

# RESTful HTTP API

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## Overview

### Introduction

The Fedora 4 HTTP API is generally a RESTful API. HTTP methods like GET, PUT, POST and DELETE are implemented on most resource paths. The API also relies heavily on content negotiation to deliver context-appropriate responses, and a HATEOAS-driven text/html response (providing a decent GUI experience on top of the repository). The Fedora 4 RDF-based responses may be serialized as:

- [application/ld+json](#)
- [application/n-triples](#)
- [application/rdf+xml](#)
- [text/n3](#) (or [text/rdf+n3](#))
- [text/plain](#)
- [text/turtle](#) (or [application/x-turtle](#))

The text/html response also includes embedded RDFa markup.

Fedora 4 implements the [Linked Data Platform 1.0 Architecture](#), which:

[...] describes the use of HTTP for accessing, updating, creating and deleting resources from servers that expose their resources as Linked Data. It provides clarifications and extensions of the rules of Linked Data [LINKED-DATA]:

1. Use URIs as names for things
2. Use HTTP URIs so that people can look up those names
3. When someone looks up a URI, provide useful information, using the standards (RDF\*, SPARQL)
4. Include links to other URIs, so that they can discover more things

## Endpoints

### Resources

Repository objects can be loosely divided into two classes of resources:

- Containers ("fedora:Container"), containing RDF properties and 0 or more child resources
- Binaries, containing any binary payload (roughly corresponding to Fedora 3 datastreams)

### Containers

Request URI: **/path/to/some/resource**

Methods: GET, POST, PUT, PATCH, HEAD, OPTIONS, DELETE, MOVE, COPY

GET

**Retrieve the content of the resource**

**Request Headers:**

RANGE

Byte range of content to retrieve, of the form: "Range: bytes=500-999"

ACCEPT

RDF sources support content negotiation with these formats: application/ld+json, application/n-triples, application/rdf+xml, application/x-turtle, application/xhtml+xml, application/xml, text/html, text/n3, text/plain, text/rdf+n3, text/turtle

IF-NONE-MATCH

IF-MODIFIED-SINCE

PREFER

return=minimal

return=representation  
return=representation; include=" **URIs** "  
return=representation; omit=" **URIs** "

where minimal indicates that only triples directly related to a resource should be returned, and representation indicates that links to other resources and their properties should also be included. **URIs** is a space-separated list of LDP defined preferences, and also:

URI	Description
http://fedora.info/definitions/v4/repository#EmbedResources	Embed "child" resources in the returned representation
http://fedora.info/definitions/v4/repository#InboundReferences	Include assertions from other Fedora resources to this node (excluded from representation by default)
http://fedora.info/definitions/v4/repository#ServerManaged	Embed server managed properties in the representation (enabled by default)

**Example (1): Turtle**

```
curl -H "Accept: text/turtle" "http://localhost:8080/rest/path/to/resource"
```

**Response:**

Status: 200 OK

Headers:

ETag: "0ed38fe211c2663ace5322e970e7b7d606196e00"  
Last-Modified: Mon, 19 May 2014 19:44:59 GMT  
Preference-Applied: return=representation; include="http://www.w3.org/ns/ldp#PreferMembership http://www.w3.org/ns/ldp#PreferContainment"  
Vary: Prefer  
Accept-Patch: application/sparql-update  
Allow: MOVE,COPY,DELETE,POST,HEAD,GET,PUT,PATCH,OPTIONS  
Accept-Post: text/turtle,text/rdf+n3,application/n3,text/n3,application/rdf+xml,application/n-triples,multipart/form-data,application/sparql-update  
Link: <http://www.w3.org/ns/ldp#Resource>;rel="type"  
Link: <http://www.w3.org/ns/ldp#DirectContainer>;rel="type"  
Content-Type: text/turtle

Body:

```
<http://localhost:8080/rest/path/to/resource> <http://fedora.info/definitions/v4/rest-api#hasAccessRoles>
<http://localhost:8080/rest/path/to/resource/fcr:accessroles> ;
  <http://fedora.info/definitions/v4/rest-api#exportsAs> <http://localhost:8080/rest/path/to/resource/fcr:
export?format=jcr/xml> ;
  <http://fedora.info/definitions/v4/repository#hasParent> <http://localhost:8080/rest/path/to> ;
  a <http://www.w3.org/ns/ldp#Container> , <http://www.w3.org/ns/ldp#DirectContainer> ;
  <http://www.w3.org/ns/ldp#membershipResource> <http://localhost:8080/rest/path/to/resource> ;
  <http://www.w3.org/ns/ldp#hasMemberRelation> <http://fedora.info/definitions/v4/repository#hasChild> ;
  a <http://www.jcp.org/jcr/nt/1.0folder> , <http://www.jcp.org/jcr/nt/1.0hierarchyNode> , <http://www.jcp.org
/jcr/nt/1.0base> , <http://www.jcp.org/jcr/mix/1.0created> , <http://fedora.info/definitions/v4/rest-
api#resource> , <http://fedora.info/definitions/v4/rest-api#object> , <http://fedora.info/definitions/v4/rest-
api#relations> , <http://www.jcp.org/jcr/mix/1.0created> , <http://www.jcp.org/jcr/mix/1.0lastModified> ,
<http://www.jcp.org/jcr/mix/1.0referenceable> , <http://purl.org/dc/elements/1.1/describable> , <http://fedora.
info/definitions/v4/rest-api#resource> ;
  <http://fedora.info/definitions/v4/repository#primaryType> "nt:folder"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#created> "2014-05-19T19:44:59.647Z"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#lastModified> "2014-05-19T19:44:59.645Z"^^<http://www.w3.org
/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#mixinTypes> "fedora:resource"^^<http://www.w3.org/2001
/XMLSchema#string> , "fedora:object"^^<http://www.w3.org/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#lastModifiedBy> "bypassAdmin"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#uuid> "2b655d37-e88a-44c5-86c1-3b3935cdea49"^^<http://www.w3.
org/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#createdBy> "bypassAdmin"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  a <http://www.jcp.org/jcr/nt/1.0folder> , <http://www.jcp.org/jcr/nt/1.0hierarchyNode> , <http://www.jcp.org
/jcr/nt/1.0base> , <http://www.jcp.org/jcr/mix/1.0created> , <http://fedora.info/definitions/v4/rest-
api#resource> , <http://fedora.info/definitions/v4/rest-api#object> , <http://fedora.info/definitions/v4/rest-
api#relations> , <http://www.jcp.org/jcr/mix/1.0created> , <http://www.jcp.org/jcr/mix/1.0lastModified> ,
<http://www.jcp.org/jcr/mix/1.0referenceable> , <http://purl.org/dc/elements/1.1/describable> , <http://fedora.
info/definitions/v4/rest-api#resource> .
```

## Example (2): RDF/XML

```
curl -H "Accept: application/rdf+xml" "http://localhost:8080/rest/path/to/resource"
```

## Response:

Status: 200 OK

Headers:

