Creating REST Clients

Oxford University

Software Engineering Programme

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Just do it?!

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A good answer if you already know

- HTTP Client code
- XML
- JSON
- etc

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First try it out

- Chrome Advanced REST Client is a good start
- SOAPUI also provides test capabilities
- curl should be your friend too!

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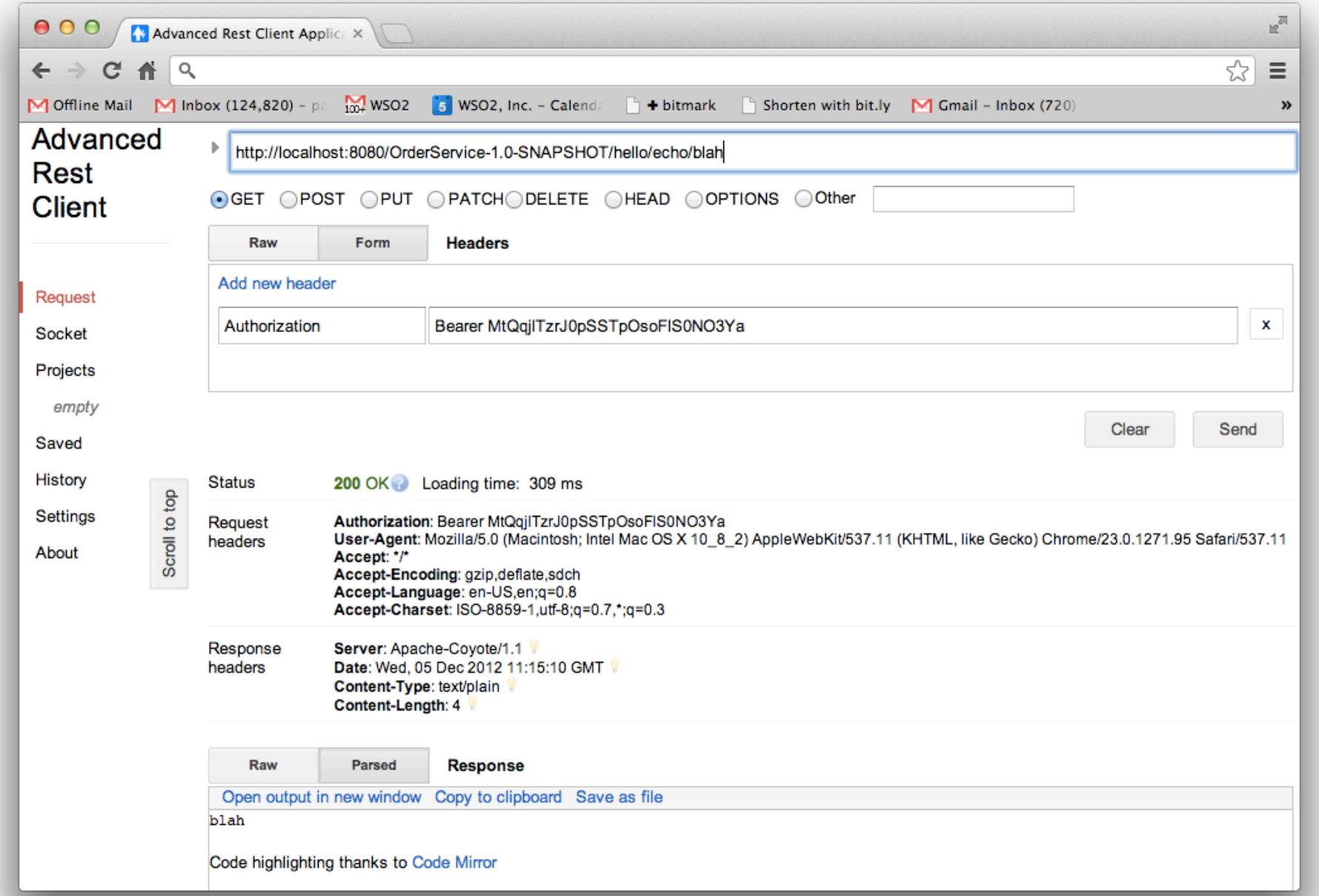

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curl

```
curl -v http://localhost:8080/OrderService-1.0-SNAPSHOT/hello/echo/blah
* About to connect() to localhost port 8080 (#0)
*   Trying ::1...
* connected
* Connected to localhost (::1) port 8080 (#0)
> GET /OrderService-1.0-SNAPSHOT/hello/echo/blah HTTP/1.1
> User-Agent: curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/
0.9.8r zlib/1.2.5
> Host: localhost:8080
> Accept: */*
>
< HTTP/1.1 200 OK
< Server: Apache-Coyote/1.1
< Date: Wed, 05 Dec 2012 11:20:17 GMT
< Content-Type: text/plain
< Content-Length: 4
<
* Connection #0 to host localhost left intact
blah* Closing connection #0
```

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Next choose your favourite HTTP library

- JS: XMLHttpRequest
- .NET: System.Net.Http.HttpClient
- Java: Many!
  Built-in: java.net.URLConnection
  CXF: org.apache.cxf.jaxrs.client.WebClient
  Apache: org.apache.http.client.HttpClient
  Google HTTP Client, etc, etc
- Ruby
  - https://www.ruby-toolbox.com/categories/http_clients (too many to list)

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JAX-RS 2.0

- Includes support for clients
- Will be available in CXF 3.0.0
  - Currently on 2.7.7

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JAX-RS 2.0 Features

- Client API
- Client-side and Server-side Asynchronous
- Filters and Interceptors
- Improved Connection Negotiation
- Validation
- Hypermedia
- Alignment with JSR 330
- Model-View-Controller

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JAXRS 2.0 Client API

- Similar to CXF client
- Aiming to be much higher level than standard HTTP clients
- Not a bad idea, but don't give up on "loose coupling"
  - The client and the service are independent
  - Technology choice of one shouldn't influence the technology choice of the other

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Example HTTPClient code

```
HttpClient client = new DefaultHttpClient();
{
    HttpGet request = new HttpGet(url);
    HttpResponse response = client.execute(request);
    System.out.println("Response status:" + response.getStatusLine());
    System.out.println("Response data:");
    HttpEntity entity = response.getEntity();
    if (entity != null) {

        BufferedReader br = new BufferedReader(new
    InputStreamReader(
                (entity.getContent())));
        String output;
        while ((output = br.readLine()) != null) {
            System.out.println(output);
        }
    }
}
```

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Example CXF Client code

```
WebClient client = WebClient.create(url);
Response r =
client.accept(MediaType.APPLICATION_JSON).get();
int status = r.getStatus();
String jsonString = IOUtils.toString((InputStream)
r.getEntity());
```

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Questions?

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