

Spring Boot 3.0 is Coming!

Getting Ready for the New Season

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TALENTS

Abstract

Spring Boot 3.0 is Coming!

Getting Ready for the New Season

Alles neu machte der November – oder eben Spring Boot 3.0. Dieser Live-Workshop ist all den disruptiven Neuerungen im Spring-Ökosystem gewidmet. Neben der Anpassung der Java-Basisversion des Spring Frameworks 6.0 auf Java 17 und der Migration von Java EE zu Jakarta EE erkunden wir auch die Neuerungen rund um GraalVM und Native Images. Neben Tipps für neue Projekte wollen wir auch den Migrations-Pfad mit dem Spring-Boot-Migrator-Projekt ausprobieren und etwas über den Tellerrand schauen. Der Workshop beinhaltet einen guten Mix aus Präsentation und Live-Demos.

Spring Boot 3.0 Is Coming ...

**Getting Ready for the
New Season!**

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Introduction



Patrick Baumgartner

Software Crafter & Technical Agile
Coach @ 42talents

My focus is on the development of
software solutions with humans.

Coaching, Architecture, Development,
Reviews, and Training.

Lecturer @ Zürcher Fachhochschule für
Angewandte Wissenschaften ZHAW

[@patbaumgartner](#)

Why this talk?

JAVA 🤗 **& Spring Boot** ❤️



We Are Going to Cover ...

We Are Going to Cover ...

- Spring Boot Releases
- Java 17 Baseline
- Jakarta EE
- Spring Framework 6
- Declarative HTTP Clients
- Native Executables
- Observability
- Spring Boot Ecosystem
- Migrating Spring Boot Applications

Spring Boot

Spring
Security
□

Spring
Data

Spring
Cloud

...

