



AEM Modernization Tool Suite

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Agenda – Modernization Tool Suite

- Origin
- Why do we need it?
- Features
 - **Problem**
 - **What does it solve**
 - **How does it work**
 - **Demo**
- References/Q&A

Origin Story – Thank you David Gonzalez

Idea from Summit Lab 761: *Modernize Your AEM Sites Codebase*

Learn about the process of migrating Experience Manager Sites pages implemented using legacy static templates to modern editable template-based pages that leverage responsive grid, policies, and TouchUI. Explore how to update code and configurations to be compatible with modern Experience Manager Sites development paradigms and how to adjust existing content to work with the updated code. Analyze existing content for the changes necessary to migrate to the new template structure.

In this lab:

- Identify and review considerations for converting static templates to editable templates
- Update a template to use new Experience Manager patterns and components
- Update classic dialogs to TouchUI using the dialog conversion tool
- Determine opportunities to enhance or replace existing components with features from the Core Component library

The Why

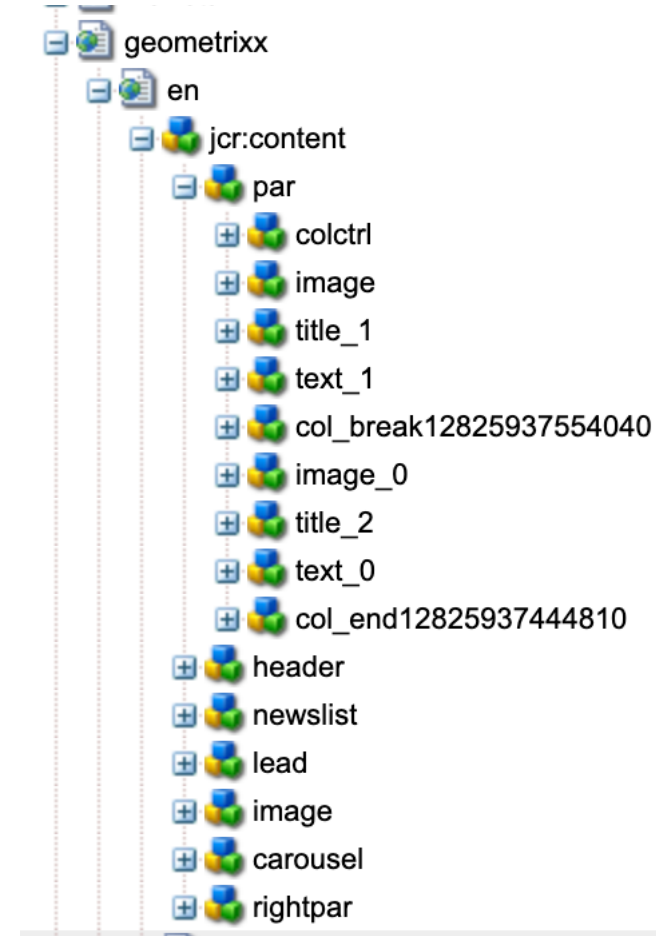
- Classic UI Deprecated
- Editable Templates > Static Templates
- Policies => Editable Templates
- Component Updates
 - Foundation Components 🦴
 - Core Components 🦴

How do accomplish?

- *Project* level effort
 - Plan, review, convert, validate, launch
 - Similar sizing to *AEM Upgrade Project*
- Where can we make efficiencies?
 - **Make the conversion easier**
- Enter AEM Modernization Tools – Converts:
 - **Page's Template**
 - **Component**
 - **Policy**
 - **Dialog**

Page/Template Converter - Problem Domain

- Static Templates:
 - Embedded Components
 - Ordered via *code*, not repository.
 - Parys not Responsive Grid
 - *Column Control?*



Page/Template Conversion

- Evaluate Static Templates
- Define Editable Template
 - **Static Template embedded components are Editable**
- **Template *structure***
- Create Template
 - **Update CSS/JS as necessary**
- Configure & Run the tool

