



RDF Mappin Language - RML

6th tutorial

Ontologies and Semantic Web

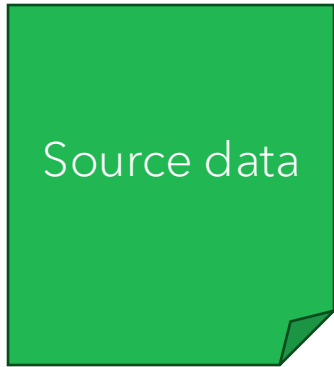
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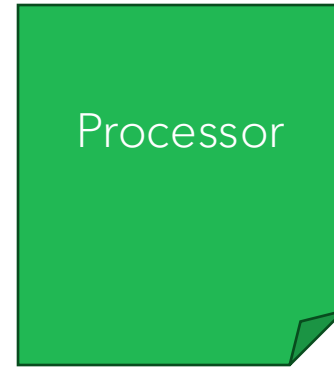
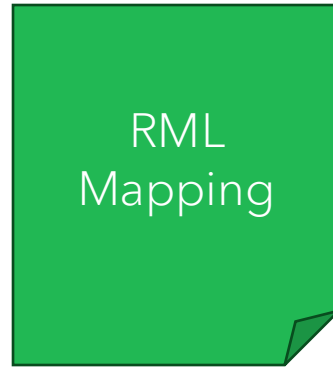
Mapping to RDF

- How to transform regular tables or files to structured form that can be published and linked on the web --> RDF
- <https://rml.io/docs/rml/introduction/>

What we need



JSON, CSV,
SQL database,
XML...



RML Mapper,
RML Streamer

- <https://rml-mapper.adaptcentre.ie/>

Source data



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```
{
  "characters": [
    {
      "id": "0",
      "firstname": "Ash",
      "lastname": "Ketchum",
      "hair": "black"
    },
    {
      "id": "1",
      "firstname": "Misty",
      "hair": "orange"
    }
  ]
}
```

Desired output

```
@prefix schema: <http://schema.org/> .  
@prefix dbo: <http://dbpedia.org/ontology/> .  
@prefix character: <http://example.org/character/> .
```

```
character:0 a schema:Person;  
  schema:givenName "Ash";  
  schema:lastName "Ketchum";  
  dbo:hairColor "black".
```

How to define rules

Describe JSON (XML/SQL/...) file

Describe output

```
{
  "characters": [
    {
      "id": "0",
      "firstname": "Ash",
      "lastname": "Ketchum",
      "hair": "black"
    },
    {
      "id": "1",
      "firstname": "Misty",
      "hair": "orange"
    }
  ]
}
```

```
@prefix schema: <http://schema.org/> .
@prefix dbo: <http://dbpedia.org/ontology/> .
@prefix character: <http://example.org/character/> .
```

```
character:0 a schema:Person;
  schema:givenName "Ash";
  schema:lastName "Ketchum";
  dbo:hairColor "black".
```

RML mapping itself is RDF

Prefix	Description
<code>rml</code>	RML ontology
<code>rr</code>	The R2RML ontology, which is extended by RML
<code>ql</code>	The Query Language vocabulary, which is used together with RML
<code>rdf</code>	The RDF Concepts Vocabulary
<code>empty</code>	The prefix used for our RML rules
<code>schema</code>	The schema.org vocabulary
<code>dbo</code>	The DBpedia ontology

What data are used

```
:TriplesMap a rr:TriplesMap;  
  rml:logicalSource [  
    rml:source "characters.json";  
    rml:referenceFormulation ql:JSONPath;  
    rml:iterator "$.characters[*]"  
  ].
```

Generating subjects

```
:TriplesMap rr:subjectMap [  
  rr:template "http://example.org/character/{id}"  
].
```

Generating predicates and objects

```
:TriplesMap rr:predicateObjectMap [  
  rr:predicate rdf:type;  
  rr:objectMap [ rr:constant schema:Person ];  
].
```

```
@prefix rml: <http://semweb.mmlab.be/ns/rml#> .
@prefix rr: <http://www.w3.org/ns/r2rml#> .
@prefix ql: <http://semweb.mmlab.be/ns/ql#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix : <http://example.org/rules/> .
@prefix schema: <http://schema.org/> .
@prefix dbo: <http://dbpedia.org/ontology/> .
```

```
:TriplesMap a rr:TriplesMap;
  rml:logicalSource [
    rml:source "characters.json";
    rml:referenceFormulation ql:JSONPath;
    rml:iterator "$.characters[*]"
  ].
```

```
:TriplesMap rr:subjectMap [
  rr:template "http://example.org/character/{id}"
].
```

```
:TriplesMap rr:predicateObjectMap [
  rr:predicate rdf:type;
  rr:objectMap [
    rr:constant schema:Person
  ]
].
```

```
@prefix schema: <http://schema.org/> .
```

```
<http://example.org/character/0> a schema:Person .
<http://example.org/character/1> a schema:Person .
```

Annotating with a property

```
:TriplesMap rr:predicateObjectMap [  
  rr:predicate schema:givenName;  
  rr:objectMap [  
    rml:reference "first" .  
  ]  
].
```

```
@prefix schema: <http://schema.org/> .  
  
<http://example.org/character/0> a schema:Person;  
  schema:givenName "Ash" .  
  
<http://example.org/character/1> a schema:Person;  
  schema:givenName "Misty" .
```

Annotating with a property

```
:TriplesMap rr:predicateObjectMap [  
  rr:predicate schema:lastName;  
  rr:objectMap [  
    rml:reference "lastname"  
  ]  
].
```

```
:TriplesMap rr:predicateObjectMap [  
  rr:predicate dbo:hairColor;  
  rr:objectMap [  
    rml:reference "haircolor"  
  ]  
].
```

```
@prefix dbo: <http://dbpedia.org/ontology/> .  
@prefix schema: <http://schema.org/> .
```

```
<http://example.org/character/0> a schema:Person;  
  dbo:hairColor "black";  
  schema:givenName "Ash";  
  schema:lastName "Ketchum" .
```

```
<http://example.org/character/1> a schema:Person;  
  dbo:hairColor "orange";  
  schema:givenName "Misty" .
```

Try it out

<https://rml-mapper.adaptcentre.ie/>

RML Mapping Engine

Start Generating RDF Data by uploading an RML Mapping and associated Source Data

RML Mapping (.ttl)

Browse...

No file selected.

Source Data

Browse...

No files selected.

Guidelines

- Ensure that no directory is defined in the mapping source data name

Clear Uploads

Execute