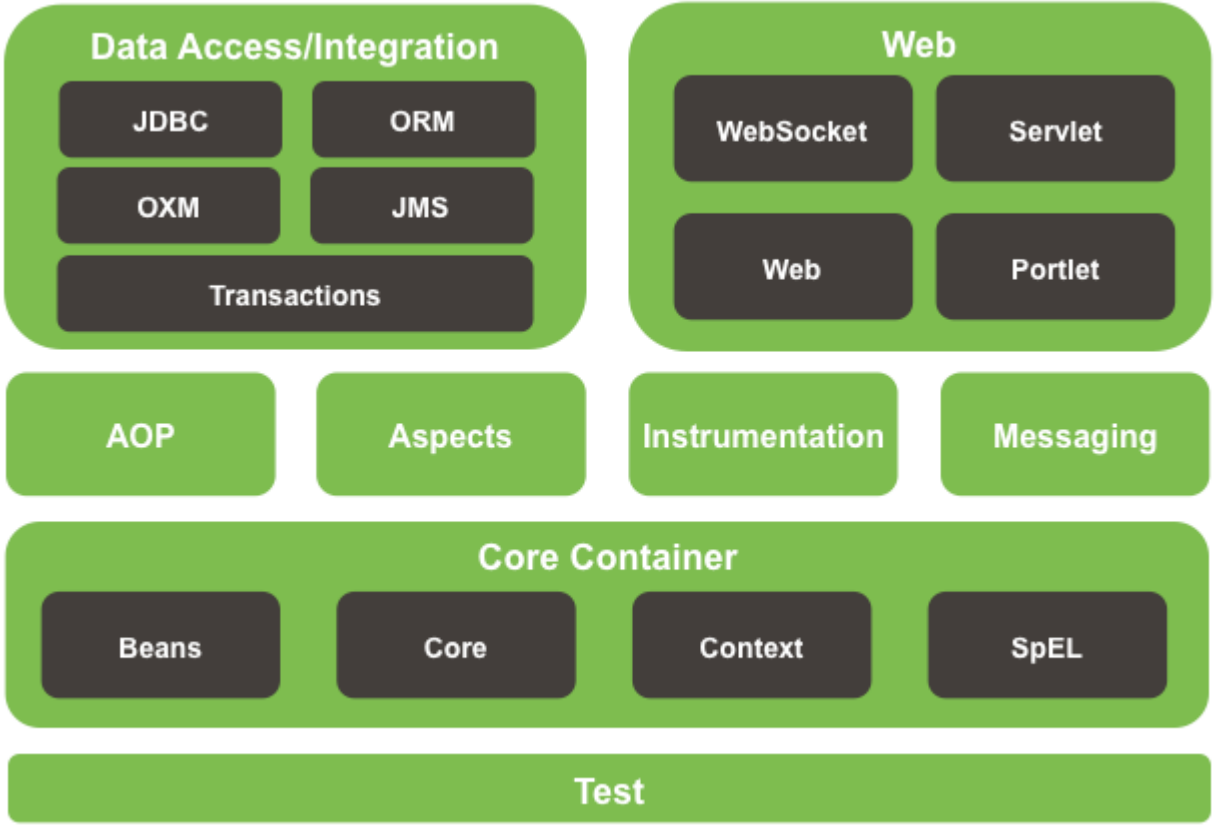
Jun 2014 — Spring io 1.0 was released. It consisted of a curated list of spring and third party libraries. Spring boot is part of spring io platform.

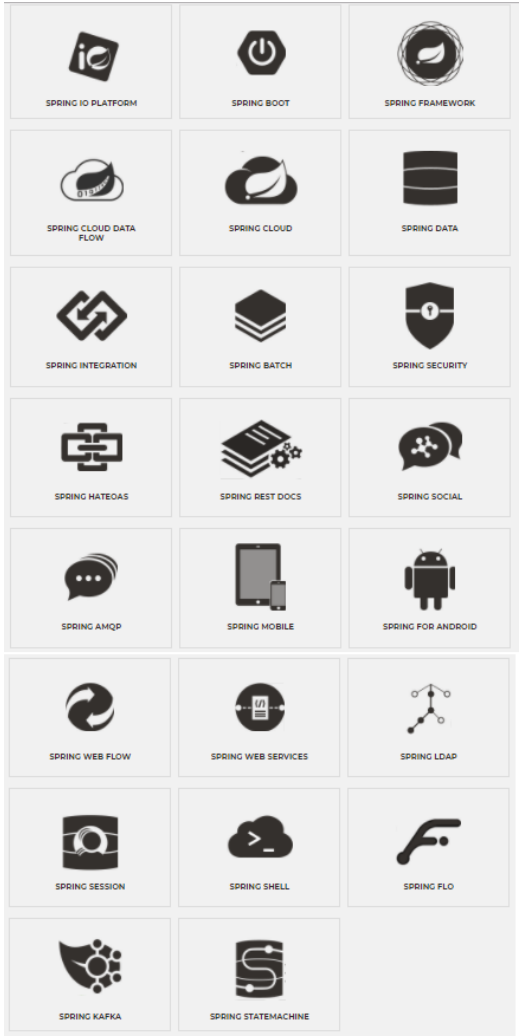
Mar 2017 — Pivotal releases spring boot (1.5.2), spring io (Brussels-SR1) and spring framework (4.3.7). These are the current versions.

