

# easyLOD

Publish your data

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# What is easyLOD?

- Rapid development / prototyping framework for publishing Linked Open Data
- Incorporates features from Heath and Bizer's *Linked Data: Evolving the Web into a Global Data Space*
- Easy to install
- Open source (MIT license)
- <https://github.com/mjordan/easyLOD>

# Features

- No dependencies other than PHP 5.3 or higher
- Uses the Slim PHP microframework
- Plugin architecture (examples included)
- Performs content negotiation
- Can generate RDF in real time or serve static files
- Allows flexible maintenance of resource URIs

# Linked Open Data

- "Web of data"
- Everything has a URI
- Data is exposed in RDF (XML and other serializations)
- Data contains links to vocabularies
- Data is queried using SPARQL

# 5 star Linked Open Data

- ★ Publish data on the Web in any format (e.g., PDF, JPEG) accompanied by an explicit Open License (expression of rights).
- ★ ★ Publish structured data on the Web in a machine-readable format (e.g., XML).
- ★ ★ ★ Publish structured data on the Web in a documented, non-proprietary data format (e.g., CSV, KML).
- ★ ★ ★ ★ Publish structured data on the Web as RDF (eg Turtle, RDFa, JSON-LD, SPARQL)
- ★ ★ ★ ★ ★ In your RDF, have the identifiers be links (URLs) to useful data sources.

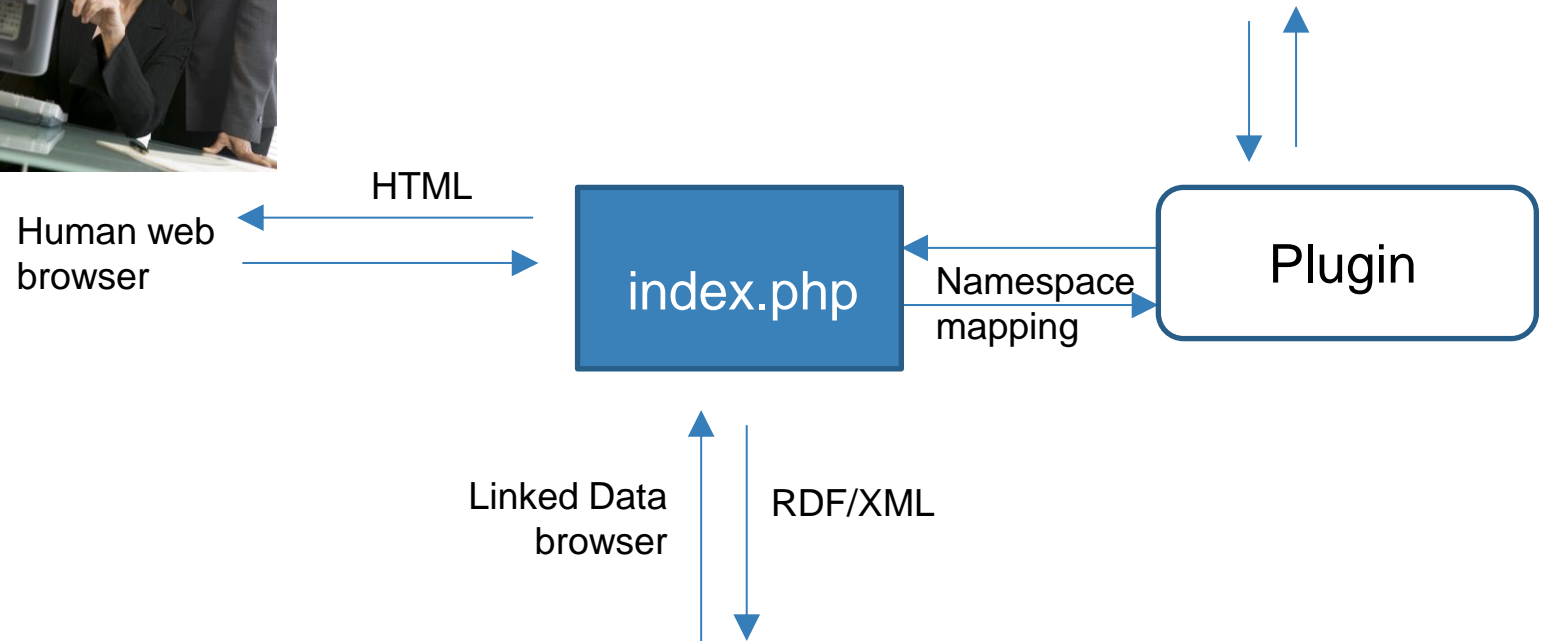
# easyLOD architecture

- index.php
  - Performs content negotiation
  - Routes from namespace to plugins (configurable)
    - `http://example.com/resource/foaf:some@dude.net`
- Data source plugins
  - Convert source data to RDF/XML
    - E.g., parse .csv, query RDBMS, transform with XSLT, scrape the web
  - Redirect human browsers to URL or generates HTML document



## Your data

```
"mbox", "surname", "givenName", "page"  
"sexyguy@iamvain.info", "Jones", "Matt", "http://iamvain.info"  
"give_me_your_credit_card_6@yahoo.com", "Nolan", "Jennifer", "http://throwawaypersonal.info/"  
"random@modnar44.com", "Jalfrezi", "Large", "http://jalfrezitogo.edu"
```



```
#!/usr/bin/python -OO  
url = 'http://example.com/easyLOD/resource/foaf:some@dude.net'  
headers = {'Accept': 'application/rdf+xml'}  
r = requests.get(url, headers)
```