ETag: "0ed38fe211c2663ace5322e970e7b7d606196e00"  
Last-Modified: Mon, 19 May 2014 19:44:59 GMT  
Preference-Applied: return=representation; include="http://www.w3.org/ns/ldp#PreferMembership http://www.w3.org

```

/ns/ldp#PreferContainment"
Vary: Prefer
Accept-Patch: application/sparql-update
Allow: MOVE,COPY,DELETE,POST,HEAD,GET,PUT,PATCH,OPTIONS
Accept-Post: text/turtle,text/rdf+n3,application/n3,text/n3,application/rdf+xml,application/n-triples,multipart
/form-data,application/sparql-update
Link: <http://www.w3.org/ns/ldp#Resource>;rel="type"
Link: <http://www.w3.org/ns/ldp#DirectContainer>;rel="type"
Content-Type: application/rdf+xml

Body:

<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#">

<rdf:Description rdf:about="http://localhost:8080/rest/path/to/resource">
  <hasAccessRoles xmlns="http://fedora.info/definitions/v4/rest-api#" rdf:resource="http://localhost:8080/rest
/path/to/resource/fcr:accessroles"/>
  <exportsAs xmlns="http://fedora.info/definitions/v4/rest-api#" rdf:resource="http://localhost:8080/rest/path
/to/resource/fcr:export?format=jcr/xml"/>
  <hasParent xmlns="http://fedora.info/definitions/v4/repository#" rdf:resource="http://localhost:8080/rest
/path/to"/>
  <rdf:type rdf:resource="http://www.w3.org/ns/ldp#Container"/>
  <rdf:type rdf:resource="http://www.w3.org/ns/ldp#DirectContainer"/>
  <membershipResource xmlns="http://www.w3.org/ns/ldp#" rdf:resource="http://localhost:8080/rest/path/to
/resource"/>
  <hasMemberRelation xmlns="http://www.w3.org/ns/ldp#" rdf:resource="http://fedora.info/definitions/v4
/repository#hasChild"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/nt/1.0folder"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/nt/1.0hierarchyNode"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/nt/1.0base"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/mix/1.0created"/>
  <rdf:type rdf:resource="http://fedora.info/definitions/v4/rest-api#resource"/>
  <rdf:type rdf:resource="http://fedora.info/definitions/v4/rest-api#object"/>
  <rdf:type rdf:resource="http://fedora.info/definitions/v4/rest-api#relations"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/mix/1.0created"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/mix/1.0lastModified"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/mix/1.0referenceable"/>
  <rdf:type rdf:resource="http://purl.org/dc/elements/1.1/describable"/>
  <rdf:type rdf:resource="http://fedora.info/definitions/v4/rest-api#resource"/>
  <primaryType xmlns="http://fedora.info/definitions/v4/repository#" rdf:datatype="http://www.w3.org/2001
/XMLSchema#string">nt:folder</primaryType>
  <created xmlns="http://fedora.info/definitions/v4/repository#" rdf:datatype="http://www.w3.org/2001
/XMLSchema#string">2014-05-19T19:44:59.647Z</created>
  <lastModified xmlns="http://fedora.info/definitions/v4/repository#" rdf:datatype="http://www.w3.org/2001
/XMLSchema#string">2014-05-19T19:44:59.645Z</lastModified>
  <mixinTypes xmlns="http://fedora.info/definitions/v4/repository#" rdf:datatype="http://www.w3.org/2001
/XMLSchema#string">fedora:resource</mixinTypes>
  <mixinTypes xmlns="http://fedora.info/definitions/v4/repository#" rdf:datatype="http://www.w3.org/2001
/XMLSchema#string">fedora:object</mixinTypes>
  <lastModifiedBy xmlns="http://fedora.info/definitions/v4/repository#" rdf:datatype="http://www.w3.org/2001
/XMLSchema#string">bypassAdmin</lastModifiedBy>
  <uuid xmlns="http://fedora.info/definitions/v4/repository#" rdf:datatype="http://www.w3.org/2001
/XMLSchema#string">2b655d37-e88a-44c5-86c1-3b3935cdea49</uuid>
  <createdBy xmlns="http://fedora.info/definitions/v4/repository#" rdf:datatype="http://www.w3.org/2001
/XMLSchema#string">bypassAdmin</createdBy>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/nt/1.0folder"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/nt/1.0hierarchyNode"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/nt/1.0base"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/mix/1.0created"/>
  <rdf:type rdf:resource="http://fedora.info/definitions/v4/rest-api#resource"/>
  <rdf:type rdf:resource="http://fedora.info/definitions/v4/rest-api#object"/>
  <rdf:type rdf:resource="http://fedora.info/definitions/v4/rest-api#relations"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/mix/1.0created"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/mix/1.0lastModified"/>
  <rdf:type rdf:resource="http://www.jcp.org/jcr/mix/1.0referenceable"/>
  <rdf:type rdf:resource="http://purl.org/dc/elements/1.1/describable"/>
  <rdf:type rdf:resource="http://fedora.info/definitions/v4/rest-api#resource"/>
</rdf:Description>

```

```
</rdf:RDF>
```

#### Example (3): Prefer headers

```
curl -H "Prefer: return=representation; include=\"http://fedora.info/definitions/v4/repository#InboundReferences\"; omit=\"http://www.w3.org/ns/ldp#PreferMembership http://www.w3.org/ns/ldp#PreferContainment\"" http://localhost:8080/rest/parent
```

#### Response:

Status: 200 OK

Headers:

ETag: "25fb5cb1d24983d57b10cb0b4656de113d5b8257"  
Last-Modified: Mon, 19 May 2014 19:24:40 GMT  
Preference-Applied: return=representation; include="http://fedora.info/definitions/v4/repository#InboundReferences"  
Vary: Prefer  
Accept-Patch: application/sparql-update  
Allow: MOVE,COPY,DELETE,POST,HEAD,GET,PUT,PATCH,OPTIONS  
Accept-Post: text/turtle,text/rdf+n3,application/n3,text/n3,application/rdf+xml,application/n-triples,multipart/form-data,application/sparql-update  
Link: <http://www.w3.org/ns/ldp#Resource>;rel="type"  
Link: <http://www.w3.org/ns/ldp#DirectContainer>;rel="type"  
Content-Type: text/turtle