Page/Template Converter - Evaluate Template

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- Polyhedral Sectioning
- Triangulation
- Trigonometric Calculation
- Ruler and Compass Construction

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Layout Container

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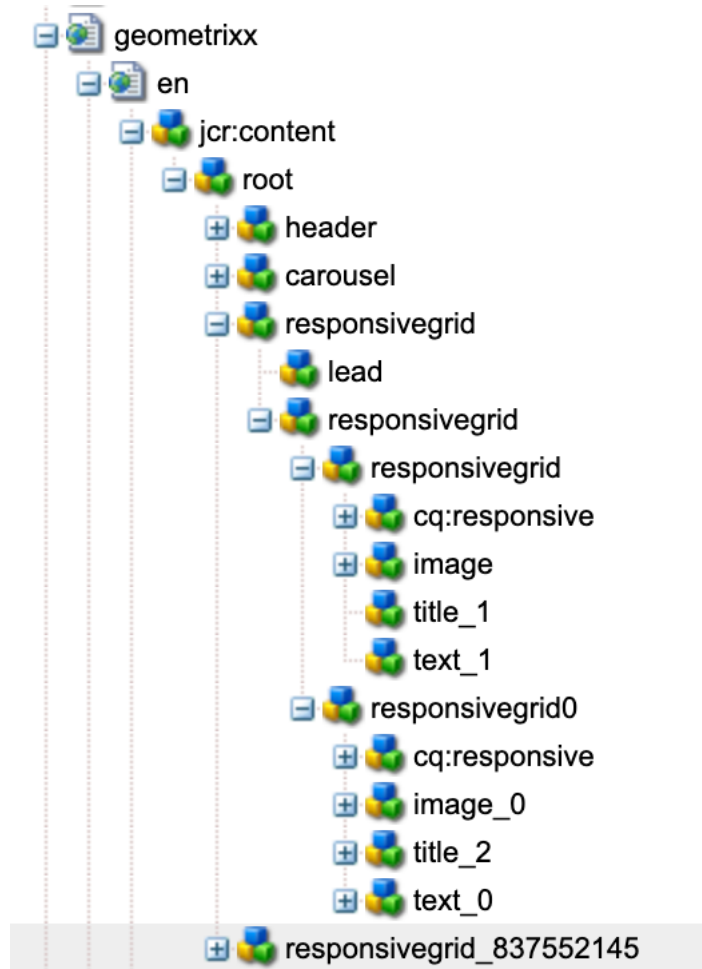
We're mobile!

