

# 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

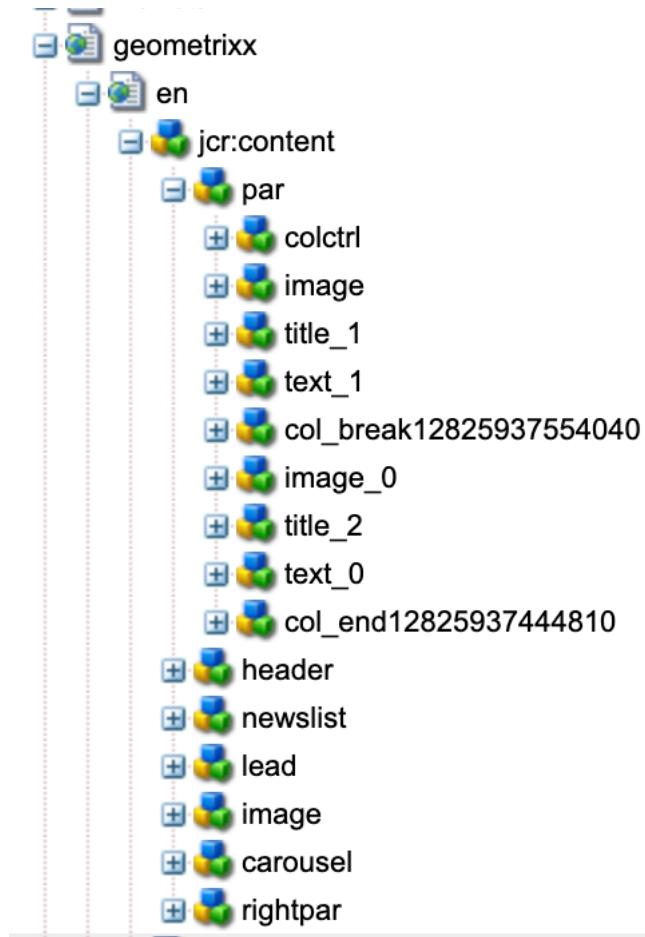
- Classic UI Deprecated
- Editable Templates > Static Templates
- Policies => Editable Templates
- Component Updates
  - Foundation Components 💀
  - Core Components 😎

# 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.
  - Params 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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**Shapes TechSummit**  
Customer and Partner Technology Summit in London  
**Sold out!**

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In today's competitive market, organizations can face several key geometric challenges:

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

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Header

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# Page/Template Converter – Create Editable Template

The screenshot shows the GEODEMO HOME PAGE template editor interface. At the top, there are tabs for 'Structure' and 'Preview'. The main area displays a layout with several components:

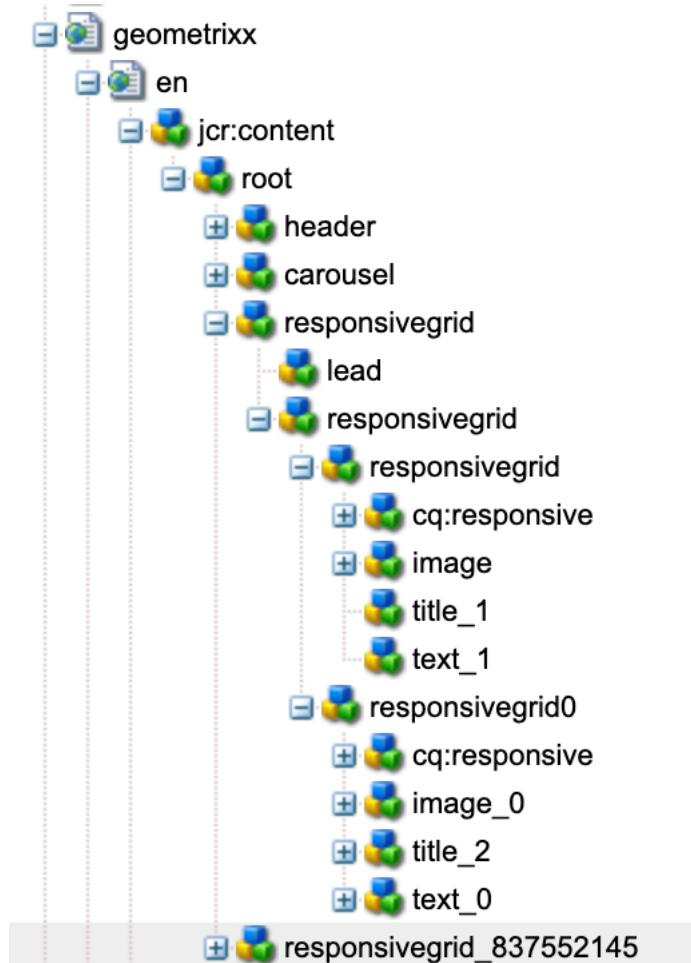
- A top navigation bar with a blue header containing 'SIGN OUT' and a search bar.
- A 'Carousel' component.
- A 'Lead' component.
- A 'Layout Container' component.
- A sidebar titled 'ALLOWED COMPONENTS' listing: Title, Text, Teaser, Tabs, Quick Search, Navigation, List, Language Navigation, Image, Carousel, and Breadcrumb.
- A bottom section labeled 'Drag components here'.

