Building an API Client with WebClient

Esteban Herrera
JAVA ARCHITECT

@eh3rrera   www.eherrera.net

Overview

WebClient

Setting up the project

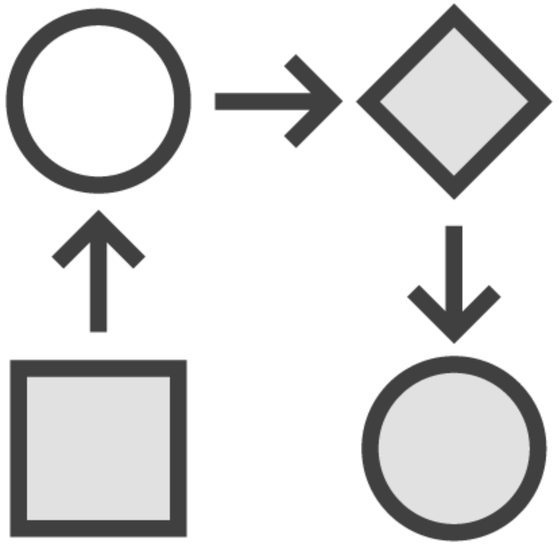
Building the API client

WebClient

RestTemplate Class

```
RestTemplate template = new RestTemplate();
Product product = template.getForObject(
  "http://localhost:8080/products/1",
  Product.class
);
```

Three Steps to Working with WebClient



Creating a WebClient instance

Preparing the request

Reading the response

Creating a WebClient Instance

```
WebClient webClient = WebClient.create();

WebClient webClient = WebClient.create("https://localhost:8080");

WebClient webClient = WebClient.builder()
        .baseUrl("https://localhost:8080")
        .defaultHeader(HttpHeaders.USER_AGENT, "Spring 5")
        .build();
```

Creating a WebClient Instance

```
WebClient webClient8081 = webClient.mutate()
        .baseUrl("https://localhost:8081")
        .build();
```

Preparing the Request

```
webClient
  .get()  // WebClient.RequestHeadersUriSpec
  .uri("/products/{id}", id) // WebClient.UriSpec
  .accept(MediaType.APPLICATION_JSON) // WebClient.RequestHeadersSpec

webClient
  .post()  // WebClient.RequestBodyUriSpec (RequestBodySpec)
  .uri("/products") // WebClient.UriSpec
  .contentType(MediaType.APPLICATION_JSON) // WebClient.RequestHeadersSpec
```

Preparing the (POST or PUT) Request

```
Mono<Product> productPublisher = ...
Flux<Product> productPublisher = ...

webClient
   .post()
   .uri("/products")
   .contentType(MediaType.APPLICATION_JSON)
   .body(productPublisher, Product.class)
```

Preparing the (POST or PUT) Request

```
Product product = ...

webClient
   .post()
   .uri("/products")
   .contentType(MediaType.APPLICATION_JSON)
   .syncBody(product)
```

Preparing the (Form Data) Request

```
webClient
   .post()
   .uri("/products")
   .contentType(MediaType.APPLICATION_JSON)
   .body(BodyInserters.fromFormData("field1", "val1").with("field2", "val2"))
```

Preparing the (Form Data) Request

```
webClient
   .post()
   .uri("/products")
   .contentType(MediaType.APPLICATION_JSON)
   .body(BodyInserters.fromMultipartData("field1", "val1").with("file", file))
```

Preparing the (Form Data) Request

```
MultiValueMap<String, String> form =
             new LinkedMultiValueMap<String, String>();
params.set("field1", "val1");

webClient
  .post()
  .uri("/products")
  .contentType(MediaType.APPLICATION_JSON)
  .syncBody(form)
```

Preparing the (Form Data) Request

```
MultipartBodyBuilder builder = new MultipartBodyBuilder();
builder.part("field", "val");
builder.part("file", new FileSystemResource("image.jpg"));
MultiValueMap<String, HttpEntity<?>> parts = builder.build();

webClient
   .post()
   .uri("/products")
   .contentType(MediaType.APPLICATION_JSON)
   .syncBody(parts)
```

Reading the Response (retrieve)

```java
Mono<Product> mono =
  webClient
    .get()
    .uri("/products/{id}", id)
    .retrieve()
    .bodyToMono(Product.class);
```

Reading the Response (retrieve)

```
Mono<Void> mono =
  webClient
    .delete()
    .uri("/products")
    .retrieve()
    .bodyToMono(Void.class);
```

Reading the Response (retrieve)

```
Flux<Product> flux =
  webClient
    .get()
    .uri("/products")
    .retrieve()
    .bodyToFlux(Product.class);
```

Reading the Response (retrieve)

```java
Flux<Product> flux =
  webClient
    .get()
    .uri("/products")
    .retrieve()
    .onStatus(HttpStatus::is4xxServerError, response -> ...)
    .bodyToFlux(Product.class);
```

Reading the Response (exchange)

```
Flux<Product> flux =
  webClient
    .get()
    .uri("/products")
    .exchange()
    .flatMap(response -> response.bodyToFlux(Product.class));
    //.flatMap(response -> response.bodyToMono(Product.class));
```

Reading the Response (exchange)

```
Mono<ResponseEntity<java.util.List<Product>>> mono =
  webClient
    .get()
    .uri("/products")
    .exchange()
    .flatMap(response -> response.toEntityList(Product.class));
    //.flatMap(response -> response.toEntity(Product.class))
```

Things to Remember

WebClient

- HTTP reactive client
- Asynchronous but also synchronous
- Also works inside Spring WebFlux

Three steps to work with WebClient

- Creation
  - create()/builder()
- Preparation
  - get()/post()/uri()/contentType()/body()
- Response
  - retrieve()/exchange()