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Paving the way to a native Sling Radu Cotescu, Karl Pauls - Adobe





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Episode VI*. The end.

* we're happy you know your Star Wars episodes 5

Why the end? adaptTo()



2018 - we presented a novel approach towards script bundling and pre-compilation, based on OSGi capabilities [1]

2019 - based on our previous year's work, we then showed the bigger picture: running Apache Sling as a distributed rendering service [2]

ready

2020 - support for precompiled bundled scripts is now production





Servlets Resolver & Scripting Core adaptTo()

- used.
- Specific tooling helps developers for both precompiling their scripts and generating the required metadata.





These two core bundles now provide full support for packing scripts (resource types) into bundles.

Scripts can be interpreted or precompiled (HTL and JSP for now). However, any script engine can be



Bundle headers (Provide-Capability, Require-Capability) can be generated with:

<plugin> <groupId>org.apache.sling</groupId> <artifactId>scriptingbundle-maven-plugin</artifactId> <version>0.2.2/version> <executions> <execution> <phase>prepare-package</phase> <goals> <goal>metadata</goal> </goals> </execution> </executions> </plugin>





- And then use the following two properties in your favourite OSGi bundle plugin:
- \${org.apache.sling.scriptingbundle.maven.plugin.Provide-Capability}
- \${org.apache.sling.scriptingbundle.maven.plugin.Require-Capability}
- You'll also need the following requirement:
- osgi.extender;filter:="(&(osgi.extender=sling.scripting)(version>=1.0.0)(! (version>=2.0.0)))"



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If you precompile HTL (assuming your scripts are in src/main/scripts):

```
<plugin>
    <groupId>org.apache.sling</groupId>
    <artifactId>htl-maven-plugin</artifactId>
    <version>2.0.0-1.4.0</version>
    <executions>
        <execution>
            <id>validate-htl-scripts</id>
            <goals>
                <goal>validate</goal>
            </goals>
            <phase>generate-sources</phase>
            <configuration>
                <generateJavaClasses>true</generateJavaClasses>
            </configuration>
        </execution>
    </executions>
</plugin>
```

If you precompile JSP (assuming your scripts are in src/main/scripts):

```
<plugin>
    <groupId>org.apache.sling</groupId>
    <artifactId>jspc-maven-plugin</artifactId>
    <version>2.2.2</version>
    <executions>
        <execution>
            <goals>
                <goal>jspc</goal>
            </goals>
        </execution>
    </executions>
</plugin>
```





Can we precompile Composum?

Why change something that works?

- ✓ Faster startup of the web application
- ✓ Leaner instances
- Explicit dependencies
- Resource type versioning
- ✓ Ahead of time verification
- ✓ Native compilation (in the not so distant future)







What about AEM?

We're glad you asked. adaptTo()

The AEMaaCS SDK already provides the AEM resource types (/libs) as precompiled Java classes via the aem-precompiledscripts **bundle**.

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The available resource types are exposed via the Provided-Capabilities bundle header.





Precompiling scripts for AEM



Next steps adaptTo()

Existing applications will need a tool to help with migration, which will be made available soon: help repack scripts from content packages and precompile them into bundles

- provide build-time checks
- Explore OSGi Connect and Native images as a way to deploy applications.













- [1] <u>https://adapt.to/2018/en/schedule/apache-sling-scripting-reloaded.html</u>
- [2] https://adapt.to/2019/en/schedule/from-0-to-hero-in-under-10-seconds.html
- [3] <u>https://github.com/apache/sling-org-apache-sling-servlets-resolver</u>
- [4] <u>https://github.com/apache/sling-org-apache-sling-scripting-bundle-tracker-it</u>
- [5] <u>https://github.com/raducotescu/adaptTo2020-demo</u>

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