

Example: Jena and Fuseki

Jena and Fuseki

- **Jena** is a solid and widely used system
 - Scales reasonably well using its TDB native store
 - Has support for reasoning via a native rules engine and an API for DIG-compliant reasoners
 - Subsets run on Android phones
- Fuseki is a sparql endpoint that complements Jena
- Both are easy to install and use with Java or any other language via the API or endpoint

Download jena and fuseki

- **curl -O http://www.apache.org/dist/jena/binaries/apache-jena-2.11.1.tar.gz**
- **curl -O http://www.apache.org/dist/jena/binaries/jena-fuseki-1.0.1-distribution.tar.gz**
- > **tar -xzf jena-fuseki-0.2.6-distribution.tar.gz**
- > **tar -xzf apache-jena-2.10.0.tar.gz**
- > **rm *.gz**
- > **ls**
- apache-jena-2.10.0 jena-fuseki-0.2.6
- > **export JENA=/Users/finin/.../apache-jena-2.10.0/**
- **export FUSEKI=/Users/finin/S.../jena-fuseki-0.2.6/**
- **export TS=/Users/finin/S.../examples/triplestore/**

Start the Fuseki server

```
# create directory for the RDF data
```

```
> Mkdir $TS/MYTDB
```

```
# launch server allowing updates, using our data directory
```

```
# and naming the default store ds
```

```
> cd $FUSEKI
```

```
> fuseki-server --update --loc=/Users/finin/MYTDB /ds &
```

```
17:01 INFO Server :: TDB dataset: directory=/Users/finin/MYTDB
```

```
17:01 INFO Server :: Dataset path = /ds
```

```
17:01 INFO Server :: Fuseki 0.2.5 2012-10-20T17:03:29+0100
```

```
17:01 INFO Server :: Started 2013/03/31 17:01:20 EDT on port 3030
```

```
# put some data into it from a file
```

```
> s-put http://localhost:3030/ds/data default Data/books.ttl
```

Add some data

> Head Data/books.ttl

```
@prefix dc: <http://purl.org/dc/elements/1.1/> .
```

```
@prefix vcard: <http://www.w3.org/2001/vcard-rdf/3.0#> .
```

```
@prefix ns: <http://example.org/ns#> .
```

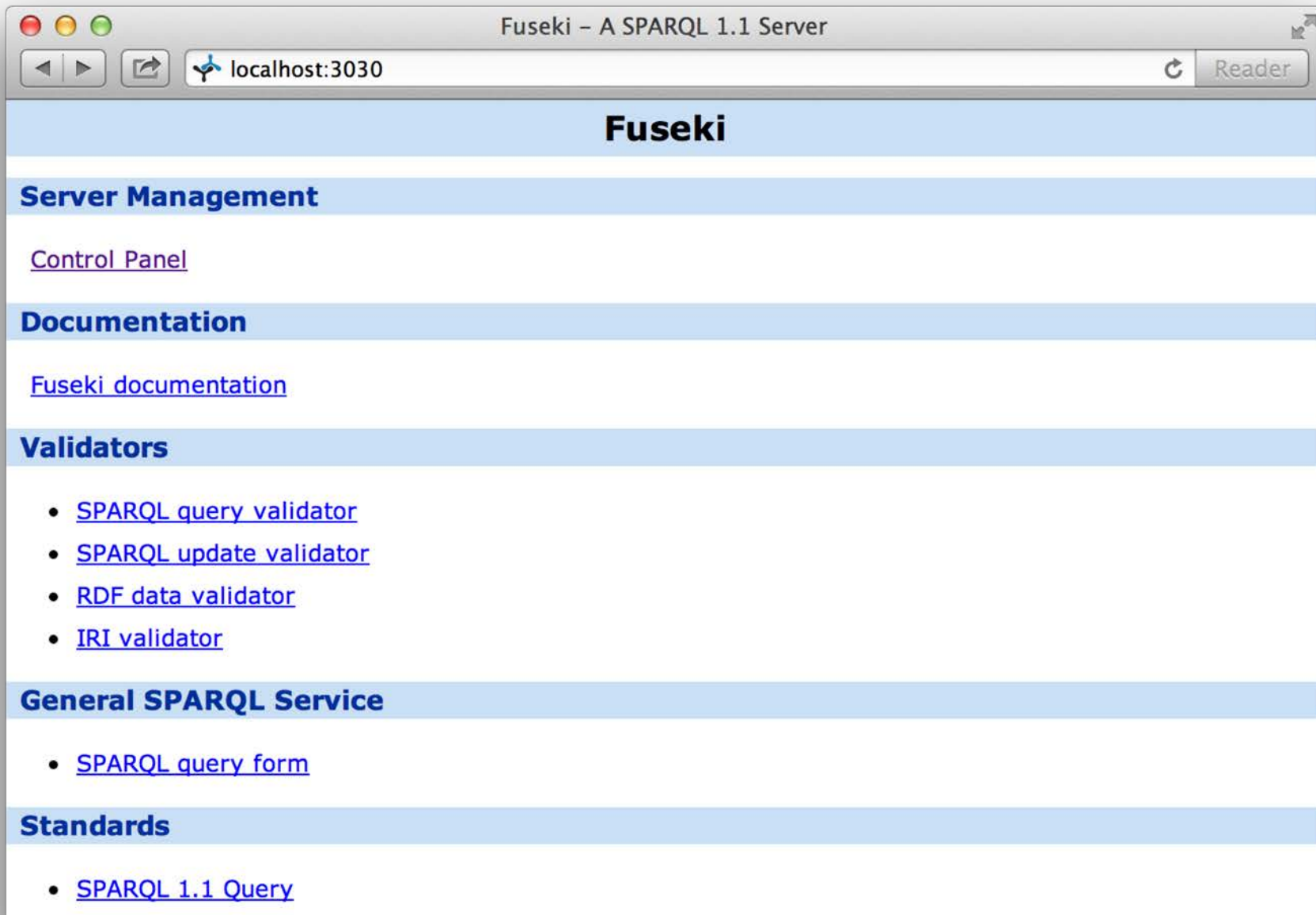
```
@prefix : <http://example.org/book/> .
```

