

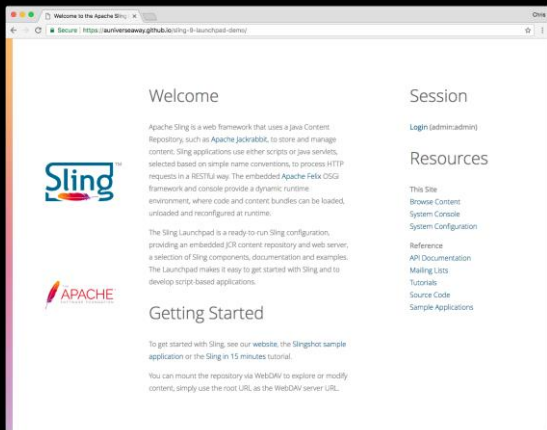


**adaptTo()**

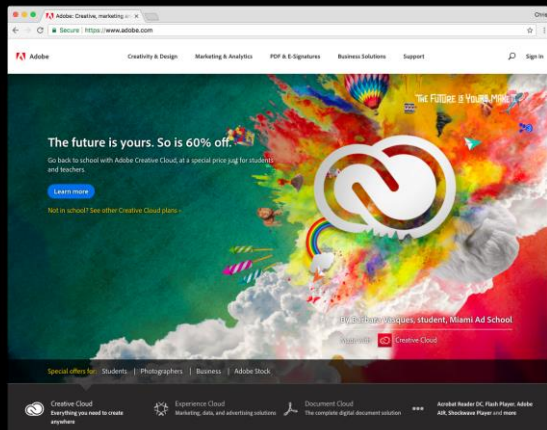
**APACHE SLING & FRIENDS TECH MEETUP**  
BERLIN, 25-27 SEPTEMBER 2017

**Slick — Not your typical Sling Blog Engine**  
Chris Millar, Adobe Systems.

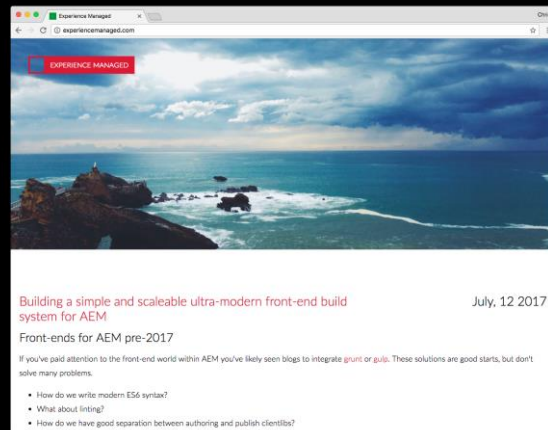
# Who am I?



Sling 9 Launchpad



adobe.com



experiencemanaged.com

# What is Slick?

SLICK

2

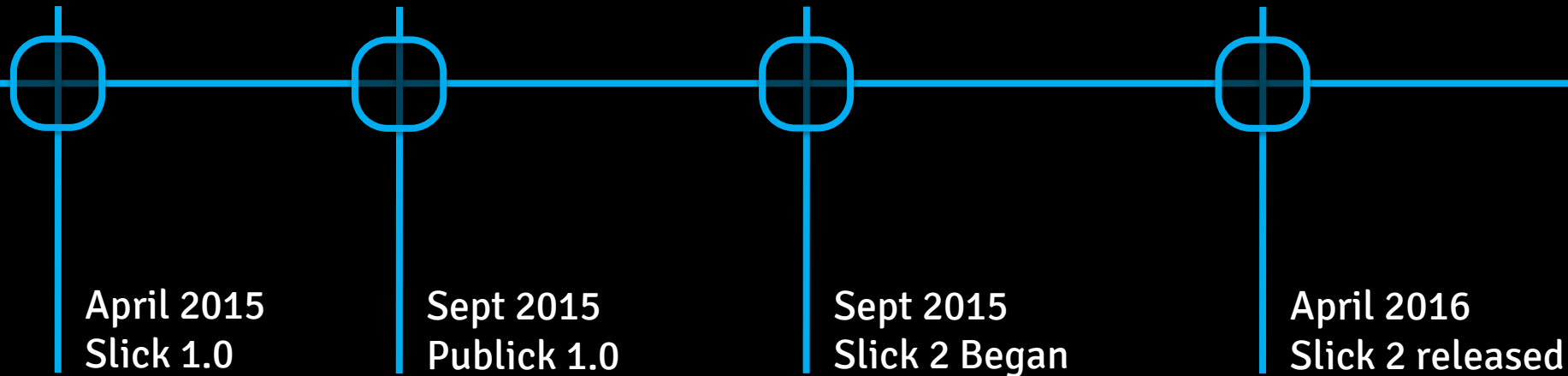
A blog engine obsessively crafted around  
Apache Sling and related technologies.

(it's not a CMS)

# Why was Slick built?

- 1 I had **a lot** to learn.
- 2 Writing a blog about a Java application using a PHP blog engine seemed wrong.
- 3 Sightly was contributed to Apache Sling.

# History



# What can it do? – Authors & Visitors

Easy to get creating content fast.

Creating and editing posts, pages, media, and tags.

Post and Page Scheduling

WYSIWYG Editor

RSS 2.0 Feed

Accent color support

Commenting

Authentication and user management

Search

Analytics, SEO, and social integrations

Pagination

Basic Localization

# What can it do? – Developers

Proper OSGi services and configurations

Sling Models used extensively

Dispatcher support\*\*

Entire stack written to be easy to maintain (Java, JS, HTL, SCSS)

Front-end build process is part of `autoInstallBundle`.

