Lesson: Hands-on Creating Fedora 4.x Resources

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Tools we need to start playing

Before we start: Workspace

Let's assume we are in a *nix OS (OSX, Linux, etc)

- Create a folder clawlessons/
- create a folder clawlessons/clawlesson2
- create a folder clawlessons/clawlesson2/myassets
- Create a folder clawlessons/fedora4/

You can download the lessons files from here

https://github.com/DiegoPino/clawlessons

We need to have a (or a few) Terminal window(s) open.

Tools we need (Fedora4)

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1. Java 8 (Should run under Java 7)
2. Fedora 4.5.0 One-click-run Application
    - https://github.com/fcrepo4/fcrepo4/releases/download/fcrepo-4.5.0/fcrepo-webapp-4.5.0-jetty-console.jar
    - Download to clawlessons/fedora4/
    - Launching:
        - “double click” OR
        - `$ java -jar ./pathto/clawlessons/fedora4/fcrepo-webapp-4.5.0-jetty-console.jar`
3. Text Editor (nano, pico, vi, vim, textMate, TextWrangler, Notepad(lets try to avoid that one))

Fedora 4.x RESTful API

We can interact with Fedora 4 Resources/LDP using http methods https://wiki.duraspace.org/display/FEDORA4x/RESTful+HTTP+API

We send a Request, we get a Response.

- HTTP Methods F4 RESTful API understands
  - GET, POST, PUT, PATCH, HEAD, OPTIONS, DELETE, MOVE, COPY
- Each Resource Path acts as Endpoint(URL)
  - http://localhost:8080/rest/grandpa/dad/me

How do we interact with our RESTful API

- Using a command line app, like **curl** that talks http.
- Using Fedora 4 provided **HTML interface,** HATEOAS-driven (Hypermedia as the Engine of Application State)

HTTP Request V/S Response

- Both are very similar
- Both have “Headers” and “Body” (even if blank, they exist)
- Headers serve as a structured way of transporting options, content properties, defining client needs and server capabilities.
- Body has the Data. Normally one type/one chunk.
  - There is one exception, “multipart”: Body is split and allows multiple values there.(Web forms use this). (I don't like multipart!)
- Headers are standard, but non-standard ones can exist.
- Responses have a CODE (also a header).
  - We use this code to understand the server response after a request (don’t send a code!)
- There is no Response without a Request (makes sense)

Quick intro to *curl (your bestie)*

———

```
$ curl -XMETHOD -v -i -H “headername: headervalue”  --data-binary “@filename” URL
```

-XMETHOD one of this HTTP methods

- GET : fetch a Resource (default one)
- HEAD: fetch just the headers for a Resource
- POST: create a Resource as child of URL
- PUT: create/replace a Resource at the given URL
- PATCH: Modify resource triples using SPARQL at the given URL
- DELETE: that!
- MOVE: Move a Resource from current Path to another including their subtree
- COPY: makes a copy of a Resource at a new Path

e.g. to use POST: “curl -XPOST” or “curl -X POST”

Quick intro to *curl (your bestie)*

———

```
$ curl -XMETHOD -v -i -H “headername: headervalue”  --data-binary “@filename” URL
```

`-v` verbose, allows us to see what is going on during request/response

- '>' means header data sent
- '<' means header data received
- '*' additional info provided by curl

`-i` (replaces -v) shows headers

Note: Only use one! -v good for debugging, -I enough for your daily needs

Quick intro to *curl (your bestie)*

```
$ curl -XMETHOD -v -i -H “headername:headervalue”  --data-binary “@filename” URL
```

-H HTTP headers. Can be used multiple times, some examples

- “Accept:application/ld+json” **What** you are asking Fedora 4 for, json-ld in the Response body
- “Prefer:return=minimal” you get only your RDF triples, not the Fedora managed ones
- “Host:localhost:8181” used to convince Fedora about his own identity.
- “Slug:someResourceName” suggestion to Fedora 4: use this path for my new child Resource
- “Content-Type:text/turtle”. **What** you are sending to Fedora 4

Note: Headers are MODAL. SoME are used when requesting RESOURCES, oTHERS when SENDING NEW DATA

Also: they are Case Sensitive

Quick intro to *curl (your bestie)*

```
$ curl -XMETHOD -v -i -H “headername: headervalue”  --data-binary “@filename” URL
```

--data-binary: send a file without any parsing as body of the Request

- @filename = where “filename” is the name of a file.
- Just plain: in the same directory your curl is being called
- Allows also full paths @myfolder/otherfolder/myfile.jpeg

