# SPARQL Endpoint 20분 만에 생성하기

SK(주) C&C

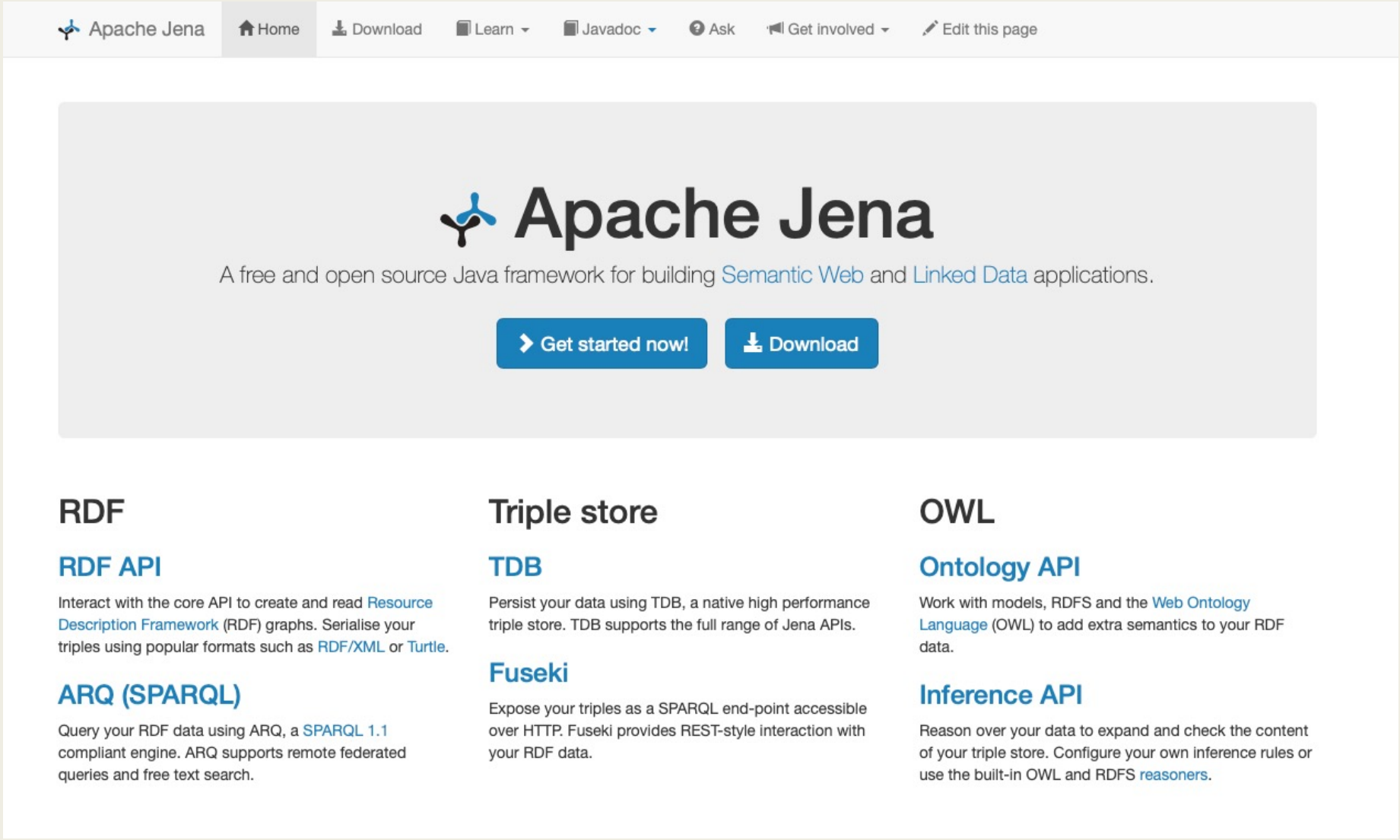
플랫폼개발그룹

허홍수

joyhong@sk.com

SK 주식회사 C&C

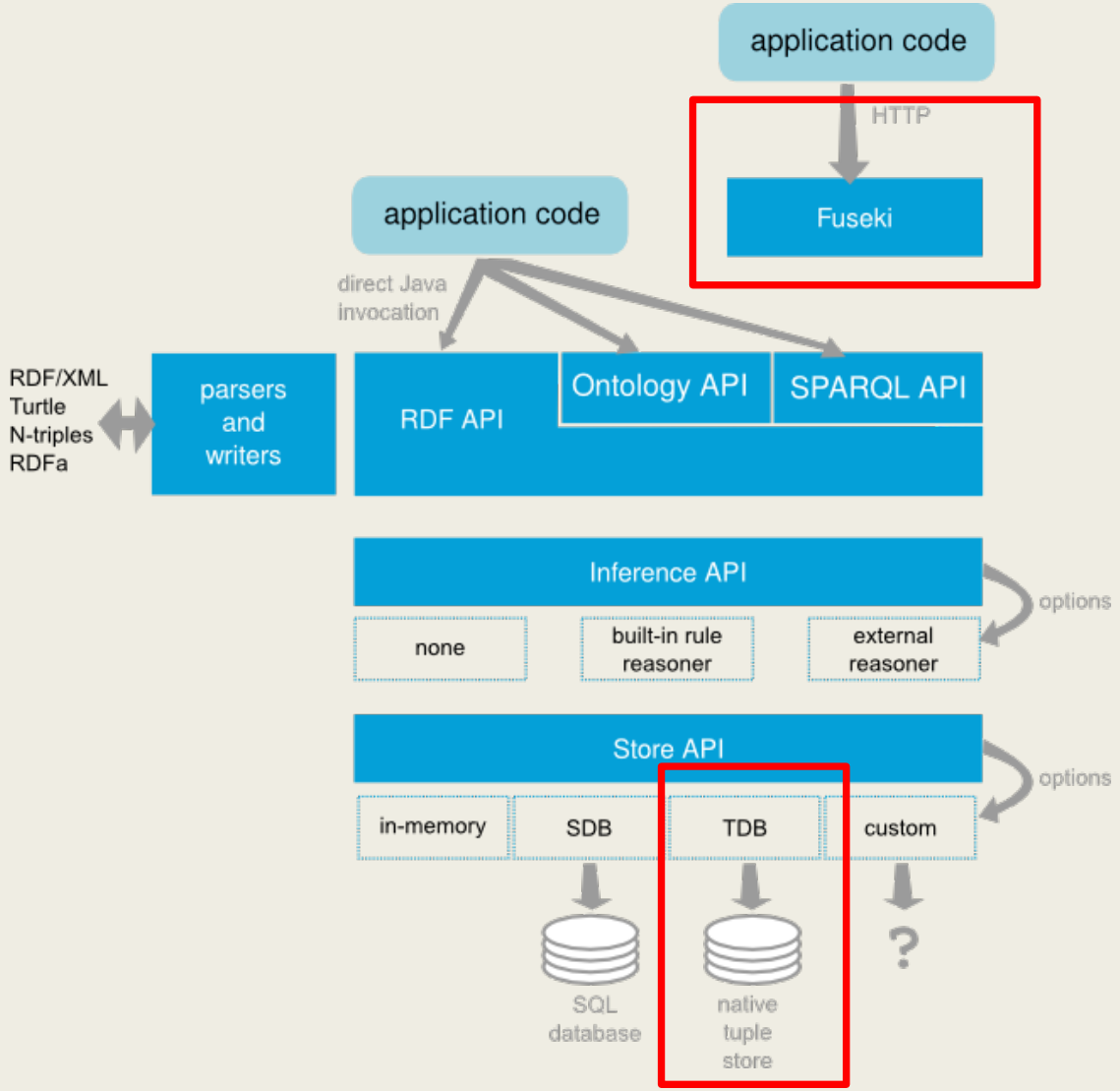
# Apache Jena




https://jena.apache.org/index.html

# Fuseki & TDB

- Fuseki
  - *SPARQL Endpoint을 제공함으로 HTTP를 통해 트리플 접근을 가능케 해줌*
  - *메모리 또는 TDB 기반으로 영속성 유지*
- TDB
  - *Jena Framework에서 제공하는 native 트리플 스토어*