Page/Template Converter – Create Editable Template

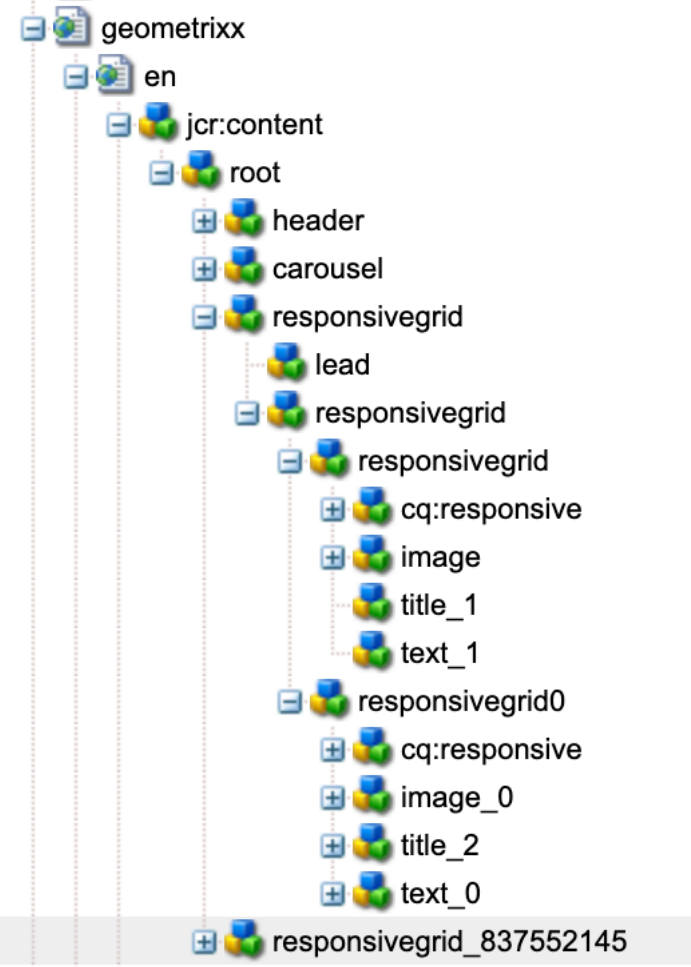
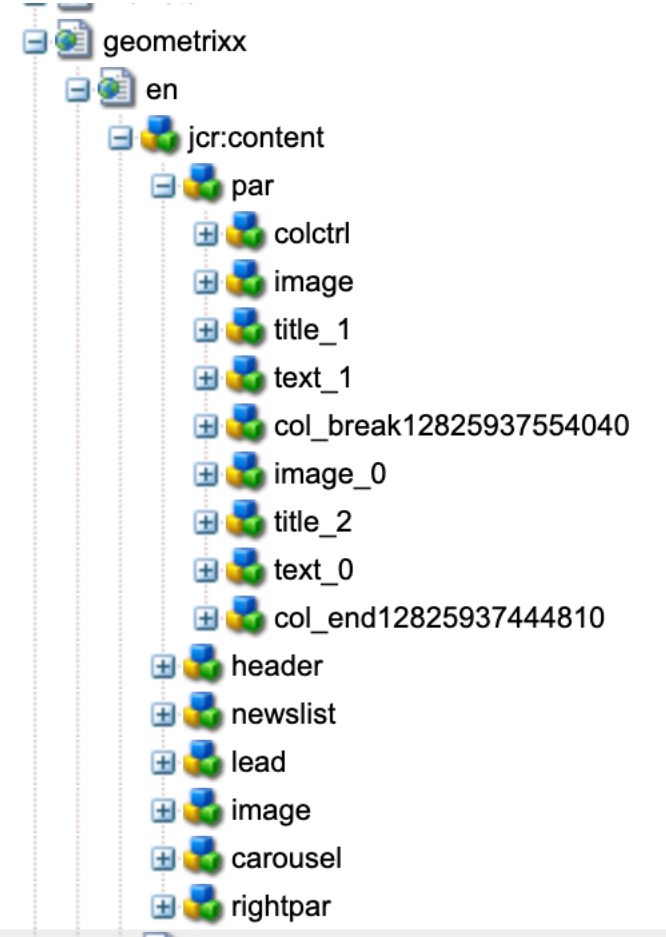
The screenshot shows a web page editor interface for a page titled "GEODEMO HOME PAGE". The interface includes a top navigation bar with "Home" and "SIGN OUT" links, and a search bar with the text "Enter Query" and a "GO" button. Below the navigation bar is a blue horizontal bar with an upward-pointing arrow. The main content area is divided into several sections: a "Carousel" section, a "Lead" section, and a "Layout Container" section. The "Layout Container" section has a list of "ALLOWED COMPONENTS" including Title, Text, Teaser, Tabs, Quick Search, Navigation, List, Language Navigation, Image, Carousel, and Breadcrumb. Below the "Layout Container" section is a "Drag components here" area. The footer section contains three columns: "© 2019 GEOMETRIX INC.", "GEOMETRIX NEWSLETTER" with a sign-up form, and "FOLLOW US" with social media links for Facebook, Twitter, and mobile. The interface also includes a "Structure" dropdown menu and a "Preview" button in the top right corner.

