spring-boot-starter-example (0.0.1-SNAPSHOT)

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Travis CI status: [Build Status]

Chapter 1. Introduction

spring-boot magic...

Read github pages reference documentation

generated by generator-jvm yeoman generator (java-spring-boot)

Chapter 2. Implementation

To create starter we need minimal projects structure:

- service with functionality we wanna expose / integrate: `hello-service`
- module which will be automatically configure that service as far starter was added as a dependency: `hello-service-autoconfigure`
- starter module, containing everything needed (hello-service + auto-config + other dependencies): `spring-boot-starter-hello`

we will be using and testing out starter in project: `spring-boot-starter-hello-tests`

2.1. hello-service

First, create service with functionality you wanna to share with the world

```
mkdir hello-service
touch hello-service/pom.xml
# ...
```

That module contains HelloService we wanna expose:

HelloService interface:

```
/**
 * Super complex greeting service!
 */
public interface HelloService {

  /**
   * Some javadoc...
   * @param whom who, we salute?
   * @return greeting message
   */
  String sayHello(final String whom);
}
```

HelloServiceImpl interface:

```
@RequiredArgsConstructor
public class HelloServiceImpl implements HelloService {

  final String prefix;
  final String suffix;

  @Override
  public String sayHello(String whom) {
    return format("%s %s%s", prefix, whom, suffix);
  }
}
```

2.2. hello-service-autoconfigure

Next, crete auto-configuration module for hello-service

```
mkdir hello-service-autoconfigure
touch hello-service-autoconfigure/pom.xml
# ...
```

That module will depends on `hello-service` module and spring-boot auto-configuration dependencies

file `hello-service-autoconfigure/pom.xml`*:*

```
  <dependencies>
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-configuration-processor</artifactId>
      <optional>true</optional>
    </dependency>

    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-autoconfigure</artifactId>
    </dependency>

    <dependency>
      <optional>true</optional>
      <groupId>com.github.daggerok</groupId>
      <artifactId>hello-service</artifactId>
    </dependency>
  </dependencies>
```

Here we are creating auto-configuration which is basically will be picked up if `HelloService` class in classpath

file ./hello-service-autoconfigure/src/main/java/com/github/daggerok/hello/config/HelloServiceAutoConfiguration.java*:*

```
/**
 * Apply auto configuration only if {@link HelloService} class is in classpath.
 */
@Configuration
@RequiredArgsConstructor
@ConditionalOnClass(HelloService.class)
@EnableConfigurationProperties(HelloProperties.class)
public class HelloServiceAutoConfiguration {

  @Bean
  @ConditionalOnMissingBean
  public HelloService helloService(final HelloProperties properties) {
    final Hello prop = properties.getHello();
    final HelloServiceImpl helloService = new HelloServiceImpl(prop.getPrefix(), prop
.getSuffix());
    return helloService;
  }
}
```

To make it happens, we need provide `spring.factories` file, which spring-boot will identify and create needed auto-configurations for us if starter in classpath according to conditions

file ./hello-service-autoconfigure/src/main/java/com/github/daggerok/hello/config/HelloServiceAutoConfiguration.java*:*

```
org.springframework.boot.autoconfigure.EnableAutoConfiguration=\
com.github.daggerok.hello.config.HelloServiceAutoConfiguration
```

2.3. spring-boot-starter-hello

Now we are ready to go create starter itself

```
mkdir spring-boot-starter-hello
touch spring-boot-starter-hello/pom.xml
# ...
```

