

The background of the slide features a dark, semi-transparent image of the Golden Gate Bridge in San Francisco. The bridge's towers and cables are visible against a hazy sky, with the city skyline faintly visible in the distance across the water.

Pivotal

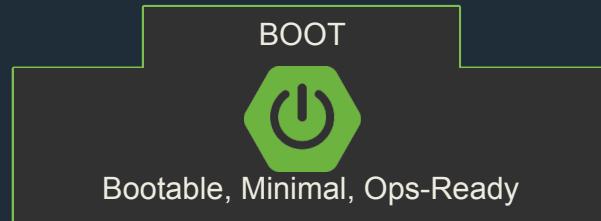
Cloud Native Applications

Introducing Spring Boot

Spring Boot Overview

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***



Spring Initializer

Provide a wizard for creating a starter project

The screenshot shows a web browser window titled "Spring Initializer" at the URL "start.spring.io". The page has a dark header with the text "SPRING INITIALIZR bootstrap your application now". Below the header, there's a main form with two main sections: "Project Metadata" on the left and "Dependencies" on the right.

Project Metadata

- Artifact coordinates:
 - Group: com.example
 - Artifact: demo

Dependencies

- Add Spring Boot Starters and dependencies to your application
- Search for dependencies: Web, Security, JPA, Actuator, Devtools...
- Selected Dependencies: (empty)

Buttons

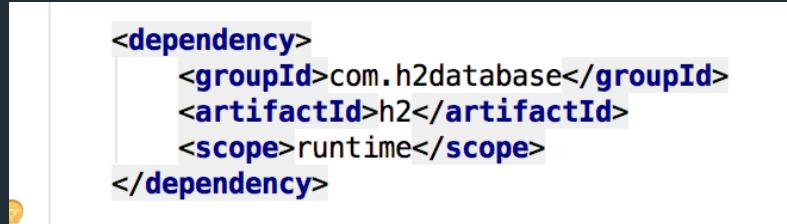
- Generate Project (highlighted in green)
- Switch to the full version

Footer

start.spring.io is powered by Spring Initializr and Pivotal Web Services

Auto-Configuration

- Automatically configure your Spring application based on the JAR dependencies that have been added
- Quickly create new microservices with little configuration
- Still have the ability to customize the application



```
2016-05-16 04:28:22.448 INFO 27610 --- [           main] org.apache.catalina.core.StandardEngine : Starting Servlet Engine: Apache Tomcat/8.0.30
2016-05-16 04:28:22.566 INFO 27610 --- [ost-startStop-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2016-05-16 04:28:22.567 INFO 27610 --- [ost-startStop-1] o.s.web.context.ContextLoader : Root WebApplicationContext: initialization completed in 2198 ms
2016-05-16 04:28:23.674 INFO 27610 --- [ost-startStop-1] j.LocalContainerEntityManagerFactory : Building JPA container EntityManagerFactory for persistence unit 'default'
2016-05-16 04:28:23.686 INFO 27610 --- [ost-startStop-1] o.hibernate.jpa.internal.util.LogHelper : : HHH000204: Processing PersistenceUnitInfo [
    name: default
    ...
]
2016-05-16 04:28:23.899 INFO 27610 --- [ost-startStop-1] org.hibernate.Version : HHH000412: Hibernate Core {4.3.11.Final}
2016-05-16 04:28:23.900 INFO 27610 --- [ost-startStop-1] org.hibernate.cfg.Environment : HHH000206: hibernate.properties not found
2016-05-16 04:28:23.902 INFO 27610 --- [ost-startStop-1] org.hibernate.cfg.Environment : HHH00021: Bytecode provider name : javassist
2016-05-16 04:28:24.118 INFO 27610 --- [ost-startStop-1] o.hibernate.annotations.common.Version : HCANN000001: Hibernate Commons Annotations {4.0.5.Final}
2016-05-16 04:28:24.191 INFO 27610 --- [ost-startStop-1] org.hibernate.dialect.Dialect : HHH000400: Using dialect: org.hibernate.dialect.H2Dialect
2016-05-16 04:28:24.297 INFO 27610 --- [ost-startStop-1] o.h.h.i.ast.ASTQueryTranslatorFactory : HHH000397: Using ASTQueryTranslatorFactory
2016-05-16 04:28:24.514 INFO 27610 --- [ost-startStop-1] org.hibernate.tool.hbm2ddl.SchemaExport : HHH000227: Running hbm2ddl schema export
2016-05-16 04:28:25.785 INFO 27610 --- [ost-startStop-1] org.hibernate.tool.hbm2ddl.SchemaExport : HHH000230: Schema export complete
2016-05-16 04:28:26.808 WARN 27610 --- [ost-startStop-1] c.n.c.sources.URLConfigurationSource : URLs will be polled as dynamic configuration sources.
```

Packaging of Applications



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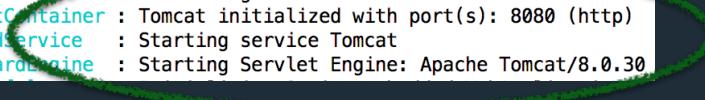
Packaging of Applications



Instant App Server, Database, Messaging

Selects defaults and runs them for you

- Immediately get application server injected
 - Same goes for;
 - Database
 - Messaging Queues
 - etc....



