PAIS and PIDB Web APIs

PAIS and PIDB APIs provide a set of commonly used queries to support convenient, efficient and expressive queries for users.

Below is a summary of API interfaces defined.

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| --- | --- | --- | --- | --- | --- | --- |
| **Parent paths** | | **Specific paths** | **Description** | **Parameters** | **Render Format** | **Java name** |
| PAIS queries | | | | | | |
| /pais/**list** | | /paisuids | List of PAIS document UIDs | role2 | HTML, XML, JSON |  |
| /imageuids | List of PAIS image UIDs |  | HTML, XML, JSON |  |
| /slideuids | List of PAIS slide UIDs |  | HTML, XML, JSON |  |
| /patients | List of patient UIDs |  | HTML, XML, JSON |  |
| /summary | List of summary of PAIS and PIDB database |  | XML |  |
| /tile/regions | List all tile regions of one specific paisuid | paisuid | HTML, XML, JSON |  |
| /pais/markups/**density** | | /tile | Density of a tile | tilename | HTML, XML, JSON |  |
| /image | Density of an image | Imageuid,  method, seq1 | HTML, XML, JSON |  |
| /document | Density of a PAIS document | paisuid | HTML, XML, JSON |  |
| /groupbytile | All densities grouped by tile | paisuid2 | HTML, XML, JSON |  |
| /groupbyimage | All densities grouped by image | method, seq1 | HTML, XML, JSON |  |
| /groupbydocument | All densities grouped by PAIS document |  | HTML, XML, JSON |  |
| /pais/markups/**boundaries** | | /tile | Boundaries of a tile | tilename, paisuid samplingrate3 | HTML, XML, JSON, SVG |  |
| /window | Boundaries contained in a window | x, y, w, h, samplingrate3  paisuid2 | HTML, XML, JSON, SVG |  |
| /polygon | Boundaries contained in a polygon | polygon, samplingrate3  paisuid2 | HTML, XML, JSON, SVG |  |
| /image | Boundaries of one image for specific algorithm | paisuid,  samplingrate  type | HTML, XML, JSON, SVG |  |
| /containingpoint | Tilename and boundaries containing a point | x, y,  method, seq1 | HTML, XML, JSON, SVG |  |
| /intersection | Intersection ratios and centroid distances of two result sets for a tile T for two PAIS documents | paisuid1, tilename1, paisuid2, tilename2 | HTML, XML, JSON |  |
| /pais/markups/**centroids** | | /tile | Centroids of polygons of a tile | tilename | HTML, XML, JSON |  |
| /window | Centroids of polygons of a window | x, y, w, h | HTML, XML, JSON |  |
| /polygon | Centroids of polygons of a polygon | polygon | HTML, XML, JSON |  |
| /pais/markups/humanannotation | | /annotation /get | get human annotation | imageuid,minx,miny,  maxx,maxy,  annotation\_id | HTML, XML, JSON |  |
| /annotation /add | Add a new human annotation | N/A |  |  |
| /pais/**documents** | | /tile | Zipped PAIS document of a tile | tilename | application/zip |  |
| /pais/**features** | | /tile | Features of a tile | tilename | HTML, XML, JSON |  |
| /window | Features of a window | x, y, w, h | HTML, XML, JSON |  |
| /polygon | Features of a polygon | polygon | HTML, XML, JSON |  |
|  |  |  |  |  |
| /pais/**features** | **/aggregation** | /document | Aggregation of features of a PAIS document | paisuid | HTML, XML, JSON |  |
| /image | Aggregation of features of an image | Imageuid,  method, seq1 | HTML, XML, JSON |  |
| /patient | Aggregation of features of a patient | patientuid,  method, seq1 | HTML, XML, JSON |  |
| /pais/**features** | **/histogram** |  | Histogram of features of a document | feature, width, height | HTML, XML, JSON;  JPG, PNG |
| /pais/**observations** | | /tile | Observations of objects in a tile | tilename, type | HTML, XML, JSON |  |
| /window | Observations of objects in a window | x, y, w, h, type | HTML, XML, JSON |  |
| /polygon | Observations of objects in a polygon | polygon, type | HTML, XML, JSON |  |
| /pais/**patient** | | /features | Get the features of one patient | Patientid,barcode | HTML, XML, JSON |  |
| Image queries | | | | | | |
| /images/**list** | | /imageuids | List of image uids | patientid4; studyname4 | HTML, XML, JSON |  |
| /tilenames | List of tilenames | Imageuid4 | HTML, XML, JSON |  |
| /patients | List of patient UIDs |  | HTML, XML, JSON |  |
| /tilenameofpoint | Return a tilename containing a point | x, y | HTML, XML, JSON |  |
| /images/**image** | | /tile | Tile image | tilename  tilesetuid, resolution5 | PNG, JPG, GIF |  |
| /window | Region image | Imageuid, x, y, w, h | PNG, JPG, GIF |  |
| /wsi | Whole slide image |  | application/octet-stream |  |
| /dimension | Get dimension of one image | imagereference\_uid | HTML, XML, JSON |  |
| /imagereferences | Get all pais\_uids by given image reference uid | imagereference\_uid | HTML, XML, JSON |  |
| /tiling/position | Get the X and Y coordinates of given tiling position | imagereference\_uid,  width,height | CSV,XML |  |
| /images/**thumbnail** | | /tile | Thumbnail of a tile | tilename  tilesetuid, resolution5 | PNG |  |
| /wsi | Thumbnail of a whole slide image |  | PNG |  |
| /tiledimage | Thumbnail of an arbitrary tiled image | Imageuid,lengthstr,  X,y,w,h |  |  |
| /images/**overlay** | | /tile | Overlap of markups and a tile image | tilename,paisuid, tilesetuid, resolution5;  tilename, method, seq1, tilesetuid, resolution5 | HTML |  |
| /window | Overlap of a markups and the image of a window | x, y, w, h, paisuid | HTML |  |
| /image | Overlap of a markups and the image of a whole small image | Paisuid,  samplerate |  |  |
| /images/**similarity** | | /feature | List top K similar subregion images based on features | paisuid; or:  patientuid, method, seq1 | HTML, zip |  |
| /cluster | List top K similar subregion images based on classifications | label, k | HTML, json |  |
| /getImageFromFile | return a file by given path | filepath |  |  |

Notes:

1method, seq: optional parameters. If ignored, default is used: NS-MORPH, 1

2 paisuid: optional parameter. If ignored, search will be across all data.

3samplingrate: optional parameter. If ignored, sampling rate will be 1.

4imageuid: optional parameters. If ignored, queries will be rewritten and performance might be slower.

5tilesetuid, resolution: optional parameters. If ignored, default values are used: 1, 20x