Uses a Maven multi-module project similar to AEM Archetype

Travis CI Integration

Basic localization string support

Eclipse Sling Plugin support

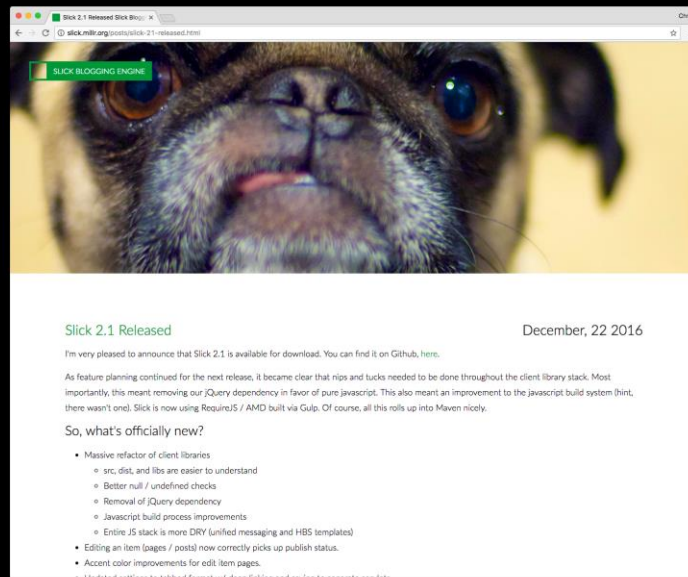
Container support

Decent Docs

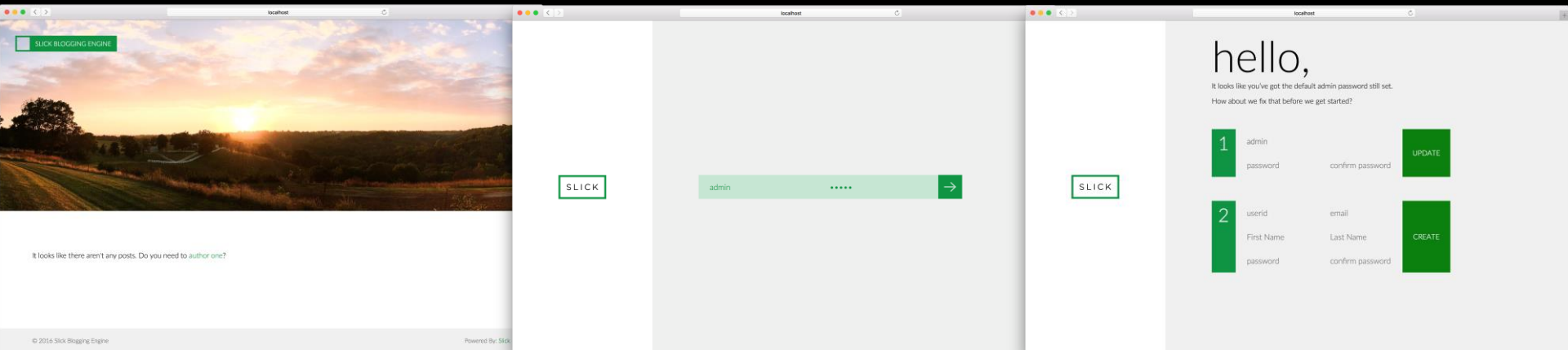
# Crazy Fast On-Boarding

```
$ java -jar launchpad.jar
```

3 minutes





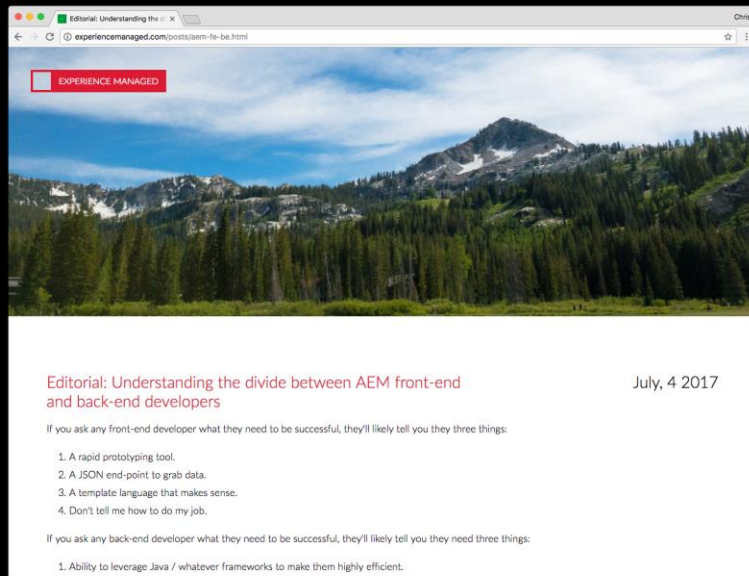
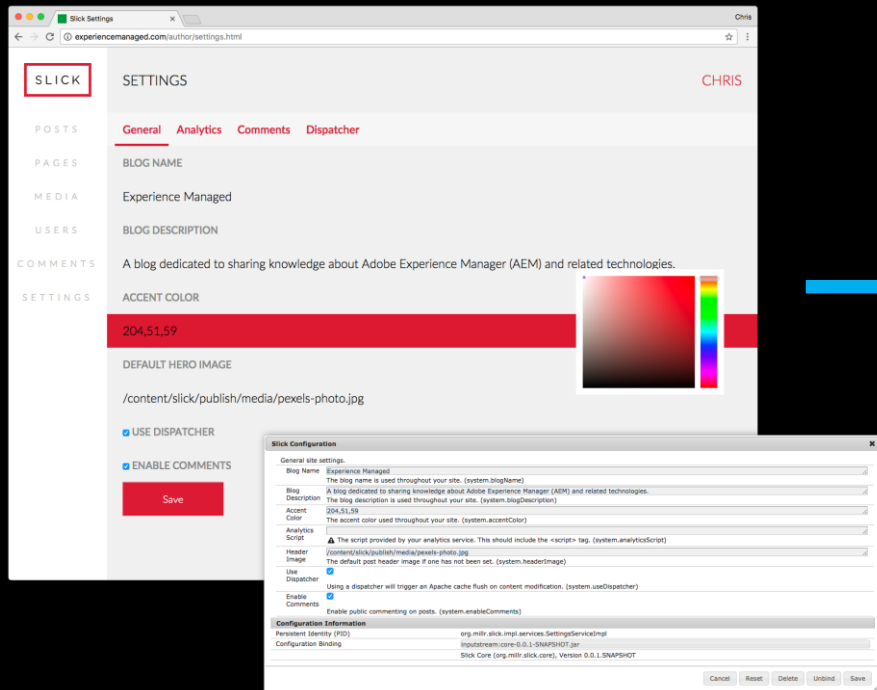