At the bottom of the page, there is footer information:

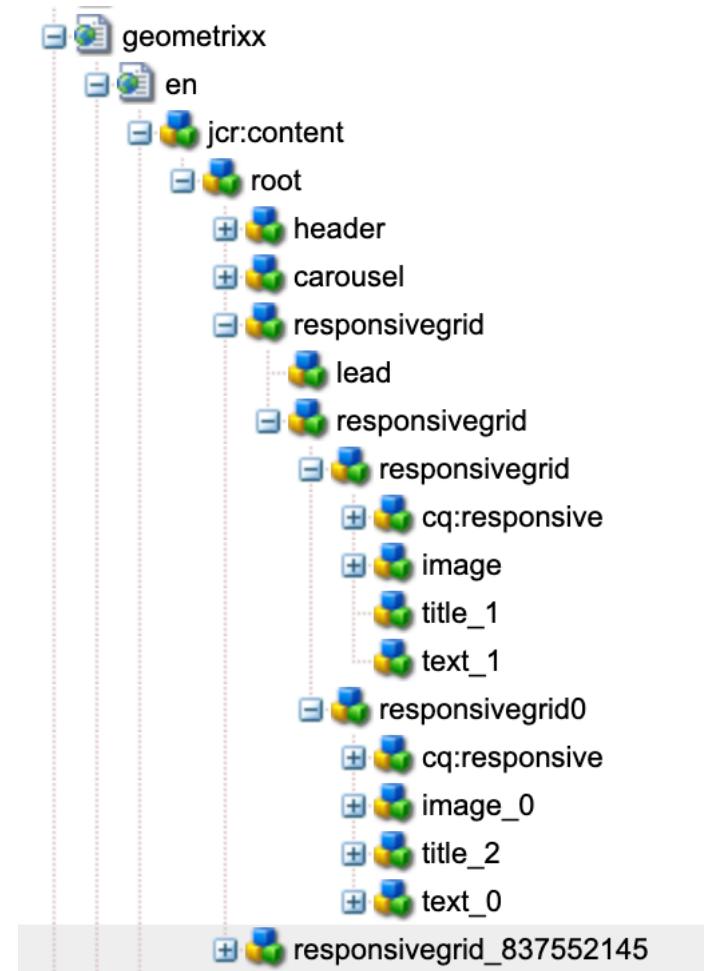
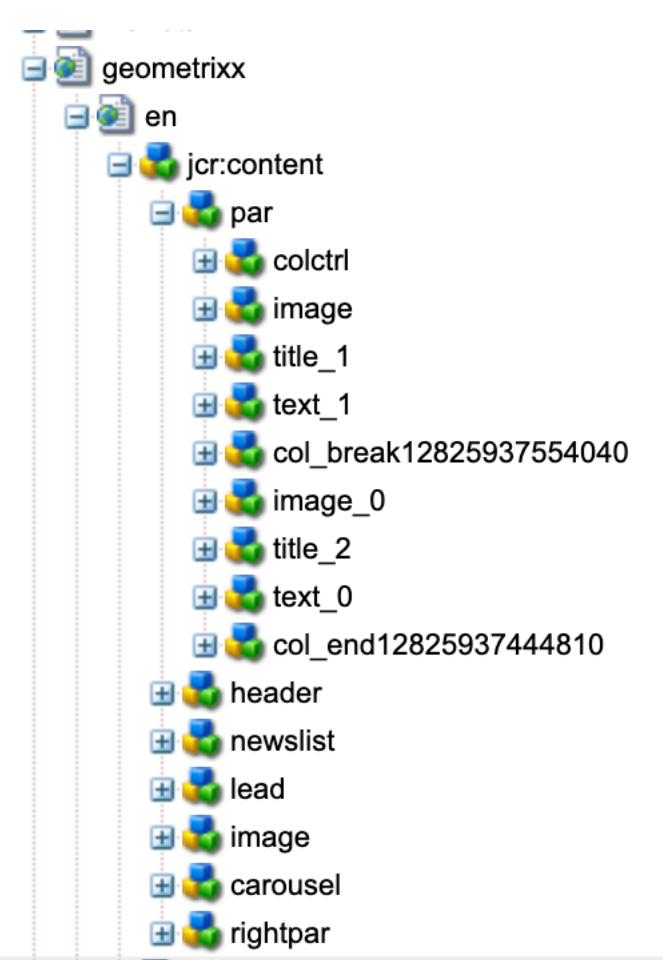
- © 2019 GEOMETRIXX INC.
- GEOMETRIXX NEWSLETTER: A sign-up form asking users to keep in touch for monthly newsletters.
- FOLLOW US: Links to Facebook, Twitter, and mobile platforms.
- A bottom section labeled 'Drag components here'.