Page/Template Converter - Operations

- Creates *root* responsive grid
- Moves components to grid
 - **Reorders along the way.**
- Rewrites *parsys* as *responsivegrid*
- Creates *responsivegrid* for each column in *column control*
- Moves components from columns to associated *responsive grid*
- Renames nodes as necessary
- Removes unwanted nodes



Page/Template Converter



Page/Template Converter – How?

- Page Rewrite Rule - OSGi Factory Service
- One Per Template
- Maps Original Template to Target Template
- Specifies new Sling Resource Type
- Defines root Responsive Grid component order
- Remove unused component/resource nodes
- Rename nodes *including/within nested structure.*

Page/Template Converter – How? Cont.

Page Rewrite Rule ✕

Rewrites a page template & structure to use new responsive grid layout.

Static Template	<input type="text" value="/apps/geometrixx/templates/homepage"/>	
	The static template which will be updated by this Page Rewrite Rule. (static.template)	
Editable Template	<input type="text" value="/conf/geodemo/settings/wcm/templates/geodemo-home-page"/>	
	The value to update the cq:template with, this should be the new Editable Template. (editable.template)	
Sling Resource Type	<input type="text" value="geodemo/components/structure/page"/>	
	The value to update the sling:resourceType with, this should be the same as the new Editable Template. (sling.resourceType)	
Component Order	<input type="text" value="header"/> <input type="text" value="carousel"/> <input type="text" value="responsivegrid"/> <input type="text" value="responsivegrid_837552145"/> <input type="text" value="responsivegrid:lead"/>	<input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="+"/> <input type="button" value="-"/>
	Specify the order of the components in the new responsive grid. Any found and unspecified are moved to the end in arbitrary order. (order.components)	
Remove Components	<input type="text" value="newslst"/> <input type="text" value="image"/>	<input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="+"/> <input type="button" value="-"/>
	Specify any components that may exist on the static page that can be removed. (remove.components)	
Rename Components	<input type="text" value="par:responsivegrid/responsivegrid"/> <input type="text" value="rightpar:responsivegrid_837552145"/>	<input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="+"/> <input type="button" value="-"/>
	Specify new name for components as they are moved into the root responsive grid. (rename.components)	

Configuration Information

Persistent Identity (PID)	<input type="text" value="com.adobe.aem.modernize.structure.impl.rules.PageRewriteRule~homepage"/>
Factory Persistent Identifier (Factory PID)	<input type="text" value="com.adobe.aem.modernize.structure.impl.rules.PageRewriteRule"/>
Configuration Binding	<input type="text" value="Unbound or new configuration"/>

Page/Template Converter – How? Cont.

- Parsys Rewrite Rule
 - One service to update all *parsys* to *Responsive Grid*
- Column Control Rewrite Rule - OSGi Factory Service
 - One Per Column Control Resource Type & Layout
 - Specifies column width for replacement Responsive Grids.

Page/Template Converter – How? Cont.

Column Control Rewrite Rule

Rewrites Column control components to responsive grid replacements.

Column Control
ResourceType

foundation/components/parsys/colctrl

The sling:resourceType of this column control, leave blank to use Foundation component. (some customers extend/create their own) (sling.resourceType)

Layout Property
Value

2;cq-colctrl-lt0

The value of the `layout` property on the primary column control component. (layout.value)

Column Widths

6

6

An array of widths for each of the columns in target grid. (e.g. 50%/50% column control is [6,6] in target grid. 75%/25% => [8,4]) (column.widths)

Configuration Information

Persistent Identity (PID)

com.adobe.aem.modernize.structure.impl.rules.ColumnControlRewriteRule~twocolumn

Factory Persistent Identifier (Factory PID)

com.adobe.aem.modernize.structure.impl.rules.ColumnControlRewriteRule

Configuration Binding

Unbound or new configuration

Cancel

Reset

Delete

Unbind

Save

Page/Template Converter

DEMO

Component Converter

- Problem Domain
 - Convert from *foundation* to *Core Components*
 - Manage evolution of custom component
- Evaluate Components
- Define *Pattern/Replacement* Rules
 - (Next Slide)
- Run the tool