July 2017 — Java JDK 9 and spring 5.0 is scheduled for release. Spring 5 supports reactive programming model and Java EE7.

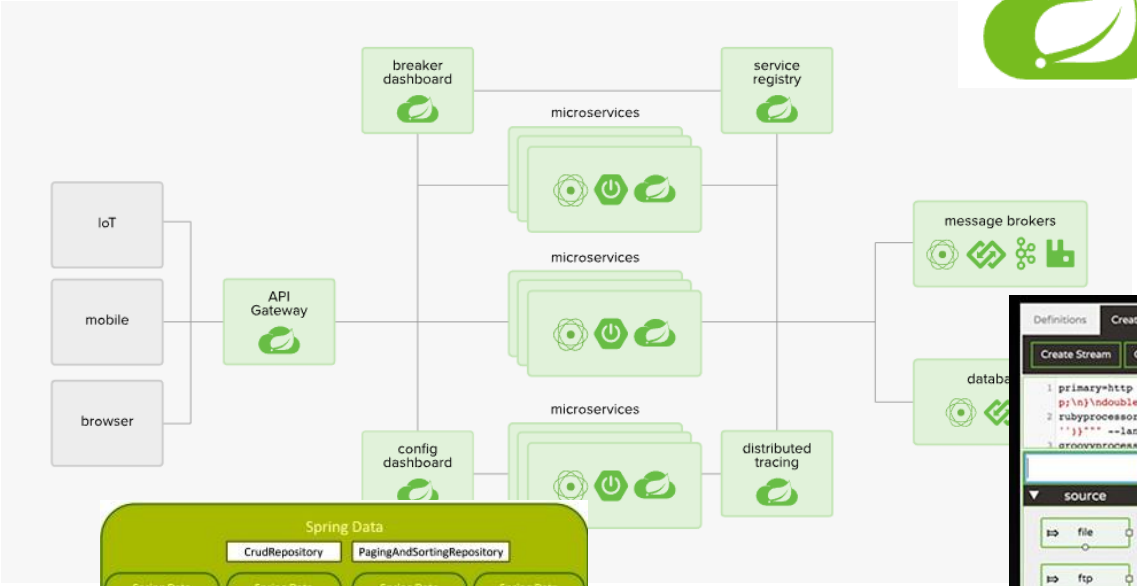
Nov 2017 — Release of spring boot 2.0 (based on spring 5 and JDK 9) and spring io cairo platform is anticipated before 2018.

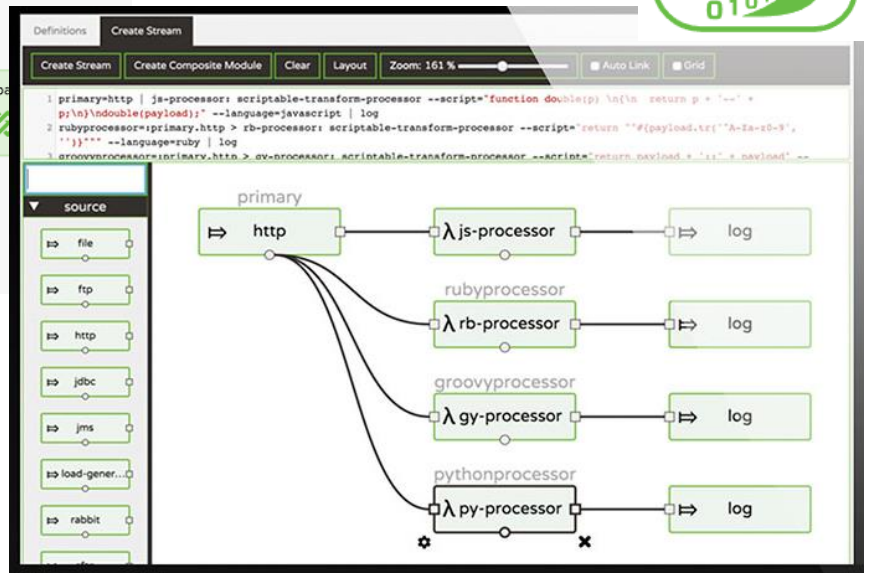
Spring Framework – extends far beyond a bean container





Spring – New Frontiers





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Spring Boot

Takes an opinionated view of building production-ready Spring applications. Spring Boot favors convention over configuration and is designed to get you up and running as quickly as possible.