Spring Boot, In the Wild

Tells Spring Boot to start adding beans based on class path settings, other beans, and various property settings

```
@Configuration  
@EnableAutoConfiguration  
@ComponentScan({"io.pivotal.cool","com.foo.bar"}) // <-- drive specific customizations  
public class Example {  
  
    public static void main(String[] args) throws Exception {  
        SpringApplication.run(Example.class, args);  
    }  
}
```

Tells Spring Boot by convention how Spring should be configured based on classpath dependencies

```
@SpringBootApplication  
public class Example {  
  
    public static void main(String[] args) throws Exception {  
        SpringApplication.run(Example.class, args);  
    }  
}
```

How does it work? Create a Web App

Use Maven Starter POM

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

Automatically creates a dependency on Spring Boot and Tomcat application server

Make an Executable JAR

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

Create a Spring Boot executable JAR that contains:

- Code to run
- Spring Boot Loader classes
- Dependency libraries

Spring Boot, an example

Spring REST annotation, it tells Spring this is a 'Controller' and that any HTTP request to context '/' should be directed to the home method

```
import org.springframework.boot.*;
import org.springframework.boot.autoconfigure.*;
import org.springframework.stereotype.*;
import org.springframework.web.bind.annotation.*;

@RestController
@EnableAutoConfiguration
public class Example {

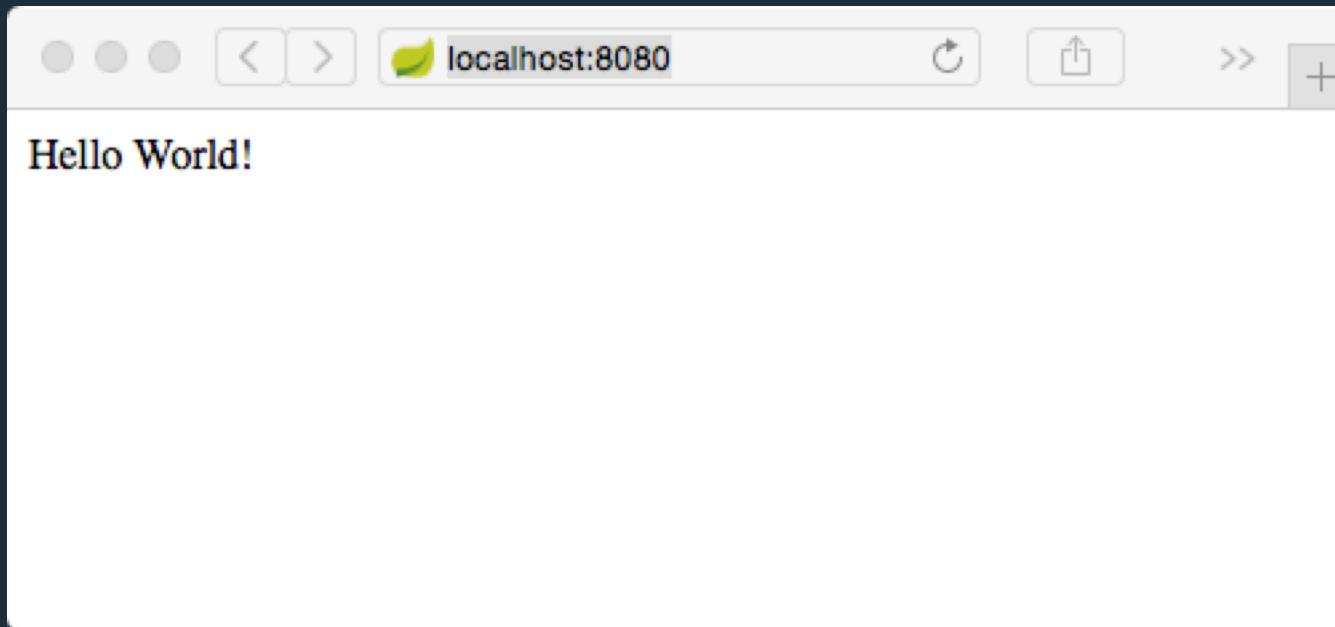
    @RequestMapping("/")
    String home() {
        return "Hello World!";
    }

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

Tells Spring Boot by convention how Spring should be configured based on classpath dependencies

Delegates to Spring Boots' SpringApplication to bootstrap the application

Spring Boot, an example





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