# Downloading an Image

## DOWNLOADING AN IMAGE

Download whole or partial two-dimensional images from the Allen Institute with the Image and AtlasImage Download Services.

## Image Download Service

The Image download service serves whole and partial two-dimensional images presented on the Allen Brain Atlas Web site. Some images can be downloaded with expression or projection data. Glioblastoma images' color block and boundary data can also be downloaded.

### Prototype

```
http://api.brain-map.org/api/v2/image_download/[SubImage.id]?downsample=[#]&quality=[#]&view=
[expression|projection|tumor_feature_annotation|tumor_feature_boundary]
```

### Examples

Download a downsampled SectionImage of one sagittal section from the Mouse Brain Pdyn SectionDataSet:

```
http://api.brain-map.org/api/v2/image_download/69750516?downsample=4
```

Download a downsampled expression mask for a SectionImage of one sagittal section from the Mouse Brain Pdyn SectionDataSet:

```
http://api.brain-map.org/api/v2/image_download/69750516?downsample=4&view=expression
```

Download a region of interest at full resolution from the same sagittal SectionImage:

```
http://api.brain-map.org/api/v2/image_download/69750516?left=6174&top=2282&width=1000&height=1000
```

Download SectionImage 71592261 downsampled 3 times with 50% image quality:

```
http://api.brain-map.org/api/v2/image_download/71592261?downsample=3&quality=50
```

Download the downsampled SectionImage 126862583 with projection:

```
http://api.brain-map.org/api/v2/projection_image_download/126862583?downsample=4&view=projection
```

Determine the default range values for a Mouse Connectivity Projection experiment by referring to its associated Equalization model (red_lower=0, red_upper=923, green_lower=0, green_upper=987, blue_lower=0, blue_upper=4095), then download one of its downsampled SectionImages:

```
http://api.brain-map.org/api/v2/data/SectionDataSet/100141599.xml?include=equalization,section_images

http://api.brain-map.org/api/v2/image_download/102146167?range=0,923,0,987,0,4095&downsample=4
```

Download the color block or color boundary image designating tissue features of Glioblastoma tumor:

```
http://api.brain-map.org/api/v2/image_download/311175878?downsample=4&view=tumor_feature_annotation

http://api.brain-map.org/api/v2/image_download/311174547?downsample=4&view=tumor_feature_boundary
```

Find the closest NISSL image to SectionImage 71592261 and download it:

First, search for the closest NISSL image:

```
http://api.brain-map.org/api/v2/data/query.xml?criteria=
model::SectionImage,
rma::criteria,[id$eq71592261],
rma::include,associates(data_set(treatments[name$eq'NISSL']))
```

Second, download the NISSL image using the Associate.id:

```
http://api.brain-map.org/api/v2/image_download/71592412
```

Download all of the sagittal images in the Mouse Brain Atlas for the gene Adora2a at full resolution.

First, search for relevant experiments' IDs (SectionDataSets):

```
http://api.brain-map.org/api/v2/data/query.xml?criteria=
model::SectionDataSet,
rma::criteria,[failed$eq'false'],products[abbreviation$eq'Mouse'],plane_of_section[name$eq'sagittal'],genes
[acronym$eq'Adora2a']
```

Second, retrieve a list of all images for one of the experiments (SectionImages):

```
http://api.brain-map.org/api/v2/data/query.xml?criteria=
model::SectionImage,
rma::criteria,[data_set_id$eq70813257]
```

Finally, iterate through the list of images and call the SectionImage Download Service with their IDs:

```
http://api.brain-map.org/api/v2/image_download/70679088
```

## Parameters

| filename | Integer | SectionImage.id identifying the image to download. |
|---|---|---|
| view | String (optional) | <ul><li>Set the value to **expression** to retrieve the specified SectionImage's expression mask image.</li><li>Set the value to **tumor_feature_annotation** to retrieve the color block image for a Glioblastoma SectionImage.</li><li>Set the value to **tumor_feature_boundary** to retrieve the color boundary image for a Glioblastoma SectionImage.</li><li>Set the value to **projection** to retrieve the specified SectionImage with projection.</li></ul> |
| downsample | Integer (optional) | The number of times to downsample the original image. For example, 'downsample=1' halves the number of pixels of the original image both horizontally and vertically. Specifying 'downsample=2' quarters the height and width values. |