Body:

```
<http://localhost:8080/rest/parent> <http://fedora.info/definitions/v4/rest-api#hasAccessRoles>
<http://localhost:8080/rest/parent/fcr:accessroles> ;
  <http://fedora.info/definitions/v4/rest-api#exportsAs> <http://localhost:8080/rest/parent/fcr:export?
format=jcr/xml> ;
  <http://fedora.info/definitions/v4/repository#hasParent> <http://localhost:8080/rest/> ;
  a <http://www.w3.org/ns/ldp#Container> , <http://www.w3.org/ns/ldp#DirectContainer> ;
  <http://www.w3.org/ns/ldp#membershipResource> <http://localhost:8080/rest/parent> ;
  <http://www.w3.org/ns/ldp#hasMemberRelation> <http://fedora.info/definitions/v4/repository#hasChild> ;
  a <http://www.jcp.org/jcr/nt/1.0folder> , <http://www.jcp.org/jcr/nt/1.0hierarchyNode> , <http://www.jcp.org
/jcr/nt/1.0base> , <http://www.jcp.org/jcr/mix/1.0created> , <http://fedora.info/definitions/v4/rest-
api#resource> , <http://fedora.info/definitions/v4/rest-api#object> , <http://fedora.info/definitions/v4/rest-
api#relations> , <http://www.jcp.org/jcr/mix/1.0created> , <http://www.jcp.org/jcr/mix/1.0lastModified> ,
<http://www.jcp.org/jcr/mix/1.0referenceable> , <http://purl.org/dc/elements/1.1/describable> , <http://fedora.
info/definitions/v4/rest-api#resource> .

<http://localhost:8080/rest/collection> <http://fedora.info/definitions/v4/rels-ext#hasCollectionMember>
<http://localhost:8080/rest/parent> .

<http://localhost:8080/rest/parent> <http://fedora.info/definitions/v4/repository#primaryType> "nt:folder"
^^<http://www.w3.org/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#created> "2014-05-19T19:21:37.182Z"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#lastModified> "2014-05-19T19:24:40.662Z"^^<http://www.w3.org
/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#mixinTypes> "fedora:resource"^^<http://www.w3.org/2001
/XMLSchema#string> , "fedora:object"^^<http://www.w3.org/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#lastModifiedBy> "bypassAdmin"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#uuid> "c21706cd-ccl1a-4d77-b637-d940e0dc7888"^^<http://www.w3.
org/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#createdBy> "bypassAdmin"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  a <http://www.jcp.org/jcr/nt/1.0folder> , <http://www.jcp.org/jcr/nt/1.0hierarchyNode> , <http://www.jcp.org
/jcr/nt/1.0base> , <http://www.jcp.org/jcr/mix/1.0created> , <http://fedora.info/definitions/v4/rest-
api#resource> , <http://fedora.info/definitions/v4/rest-api#object> , <http://fedora.info/definitions/v4/rest-
api#relations> , <http://www.jcp.org/jcr/mix/1.0created> , <http://www.jcp.org/jcr/mix/1.0lastModified> ,
<http://www.jcp.org/jcr/mix/1.0referenceable> , <http://purl.org/dc/elements/1.1/describable> , <http://fedora.
info/definitions/v4/rest-api#resource> .
```

#### Example (4): Non-RDF Source

```
curl "http://localhost:8080/rest/path/to/binary/resource"
```

#### Response:

```
Status: 200 OK
```

Headers:

```
ETag: "0ed38fe211c2663ace5322e970e7b7d606196e00"
```

```
Last-Modified: Mon, 19 May 2014 19:44:59 GMT
```

```
Vary: Prefer
```

```
Link: <http://localhost:8080/rest/path/to/binary/resource/fcr:metadata">;rel="describedby"
```

```
Content-Type: image/jpg
```

Body:

```
{binary content}
```

Status:

200

OK

304

Not Modified

404

Not Found

POST

## Create new resources within a LDP container

Query Parameters:

CHECKSUM

(Optional) Provide a SHA-1 checksum which will be checked against the uploaded content to ensure error-free transfer.

Request Headers:

CONTENT-DISPOSITION

(Optional) The filename provided in the content disposition header will be stored in a [premis:hasOriginalName](#) property.

CONTENT-TYPE

(Optional) MIME type of the uploaded binary or RDF content.

CONTENT-LOCATION

(Optional) A URI to a resource to use instead of the request body

If the MIME type corresponds to a supported RDF format or SPARQL-Update, the uploaded content will be parsed as RDF and used to populate the child node properties. RDF will be interpreted using the current resource as the base URI (e.g. `<>` will be expanded to the current URI). Namespaces must be declared in full.

For other MIME types, the uploaded content will be used to create a binary resource.

SLUG

(Optional) A suggested name for the new child resource, which the repository may ignore.

The slug you provide does not guarantee the location of the created resource. Clients must check the Location header for the path to the created resource.

### Example (1): Create a new child node

```
curl -X POST "http://localhost:8080/rest/"
```

Response:

```
Status: 201 Created
```

Headers:

```
ETag: "3ac31b09de1536a332d9c6ee8453669947721840"
```

```
Location: http://localhost:8080/rest/some/path/to/a/new/resource
```

Body:

```
http://localhost:8080/rest/some/path/to/a/new/resource
```

#### Example (2): Create a new child binary resource with empty content

```
curl -i -X POST -H "Content-Type:text/plain" "http://localhost:8080/rest"
```

#### Response:

```
Status: 201 Created
ETag: "487f188240d2be3ae32d49958c0eeeea18224be0a"
Last-Modified: Thu, 29 May 2014 15:46:13 GMT
Link: <http://localhost:8080/rest/b8/fc/32/be/b8fc32be-34be-428e-bf7c-81be97e5f2e3/fcr:metadata>; rel="describedby"; anchor="http://localhost:8080/rest/b8/fc/32/be/b8fc32be-34be-428e-bf7c-81be97e5f2e3"
Location: http://localhost:8080/rest/b8/fc/32/be/b8fc32be-34be-428e-bf7c-81be97e5f2e3
Content-Type: text/plain
Transfer-Encoding: chunked

Body:
http://localhost:8080/rest/b8/fc/32/be/b8fc32be-34be-428e-bf7c-81be97e5f2e3
```

#### Example (3): Create a new container with RDF properties

```
curl -i -X POST -H "Content-Type: text/turtle" --data-binary "@body.rdf" "http://localhost:8080/rest/"

Request Body:
PREFIX dc: <http://purl.org/dc/elements/1.1/>
<> dc:title "some-resource-title"
```

#### Response:

```
Status: 201 Created

Headers:
ETag: "a66937ca13bc29c63f7b1a55d447a76cd8f1d573"
Location: http://localhost:8080/rest/new/node/uri

Body:
http://localhost:8080/rest/new/node/uri
```

#### Example (4): Uploaded file with checksum

```
curl -i -X POST --data-binary "@picture.jpg" "http://localhost:8080/rest/parent/container?checksum=urn:sha1:cb1a576f22e8e3e110611b616e3e2f5ce9bdb941"
```

#### Response:

```
Status: 201 Created

Headers:
ETag: "fe4e2bf389fe05dab6390564e40012d8d36eca19"
Location: http://localhost:8080/rest/parent/object/auto/generated/ds/id

Body:
http://localhost:8080/rest/parent/object/auto/generated/ds/id
```

#### Example (5): Uploaded file with checksum mismatch



```
curl -X POST --data-binary "@picture.jpg" "http://localhost:8080/rest/parent/object?checksum=urn:sha1:checksumdoesntmatch"
```

#### Response:

Status: 409 Conflict

Body:

Checksum Mismatch of cb1a576f22e8e3e110611b616e3e2f5ce9bdb941 and urn:sha1:checksumdoesntmatch

#### Example (6): Uploaded file with filename

```
curl -i -X POST --data-binary "@picture.jpg" -H "Content-Disposition: attachment; filename=\"picture.jpg\"" "http://localhost:8080/rest/parent/container"
```

#### Response:

Status: 201 Created

Headers:

ETag: "fe4e2bf389fe05dab6390564e40012d8d36eca19"

Location: http://localhost:8080/rest/parent/object/auto/generated/ds/id

Body:

http://localhost:8080/rest/parent/object/auto/generated/ds/id

#### Status:

201

Created

404

Not Found (resource does not exist – use PUT to specify a new resource name)

409

Conflict (checksum mismatch)

PUT

#### Create a resource with a specified path, or replace the triples associated with a resource with the triples provided in the request body.