Spring Framework

Project
Reactor

Micrometer

2.7

May '22

3.0

Nov '22

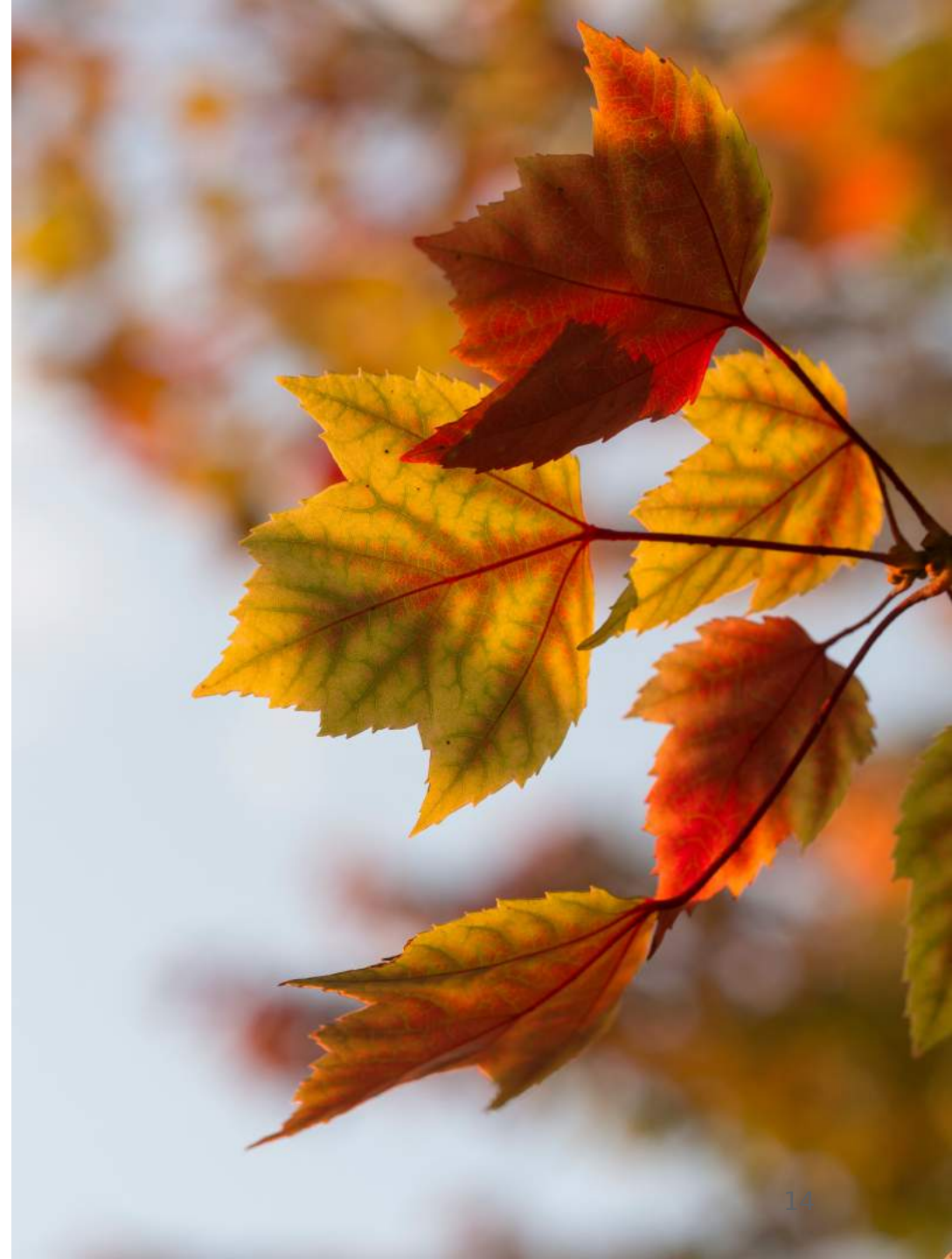
Spring Boot 2.7

- Java 8 Baseline, 11 & 17+ Support
- Spring Framework 5.3
- Java EE 8



Spring Boot 2.7 (cont.)

- Improvements to actuator endpoints
- Spring GraphQL starter
- Infrastructure updates
- AutoConfiguration infrastructure
- @JsonMixin



Spring Boot 3.0

- Spring Framework 6.0
- Java 17 Baseline & Java 19 Support
- JakartaEE 10 with EE 9 baseline
- Native Images with GraalVM
- Improved Observability with Micrometer and Micrometer Tracing



Minimal Requirements

- Kotlin 1.7+
- Lombok 1.18.22+ (JDK17 support)
- Gradle 7.3+
- ...



Deprecations

- Drop RPC-style remoting: Hessian, HTTP Invoker, JMS Invoker, JAX-WS
- SecurityManager
- EJB
- Joda-Time support removal
- RxJava 1/2
- ...

Spring Initializr

https://start.spring.io

spring initializr

Project

☒ Gradle - Groovy

☐ Gradle - Kotlin

☐ Maven

Language

☒ Java

☐ Kotlin

☐ Groovy

Spring Boot

☐ 3.0.3 (SNAPSHOT)

☒ 3.0.2

☐ 2.7.9 (SNAPSHOT)

☐ 2.7.8

Project Metadata

Group

com.example

Artifact

demo

Name

demo

Description

Demo project for Spring Boot

Package name

com.example.demo

Packaging

☒ Jar

☐ War

Java

☐ 19

☒ 17

☐ 11

☐ 8

Dependencies

ADD DEPENDENCIES... CTRL + B

No dependency selected

GENERATE CTRL + ↵

EXPLORE CTRL + SPACE

SHARE...

19

Switch the default project type to Gradle #1012

New issue

 Closed wilkinsona opened this issue on Oct 18, 2022 · 7 comments




wilkinsona commented on Oct 18, 2022 · edited

Contributor  ...

It's the start.spring.io team's opinion that, for anyone starting a project today, Gradle is the better build system to use. This is particularly true for Spring Boot 3.0-based applications where the developer experience with AOT processing is quite a bit better with Gradle. We'd like to nudge the community towards using Gradle while ensuring that Maven's only a click away for those that prefer it.

For anyone who'd like Maven to always be their default, you can access start.spring.io using <https://start.spring.io/#!type=maven-project>. `type` isn't the only parameter that's supported. You can also change the Java version, language, packaging, etc via the URL. You can use the Share button to generate a URL and then just keep the bits that you always want to use by default.

 53  44  12  1

 wilkinsona added the `type: enhancement` label on Oct 18, 2022

 snicoll self-assigned this on Oct 18, 2022

 snicoll closed this as completed in [fd7821e](#) on Oct 19, 2022



simasch commented on Oct 20, 2022

 ...

Why do you think that Gradle is the better build system? In my opinion, Maven is much easier to use and less confusing, especially for beginners.

 49  14

Assignees

 snicoll

Labels

`type: enhancement`

Projects

None yet

Milestone

No milestone

Development

No branches or pull requests

Notifications

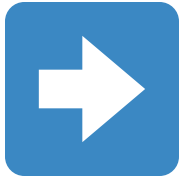
Customize

 Subscribe

You're not receiving notifications from this thread.