Note: makes only sense when sending data to fedora 4

POST, PUT,PATCH Methods

Quick intro to *curl (your bestie)*

———

```
$ curl -XMETHOD -v -i -H “headername: headervalue”  --data-binary “@filename” URL
```

URL: Full http URL (including host, port, base rest and Resource Path)
e.g http://localhost:8080/rest/grandpa/dad/me to work on “/grandpa/dad/me”

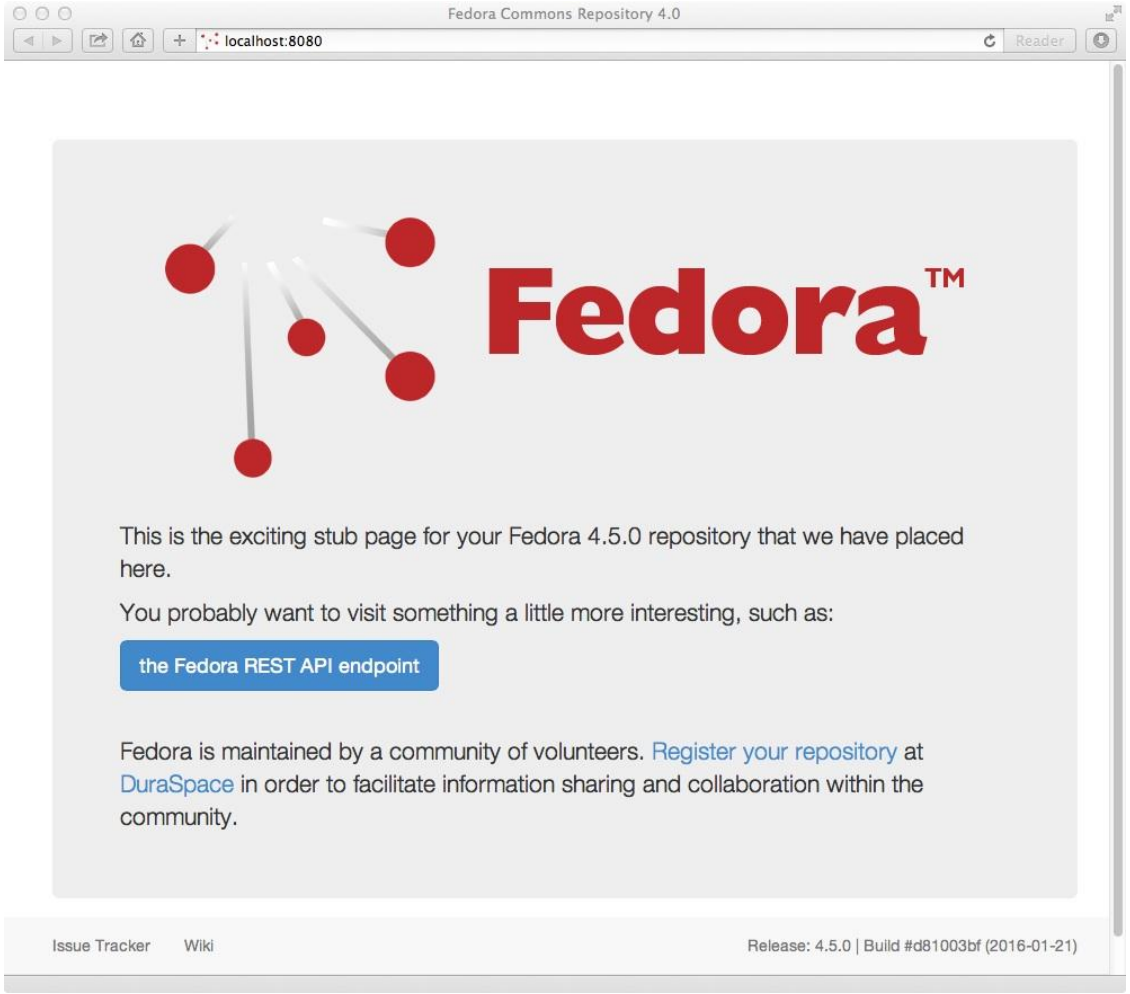
Note: AGAIN! Each resource acts as a rest endpoint

