



adaptTo()

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Extensible Components with Sling Models and HTL

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About us: ref-squad



- WCM Components in AEM
- Core Components
- Demo Time: We.Retail
- Demo Time: Building from Scratch
- Conclusion and Get started
- Q & A Section

Components and WCM

WCM Components in AEM

Why?

- Speed up the time to get a WCM project done (increase ROI)
- Showcase the latest AEM technology and capabilities
- No need to reinvent the wheel on every customer project
- Provide guidelines / best practice for Component development for (new) developers

How?

- Foundation Components (OOTB)
- since AEM 6.3: Core Components (samplecontent / GitHub)

WCM Components in AEM: The History

Foundation Components

- Development started with CQ 5.0 (2008)
- ~70 Components shipped with AEM OOTB
- Placed in
 - /libs/foundation/components (JSP based)
 - /libs/wcm/foundation/components (based on HTL and JS logic)
- Usage:
 - By Customers in WCM projects (as-is or basis for there own components)
 - In AEM demos (Geometrixx) and other parts of the product (eg. Commerce, Mobile, Social)

Foundation Components: The Challenges

- Hard to evolve new features or to drop outdated functionalities
 - Components directly used in customer projects (e.g. parsys)
 - Components inherited by subcomponents (e.g. page)
- Not a state of the art best practice for component development
 - Logic placed inline in JSP as scriptlets
 - No testing coverage with unit tests
- No consistent support of latest AEM features like TouchUI or Editable Templates

Core Components

Core Components: Overview

Page authoring

Page

Breadcrumb

Title

Text

Image

List

Sharing

Form

Container

Text field

Options field

Hidden field

Button

Sandbox

Navigation

Language navigation

Teaser

Search

Core Components: Open Source

- <https://github.com/Adobe-Marketing-Cloud/aem-core-wcm-components>
- Stable branch - **master**
 - AEM 6.3
 - Maintenance + fixes
- Development branch - **development**
 - Sandbox versions
 - Preview
 - Experiment
 - Do not use in production
- Feedback and contributions are greatly appreciated

Core Components: Documentation

- README.md
https://github.com/Adobe-Marketing-Cloud/aem-core-wcm-components/tree/master/content/src/content/jcr_root/apps/core/wcm/components/title/v1/title
- Wiki:
<https://github.com/Adobe-Marketing-Cloud/aem-core-wcm-components/wiki>
- AEM docs:
<https://docs.adobe.com/docs/en/aem/6-3/develop/components/core-components.html>
- Tutorial:
<https://helpx.adobe.com/experience-manager/kt/sites/using/getting-started-wknd-tutorial-develop.html>

Core Components: Tested

- Unit tests
 - Coverage > 80%
 - <https://codecov.io/gh/Adobe-Marketing-Cloud/aem-core-wcm-components>
- UI tests
 - Hobbes JS - <https://docs.adobe.com/docs/en/aem/6-3/develop/ref/test-api/index.html>
 - <https://github.com/Adobe-Marketing-Cloud/aem-core-wcm-components/tree/master/testing/it/ui-js>
 - How to run:
 - Manually
 - Integrated in internal build pipelines (Jenkins) with multiple browsers

Core Components: Technology

- HTL markup
 - Clean, HTML-based templating language
 - Use-objects
 - Sling Models
 - POJOs
 - Javascript
 - Open source
 - <https://github.com/Adobe-Marketing-Cloud/htl-spec>
 - <https://github.com/apache/sling/tree/trunk/bundles/scripting/sightly>
- Standardized BEM-style classes: cmp-breadcrumb__item--active

*BEM = Block Element Modifier

Core Components: Technology

HTL

```
<div class="cmp-title"
    data-sly-use.title="com.adobe.cq.wcm.core.components.models.Title"
    data-sly-test.text="${title.text}">
    <h1 class="cmp-title__text" data-sly-element="${title.type}">${text}</h1>
</div>
```

Sling Model

```
public interface Title {
    String getText();
    String getType();
}
```

Implementation

```
@Model(adaptables = SlingHttpServletRequest.class, adapters = Title.class, resourceType =
"core/wcm/components/title/v1/title")
public class TitleImpl implements Title {...}
```


Core Components: Versions

- HTL
 - Path-based versions
`apps/core/wcm/components/title/v1/title`
 - Inheritance through `sling:resourceSuperType`
- Sling Models - interfaces
 - `@since` annotation
 - default methods

```
...
 * @return the title's text
 * @since com.adobe.cq.wcm.core.components.models 11.0.0; marked <code>default</code> in
12.1.0
 */
default String getText() {
    throw new UnsupportedOperationException();
}
```

Core Components: Versions

- Sling Models - implementations
 - Target specific rendering component version using @Model(resourceType)

```
@Model(adaptables = SlingHttpServletRequest.class, adapters = Title.class, resourceType =  
TitleImpl.RESOURCE_TYPE)  
  
public class TitleImpl implements Title {  
    protected static final String RESOURCE_TYPE = "core/wcm/components/title/v1/title";  
    ...  
}
```

Core Components: Extensible

- Proxy pattern
 - Core components are hidden by default
 - Create proxy components - `sling:resourceSuperType`
- Customize
 - HTL script
 - Sling Models implementation
 - Dialog tabs
- Composition
 - Include components using `data-sly-resource`
 - Reuse Sling Model implementation

Core Components: We.Retail

Reference implementation for WCM and Commerce

- 1.0 - AEM 6.2
 - Custom components
 - HTL + JavaScript
- 2.0 - AEM 6.3
 - Core components
 - HTL + Java
- Future
 - More core components
 - HTL + Sling Models

