



New features in Spring Boot 4

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2025-12-02

About me



git log

- GraalVM native image support
- Observability
- Docker Compose & Testcontainers support
- Virtual threads
- SSL hot reload
- CDS, SBOM
- Structured Logging
- JSpecify Nullability
- ...

4.0 has been released!

Branch	Initial Release	End of OSS Support	End Enterprise Support *
4.0.x	2025-11	2026-12	2027-12
3.5.x	2025-05	2026-06	2032-06
3.4.x	2024-11	2025-12	2026-12
3.3.x	2024-05	2025-06	2026-06
3.2.x	2023-11	2024-12	2025-12
2.7.x	2022-05	2023-06	2029-06

[More ▾](#)

The timeline chart illustrates the support periods for different Spring branches. A vertical dashed blue line marks the date 2025-12-01. The branches and their support spans are:

- 4.0.x: Initial release in 2025-11, OSS support ends in 2026-12, Enterprise support ends in 2027-12.
- 3.5.x: Initial release in 2025-05, OSS support ends in 2026-06, Enterprise support ends in 2032-06.
- 3.4.x: Initial release in 2024-11, OSS support ends in 2025-12, Enterprise support ends in 2026-12.
- 3.3.x: Initial release in 2024-05, OSS support ends in 2025-06, Enterprise support ends in 2026-06.
- 3.2.x: Initial release in 2023-11, OSS support ends in 2024-12, Enterprise support ends in 2025-12.
- 2.7.x: Initial release in 2022-05, OSS support ends in 2023-06, Enterprise support ends in 2029-06.

[More ▾](#)

Spring Framework Baseline upgrades

- Java 17 baseline unchanged but Java 25 recommended
- Kotlin 2.2
- GraalVM 25 with the new reachability metadata format
- JPA 3.2 (Hibernate ORM 7.1)
- Bean Validation 3.1 (Hibernate Validator 9.0)
- Netty 4.2
- JUnit 6
- JSONassert 2.0

New features

- [JSpecify null-safety support](#)
- [Modularization of the auto-configuration](#)
- [Jackson 3](#)
- [OpenTelemetry Starter](#)
- [HTTP Service Clients](#)
- [API Versioning](#)
- Liveness and Readiness probes enabled by default
- Kotlin Serialization
- Support for RestTestClient
- And all the features of upstream projects like Spring Data, Spring Security, Spring Framework, etc.
- ...

Null Safety portfolio-wide!



Spring
Boot



Spring
Framework



Spring
Data



Spring
Security
(partial)



Spring AI
(2.0)

Spring Boot Modularity

Spring Boot 3.x

Spring Boot 4.x

spring-boot-autoconfigure
(and also `spring-boot-test-autoconfigure`)

Contains all auto-configurations
for all supported libraries

spring-boot-actuator

spring-boot-webmvc

spring-boot-web-server

spring-boot-tomcat

spring-boot-restclient

spring-boot-...

One auto-configuration library for
every supported dependency

Why?

- Less clutter in auto-completion for classes and properties
- Better signal for auto-configuration, e.g.:
 - having webflux on the classpath just for webclient doesn't configure a reactive web server
 - having Spring Security on the classpath doesn't configure a `SecurityFilterChain`
- New features
 - E.g. metrics and tracing without the need for spring-boot-actuator
- Slightly smaller JARs for you
 - Only include what's needed
- Improved maintainability of the Spring Boot codebase
 - More isolated changes
 - Faster build
 - Architecture validated through build system

Spring Boot 3.5.8 (^5.6 MiB)

```
> ll spring-boot* -s size
Permissions Size User      Group      Date Modified     Name
.rw-r--r--@ 52k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-jarmode-tools-3.5.8.jar
.rw-r--r--@ 704k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-actuator-3.5.8.jar
.rw-r--r--@ 843k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-actuator-autoconfigure-3.5.8.jar
.rw-r--r--@ 1,9M mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-3.5.8.jar
.rw-r--r--@ 2,1M mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-autoconfigure-3.5.8.jar
```