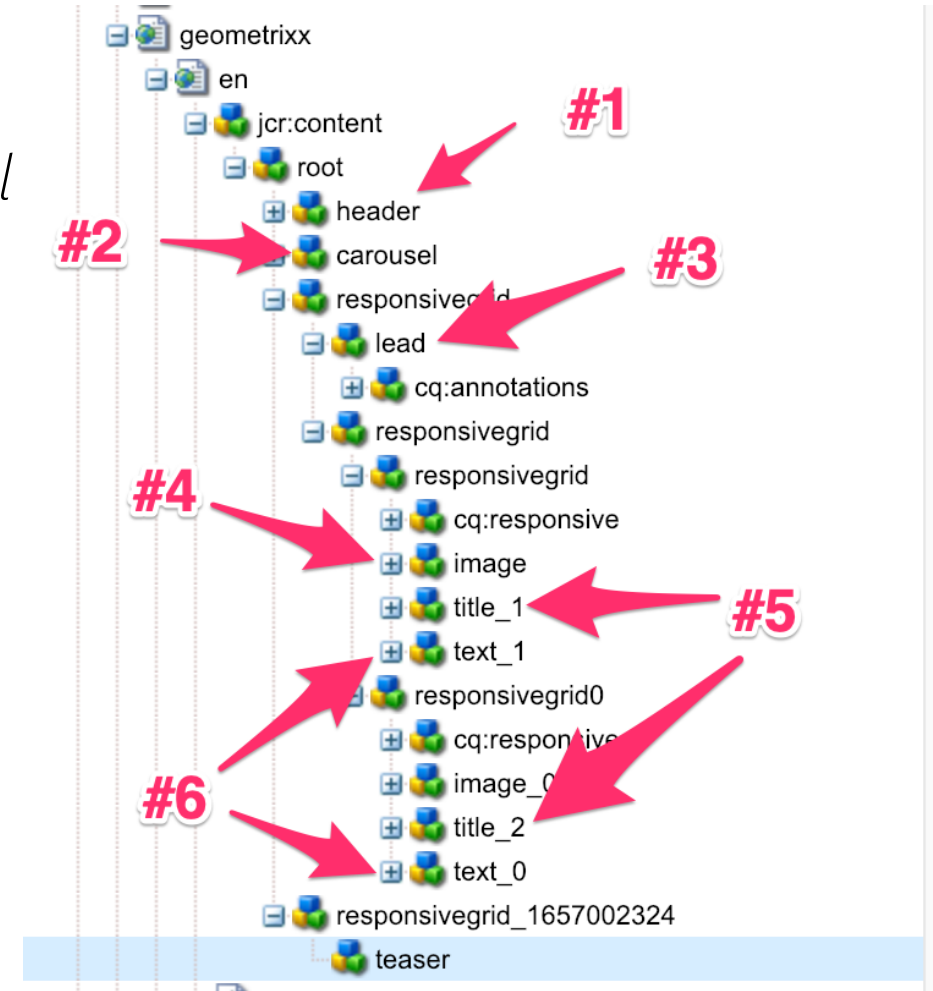
Component Converter – Rules Breakdown

- Implementation Details
 - Same rules structure & logic as *Dialog Conversion*
- One or more *patterns*
 - Specify properties and optional node structure
- A *replacement*
 - Fixed Values
 - Values from original (optional new property name)
 - Copy/Map children nodes
 - Update property values
 - *Other capabilities (docs needed)*

```
<title jcr:primaryType="nt:unstructured">
  <patterns jcr:primaryType="nt:unstructured">
    <title
      jcr:primaryType="nt:unstructured"
      sling:resourceType="geometrixx/components/title" ./>
    </patterns>
  <replacement jcr:primaryType="nt:unstructured">
    <title
      jcr:primaryType="nt:unstructured"
      sling:resourceType="geodemo/components/content/title"
      jcr:title="${'./jcr:title'}"
      linkURL="${'./href'}"
      type="${'./type'}"
    />
  </replacement>
</title>
```