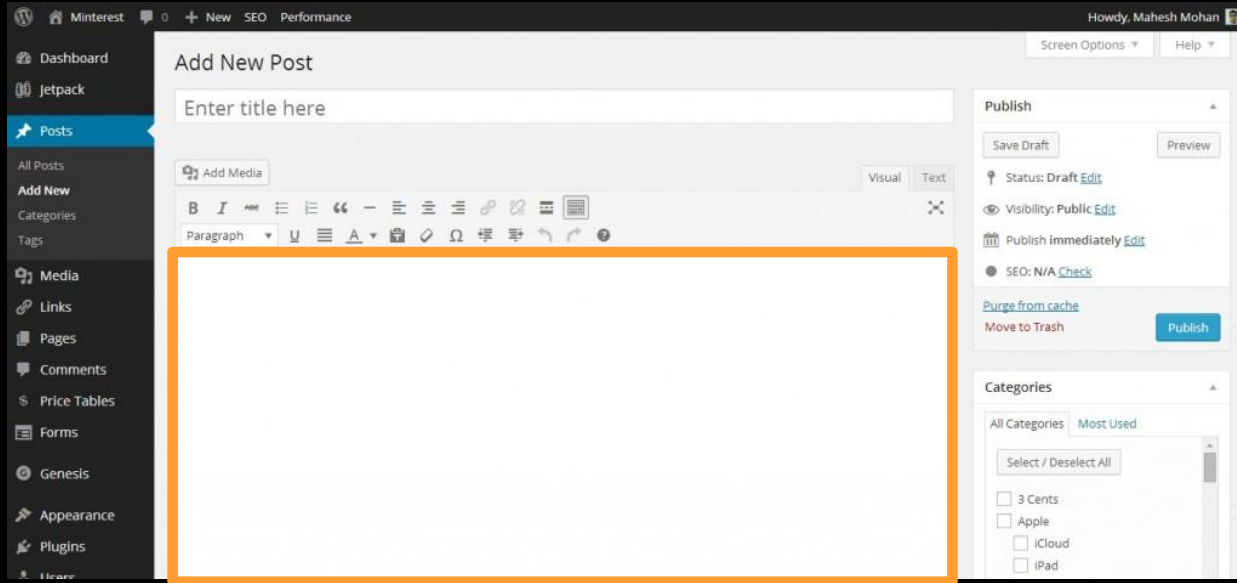
1

2

3

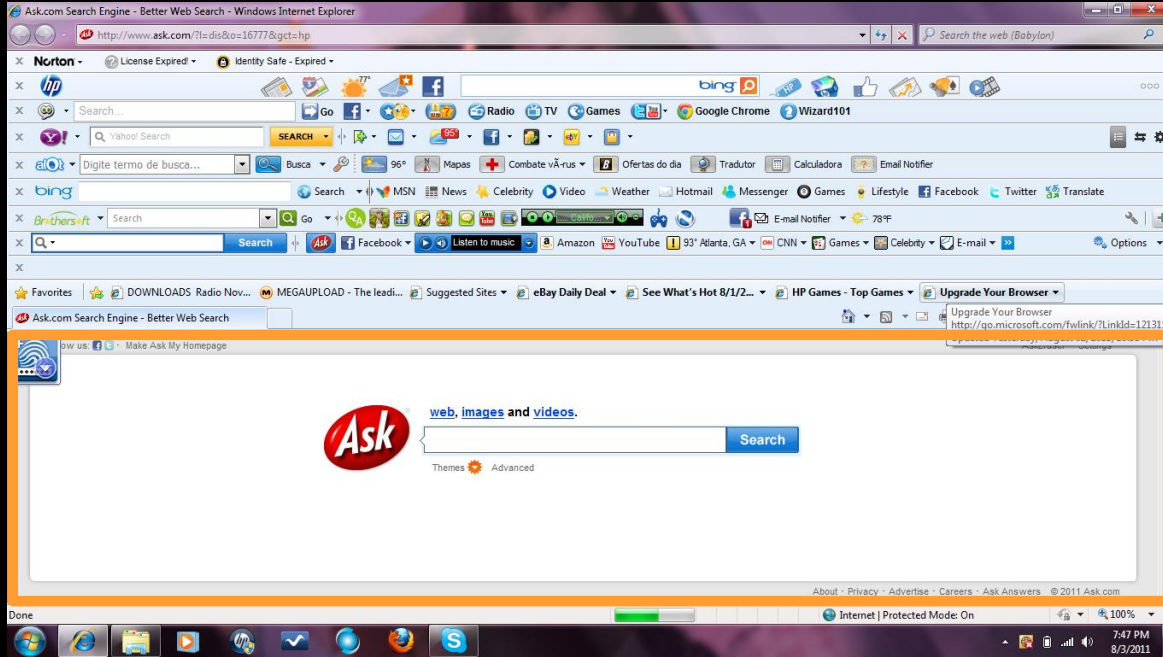
# Settings & Themes





A rant

# WYSIWYG Editor



Remember this?

SLICK

POSTS

PAGES

MEDIA

USERS

COMMENTS

SETTINGS

EDIT POST

CHRIS

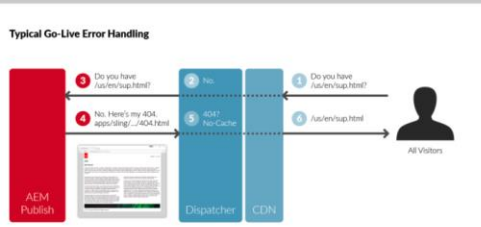
Efficient Error Handling with AEM, Dispatcher, and Apache Web Server

Let's start with a few basic assumptions, a good error page is:

1. Branded
2. Helpful
3. Localized
4. Fast

Out of the box, AEM uses Sling's default error page. Most projects, however, will overlay `sling/servlet/errorhandler/404` to create a branded error experience. This can cause performance problems with Dispatcher. Let's look at a typical go-live example.