8 participants



javax.*  **jakarta.***

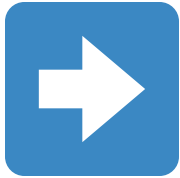
javax.persistence.* ➡ jakarta.persistence.*

javax.validation.* ➡ jakarta.validation.*

javax.servlet.* ➡ jakarta.servlet.*

javax.annotation.* ➡ jakarta.annotation.*

javax.transaction.* ➡ jakarta.transaction.*

javax.*  **jakarta.***

- Only javax.* packages that are part of the Jakarta EE specification will be renamed to jakarta.*
- ⚠ javax.sql.* and javax.crypto.* will not change to jakarta.*

Spring HTTP Interface Client

Spring HTTP Interface Client

```
@HttpExchange(url = "/health", accept = MediaType.APPLICATION_JSON_VALUE)
public interface HttpHealthActuatorClient {

    @GetExchange
    HealthResponse getHealth();

    @GetExchange("/{component}")
    HealthResponse getHealth(@PathVariable String component);

}
```

<https://docs.spring.io/spring-framework/docs/6.0.0/reference/html/integration.html#rest-http-interface>

Problem Details (RFC 7807)

```
@ControllerAdvice(annotations = RestController.class)
public class QuestionsControllerAdvice {

    @ExceptionHandler(UnknownAnswerException.class)
    ProblemDetail handleUnknownAnswerException(UnknownAnswerException ex){
        ProblemDetail problemDetail = ProblemDetail.forStatus(HttpStatus.NOT_FOUND);
        problemDetail.setType(URI.create("https://42talents.com/problems/answers"));
        problemDetail.setTitle("Unknown Answer.");
        problemDetail.setDetail(
            String.format("Answer for Question '%s' not found.", ex.getQuestion())
        );
        return problemDetail;
    }
}
```

<https://www.rfc-editor.org/rfc/rfc7807>

JVM

Runtime

AOT

Build time

Native
Image

Build time
+ GraalVM
Native Images

JVM

Runtime

AOT

Build time

Native
Image

Build time
+ GraalVM
Native Images

Spring Boot 2.7

Spring Native

Spring Framework 6, Spring Boot 3, ecosystem projects

Maven Plugins

```
<build>
  <plugins>
    <plugin>
      <groupId>org.graalvm.buildtools</groupId>
      <artifactId>native-maven-plugin</artifactId>
    </plugin>
    <plugin>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-maven-plugin</artifactId>
    </plugin>
  </plugins>
</build>
```


Resource Hints

```
public class ApplicationRuntimeHints implements RuntimeHintsRegistrar {  
  
    @Override  
    public void registerHints(RuntimeHints hints, ClassLoader classLoader) {  
        hints.resources().registerPattern("db/*");  
        hints.resources().registerPattern("messages/*");  
        hints.resources().registerPattern("META-INF/resources/webjars/*");  
    }  
  
}
```

<https://github.com/spring-projects/spring-boot/issues/32654>

Observability

- Spring Framework 6 introduces Spring Observability
- Micrometer and Micrometer Tracing (formerly Spring Cloud Sleuth)
- AutoConfiguration is provided by Spring Boot 3
- Spring Projects are instrumenting themselves using the new Observation API

Ecosystem

- Spring Data 2022.0.x Releases (available from 18.11.2022)
 - Spring Data JPA is upgrading to Hibernate 6
 - Spring Data has finally a `ListCrudRepository` which returns `Lists` instead of `Iterables`.
- Spring Cloud 2022.0.x Releases (available from 16.12.2022)
- Spring Modulith 0.1 *Experimental* (available from 24.11.2022)
- Spring Security 6.0.0 (available from 21.11.2022)
 - Spring Authorization Server 1.0
- Native Images Reachability Metadata Repository

<https://github.com/oracle/graalvm-reachability-metadata>

Not all custom starters are adjusted yet!

