

UCD Library Data Services APIs

UCD Image Services APIs

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| Version: | 0.1 |
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REST API (January 2013-)

International Image Interoperability Framework: Image API 1.0

UCD Digital Library's Data Services implement a REST API conformant to The International Image Interoperability Framework (IIIF): Image API 1.0 for the delivery of images via a standard http request. The full specification can be found at:

<http://library.stanford.edu/iiif/image-api>

The IIIF Image API specifies a web service that returns either image metadata or an image in response to a standard http or https request. For metadata, one must specify the image identifier and the desired response format (JSON or XML); for images, the request URL must specify the region, size, rotation, quality characteristics and format of the requested image. A URL can also be constructed to request basic technical information about the image to support client applications.

The IIIF Image API was conceived of to facilitate systematic reuse of image resources, and enable their delivery through a diversity of software applications and environments, regardless of underlying technology platforms. The API is designed to be adoptable by any image repository or service provider, and can be used to retrieve static images in response to a properly constructed URL.

The specification allows two kinds of requests: one to request image data, the other to request image metadata.

The IIIF Image API URI for requesting an image MUST conform to the following format:

`http[s]://server/[prefix/]identifier/info.{json|xml}`

The URI template for requesting an image is:

`http[s]://server/[prefix/]identifier/region/size/rotation/quality[.format]`

where [] delimits components which are optional. The sequence of parameters in the URL MUST be in the order identified in the example above. The order of the parameters is also intended as the order of the operations by which the service should manipulate the image content. Thus, the image content is first extracted as a region of the source image, then scaled to the requested size, rotated and transformed into the color depth and format. This resulting image content is returned as the representation for the URL. All transformations are performed within the bounds of integer arithmetic. The rounding method is not specified.

UCD API Compliance

Compliance Level Summary

Three levels of compliance are defined. Level 0 is defined as the minimum set of supported parameters and features to qualify an implementation of the service as compliant to the IIIF standard. Level 1 is defined as the RECOMMENDED set of parameters and features to be implemented.

UCD's implementation of the image delivery components of the API complies fully with level 1. It further provides additional functionality associated with level 2; it also provides several unique local options with regard to the image size parameter.

| Parameter/Values | Supported | Compliance | Notes |
|--|-----------|------------|----------------------|
| Region | | | |
| full | ✓ | 0,1,2 | |
| x,y,w,h | ✓ | 1 | |
| pct:x,y,w,h | | 2 | |
| Size | | | |
| full | ✓ | 0,1,2 | |
| thumbnail | ✓ | Local | ca. 200 px long side |
| thumbnailSmall | ✓ | Local | 40 px long side |
| screen | ✓ | Local | 1000 px long side |
| max | ✓ | Local | 1200 px long side |
| w, | ✓ | 1,2 | |
| ,h | ✓ | 1,2 | |
| pct:x | ✓ | 1,2 | |
| w,h | ✓ | 2 | |
| !w,h | ✓ | 2 | |
| Rotation | | | |
| 0 | ✓ | 0,1,2 | |
| 90,180,270 | ✓ | 1,2 | |
| arbitrary | | optional | |
| Quality | | | |
| native | ✓ | 0,1,2 | |
| color | | 2 | |
| grey | | 2 | |
| bitonal | | 2 | |
| Format (optional, delivers JPEG by default) | | | |
| jpeg | ✓ | 1,2 | |
| tif | | optional | |
| png | ✓ | 2 | |
| gif | ✓ | optional | |
| pdf | | optional | |
| jp2 | | 2 | |

The UCD implementation of the API provides full compliance to the metadata specification, returning image metadata in both JSON and XML formats.

Full compliance is also achieved with regard to return messages for bad requests, processing failures, etc. All error responses include the recommended Link header to advise client applications of the local implementation compliance level:

Link: <<http://library.stanford.edu/iiif/image-api/compliance.html#level1>>; rel="profile"

The Link header is also returned with all information (metadata) requests. It is also returned along with HTTP/1.1 302 Found and redirection ("Location:") headers when image requests are fulfilled via proxied calls to the UCD Library Digital Repository.

UCD Implementation Details

The IIIF Image API v. 1.0 is implemented at UCD as part of a set of planned data services that expose information managed by UCD Library via either bespoke or standards-compliant APIs. The host name for these services is data.ucd.ie. For the IIIF Image API the service is implemented with the service prefix "/api/img/"; the following comprise the UCD URI templates for metadata and image delivery requests, respectively:

<http://data.ucd.ie/api/img/{PID}/info.{json|xml}>

<http://data.ucd.ie/api/img/{PID}/region/size/rotation/quality{.jpg|gif|png}>

The identifier must be a valid object identifier from the UCD Digital Library, i.e., a fedora PID.

HTTP Requests and Responses

Client applications may make requests via HTTP GET or POST; POST requests must be accompanied by a HTTP Content-Type header when the request body contains parameters:

Content-Type: application/x-www-form-urlencoded

The following HTTP response codes are returned as circumstances determine:

| HTTP/1.1 Response Code | Text |
|------------------------|---|
| 200 | OK |
| 302 | Found |
| 400 | Bad Request |
| 404 | Not Found |
| 415 | Unsupported Media Type [invalid format parameter] |
| 500 | Internal Server Error |
| 501 | Not Implemented [for unsupported functionality of the IIIF API] |
| 503 | Service Unavailable |

In addition, requests that yield any of HTTP response codes 400, 404, or 415, and requests for metadata only, are sent a profile Link header with a reference to documentation for the API:

Link: <<http://www-sul.stanford.edu/iiif/image-api/compliance.html#level1>>; rel="profile"

Brief Examples:

<http://data.ucd.ie/api/img/ivrla:31422/info.json>

<http://data.ucd.ie/api/img/ivrla:29929/full/full/0/native.jpg>

<http://data.ucd.ie/api/img/ivrla:4260/full/0.25/90/native.png>

<http://data.ucd.ie/api/img/ivrla:29985/full/0.5/0/native.gif>

<http://data.ucd.ie/api/img/ivrla:429/3500,3750,900,800/full/0/native.jpg>