> s-put http://localhost:3030/ds/data default Data/books.ttl

```
18:00 INFO Fuseki :: [2] PUT http://localhost:3030/ds/data?default
```

```
18:00 INFO Fuseki :: [2] 204 No Content
```

Access Fuseki via Browser



The screenshot shows a web browser window titled "Fuseki - A SPARQL 1.1 Server". The address bar contains "localhost:3030" and a "Reader" button. The main content area is titled "Fuseki" and contains several sections:

- Server Management**
 - [Control Panel](#)
- Documentation**
 - [Fuseki documentation](#)
- Validators**
 - [SPARQL query validator](#)
 - [SPARQL update validator](#)
 - [RDF data validator](#)
 - [IRI validator](#)
- General SPARQL Service**
 - [SPARQL query form](#)
- Standards**
 - [SPARQL 1.1 Query](#)

Control panel: select the store



The screenshot shows a web browser window titled "Fuseki - A SPARQL 1.1 Server". The address bar contains "localhost:3030/control-panel.tpl" and a "Reader" button. The main content area has a blue header with the text "Fuseki Control Panel". Below the header, there is a "Dataset:" label followed by a dropdown menu showing "/ds" and a "Select" button.

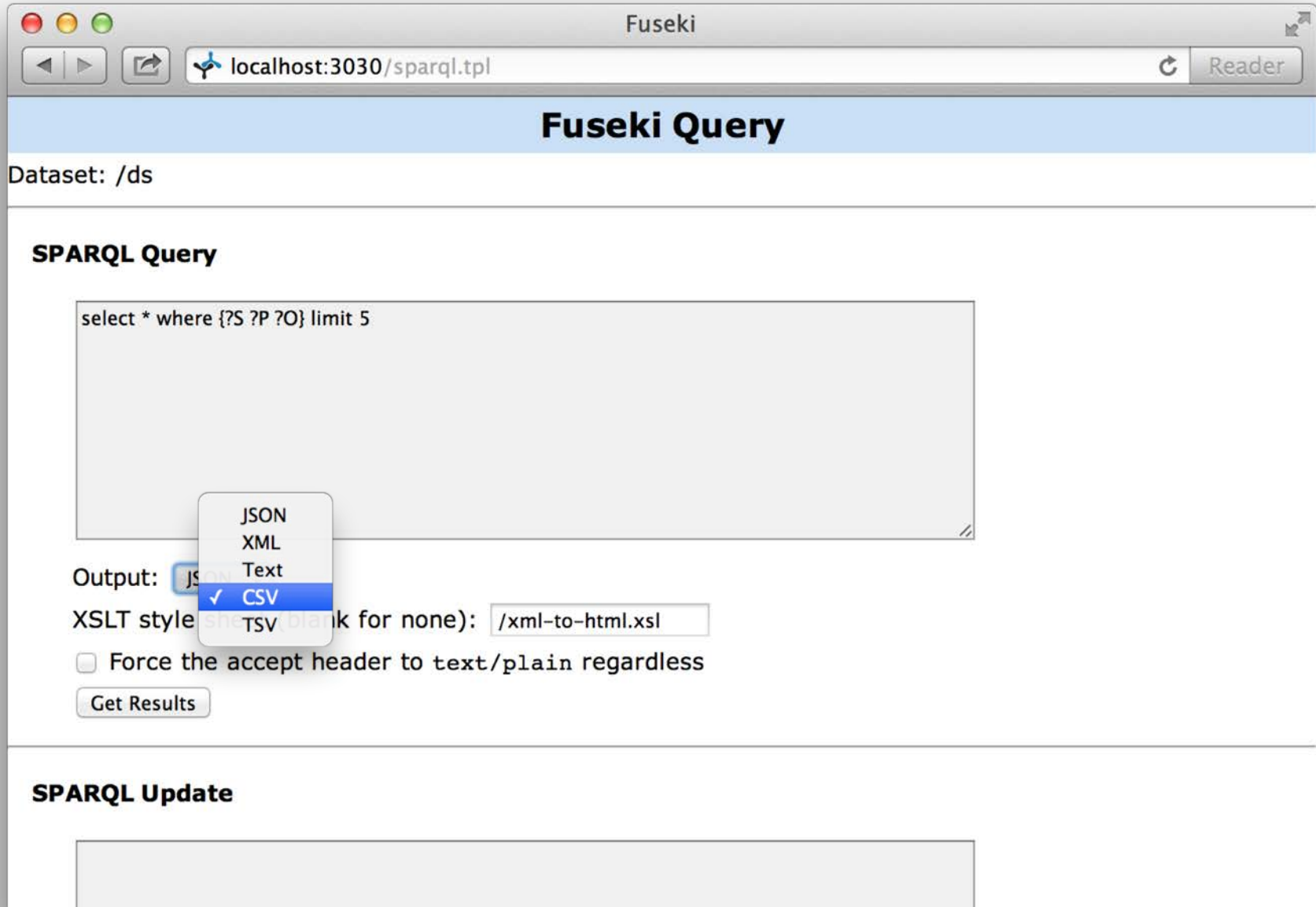
Fuseki - A SPARQL 1.1 Server

localhost:3030/control-panel.tpl Reader

Fuseki Control Panel

Dataset: /ds Select

Enter a SPARQL query



The screenshot shows the Fuseki web interface. The browser address bar displays `localhost:3030/sparql.tpl`. The page title is "Fuseki Query". Below the title, the dataset is set to `/ds`. The "SPARQL Query" section contains a text area with the query `select * where {?S ?P ?O} limit 5`. The "Output:" dropdown menu is open, showing options: JSON, XML, Text, CSV (selected), and TSV. The "XSLT style sheet (blank for none):" field contains `/xml-to-html.xsl`. There is an unchecked checkbox for "Force the accept header to text/plain regardless" and a "Get Results" button. The "SPARQL Update" section is visible at the bottom but empty.

