Spring Data REST

What is Spring Data REST?

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- Spring Data REST exposes your Spring Data Repositories as REST Service
- REST Service built on top of Spring HATEOAS
- Uses HAL by default to render links

Hypermedia & REST

Principles of REST

- **Resources** expose easily understood directory structure URIs.
- **Representations** transfer JSON or XML to represent data objects and attributes.
- **Messages** use HTTP methods explicitly (for example, GET, POST, PUT, and DELETE).
- **Stateless** interactions store no client context on the server between requests. State dependencies limit and restrict scalability. The client holds session state.

Hypermedia

- Important aspect of REST
- For building services that decouple client and server
- Allowing them to evolve independently
- Representations returned for REST resources contain data and links

Spring Data REST Setup

Maven Dependencies

- Adding Spring Data REST Starter along with Spring Data JPA and H2

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-rest</artifactId>
</dependency>
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-jpa</artifactId>
</dependency>
<dependency>
    <groupId>com.h2database</groupId>
    <artifactId>h2</artifactId>
</dependency>
```

Setup

- Starter configures infrastructre Spring beans automatically
  - Spring MVC
  - Spring HATEOAS
  - Jackson Marshaller

Entities & Repositories

Creating JPA Entities

```
@Entity
public class Employee {

    @Id
    @GeneratedValue(strategy = GenerationType.AUTO)
    private Long id;
    private String firstName;
    private String lastName;

    protected Employee() {}

    public Employee(String firstName, String lastName) {
        this.firstName = firstName;
        this.lastName = lastName;
    }

    @Override
    public String toString() {
        return String.format(
            "Employee[id=%d, firstName='%s', lastName='%s']",
        id,firstName,lastName);
    }
}
```

JPA & Rest Repository

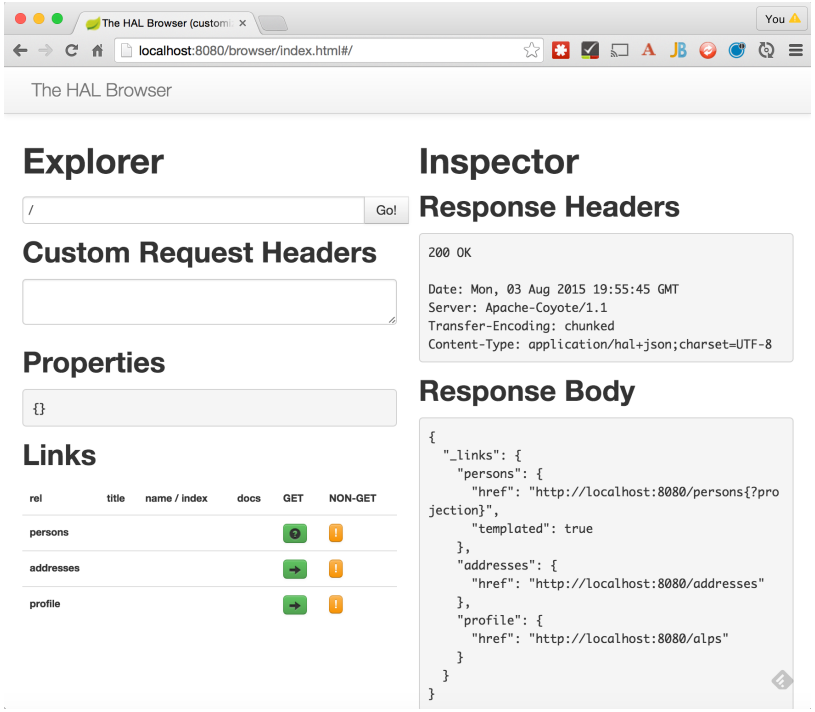
- All Repository automatically exposed as REST Service
- @RepositoryRestResource used to override defaults

```
@RepositoryRestResource(collectionResourceRel ="worker", path
="worker")
public interface EmployeeRepository extends
    JpaRepository<Employee,Long>{

    List<Employee> findByLastName(String lastName);

    @Query("select e from Employee e where e.lastName = ?")
    List<Employee> findQueryByLastName(String name);
}
```

```
spring.data.rest.basePath=/api
```

HAL Browser

HAL Browser




```
<dependency>
    <groupId>org.springframework.data</groupId>
    <artifactId>spring-data-rest-hal-browser</artifactId>
</dependency>
```

Important notes

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- You are exposing with Spring Data REST your whole Database
- Tightly coupled to the database, changing data structure becomes very difficult
- Links should be rendered depending on your business needs -> Spring HATEOAS