# Plugins

- Included examples
  - CSV, MySQL, static RDF, remote web service
- Must implement four functions
  - `dataSourceConfig()`
  - `getDataSourceNamespaces()`
  - `getWebPage()`
  - `getResourceData()` or `getResourceDataRaw()`



# Simple plugin: Books

id	identifier	title	description	date
1	0002	A Scanner Darkly	Don't do drugs.	1977
2	0003	The Man in the High Castle	Glad we won the war.	1962
3	0001	Do Androids Dream of Electric Sheep?	Lots of robots.	1968

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:dcterms="http://purl.org/dc/terms/" >
  <rdf:Description rdf:about="http://thinkpad/easyLOD/resource/books:0002" >
    <dcterms:identifier>0002</dcterms:identifier>
    <dcterms:title>A Scanner Darkly</dcterms:title>
    <dcterms:description>Don't do drugs.</dcterms:description>
    <dcterms:date>1977</dcterms:date>
    <dcterms:author>Dick, Philip K.</dcterms:author>
  </rdf:Description>
</rdf:RDF>
```

# Advanced plugin: Summit person

The screenshot shows the Summit website interface. At the top, there are navigation links for SFU, Burnaby, Surrey, Vancouver, SFU Online, A-Z Links, and SFU Search. The main content area is titled "Author page for Marcus Barnes" and includes a search bar, a biography, and a list of items in the Summit collection.

**About Summit**

- What is Summit?
- Submitting your material
- Author pages
- Contact
- SFU Library


**Users**

- Log In (SFU users)
- Log In (non-SFU users)
- Searching tips

**Author page for Marcus Barnes**

Last name: Barnes

First name: Marcus



Contact email: mbarnes-at-sfu.ca

Affiliation: Simon Fraser University Library

Biography: Marcus is a web and data services developer with library systems at SFU.

Website: <http://about.me/MarcusBarnes>

Items in Summit:

Title	Collection
Drupal with CONTENTdm Digital Collections	Library Staff Papers and Publications
John Charles Fields: a sketch of his Theses, Dissertations, and other Required life and mathematical work	Graduate Degree Essays
John Charles Fields: a sketch of his Mathematics - Theses, Dissertations, an life and mathematical work	other Required Graduate Degree Essays

```
<?xml version="1.0" encoding="UTF-8" ?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/"
  xmlns:bio="http://purl.org/vocab/bio/0.1/"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:owl="http://www.w3.org/2002/07/owl#" >
  <rdf:Description rdf:about="http://lod.lib.sfu.ca/easyLOD/resource/summit_person:43">
    <foaf:Person>
      <foaf:familyName>Barnes</foaf:familyName>
      <foaf:givenName>Marcus</foaf:givenName>
      <foaf:homepage>http://about.me/MarcusBarnes</foaf:homepage>
      <bio:olb>Marcus is a web and data services developer with library systems at SFU.</bio:olb>
      <foaf:Depiction>
        <foaf:picture>http://summit.sfu.ca/system/files/pictures/Marcus_Barnes.jpg</foaf:picture>
      </foaf:Depiction>
      <foaf:publications>
        <foaf:Document>
          <dc:title>Drupal with CONTENTdm Digital Collections</dc:title>
          <owl:sameAs>http://summit.sfu.ca/item/10811</owl:sameAs>
        </foaf:Document>
        <foaf:Document>
          <dc:title>John Charles Fields: a sketch of his life and mathematical work</dc:title>
          <owl:sameAs>http://summit.sfu.ca/item/8383</owl:sameAs>
        </foaf:Document>
        <foaf:Document>
          <dc:title>John Charles Fields: a sketch of his life and mathematical work</dc:title>
          <owl:sameAs>http://summit.sfu.ca/item/8383</owl:sameAs>
        </foaf:Document>
      </foaf:publications>
    </foaf:Person>
  </rdf:Description>
</rdf:RDF>
```

```
<?xml version="1.0" encoding="UTF-8" ?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/"
  xmlns:bio="http://purl.org/vocab/bio/0.1/"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:owl="http://www.w3.org/2002/07/owl#">
  <rdf:Description rdf:about="http://lod.lib.sfu.ca/easyLOD/resource/submit_person:43">
    <foaf:Person>
      <foaf:familyName>Barnes</foaf:familyName>
      <foaf:givenName>Marcus</foaf:givenName>
      <foaf:homepage>http://about.me/MarcusBarnes</foaf:homepage>
      <bio:olb>Marcus is a web and data services developer with library systems at SFU.</bio:olb>
      <foaf:Depiction>
        <foaf:picture>http://submit.sfu.ca/system/files/pictures/Marcus_Barnes.jpg</foaf:picture>
      </foaf:Depiction>
      <foaf:publications>
        <foaf:Document>
          <dc:title>Drupal with CONTENTdm Digital Collections</dc:title>
          <owl:sameAs>http://submit.sfu.ca/item/10811</owl:sameAs>
        </foaf:Document>
        <foaf:Document>
          <dc:title>John Charles Fields: a sketch of his life and mathematical work</dc:title>
          <owl:sameAs>http://submit.sfu.ca/item/8383</owl:sameAs>
        </foaf:Document>
        <foaf:Document>
          <dc:title>John Charles Fields: a sketch of his life and mathematical work</dc:title>
          <owl:sameAs>http://submit.sfu.ca/item/8383</owl:sameAs>
        </foaf:Document>
      </foaf:publications>
    </foaf:Person>
  </rdf:Description>
</rdf:RDF>
```

# easyLOD so far

- Allowing rapid prototyping of LOD
- Encouraging development of applications to consume RDF
- Forcing us to think about general metadata management practices
  - Persistent identifiers
  - Vocabularies