

Spring Boot Starters



The Problem

The Problem

- Building a Spring application is really HARD!!!

The Problem

- Building a Spring application is really HARD!!!

FAQ: Which Maven dependencies do I need?

The Problem

- Building a Spring application is really HARD!!!

FAQ: Which Maven dependencies do I need?

Hi, I want to know the minimum required Maven Dependencies for Spring MVC + Hibernate connection.

· Lecture 314 · 3 days ago

if we use pom . What are the exact dependencies

· Lecture 268 · 19 days ago

The Problem

The Problem

```
<dependencies>

    <!-- Spring -->
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-webmvc</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-tx</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-orm</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
```

The Problem

```
<dependencies>

    <!-- Spring -->
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-webmvc</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-tx</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-orm</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>

```

Spring
version

The Problem

```
<dependencies>

    <!-- Spring -->
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-webmvc</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-tx</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-orm</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
</dependencies>
```

Spring
version

```
<!-- Spring Security -->
<dependency>
    <groupId>org.springframework.security</groupId>
    <artifactId>spring-security-web</artifactId>
    <version>5.1.1.RELEASE</version>
</dependency>

<!-- Hibernate ORM -->
<dependency>
    <groupId>org.hibernate</groupId>
    <artifactId>hibernate-core</artifactId>
    <version>5.2.16.Final</version>
</dependency>

<!-- Hibernate Validator -->
<dependency>
    <groupId>org.hibernate</groupId>
    <artifactId>hibernate-validator</artifactId>
    <version>6.0.13.Final</version>
</dependency>
```

The Problem

```
<dependencies>

    <!-- Spring -->
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-webmvc</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-tx</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-orm</artifactId>
        <version>5.1.2.RELEASE</version>
    </dependency>
</dependencies>
```

Spring
version

```
<!-- Spring Security -->
<dependency>
    <groupId>org.springframework.security</groupId>
    <artifactId>spring-security-web</artifactId>
    <version>5.1.1.RELEASE</version>
</dependency>

<!-- Hibernate ORM -->
<dependency>
    <groupId>org.hibernate</groupId>
    <artifactId>hibernate-core</artifactId>
    <version>5.2.16.Final</version>
</dependency>

<!-- Hibernate Validator -->
<dependency>
    <groupId>org.hibernate</groupId>
    <artifactId>hibernate-validator</artifactId>
    <version>6.0.13.Final</version>
</dependency>
```

Which versions
are compatible?

The Problem

```
<dependencies>  
  
    <!-- Spring -->  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-webmvc</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-tx</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-orm</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
</dependencies>
```

Spring
version

```
<!-- Spring Security -->  
    <dependency>  
        <groupId>org.springframework.security</groupId>  
        <artifactId>spring-security-web</artifactId>  
        <version>5.1.1.RELEASE</version>  
    </dependency>  
  
<!-- Hibernate ORM -->  
    <dependency>  
        <groupId>org.hibernate</groupId>  
        <artifactId>hibernate-core</artifactId>  
        <version>5.2.16.Final</version>  
    </dependency>  
  
<!-- Hibernate Validator -->  
    <dependency>  
        <groupId>org.hibernate</groupId>  
        <artifactId>hibernate-validator</artifactId>  
        <version>6.0.13.Final</version>  
    </dependency>
```

Which versions
are compatible?

The Problem

```
<dependencies>  
  
    <!-- Spring -->  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-webmvc</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-tx</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-orm</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
</dependencies>
```

Spring
version

```
<!-- Spring Security -->  
    <dependency>  
        <groupId>org.springframework.security</groupId>  
        <artifactId>spring-security-web</artifactId>  
        <version>5.1.1.RELEASE</version>  
    </dependency>  
  
<!-- Hibernate ORM -->  
    <dependency>  
        <groupId>org.hibernate</groupId>  
        <artifactId>hibernate-core</artifactId>  
        <version>5.2.16.Final</version>  
    </dependency>  
  
<!-- Hibernate Validator -->  
    <dependency>  
        <groupId>org.hibernate</groupId>  
        <artifactId>hibernate-validator</artifactId>  
        <version>6.0.13.Final</version>  
    </dependency>
```

Which versions
are compatible?

The Problem

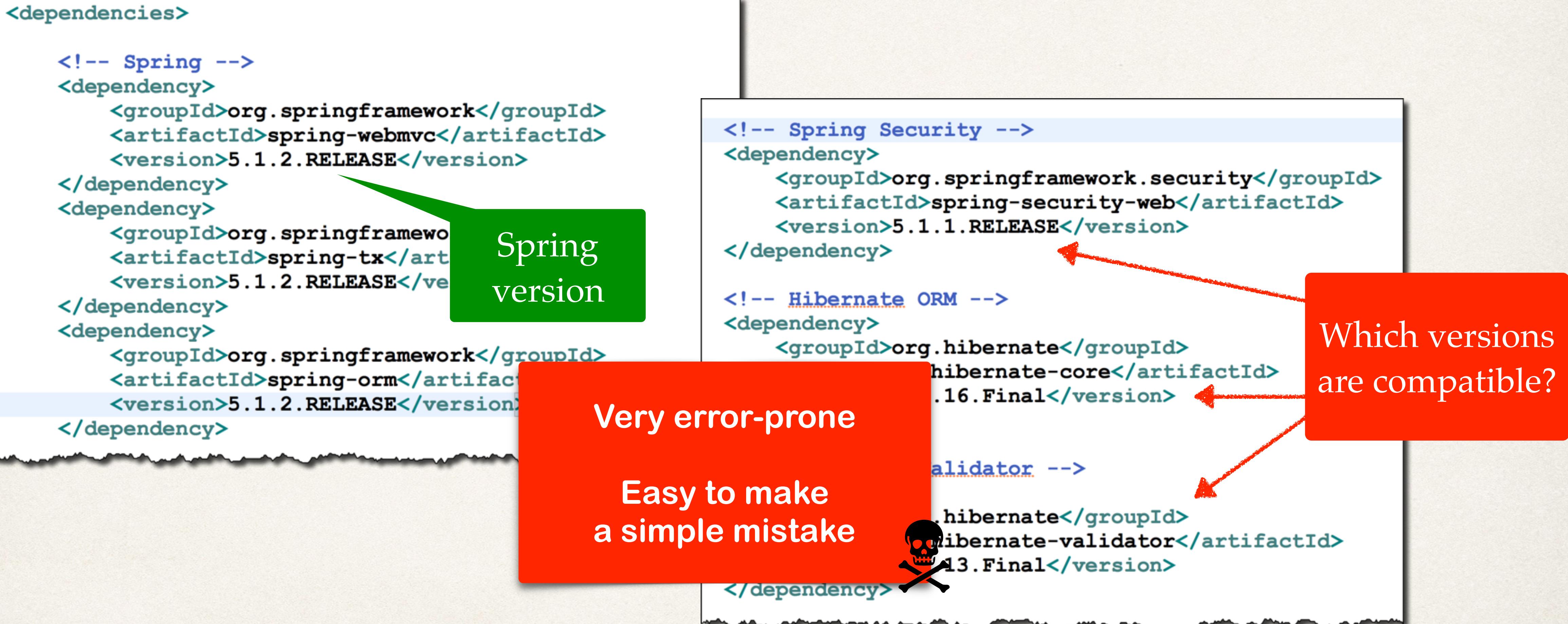
```
<dependencies>  
  
    <!-- Spring -->  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-webmvc</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-tx</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
    <dependency>  
        <groupId>org.springframework</groupId>  
        <artifactId>spring-orm</artifactId>  
        <version>5.1.2.RELEASE</version>  
    </dependency>  
</dependencies>
```

