Image-to-Image Synchronization

IMAGE-TO-IMAGE SYNCHRONIZATION

The following set of image synchronization services uses the image alignment results from the Informatics Data Processing Pipeline. Note: all locations on SectionImages are reported in pixel coordinates and all locations in 3-D ReferenceSpaces are reported in microns.

Image-to_Atlas

For a specified Atlas, find the closest annotated SectionImage and (x,y) location as defined by a seed SectionImage and seed (x,y) location.

Prototype

```
http://api.brain-map.org/api/v2/image_to_atlas/[SectionImage.id].[xml|json]?x=[#]&y=[#]&z=[#]&atlas_id=[#]
```

Example

For a seed location in SectionImage 68173101, locate the closest image and (x,y) position within the P56 coronal Atlas:

```
http://api.brain-map.org/api/v2/image_to_atlas/68173101.xml?x=6208&y=2368&atlas_id=1
```

Parameters

filename	Integer	Seed SectionImage for spatial sync.
file extension	String	XML or JSON format is specified as the file extension.
x	Float	x pixel coordinate of the seed location in the seed SectionImage.
y	Float	y pixel coordinate of the seed location in the seed SectionImage.
atlas_id	Integer	Target Atlas for image sync.

Returns

XML or JSON document containing the following:

section_image_id	Closest annotated SectionImage to the seed SectionImage and pixel location.
section_number	Section number of the closest SectionImage.
x	Closest x pixel coordinate on the closest SectionImage.
y	Closest y pixel coordinate on the closest SectionImage.

Image-to_Image

For a list of target SectionDataSets, find the closest SectionImage and (x,y) location as defined by a seed SectionImage and seed (x,y) pixel location.

Prototype

```
http://api.brain-map.org/api/v2/image_to_image/[SectionImage.id].[xml|json]?x=[#]&y=[#]&section_data_set_ids=[#,
#,#...]
```

Example

For seed location in SectionImage 68173101, locate the closest 3-D position in each input SectionDataSet.

```
http://api.brain-map.org/api/v2/image_to_image/68173101.xml?x=6208&y=2368&section_data_set_ids=67810540,69782969
```

Parameters

filename	Integer	Seed SectionImage for spatial sync.
file extension	String	XML or JSON format is specified as the file extension.
x	Float	x pixel coordinate of the seed location in the seed SectionImage.
y	Float	y pixel coordinate of the seed location in the seed SectionImage.
section_data_set_ids	Array	Comma delimited list of target SectionDataSet IDs for image sync.

Returns

XML or JSON document containing the following for each SectionDataSet in the section_data_set_ids:

section_image_id	Closest SectionImage to the seed SectionImage and pixel location.
section_number	Section number of the closest SectionImage.
x	Closest x pixel coordinate on the closest SectionImage.
y	Closest y pixel coordinate on the closest SectionImage.

Image-to-Image 2-D

For a list of target SectionImages, find the closest (x,y) location as defined by a seed SectionImage and seed (x,y) location.

Prototype

```
http://api.brain-map.org/api/v2/image_to_image_2d/[SectionImage.id].[xml|json]?x=[#]&y=[#]&section_image_ids=[#,
#,#...]
```

Example

For a seed location in SectionImage 68173101, locate the closest 2-D position in each input SectionImage:

```
http://api.brain-map.org/api/v2/image_to_image_2d/68173101.xml?x=6208&y=2368&section_image_ids=68173103,
68173105,68173107
```

Parameters

filename	Integer	Seed SectionImage ID for image sync.
file extension	String	XML or JSON format is specified as the file extension.
x	Float	x pixel coordinate of the seed location in the seed SectionImage.
y	Float	y pixel coordinate of the seed location in the seed SectionImage.
section_image_ids	Array	Comma delimited list of target SectionImage IDs for image sync.

Returns

XML or JSON document containing the following for each SectionImage in the section_image_ids:

x	Closest x pixel coordinate to the seed location.
y	Closest y pixel coordinate to the seed location.