# 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	/apps/geometrixx/templates/homepage	The static template which will be updated by this Page Rewrite Rule (static.template)
Editable Template	/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	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	header carousel responsivegrid responsivegrid_837552145 responsivegrid:lead	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	newslist image	Specify any components that may exist on the static page that can be removed. (remove.components)
Rename Components	par:responsivegrid/responsivegrid rightpar:responsivegrid_837552145	Specify new name for components as they are moved into the root responsive grid. (rename.components)
<b>Configuration Information</b>		
Persistent Identity (PID)	com.adobe.aem.modernize.structure.impl.rules.PageRewriteRule~homepage	
Factory Persistent Identifier (Factory PID)	com.adobe.aem.modernize.structure.impl.rules.PageRewriteRule	
Configuration Binding	Unbound or new configuration	
<b>Actions</b>		
<input type="button" value="Cancel"/> <input type="button" value="Reset"/> <input type="button" value="Delete"/> <input type="button" value="Unbind"/> <input type="button" value="Save"/>		

# 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** X

Rewrites Column control components to responsive grid replacements.

Column Control ResourceType	<code>foundation/components/parsys/colctrl</code>						
	The sling:resourceType of this column control, leave blank to use Foundation component. (some customers extend/create their own) (sling.resourceType)						
Layout Property Value	<code>2;cq-colctrl-lt0</code>						
	The value of the 'layout' property on the primary column control component. (layout.value)						
Column Widths	<table border="1"><tr><td>6</td><td style="text-align: right;">+</td><td style="text-align: left;">-</td></tr><tr><td>6</td><td style="text-align: right;">+</td><td style="text-align: left;">-</td></tr></table>	6	+	-	6	+	-
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)	<code>com.adobe.aem.modernize.structure.impl.rules.ColumnControlRewriteRule~twocolumn</code>
Factory Persistent Identifier (Factory PID)	<code>com.adobe.aem.modernize.structure.impl.rules.ColumnControlRewriteRule</code>
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