Spring
version

```
<!-- Spring Security -->  
    <dependency>  
        <groupId>org.springframework.security</groupId>  
        <artifactId>spring-security-web</artifactId>  
        <version>5.1.1.RELEASE</version>  
    </dependency>  
  
<!-- Hibernate ORM -->  
    <dependency>  
        <groupId>org.hibernate</groupId>  
        <artifactId>hibernate-core</artifactId>  
        <version>5.2.16.Final</version>  
    </dependency>  
  
<!-- Hibernate Validator -->  
    <dependency>  
        <groupId>org.hibernate</groupId>  
        <artifactId>hibernate-validator</artifactId>  
        <version>6.0.13.Final</version>  
    </dependency>
```

Which versions
are compatible?

The Problem



Why Is It So Hard?

Why Is It So Hard?

- It would be great if there was a simple list of Maven dependencies

Why Is It So Hard?

- It would be great if there was a simple list of Maven dependencies
- Collected as a group of dependencies ... one-stop shop

Why Is It So Hard?

- It would be great if there was a simple list of Maven dependencies
- Collected as a group of dependencies ... one-stop shop
- So I don't have to search for each dependency

Why Is It So Hard?

- It would be great if there was a simple list of Maven dependencies
- Collected as a group of dependencies ... one-stop shop
- So I don't have to search for each dependency

There should be
an easier solution

The Solution - Spring Boot Starters

The Solution - Spring Boot Starters

- **Spring Boot Starters**



The Solution - Spring Boot Starters

- **Spring Boot Starters**
- A curated list of Maven dependencies



The Solution - Spring Boot Starters

- **Spring Boot Starters**
- A curated list of Maven dependencies
- A collection of dependencies grouped together



The Solution - Spring Boot Starters

- **Spring Boot Starters**
- A curated list of Maven dependencies
- A collection of dependencies grouped together
- Tested and verified by the Spring Development team



The Solution - Spring Boot Starters

- **Spring Boot Starters**
- A curated list of Maven dependencies
- A collection of dependencies grouped together
- Tested and verified by the Spring Development team
- Makes it much easier for the developer to get started with Spring



The Solution - Spring Boot Starters

- **Spring Boot Starters**
- A curated list of Maven dependencies
- A collection of dependencies grouped together
- Tested and verified by the Spring Development team
- Makes it much easier for the developer to get started with Spring
- Reduces the amount of Maven configuration



Spring MVC

Spring MVC

- For example, when building a Spring MVC app, you normally need

```
<!-- Spring MVC -->
<dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-webmvc</artifactId>
    <version>5.1.2.RELEASE</version>
</dependency>

<!-- Form validation: Hibernate Validator -->
<dependency>
    <groupId>org.hibernate</groupId>
    <artifactId>hibernate-validator</artifactId>
    <version>6.0.13.Final</version>
</dependency>

<!-- Web template: JSP or Thymeleaf etc -->
<dependency>
    <!-- ... -->
</dependency>
```

Solution: Spring Boot Starter - Web

Solution: Spring Boot Starter - Web

- Spring Boot provides: **spring-boot-starter-web**

Solution: Spring Boot Starter - Web

- Spring Boot provides: **spring-boot-starter-web**

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
</dependency>
```

Solution: Spring Boot Starter - Web

- Spring Boot provides: **spring-boot-starter-web**

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
</dependency>
```

Spring Boot Starters

A collection of Maven
dependencies
(Compatible versions)

Solution: Spring Boot Starter - Web

- Spring Boot provides: **spring-boot-starter-web**

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
</dependency>
```

Spring Boot Starters

A collection of Maven
dependencies
(Compatible versions)

CONTAINS
spring-web
spring-webmvc
hibernate-validator
json
tomcat
...

Solution: Spring Boot Starter - Web

- Spring Boot provides: **spring-boot-starter-web**

