COREMEDIA

Elevate Experience. Drive Impact.

Imagine this!

`BeanDefinitionOverrideException`

Missing `javax.*` packages

`@RequestMapping` Controller not registered

Can’t start Spring Boot apps with Maven plugin

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Spring Boot & Friends

Changes in CoreMedia Content Cloud 12

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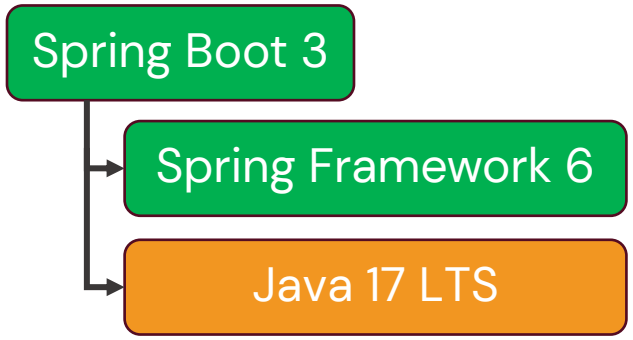
Initial situation

- Spring Boot 2.7 end of Open Source Software (OSS) support 11/2023



- Spring Boot is an entrypoint into the Spring ecosystem
- We upgraded the core product & Blueprint workspace
- You will need to upgrade you custom code

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Changes we needed to do

Jakarta EE 9

- `javax.*` becomes `jakarta.*` for non-standard JDK packages
- Servlet API, Persistence, Bean Validation and much more affected

```
- <jaxb:bindings version="2.0"
-               xmlns:jaxb="http://java.sun.com/xml/ns/jaxb"
+ <jaxb:bindings version="3.0"
+               xmlns:jaxb="https://jakarta.ee/xml/ns/jaxb"
```

Changes we needed to do

Third-Party library updates

- Implementation for Jakarta Mail and Jakarta Activation provided by `org.eclipse.angus`
- JAXB Maven plugin: `org.codehouse.mojo jaxb2maven-plugin`
- Hibernate Upgrade guide

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❗: Challenge

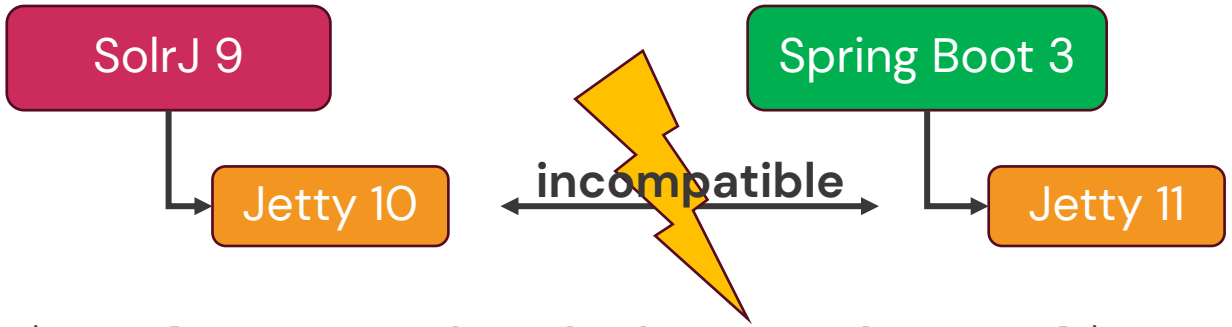
🤒: Sympton

🦫: Solution

Changes we chose to do

Removal of Apache HTTP Components

- Removed usage of Apache HTTP Components → choose HTTP client at will
- ! Known side effect if no HTTP client is configured



🤒 `java.lang.NoSuchMethodError: 'org.eclipse.jetty.client.Request org.eclipse.jetty.client.HttpClient.newRequest(java.net.URI)'`

🦫 Solution: add runtime dependency on `org.apache.httpcomponents.client5:httpclient5`, or explicitly configure the HTTP client request factory

Changes we chose to do

Component Loader XML to Spring Boot `AutoConfiguration`

- We want you to benefit from the power of Spring Boot
- CoreMedia Component Loader is deprecated
- Migration of `component-*.xml` to Spring Boot Java `AutoConfiguration`s