Some resource properties are repository managed and cannot be removed or modified. Any attempt to do so may result in a 4xx error. RDF will be interpreted using the current resource as the base URI (e.g. <> will be expanded to the current URI)

#### Request Headers:

CONTENT-TYPE

text/turtle, text/rdf+n3, application/n3, text/n3, application/rdf+xml, application/n-triples, text/html, text/plain, application/ld+json, message/external-body

IF-MATCH

IF-UNMODIFIED-SINCE

CONTENT-LOCATION

(Optional) A URI to a resource to use instead of the request body

#### Query Parameters:

CHECKSUM

Checksum of the binary content (in the form urn:sha1:<sha1-hash>). If the checksum doesn't match, a 409 Conflict will be returned.

## Example (1): Updating properties with RDF content

### 1.1 Perform a GET to the current container's RDF content

```
curl -X GET -H "Accept: text/turtle" "http://localhost:8080/rest/node/to/update"

Body:
@prefix dc: <http://purl.org/dc/elements/1.1/>
...
@prefix ldp: <http://www.w3.org/ns/ldp#>
<http://localhost:8080/rest/node/to/update> a ldp:RDFSSource , ldp:Container , <http://www.jcp.org/jcr/nt/1.0folder> , <http://www.jcp.org/jcr/nt/1.0hierarchyNode> , <http://www.jcp.org/jcr/nt/1.0base> , <http://www.jcp.org/jcr/mix/1.0created> , fedora:Container , fedora:Resource , fedora:Resource , <http://www.jcp.org/jcr/mix/1.0created> , <http://www.jcp.org/jcr/mix/1.0lastModified> , <http://www.jcp.org/jcr/mix/1.0referenceable> ;
    fedora:primaryType "nt:folder"^^<http://www.w3.org/2001/XMLSchema#string> ;
    fedora:created "2014-11-20T16:23:31.684Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
    fedora:lastModified "2014-11-20T16:23:31.684Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
    fedora:mixinTypes "fedora:Container"^^<http://www.w3.org/2001/XMLSchema#string> , "fedora:Resource"
^^<http://www.w3.org/2001/XMLSchema#string> ;
...
<http://fedora.info/definitions/v4/repository#jcr/xml> rdfs:label "jcr/xml"^^<http://www.w3.org/2001/XMLSchema#string> .
<http://54.173.23.104:8080/fcrepo4/rest/test1/fcr:export?format=jcr/xml> dc:format <http://fedora.info/definitions/v4/repository#jcr/xml> .
```

### 1.2 Add your updates (e.g. <> dc:title "some-resource-title" .) under the full result of the GET response in 1.1

```
curl -X PUT -H "Content-Type: text/turtle" --data-binary "@new-triples.rdf" "http://localhost:8080/rest/node/to/update"

Request Body:

@prefix dc: <http://purl.org/dc/elements/1.1/>
...
@prefix ldp: <http://www.w3.org/ns/ldp#>
<http://localhost:8080/rest/node/to/update> a ldp:RDFSSource , ldp:Container , <http://www.jcp.org/jcr/nt/1.0folder> , <http://www.jcp.org/jcr/nt/1.0hierarchyNode> , <http://www.jcp.org/jcr/nt/1.0base> , <http://www.jcp.org/jcr/mix/1.0created> , fcrepo:Container , fcrepo:Resource , fcrepo:Resource , <http://www.jcp.org/jcr/mix/1.0created> , <http://www.jcp.org/jcr/mix/1.0lastModified> , <http://www.jcp.org/jcr/mix/1.0referenceable> ;
    fcrepo:primaryType "nt:folder"^^<http://www.w3.org/2001/XMLSchema#string> ;
    fcrepo:created "2014-11-20T16:23:31.684Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
    fcrepo:lastModified "2014-11-20T16:23:31.684Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
    fcrepo:mixinTypes "fedora:Container"^^<http://www.w3.org/2001/XMLSchema#string> , "fedora:Resource"
^^<http://www.w3.org/2001/XMLSchema#string> ;
...
<http://fedora.info/definitions/v4/repository#jcr/xml> rdfs:label "jcr/xml"^^<http://www.w3.org/2001/XMLSchema#string> .
<http://54.173.23.104:8080/fcrepo4/rest/test1/fcr:export?format=jcr/xml> dc:format <http://fedora.info/definitions/v4/repository#jcr/xml> .
<> dc:title "some-resource-title" .
```

#### Response:

```
Status: 204 No Content
```

## Example (2): Creating a new resource at a specified path

```
curl -i -X PUT "http://localhost:8080/rest/node/to/create"
```

#### Response:

Status: 201 Created

Response Headers:

ETag: "ef214795c3b9109389ffa542a6c081976ele9587"  
Last-Modified: Mon, 19 May 2014 20:52:57 GMT  
Location: http://localhost:8080/rest/node/to/create

Body:

http://localhost:8080/rest/node/to/create

### Example (3): Creating new binary resource at a specified path

```
curl -X PUT --upload-file image.jpg -H"Content-Type: image/jpeg" "http://localhost:8080/rest/new/image"
```

#### Response:

Status: 201 Created

Headers:

ETag: "urn:sha1:ea3d29b28522724a82de042a7b7a4e79a1653435"  
Last-Modified: Mon, 19 May 2014 20:55:31 GMT  
Location: http://localhost:8080/rest/new/image

Body:

http://localhost:8080/rest/new/image

Note that once a resource is created as an RDF or non-RDF source, it must remain an RDF or non-RDF source. In order to change the type of resource, you must DELETE and then re-create the resource.

#### Status:

204

No Content

412

Precondition Failed

### Example (4): Creating a new binary resource at a specified path redirecting to external content

```
curl -X PUT -H"Content-Type: message/external-body; access-type=URL; URL=\"http://www.example.com/file\"" "http://localhost:8080/rest/node/to/create"
```

#### Response:

Status: 201 Created

Headers:

ETag: "ef214795c3b9109389ffa542a6c081976ele9587"  
Last-Modified: Mon, 19 May 2014 20:52:57 GMT  
Link: <http://localhost:8080/rest/node/to/create/fcr:metadata>; rel="describedby"  
Location: http://localhost:8080/rest/node/to/create

Body:

http://localhost:8080/rest/node/to/create

**PATCH**

## Modify the triples associated with a resource with SPARQL-Update

### Request Headers:

IF-MATCH

IF-UNMODIFIED-SINCE

**CONTENT-LOCATION** (Optional) A URI to a resource to use instead of the request body

### Example (1):

```
curl -X PATCH -H "Content-Type: application/sparql-update" --data-binary "@body.rdf" "http://localhost:8080/rest/node/to/update"
```

Request Body:

```
PREFIX dc: <http://purl.org/dc/elements/1.1/>
INSERT {
  <> dc:title "some-resource-title" .
}
WHERE { }
```

### Response:

Status: 204 No Content

### Example (2): Updating multiple containers with a single SPARQL Update

```
curl -X PATCH -H "Content-Type: application/sparql-update" --data-binary "@body.rdf" "http://localhost:8080/rest/node/to/update"
```

Request Body:

```
PREFIX dc: <http://purl.org/dc/elements/1.1/>
INSERT {
  <> dc:title "some-resource-title" .
  <http://localhost:8080/rest/another/node/to/update> dc:title "some-other-title" .
}
WHERE { }
```

### Response:

Status: 204 No Content

### Status:

204

No Content

412

Precondition Failed

**DELETE**

## Delete a resource

### Example:

```
curl -X DELETE "http://localhost:8080/rest/resource/to/delete"
```

### Response:

```
Status: 204 No Content
```

Delete requests create "tombstone" resources which need to be removed before you can reuse a URI.