Spring Boot 4.0.0 (^3.8 MiB)

```
> ll spring-boot* -s size
Permissions Size User      Group      Date Modified     Name
.rw-r--r--@ 15k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-validation-4.0.0.jar
.rw-r--r--@ 16k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-persistence-4.0.0.jar
.rw-r--r--@ 16k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-data-jpa-4.0.0.jar
.rw-r--r--@ 21k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-transaction-4.0.0.jar
.rw-r--r--@ 24k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-jpa-4.0.0.jar
.rw-r--r--@ 29k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-micrometer-observation-4.0.0.jar
.rw-r--r--@ 29k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-hibernate-4.0.0.jar
.rw-r--r--@ 30k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-data-commons-4.0.0.jar
.rw-r--r--@ 31k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-thymeleaf-4.0.0.jar
.rw-r--r--@ 36k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-sql-4.0.0.jar
.rw-r--r--@ 47k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-http-converter-4.0.0.jar
.rw-r--r--@ 47k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-servlet-4.0.0.jar
.rw-r--r--@ 53k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-jarmode-tools-4.0.0.jar
.rw-r--r--@ 68k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-jackson-4.0.0.jar
.rw-r--r--@ 84k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-cache-4.0.0.jar
.rw-r--r--@ 122k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-tomcat-4.0.0.jar
.rw-r--r--@ 144k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-actuator-autoconfigure-4.0.0.jar
.rw-r--r--@ 154k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-health-4.0.0.jar
.rw-r--r--@ 168k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-webmvc-4.0.0.jar
.rw-r--r--@ 174k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-web-server-4.0.0.jar
.rw-r--r--@ 201k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-jdbc-4.0.0.jar
.rw-r--r--@ 242k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-micrometer-metrics-4.0.0.jar
.rw-r--r--@ 357k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-actuator-4.0.0.jar
.rw-r--r--@ 369k mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-autoconfigure-4.0.0.jar
.rw-r--r--@ 1,4M mhalbritter mhalbritter 2024-11-28 14:37 spring-boot-4.0.0.jar
```



New starters

- Every supported dependency has now its own starter (and a `-test` starter)
- E.g.
 - Flyway: `org.flywaydb:flyway-core` → `spring-boot-starter-flyway`
 - Liquibase: `org.liquibase:liquibase-core` → `spring-boot-starter-liquibase`
 - Kafka: `org.springframework.kafka:spring-kafka` → `spring-boot-starter-kafka`
 - Zipkin: `io.zipkin.reporter2:zipkin-reporter-brave` → `spring-boot-starter-zipkin`
 - LDAP: `com.unboundid:unboundid-ldapsdk` → `spring-boot-starter-ldap`
 - GSON: `spring-boot-starter-gson`
 - Hazelcast: `spring-boot-starter-hazelcast`
 - OpenTelemetry: `spring-boot-starter-opentelemetry`
 - And more, the full list [can be found in the upgrade guide](#)

Beware: RestTemplate / RestClient / WebClient

- `spring-boot-starter-webmvc` no longer pulls in auto-configuration for `RestTemplate`, `RestClient` or `WebClient`
- If you need a `RestTemplate` / `RestClient`, add:
 - `spring-boot-starter-restclient`
- `RestTemplate` is now deprecated for removal, use `RestClient` instead
- If you need a `WebClient`, add:
 - `spring-boot-starter-webclient`

Test starters

- Every starter has a matching -test starter
- E.g.
 - `spring-boot-starter-webmvc` has
`spring-boot-starter-webmvc-test`
 - `spring-boot-starter-security` has
`spring-boot-starter-security-test`
 - `spring-boot-starter-flyway` has
`spring-boot-starter-flyway-test`
- These tests starters contain test support for the technology
 - E.g. the flyway test starter depends on `spring-boot-jdbc-test`, which ships `@AutoConfigureJdbc`, `@AutoConfigureTestDatabase` and `@JdbcTest`

Spring Boot 3.5.x

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
</dependency>
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-security</artifactId>
</dependency>
<dependency>
    <groupId>org.flywaydb</groupId>
    <artifactId>flyway-core</artifactId>
</dependency>
```

Spring Boot 4.0.x

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-webmvc</artifactId>
</dependency>
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-security</artifactId>
</dependency>
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-flyway</artifactId>
</dependency>
```

