



EUROPE'S LEADING AEM DEVELOPER CONFERENCE
28th – 30th SEPTEMBER 2020

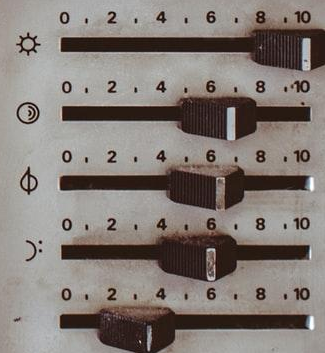
Sling URIs and the new URI Mapping SPI

Georg Henzler, **netcentric**
A Cognizant Digital Business

Network Working Group
Request for Comments: 2396
Updates: [1808](#), [1738](#)
Category: Standards Track

T. Berners-Lee
MIT/LCS
R. Fielding
U.C. Irvine
L. Masinter
Xerox Corporation
August 1998

Uniform Resource Identifiers (URI): Generic Syntax



Naive URI Operations

Dangerous No 1

```
// set fragment  
link += "#section2";
```

⚠ `"/path/to/page.html#app#section2"`

Dangerous No 2

```
// add selector to html link  
link = link.replace(".html", ".sel.html");
```

⚠ `"/path/to/page.sel.html?redirect=location.sel.html"`

Dangerous No 3

```
// make link absolute
if(!link.startsWith("http") {
    link = baseUrl + link;
}
```

 **"http://www.mysite.commailto@jon.doe@mysite.com"**

Dangerous No 3b

```
// make link absolute  
if(link.startsWith("/") {  
    link = baseUrl + link;  
}
```

⚠ `"http://www.mysite.com//cdn.example.com/js_file.js"`

Dangerous No 3c

```
// make link absolute
if(!link.startsWith("http") {
    link = extrnlzr.publishLink(rr, link))
}
```

⚠ extrnlzr.publishLink() : **"https://mysite.com:8443null"**
rr.map() : **"mailto:jon.doe@mysite.com"**

Root Cause

- Sling API uses **Strings**
 - `resolver.resolve()` & `resolver.map()`
 - `resource.getPath()`
- **Immutable** interface **RequestPathInfo**
 - useful for interpreting incoming requests
 - not so useful for creating URIs
 - No builder available (yet)

Better URI Handling

Help offered: HTL

```
${'path/page.woo.foo.html' @ selectors='foo.bar'}  
<!-- outputs: path/page.foo.bar.html -->
```

```
${'path/page' @ extension='html'}  
<!-- outputs: path/page.html -->
```

 **Not available for other scripting languages, async processes or json responses**

Help offered: Standard Java

```
java.net.URI uri =  
    new org.apache.http.client.utils.URIBuilder()  
        .setScheme("https")  
        .setHost("example.com")  
        .setPath("/test/path.html")  
        .setQuery("par=val")  
        .build()
```

 No support for Sling-specific URI parts (selectors, suffix etc.)

SlingUri(Builder)

```
org.apache.sling.api.uri.SlingUri uri =  
    org.apache.sling.api.uri.SlingUriBuilder.create()  
        .setScheme("https")  
        .setHost("example.com")  
        .setPath("/test/path.html")  
        .setQuery("par=val")  
        .build()
```

① Same method names as [http client URIBuilder](#)

SlingUri(Builder)

```
org.apache.sling.api.uri.SlingUri uri =  
    org.apache.sling.api.uri.SlingUriBuilder.create()  
        .setResourcePath("/test/path")  
        .addSelector("sel")  
        .setExtension("html")  
        .setSuffix("/suffix/path")  
        .build()
```

- ① Sling-specific URI parts are supported,
interface **SlingUri** extends **RequestPathInfo**

SlingUri(Builder)

```
SlingUriBuilder.createFrom(request)  
SlingUriBuilder.createFrom(requestPathInfo)  
SlingUriBuilder.createFrom(resource)  
SlingUriBuilder.createFrom(slingUri) // clone  
SlingUriBuilder.createFrom(uri, resolver)  
SlingUriBuilder.parse(uriString, resolver)
```

- ① For parsing the path, setting the resource path correctly requires a resource resolver

SlingUri(Builder)

```
slingUri = slingUri.adjust(  
    b -> b.addSelector("sel")  
        .setExtension("html")  
        .setSuffix("/suffix/path"));
```

① Convenience method to adjust an existing Sling URI



Re: [DISCUSS] Sling URI Mapping SPI (was Resource Mapping SPI)

2020-09-23 | Thread | Georg Henzler

ing-org-apache-sling-auth-core/compare/master...feature/SLING-9662-Introduce-SlingUri-Mapping-SPI-v3

[3] Engine <https://github.com/apache/sling-org-apache-sling-engine/compare/master...feature/SLING-9662-Introduce-SlingUri-Mapping-SPI-v3> [4] Resource Resolver <https://github.com/apache/sl>

Poll: Externalisation

Poll Result



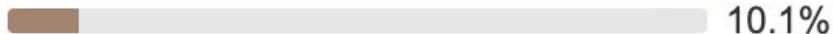
In your current AEM project, how do you map resources to absolute links (e.g. for emails)?

AEM Externalizer



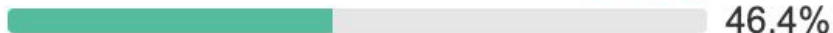
43.5%

resolver.map()



10.1%

Custom Service



46.4%

Motivation Sling URI Mapping SPI

- Have **one concept for mapping URIs** in Sling
 - ... that also works in AEM
- Enable HTL to use this **one concept**
 - Automatic mapping of display context "uri"
- Make Output Rewriting Pipelines in AEM optional
 - save some CPU cycles
- **Side Goal:** Move forward mapping before authentication

Sling URI Mapping SPI

Sling **API** for Mapping: Evolution

- Do not change the contract for existing code
 - **incoming** - `rr.resolve()`
 - **outgoing** - `rr.map()`
- Provide a new Service for mapping
 - Currently proposed name: **PathToUriMappingService**
 - With a flag to request absolute URIs
 - No resource resolver (no user context) required to use this service

Sling URI Mapping **SPI**

- SPI to contribute to URI mapping
 - forward and reverse
 - chain of ranked OSGI services (similar to filter chain)
- Currently proposed name: **SlingUriMapper**
- Access to request and repository
 - Allows to react on arbitrary headers
 - Check for existence of resources, Access to CAConfigs
- Context Hints
 - redirect, auth reqs, link invalid, target, etc.

Demo

Conclusion

- Start using **SlingUri** and **SlingUriBuilder**!
 - available since Sling API 2.23.0
- Sling **URI Mapping SPI**
 - Work in progress - we're on it :)
 - Feedback/wishes: dev@slings.apache.org

References & QA

- RFC For Uri: <https://tools.ietf.org/html/rfc1738#section-3.2.2>
- URI manipulation in HTL:
<https://github.com/adobe/htl-spec/blob/1.2/SPECIFICATION.md#125-uri-manipulation>
- Url Decomposition
<https://sling.apache.org/documentation/the-sling-engine/url-decomposition.html>
- Sling Resource Resolution:
<https://sling.apache.org/documentation/the-sling-engine/mappings-for-resource-resolution.html#interactions-between-mappings-and-authentication-requirements>
- SLING-9745 Introduce SlingUri API
- SLING-9662 Introduce an URI Mapping SPI
- SLING-9762 Automatic Mapping of URIs in HTL
- SLING-9622 Avoid registration of auth requirements for aliases and vanity paths