```
<dependency>
  <groupId>org.springframework.boot</groupId>
  <artifactId>spring-boot-starter-web</artifactId>
</dependency>
```

Save's the developer from having to list all of the individual dependencies

Also, makes sure you have compatible versions

Spring Boot Starters

A collection of Maven dependencies
(Compatible versions)

CONTAINS
spring-web
spring-webmvc
hibernate-validator
json
tomcat
...

Spring Initializr

Spring Initializr

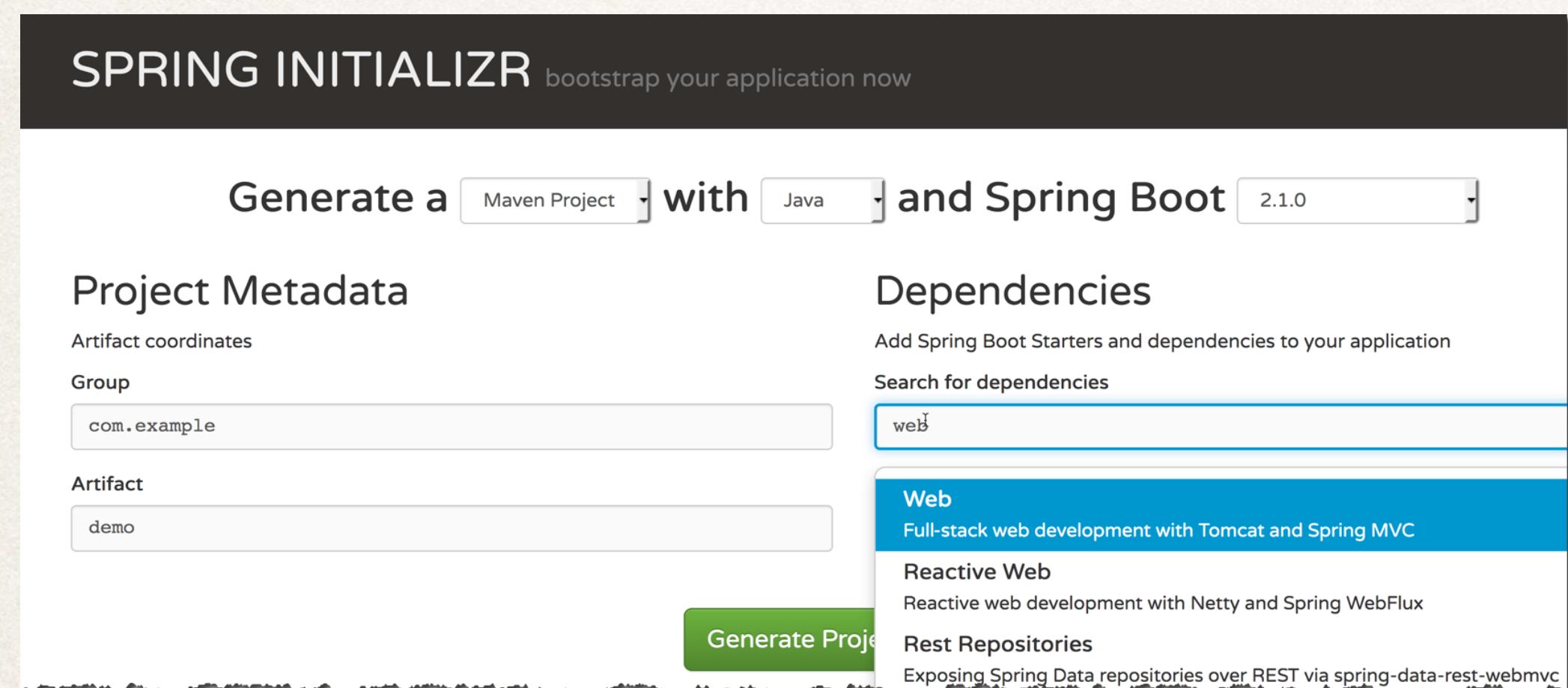
- In Spring Initializr, simply select **Web** dependency

Spring Initializr

- In Spring Initializr, simply select **Web** dependency
- You automatically get **spring-boot-starter-web** in **pom.xml**

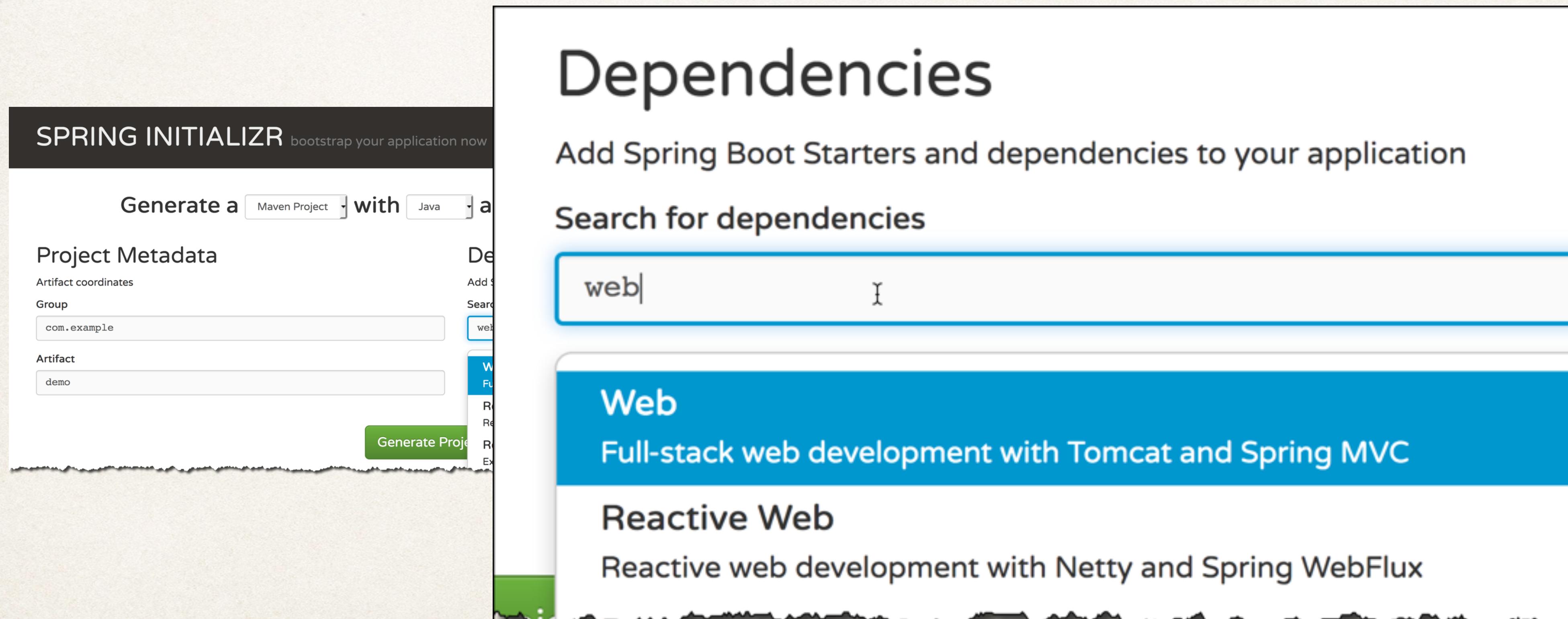
Spring Initializr

- In Spring Initializr, simply select **Web** dependency
- You automatically get **spring-boot-starter-web** in **pom.xml**



Spring Initializr

- In Spring Initializr, simply select **Web** dependency
- You automatically get **spring-boot-starter-web** in **pom.xml**



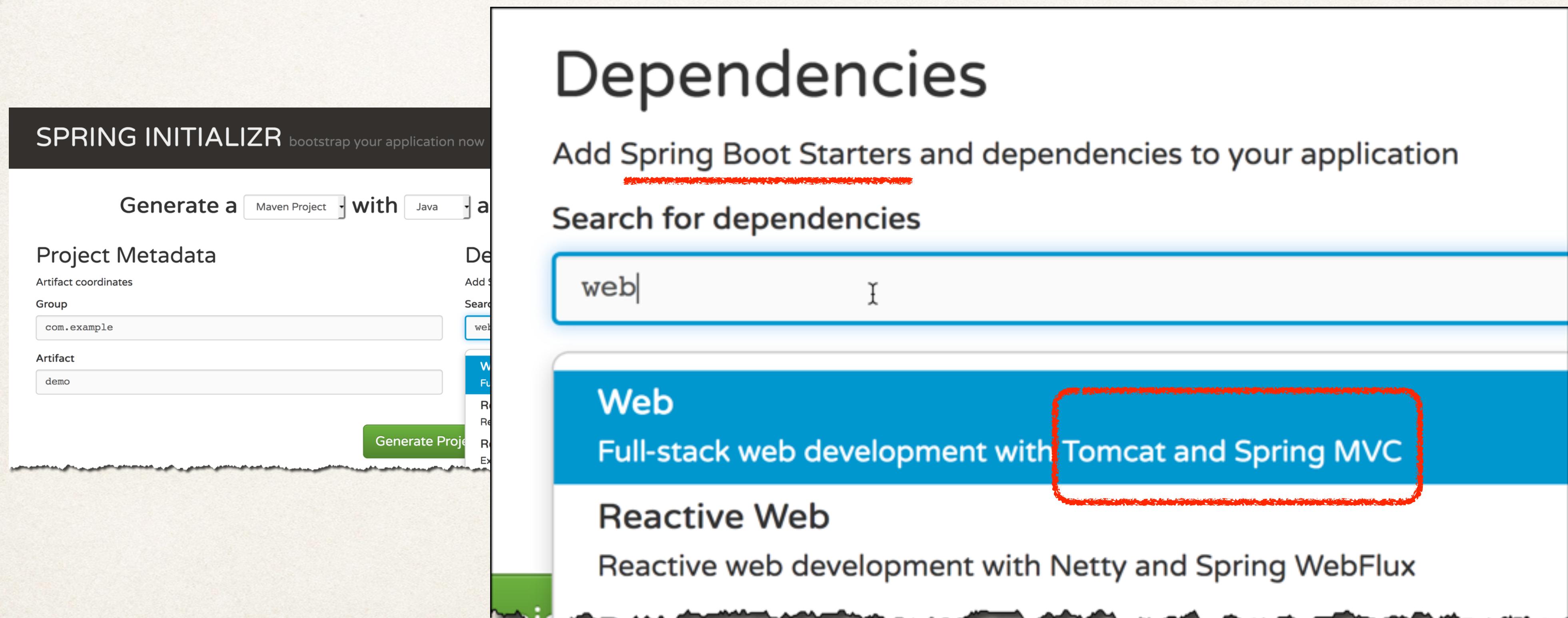
Spring Initializr

- In Spring Initializr, simply select **Web** dependency
- You automatically get **spring-boot-starter-web** in **pom.xml**