#### Example:

```
curl -X GET "http://localhost:8080/rest/some/deleted/resource"
```

```
Status: 410 Gone
Link: <http://localhost:8080/rest/some/deleted/resource/fcr:tombstone>; rel="hasTombstone"

Body:
Discovered tombstone resource at /some/deleted/resource {jcr:primaryType=fedora:Tombstone, jcr:created=2014-11-20T16:04:21.131Z, jcr:createdBy=bypassAdmin}
```

```
curl -X DELETE "http://localhost:8080/rest/some/deleted/resource/fcr:tombstone"
```

```
Status: 204 No Content
```

Create a new node and reuse the deleted URL

```
curl -X PUT "http://localhost:8080/rest/some/deleted/resource"
```

```
Status: 201 Created
```

#### Status:

**204** No Content

**404** Not Found

**HEAD**

#### Retrieve the resource headers

#### Example:

```
curl -i -X HEAD "http://localhost:8080/rest/resource/to/head"
```

#### Response:

```
Status: 200 OK
ETag: "bddd92e395800153a686773f773bcad80a51f47b"
Last-Modified: Wed, 28 May 2014 18:31:36 GMT
Last-Modified: Thu, 20 Nov 2014 15:44:32 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
```

#### Status:

200

OK

404

Not Found

#### OPTIONS

**Outputs information about the supported HTTP methods, etc.**

#### Example:

```
curl -i -X OPTIONS "http://localhost:8080/rest/node/to/options"
```

#### Response:

```
Status: 200 OK
Accept-Patch: application/sparql-update
Allow: MOVE,COPY,DELETE,POST,HEAD,GET,PUT,PATCH,OPTIONS
Accept-Post: text/turtle,text/rdf+n3,application/n3,text/n3,application/rdf+xml,application/n-triples,multipart
/form-data,application/sparql-update
```

#### Status:

200

OK

#### MOVE

**Move a resource (and its subtree) to a new location**

Note: A federated resource can be moved within the federation, but not from the federation to the internal repository (or vice versa)

#### Example (1):

```
curl -X MOVE -H "Destination: http://localhost:8080/rest/new/path/to/resource" "http://localhost:8080/rest/path/to/resource"
```

#### Response:

```
Status: 201 Created

Headers:
Location: http://localhost:8080/rest/new/path/to/resource
```

### Example (2):

```
curl -X MOVE "http://localhost:8080/rest/path/to/resource"
```

### Response:

Status: 502 Bad Gateway

### Status:

201

Created

409

Source path doesn't exist

412

Destination path already exists

502

Destination URI isn't a valid resource path

COPY

### Copy a resource (and its subtree) to a new location

### Example:

```
curl -X COPY -H "Destination: http://localhost:8080/rest/new/path/to/resource" "http://localhost:8080/rest/path/to/resource"
```

### Response:

Status: 201 Created

Headers:

Location: http://localhost:8080/rest/new/path/to/resource

### Status:

201

Created

409

Source path doesn't exist

412

Destination path already exists

502

Destination URI isn't a valid resource path

## Export and Import

Request URI: **/path/to/some/resource/fcr:export**

Methods: GET, POST

Exporting large trees of resources may fail because of memory limitations. Exporting 250,000 simple objects (only the system-defined properties) was successful and resulted in a 400MB export file, but exporting larger sets of resources failed. To work around this limitation, you can segment your repository (for example, into several top-level directories each containing 250,000 or fewer resources) and export each top-level directory as a separate export file.

Objects are exported and imported relative to the request URI path given. By default, the exported jcr/xml won't contain any subtrees and binary contents.



E.g., if you run:

```
curl "http://localhost:8080/rest/path/to/resource/fcr:export" > export.xml
curl -X POST --data-binary "@export.xml" "http://localhost:8080/rest/somewhere/else"
```

The resource with no subtree and binary content will be imported to `http://localhost:8080/rest/somewhere/else/resource`.

GET

**fcr:export** Retrieve serialized form of a resource. By default, no subtree and binary content will be exported

**Request Headers:**

FORMAT

Export formats; the exact formats available depend on the repository configuration.

**Parameters:**

`recurse`: To export subtree with its value set to true. For example, `recurse=true`. Default is false.

`skipBinary`: To export binary content with its value set to false. For example, `skipBinary=false`. Default is true.

The export formats that are available are shown as properties on resources, e.g. this resource exports jcr/xml:



```
<> <http://fedora.info/definitions/v4/rest-api#exportsAs> <./fcr:export?format=jcr/xml> ;
```

**Example:**

To export a resource with no subtree and no binary content:

```
curl "http://localhost:8080/rest/path/to/some/resource/fcr:export"
```

To export a resource with subtree and binary content:

```
curl "http://localhost:8080/rest/path/to/some/resource/fcr:export?recurse=true&skipBinary=false"
```

**Response:**

Status: 200

Headers:

Content-Type: application/xml

Body:

```
<sv:node xmlns:dc="http://purl.org/dc/terms/" xmlns:nt="http://www.jcp.org/jcr/nt/1.0" xmlns:ns001="http://purl.org/dc/elements/1.1/" xmlns:foaf="http://xmlns.com/foaf/0.1/" xmlns:test="info:fedora/test/" xmlns:image="http://www.modeshape.org/images/1.0" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:fedorarelsext="http://fedora.info/definitions/v4/rels-ext#" xmlns:mix="http://www..."
```

**Status:**

200

OK: if the resource is exported successfully

404

Not Found: if the resource does not exist

POST

**fcr:import** Import a serialized resource



#### Request Headers:

FORMAT

Import formats. The exact formats available depend on the repository configuration.

