spring-data-examples docs (0.0.1)

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Table of Contents

Introduction

This documentation contains some help to examples from spring-data-examples repository is contains some node.js playground projects

Chapter 1. redis

bootstrapping docker before bootRun

build, run, test

```
gradle redisUp
gradle redis:bootRun
http :8080/redisObjs data=test
http :8080/redisObjs
gradle redisDown

gradle embedded-redis:bootRun
http :8082/embeddedRedisObjs data=embedded-test
http :8082/embeddedRedisObjs

gradle --stop
```

1.1. stack:

1. spring-boot
2. spring-data-rest
3. spring HATEOAS
4. spring-data-keyvalue
5. spring-data-redis
6. embedded redis server
7. gradle
8. Docker
9. Redis
10. Redis web UI
11. install spring app as linux service

links:

1. Reactive Java Redis Client
2. Embedded Redis
3. Rector Reference

Chapter 2. spring expression language

Chapter 3. how to reproduce issue

3.1. update custom countQuery

in file app/src/main/java/daggerok/domain/MyEntityRepository.java:

```
// ...
@Query(
    value = " select me.name from #{#entityName} me ",
    countQuery = " select count(me.id) from #{#entityName} me "
)
Page<String> findAllNames(final Pageable pageable);
// ...
```

3.2. verify bootstrapping fail with exception

```
...
Caused by: java.lang.IllegalArgumentException: org.hibernate.QueryException:
unexpected char: '#' [ select count(me.id) from #{#entityName} me ]
    ...
Caused by: org.hibernate.QueryException: unexpected char: '#' [ select count(me.id)
from #{#entityName} me ]
    ...
```

Chapter 4. run app

```
bash gradlew bootRun # installed docker and compose are required
curl -sS localhost:8080 | jq
curl -sS localhost:8080/names | jq
bash gradlew stop
bash gradlew --stop
```

Chapter 5. links

1. stackoverflow question
2. DATAJPA-1163: spring data jpa JIRA bug

Chapter 6. boot your data - NoSQL databases (elasticsearch, mongodb, solr)

Unresolved directive in index.adoc - include::../../boot-your-data/README.adoc[tags=content]

Chapter 7. QueryDSL

7.1. functional REST API testing using SoapUI and Gradle plugin

see `soaptest` subproject

```
gradle clean assemble soaptestRest soaptestWs
```

7.2. functional SOAP API testing using SoapUI and Gradle plugin

```
gradle wsServiceRun
curl --header "content-type: text/xml" -d @services/ws-
service/src/test/resources/request.xml http://localhost:8080/ws | xmllint --format -
# ctrl+c
gradle dockerDown
gradle --stop

gradle clean assemble soaptestWs
```

7.3. unit/integration testing using spring-boot-test and Docker

```
gradle celan build
```

7.4. JPA: persisting Collections of Enum

```
gradle restServiceRun

http :8080/api/v6
http :8080/api/v6/catalog
http :8080/api/v6/catalog\?size=1

http :8080/api/v6/enum-collection/TEST_ENTITY_1
http :8080/api/v6/enum-collection/TEST_ENTITY_2
http :8080/api/v6/enum-collection/not_found

http :8080/api/v6/map-catalog/type/not-found
http :8080/api/v6/map-catalog/type/TEST_ENTITY_2
http :8080/api/v6/map-catalog/status/NOK
http :8080/api/v6/map-catalog/status/OK
http :8080/api/v6/map-catalog/status/OK\?size=1

http :8080/api/v6/jpa-enum
http :8080/api/v6/jpa-enum\?size=1

gradle --stop
```

7.5. spring HATEOAS resources assembler page metadata

```
gradle restServiceRun
http :8080/api/v5/engineers/page-metadata
```

7.6. Event Sourcing using spring application events

see:

1. service/**/src/main/java/daggerok/history/applicationevent
2. service/**/src/main/java/daggerok/history/service

```
http :8080/rest/engineers username=tttest | jq '._links.self'
http :8080/rest/histories | jq '._embedded.histories'
```

7.7. Event Sourcing (history) using spring data-rest

see:

1. service/**/src/main/java/daggerok/history/springdatarest
2. service/**/src/main/java/daggerok/history/service

```
http :8080/rest/domains firstName=1 lastName=1 username=1 | jq '._links.self'
http :8080/rest/domains firstName=2 lastName=2 username=2 | jq '._links.self'
http :8080/rest/otherDomains test=1 | jq '._links.self'
http :8080/rest/histories | jq '._embedded.histories'
```

7.8. Embedded primitive @OneToMany and @ManyToMany relationships

see: `service/**/src/main/java/daggerok/relationships`

@OneToMany → @Embeddable Set emails (also could be a list)

@ManyToMany → @Embeddable Map tags (same for labels)

```
gradle compileQuerydsl xjc # gradle assemble
gradle bootRun

http ":8080/api/v4/engineers?size=2&page=0&sort=username,desc"

gradle --stop
gradle composeDown
```