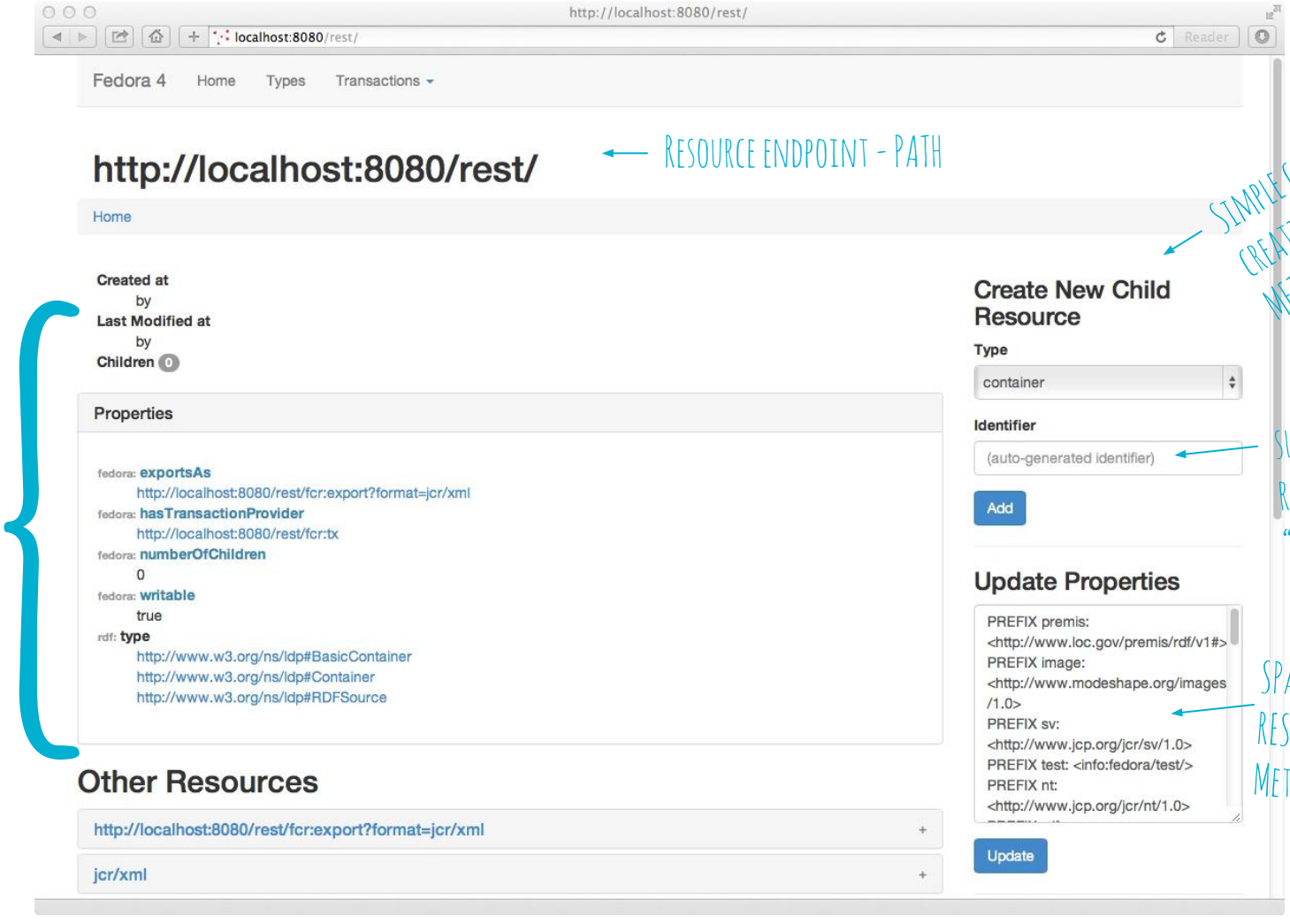
Also, when sending RDF

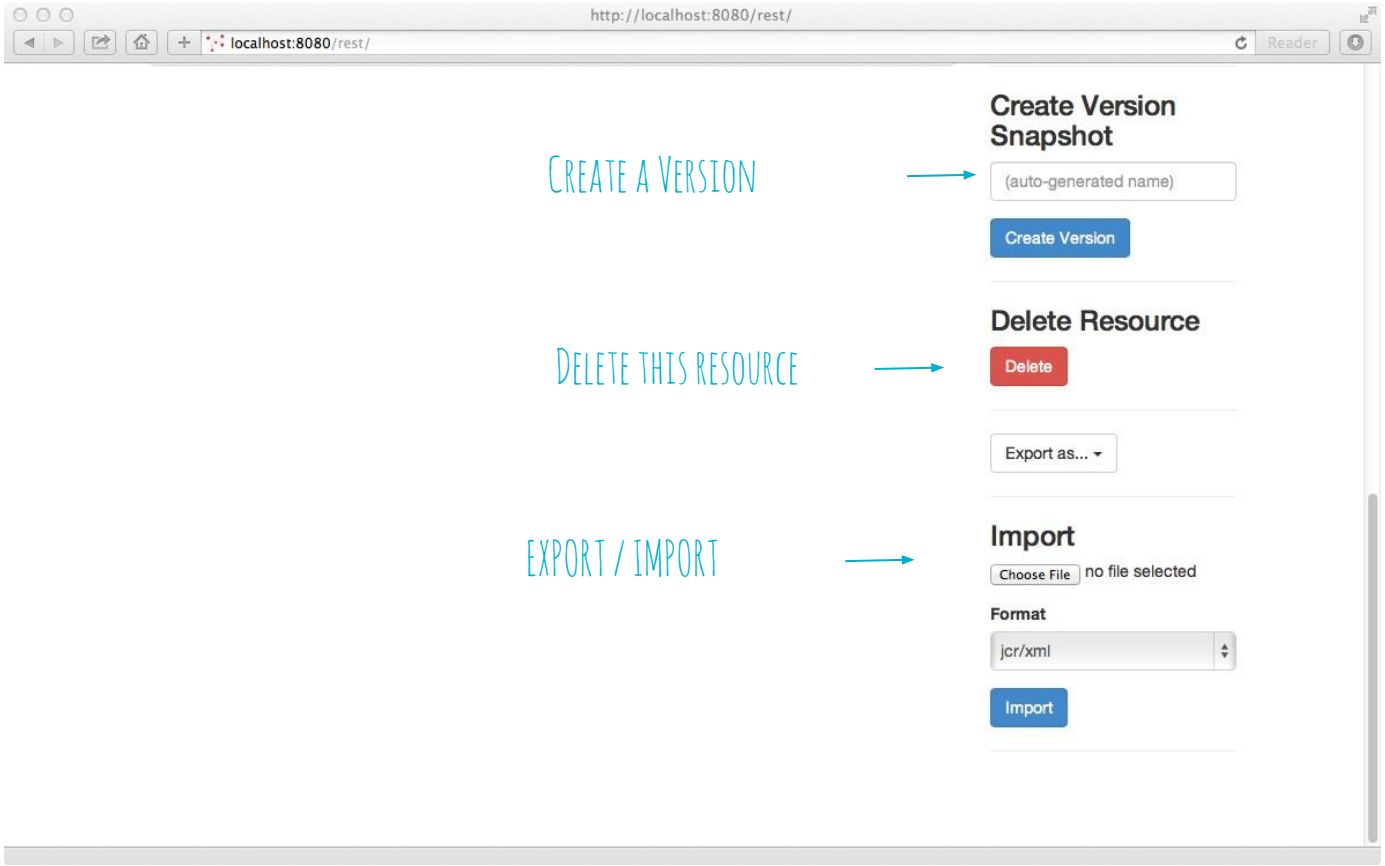
your subject must match the URL or you can use <> to expand to it

Let’s start your F4 Repo people!

(please double click fcrepo-webapp-4.5.0-jetty-console.jar)


Fedora Commons Repository 4.0
localhost:8080
Reader
Fedora™
This is the exciting stub page for your Fedora 4.5.0 repository that we have placed here.
You probably want to visit something a little more interesting, such as:
the Fedora REST API endpoint
Fedora is maintained by a community of volunteers. Register your repository at DuraSpace in order to facilitate information sharing and collaboration within the community.
Issue Tracker
Wiki
Release: 4.5.0 | Build #d81003bf (2016-01-21)


http://localhost:8080/rest/
localhost:8080/rest/
Reader
Fedora 4
Home
Types
Transactions
http://localhost:8080/rest/
Home
Created at
by
Last Modified at
by
Children 0
Properties
fedora: exportsAs
http://localhost:8080/rest/fcr:export?format=jcr/xml
fedora: hasTransactionProvider
http://localhost:8080/rest/fcr:tx
fedora: numberOfChildren
0
fedora: writable
true
rdf: type
http://www.w3.org/ns/ldp#BasicContainer
http://www.w3.org/ns/ldp#Container
http://www.w3.org/ns/ldp#RDFSource
Other Resources
http://localhost:8080/rest/fcr:export?format=jcr/xml
jcr/xml
Create New Child Resource
Type
container
Identifier
(auto-generated identifier)
Add
Update Properties
PREFIX premis:
<http://www.loc.gov/premis/rdf/v1#>
PREFIX image:
<http://www.modeshape.org/images/1.0>
PREFIX sv:
<http://www.jcp.org/jcr/sv/1.0>
PREFIX test: <info:fedora/test/>
PREFIX nt:
<http://www.jcp.org/jcr/nt/1.0>
Update
Resource endpoint - path
Simple child resource creation (like a POST method)
Subpath for your new resource (same as -H "Slug:...")
SPARQL update for current resource (like PATCH method)
Current resource triples



and same web page... further down

We can do the same but using curl!