Component Converter - Some Examples

1. Geometrixx Header: *geometrixx/components/header*
 - **Convert:** *geodemo/components/content/header*
2. Foundation Carousel: *foundation/components/carousel*
 - **Leave as is.**
3. Geometrixx Lead : *geometrixx/components/lead*
 - **Convert:** *geodemo/components/content/lead*
4. Foundation Image: *foundation/components/image*
 - **Convert:** *geodemo/components/content/image*
5. Geometrixx Title: *geometrixx/components/title*
 - **Convert:** *geodemo/components/content/title*
6. Foundation Text: *foundation/components/text*
 - **Convert:** *geodemo/components/content/text*



Why these? – Geometrixx Title Example

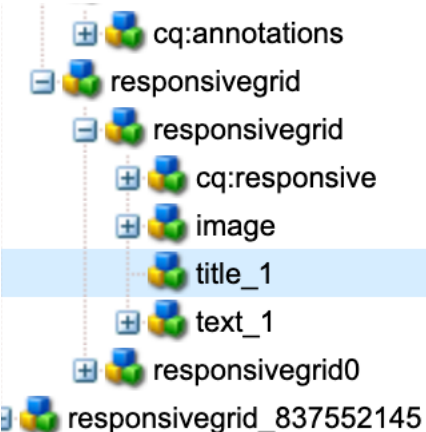
- Geometrixx Title
 - Lookup rules
 - Diff support
 - Defaults from *Design*
 - Rendering based on Authoring
 - JSP LOC
 - 104 (including comments)
- GeoDemo Core Component Proxy
 - Same functionality*
 - Business rules are in Sling Model
 - HTL LOC
 - 24 (including comments)

*Unknown support for *Diff*.