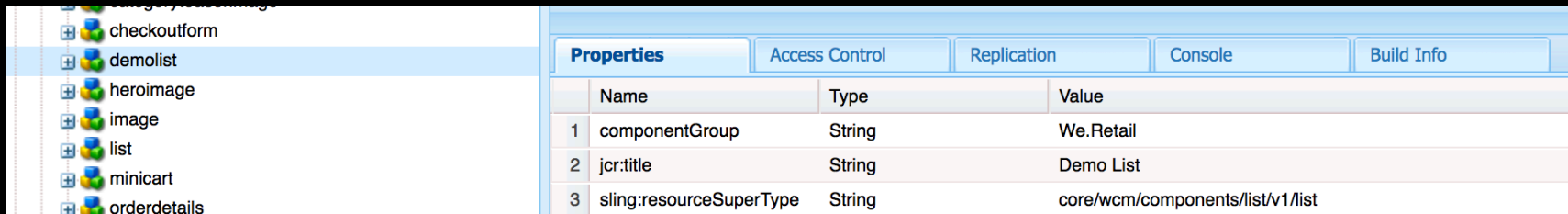
■ We.Retail - Breadcrumb

```
<?xml version="1.0" encoding="UTF-8"?>
<jcr:root xmlns:sling="http://sling.apache.org/jcr/sling/1.0"
  xmlns:cq="http://www.day.com/jcr/cq/1.0" xmlns:jcr="http://www.jcp.org/jcr/1.0"
  jcr:primaryType="cq:Component"
  jcr:title="Breadcrumb"
  jcr:description="Displaying breadcrumb navigation"
  sling:resourceSuperType="core/wcm/components/breadcrumb/v1/breadcrumb"
  componentGroup="We.Retail"/>
```

Demo Time: We.Retail

Demo Time: We.Retail (1/2)

■ Create a proxy component



Properties			
	Name	Type	Value
1	componentGroup	String	We.Retail
2	jcr:title	String	Demo List
3	slings:resourceSuperType	String	core/wcm/components/list/v1/list

■ Customize rendering

```
<ol data-sly-use.list="com.adobe.cq.wcm.core.components.models.List"
  data-sly-list.item="${list.items}">
  <li>${item.title}</li>
</ol>
```

Demo Time: We.Retail (2/2)

- Customize Sling Model implementation

```
@Model(  
    .. adaptables = {SlingHttpServletRequest.class},  
    .. adapters = {List.class},  
    .. resourceType = {"weretail/components/content/demolist"}  
)  
public class DemoListImpl implements List {  
  
    @Override  
    public Collection<Page> getItems() {  
        return Arrays.asList(new Page[] {  
            .. new DemoPage( title: "Test1"),  
            .. new DemoPage( title: "Test2")  
        });  
    }  
}
```

The background of the slide is a close-up photograph of various colorful wooden blocks (cubes, triangles, cylinders) scattered on a light-colored wooden surface. Two small houses are built in the foreground: one with a red roof and one with a blue roof, both made of wooden blocks.

Demo Time: Build a new Website from Scratch

Conclusion and Get started

Core vs. Foundation Components (1/2)

■ Open

	Core	Foundation
License	Apache 2.0 License	Proprietary
Contributions	GitHub Pull requests	Not possible
Support	Yes	Yes

■ Documentation & Tests

	Core	Foundation
Documentation	Better	Some
Tests	Unit Tests, Integration Tests	Integration Tests

Core vs. Foundation Components (2/2)

■ Technology

	Core	Foundation
Versioning	Yes	No
Logic	Sling Models	Scriptlets, JavaScript Use-API
Scripting	HTL	JSP, HTL
CSS	BEM	Custom
JSON	Sling Model Exporter	Default Get Servlet
XSS	HTL	Manual
UI Dialog Support	TouchUI (Coral3)	ClassicUI, TouchUI (Coral2)

Core Components: Get Started

1. Check out We.Retail Demo List (5 mins)

- <https://github.com/Adobe-Marketing-Cloud/aem-sample-we-retail/compare/demo/adaptto2017>

2. Create a new project (30 mins)

- Checkout & install <https://github.com/Adobe-Marketing-Cloud/aem-project-archetype>
- Create new project
- Deploy to AEM 6.3

3. For existing projects on AEM 6.3 (1 hour)

- Download and install the latest released version of the core-components
<https://github.com/Adobe-Marketing-Cloud/aem-core-wcm-components/releases>
- Create proxy component for core-components you want to use / extend

Core Components: Start contributing

- Feedback
- Issues on GitHub
<https://github.com/Adobe-Marketing-Cloud/aem-core-wcm-components/issues>
- Code contributions and pull requests are more than welcome
<https://github.com/Adobe-Marketing-Cloud/aem-core-wcm-components/blob/master/CONTRIBUTING.md>



Q & A Session

Thank You!

Appendix

Core Components: Summary

- Open developed
- Backward compatible
- Make use of latest capability in component development
- Provide a best practice in component development of today
- Configurable via Content Policies
- Can easily be extended with custom functionality
- Can be automatically tested and have a high test coverage
- Well documented
- Provide a nice experience for authors and users

- Core Components — Source Code:
<https://github.com/Adobe-Marketing-Cloud/aem-core-wcm-components>
- Core Components — Documentation:
<https://docs.adobe.com/docs/en/aem/6-3/develop/components/core-components.html>
- Maven Project Archetype — Source Code:
<https://github.com/Adobe-Marketing-Cloud/aem-project-archetype>