The screenshot shows the Spring Initializr interface. On the left, there's a sidebar for 'Project Metadata' with fields for Group (com.example) and Artifact (demo). Below it is a 'Generate Project' button. The main area is titled 'Dependencies' with the sub-instruction 'Add Spring Boot Starters and dependencies to your application'. A search bar contains the text 'web'. A large blue callout box highlights the 'Web' dependency, which is described as 'Full-stack web development with Tomcat and Spring MVC'. Another section below it is 'Reactive Web', described as 'Reactive web development with Netty and Spring WebFlux'.

Spring Initializr

- In Spring Initializr, simply select **Web** dependency
- You automatically get **spring-boot-starter-web** in **pom.xml**



Spring Initializr

Spring Initializr

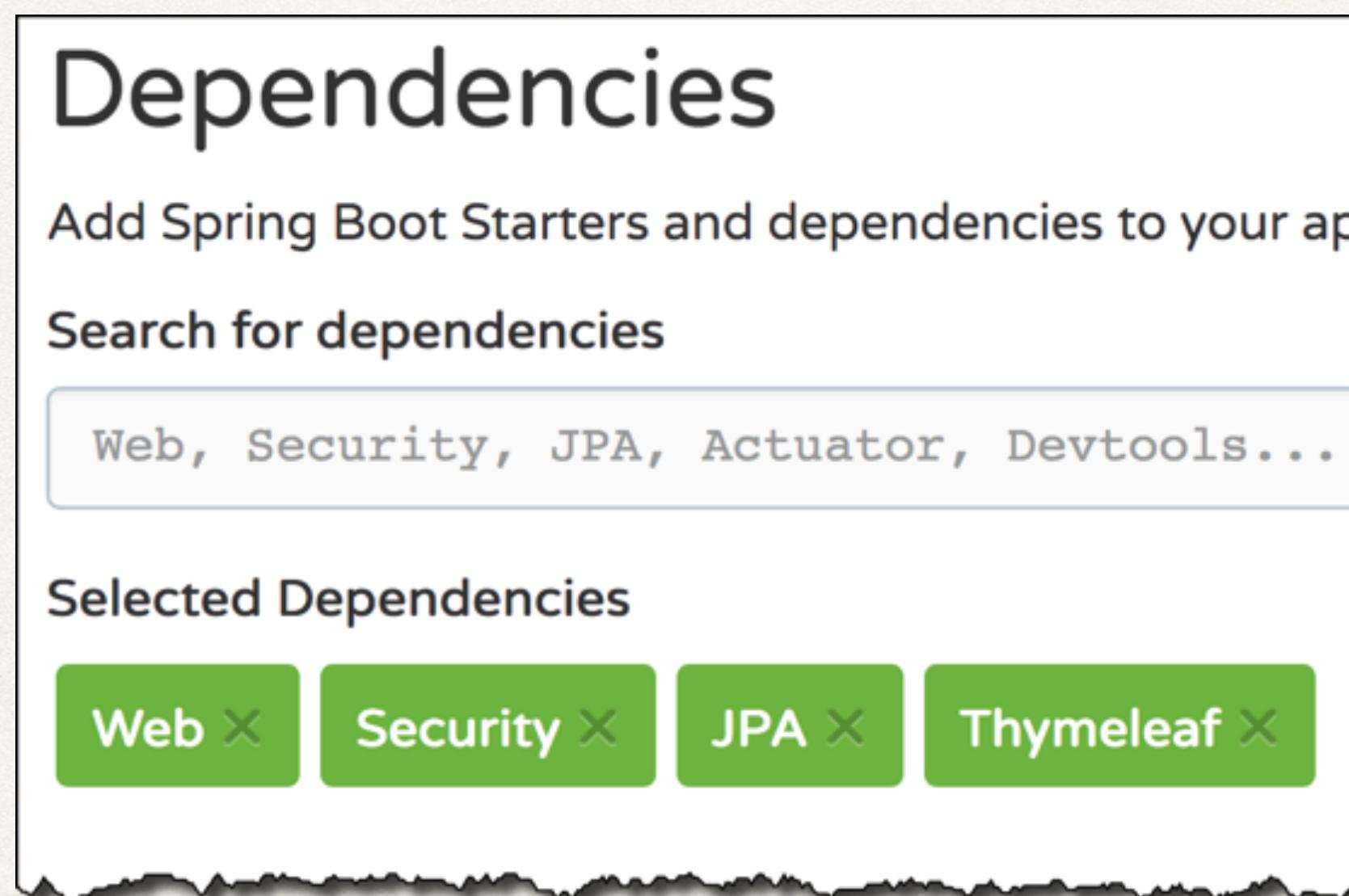
- If we are building a Spring app that needs: Web, Security, ...

Spring Initializr

- If we are building a Spring app that needs: Web, Security, ...
- Simply select the dependencies in the Spring Initializr

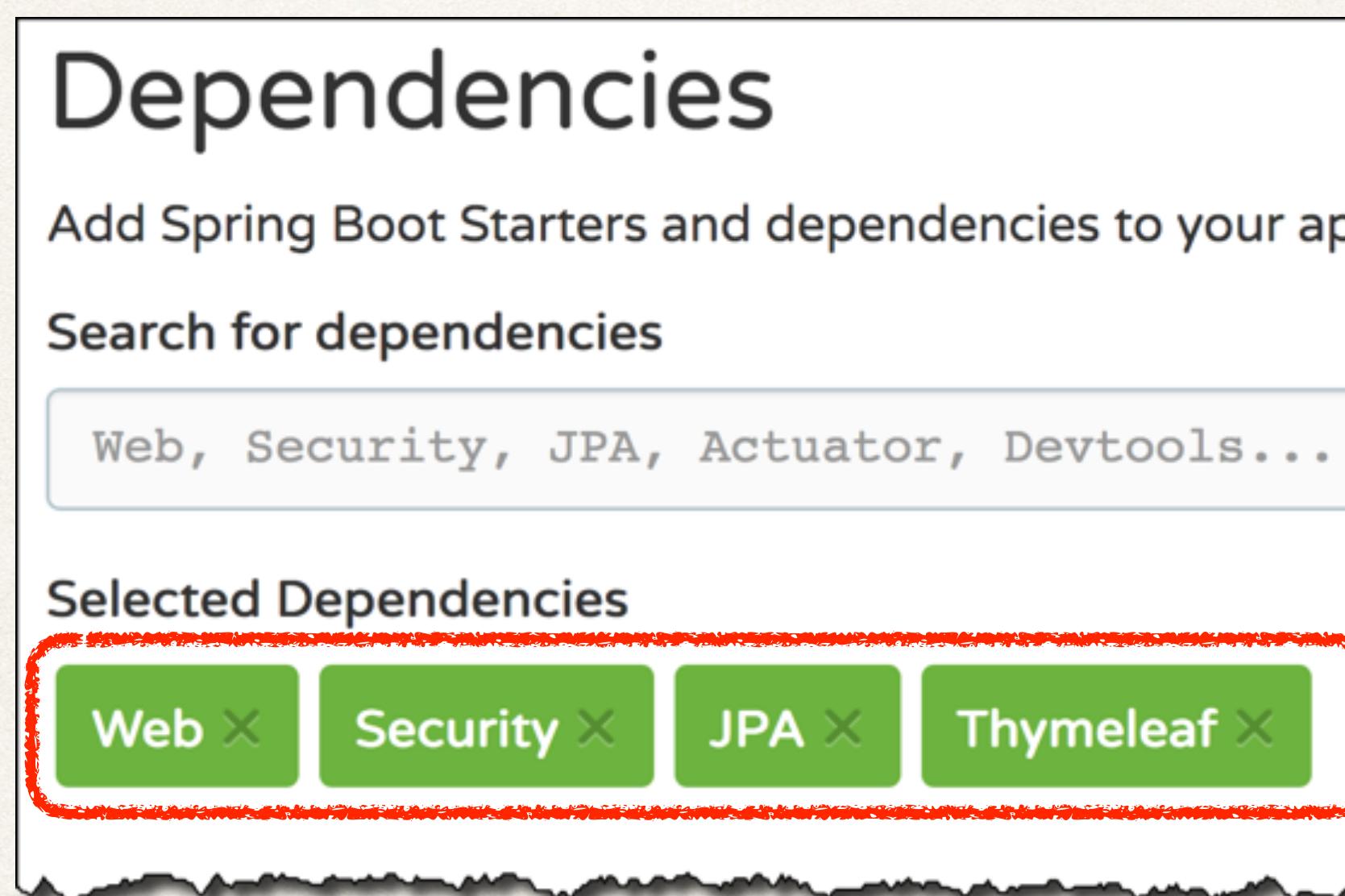
Spring Initializr

- If we are building a Spring app that needs: Web, Security, ...
- Simply select the dependencies in the Spring Initializr



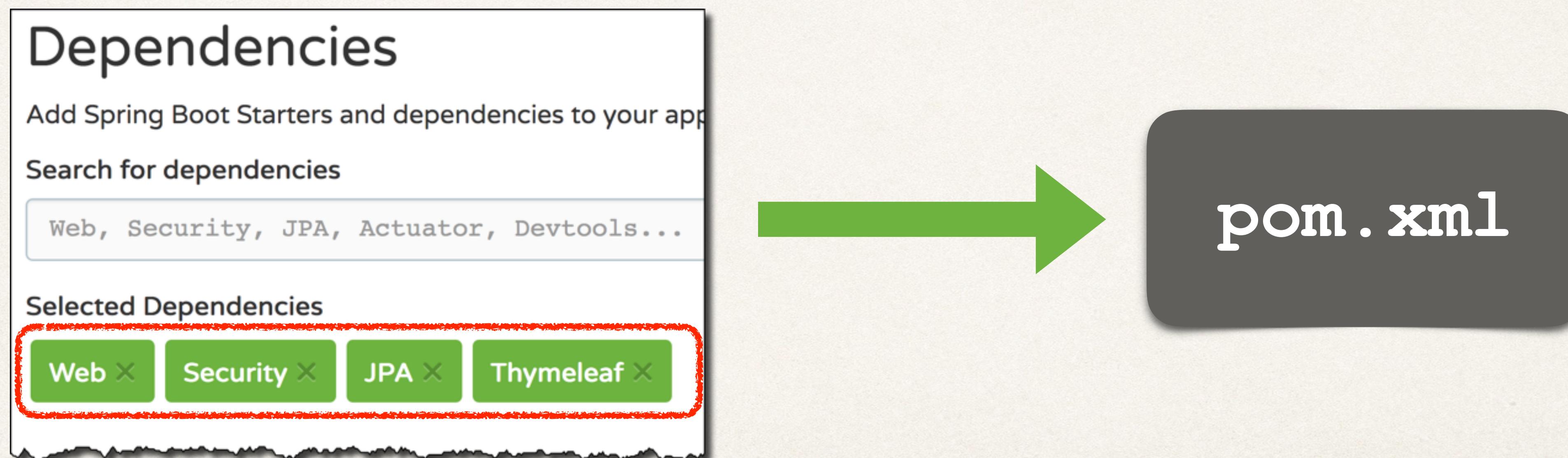
Spring Initializr

- If we are building a Spring app that needs: Web, Security, ...
