adaptTo()

EUROPE'S LEADING AEM DEVELOPER CONFERENCE

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Resource Resolution and Mapping
Fun and Simple
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Outline

adaptTo()

- Basics of resolution and mapping
- Influencing resource resolution
- Demo
- Non-functional considerations

Basics of resolution and mapping

Resolution

- Operation that takes request (or path) and returns a `Resource`
- Implicitly done for requests by the Sling Engine
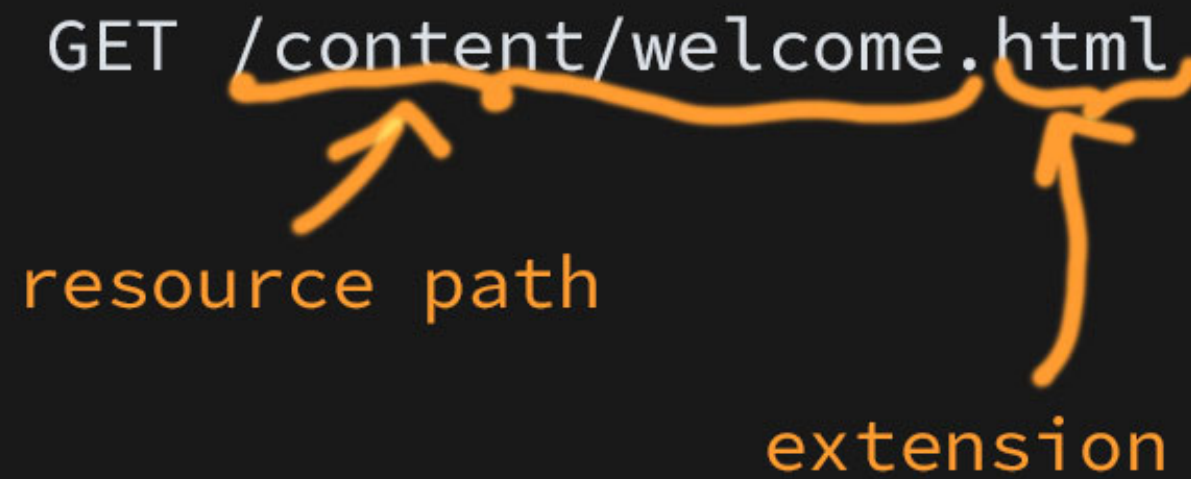- For special scenarios only - `ResourceResolver.resolve(...)`

```
var r = resourceResolver.resolve(request);
if ( !ResourceUtil.isNonExistingResource(r) ) {
    // ... actual work here
}
```
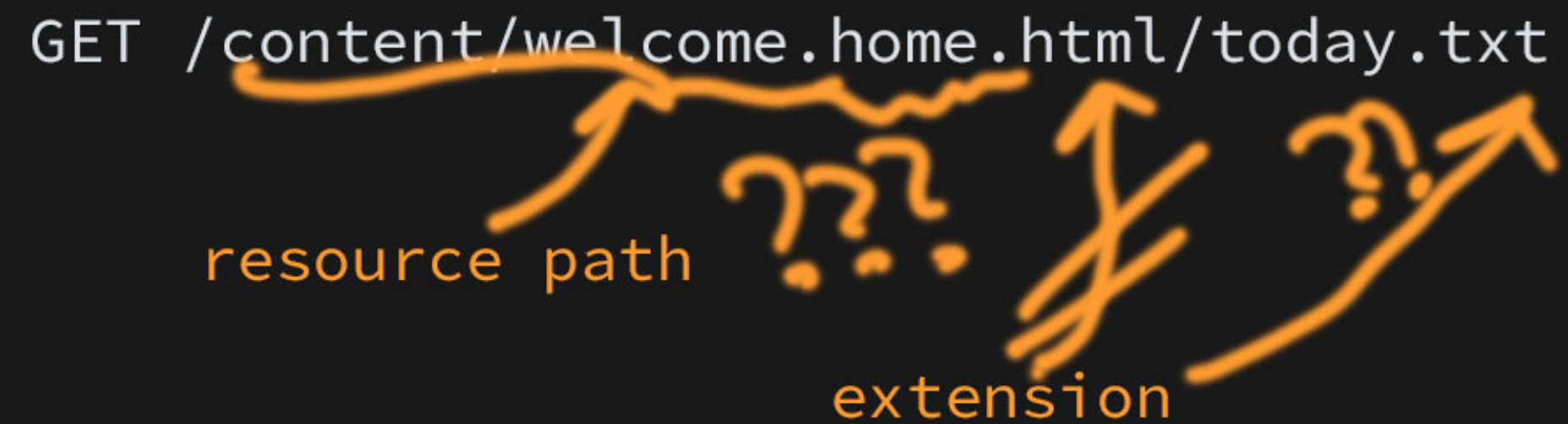
URL decomposition