(please open a terminal)

Fedora 4.x RESTful API example: naked root Resource

```
$ curl -XGET -v http://localhost:8080/rest/
* Hostname was NOT found in DNS cache
*   Trying ::1...
* Connected to localhost (::1) port 8080 (#0)
> GET /rest/ HTTP/1.1
> User-Agent: curl/7.38.0
> Host: localhost:8080
> Accept: */*
>
< HTTP/1.1 200 OK
< Date: Mon, 07 Mar 2016 19:45:10 GMT
< Link: <http://www.w3.org/ns/ldp#Resource>;rel="type"
< Link: <http://www.w3.org/ns/ldp#Container>;rel="type"
< Link: <http://www.w3.org/ns/ldp#BasicContainer>;rel="type"
< Accept-Patch: application/sparql-update
< Accept-Post: text/turtle,text/rdf+n3,text/n3,application/rdf+xml,application/n-triples,multipart/form-data,
application/sparql-update
< Allow: MOVE,COPY,DELETE,POST,HEAD,GET,PUT,PATCH,OPTIONS
< Preference-Applied: return=representation
< Vary: Prefer
< Vary: Accept, Range, Accept-Encoding, Accept-Language
< Content-Type: text/turtle
< Content-Length: 1575
* Server Jetty(9.2.3.v20140905) is not blacklisted
< Server: Jetty(9.2.3.v20140905)
<
```

• • •

Fedora 4.x RESTful API example continued: NAMESPACE PREFIXES

```
…
@prefix premis: <http://www.loc.gov/premis/rdf/v1#> .
@prefix image: <http://www.modeshape.org/images/1.0> .
@prefix sv: <http://www.jcp.org/jcr/sv/1.0> .
@prefix test: <info:fedora/test/> .
@prefix nt: <http://www.jcp.org/jcr/nt/1.0> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xsi: <http://www.w3.org/2001/XMLSchema-instance> .
@prefix mode: <http://www.modeshape.org/1.0> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix fedora: <http://fedora.info/definitions/v4/repository#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix ebucore: <http://www.ebu.ch/metadata/ontologies/ebucore/ebucore#> .
@prefix ldp: <http://www.w3.org/ns/ldp#> .
@prefix xs: <http://www.w3.org/2001/XMLSchema> .
@prefix fedoraconfig: <http://fedora.info/definitions/v4/config#> .
@prefix mix: <http://www.jcp.org/jcr/mix/1.0> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .


<http://localhost:8080/rest/> a ldp:RDFSource , ldp:Container , ldp:BasicContainer ;
      fedora:writable "true"^^<http://www.w3.org/2001/XMLSchema#boolean> ;
      fedora:numberOfChildren "0"^^<http://www.w3.org/2001/XMLSchema#int> ;
      fedora:exportsAs <http://localhost:8080/rest/fcr:export?format=jcr/xml> ;
      fedora:hasTransactionProvider <http://localhost:8080/rest/fcr:tx> .

<http://localhost:8080/rest/fcr:export?format=jcr/xml> dc:format <http://fedora.
info/definitions/v4/repository#jcr/xml> .

<http://fedora.info/definitions/v4/repository#jcr/xml> rdfs:label "jcr/xml"^^<http://www.w3.
org/2001/XMLSchema#string> .
```