Workarounds

```
@SpringBootApplication
@EnableConfigurationProperties({RestClientProperties.class, BotProperties.class})
// Legacy Import AutoConfiguration
// Import Candidates are not supported yet in starter defined
@Import(TelegramBotStarterConfiguration.class)
public class TelegramSenderApplication {

    public static void main(String[] args) {
        SpringApplication.run(TelegramSenderApplication.class, args);
    }
}
```

Spring Boot Starters / Auto-Configurations

Import Candidates in META-INF/spring/

org.springframework.boot.autoconfigure.AutoConfiguration.imports

```
...
org.springframework.boot.autoconfigure.integration.IntegrationAutoConfiguration
org.springframework.boot.autoconfigure.jackson.JacksonAutoConfiguration
org.springframework.boot.autoconfigure.jdbc.DataSourceAutoConfiguration
org.springframework.boot.autoconfigure.jdbc.JdbcTemplateAutoConfiguration
org.springframework.boot.autoconfigure.jdbc.JndiDataSourceAutoConfiguration
org.springframework.boot.autoconfigure.jdbc.XADataSourceAutoConfiguration
org.springframework.boot.autoconfigure.jdbc.DataSourceTransactionManagerAutoConfiguration
...
org.springframework.boot.autoconfigure.mongo.embedded.EmbeddedMongoAutoConfiguration
org.springframework.boot.autoconfigure.mongo.MongoAutoConfiguration
org.springframework.boot.autoconfigure.mongo.MongoReactiveAutoConfiguration
org.springframework.boot.autoconfigure.mustache.MustacheAutoConfiguration
org.springframework.boot.autoconfigure.neo4j.Neo4jAutoConfiguration
org.springframework.boot.autoconfigure.netty.NettyAutoConfiguration
org.springframework.boot.autoconfigure.orm.jpa.HibernateJpaAutoConfiguration
org.springframework.boot.autoconfigure.quartz.QuartzAutoConfiguration
org.springframework.boot.autoconfigure.r2dbc.R2dbcAutoConfiguration
org.springframework.boot.autoconfigure.r2dbc.R2dbcTransactionManagerAutoConfiguration
...
```

Auto Configuration

```
@AutoConfiguration(before = SqlInitializationAutoConfiguration.class)
@ConditionalOnClass({ DataSource.class, EmbeddedDatabaseType.class })
@ConditionalOnMissingBean(type = "io.r2dbc.spi.ConnectionFactory")
@EnableConfigurationProperties(DataSourceProperties.class)
@Import(DataSourcePoolMetadataProvidersConfiguration.class)
public class DataSourceAutoConfiguration {

    @Configuration(proxyBeanMethods = false)
    @Conditional(EmbeddedDatabaseCondition.class)
    @ConditionalOnMissingBean({ DataSource.class, XADataSource.class })
    @Import(EmbeddedDataSourceConfiguration.class)
    protected static class EmbeddedDatabaseConfiguration {

    }

    @Configuration(proxyBeanMethods = false)
    @Conditional(PooledDataSourceCondition.class)
    @ConditionalOnMissingBean({ DataSource.class, XADataSource.class })
    @Import({ DataSourceConfiguration.Hikari.class, DataSourceConfiguration.Tomcat.class,
        DataSourceConfiguration.Dbc2.class, DataSourceConfiguration.OracleUcp.class,
        DataSourceConfiguration.Generic.class, DataSourceJmxConfiguration.class })
    protected static class PooledDataSourceConfiguration {

    }
```

Conditions

- Configuration with `@Conditional`
 - `OnClass` / `OnMissingClass`
 - `OnBean` / `OnMissingBean`
 - `OnProperty`
 - `OnResource`
 - `OnExpression`
 - `OnJava`
 - `OnJndi`
 - `OnSingleCandidate`
 - `OnWarDeployment`
 - `OnWebApplication` / `OnNotWebApplication`
 - `OnCloudPlatform`