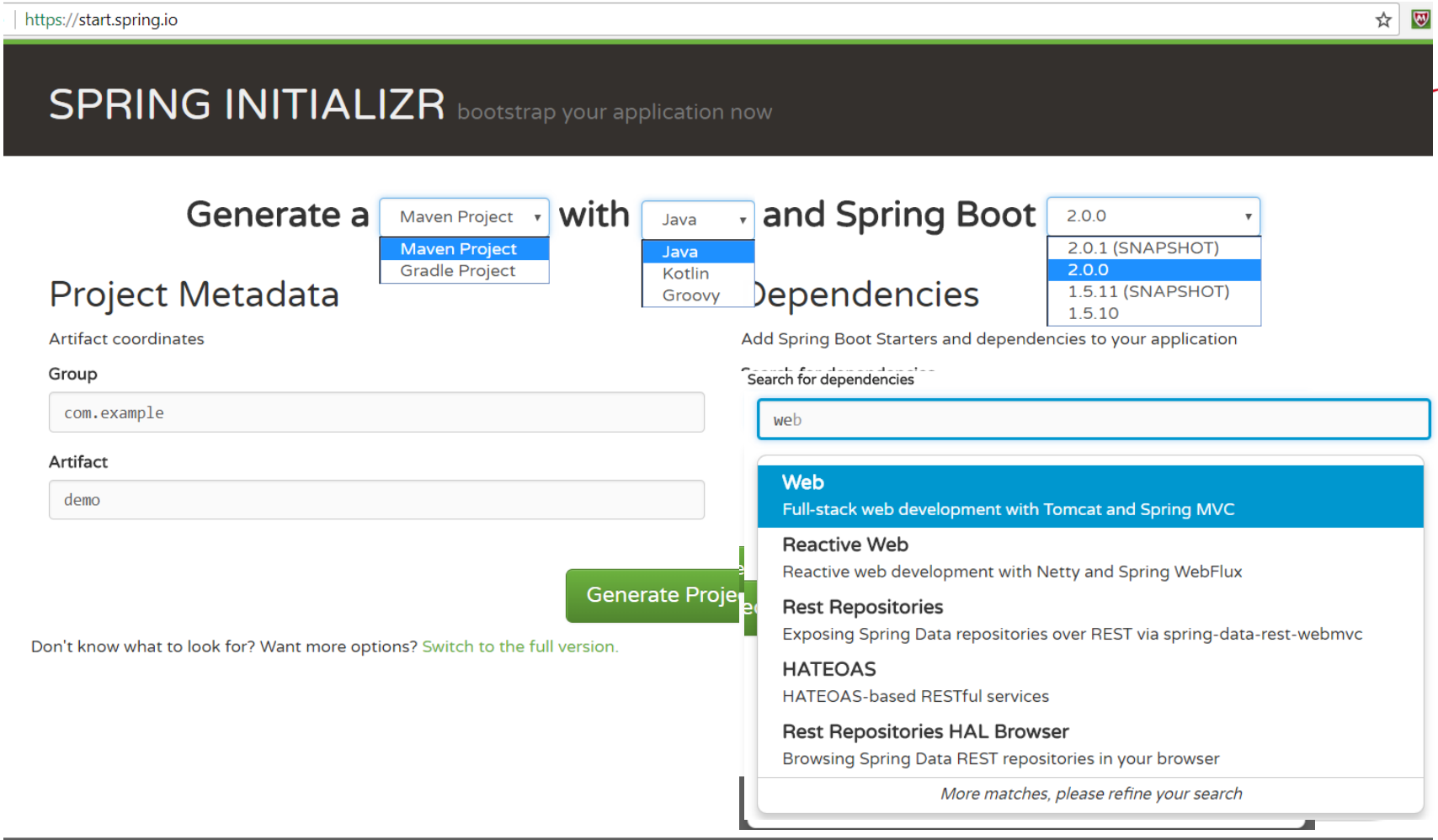
BUILD ANYTHING WITH SPRING BOOT

AMIS

- Spring Boot is the starting point for building all Spring-based applications. Spring Boot is designed to get you up and running as quickly as possible, with minimal upfront configuration.