CONTENT-LOCATION

(Optional) A URI to a resource to use instead of the request body

#### Example:

```
curl -X POST --data-binary "@export.xml" "http://localhost:8080/rest/path/to/some/fcr:import?format=jcr/xml"
```

Body:

```
<sv:node xmlns:dc="http://purl.org/dc/terms/" xmlns:nt="http://www.jcp.org/jcr/nt/1.0" xmlns:ns001="http://purl.org/dc/elements/1.1/" xmlns:foaf="http://xmlns.com/foaf/0.1/" xmlns:test="info:fedora/test/" xmlns:image="http://www.modshape.org/images/1.0" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:fedorarelsext="http://fedora.info/definitions/v4/rels-ext#" xmlns:mix="http://www...."
```

#### Response:

Status: 201 Created

Headers:

Location: http://localhost:8080/rest/path/to/some/resource/

#### Status:

201

No Content: if the resource is imported successfully

404

Not Found: if the path does not exist

409

Conflict: if a node with the same UUID exists

#### Response:

Item already exists

## Versioning

Request URI: **/path/to/some/resource/fcr:versions**

Methods: GET, POST, PATCH

GET

**Get a list of the available versions of an object**

#### Request Headers:

ACCEPT

application/ld+json, application/n-triples, application/rdf+xml, application/x-turtle, application/xhtml+xml, application/xml, text/html, text/n3, text/plain, text/rdf+n3, text/turtle

#### Example:

```
curl -H "Accept: text/turtle" http://localhost:8080/rest/path/to/resource/fcr:versions
```

#### Response:

Status: 200 OK

Headers:

Content-Type: text/turtle

Body:

```
<http://localhost:8080/rest/path/to/resource> fedora:hasVersion <http://localhost:8080/rest/path/to/resource/fcr:versions/87a0a8c317f1e749515d33-cb73-4fd7-9d1d-c715eb6947e0> .
<http://localhost:8080/rest/path/to/resource/fcr:versions/87a0a8c317f1e749515d33-cb73-4fd7-9d1d-c715eb6947e0>
fedora:hasVersionLabel "v0"^^<http://www.w3.org/2001/XMLSchema#string> ;
    fedora:created "2014-12-03T23:55:38.47Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> .

<http://localhost:8080/rest/path/to/resource> fedora:hasVersion <http://localhost:8080/rest/path/to/resource/fcr:versions/87a0a8c317f1e7dae533ec-b1b6-4da1-8bb9-f1964e253572> .
<http://localhost:8080/rest/path/to/resource/fcr:versions/87a0a8c317f1e7dae533ec-b1b6-4da1-8bb9-f1964e253572>
fedora:hasVersionLabel "v1"^^<http://www.w3.org/2001/XMLSchema#string> ;
    fedora:created "2014-12-03T23:56:12.863Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> .
```

Status:

200

OK

404

Not Found: This resource is not versioned or this resource is not exist.

Response: The requested resource is not available.

GET

Get a previous version of an object

Request Headers:

ACCEPT

application/ld+json, application/n-triples, application/rdf+xml, application/x-turtle, application/xhtml+xml, application/xml, text/html, text/n3, text/plain, text/rdf+n3, text/turtle

Example:

```
curl http://localhost:8080/rest/resource/fcr:versions/<version-label>
```

Response:

Status: 200 OK

Response Headers:

ETag: "39f0d8a01a066771e56f70be892a39a7b505843c"

Last-Modified: Tue, 20 May 2014 19:29:10 GMT

Content-Type: text/turtle

Body:

```
<http://localhost:8080/rest/resource/fcr:versions/87a0a8c317f1e72c658170-624d-40f9-96cb-21ede3392155>
<http://fedora.info/definitions/v4/repository#primaryType> "nt:frozenNode"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#frozenPrimaryType> "nt:folder"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#created> "2014-05-20T19:29:00.192Z"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#frozenMixinTypes> "fedora:resource"^^<http://www.w3.org/2001
/XMLSchema#string> , "mix:versionable"^^<http://www.w3.org/2001/XMLSchema#string> , "fedora:object"
^^<http://www.w3.org/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#lastModified> "2014-05-20T19:29:10.555Z"^^<http://www.w3.org
/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#frozenUuid> "fed529c6-2121-4b1d-83fc-cc4274563612"
^^<http://www.w3.org/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#lastModifiedBy> "bypassAdmin"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#uuid> "87a0a8c317f1e72c658170-624d-40f9-96cb-21ede3392155"
^^<http://www.w3.org/2001/XMLSchema#string> ;
  <http://fedora.info/definitions/v4/repository#createdBy> "bypassAdmin"^^<http://www.w3.org/2001
/XMLSchema#string> ;
  a <http://www.jcp.org/jcr/nt/1.0frozenNode> , <http://www.jcp.org/jcr/nt/1.0base> , <http://www.jcp.org/jcr
/mix/1.0referenceable> .
```

Status:

200

OK

404

Not Found: if the version or the resource does not exist

**Response:** The requested resource is not available.

POST

## Create a new version of an object

Request Headers

SLUG

(Required) A suggested name for the new child resource, which the repository may ignore.

Example:

```
curl -X POST -H "Slug: newVersionName" http://localhost:8080/rest/path/to/resource/fcr:versions
```

Response:

Status: 204 No Content

Status:

204

No Content: if a new version is created successfully

404

Not Found: if the resource does not exist

409

Conflict: if the version label is already in use for another version of this resource

**Response:** The requested resource is not available.

---

PATCH

Revert to a previous version of an object

**Example:**

```
curl -X PATCH http://localhost:8080/rest/path/to/resource/fcr:versions/existingVersionName
```

For previous versions for which explicit names were not provided, you may use the UUID property which you can find by parsing the response from the listing of available versions.

**Response:**

```
Status: 204 No Content
```

**Status:**

204

No Content: if the version is reverted successfully

404

Not Found: if the version does not exist

**Response:** The requested resource is not available.

---

Request URI: **/path/to/some/resource/fcr:versions/versionName**

Methods: DELETE

DELETE

**Remove a previous version of an object**

**Example:**

```
curl -X DELETE http://localhost:8080/rest/path/to/resource/fcr:versions/versionName
```

**Response:**

```
Status: 204 No Content
```

Trying to delete the current version of a resource will result in an error. To revert to an old version of a resource, first revert to the old version using the PATCH method, and then delete the newer version.

**Status:**

204

No Content: if the version is reverted successfully

400

Bad Request: if trying to delete the most recent version

**Response:** Cannot remove current version

404

Not Found: if the version does not exist

**Response:** The requested resource is not available.

## Services

## Access Roles

Request URI: **/path/to/some/resource/fcr:accessroles**

Methods: GET, POST, DELETE

Arbitrary access roles may be set through this API. However, they are only enforced when paired with a Policy Enforcement Point that is aware of access roles.

GET

### Get a list of all the roles assigned to principals on this resource

Output formats: application/json

#### Query Parameters:

EFFECTIVE

When supplied, gets the list of effective roles for this resource, including those inherited from the parent

#### Example:

```
curl "http://localhost:8080/rest/49/3d/24/41/493d2441-0541-41c7-a23b-09d1f17d4a0f/fcr:accessroles"
```

#### Response:

Status: 200 OK

Headers:

Content-Type: application/json

Transfer-Encoding: chunked

Server: Jetty(8.1.11.v20130520)

Body:

```
{"principal name 3":["admin"],"principal name 1":["reader"],"principal name 2":["writer"]}
```

#### Status:

200

OK: if access roles retrieved successfully

204

No Content: if access roles not assigned

404

Not Found: if the resource doesn't exist

POST

### Set the roles assigned on this resource

#### Request Headers:

CONTENT-TYPE

application/json

#### Example:

```
curl -X POST -H "Content-Type: application/json" --data-binary "@post.txt" "http://localhost:8080/rest/49/3d/24/41/493d2441-0541-41c7-a23b-09d1f17d4a0f/fcr:accessroles"
```

Body:

```
{
  "principal name 1" : [ "reader" ],
  "principal name 2" : [ "writer" ],
  "principal name 3" : [ "admin" ]
}
```

