

## XNAT REST

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**Audience:** Useful for Site Administrators, Developers and advanced users.

**Goals:** Present a summary of the features available through XNAT's REST interface. Review the resources available and the best practices for uploading/downloading them. We'll review a common use case and an example of a solution.

### Why REST?

- Migration from SOAP
- Uses basic HTTP model
- URIs for each resource

### Things to know

- Navigation options: Browser, Forms, XNATRestClient, Rest-client, curl
- Output formats
  - Listings: JSON, XML, HTML, CSV
  - Reports: XML, HTML
- Authentication
  - Basic Authentication
  - JSESSIONID (cookie)
  - Future OAuth support?

### XNAT REST Resources

- The REST API contains resources for interacting with virtually every layer of the XNAT Data Hierarchy.

### Creating XNAT-elements

- Required: In order to upload files to XNAT, they must be associated with existing XNAT data elements (Projects, Subjects, Sessions, etc)
- XML Posting
  - In body of message
  - As form data
- Parameter posting
  - HTML Forms
  - Query String: Separated from URI by ? and from each other by &.
  - XML Paths  
xnat:mrSessionData/label=s12312
  - XML Path shortcuts  
label=s12312

- XSI Type: On generic resource levels, you must specify what kind of data you are creating.

```
xsiType=xnat:mrSessionData
```

### Uploading Files

- Attach as multi-part form data
- Or, write directly to the body of the message
  - Requires the ?inbody=true parameter
  - Default behavior of curl.
- Files should be organized in resources (collections)
  - Labels should be:
    - Brief
    - Unique
    - Descriptive
- Uploads can be compressed
  - extract=true will cause files to be extracted after upload
  - Otherwise, file will remain zipped on the server.

### Downloading Files

- List resources
  - /experiments/ID/scans/ID/resources
- List files
  - /experiments/ID/scans/ID/resources/DICOM/files
- Retrieve files
  - /experiments/ID/scans/ID/resources/DICOM/files/03220325.dcm
- Add format=zip to download multiple files at once
- Group resources together using wildcards:
  - /experiments/123/scans/1,2,3/files
  - /experiments/123/scans/ALL/files
  - /experiments/123/scans/T1/files
  - /experiments/123/scans/T1,T2/files

### Links

- <http://xnat.wikispaces.com/Web+Services>