That starter will define in dependencies everything needed

file `spring-boot-starter-hello/pom.xml`*:*

```
  <artifactId>spring-boot-starter-hello</artifactId>
  <packaging>jar</packaging>

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

    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-configuration-processor</artifactId>
      <optional>true</optional>
    </dependency>

    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-test</artifactId>
      <scope>test</scope>
    </dependency>

    <dependency>
      <groupId>com.github.daggerok</groupId>
      <artifactId>hello-service</artifactId>
    </dependency>

    <dependency>
      <groupId>com.github.daggerok</groupId>
      <artifactId>hello-service-autoconfigure</artifactId>
    </dependency>
  </dependencies>
```

that module also has auto-configuration `HelloStarterAutoConfiguration.java`*:*

```
@ConditionalOnClass(HelloServiceAutoConfiguration.class)
@ImportAutoConfiguration({ HelloServiceAutoConfiguration.class })
@Configuration
public class HelloStarterAutoConfiguration { }
```

and `spring.factories` *file:*

```
org.springframework.boot.autoconfigure.EnableAutoConfiguration=\
  com.github.daggerok.starter.HelloStarterAutoConfiguration
```

it's very important test your auto configuration if it's properly works:

```
public class HelloStarterAutoConfigurationTests {
```

```
  private ConfigurableApplicationContext context;

  public static class EnvironmentTestUtils {
    public static void addEnvironment(final ConfigurableApplicationContext context,
final String... pairs) {
      TestPropertyValues.of(pairs).applyTo(context);
    }
  }

  private void load(Class<?> config, String... environment) {
    final AnnotationConfigApplicationContext ctx = new
AnnotationConfigApplicationContext();
    ctx.register(config);
    EnvironmentTestUtils.addEnvironment(ctx, environment);
    ctx.refresh();
    this.context = ctx;
  }

  @Rule
  public ExpectedException expectedException = ExpectedException.none();

  @Rule
  public OutputCapture output = new OutputCapture();

  @After
  public void closeContext() {
    Optional.ofNullable(context)
            .ifPresent(ConfigurableApplicationContext::close);
  }

  @Configuration
  @ImportAutoConfiguration(HelloStarterAutoConfiguration.class)
  static class EmptyConfiguration { }

  @Test
  public void serviceBeanWithEmptyContextIsAutoConfigured() {
    load(EmptyConfiguration.class);

    assertThat(context.getBeansOfType(HelloService.class))
        .hasSize(1);

    // default prefix: 'Hello, ', default suffix: '!'
    assertThat(context.getBean(HelloService.class).sayHello("Maksimko"))
        .isEqualTo("Hello, Maksimko!");
  }

  @Configuration
  @ImportAutoConfiguration(HelloStarterAutoConfiguration.class)
  public static class UserConfiguration {
```

```
    @Bean
    public HelloService helloService() {
      return new HelloServiceImpl("<", " >");
    }
  }

  @Test
  public void defaultBeanIsNotCreatingIfUserProvidedOne() {
    load(UserConfiguration.class);

    assertThat(context.getBeansOfType(HelloService.class))
        .hasSize(1);

    assertThat(context.getBean(HelloService.class).sayHello("ololo"))
        .isEqualTo("< ololo >");
  }
}
```

Here we are testing that HelloService bean was properly instantiated and found in application context.

Chapter 3. Testing

To test starter, all you need to do is:

1. create module for it:

```
mkdir spring-boot-starter-hello-tests
touch spring-boot-starter-hello-tests/pom.xml
# ...
```

2. add to your pom.xml started:

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

    <dependency>
      <groupId>com.github.daggerok</groupId>
      <artifactId>spring-boot-starter-hello</artifactId>
    </dependency>

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

3. and use it like any other spring-boot starters:

```
@Log4j2
@SpringBootApplication
public class HelloStarterTestApplication {
  public static void main(String[] args) {
    final ConfigurableApplicationContext context = SpringApplication.run
(HelloStarterTestApplication.class, args);
    final HelloService helloService = context.getBean(HelloService.class);
    log.info(() -> helloService.sayHello("ololo-trololo"));
  }
}
```

Chapter 4. Links

- GitHub repo
- GitHub pages

Chapter 5. Other links

- link:https://www.youtube.com/watch?v=N39hpGAT43s
- link:https://github.com/snicoll-demos/hello-service-auto-configuration
- link:https://github.com/snicoll/amqp-10-jms-spring-boot