NAMESPACE PREFIXES

Fedora 4.x RESTful API example continued: Resource definition and description

```
…
@prefix premis: <http://www.loc.gov/premis/rdf/v1#> .
@prefix image: <http://www.modeshape.org/images/1.0> .
@prefix sv: <http://www.jcp.org/jcr/sv/1.0> .
@prefix test: <info:fedora/test/> .
@prefix nt: <http://www.jcp.org/jcr/nt/1.0> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xsi: <http://www.w3.org/2001/XMLSchema-instance> .
@prefix mode: <http://www.modeshape.org/1.0> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix fedora: <http://fedora.info/definitions/v4/repository#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix ebucore: <http://www.ebu.ch/metadata/ontologies/ebucore/ebucore#> .
@prefix ldp: <http://www.w3.org/ns/ldp#> .
@prefix xs: <http://www.w3.org/2001/XMLSchema> .
@prefix fedoraconfig: <http://fedora.info/definitions/v4/config#> .
@prefix mix: <http://www.jcp.org/jcr/mix/1.0> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .

<http://localhost:8080/rest/> a ldp:RDFSource , ldp:Container , ldp:BasicContainer ;
       fedora:writable "true"^^<http://www.w3.org/2001/XMLSchema#boolean> ;
       fedora:numberOfChildren "0"^^<http://www.w3.org/2001/XMLSchema#int> ;
       fedora:exportsAs <http://localhost:8080/rest/fcr:export?format=jcr/xml> ;
       fedora:hasTransactionProvider <http://localhost:8080/rest/fcr:tx> .

<http://localhost:8080/rest/fcr:export?format=jcr/xml> dc:format <http://fedora.
info/definitions/v4/repository#jcr/xml> .

<http://fedora.info/definitions/v4/repository#jcr/xml> rdfs:label "jcr/xml"^^<http://www.w3.
org/2001/XMLSchema#string> .
```

Our current Resource URI (Subject) and RDF:types

Fedora 4.x RESTful API example continued: Resource properties

```
…
@prefix premis: <http://www.loc.gov/premis/rdf/v1#> .
@prefix image: <http://www.modeshape.org/images/1.0> .
@prefix sv: <http://www.jcp.org/jcr/sv/1.0> .
@prefix test: <info:fedora/test/> .
@prefix nt: <http://www.jcp.org/jcr/nt/1.0> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xsi: <http://www.w3.org/2001/XMLSchema-instance> .
@prefix mode: <http://www.modeshape.org/1.0> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix fedora: <http://fedora.info/definitions/v4/repository#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix ebucore: <http://www.ebu.ch/metadata/ontologies/ebucore/ebucore#> .
@prefix ldp: <http://www.w3.org/ns/ldp#> .
@prefix xs: <http://www.w3.org/2001/XMLSchema> .
@prefix fedoraconfig: <http://fedora.info/definitions/v4/config#> .
@prefix mix: <http://www.jcp.org/jcr/mix/1.0> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .


<http://localhost:8080/rest/> a ldp:RDFSource , ldp:Container , ldp:BasicContainer ;
       fedora:writable "true"^^<http://www.w3.org/2001/XMLSchema#boolean> ;
       fedora:numberOfChildren "0"^^<http://www.w3.org/2001/XMLSchema#int> ;
       fedora:exportsAs <http://localhost:8080/rest/fcr:export?format=jcr/xml> ;
       fedora:hasTransactionProvider <http://localhost:8080/rest/fcr:tx> .

<http://localhost:8080/rest/fcr:export?format=jcr/xml> dc:format <http://fedora.
info/definitions/v4/repository#jcr/xml> .

<http://fedora.info/definitions/v4/repository#jcr/xml> rdfs:label "jcr/xml"^^<http://www.w3.
org/2001/XMLSchema#string> .
```

"0" IS THE VALUE WITH EXPLICIT TYPING TO INT

SERVER MANAGED PROPERTIES (MEANS YOU CAN'T OVERWRITE THEM NOR DELETE THEM)

Some notes about namespace prefixes

Ok, now create some Resource Awesomeness

(please keep your terminal open)
($ cd myassets)

Evil Master Plan

(try to use as many http methods as possible)

1. Create 3 Basic Containers
2. Add a Binary Resource to one with fixity
3. Create a RDF resource inside the other ones (x2)
   a. One will be a “foaf:Person”
   b. The other one just some document
4. We will use foaf ontology to link them
   a. Do some LDP magic by using an indirect container