Mapping

- Applies the reverse of the `resolve` operation
- Scenarios: canonical path for URLs references, authentication requirements
- ❗ Result is percent-encoded (RFC3986)

```
// canonical mapping
resourceResolver.map(request, "/an/absolute/path");
// for special circumstances
resourceResolver.adaptTo(ResourceMapper.class)
    .getAllMappings(request, "/an/absolute/path")
```

Web Console

Influencing resource resolution

OSGi configs

Aliases

- Alternate names for resources

```
/content/welcome
- sling:alias = ["bun-venit", "wilkommen"]
```

```
$ http :8080/content/welcome.txt | sha256sum
c9b08ad1c05a4d102e5166ba08c62559  -
```

```
$ http :8080/content/willkommen.txt | sha256sum
c9b08ad1c05a4d102e5166ba08c62559  -
```

```
$ http :8080/content/bun-venit.txt | sha256sum
c9b08ad1c05a4d102e5166ba08c62559  -
```

Vanity paths

- Alternative paths for resources
- Powerful, but can lead to unpredictable results

```
/content/foo/bar
+ sling:vanityPath = ["/welcome", "/nested/path/here"]
```

Mapping entries - basics

- Parallel resource tree, under `/etc/map` by default
- Maps requests to a tree structure:
  `scheme/serverName.serverPort/path/info`
- **http://sling.apache.org/content** converted to
  `http/sling.apache.org.80/content`

```
.
 \- etc
  \- map
   \- http
    \- sling.apache.org.80
     \- content
```

`sling:match` **replaces the resource name as the match key**

```
.
 \- etc
  \- map
   \- http
    \- localhost_any ← http/localhost\.\d*/
       + sling:match =  localhost\.\d*
     \- content ← http/localhost.\d*/content
```

`sling:match` **can be used to prevent clashes from occuring**

```
.
 \- etc
  \- map
   \- http
    \- fancy_app ← http/localhost\.\d*/
       + sling:match =  localhost\.\d*
    \- content ← http/localhost.\d*/content
```

Mapping entries - interpolation

Uses externalised values for matches:

- Environment variables
- Bundle Context Properties
- OSGi configuration

```
/etc/map/http/my_fancy_app
+ sling:match = $[env:LOCAL_HOSTNAME]
```

Mapping entries - simple redirect

Generates an HTTP redirect to the target resource

```
/etc/map/http/localhost_any/nachrichten
+ sling:redirect = /news
```

Mapping entries - internal redirect

Replaces the current path internally during resolution

```
/etc/map/http/localhost_any/nachrichten
+ sling:internalRedirect = /news
```

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Mapping entries - regular expression matching

- Allow capture groups to be used in replacements
- ❗ Can prevent entries from being used in reverse mappings

```
/etc/map/http/links.example.com
+ sling:match = links.example.com/(.+)
+ sling:redirect = http://example.com/links?link=$1
```

Demo

Non-functional considerations

Performance

- Optimised alias resolution: startup time vs runtime performance
- Query performance: recent versions exclude /jcr:system
- Explicitly configure allowed paths for vanity paths and aliases

Security

- Authentication requirements are hierarchical
- Additional mappings are registered automatically
- Edge case not captured: child resource with vanity path (SLING-9689)

Resources

- https://sling.apache.org/documentation/the-sling-engine/mappings-for-resource-resolution.html