- Simply select the dependencies in the Spring Initializr



Spring Initializr

- If we are building a Spring app that needs: Web, Security, ...
- Simply select the dependencies in the Spring Initializr
- It will add the appropriate Spring Boot starters to your **pom.xml**



Spring Initializr

Spring Initializr

The screenshot shows the 'Dependencies' section of the Spring Initializr web application. At the top, it says 'Add Spring Boot Starters and dependencies to your app'. Below that is a search bar labeled 'Search for dependencies' with the placeholder text 'Web, Security, JPA, Actuator, Devtools...'. Underneath the search bar, there's a section titled 'Selected Dependencies' containing four green buttons with white text: 'Web X', 'Security X', 'JPA X', and 'Thymeleaf X'. A red rectangular box highlights these four buttons.

Dependencies

Add Spring Boot Starters and dependencies to your app

Search for dependencies

Web, Security, JPA, Actuator, Devtools...

Selected Dependencies

Web X Security X JPA X Thymeleaf X

Spring Initializr

Dependencies

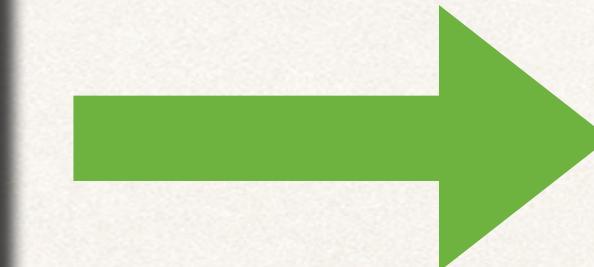
Add Spring Boot Starters and dependencies to your app

Search for dependencies

Web, Security, JPA, Actuator, Devtools...

Selected Dependencies

Web X Security X JPA X Thymeleaf X



File: pom.xml