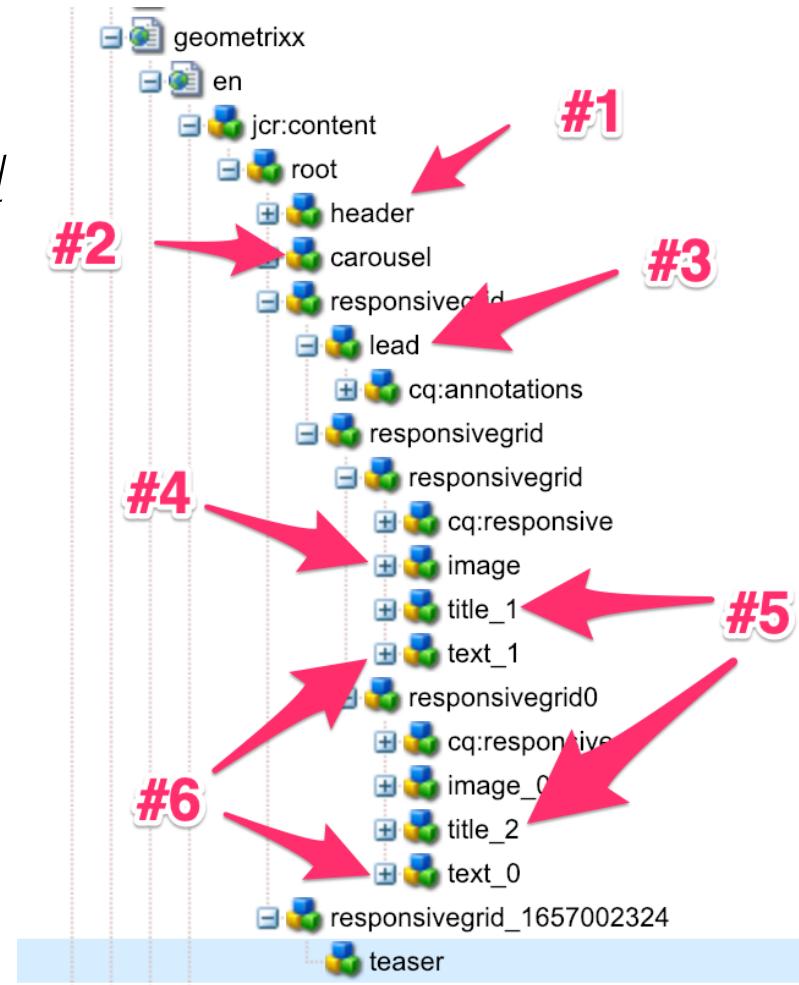
# Component Converter – Rules Breakdown

- 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 Day Management AG
3 Barfüsserstrasse 6, 4001 Basel, Switzerland
4 All Rights Reserved.
5
6 This software is the confidential and proprietary information of
7 Day 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 Day.
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 <%@tag page import="java.util.Iterator,
20 com.day.cq.common.Difference,
21 com.day.cq.common.DiffService,
22 org.apache.sling.api.resource.Resource,
23 org.apache.sling.api.resource.ResourceUtil"%><%-->
24
25 // first calculate the title, look for our sources if not set in paragraph
26 String title = request.getAttribute("com.day.apps几何矩阵.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几何矩阵.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 dlabel = request.getParameter(DiffService.REQUEST_PARAM_DIFF_TO);
44 DiffService diffService = null;
45 DiffInfo diffInfo = null;
46 if (dlabel != null) {
47     DiffService diffService = sling.getService(DiffService.class);
48     ValueMap map = diffService.getParagraphResource().getValues("map");
49     String diffText = map.get("NameConstants.MQ_TITLE","");
50     // if the paragraph has no title, we use the current page title()
51     if (diffText == null || diffText.equals("")) {
52         if (diffText == null || diffText.equals("")) {
53             diffText = title;
54         } else {
55             diffText = XSSRF.filterHTML(diffText);
56         }
57         diffOutput = diffInfo.getDiffOutput(diffService, title, diffText, false);
58     }
59 }
60
61 else if (label != null) {
62     // handle the case when component is not inside parsys
63     Resource vlabel = diffInfo.getParagraphResource(resource, vlabel);
64     if (vlabel == null && resource.getParent() != null) {
65         vlabel = diffInfo.getParagraphResource(resource.getParent(), vlabel);
66     }
67 }
68
69 if (label != null) {
70     // handle the case when component has an overriding direct title component
71     for (Iterator<Resource> iter = resourceList.iterator(); iter.hasNext(); ) {
72         Resource res = iter.next();
73         if (res.isResourceType("foundation/components/title")) {
74             vlabel = res;
75             break;
76         }
77     }
78 }
79
80 DiffService diffService = sling.getService(DiffService.class);
81 ValueMap map = ResourceUtil.getValueMap(dlabel);
82 String diffText = map.get("NameConstants.MQ_TITLE","");
83 diffOutput = diffService.diffOutput(diffText, diffText, false);
84
85
86 String deftype = currentStyle.get("defaultType", "large");
87 String type = properties.get("type", deftype);
88 String link = properties.get("href", "");
89 if (deftype.equals("large")) {
90     if (link.length() > 0) {
91         %><a href="<%= XSSRF.getValidRef(link) %>"><%
92             if (type.equals("small")) {
93                 %><input property="jcr:title" value="<%= title %>" type="button" name="b3" escapeXml="true"/>%
94             %><input property="jcr:title" value="<%= title %>" type="button" name="b4" tagName="p" tagClass="link" escapeXml="true"/>%
95         %>
96     } else {
97         %><input property="jcr:title" value="<%= title %>" type="button" name="b1" escapeXml="true"/>%
98     }
99 }
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101 %></div><%-->
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# Component Converter

The screenshot shows the AEM authoring interface. On the left, there is a component tree with the following structure:

- cq:annotations
- responsivegrid (selected)
- responsivegrid
  - cq:responsive
  - image
  - title\_1 (selected)
  - text\_1
- responsivegrid0
- responsivegrid\_837552145

On the right, there is a table showing the properties of the selected component (title\_1):

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 sling:resourceType	String	geometrixx/components/title

The screenshot shows the AEM authoring interface. On the left, there is a component tree with the same structure as the first screenshot:

- cq:annotations
- responsivegrid (selected)
- responsivegrid
  - cq:responsive
  - image
  - title\_1 (selected)
  - text\_1
- responsivegrid0

On the right, there is a table showing the properties of the selected component (title\_1), with tabs for Properties, Access Control, Replication, and Console.

Properties			
Name	Type	Value	
1 jcr:primaryType	Name	nt:unstructured	
2 jcr:title	String	Strategic Consulting	
3 sling:resourceType	String	geodemo/components/content/title	

# Component Converter

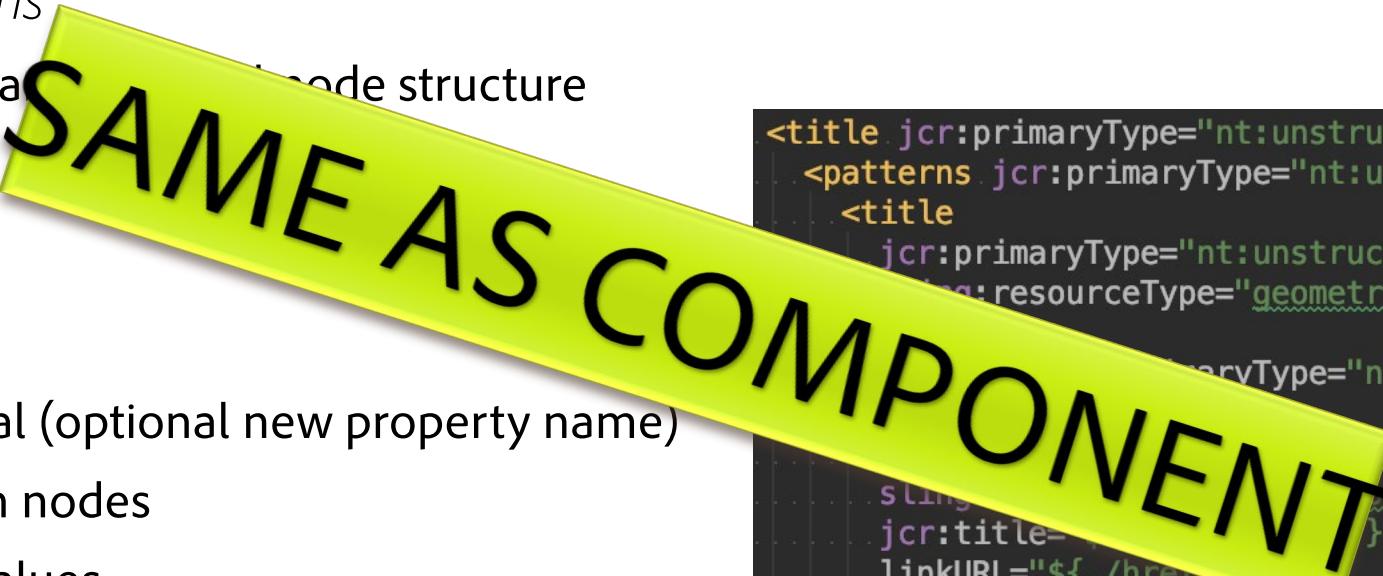
DEMO

# 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 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" />
    <replacement
      jcr:primaryType="nt:unstructured">
        <SLING
          jcr:title=
          linkURL="${./href}"
          type="${./type}" />
      </replacement>
    </title>
```

## Additional Details

- Uses new Sling Resource Type for Policy location

# Policy Importer

The screenshot shows the AEM authoring interface with the 'geometrixx' design selected in the left-hand tree view. A policy named 'policy' is being imported into the 'geodemo' component under the 'components' section. The right-hand panel displays the properties of the imported policy.

**Properties Panel:**

Name	Type	Value
jcr:description	String	Imported from /etc/designs/geometrixx/jcr:content/page/par/title
jcr:primaryType	Name	nt:unstructured
jcr:title	String	Imported (page/par/title)
policyResourceType	String	geodemo/components/content/title
sling:resourceType	String	wcm/core/components/policy/policy
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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**Adobe**