Changes we chose to do

Spring XML to Java Configuration

- Benefits from Spring Java configuration include
  - Compile time checks
  - Dependency checks
  - Conditionals
  - Enhanced IDE support
- Find out more in Release Notes & Upgrade Guide

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Expected Challenges

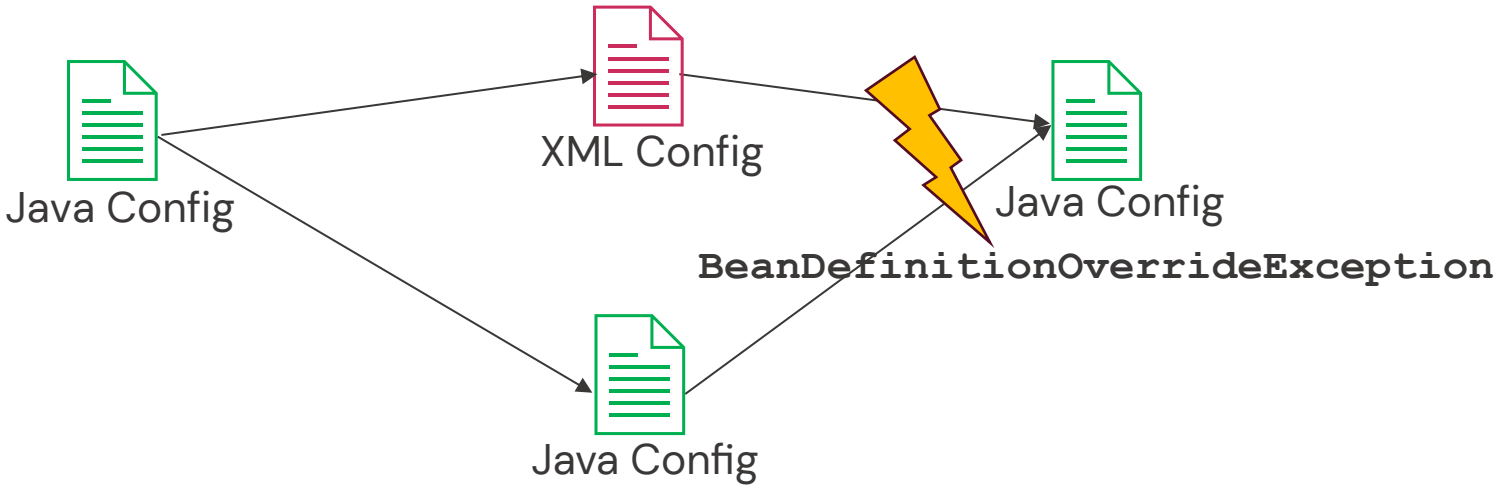
Registering `AutoConfiguration`s & Rest Controllers

- Spring Boot `AutoConfiguration` registration must be done in `META-INF/spring/org.springframework.boot.autoconfigure.AutoConfiguration.imports` can not be done in `spring.factories` any longer
- Controllers only annotated with `@RequestMapping` will no longer be registered – `@Controller` is needed

Expected Challenges

Configuration Class Loading

- ❗ Change in Spring 6 to configuration class loading
- 😗 `BeanDefinitionOverrideException`s might appear on application startup



Expected Challenges

Configuration Class Loading

-  Solution: component scan in XML configuration

```
- <bean class="foo.bar.ExampleClazzConfiguration"/>
+ <context:component-scan base-package="foo.bar" use-default-filters="false">
+   <context:include-filter type="regex" expression=".*\.ExampleClazzConfiguration$"/>
+ </context:component-scan>
```

Expected Challenges

Parameter Names

- ❗ Spring Framework 6 changed deduction of parameter names
- 🤒 Exception message: `Name for argument of type [clazz] not specified, and parameter name information not available via reflection. Ensure that the compiler uses the '-parameters' flag.`
- 🦫 Solution: Compile your sources with compiler flag `-parameters`

  In Maven:

```
<plugin>
  <groupId>org.apache.maven.plugins</groupId>
  <artifactId>maven-compiler-plugin</artifactId>
  <configuration>
    <parameters>true</parameters>
  </configuration>
</plugin>
```