```
<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.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-jpa</artifactId>
</dependency>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-thymeleaf</artifactId>
</dependency>
```

Spring Initializr

Dependencies

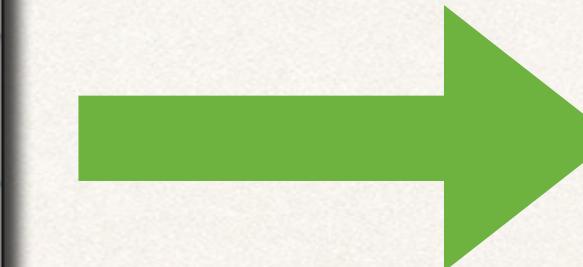
Add Spring Boot Starters and dependencies to your app

Search for dependencies

Web, Security, JPA, Actuator, Devtools...

Selected Dependencies

Web X Security X JPA X Thymeleaf X



File: pom.xml

```
<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.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-jpa</artifactId>
</dependency>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-thymeleaf</artifactId>
</dependency>
```

Spring Initializr

Dependencies

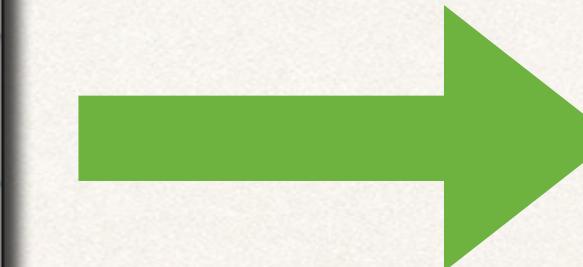
Add Spring Boot Starters and dependencies to your app

Search for dependencies

Web, Security, JPA, Actuator, Devtools...

Selected Dependencies

Web X Security X JPA X Thymeleaf X



File: pom.xml