# Fuseki

- 다운로드

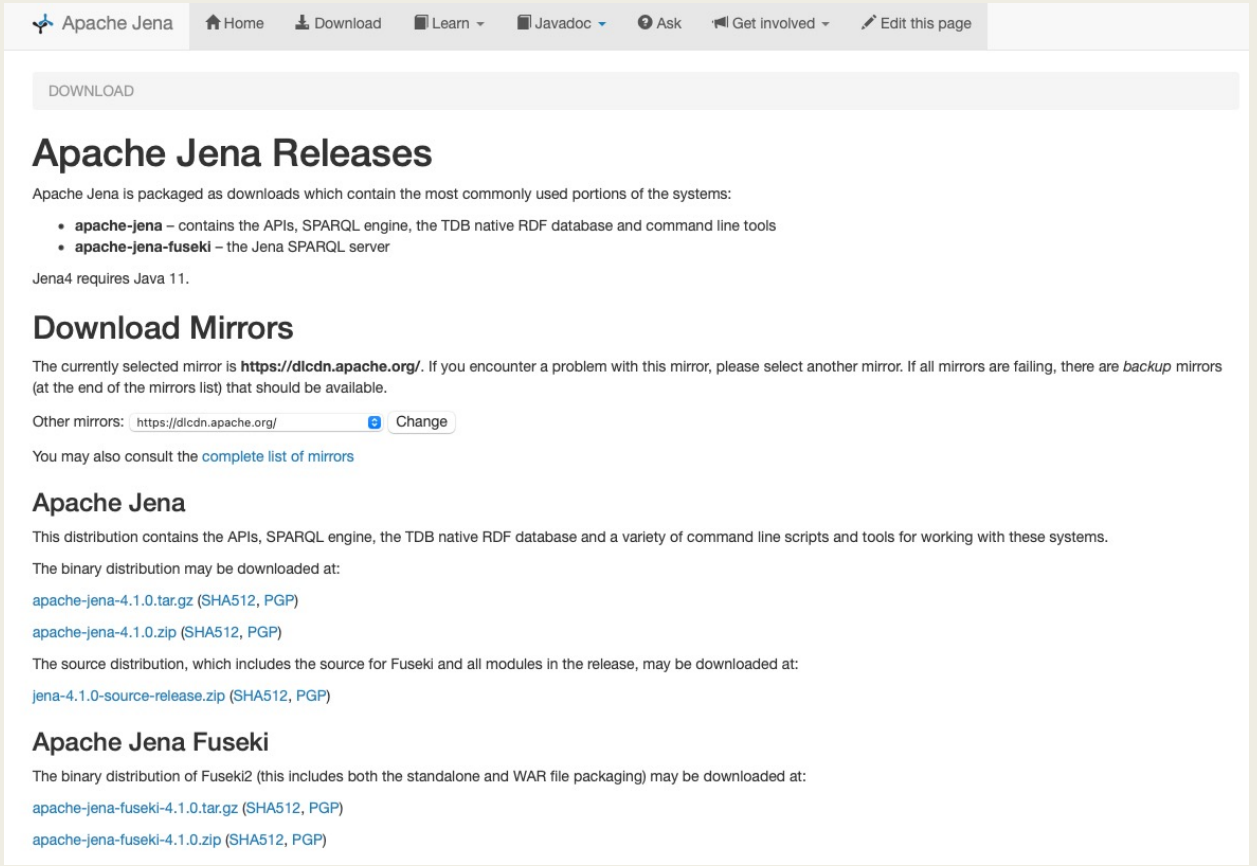
  https://jena.apache.org/download/

  현재 버전은 4.1.0 (2021년 9월 현재)

