[Bài đọc] Spring Boot Starters

Spring Boot Starters là gì?

Spring Boot kết hợp nhiều packages (trong Maven & Gradle) giúp bạn có thể include những hỗ trợ phù hợp cho project của bạn.

Ở level cao nhất có 6  starters packages:



**Spring Boot Starter giúp dễ dàng quản lý các dependencies, tự động config.**

Spring Boot Starter thể hiện qua các dependencies dạng spring-boot-starter-\*.

* Dependency springboot-starter-web mặc định cung cấp các thư viện để phát triển ứng dụng Spring MVC như spring-webmvc, jackson-json, validation-api and tomcat. Ngoài ra  spring-boot-starter-web còn cấu hình các bean chung như DispatcherServlet, ResourceHandlers, MessageSource…
* Dependency spring-boot-starter-data-jpa sẽ lấy ra các dependency của spring-data-jpa và cũng thêm các thư viện Hibernate bởi vì hầu hết các ứng dụng đều sử dụng Hibernate làm cài đặt của JPA
* Dependency spring-boot-starter-Thymeleaf thêm thư viện Thymeleaf và cấu hình bean ThymeleafViewResolver.
* …

**Ví dụ:**

Chúng ta không cần định nghĩa các bean DataSource, EntityManagerFactory, TransactionManager… chúng được tạo một cách tự động.

**Làm thế nào để chúng được tạo tự động?**

Nếu có bất kỳ database drivers nào như H2 hoặc HSQL trong classpath, Spring Boot sẽ tự động tạo Datasource và đăng ký bean EntityManagerFactory, TransactionManager một cách tự động với các mặc định hợp lý.

Nhưng với từng hệ quản trị cơ sở dữ liệu khác nhau (ví dụ MySQL, PostgreSQL…) chúng ta phải cung cấp connection một cách chi tiết (url, username/password…) trong file application.properites

**Hỗ trợ nhúng Servlet Container**

Sau khi run method main của ứng dụng từ file class được đánh dấu @SpringApplication, chúng ta có thể truy cập ứng dụng ở dường dẫn http://localhost:8080/.

Để có thể chạy ứng dụng web như thế, Spring boot đã nhúng sẵn Servlet Container vào ứng dụng.

**Servlet Container  được nhúng như nào?**

Từ khi bạn thêm spring-boot-starter-web thì spring-boot-starter-tomcat đã được thêm tự động và khi run method main() thì nó sẽ start tomcat được nhúng bên trong nên chúng ta không cần deploy ứng dụng lên bất kì server nào.

Bạn cũng có thể export ứng dụng thành file war và triển khai nó như bình thường.

Trường hợp không muốn dùng tomcat mà muốn dùng jetty server ta exclude spring-bootstarter-tomcat từ spring-boot-starter-web và include spring-boot-starter-jetty