| | | |
|---|---|---|
| q<br>u<br>al<br>ity | In<br>te<br>g<br>er<br>(o<br>pti<br>o<br>n<br>al) | The jpeg quality of the returned image. This must be an integer from 0, for the lowest quality, up to as high as 100. If it is not specified, it defaults to the highest quality. |
| le<br>ft | In<br>te<br>g<br>er<br>(o<br>pti<br>o<br>n<br>al) | Index of the leftmost column of the region of interest, specified in full-resolution (largest tier) pixel coordinates. SectionImage.x is the default value. |
| top | In<br>te<br>g<br>er<br>(o<br>pti<br>o<br>n<br>al) | Index of the topmost row of the region of interest, specified in full-resolution (largest tier) pixel coordinates. SectionImage.y is the default value. |
| w<br>id<br>th | In<br>te<br>g<br>er<br>(o<br>pti<br>o<br>n<br>al) | Number of columns in the output image, specified in tier-resolution (desired tier) pixel coordinates. SectionImage.width is the default value. It is automatically adjusted when downsampled. |
| h<br>ei<br>g<br>ht | In<br>te<br>g<br>er<br>(o<br>pti<br>o<br>n<br>al) | Number of rows in the output image, specified in tier-resolution (desired tier) pixel coordinates. SectionImage.height is the default value. It is automatically adjusted when downsampled. |
| r<br>a<br>n<br>ge | Ar<br>ra<br>y<br>(o<br>pti<br>o<br>n<br>al) | Filter to specify the RGB channels. The range parameter consists of 6 comma delimited integers that define the lower (0) and upper (255) bound for each channel in red-green-blue order (i.e. "range=0,1500,0,1000,0,4095"). The default range values can be determined by referring to the following fields on the Equalization model associated with the SectionDataSet: red_lower, red_uppper, green_lower, green_upper, blue_lower, blue_upper. For more information, see the "Image Controls" section of the Allen Mouse Brain Connectivity Atlas: Projection Dataset help topic. |

## Returns

A jpeg file of the requested image.

## AtlasImage Download Service

The AtlasImage download service serves whole and partial two-dimensional images with annotations presented on the Allen Brain Atlas Web site.

### Prototype

```
http://api.brain-map.org/api/v2/atlas_image_download/[AtlasImage.id]?downsample=[#]&quality=[#]&annotation=
[true|false]&atlas=[#]
```

### Examples

Download the downsampled AtlasImage 100883869 with annotations:

```
http://api.brain-map.org/api/v2/atlas_image_download/100883869?downsample=4&annotation=true
```

Request P56 Mouse Brain Atlas' annotations:

```
http://api.brain-map.org/api/v2/atlas_image_download/100883869?downsample=4&annotation=true&atlas=2
```

Request P56 Developing Mouse Brain Atlas' annotations:

```
http://api.brain-map.org/api/v2/atlas_image_download/100883869?downsample=4&annotation=true&atlas=181276165
```

Download all of the Mouse, P56 Sagittal Atlas' Nissl images.

First, review the list of current Atlas Drawings and Ontologies to determine the Mouse, P56 Sagittal Atlas' ID (Atlas id=2).

Second, retrieve a list of the Mouse, P56 Sagittal Atlas' Nissl images (Atlas id=2):

```
http://api.brain-map.org/api/v2/data/query.xml?criteria=
model::Atlas,
rma::criteria,[id$eq2],
rma::include,atlas_data_sets(atlas_images(treatments))
```

Finally, iterate through the list of AtlasImages and call the AtlasImage Download Service to download the Nissl images:

```
http://api.brain-map.org/api/v2/atlas_image_download/100883771
```

## Parameters

| filename | Integer | AtlasImage.id identifying the image to download. |
|---|---|---|
| annotation | Boolean (optional) | Set the value to true to retrieve the specified AtlasImage with annotations. |
| atlas | Integer (optional) | Specify the desired Atlas.ID for the annotations. The P56 Adult Mouse Brain Atlas and Developing Mouse Brain Atlas share a common AtlasDataSet, so the Atlas.ID should be specified. |
| downsample | Integer (optional) | The number of times to downsample the original image. For example, 'downsample=1' halves the number of pixels of the original image both horizontally and vertically. Specifying 'downsample=2' quarters the height and width values. |
| quality | Integer (optional) | The jpeg quality of the returned image. This must be an integer from 0, for the lowest quality, up to as high as 100. If it is not specified, it defaults to the highest quality. |
| left | Integer (optional) | Index of the leftmost column of the region of interest, specified in full-resolution (largest tier) pixel coordinates. SectionImage.x is the default value. |
| top | Integer (optional) | Index of the topmost row of the region of interest, specified in full-resolution (largest tier) pixel coordinates. SectionImage.y is the default value. |
| width | Integer (optional) | Number of columns in the output image, specified in tier-resolution (desired tier) pixel coordinates. SectionImage.width is the default value. It is automatically adjusted when downsampled. |
| height | Integer (optional) | Number of rows in the output image, specified in tier-resolution (desired tier) pixel coordinates. SectionImage.height is the default value. It is automatically adjusted when downsampled. |

## Returns

A jpeg file of the requested image.