Reference-To-Image

For a list of target SectionDataSets, find the closest SectionImage and (x,y) location as defined by a (x,y,z) location in a specified ReferenceSpace.

Prototype

```
http://api.brain-map.org/api/v2/reference_to_image/[ReferenceSpace.id].[xml|json]?x=[#]&y=[#]&z=[#]
&section_data_set_ids=[#,#,#...]
```

Example

For a 3-D seed location in the P56 ReferenceSpace, locate the closest image and (x,y) location for each input SectionDataSet.

```
http://api.brain-map.org/api/v2/reference_to_image/10.xml?x=6085&y=3670&z=4883&section_data_set_ids=68545324,
67810540
```

Parameters

filename	Integer	Seed ReferenceSpace for spatial sync.
file extension	String	XML or JSON format is specified as the file extension.
x	Float	x coordinate (in microns) of the seed location in the seed ReferenceSpace.
y	Float	y coordinate (in microns) of the seed location in the seed ReferenceSpace.
z	Float	z coordinate (in microns) of the seed location in the seed ReferenceSpace.
section_data_set_ids	Array	Comma delimited list of target SectionDataSets IDs for image sync.

Returns

XML or JSON document containing the following for each SectionDataSet in the section_data_set_ids:

section_image_id	Closest SectionImage to the seed ReferenceSpace and location.
section_number	Section number of the closest SectionImage.
x	Closest x pixel coordinate to the seed location.

y	Closest y pixel coordinate to the closest SectionImage.

Image-To-Reference

For a specified SectionImage and (x,y) location, return the (x,y,z) location in the ReferenceSpace of the associated SectionDataSet.

Prototype

```
http://api.brain-map.org/api/v2/image_to_reference/[SectionImage.id].[xml|json]?x=[#]&y=[#]
```

Example

For a location in SectionImage 68173101, return the (x,y,z) position in the associated ReferenceSpace.

```
http://api.brain-map.org/api/v2/image_to_reference/68173101.xml?x=6208&y=2368
```

RMA query to return the associated ReferenceSpace:

```
http://api.brain-map.org/api/v2/data/query.xml?criteria=
model::SubImage,
rma::criteria,[id$eq68173101],
rma::include,data_set,
rma::options[only$eq'data_sets.id,data_sets.reference_space_id,sub_images.id']
```

Parameters

filename	Integer	SectionImage.id.
file extension	String	XML or JSON format is specified as the file extension.
x	Float	x pixel coordinate on the specified SectionImage.
y	Float	y pixel coordinate on the specified SectionImage.

Returns

XML or JSON document containing the (x,y,z) location in the associated ReferenceSpace.

x	x coordinate (in microns) in the associated ReferenceSpace.
y	y coordinate (in microns) in the associated ReferenceSpace.
z	z coordinate (in microns) in the associated ReferenceSpace.

Structure-To-Image

For a list of target structures, find the closest SectionImage and (x,y) location as defined by the centroid of each Structure.

Prototype

```
http://api.brain-map.org/api/v2/structure_to_image/[SectionDataSet.id].[xml|json]?structure_ids=[#,#,#...]
```

Example

For each Structure in the input list, locate the closest image and (x,y) location in SectionDataSet 68545324:

```
http://api.brain-map.org/api/v2/structure_to_image/68545324.xml?structure_ids=315,
698,1089,703,477,803,512,549,1097,313,771,354
```

Parameters

filename	Integer	ID of the closest SectionImage to the 3-D centroid of the structure.
file extension	String	XML or JSON format is specified as the file extension.
structure_ids	Array	List of target Structures for sync.

Returns

XML or JSON document containing the following for each Structure in the structure_ids:

section_image_id	Closest SectionImage to the 3-D centroid of the structure.
section_number	Section number of the closest SectionImage.
x	Closest x pixel coordinate of the closest SectionImage.
y	Closest y pixel coordinate of the closest SectionImage.