**Typical Go-Live Error Handling**



```

graph LR
    User[User] -- "1. Do you have /us/en/sup.html?" --> AEM[AEM Publish]
    AEM -- "2. No" --> Dispatcher[Dispatcher]
    Dispatcher -- "3. No, Here's my 404 according to /404.html" --> AEM
    AEM -- "4. Ask Publish if it has the resource" --> Dispatcher
    Dispatcher -- "5. No Cache" --> CDN[CDN]
    CDN -- "6. /us/en/sup.html" --> User
    
```

The diagram illustrates a performance issue where a user requests a resource that is not in the cache, leading to a 404 error and a request to the AEM Publish server, which then returns a 404 response to the Dispatcher, which finally returns a 404 response to the user.

1. A user requests /us/en/sup.html
2. Dispatcher doesn't have it in cache, so it must...
3. Ask Publish if it has the resource

SEO

B

i

h1

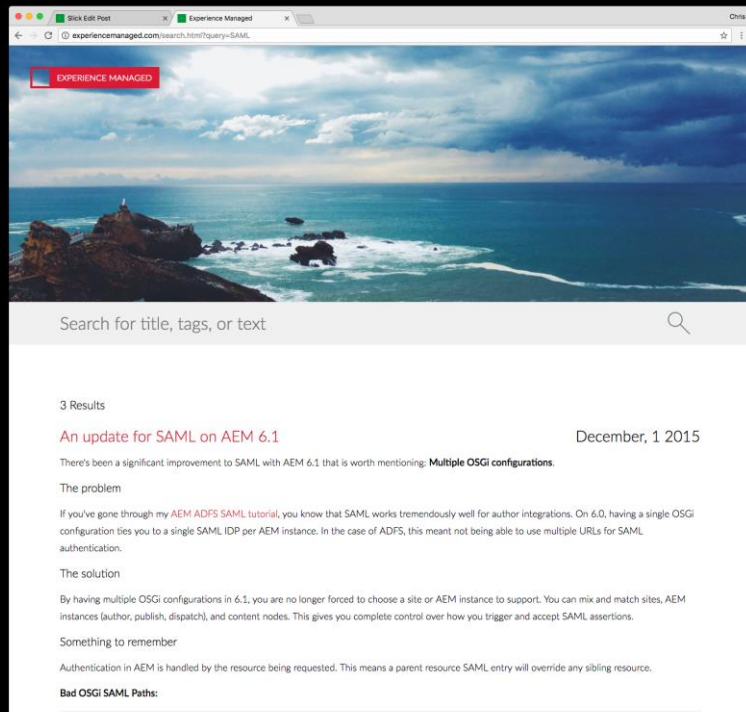
h2

code

view

Post

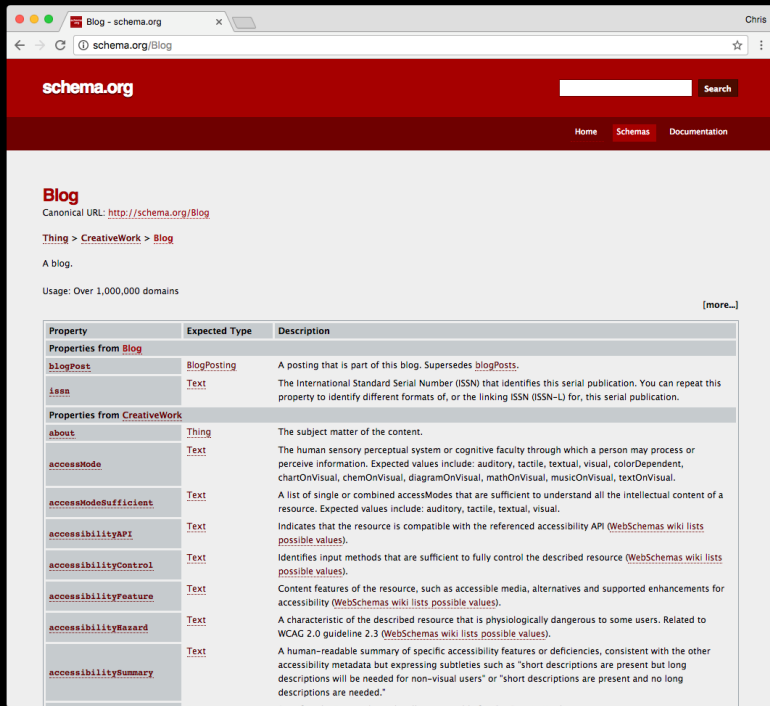
Respect  
The Content



## Search

```
42     .....private static final String INITIAL_QUERY = "SELECT "
43     .....+ "*" FROM [slick:page] "
44     .....+ "AS s "
45     .....+ "WHERE contains(s.*, '%s') "
46     .....+ "AND ISCHILDNODE(s, '" + SlickConstants.POSTS_PATH + "')";
47
```

(nothing too impressive)