- Get started in seconds using Spring Initializr
- Build anything - REST API, WebSocket, Web, Streaming, Tasks, and more
- Simplified Security
- Rich support for SQL and NoSQL
- Embedded runtime support - Tomcat, Jetty, and Undertow
- Developer productivity tools such as live reload and auto restart
- Curated dependencies that just work
- Production-ready features such as tracing, metrics and health status
- Works in your favorite IDE - Spring Tool Suite (on Eclipse), IntelliJ IDEA and NetBeans

Boot?


https://start.spring.io
SPRING INITIALIZR bootstrap your application now
Generate a Maven Project with Java and Spring Boot 2.0.0
Maven Project
Gradle Project
Java
Kotlin
Groovy
2.0.1 (SNAPSHOT)
2.0.0
1.5.11 (SNAPSHOT)
1.5.10
Project Metadata
Artifact coordinates
Group
com.example
Artifact
demo
Dependencies
Add Spring Boot Starters and dependencies to your application
Search for dependencies
web
Web
Full-stack web development with Tomcat and Spring MVC
Reactive Web
Reactive web development with Netty and Spring WebFlux
Rest Repositories
Exposing Spring Data repositories over REST via spring-data-rest-webmvc
HATEOAS
HATEOAS-based RESTful services
Rest Repositories HAL Browser
Browsing Spring Data REST repositories in your browser
More matches, please refine your search
Generate Proje
Don't know what to look for? Want more options? Switch to the full version.
start.spring.io is powered by Spring Initializr and Pivotal Web Services

Spring Boot – Release History

- 2014
  - Release 1.0 GA
  - Spring io 1.0.0
  - 1.1
- 2015
  - 1.2 & Spring io 2.0.0 & Spring Boot 1.3
- 2016
  - 1.4

- 2017
  - 1.5

- 2018
  - Spring Boot Release 2.0 GA (March 2018) on top of Spring Framework 5.0
    - 17 months work and over 6800 commits by 215 different individuals
    - Java 9, reactive web programming, Cassandra, CouchDB, MongoDB, redis, Quartz, Netty, HTTP/2, Micrometer based metrics, Kotlin support

J2EE

Java EE™


Jakarta
Java EE™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EDITION


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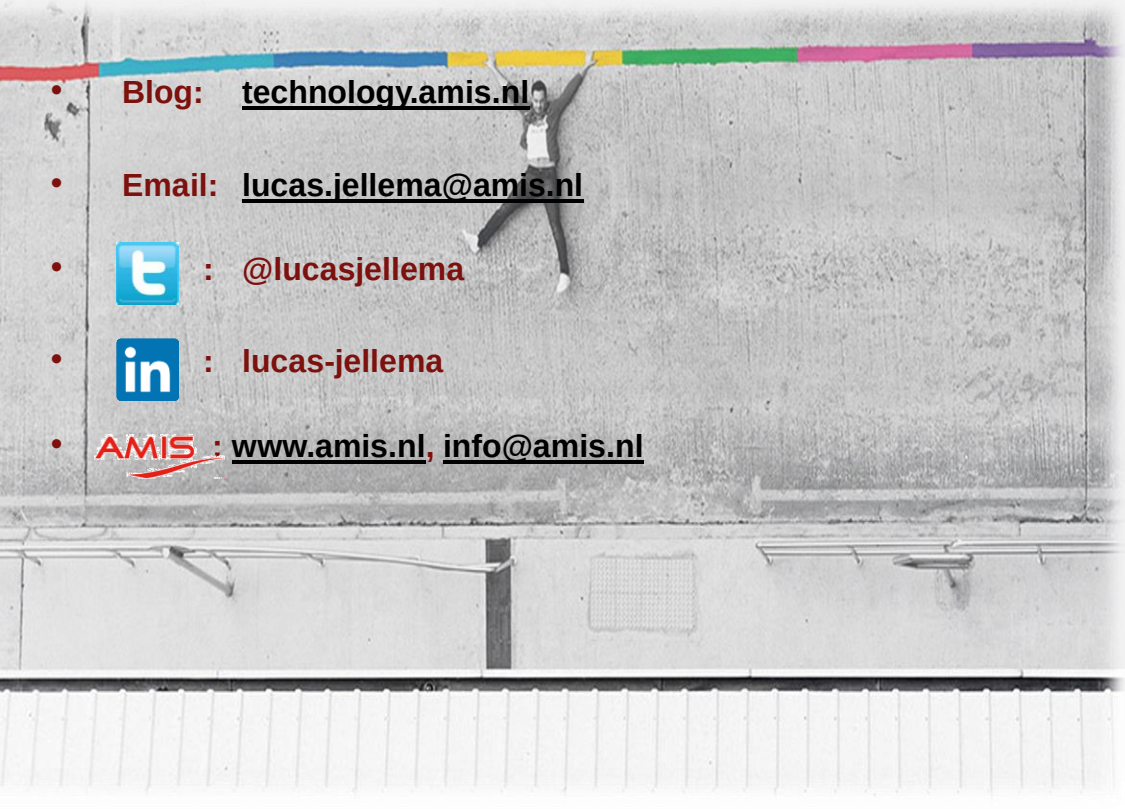

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Thank you!