  현재 버전은 자바 11 이상을 지원하고 있음

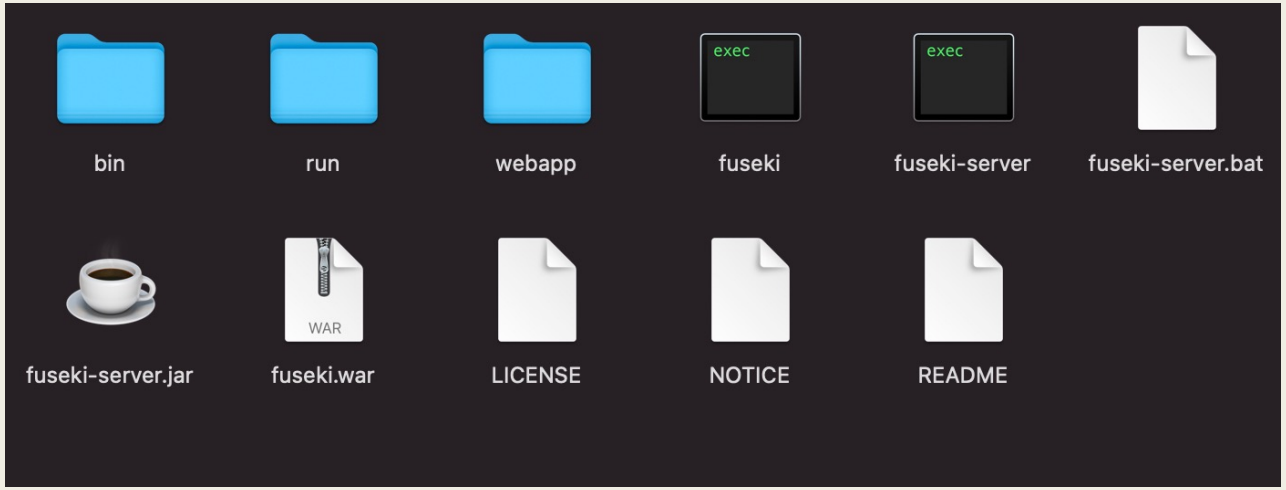
  자바 8을 사용하는 경우에는 3.x 버전을 다운받아야 함

https://repo1.maven.org/maven2/org/apache/jena/apache-jena-fuseki/3.6.0/



# Fuseki 구동

- 압축 풀기

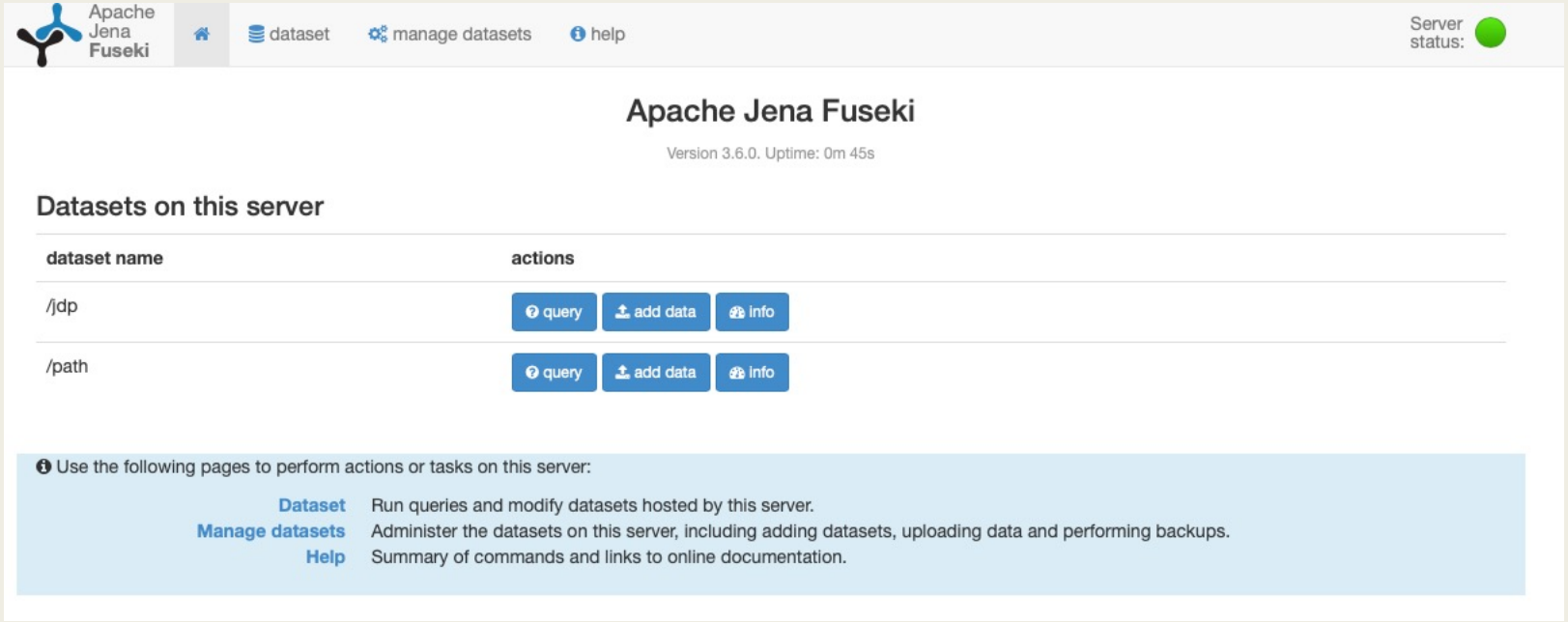



- 실행

```
→  apache-jena-fuseki-3.6.0 ll
total 99000
-rw-r--r--@  1 joyhong  staff    30K 12 13  2017 LICENSE
-rw-r--r--@  1 joyhong  staff   9.3K 12 13  2017 NOTICE
-rw-r--r--@  1 joyhong  staff   2.3K 12 13  2017 README
drwxr-xr-x  11 joyhong  staff   352B  9  5 00:29 bin
-rwxr-xr-x@  1 joyhong  staff    12K 12 13  2017 fuseki
-rwxr-xr-x@  1 joyhong  staff   2.2K 12 13  2017 fuseki-server
-rw-r--r--@  1 joyhong  staff   1.2K 12 13  2017 fuseki-server.bat
-rw-r--r--@  1 joyhong  staff    25M 12 13  2017 fuseki-server.jar
-rw-r--r--@  1 joyhong  staff    23M 12 13  2017 fuseki.war
drwxr-xr-x  12 joyhong  staff   384B  9  5 00:56 run
drwxr-xr-x  16 joyhong  staff   512B  9  8 19:00 webapp
→  apache-jena-fuseki-3.6.0 ./fuseki-server
```