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Claus's favorite way to start a Spring Boot application

It's not the plugin

- Difficulties in Spring Boot 3 with `spring-boot-maven-plugin` because of JVM forking
  - Removed option to run in the same JVM
  - Changes way to pass arguments
  - Exceeding Windows path length limitations due to JVM forking

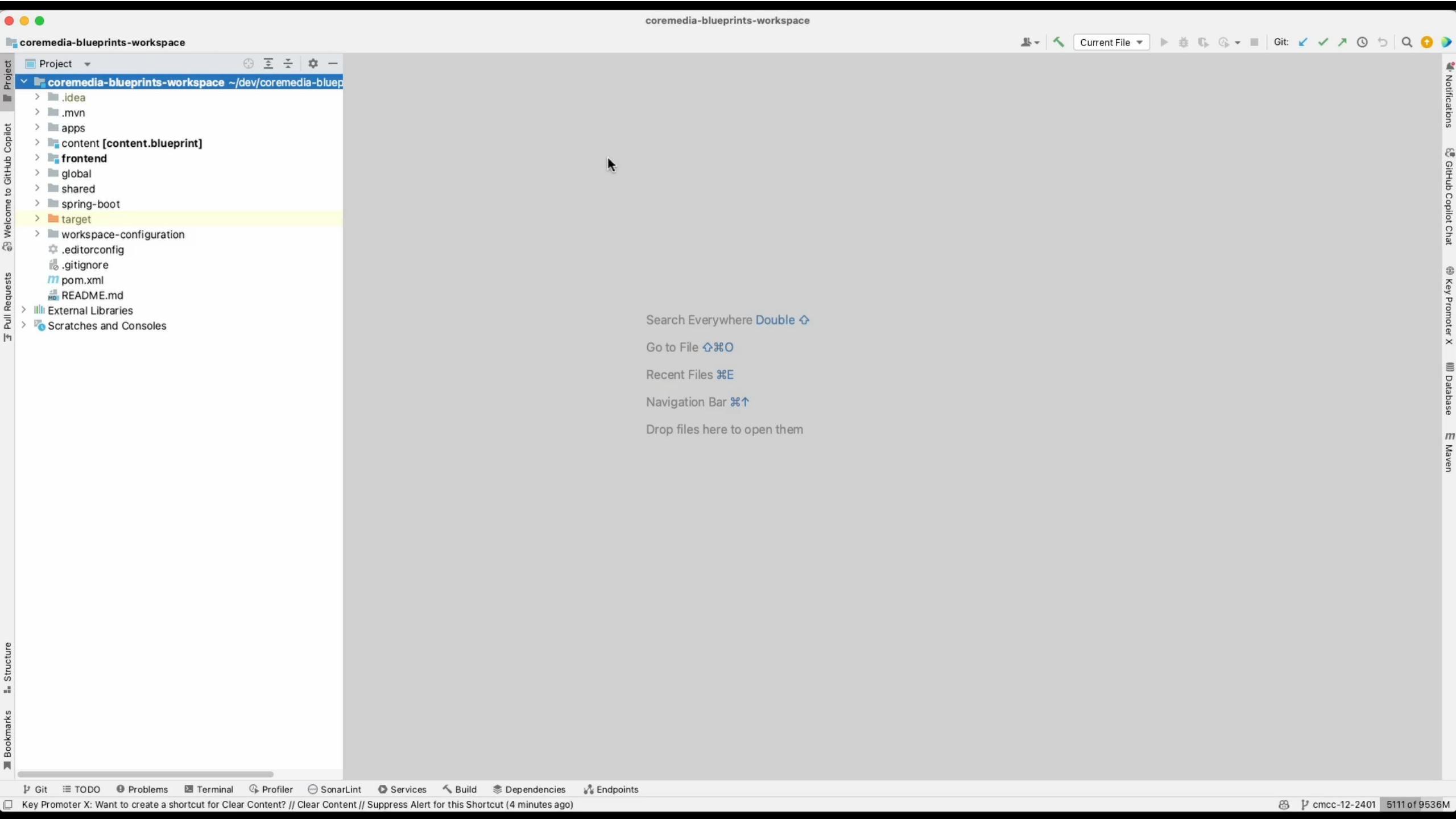
Old

```
mvn spring-boot:run

  -Dinstallation.host=<FQDN> ...
  -Dspring-
boot.run.profiles=<profiles>
```