The screenshot shows a web browser displaying the GitHub page for the Spring Boot 3.0 Migration Guide. The browser's address bar shows the URL `github.com/spring-projects/spring-boot/wiki/Spring-Boot-3.0-Migration-Guide`. The GitHub navigation bar at the top includes a search bar, links for Pull requests, Issues, Codespaces, Marketplace, and Explore, and a user profile icon. Below the navigation bar, the repository name `spring-projects / spring-boot` is shown with a 'Public' label. To the right of the repository name are buttons for 'Watch' (3.4k), 'Fork' (37.9k), and 'Starred' (65.4k). A secondary navigation bar contains links for Code, Issues (559), Pull requests (29), Actions, Projects, Wiki (which is highlighted), Security, and Insights. The main content area features the title 'Spring Boot 3.0 Migration Guide' and a subtitle 'Moritz Halbritter edited this page 2 weeks ago · 19 revisions'. Below the title, a paragraph states: 'This document is meant to help you migrate your application to Spring Boot 3.0.' To the right of this paragraph is a 'Pages' button with a count of 186. The content is organized into sections: 'Before You Start', 'Upgrade to the Latest 2.7.x Version', 'Review Dependencies', and 'Spring Security'. The 'Upgrade to the Latest 2.7.x Version' section contains the text: 'Before you start the upgrade, make sure to upgrade to the latest available 2.7.x version. This will make sure that you are building against the most recent dependencies of that line.' The 'Review Dependencies' section contains the text: 'The move to Spring Boot 3 will upgrade a number of dependencies and might require work on your end. You can review [dependency management for 2.7.x](#) with [dependency management for 3.0.x](#) to asses how your project is affected.' The 'Spring Security' section is partially visible. On the right side of the page, there is a sidebar with a 'Pages' section containing links for 'Home' and 'Supported Versions'. Below this is a 'Release Notes' section with links for 'v3.0', 'v2.7', and 'Older Versions'. Further down is a 'Migration Guides' section with links for 'v2.7 → v3.0', 'v1.5 → v2.0', and 'v2.4+ Config Data'. At the bottom of the sidebar is a 'Help' section.

Spring Boot 3.0 Migration Guide

Moritz Halbritter edited this page 2 weeks ago · 19 revisions

This document is meant to help you migrate your application to Spring Boot 3.0.

Before You Start

Upgrade to the Latest 2.7.x Version

Before you start the upgrade, make sure to upgrade to the latest available 2.7.x version. This will make sure that you are building against the most recent dependencies of that line.

Review Dependencies

The move to Spring Boot 3 will upgrade a number of dependencies and might require work on your end. You can review [dependency management for 2.7.x](#) with [dependency management for 3.0.x](#) to asses how your project is affected.

You may also use dependencies that are not managed by Spring Boot (e.g. Spring Cloud). As your project defines an explicit version for those, you need first to identify the compatible version before upgrading.

Spring Security

Pages 186

Pages

- [Home](#)
- [Supported Versions](#)

Release Notes

- [v3.0](#)
- [v2.7](#)
- [Older Versions](#)

Migration Guides

- [v2.7 → v3.0](#)
- [v1.5 → v2.0](#)
- [v2.4+ Config Data](#)

Help

`spring.config.use-legacy-processing`
Is Not Working Anymore

spring-projects-experimental/spring-boot-migrator

Public

Watch 6 Fork 43 Star 256

Code Issues 209 Pull requests 10 Discussions Actions Projects 2 Wiki Security Insights

main 24 branches 5 tags

Go to file Add file Code

sanagaraj-pivotal Instructs user to open upgrade URL with correct port (#717) 599725b 4 days ago 454 commits

.github	Update issue templates	last year
.mvn/wrapper	initial sbm commit	last year
applications	Instructs user to open upgrade URL with correct port (#717)	4 days ago
ci	Set JVM file.encoding to UTF-8 in Dockerfile	last year
components	fix: Remove outdated recipe with broken link (#711)	2 weeks ago
demos	Spring Boot 3 Upgrade Report (#553)	last year
docs	docs: Change documentation after refactoring	last year
ide-integrations/eclipse/com.vmware...	initial sbm commit	last year
images	initial sbm commit	last year
testcode	initial sbm commit	last year
.gitignore	initial sbm commit	last year
.licenserc.json	initial sbm commit	last year
.sdkmanrc	Add .sdkmanrc with 17.0.4-tem	last year

About

Spring Boot Migrator (SBM) is a tool for automated code migrations to upgrade or migrate to Spring Boot

cli automation spring-boot tool migration-tool

Readme Apache-2.0 license Code of conduct Security policy 256 stars 6 watching 43 forks

Releases 5

v0.13.0 Latest on Dec 2, 2022

+ 4 releases

<https://github.com/spring-projects-experimental/spring-boot-migrator>

Summary

Summary

Spring Boot	2.7	3.0
Spring Framework	5.3	6.0
ETA	May '22	Nov '22
Support (Commercial)	Nov '23 Feb '25	Nov '23 Feb '25
Java	8/11/17+	17+
JavaEE / Jakarta EE	7/8	9+
Jakarta Namespace	javax.*	jakarta.*
Native Support	Spring Native	built in



Questions?

Did I miss something? 

Let me/us know! 

... or not! 

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