# SPARQL Endpoint

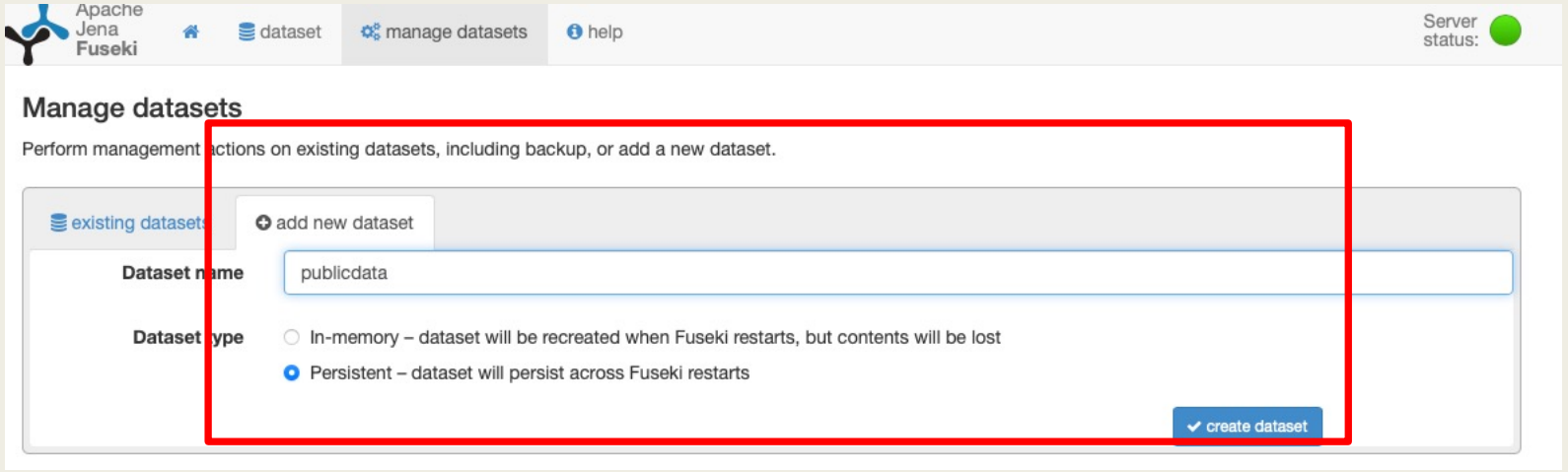
- http://localhost:3030/index.html

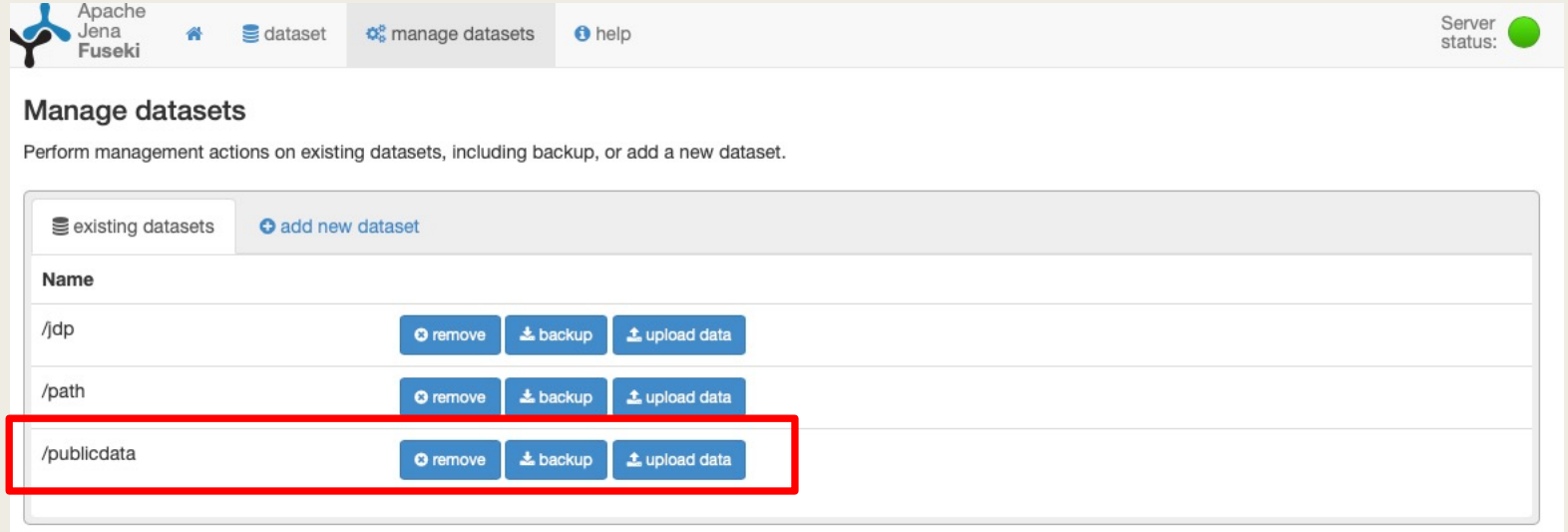



*처음 구동시 Datasets은 비어있는 상태이기 때문에*