**Spring Boot Framework cung cấp các trình khởi động ứng dụng sau trong nhóm org.springframework.boot**

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| **Name** | **Description** |
| spring-boot-starter-thymeleaf | It is used to build MVC web applications using Thymeleaf views. |
| spring-boot-starter-data-couchbase | It is used for the Couchbase document-oriented database and Spring Data Couchbase. |
| spring-boot-starter-artemis | It is used for JMS messaging using Apache Artemis. |
| spring-boot-starter-web-services | It is used for Spring Web Services. |
| spring-boot-starter-mail | It is used to support Java Mail and Spring Framework's email sending. |
| spring-boot-starter-data-redis | It is used for Redis key-value data store with Spring Data Redis and the Jedis client. |
| spring-boot-starter-web | It is used for building the web application, including RESTful applications using Spring MVC. It uses Tomcat as the default embedded container. |
| spring-boot-starter-data-gemfire | It is used to GemFire distributed data store and Spring Data GemFire. |
| spring-boot-starter-activemq | It is used in JMS messaging using Apache ActiveMQ. |
| spring-boot-starter-data-elasticsearch | It is used in Elasticsearch search and analytics engine and Spring Data Elasticsearch. |
| spring-boot-starter-integration | It is used for Spring Integration. |
| spring-boot-starter-test | It is used to test Spring Boot applications with libraries, including JUnit, Hamcrest, and Mockito. |
| spring-boot-starter-jdbc | It is used for JDBC with the Tomcat JDBC connection pool. |
| spring-boot-starter-mobile | It is used for building web applications using Spring Mobile. |
| spring-boot-starter-validation | It is used for Java Bean Validation with Hibernate Validator. |
| spring-boot-starter-hateoas | It is used to build a hypermedia-based RESTful web application with Spring MVC and Spring HATEOAS. |
| spring-boot-starter-jersey | It is used to build RESTful web applications using JAX-RS and Jersey. An alternative to spring-boot-starter-web. |
| spring-boot-starter-data-neo4j | It is used for the Neo4j graph database and Spring Data Neo4j. |
| spring-boot-starter-data-ldap | It is used for Spring Data LDAP. |
| spring-boot-starter-websocket | It is used for building the WebSocket applications. It uses Spring Framework's WebSocket support. |
| spring-boot-starter-aop | It is used for aspect-oriented programming with Spring AOP and AspectJ. |
| spring-boot-starter-amqp | It is used for Spring AMQP and Rabbit MQ. |
| spring-boot-starter-data-cassandra | It is used for Cassandra distributed database and Spring Data Cassandra. |
| spring-boot-starter-social-facebook | It is used for Spring Social Facebook. |
| spring-boot-starter-jta-atomikos | It is used for JTA transactions using Atomikos. |
| spring-boot-starter-security | It is used for Spring Security. |
| spring-boot-starter-mustache | It is used for building MVC web applications using Mustache views. |
| spring-boot-starter-data-jpa | It is used for Spring Data JPA with Hibernate. |
| spring-boot-starter | It is used for core starter, including auto-configuration support, logging, and YAML. |
| spring-boot-starter-groovy-templates | It is used for building MVC web applications using Groovy Template views. |
| spring-boot-starter-freemarker | It is used for building MVC web applications using FreeMarker views. |
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| spring-boot-starter-batch | It is used for Spring Batch. |
| spring-boot-starter-social-linkedin | It is used for Spring Social LinkedIn. |
| spring-boot-starter-cache | It is used for Spring Framework's caching support. |
| spring-boot-starter-data-solr | It is used for the Apache Solr search platform with Spring Data Solr. |
| spring-boot-starter-data-mongodb | It is used for MongoDB document-oriented database and Spring Data MongoDB. |
| spring-boot-starter-jooq | It is used for jOOQ to access SQL databases. An alternative to spring-boot-starter-data-jpa or spring-boot-starter-jdbc. |
| spring-boot-starter-jta-narayana | It is used for Spring Boot Narayana JTA Starter. |
| spring-boot-starter-cloud-connectors | It is used for Spring Cloud Connectors that simplifies connecting to services in cloud platforms like Cloud Foundry and Heroku. |
| spring-boot-starter-jta-bitronix | It is used for JTA transactions using Bitronix. |
| spring-boot-starter-social-twitter | It is used for Spring Social Twitter. |
| spring-boot-starter-data-rest | It is used for exposing Spring Data repositories over REST using Spring Data REST. |

Spring Boot Production Starters

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| **Name** | **Description** |
| spring-boot-starter-actuator | It is used for Spring Boot's Actuator that provides production-ready features to help you monitor and manage your application. |
| spring-boot-starter-remote-shell | It is used for the CRaSH remote shell to monitor and manage your application over SSH. Deprecated since 1.5. |

Spring Boot Technical Starters

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| **Name** | **Description** |
| spring-boot-starter-undertow | It is used for Undertow as the embedded servlet container. An alternative to spring-boot-starter-tomcat. |
| spring-boot-starter-jetty | It is used for Jetty as the embedded servlet container. An alternative to spring-boot-starter-tomcat. |
| spring-boot-starter-logging | It is used for logging using Logback. Default logging starter. |
| spring-boot-starter-tomcat | It is used for Tomcat as the embedded servlet container. Default servlet container starter used by spring-boot-starter-web. |
| spring-boot-starter-log4j2 | It is used for Log4j2 for logging. An alternative to spring-boot-starter-logging. |

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