#### Response:

Status: 201 Created

Headers:

Location: <http://localhost:8080/rest/49/3d/24/41/493d2441-0541-41c7-a23b-09d1f17d4a0f/fcr:accessroles>  
Content-Length: 0  
Server: Jetty(8.1.11.v20130520)

#### Status:

201

Created: if the access roles were created successfully

400

Bad Request: if there was an error processing the access roles declaration

415

Unsupported Media Type: if the Content-Type of the uploaded content isn't application/json

DELETE

**Clear all roles assignments from this resource**

#### Example:

```
curl -X DELETE "http://localhost:8080/rest/49/3d/24/41/493d2441-0541-41c7-a23b-09d1f17d4a0f/fcr:accessroles"
```

#### Response:

Status: 204 No Content

Headers:

Server: Jetty(8.1.11.v20130520)

#### Status:

204

No Content: if the access roles are deleted successfully

404

Not Found: if the resource doesn't exist

## Backup and Restore

Request URI: /

Methods: GET, POST

POST

**fcr:backup Initiate a (consistent) backup of the repository**

The backup will be stored in a temporary directory on the server. As yet, there is not a REST API method for retrieving the content of the backup.

#### Example:

```
curl -X POST "http://localhost:8080/rest/fcr:backup"
```

#### Response:

Status: 200 OK

Body:

/tmp/fcrepo4-data/path/to/backup/directory

Status:

200

OK

POST

**fcr:restore** Replace repository content with data from a backup directory

Example:

```
curl -X POST --data-binary "/tmp/fcrepo4-data/path/to/backup/directory" "http://localhost:8080/rest/fcr:restore"
```

Response:

Status: 204 No Content

Status:

204

Backup restored

500

Error restoring backup

## Fixity

Request URI: **/path/to/some/resource/fcr:fixity**

Methods: GET

GET

**Get the fixity report for an object**

Checking fixity requires retrieving the content from the binary store and may take some time.

Request Headers:

ACCEPT

application/ld+json, application/n-triples, application/rdf+xml, application/x-turtle, application/xhtml+xml, application/xml, text/html, text/n3, text/plain, text/rdf+n3, text/turtle

Example:

```
curl -H "Accept: text/turtle" "http://localhost:8080/rest/path/to/some/resource/fcr:fixity"
```

Response (fixity success):

Status: 200 OK

Headers:

Content-Type: text/turtle

Body:

```
<http://localhost:8080/rest/path/to/some/resource#fixity/1400589459772> a <http://www.loc.gov/premis/rdf/v1#Fixity> .

<http://localhost:8080/rest/path/to/some/resource> <http://www.loc.gov/premis/rdf/v1#hasFixity>
<http://localhost:8080/rest/path/to/some/resource#fixity/1400589459772> .

<http://localhost:8080/rest/path/to/some/resource#fixity/1400589459772> <http://www.loc.gov/premis/rdf/v1#hasContentLocation>
<info://org.modeshape.jcr.value.binary.FileSystemBinaryStore@7bcc39fb/fcrepo4/fcrepo-webapp/fcrepo4-data/fcrepo.binary.directory#f7d787ee7fc58ce7fc257ae0067a2c65476be750> .

<info://org.modeshape.jcr.value.binary.FileSystemBinaryStore@7bcc39fb/fcrepo4/fcrepo-webapp/fcrepo4-data/fcrepo.binary.directory#f7d787ee7fc58ce7fc257ae0067a2c65476be750> a <http://www.loc.gov/premis/rdf/v1#ContentLocation>
;
    <http://www.loc.gov/premis/rdf/v1#hasContentLocationValue> "info://org.modeshape.jcr.value.binary.FileSystemBinaryStore@7bcc39fb/fcrepo4/fcrepo-webapp/fcrepo4-data/fcrepo.binary.directory#f7d787ee7fc58ce7fc257ae0067a2c65476be750"^^<http://www.w3.org/2001/XMLSchema#string> .
```

#### Response (fixity failure):

Status: 200 OK

Headers:

Content-Type: text/turtle

Body:

```
<http://localhost:8080/rest/path/to/some/resource#fixity/1400589459772> a <http://www.loc.gov/premis/rdf/v1#Fixity> .

<http://localhost:8080/rest/path/to/some/resource> <http://www.loc.gov/premis/rdf/v1#hasFixity>
<http://localhost:8080/rest/path/to/some/resource#fixity/1400589459772> .

<http://localhost:8080/rest/path/to/some/resource#fixity/1400589459772> <http://www.loc.gov/premis/rdf/v1#hasContentLocation>
<info://org.modeshape.jcr.value.binary.FileSystemBinaryStore@7bcc39fb/fcrepo4/fcrepo-webapp/fcrepo4-data/fcrepo.binary.directory#f7d787ee7fc58ce7fc257ae0067a2c65476be750> .

<http://localhost:8080/rest/path/to/some/resource#fixity/1400589459772> <http://fedora.info/definitions/v4/repository#status> "BAD_CHECKSUM"^^<http://www.w3.org/2001/XMLSchema#string> , "BAD_SIZE"^^<http://www.w3.org/2001/XMLSchema#string> ;
    <http://www.loc.gov/premis/rdf/v1#hasMessageDigest> <urn:sha1:b04bded0d83b74ac0c700945e24e43e823eb5821>
;
    <http://www.loc.gov/premis/rdf/v1#hasSize> "1324943"^^<http://www.w3.org/2001/XMLSchema#int> .
```

Status:

200

OK

404

Resource not found

## Node Types

Request URI: /fcr:nodetypes

Methods: GET



GET

## get a list of registered types (as RDFS triples)

### Request

#### Request Headers:

ACCEPT

application/ld+json, application/n-triples, application/rdf+xml, application/x-turtle, application/xhtml+xml, application/xml, text/html, text/n3, text/plain, text/rdf+n3, text/turtle

#### Example:

```
curl "http://localhost:8080/rest/fcr:nodetypes"
```

### Response:

Status: 200 OK

Headers:

Content-Type: text/turtle

Body:

```
<http://fedora.info/definitions/v4/rest-api#object>
  a      <http://www.w3.org/2000/01/rdf-schema#Class> ;
  <http://www.w3.org/2000/01/rdf-schema#label>
    "fedora:object" ;
  <http://www.w3.org/2000/01/rdf-schema#subClassOf>
    <http://fedora.info/definitions/v4/rest-api#resource> .

<http://fedora.info/definitions/v4/rest-api#resource>
  a      <http://www.w3.org/2000/01/rdf-schema#Class> ;
  <http://www.w3.org/2000/01/rdf-schema#label>
    "fedora:resource" ;
  <http://www.w3.org/2000/01/rdf-schema#subClassOf>
    <http://fedora.info/definitions/v4/rest-api#relations> , <http://www.jcp.org/jcr/mix/1.0created> , <http://www.jcp.org/jcr/mix/1.0lastModified> , <http://www.jcp.org/jcr/mix/1.0lockable> ,
    <http://www.jcp.org/jcr/mix/1.0versionable> .

[...]
```

### Status:

200

OK

## Transactions

Request URI: `/fcr:tx; /tx:{transaction_id}/path/to/resource, /tx:{transaction_id}/fcr:tx, /tx:{transaction_id}/fcr:commit, /tx:{transaction_id}/fcr:rollback`

Methods: GET, POST

**GET**

## Get the current status of the repository in a transaction

### Example:

```
curl -i "http://localhost:8080/rest/tx:86dd0891-d975-42d8-8837-a24ad6041b59"
```

### Response:

```
Status: 200 OK

Link: <http://localhost:8080/rest/>;rel="canonical"

Body:
Same as non-transaction response.
```

### Status:

**200**

OK: If the request was successful

**410**

Gone: Transaction not found

**POST**

## Create a new transaction

After retrieving a transaction resource, the client can execute any REST API method prefixed by the transaction location.