**schema.org**

Blog

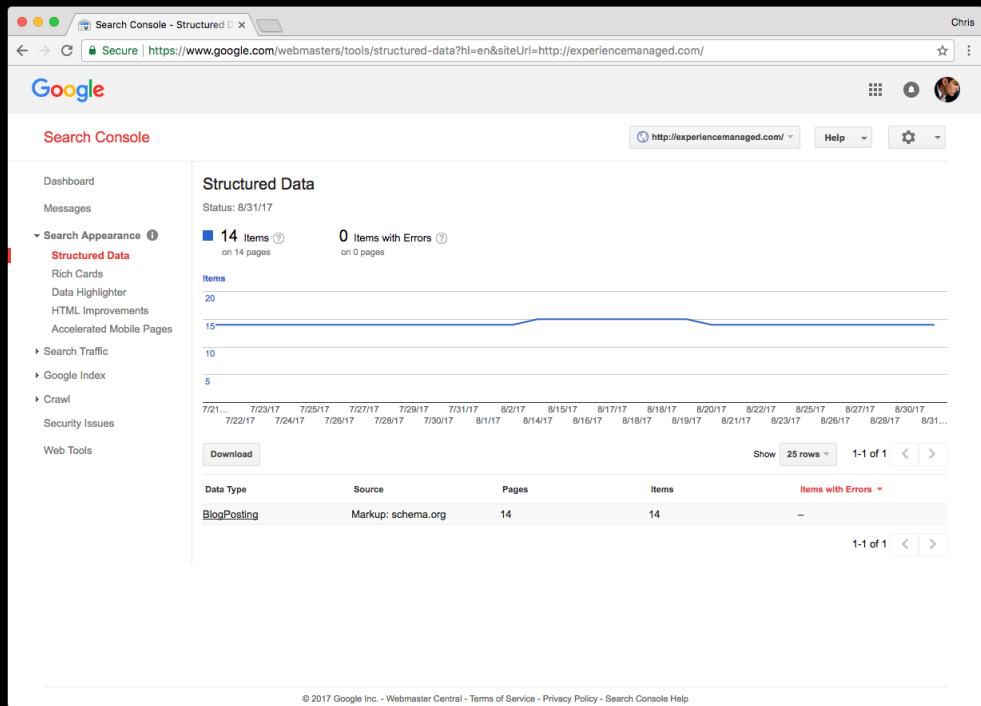
Canonical URL: <http://schema.org/Blog>

Thing > CreativeWork > Blog

A blog.

Usage: Over 1,000,000 domains

Property	Expected Type	Description
<b>Properties from Blog</b>		
<a href="#">blogPost</a>	<a href="#">BlogPosting</a>	A posting that is part of this blog. Supersedes <a href="#">blogPosts</a> .
<a href="#">issn</a>	<a href="#">Text</a>	The International Standard Serial Number (ISSN) that identifies this serial publication. You can repeat this property to identify different formats of, or the linking ISSN (ISSN-L) for, this serial publication.
<b>Properties from CreativeWork</b>		
<a href="#">about</a>	<a href="#">Thing</a>	The subject matter of the content.
<a href="#">accessMode</a>	<a href="#">Text</a>	The human sensory perceptual system or cognitive faculty through which a person may process or perceive information. Expected values include: auditory, tactile, textual, visual, colorDependent, chartOnVisual, chemOnVisual, diagramOnVisual, mathOnVisual, musicOnVisual, textOnVisual.
<a href="#">accessModeSufficient</a>	<a href="#">Text</a>	A list of single or combined accessModes that are sufficient to understand all the intellectual content of a resource. Expected values include: auditory, tactile, textual, visual.
<a href="#">accessibilityAPI</a>	<a href="#">Text</a>	Indicates that the resource is compatible with the referenced accessibility API ( <a href="#">WebSchemas wiki lists possible values</a> ).
<a href="#">accessibilityControl</a>	<a href="#">Text</a>	Identifies input methods that are sufficient to fully control the described resource ( <a href="#">WebSchemas wiki lists possible values</a> ).
<a href="#">accessibilityFeature</a>	<a href="#">Text</a>	Content features of the resource, such as accessible media, alternatives and supported enhancements for accessibility ( <a href="#">WebSchemas wiki lists possible values</a> ).
<a href="#">accessibilityHazard</a>	<a href="#">Text</a>	A characteristic of the described resource that is physiologically dangerous to some users. Related to WCAG 2.0 guideline 2.3 ( <a href="#">WebSchemas wiki lists possible values</a> ).
<a href="#">accessibilitySummary</a>	<a href="#">Text</a>	A human-readable summary of specific accessibility features or deficiencies, consistent with the other accessibility metadata but expressing subtleties such as "short descriptions are present but long descriptions will be needed for non-visual users" or "short descriptions are present and no long descriptions are needed."



**Search Console**

Status: 8/31/17

**14 Items** on 14 pages

**0 Items with Errors** on 0 pages

**Structured Data**

Items: 20

Download

Data Type	Source	Pages	Items	Items with Errors
<a href="#">BlogPosting</a>	Markup: schema.org	14	14	—

1-1 of 1

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aem

front-end

back-end

tooling

webpack

npm

ES6



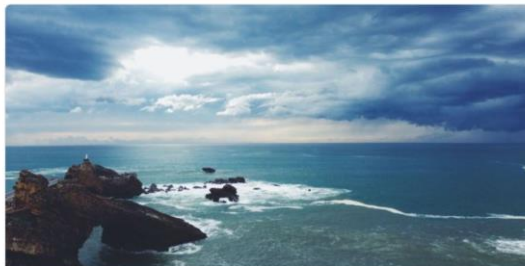
Chris Millar



Pinned Tweet

Chris Millar @auniverseaway · 12 Jun 2016

Create an admin console in #AEM 6.2 to list, sort, create, update and delete shared data.



**How to create an AEM 6.2 Admin Console for Touch UI**

IntroductionBuilding an AEM Admin interface, also known as a console, is not a trivial task at first glance. This post describes how to c...

[experiencemanaged.com](http://experiencemanaged.com)



