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Apache Wicket and Sling

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- Goals
- Apache Wicket overview
- How the integration work
- Sample applications (DEMO)
- Problems & Solutions
- Future Developments

- Goals
 - Enable complex, dynamic form driven applications to run in Sling
 - e.g. mobile carrier self service site
 - Be as transparent as possible for the application
 - Access underlying Sling/JCR stack from Wicket
- Not a Goal
 - RESTful Wicket
 - Substituting Sling/JSP

- Open Source, component based
 - Good opportunities for reuse
- Pure Java, no XML
 - Feels like Swing
- Strong separation of logic and markup
- Clean object-oriented architecture
 - All aspects are pluggable
 - Forces you to think clean too
- Goodies like transparent AJAX and back-button support

Integration Classes Overview

- *WicketApplicationManager*
 - Gathers references to available Applications
 - Handles servlet registration (resource type, selectors etc.) and configuration
- *SlingWicketServlet/Filter*
 - Handles requests
 - Sling specific URL handling
 - Injects *BundleClassResolver*
- *BundleClassResolver*
 - OSGi-aware class and resource loading
- *SlingMultipartServletWebRequest*
 - Adapts Sling upload handling for Wicket

- Suffix component of the URL is extracted in *SlingWicketFilter* and handled by Wicket
 - Default URL:
<http://localhost:8080/wicket/linkomatic.html/?wicket:interface=:19:::>
 - Bookmarkable Page URL:
<http://localhost:8080/wicket/linkomatic.html/?wicket:bookmarkablePage=:org.apache.sling.samples.wicket.linkomatic.Page3>
 - Mounted Page URL:
<http://localhost:8080/wicket/niceurl.html/path/to/page2>

Demo

- Problem:
 - Wicket *DefaultClassResolver* uses thread context class loader:
`Thread.currentThread().getContextClassLoader()`
- Solution:
 - Custom *BundleClassResolver* that uses bundle class loader:
`bundleContext.getBundle().loadClass()`

- Problem:
 - Wicket uses *ClassResolver* before it allows the application to set it..
- Solution:
 - Circumvent settings access protection by patching the flag at runtime via reflection

- Problem:
 - Wicket and Sling both abstract the upload file handling, so the frameworks fight over request parameters. Sling wins..
- Solution:
 - Custom *SlingMultipartServletWebRequest* that delegates upload handling to Sling *RequestParameters*
 - Unfortunately no practical upload size restriction possible yet

- Problem:
 - Sling adds mapping support to `ServletResponse.encodeUrl()`, breaking Wicket path handling
 - CQ5 intercepts the response for post-processing by the Rewriter infrastructure, breaking Wicket default parameter encoding
- Solution:
 - *WicketSlingHttpServletResponseWrapper* that strips all wrappers down to the bare `ServletResponse` when necessary

- Sling and Wicket are frameworks with different concepts and approaches
 - Don't expect a nice 1:1 mapping
 - Wicket is not as hierarchy oriented as Sling/JCR
- Both assume to have full control over request & response
 - Expect some fighting

- No way to match Wicket Pages to resource nodes/CQ pages
 - Each resource has to have its own application
 - But you might want to map a whole resource subtree to wicket pages in bigger applications
 - Each Wicket application has its own session
 - So you have to fall back to the servlet session to share data

- Wicket applications can access the whole Sling stack
- Wicket components can include Sling components
- Not possible to embed Wicket applications & components in Sling components
 - (At least not non-trivial ones)
 - Wicket needs to be able to set HTTP headers and handle contributors to the HTML <head>

- Possible Solution:
 - Intercept Wicket output and HTTP header
 - Strip everything but the output of the component
 - Handle redirects and includes appropriately (e.g. client side redirect)
- Current Workarounds:
 - Include application in IFrame
 - Include application via AJAX, intercept links and buttons and handle them via XHR
 - Duplicate page frame in Wicket

- Submission to the Apache Sling project
- Annotation
- Configurable Sling upload size restrictions
- Port to Wicket 1.5
- More flexible modes of integration

Q & A

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