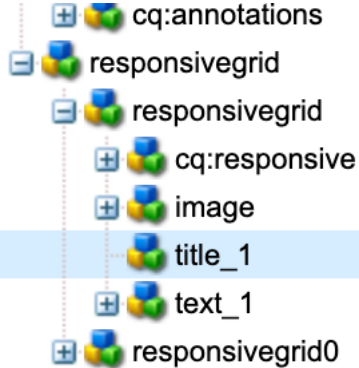
```
1 <!--page session-->false</-->
2 Copyright 1997-2008 Bay Management AG
3 Barfussersplatz 6, 4081 Basel, Switzerland
4 All Rights Reserved.
5
6 This software is the confidential and proprietary information of
7 Bay Management AG ("Confidential Information"). You shall not
8 disclose such Confidential Information and shall use it only in
9 accordance with the terms of the license agreement you entered into
10 with Bay.
11
12
13
14 Title component.
15
16 Draw a title either store on the resource or from the page
17
18 <!--@include file="/libs/foundation/global.jsp" -->
19 <%@page import="java.util.Iterator,
20 com.day.cq.commons.DiffInfo,
21 com.day.cq.commons.DiffService,
22 org.apache.sling.api.resource.Resource,
23 org.apache.sling.api.resource.ResourceResolver" %>
24
25 // first calculate the correct title - look for our sources if not set in paragraph
26 String title = properties.get(Constants.M_TITLE, String.class);
27 if (title == null || title.equals("")) {
28 // might be propagate from a head component
29 title = (String) request.getAttribute("com.day.apps.geometrixx.title.pagetitle");
30
31 }
32 if (title == null || title.equals("")) {
33 title = resourcePage.getPageTitle();
34 }
35 if (title == null || title.equals("")) {
36 title = resourcePage.getTitle();
37 }
38 if (title == null || title.equals("")) {
39 title = resourcePage.getName();
40 }
41
42 // check if we need to compute a diff
43 String label = request.getParameter(DiffService.REQUEST_PARAM_DIFF_ID);
44 String diffOutput = null;
45 DiffInfo diffInfo = resource.adaptTo(DiffInfo.class);
46 if (diffInfo != null) {
47 DiffService diffService = sling.getService(DiffService.class);
48 ValueMap map = ResourceUtil.getValueMap(diffInfo.getContent());
49 String diffText = map.get(Constants.M_TITLE, "");
50 // if the paragraph has no own title, we use the current page title()
51 if (diffText == null || diffText.equals("")) {
52 diffText = title;
53 } else {
54 diffText = xssAPI.filterHTML(diffText);
55 }
56 diffOutput = diffInfo.getDiffOutput(diffService, title, diffText, false);
57 if (title.equals(diffOutput)) {
58 diffOutput = null;
59 }
60 } else if (label != null) {
61 // handle the case when title component is not inside parsys
62 Resource vRes = DiffInfo.getVersionedResource(resource, label);
63 if (vRes == null || !vRes.isResource()) {
64 vRes = DiffInfo.getVersionedResource(resource.getParent(), label);
65 }
66 if (vRes != null) {
67 //check if versioned resource has an overriding direct title component
68 for (Iterator<Resource> iter = resourceResolver.listChildren(vRes); iter
69 Resource res = iter.next();
70 if (res.isResourceType("foundation/components/title")) {
71 vRes = res;
72 break;
73 }
74 }
75 DiffService diffService = sling.getService(DiffService.class);
76 ValueMap map = ResourceUtil.getValueMap(vRes);
77 String diffText = map.get(Constants.M_TITLE, "");
78 diffOutput = diffService.diff(title, diffText, false);
79
80 }
81
82 String defType = currentStyle.get("defaultType", "Large");
83 String type = properties.get("type", defType);
84 String link = properties.get("href", "");
85 if (diffOutput == null) {
86 if (link.length() > 0) {
87 <%= href="#" %> xssAPI.getLinkHref(link) %>
88 }
89 if (type.equals("small")) {
90 <%=<test property="jcr:title" value="" title="" tagNames="h3" escapeHtml="true"/%>
91 } else if (type.equals("link")) {
92 <%=<test property="jcr:title" value="" link="" tagNames="a" - title="" tagNames="p" tagClass="link" escapeHtml="true"/%>
93 } else if (type.equals("text")) {
94 <%=<test property="jcr:title" value="" title="" tagNames="h2" escapeHtml="true"/%>
95 } else {
96 <%=<test property="jcr:title" value="" title="" tagNames="h2" escapeHtml="true"/%>
97 }
98 if (link.length() > 0) {
99 <%=</a%>
100 }
101 } else {
102 <%=</div%>
103 }
104 %>
```

```
<!-- / -->
~ Copyright 2016 Adobe Systems Incorporated
~
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~ you may not use this file except in compliance with the License.
~ You may obtain a copy of the License at
~
~ http://www.apache.org/licenses/LICENSE-2.0
~
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~ distributed under the License is distributed on an "AS IS" BASIS,
~ WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
~ See the License for the specific language governing permissions and
~ limitations under the License.
~-----/----->
<div class="cmp-title"
data-sly-use.title="com.adobe.cq.wcm.core.components.models.Title"
data-sly-use.template="core/wcm/components/commons/v1/templates.html"
data-sly-test.text="${title.text}">
<h1 class="cmp-title_text" data-sly-element="${title.type}"
<a data-sly-unwrap="${!title.linkURL || title.linkDisabled}" class="cmp-title_link" href="${title.linkURL}">${text}</a>
</h1>
</div>
<sly data-sly-call="${template.placeholder @ isEmpty=!text, classAppend='cmp-title'}"></sly>
```


Component Converter



	Name ▲	Type	Value
1	jcr:created	Date	2010-08-23T22:12:08.719+02:00
2	jcr:createdBy	String	admin
3	jcr:lastModified	Date	2010-10-27T15:33:24.462-04:00
4	jcr:lastModifiedBy	String	admin
5	jcr:primaryType	Name	nt:unstructured
6	jcr:title	String	Strategic Consulting
7	slings:resourceType	String	geometrix/components/title