```
<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.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-jpa</artifactId>
</dependency>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-thymeleaf</artifactId>
</dependency>
```

Spring Initializr

Dependencies

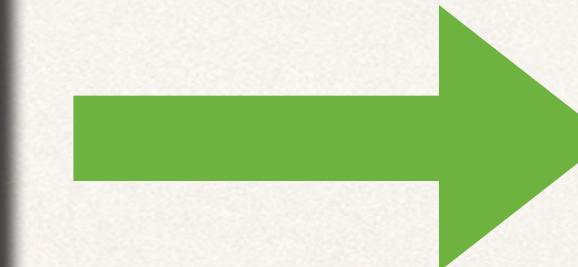
Add Spring Boot Starters and dependencies to your app

Search for dependencies

Web, Security, JPA, Actuator, Devtools...

Selected Dependencies

Web X Security X JPA X Thymeleaf X



File: pom.xml

```
<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.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-jpa</artifactId>
</dependency> -----

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-thymeleaf</artifactId>
</dependency>
```

Spring Initializr

Dependencies

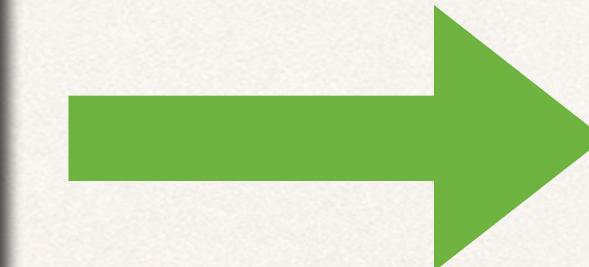
Add Spring Boot Starters and dependencies to your app

Search for dependencies

Web, Security, JPA, Actuator, Devtools...

Selected Dependencies

Web X Security X JPA X Thymeleaf X



File: pom.xml

```
<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.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-jpa</artifactId>
</dependency> -----