*manage datasets 메뉴를 통해 데이터셋 생성*

# 데이터셋 생성

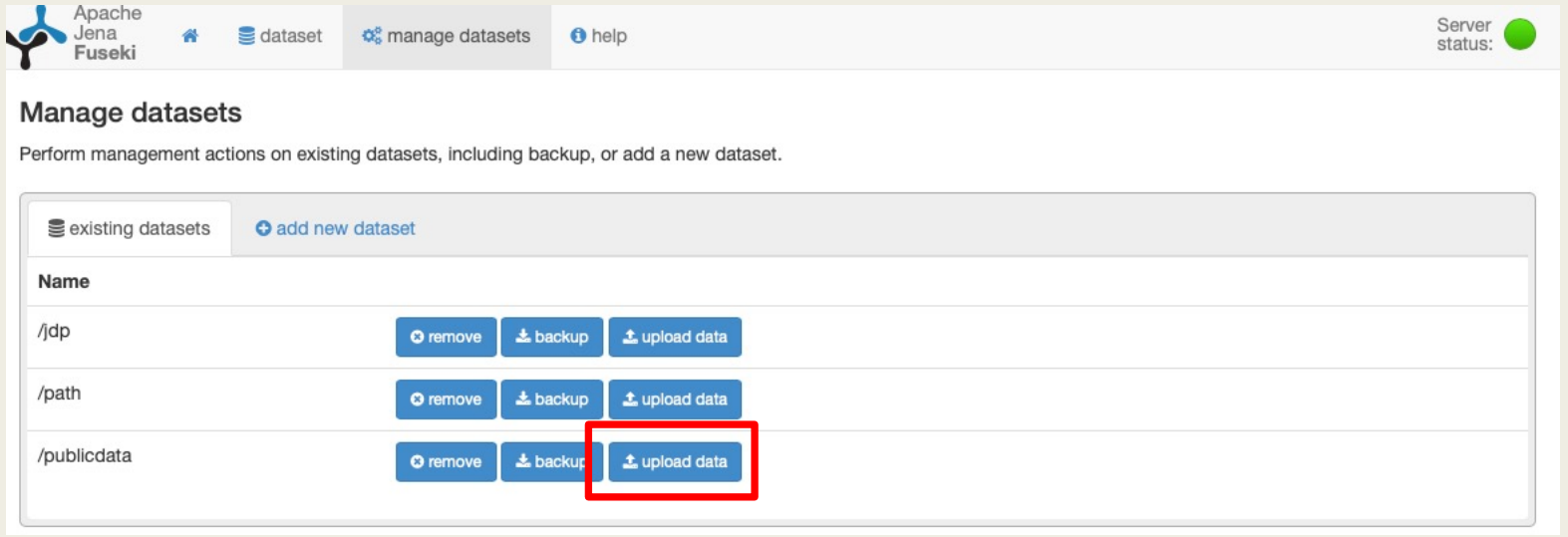
- manage datasets

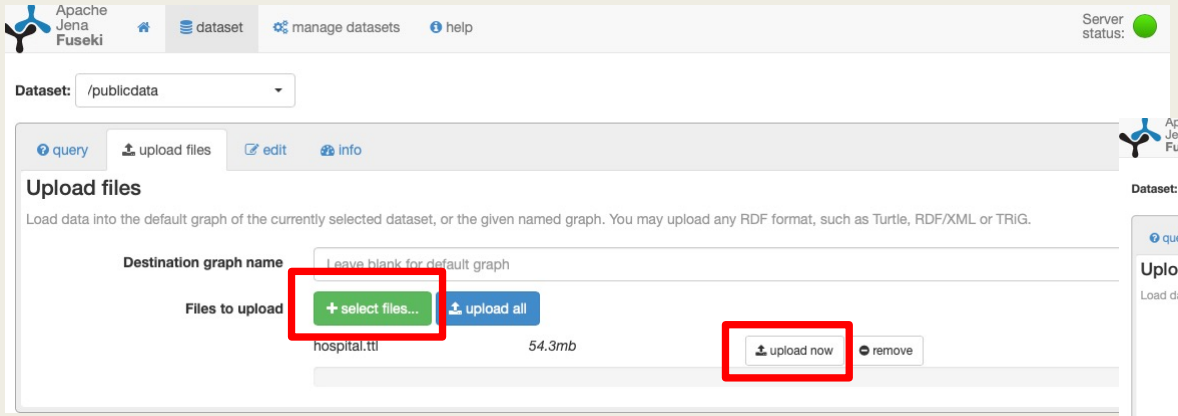


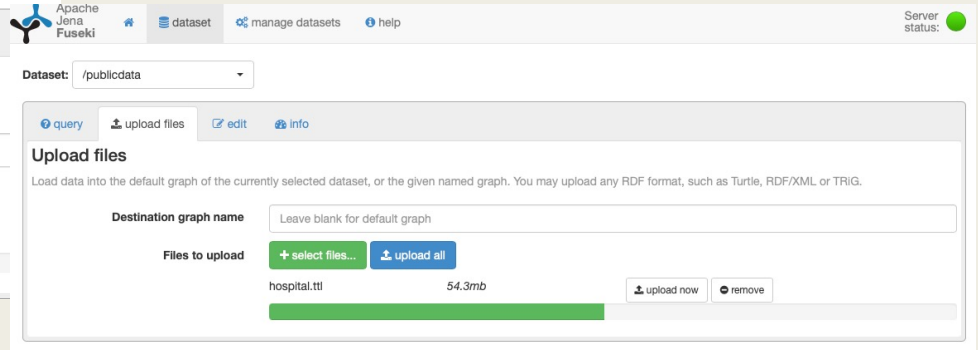