Fuseki

localhost:3030/sparql.tpl Reader

Fuseki Query

Dataset: /ds

SPARQL Query

```
select * where {?S ?P ?O} limit 5
```

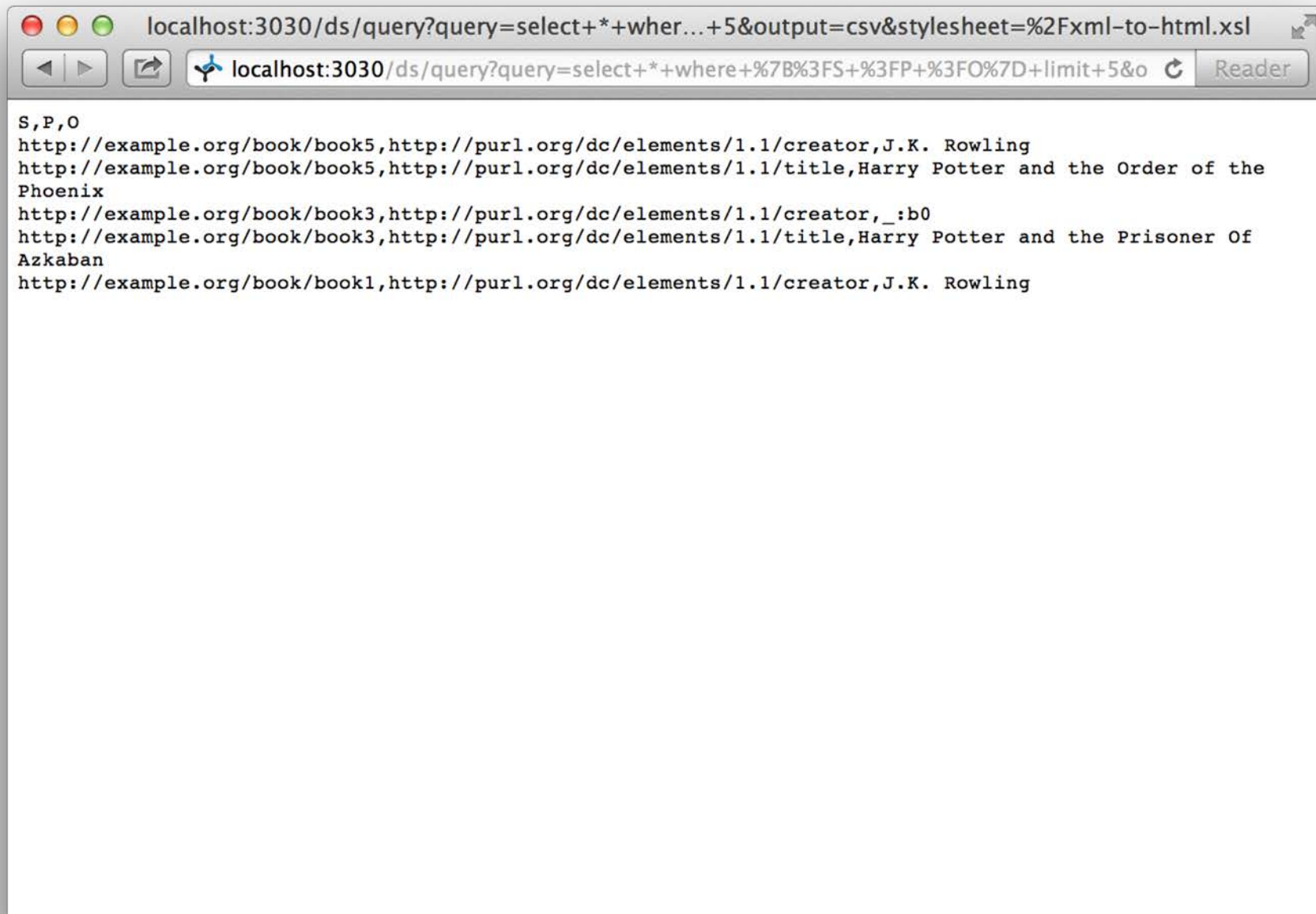
Output:

XSLT style sheet (blank for none):

Force the accept header to text/plain regardless

SPARQL Update

Here are the results



localhost:3030/ds/query?query=select+*+wher...+5&output=csv&stylesheet=%2Fxml-to-html.xsl

localhost:3030/ds/query?query=select+*+where+%7B%3FS+%3FP+%3FO%7D+limit+5&o Reader

```
S,P,O
http://example.org/book/book5,http://purl.org/dc/elements/1.1/creator,J.K. Rowling
http://example.org/book/book5,http://purl.org/dc/elements/1.1/title,Harry Potter and the Order of the Phoenix
http://example.org/book/book3,http://purl.org/dc/elements/1.1/creator, _:b0
http://example.org/book/book3,http://purl.org/dc/elements/1.1/title,Harry Potter and the Prisoner Of Azkaban
http://example.org/book/book1,http://purl.org/dc/elements/1.1/creator,J.K. Rowling
```

Other interactions

- From the control panel you can also
 - Enter SPARQL update queries
 - Upload a file of RDF data into the store
- To bulk load data, use Jena's `tdbloader` command
 - Loads at ~50K triples/sec
 - ~ 80 minutes to ~250M triples in DBpedia's dataset

For CIA Fact Book

PREFIX rdf: <<http://www.w3.org/1999/02/22-rdf-syntax-ns#>>

PREFIX rdfs: <<http://www.w3.org/2000/01/rdf-schema#>>

PREFIX ciafb:

<<http://www.cia.gov/cia/publications/factbook#>>

SELECT *

WHERE {

 ?C ciafb:Name ?N;

 ciafb:Area ?A

}

limit 10