7.9. Optimization: 3NF

see: `service/**/src/main/java/daggerok/embedded`

7.10. examine REST API using HTTPie:

```
http :8080/api/v3/predicate
http ":8080/api/v3/predicate?second.secondField1=1"

# bash
http ":8080/api/v3/predicate?createdDate=$(date +%Y-%m-%d)"
# fish
http ":8080/api/v3/predicate?createdDate="(date +%Y-%m-%d)

http ":8080/api/v2/pagination?page=0&size=1&sort=first.firstField1,desc"
http ":8080/api/v2/sorted?sort=id,desc"

http :8080/api/v2/flatten
http :8080/api/v2/flatten/2
```

note: see `.travis.yml` for cURL examples

7.11. generate Q-classes from JPA:

```
gradle compileQuerydsl xjc
```

7.12. quick startup

bootstrapping docker before bootRun

```
gradle bootRun
open http://localhost:8080 # press enter
...
gradle composeDown
gradle --stop
```

7.13. integration tests

see `docker` subproject

```
gradle clean assemble test
gradle --stop
```

7.14. spring data jpa auditing

see `service/**/src/main/java/daggerok/audit` package

id	created_date	modified_at	de_normalized_field	first_field1	first_field2	second_field1	second_field2
1	2017-06-10	2017-06-10 22:18:35.516000	1	1	1	1	1
2	2017-06-10	2017-06-10 22:18:35.545000	2	2	2	2	2

7.15. stack:

- spring-boot, spring-data, spring-web, fallback 404 handler
- JPA auditing
- Performance optimization: de-normalize JPA NF4 → NF3, @Embedded, @Embeddable
- QueryDSL (spring-data integration)
- Event sourcing using spring data-rest and spring application events
- gradle, SoapUI

- Postgres, Docker
- QueryDSL referrence documentation and example

Chapter 8. Derby create-drop for development)

This repo is contains simple example of usage spring-boot devtools reload/restart with derby

```
gradle bootRun
http :8080
http post :8080 id=user2 name=user2

# 1. update some code (remove mail2 from User.class and from schema.sql)
# 2. rebuild project inside IDEA oe STS to handle devtools
# 3. check logs....

http :8080 # 2 items again
gradle --stop
```

Chapter 9. Reactive Redis

this repository is containgn modern spring 5 web application which is using reactive spring webflux and spring data redis

```
gradle composeUp bootRun

http :8080/tasks
http :8080/activities

http delete :8080

http :8080/tasks
http :8080/activities

gradle composeDown
gradle --stop
```

Chapter 10. Boot your data - RDBMS (derby, h2, hsql, mysql, postgres)

This repository contains examples of usage relation databases with spring-data-rest

in progress…

Chapter 11. Listening spring-data events

this repository is containgn modern spring 5 web application which is listening spring-data events

```
bash gradew clean build
```

Chapter 12. Elasticsearch

This repository contains spring-data elastic examples

in fucking progress...

run it all using docker-compose

```
bash gradlew assemble composeUp -Ddocker=compose-all

open http://localhost/

bash gradlew composeDown -Ddocker=compose-all
```

run app in idea

```
cd data/
bash gradlew bootRun

http -a elastic:changeme :9200

http post :8080 name=max
http :8080
http :8080/users
```

explore with kibana

```
gradle clean bootRun
http -a elastic:changeme :9200
```

testing elasicsearch db with curl / httpie

```
gradle clean bootRun
http -a elastic:changeme :9200
curl -u elastic:changeme localhost:9200 | jq
```

manual run

```
gradle clean build
```

Chapter 13. using elastic

create few users

```
export auth=" -a elastic:changeme "
echo '{"username":"daggerok","name":"Maksim Kostromin"}' | http $auth
:9200/user/customer
```

helper fish fuctions

```
function pes
    echo $argv[2] | http -a elastic:changeme post :9200/$argv[1]
end

function ges
    http -a elastic:changeme get :9200/$argv[1]
end

pes user/customer '{
"username": "ololo",
"name": "Trololo"
}'

http -a elastic:changeme :9200/user/_search\?q=ololo
```