11



14



Lightweight  
& Effortless  
Sharing

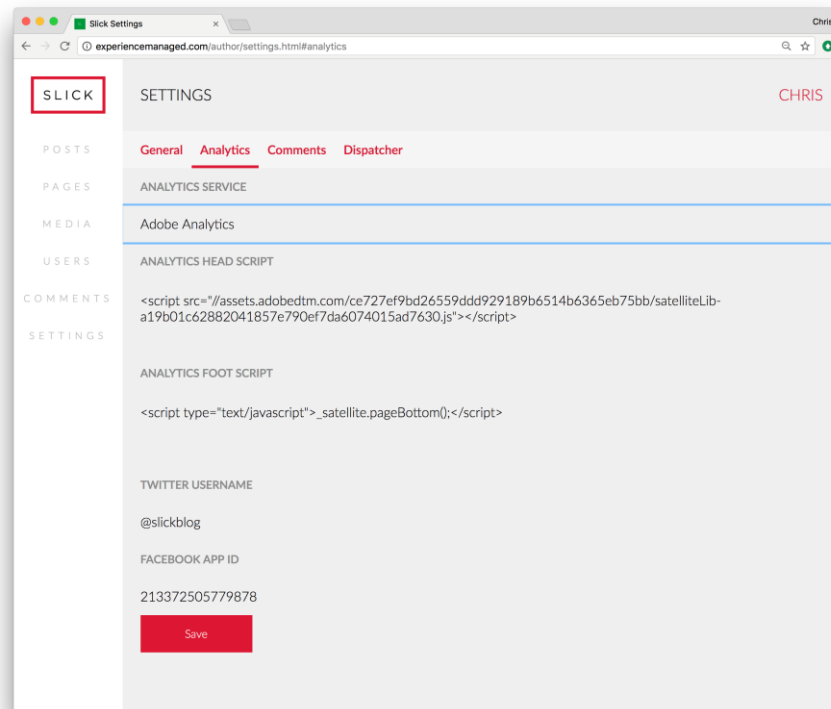
How lightweight?

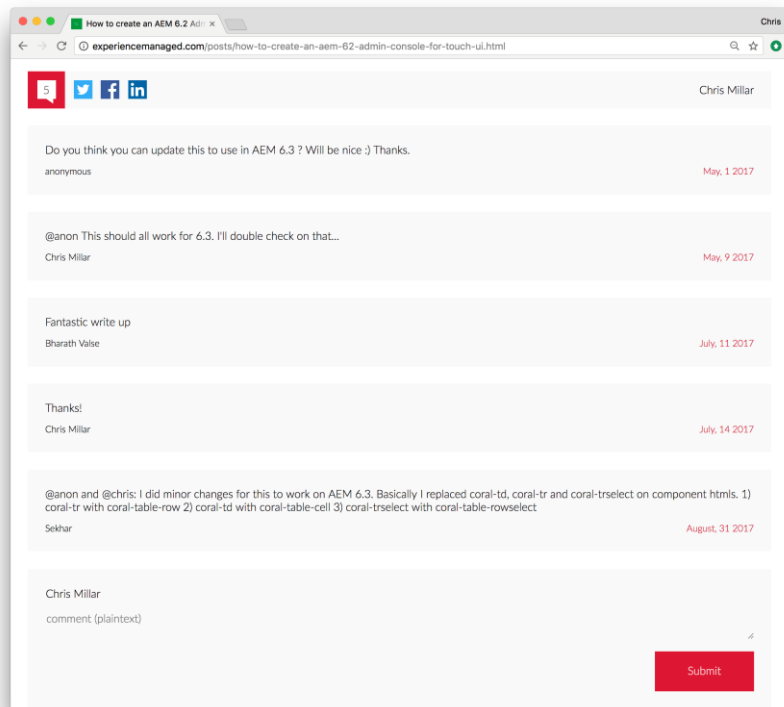
```

55 lines (49 sloc) | 1.73 KB
1  /*global window, define */
2  /**
3   * Analytics, Social, and SEO Functions.
4   *
5   * <p>This module will handle new windows for social sharing.</p>
6   * <p>If analytics are enabled, send the appropriate events to those services.</p>
7   */
8  define(function () {
9    'use strict';
10
11    var analyticsType = document.body.dataset.analyticsType;
12
13    /**
14     * Send social information to analytics services.
15     * @param {String} shareUrl The URL we're sharing.
16     * @param {String} socialNetwork The social network.
17     * @return {void}
18     */
19    var trackLink = function (shareUrl, socialNetwork) {
20      if (analyticsType === 'adobeAnalytics') {
21        var s = window.s_c_l[0];
22        if (s) {
23          s.tl(shareUrl, 'o', socialNetwork, {linkTrackVars: 'prop1', prop1: s.pageName});
24        }
25      } else if (analyticsType === 'googleAnalytics') {
26        if (window.ga) {
27          window.ga('send', 'social', socialNetwork, 'Share', shareUrl);
28        }
29      }
30    };
31
32    var forEach = function (array, callback, scope) {
33      var i;
34      for (i = 0; i < array.length; i += 1) {
35        callback.call(scope, array[i]);
36      }
37    };
38
39    var handleClick = function (element) {
40      element.addEventListener('click', function (event) {
41        event.preventDefault();
42        var socialNetwork = this.dataset.socialNetwork;
43        var shareUrl = this.dataset.shareUrl;
44        trackLink(shareUrl, socialNetwork);
45        window.open(this.getAttribute('href'), socialNetwork, 'height=500,width=575');
46      }, false);
47    };
48
49    // Share Windows
50    var socialLinks = document.querySelectorAll('.social');
51    if (socialLinks) {
52      forEach(socialLinks, handleClick);
53    }
54  });
55

```

Google Analytics  
Adobe Analytics  
DTM, GTM  
Other (Piwick, Open Analytics)





So what?

```
{
  "responseCode": 200,
  "responseType": "success",
  "responseMessage": "success",
  "content": {
    "count": 5,
    "comments": [
      {
        "name": "2c45af72-9a12-44d0-92e9-db8c852832fa",
        "author": "anonymous",
        "comment": "Do you think you can update this to use in AEM 6.3 ? Will be nice :) Thanks.",
        "created": "May, 1 2017"
      },
      {
        "name": "0a66c216-6009-437c-8fe2-f3ecb6d984ce",
        "author": "Chris Millar",
        "comment": "@anon This should all work for 6.3. I'll double check on that...",
        "created": "May, 9 2017"
      },
      {
        "name": "06710120-e49b-4cbb-8756-210383cf3149",
        "author": "Bharath Valse",
        "comment": "Fantastic write up",
        "created": "July, 11 2017"
      },
      {
        "name": "14b5381f-1257-457d-bd41-a4ed16a7b5d9",
        "author": "Chris Millar",
        "comment": "Thanks!",
        "created": "July, 14 2017"
      },
      {
        "name": "259131b2-32a4-44c5-8caf-718f6e523299",
        "author": "Sekhar",
        "comment": "@anon and @chris:\r\nI did minor changes for this to work on AEM 6.3. Basically I replaced coral-td, coral-tr and coral-trselect on component htmls. \r\n\r\n coral-tr with coral-table-row\r\n\r\n coral-td with coral-table-cell\r\n\r\n coral-trselect with coral-table-rowselect",
        "created": "August, 31 2017"
      }
    ]
  }
}
```

Comments are JSON endpoints retrieved via AJAX to optimize for cache-ability.