Properties			
Access Control			
Replication			
Console			
	Name ▲	Type	Value
1	jcr:primaryType	Name	nt:unstructured
2	jcr:title	String	Strategic Consulting
3	slings:resourceType	String	geodemo/components/content/title

Component Converter

DEMO

Policy Importer (Design Converter)

- Problem Domain
 - Convert from *Design* configuration to Editable Template *Policy*.
- Evaluate Components
- Define *Pattern/Replacement* Rules
 - (Next Slide)
- Run the tool

Policy Importer- Rules Breakdown

- One or more *patterns*
 - Specify properties and code structure
- A *replacement*
 - Fixed Values
 - Values from original (optional new property name)
 - Copy/Map children nodes
 - Update property values
 - *Other capabilities (docs needed)*

SAME AS COMPONENT

```
<title jcr:primaryType="nt:unstructured">
  <patterns jcr:primaryType="nt:unstructured">
    <title
      jcr:primaryType="nt:unstructured"
      sling:resourceType="geometrixx/components/title" />
  </patterns>
  <content jcr:primaryType="nt:unstructured">
    <title
      sling:resourceType="geometrixx/components/content/title"
      jcr:title="Title"
      linkURL="${./href}"
      type="${./type}"
    />
  </content>
</replacement>
</title>
```

Additional Details

- Uses new Sling Resource Type for Policy location

Policy Importer

The screenshot displays the Policy Importer tool interface. On the left, there are two tree views. The first tree view shows a hierarchy starting with 'geometrixx', followed by 'clientlibs_jquery', 'jcr:content', 'contentpage', 'homepage', and 'page'. Under 'page', there are several sub-items including 'clientcontext', 'image', 'textimage', 'text', 'logo', 'breadcrumb', 'title', 'toptoolbar', 'toolbar', 'par', 'cq:authoring', 'chart', 'tagcloud', 'title', and 'rightpar'. The second tree view shows a hierarchy starting with 'geodemo', followed by 'settings', 'wcm', 'templates', 'policies', 'rep:policy', 'wcm', and 'geodemo'. Under 'geodemo', there are sub-items including 'components', 'form', 'structure', 'content', and 'title'. A 'policy' item is highlighted in the second tree view. On the right, there is a 'Properties' table with columns for Name, Type, and Value. The table contains six rows of data.

Properties		
Name	Type	Value
1 jcr:description	String	Imported from /etc/designs/geometrixx/jcr:content/page/par/title
2 jcr:primaryType	Name	nt:unstructured
3 jcr:title	String	Imported (page/par/title)
4 policyResourceType	String	geodemo/components/content/title
5 sling:resourceType	String	wcm/core/components/policy/policy
6 type	String	h3

Policy Importer

DEMO

Dialog Converter

- Created/published by AEM Product Team
- Will be deprecated, replaced with this Tool Kit
- Current Features and Configuration Documented:
 - <https://helpx.adobe.com/experience-manager/6-4/sites/developing/using/dialog-conversion.html>

Dialog Converter

DEMO

Modernization Tool Kit is...

- Configurable
 - Component/Policy/Dialog – Pattern & Replacement Configurations
 - Page Rewrite Rule Factory
 - Column Control Rewrite Rule Factory
- Configuration Aware
 - Only Page/Components/Policies with rules will be available for conversion.
- Extensible - RewriteRule Interfaces
 - Allows for custom rules that are too complex for provided framework.
 - StructureRewriteRule
 - ComponentRewriteRule
 - PoliciesImportRule
 - DialogRewriteRule
- Designed to minimize the time spent modernizing AEM Sites content.
- But most importantly: Open Source

References

- Summit Lab 761
 - Workbook: <https://expleague.azureedge.net/labs/L761/index.html>
 - Forum Post: <https://forums.adobe.com/message/10924161#10924161>
- Modernization Tools Repo:
 - Source: <https://github.com/adobe/aem-modernize-tools>
 - Docs (Almost Done!): <http://opensource.adobe.com/aem-modernize-tools/>

Q & A

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