New

```
mvn spring-boot:run
  -Dspring.boot.run.jvmArguments=
  "-Dinstallation.host=<FQDN> ..."
  -Dspring-
boot.run.profiles=<profiles>
```


coremedia-blueprints-workspace
coremedia-blueprints-workspace
Current File
Git:
Project
coremedia-blueprints-workspace ~/dev/coremedia-bluep
.idea
.mvn
apps
content [content.blueprint]
frontend
global
shared
spring-boot
target
workspace-configuration
.editorconfig
.gitignore
pom.xml
README.md
External Libraries
Scratches and Consoles
Search Everywhere Double ⇧
Go to File ⇧⌘O
Recent Files ⌘E
Navigation Bar ⌘↑
Drop files here to open them
Project
Welcome to GitHub Copilot
Pull Requests
Structure
Bookmarks
Notifications
GitHub Copilot Chat
Key Promoter X
Database
Maven
Git
TODO
Problems
Terminal
Profiler
SonarLint
Services
Build
Dependencies
Endpoints
Key Promoter X: Want to create a shortcut for Clear Content? // Clear Content // Suppress Alert for this Shortcut (4 minutes ago)
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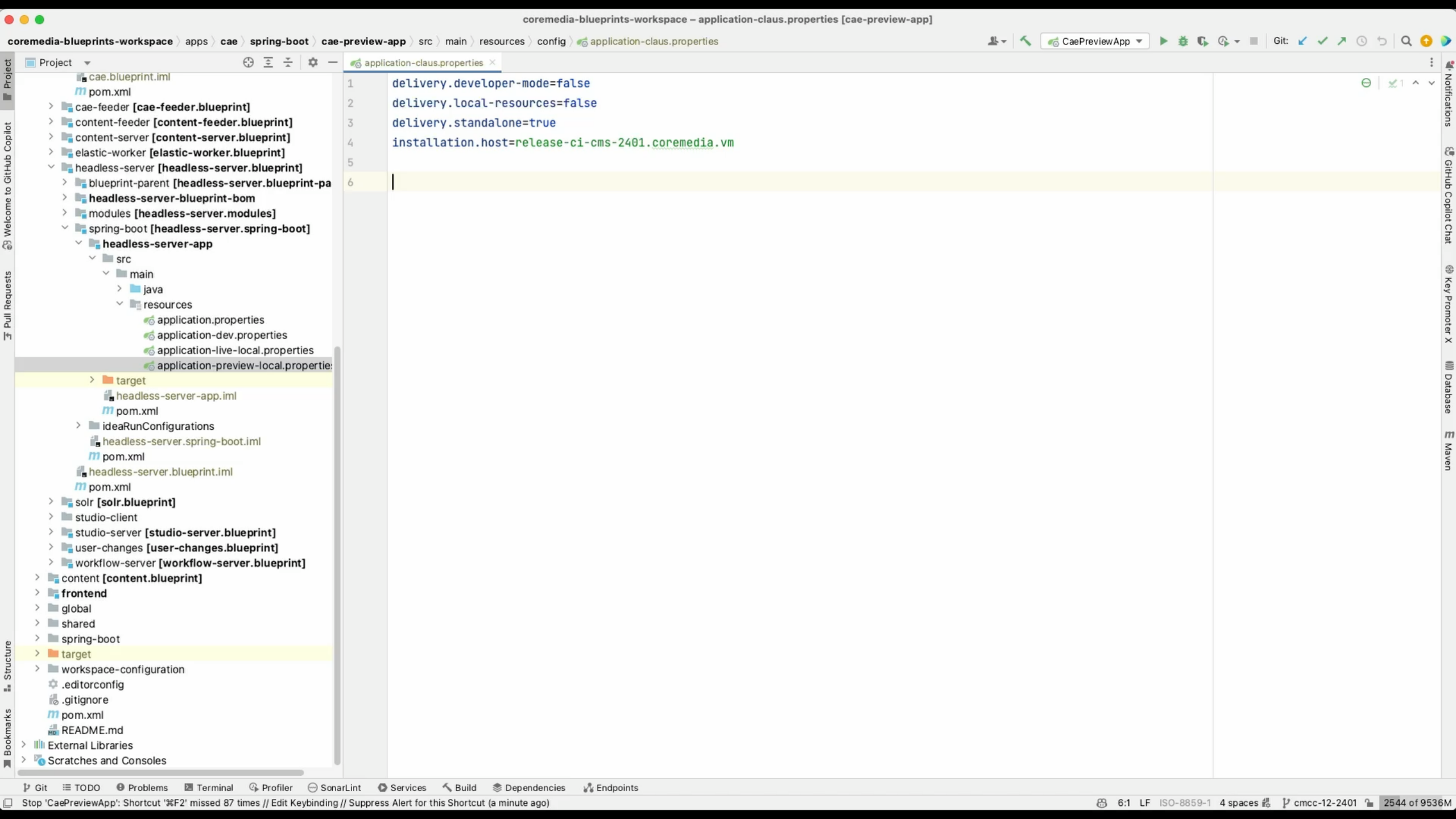
coremedia-blueprints-workspace – application-claus.properties [cae-preview-app]
coremedia-blueprints-workspace 〉 apps 〉 cae 〉 spring-boot 〉 cae-preview-app 〉 src 〉 main 〉 resources 〉 config 〉 application-claus.properties
CaePreviewApp
Git:
Project
cae.blueprint.iml
pom.xml
cae-feeder [cae-feeder.blueprint]
content-feeder [content-feeder.blueprint]
content-server [content-server.blueprint]
elastic-worker [elastic-worker.blueprint]
headless-server [headless-server.blueprint]
blueprint-parent [headless-server.blueprint-pa
headless-server-blueprint-bom
modules [headless-server.modules]
spring-boot [headless-server.spring-boot]
headless-server-app
src
main
java
resources
application.properties
application-dev.properties
application-live-local.properties
application-preview-local.properties
target
headless-server-app.iml