# Architecture - Comments

/posts.html

/posts/hello-world.html



/posts/hello-world.**list.comments**.json

Comment Count

Comment List



handlebars



## Dispatcher is supported

(Legal implications, read fine print)

```
northstar — root@totoro:~ — ssh totoro.millr.org — 156x43

/clientheaders
{
  $include "clientheaders.any"
}

/virtualhosts
{
  $include "virtualhosts.any"
}

/renders
{
  $include "renders.any"
}

/filter
{
  $include "filter.any"
}

/cache
{
  $include "cache.any"
}

/statistics
{
  $include "statistics.any"
}

# /auth_checker
# {
#   $include "auth_checker.any"
# }
```

# Architecture - Dispatcher Interface

```
16 references
20 public interface DispatcherService {
21     |
22     |     2 references
23     |     ... Boolean canFlush();
24     |
25     |     6 references
26     |     ... JSONObject flush(String domain, String flushType);
27     |
28     |     1 reference
29     |     ... JSONObject flushAll(String domain);
30     |
31     |     1 reference
32     |     ... JSONObject flushUi(String domain);
33     |
34     |     1 reference
35     |     ... JSONObject flushContent(String domain);
36     |
37     |     1 reference
38     |     ... JSONObject flushContent(String domain, String path);
39     |
40     | }
41 }
```

Simple &  
Powerful  
Flush Service



## Container Support

```

slick -- cmillar@totoro:~ -- ssh totoro.millr.org -- 173x49

1 [ ] Tasks: 38, 251 thr: 1 running
2 [ ] Load average: 0.40 0.56 0.61
Mem[ ] [|||||] [3.16G/3.8] Uptime: 239 days(!), 09:57:27
Swp[ ] [|||||]








PID USER      PRI  NI  VIRT   RES   SHR  S CPU% MEM%   TIME+  Command
25694 root        20   0 10.3G 1539M 15708 S   0.0 39.0   1542h  java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25732          20   0 10.3G 1539M 15708 S   0.0 39.0   735h  java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25731          20   0 10.3G 1539M 15708 S   0.0 39.0   735h  java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25733          20   0 10.3G 1539M 15708 S   0.0 39.0 31h56:22 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25961          20   0 10.3G 1539M 15708 S   0.7 39.0 13h14:02 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
30790          20   0 566M 21016 6988 S   0.7 0.5 7h36:51 /usr/bin/dockerd
30796          20   0 372M 3516 828 S   0.0 0.1 5h19:31 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
9906          20   0 10.4G 1347M 29012 S   0.0 34.1 4h52:09 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8181
25916          20   0 10.3G 1539M 15708 S   0.0 39.0 4h14:29 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25877          20   0 10.3G 1539M 15708 S   0.0 39.0 3h14:50 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25962          20   0 10.3G 1539M 15708 S   0.0 39.0 3h03:18 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25981          20   0 10.3G 1539M 15708 S   0.0 39.0 3h03:16 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25977          20   0 10.3G 1539M 15708 S   0.0 39.0 3h02:59 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25955          20   0 10.3G 1539M 15708 S   0.0 39.0 3h02:50 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25984          20   0 10.3G 1539M 15708 S   0.0 39.0 3h02:42 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
25740          20   0 10.3G 1539M 15708 S   0.0 39.0 2h42:46 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
10179          20   0 10.4G 1347M 29012 S   0.0 34.1 1h48:17 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8181
3157          20   0 506M 5560 4248 S   0.0 0.1 1h35:53 /usr/sbin/NetworkManager --no-daemon
30791          20   0 566M 21016 6988 S   0.0 0.5 1h11:25 /usr/bin/dockerd
30795          20   0 566M 21016 6988 S   0.0 0.5 1h04:37 /usr/bin/dockerd
31075          20   0 566M 21016 6988 S   0.0 0.5 1h00:53 /usr/bin/dockerd
32689          20   0 566M 21016 6988 S   0.0 0.5 54:01.36 /usr/bin/dockerd
12158          20   0 566M 21016 6988 S   0.0 0.5 52:54.31 /usr/bin/dockerd
323          20   0 372M 3516 828 S   0.0 0.1 49:01.49 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
30830          20   0 566M 21016 6988 S   0.0 0.5 48:00.61 /usr/bin/dockerd
3457          20   0 540M 1560 1076 S   0.0 0.0 44:02.20 /usr/bin/python -Es /usr/sbin/tuned -l -p
3759
31070          20   0 372M 3516 828 S   0.0 0.1 42:39.38 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
30802          20   0 372M 3516 828 S   0.0 0.1 42:14.53 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
30915          20   0 372M 3516 828 S   0.0 0.1 40:00.86 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
30798          20   0 372M 3516 828 S   0.0 0.1 39:20.49 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
17436          20   0 372M 3516 828 S   0.0 0.1 32:36.49 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
30910          20   0 566M 21016 6988 S   0.0 0.5 30:44.31 /usr/bin/dockerd
10137          20   0 10.4G 1347M 29012 S   0.0 34.1 29:07.01 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8181
30799          20   0 372M 3516 828 S   0.0 0.1 28:26.17 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
30801          20   0 372M 3516 828 S   0.0 0.1 25:28.84 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval=0 --start-
30832          20   0 566M 21016 6988 S   0.0 0.5 23:08.86 /usr/bin/dockerd
25978          20   0 10.4G 1347M 29012 S   0.0 34.1 20:01.93 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8181
25873          20   0 10.3G 1539M 15708 S   0.0 39.0 18:34.48 java -Xmx1200m -jar org.apache.sling.launchpad.jar -p 8282
1          20   0 186M 3936 2440 S   0.0 0.1 18:22.76 /usr/lib/systemd/systemd --system --deserialize 22
F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice F8Nice F9Kill F10Quit
  