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-thymeleaf</artifactId>
</dependency> -----
```

Spring Boot Starters

Spring Boot Starters

- There are 30+ Spring Boot Starters from the Spring Development team

Name	Description

Spring Boot Starters

- There are 30+ Spring Boot Starters from the Spring Development team

Name	Description
spring-boot-starter-web	Building web apps, includes validation, REST. Uses Tomcat as default embedded server

Spring Boot Starters

- There are 30+ Spring Boot Starters from the Spring Development team

Name	Description
spring-boot-starter-web	Building web apps, includes validation, REST. Uses Tomcat as default embedded server
spring-boot-starter-security	Adding Spring Security support

Spring Boot Starters

- There are 30+ Spring Boot Starters from the Spring Development team

Name	Description
spring-boot-starter-web	Building web apps, includes validation, REST. Uses Tomcat as default embedded server
spring-boot-starter-security	Adding Spring Security support
spring-boot-starter-data-jpa	Spring database support with JPA and Hibernate
...	

Spring Boot Starters

Spring Boot Starters

Full list

www.luv2code.com/spring-boot-starters

Name	Description
<code>spring-boot-starter</code>	Core starter, including a
<code>spring-boot-starter-activemq</code>	Starter for JMS message
<code>spring-boot-starter-amqp</code>	Starter for using Spring
<code>spring-boot-starter-aop</code>	Starter for aspect-orient
<code>spring-boot-starter-artemis</code>	Starter for JMS message
<code>spring-boot-starter-batch</code>	Starter for using Spring
<code>spring-boot-starter-cache</code>	Starter for using Spring

What Is In the Starter?

What Is In the Starter?

- FAQ: What is in **spring-boot-starter-xyz**?

What Is In the Starter?

- FAQ: What is in **spring-boot-starter-xyz**?
- View the starter's POM file

www.luv2code.com/spring-boot-starters

What Is In the Starter?

- FAQ: What is in **spring-boot-starter-xyz**?
- View the starter's POM file
 - Normally references other starters ... so you will need to dig a bit

www.luv2code.com/spring-boot-starters

What Is In the Starter?

- FAQ: What is in **spring-boot-starter-xyz**?
- View the starter's POM file
 - Normally references other starters ... so you will need to dig a bit
 - Somewhat cumbersome ...

www.luv2code.com/spring-boot-starters

What Is In the Starter?

What Is In the Starter?

- Most IDEs have a Dependency Management / View feature

What Is In the Starter?

- Most IDEs have a Dependency Management / View feature
 - Much easier to navigate

What Is In the Starter?

- Most IDEs have a Dependency Management / View feature
 - Much easier to navigate
 - I'll show you how to do this with Eclipse and IntelliJ

What Is In the Starter?

What Is In the Starter?

- For Eclipse Users

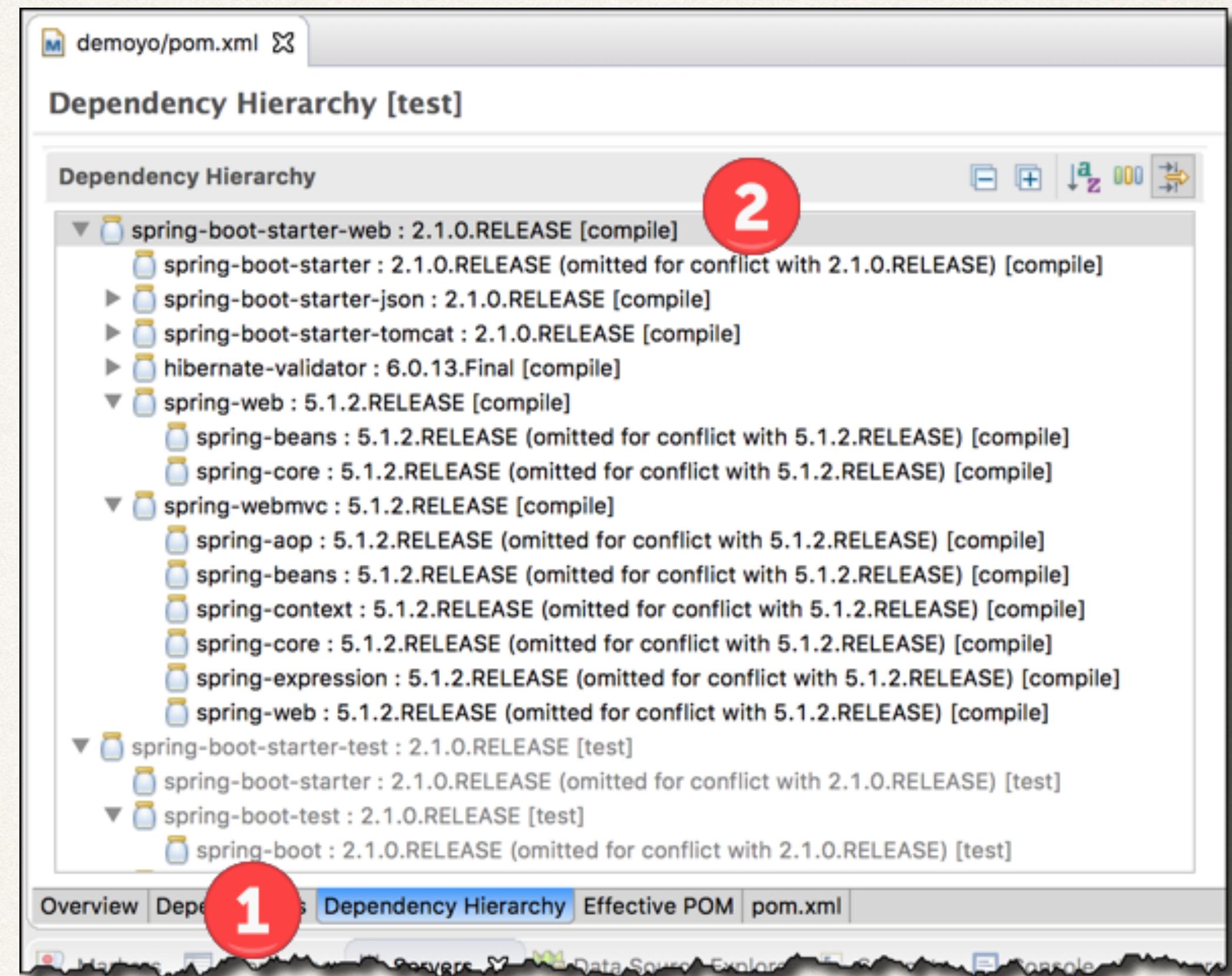
What Is In the Starter?

- For Eclipse Users
- Open the pom.xml

What Is In the Starter?



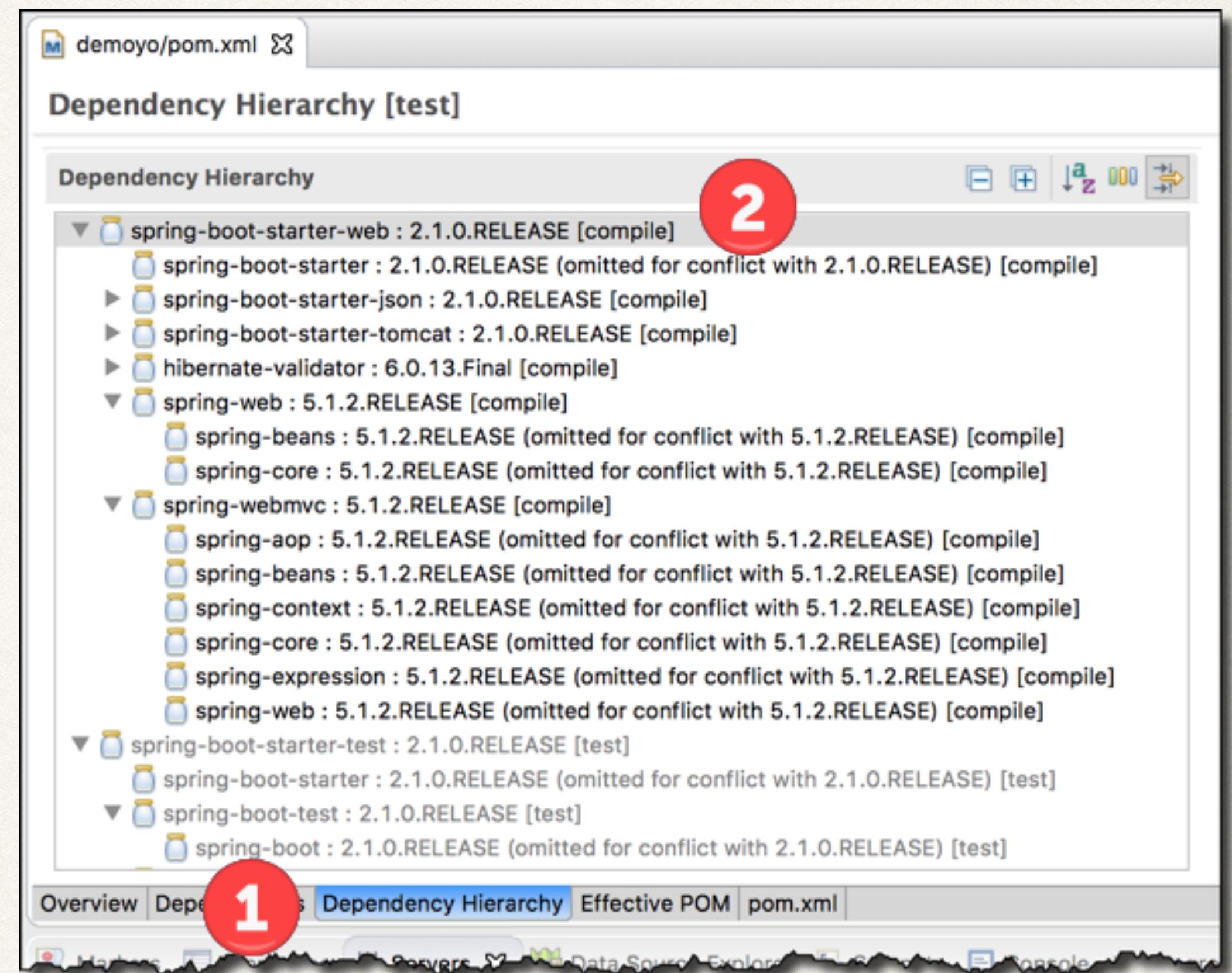
- For Eclipse Users
- Open the pom.xml



What Is In the Starter?



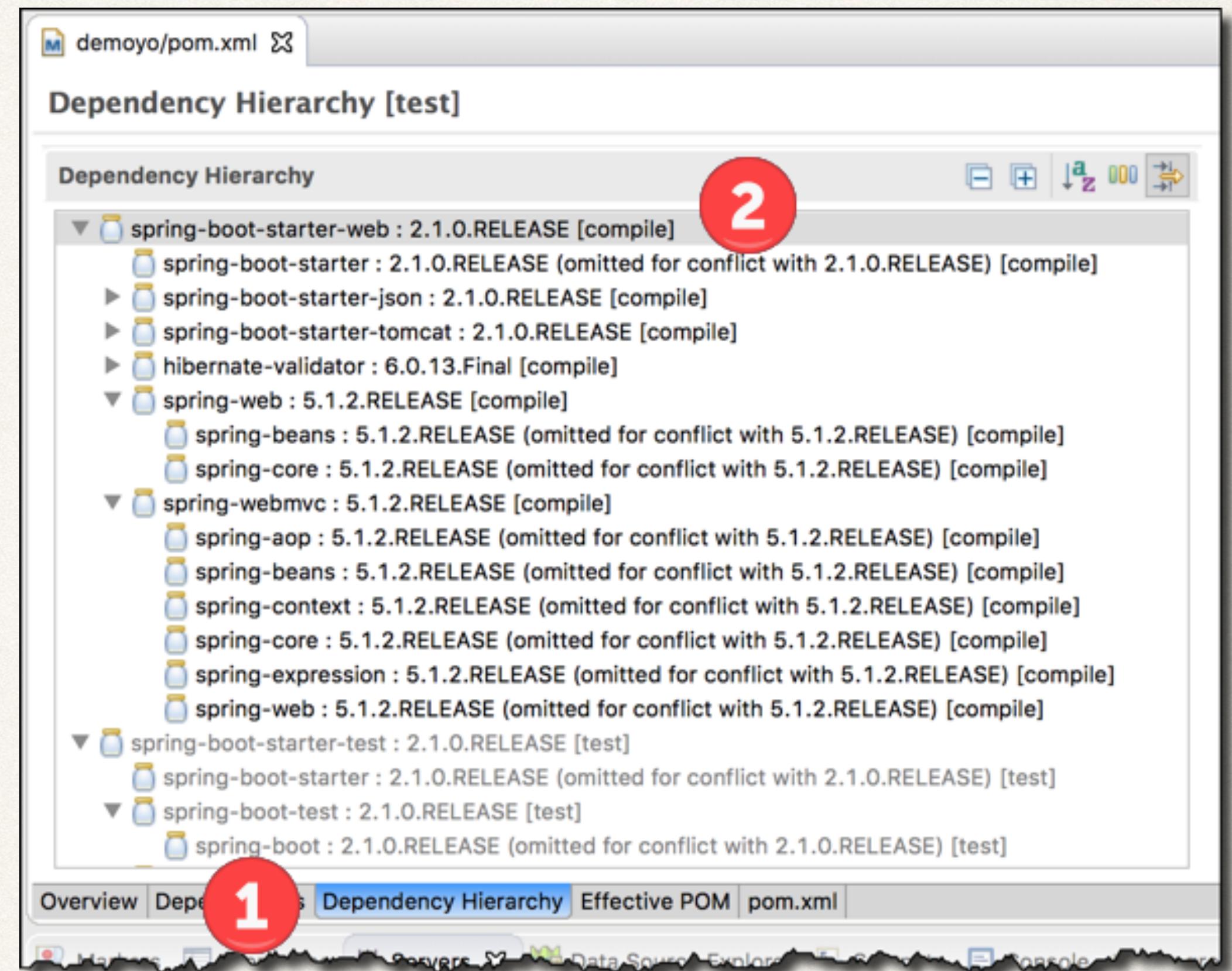
- For Eclipse Users
- Open the pom.xml
- Select the tab **Dependency Hierarchy**



What Is In the Starter?



- For Eclipse Users
- Open the pom.xml
- Select the tab **Dependency Hierarchy**
- Expand the desired starter



What Is In the Starter?

What Is In the Starter?

- For IntelliJ users

What Is In the Starter?

- For IntelliJ users
- Select **View > Tool Windows > Maven Projects > Dependencies**