Spring Boot 4.0.x

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-webmvc-test</artifactId>
    <scope>test</scope>
</dependency>
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-security-test</artifactId>
    <scope>test</scope>
</dependency>
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-flyway-test</artifactId>
    <scope>test</scope>
</dependency>
```

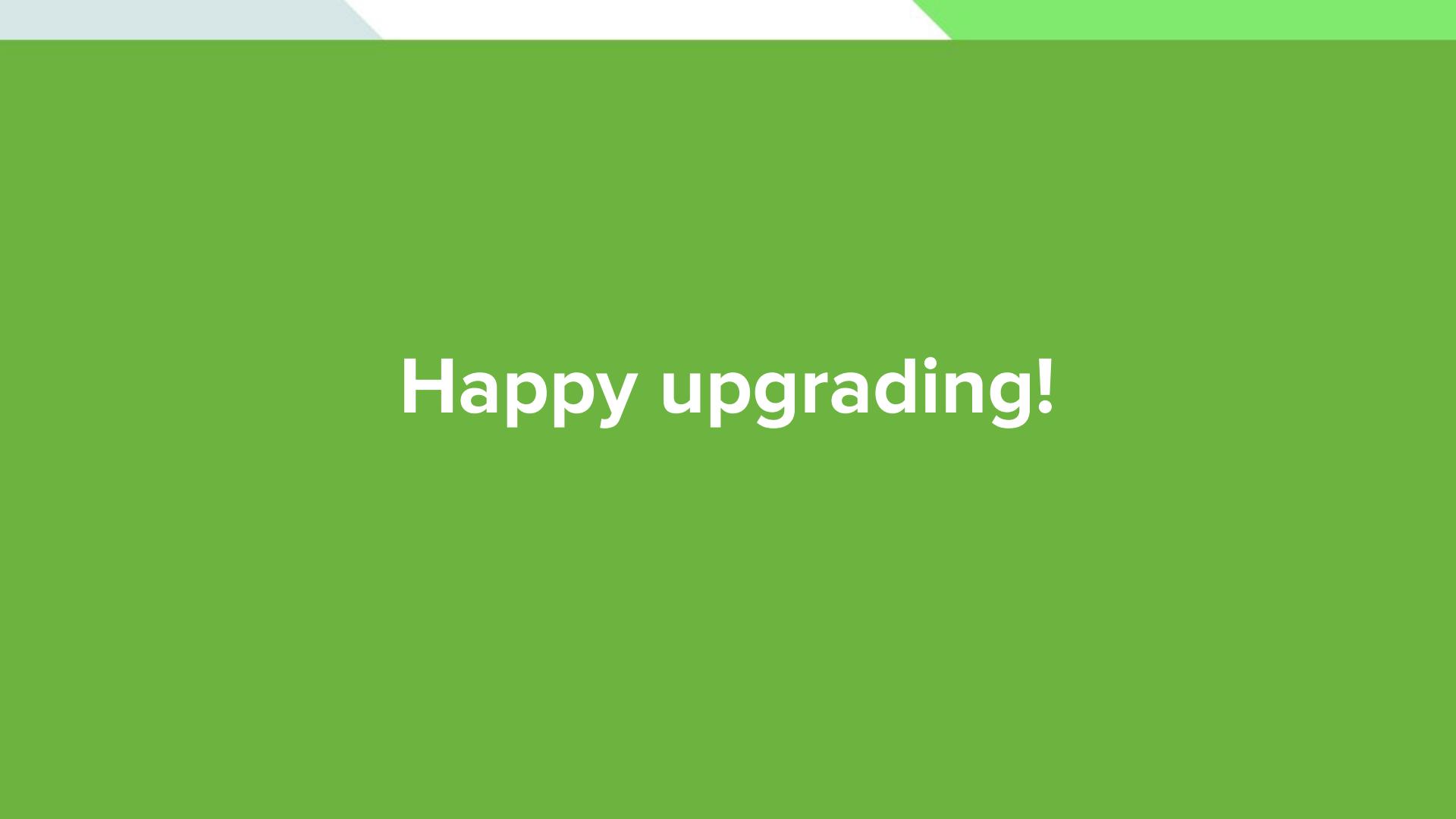


Don't care?

- Use `spring-boot-starter-classic` and `spring-boot-starter-test-classic`
- Pulls in all (test-)auto-configure modules
- Drawback: Pulls stuff in which you may not need

Package renames

- With the new modules, some code has changed packages, e.g.:
 - `org.springframework.boot.autoconfigure.cache.JCacheManagerCustomizer` moved to `org.springframework.boot.cache.autoconfigure.JCacheManagerCustomizer`
 - `org.springframework.boot.test.web.server.LocalServerPort` moved to `org.springframework.boot.web.server.test.LocalServerPort`
 - `org.springframework.boot.web.client.RestTemplateBuilder` moved to `org.springframework.boot.restclient.RestTemplateBuilder`
 - `org.springframework.boot.actuate.health.AbstractHealthIndicator` moved to `org.springframework.boot.health.contributor.AbstractHealthIndicator`
 - `org.springframework.boot.actuate.health.Health` moved to `org.springframework.boot.health.contributor.Health`
- Pattern is: `org.springframework.boot.<module>`
- We haven't changed the name of the classes, only the package
- Not much of your code should be affected



Happy upgrading!

Thank you

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