```

## OSGi Service Implementations

### impl

#### services

##### settings

-  CommentServiceImpl.java
-  CurrentUserServiceImpl.java
-  DispatcherServiceImpl.java
-  MediaServiceImpl.java
-  OsgiServiceImpl.java
-  PostServiceImpl.java
-  SettingsServiceImpl.java
-  UiMessagingServiceImpl.java
-  UploadServiceImpl.java
-  Activator.java

Component  
Sling Models  
Exposed to pages

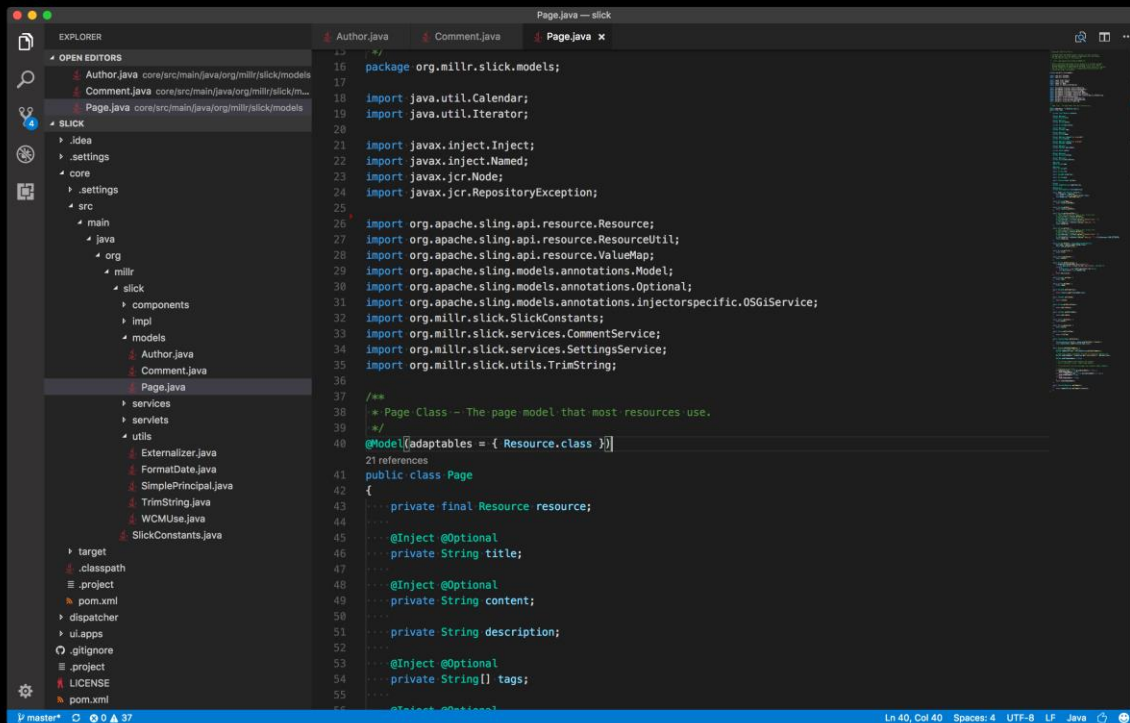
```
└─ org
  └─ millr
    └─ slick
      └─ components
        └─ author
          └─ currentUser.java
          └─ editBlog.java
          └─ listMedia.java
          └─ login.java
          └─ navigation.java
        └─ common
          └─ commentPagination.java
          └─ draft.java
          └─ listComments.java
          └─ listPosts.java
          └─ mediaPagination.java
          └─ navigation.java
          └─ notFound.java
          └─ pagination.java
          └─ search.java
          └─ settings.java
          └─ viewPage.java
```

## Base Sling Models

Page

Author

Comment



```

15 package org.millr.slick.models;
16
17
18 import java.util.Calendar;
19 import java.util.Iterator;
20
21 import javax.inject.Inject;
22 import javax.inject.Named;
23 import javax.jcr.Node;
24 import javax.jcr.RepositoryException;
25
26 import org.apache.sling.api.resource.Resource;
27 import org.apache.sling.api.resource.ResourceUtil;
28 import org.apache.sling.api.resource.ValueMap;
29 import org.apache.sling.models.annotations.Model;
30 import org.apache.sling.models.annotations.Optional;
31 import org.apache.sling.models.annotations.injectorspecific.OSGiService;
32 import org.millr.slick.SlickConstants;
33 import org.millr.slick.services.CommentService;
34 import org.millr.slick.services.SettingsService;
35 import org.millr.slick.utils.TrimString;
36
37 /**
38  * Page Class - The page model that most resources use.
39  */
40 @Model(adaptables = { Resource.class })
41
42 public class Page
43 {
44     private final Resource resource;
45
46     @Inject @Optional
47     private String title;
48
49     @Inject @Optional
50     private String content;
51
52     private String description;
53
54     @Inject @Optional
55     private String[] tags;
56
57     @Inject @Optional

```

`${view.page.title}`

`${view.page.body}`

`${view.author.firstName}`

`${view.external.url}`

Straight-forward  
Naming conventions

Extensive use of  
`data-sly-template`

# Architecture - HTL

```
${ view . page . author . firstName }
```

View.java



Page.java



Author.java



getFirstName()

# Architecture - Page.java



```
194     ....public Iterator<Page> getChildren()  
195     ....{  
196     ....    ....Iterator<Resource> children = resource.getChildren().iterator();  
197     ....    ....return ResourceUtil.adaptTo(children, Page.class);  
198     ....}  
199
```



# Demo



**Slick Source**

<http://github.com/auniverseaway/slick-2>

**Twitter**

<http://twitter.com/auniverseaway> (a universe away)

**Slick Blog**

<http://slick.millr.org>

## Q & A