1. Create 3x basic containers

```
$ curl -XPOST -i -H “Slug:people” http://localhost:8080/rest/
HTTP/1.1 201 Created
Date: Tue, 08 Mar 2016 13:42:44 GMT
ETag: "bd3f76132dc9a2c0c7495d8e63c662843030bf9c"
Last-Modified: Tue, 08 Mar 2016 13:42:44 GMT
Location: http://localhost:8080/rest/people
Content-Type: text/plain
Content-Length: 34
Server: Jetty(9.2.3.v20140905)
$ curl -XPOST -i -H “Slug:somedocs” http://localhost:8080/rest/
HTTP/1.1 201 Created
Date: Tue, 08 Mar 2016 13:44:37 GMT
ETag: "ea0e113fc0a07cb0a442b5667ac138eb2ef7a018"
Last-Modified: Tue, 08 Mar 2016 13:44:37 GMT
Location: http://localhost:8080/rest/somedocs
Content-Type: text/plain
Content-Length: 35
Server: Jetty(9.2.3.v20140905)
$curl -XPOST -i -H "Slug:somepics" http://localhost:8080/rest
HTTP/1.1 201 Created
Date: Tue, 08 Mar 2016 13:46:07 GMT
ETag: "99fa8c2e22be3e1382a4e1462b065a8807ca4698"
Last-Modified: Tue, 08 Mar 2016 13:46:07 GMT
Location: http://localhost:8080/rest/somepics
Content-Type: text/plain
Content-Length: 35
Server: Jetty(9.2.3.v20140905)
```

2. Binary with fixity

```
$ openssl sha1 me.jpg
SHA1(me.jpg)= 0fa789a7dad480c20f10d25d66f38c7d75baa831

$ curl -XPUT -v --data-binary "@me.jpg" -H "Content-Type: image/jpeg" -H "Digest:
sha1=0fa789a7dad480c20f10d25d66f38c7d75baa831" http://localhost:8080/rest/somepics/mypic
 * Hostname was NOT found in DNS cache
*   Trying ::1...
* Connected to localhost (::1) port 8080 (#0)
> PUT /rest/somepics/mypic HTTP/1.1
> User-Agent: curl/7.38.0
> Host: localhost:8080
> Accept: */*
> Content-Type: image/jpeg
> Digest: sha1=0fa789a7dad480c20f10d25d66f38c7d75baa831
> Content-Length: 1393942
> Expect: 100-continue
>
< HTTP/1.1 100 Continue
< HTTP/1.1 201 Created
< Date: Tue, 08 Mar 2016 13:51:28 GMT
< ETag: "b01d58bd892c02fca061391aad26f5dac13309f7"
< Last-Modified: Tue, 08 Mar 2016 13:51:28 GMT
< Link: <http://localhost:8080/rest/somepics/mypic/fcr:metadata>; rel="describedby"
< Location: http://localhost:8080/rest/somepics/mypic
< Content-Type: text/plain
< Content-Length: 41
* Server Jetty(9.2.3.v20140905) is not blacklisted
< Server: Jetty(9.2.3.v20140905)
<
* Connection #0 to host localhost left intact
```

2.b Check the fixity

```
$ curl -XGET http://localhost:8080/rest/somepics/mypic/fcr:fixity
@prefix premis: <http://www.loc.gov/premis/rdf/v1#> .
@prefix image: <http://www.modeshape.org/images/1.0> .
@prefix sv: <http://www.jcp.org/jcr/sv/1.0> .
@prefix test: <info:fedora/test/> .
@prefix nt: <http://www.jcp.org/jcr/nt/1.0> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xsi: <http://www.w3.org/2001/XMLSchema-instance> .
@prefix mode: <http://www.modeshape.org/1.0> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix fedora: <http://fedora.info/definitions/v4/repository#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix ebucore: <http://www.ebu.ch/metadata/ontologies/ebucore/ebucore#> .
@prefix ldp: <http://www.w3.org/ns/ldp#> .
@prefix xs: <http://www.w3.org/2001/XMLSchema> .
@prefix fedoraconfig: <http://fedora.info/definitions/v4/config#> .
@prefix mix: <http://www.jcp.org/jcr/mix/1.0> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .

<http://localhost:8080/rest/somepics/mypic> premis:hasFixity <http://localhost:
8080/rest/somepics/mypic#fixity/1457445199599> .

<http://localhost:8080/rest/somepics/mypic#fixity/1457445199599> a premis:Fixity , premis:EventOutcomeDetail ;
premis:hasEventOutcome "SUCCESS"^^<http://www.w3.org/2001/XMLSchema#string> ;
premis:hasMessageDigest <urn:sha1:0fa789a7dad480c20f10d25d66f38c7d75baa831> ;
premis:hasSize "1393942"^^<http://www.w3.org/2001/XMLSchema#long> .
```