# 데이터 업로드

- upload data



# 업로드 완료

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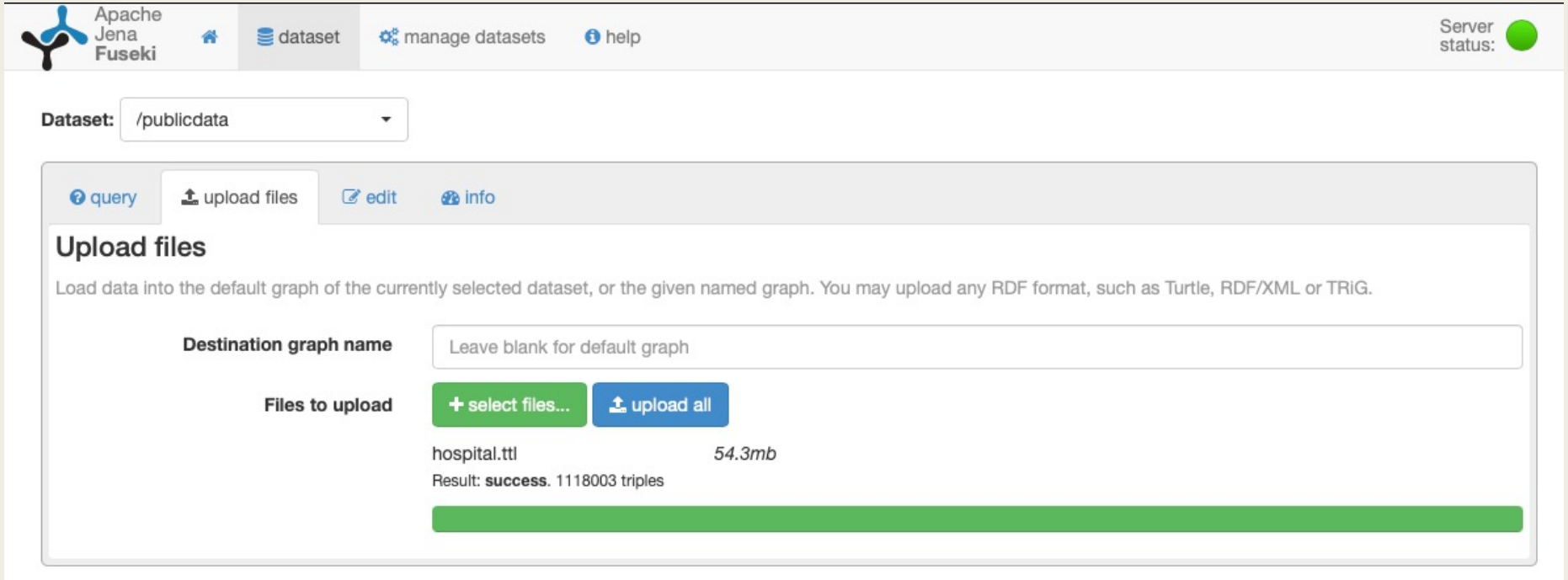
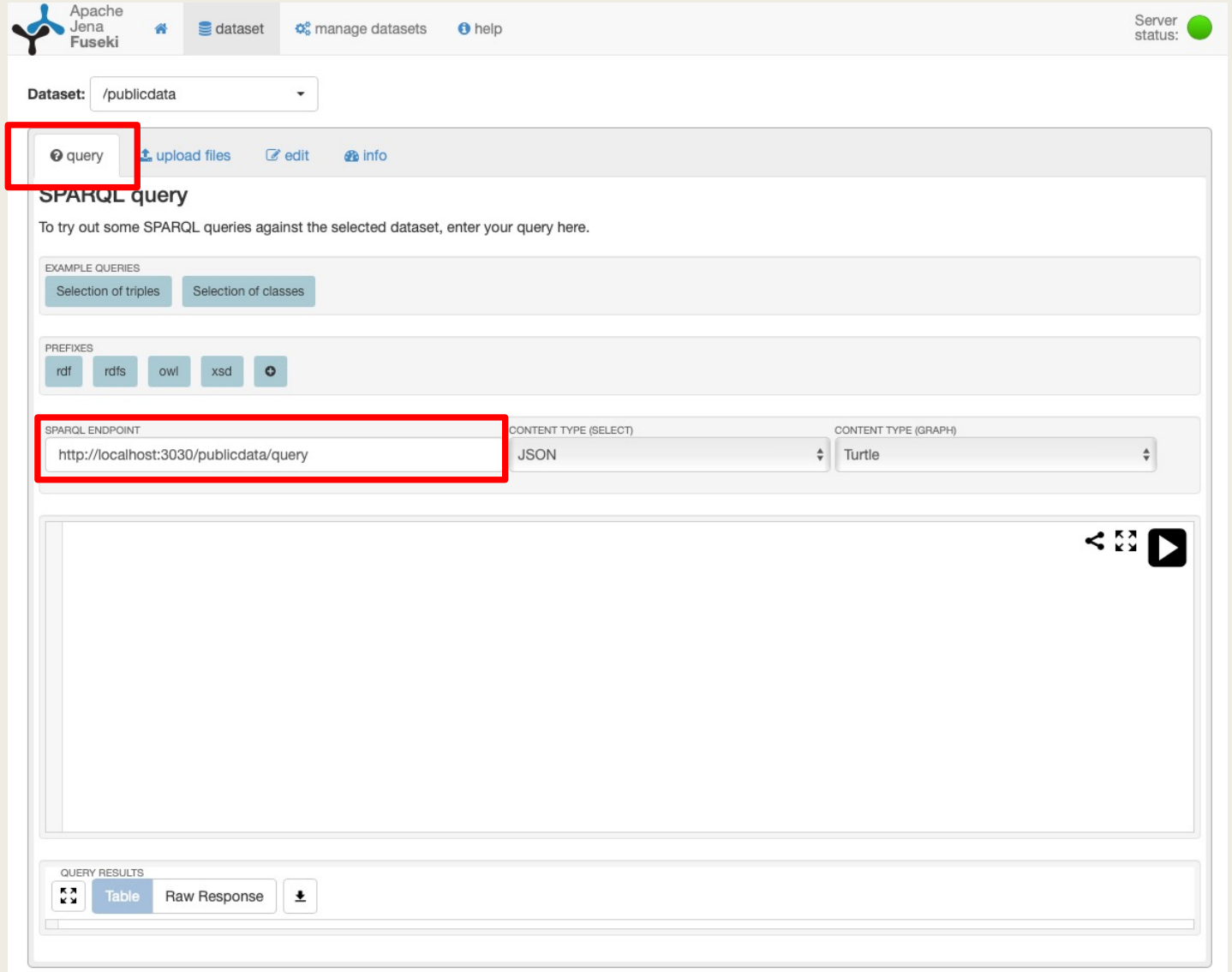
- 업로드 완료