Transactions are automatically closed and rolled back after 3 minutes of inactivity. Transactions can be refreshed by POSTing to `/rest/{tx:id}/fcr:tx`

### Example:

```
curl -i -X POST "http://localhost:8080/rest/fcr:tx"
```

### Response:

```
Status: 201 Created

Headers:
Location: http://localhost:8080/rest/tx:83e34464-144e-43d9-af13-b3464a1fb9b5
Expires: Sat, 16 Nov 2013 00:32:57 GMT
```

### Usage:

When a transaction has been created, it will return a Location header. Use this location as the base URL for performing REST API operations within the transaction. When you are done with the transaction, either append `/fcr:tx/fcr:commit` to commit the transaction to the repository or `/fcr:tx/fcr:rollback` to discard the changes.

```
curl -X POST "http://localhost:8080/rest/tx:83e34464-144e-43d9-af13-b3464a1fb9b5/path/to/object/to/create"
curl -X DELETE "http://localhost:8080/rest/tx:83e34464-144e-43d9-af13-b3464a1fb9b5/path/to/resource/to/delete"
curl -X POST "http://localhost:8080/rest/tx:83e34464-144e-43d9-af13-b3464a1fb9b5/fcr:tx/fcr:commit"
```

### Status:

**201**

Created: if the transaction is created successfully

**POST**

## Keep an existing transaction alive

**Example:**

```
curl -i -X POST "http://localhost:8080/rest/tx:83e34464-144e-43d9-af13-b3464a1fb9b5/fcr:tx"
```

**Response:**

Status: 204 No Content

Headers:

Location: http://localhost:8080/rest/tx:83e34464-144e-43d9-af13-b3464a1fb9b5

Expires: Sat, 16 Nov 2013 03:35:43 GMT

**Status:**

204

No Content: if the transaction is renewed successfully

410

Gone: if the transaction doesn't exist

POST

**Save and commit an open transaction**

Any operations you made within the scope of the transaction will be applied together, meaning if any of them fail, the whole transaction will fail.

**Example:**

```
curl -i -X POST "http://localhost:8080/rest/tx:123456789/fcr:tx/fcr:commit"
```

**Response:**

Status: 204 No Content

**Status:**

204

No Content: if the transaction is committed successfully

410

Gone: if the transaction doesn't exist

POST

**Rollback and close an open transaction****Example:**

```
curl -i -X POST "http://localhost:8080/rest/tx:123456789/fcr:tx/fcr:rollback"
```

**Response:**

Status: 204 No Content

**Status:**

204

No Content: if the transaction is discarded successfully

410

Gone: if the transaction doesn't exist

## Transform

Request URI: `/fcr:transform/{program}`

Methods: GET, POST

GET

**get a resource transformed with the default transform**

**Request Headers:**

**Example:**

### default transform

```
@prefix fedora : <http://fedora.info/definitions/v4/repository#>
id      = . :: xsd:string ;
title = dc:title :: xsd:string;
uuid = fedora:uuid :: xsd:string ;
```

```
curl "http://localhost:8080/rest/49/3d/24/41/493d2441-0541-41c7-a23b-09d1f17d4a0f/fcr:transform/default"
```

**Response:**

Status: 200 OK

Headers:

Content-Type: application/json  
Transfer-Encoding: chunked  
Server: Jetty(8.1.11.v20130520)

Body:

```
[{"id":["http://localhost:8080/rest/49/3d/24/41/493d2441-0541-41c7-a23b-09d1f17d4a0f"],"title":[],"uuid":["07630a24-5a0b-4ba7-80ab-0691f68667ce"]}]
```

**Status:**

200

OK: if the transform is applied successfully

400

Bad Request: if the program doesn't exist

404

Not Found: if the resource doesn't exist

**Note**

To reference a stored "program" in the GET form of the fcr:transform service, the LDPATH transformation directive must be stored at the following path:

```
http://localhost:8080/rest/fedora:system/fedora:transform/fedora:ldpath/<program-name>/<resource-type>
```

Where <program-name> can be any name, and <resource-type> is the type of Fedora resource on which the transform will be applied:

- "fedora:Container"
- "fedora:nonRdfSourceDescription"
- "fedora:Resource"

**Example:**

1. Store a new program.

```
curl -i -X PUT -H "Content-Type: application/rdf+ldpath" --data-binary "@post.txt" http://localhost:8080/rest/fedora:system/fedora:transform/fedora:ldpath/newprogram/fedora:Container
```

## Response

```
Status 201 Created

Headers:
Content-Type: text/plain

http://localhost:8080/rest/fedora:system/fedora:transform/fedora:ldpath/newprogram/fedora:Container
```

## 2. Get a resource transformed with the stored transform

```
curl -i http://localhost:8080/rest/pid5/fcr:transform/newprogram
```

## Response

```
Status 200 OK

Header:
Server: Apache-Coyote/1.1
Content-Type: application/json

Body:
[{"id":["http://localhost:8080/rest/pid5"],"title":["some-resource-title"],"description":[],"uuid":["caa7bc6c-b80b-4e30-8ec1-15e90937e3be"]}]]
```

POST

## get a resource transformed with the supplied transform

Output formats: application/json,text/tab-separated-values,text/csv,text/sse,text/plain,application/sparql-results+json,application/sparql-results+xml,application/sparql-results+bio,text/turtle,text/rdf+n3,application/N-triples,application/rdf\_xml

## Example:

```
curl -X POST -H "Content-Type: application/rdf+ldpath" --data-binary "@post.txt" "http://localhost:8080/rest/49/3d/24/41/493d2441-0541-41c7-a23b-09d1f17d4a0f/fcr:transform"

Body:
@prefix fcrepo : <http://fedora.info/definitions/v4/repository#>
id      = . :: xsd:string ;
title   = dc:title :: xsd:string;
uuid    = fcrepo:uuid :: xsd:string ;
```

## Response:

Status: 200 OK

Headers:

Content-Type: application/json  
Transfer-Encoding: chunked  
Server: Jetty(8.1.11.v20130520)

Body:

```
[{"id":["http://localhost:8080/rest/49/3d/24/41/493d2441-0541-41c7-a23b-09d1f17d4a0f"],"title":[],"uuid":  
["07630a24-5a0b-4ba7-80ab-0691f68667ce"]}]]
```

**Status:**

200

OK: if the transform is applied successfully

400

Bad Request: if there was an error parsing or processing the transform

404

Not Found: if the resources doesn't exist