more elastic

```
ges _cluster/health\?pretty
```

Chapter 14. problem solving

ulimit -an

```
# 2017-11-02 01:29:06.355  WARN 10993 --- [  restartedMain] org.elasticsearch.env
: [Jackdaw] max file descriptors [10240] for elasticsearch process likely too low,
consider increasing to at least [65536]
# 2017-11-02 01:29:07.074  WARN 10993 --- [  restartedMain]
org.elasticsearch.bootstrap              : JNA not found. native methods will be
disabled.

launchctl unload /Library/LaunchDaemons/limit.maxfiles.plist
cat <<EOF> /Library/LaunchDaemons/limit.maxfiles.plist
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN"
        "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
  <dict>
    <key>Label</key>
    <string>limit.maxfiles</string>
    <key>ProgramArguments</key>
    <array>
      <string>launchctl</string>
      <string>limit</string>
      <string>maxfiles</string>
      <string>524288</string>
      <string>524288</string>
    </array>
    <key>RunAtLoad</key>
    <true/>
    <key>ServiceIPC</key>
    <false/>
  </dict>
</plist>
EOF
launchctl load -w /Library/LaunchDaemons/limit.maxfiles.plist

launchctl unload /Library/LaunchDaemons/limit.maxproc.plist
cat <<EOF> /Library/LaunchDaemons/limit.maxproc.plist
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple/DTD PLIST 1.0//EN"
"http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
  <dict>
    <key>Label</key>
      <string>limit.maxproc</string>
    <key>ProgramArguments</key>
      <array>
        <string>launchctl</string>
        <string>limit</string>
```

```
        <string>maxproc</string>
        <string>2048</string>
        <string>2048</string>
      </array>
    <key>RunAtLoad</key>
      <true />
    <key>ServiceIPC</key>
      <false />
  </dict>
</plist>
EOF
launchctl load -w /Library/LaunchDaemons/limit.maxproc.plist

exit
reboot
```

Chapter 15. resources

1. documentation: query creation
2. spring talk
3. elasticsearch for java dev
4. another spring search data talk

Chapter 16. Spring Data Key-Value (webflux / kotlin)

This is a simple spring-boot 5 webflux REST API example using spring-data-keyvalue (Map as database) and kotlin language.

build and run

```
bash gradlew clean build
```

using:

1. kotlin
2. spring-data-keyvalue

Chapter 17. Spring Data Hazelcast

This is a simple spring-mvc REST API example using spring-data-hazelcast and kotlin language.

build and run

```
bash gradlew clean build

http :8080/any/ma
[
    {
        "id": "8f0c927a-cf68-430d-afab-cb9f3f9a9253",
        "name": "Max",
        "username": "max"
    }
]

http post :8080 name=Maximus username=xxx
HTTP/1.1 201
Content-Length: 0
Date: Sun, 05 Nov 2017 05:52:16 GMT
Location: /id/d365b264-97de-4458-81da-c99b9f5be1f4

http :8080/id/d365b264-97de-4458-81da-c99b9f5be1f4
{
    "id": "d365b264-97de-4458-81da-c99b9f5be1f4",
    "name": "Maximus",
    "username": "xxx"
}

http :8080/any/Ma
[
    {
        "id": "d365b264-97de-4458-81da-c99b9f5be1f4",
        "name": "Maximus",
        "username": "xxx"
    },
    {
        "id": "8f0c927a-cf68-430d-afab-cb9f3f9a9253",
        "name": "Max",
        "username": "max"
    }
]
```

supported query

```
/*
    1) SIMPLE_PROPERTY("Is", "Equals")
    2)
       TRUE(0, "IsTrue", "True")
       FALSE(0, "IsFalse", "False")
    3)
       LESS_THAN("IsLessThan", "LessThan")
       LESS_THAN_EQUAL("IsLessThanEqual", "LessThanEqual")
       GREATER_THAN("IsGreaterThan","GreaterThan")
       GREATER_THAN_EQUAL("IsGreaterThanEqual", "GreaterThanEqual")
    4)
       LIKE("IsLike", "Like")
    5)
       IS_NOT_NULL(0, "IsNotNull", "NotNull")
       IS_NULL(0, "IsNull", "Null")
```

supported query

```
    AFTER:
    BEFORE:
    BETWEEN:
    CONTAINING:
    ENDING_WITH:
    EXISTS:
    IN:
    NEAR:
    NEGATING_SIMPLE_PROPERTY:
    NOT_CONTAINING:
    NOT_IN:
    NOT_LIKE:
    REGEX:
    STARTING_WITH:
    WITHIN:
```

using:

1. kotlin
2. spring-data-hazelcast
3. talk
4. hazelcast query

Chapter 18. Spring data reactive (mongo, solr, elastic)

This repository contains examples of usage NOSql databases such elasticsearch, mongodb, solr, couchbase, etc with spring, spring-boot and spring-data

in fucking progress...

```
docker-compose up -d --remove-orphans
gradle clean build
# ...
docker-compose down -v --remove-orphans
```

Chapter 19. Spring Data (spring-data-rest) advanced audit

This repository contains spring-data audition implementation: object diff history audit

test

```
http put :8080/my-entities/1 value=ololo
http put :8080/my-entities/1 value=trololo
http put :8080/my-entities/1 value=ho-ho-ho

http get :8080/my-entities
http get :8080/my-entities-history
```

build abd run

```
bash gradlew clean bootRun # bash mvnw clean spring-boot:run

# or in docker:
docker-compose down -v; ./gradlew; docker-compose up --build --force-recreate --remove
-orphans

# or using maven:
cp -Rf ./mvn/Dockerfile ./
docker-compose down -v; ./mvnw; docker-compose up --build --force-recreate --remove
-orphans
```

Chapter 20. MapDB | Spring Webflux

1. link:https://github.com/daggerok/spring-5-examples/tree/master/mapdb

Chapter 21. links

1. asciidoctor attributes

Chapter 22. Enjoy! :)