3. Create RDF Resources

```
$ cat adoc.ttl
@prefix nfo: <http://www.semanticdesktop.org/ontologies/2007/03/22/nfo/v1.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
<> dc:title "My First Resource, a Doc" .

$ curl -XPOST -i -H "Slug:firstdoc" -H "Content-Type:text/turtle" --data-binary "@adoc.ttl" http://localhost:8080/rest/somedocs
HTTP/1.1 201 Created
Date: Tue, 08 Mar 2016 13:59:58 GMT
ETag: "d808ab5734971d892d41d9351fb800b2fe74df7e"
Last-Modified: Tue, 08 Mar 2016 13:59:58 GMT
Location: http://localhost:8080/rest/somedocs/firstdoc
Content-Type: text/plain
Content-Length: 44
Server: Jetty(9.2.3.v20140905)

$ cat aguy.ttl
@prefix nfo: <http://www.semanticdesktop.org/ontologies/2007/03/22/nfo/v1.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
<http://localhost:8080/rest/people/me> a foaf:Person;
dc:title "Pino Navarro, Diego" ;
foaf:Name "Diego Pino Navarro" ;
foaf:mbox "dpino@metro.org" .

$ curl -XPUT -i -H "Content-Type:text/turtle" --data-binary "@aguy.ttl" http://localhost:8080/rest/people/me
HTTP/1.1 201 Created
Date: Tue, 08 Mar 2016 14:06:24 GMT
ETag: "f590ef094a77fc6fa9c45f5b7b69f33052eb5668"
Last-Modified: Tue, 08 Mar 2016 14:06:24 GMT
Location: http://localhost:8080/rest/people/me
Content-Type: text/plain
...
```

4. Update Image RDF and add foaf type

```
$ cat mypic.sparql
PREFIX ebucore: <http://www.ebu.ch/metadata/ontologies/ebucore/ebucore#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>

DELETE {<> ebucore:filename "" }
INSERT {<> a foaf:Image;
ebucore:filename "diego.jpeg".
}
WHERE { }
```

```
$ curl -XPATCH -i -H "Content-Type:application/sparql-update" --data-binary “@mypic.sparql” http://localhost:8080/rest/somepics/mypic/fcr:metadata
HTTP/1.1 204 No Content
Date: Tue, 08 Mar 2016 14:22:14 GMT
ETag: "b57784ddacca00aadc175cf55c30ddabd2e918f0"
Last-Modified: Tue, 08 Mar 2016 14:22:14 GMT
Server: Jetty(9.2.3.v20140905)
```

4. Use foaf ontology to link document to person and image to person the LDP way

```
$ curl -XPUT http://localhost:8080/rest/diegosprofile
$ cat indirectcreation.ttl
@prefix ldp: <http://www.w3.org/ns/ldp#> .
@prefix nfo: <http://www.semanticdesktop.org/ontologies/2007/03/22/nfo/v1.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
<> a ldp:IndirectContainer;
ldp:membershipResource </rest/people/me>;
ldp:hasMemberRelation foaf:made;
ldp:insertedContentRelation foaf:publications.

$ curl -XPOST -i -H "Content-Type:text/turtle" -H "Slug:creations" --data-binary "@indirectcreation.ttl"
http://localhost:8080/rest/diegosprofile
HTTP/1.1 201 Created
Date: Tue, 08 Mar 2016 14:46:22 GMT
ETag: "46db4df6366108c20a6d80d5367adc24c7517dde"
Last-Modified: Tue, 08 Mar 2016 14:46:22 GMT
Location: http://localhost:8080/rest/diegosprofile/creations
Content-Type: text/plain
Content-Length: 50
Server: Jetty(9.2.3.v20140905)

$ curl -XPOST -i -H "Slug:hisfirstdoc" -H "Content-Type:text/turtle" --data-binary "@linkmetodoc.ttl" http:
//localhost:8080/rest/diegosprofile/creations

HTTP/1.1 201 Created
Date: Tue, 08 Mar 2016 14:55:33 GMT
ETag: "35435335434cbda55bc7e3ff8c75b9198405b6b0"
Last-Modified: Tue, 08 Mar 2016 14:55:33 GMT
Location: http://localhost:8080/rest/diegosprofile/creations/hisfirstdoc
Content-Type: text/plain
Content-Length: 62
Server: Jetty(9.2.3.v20140905)
```

Now do the same for picture (homework!)

Things we have learned

- Fedora 4 RESTful HTTP API is awesome
- Multiple ways of doing manipulations on Resources
- Resource URLs are REST endpoints
- Headers give us all needed info
- We need to learn RDF!
  - Namespace prefixes
  - triples
  - much more

Still, there is nothing to fear!

Next Session:
Fedora 4: Claw! How this marvelous machinery works