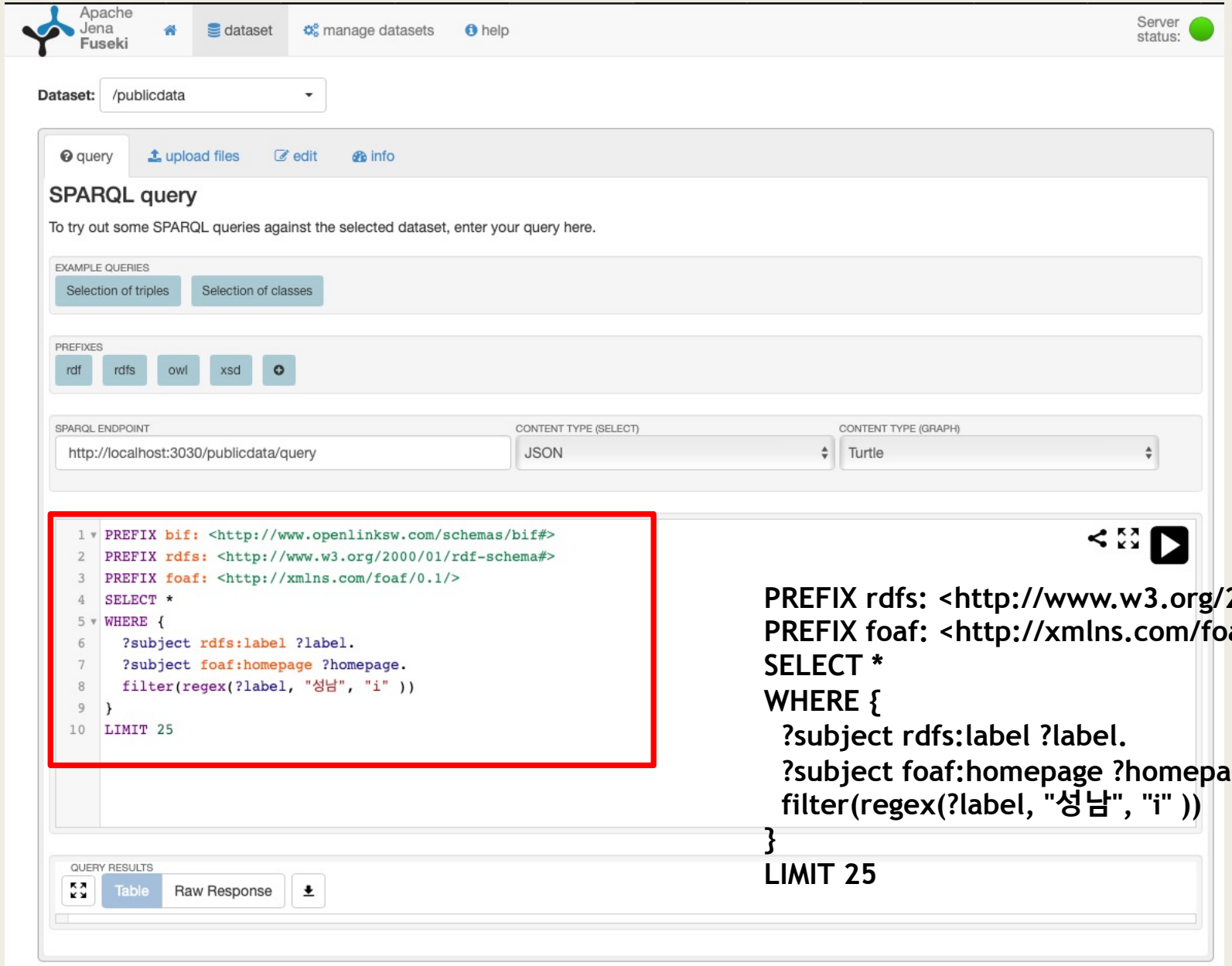


# Query

- SPARQL Query



# SPARQL 생성




```
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
SELECT *
WHERE {
  ?subject rdfs:label ?label.
  ?subject foaf:homepage ?homepage.
  filter(regex(?label, "성남", "i" ))
}
LIMIT 25
```

# SPARQL 결과

SPARQL ENDPOINT: http://localhost:3030/publicdata/query
CONTENT TYPE (SELECT): JSON
CONTENT TYPE (GRAPH): Turtle

```
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
SELECT *
WHERE {
  ?subject rdfs:label ?label.
  ?subject foaf:homepage ?homepage.
  filter(regex(?label, "성남", "i" ))
}
LIMIT 25
```

QUERY RESULTS

Table | Raw Response

Showing 1 to 8 of 8 entries

Search: Show 50 entries

| | subject | label | homepage |
|---|---|---|---|
| 1 | <http://joyhong.tistory.com/resource/h_168> | "성남중앙병원" | <http://www.schosp.co.kr> |
| 2 | <http://joyhong.tistory.com/resource/h_18295> | "성남속편한내과의원" | <http://www.soksn.co.kr/index.asp> |
| 3 | <http://joyhong.tistory.com/resource/h_18296> | "성남시노인보건센터의원" | <http://scsh.or.kr> |
| 4 | <http://joyhong.tistory.com/resource/h_45820> | "성남리더스치과의원" | <http://blog.naver.com/sungeu2> |
| 5 | <http://joyhong.tistory.com/resource/h_55939> | "성남시분당구보건소" | <http://www.bundanghealth.or.kr/> |
| 6 | <http://joyhong.tistory.com/resource/h_55940> | "성남시중원구보건소" | <http://jungwonhealth.or.kr> |
| 7 | <http://joyhong.tistory.com/resource/h_66805> | "성남의료소비자생활협동조합 우리한의원" | <http://blog.naver.com/sncoop0223> |
| 8 | <http://joyhong.tistory.com/resource/h_66806> | "성남청담한의원" | <http://www.yonghan.net/> |

Showing 1 to 8 of 8 entries

# SPARQL Endpoint 주소

- URL
  - *이 예제에서는 디폴트 설정을 그대로 사용하여*
    *localhost:3030 에*
    *publicdata로 데이터셋을 생성하여 아래와 같이 url에  sparql 질의를 요청할 수 있다.*

http://localhost:3030/publicdata/query

# 감사합니다

joyhong@sk.com

http://joyhong.tistory.com