pom.xml
ideaRunConfigurations
headless-server.spring-boot.iml
pom.xml
headless-server.blueprint.iml
pom.xml
solr [solr.blueprint]
studio-client
studio-server [studio-server.blueprint]
user-changes [user-changes.blueprint]
workflow-server [workflow-server.blueprint]
content [content.blueprint]
frontend
global
shared
spring-boot
target
workspace-configuration
.editorconfig
.gitignore
pom.xml
README.md
External Libraries
Scratches and Consoles
application-claus.properties
1 delivery.developer-mode=false
2 delivery.local-resources=false
3 delivery.standalone=true
4 installation.host=release-ci-cms-2401.coremedia.vm
5
6
Notifications
GitHub Copilot Chat
Key Promoter X
Database
Maven
Welcome to GitHub Copilot
Pull Requests
Structure
Bookmarks
Git
TODO
Problems
Terminal
Profiler
SonarLint
Services
Build
Dependencies
Endpoints
Stop 'CaePreviewApp': Shortcut '⌘F2' missed 87 times // Edit Keybinding // Suppress Alert for this Shortcut (a minute ago)
6:1
LF
ISO-8859-1
4 spaces
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Key Takeaways

- Jakarta EE: `javax.*` becomes `jakarta.*` and taglibs need to be renamed
- We want you to benefit from the power of Spring Boot
  - Choose your own HTTP client implementation & remember incompatibility with SolrJ Jetty & Spring Boot Jetty
  - Moving from CoreMedia Component Loader to Spring Boot `AutoConfiguration`s
  - Moving from Spring XML to Spring Java configuration
- `spring.factories` don't register `AutoConfiguration`s anymore, use `META-INF/spring/org.springframework.boot.autoconfigure.AutoConfiguration.imports` file
- Component-Scan fix for when importing Spring Java configuration from both Spring Java configuration and Spring XML configuration
- Use `-parameters` flag to compile your sources
- Start your Spring Boot apps via IDE

Time for your Questions

CMCC v12 Upgrade Guide