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# **sbg Documentation**

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**Seven Bridges Genomics**

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# Contents

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<b>1</b>	<b>Content</b>	<b>3</b>
1.1	Installation . . . . .	3
1.2	Get the Code . . . . .	3
1.3	Quickstart . . . . .	3
1.4	sevenbridges package . . . . .	36
	<b>Python Module Index</b>	<b>103</b>
	<b>Index</b>	<b>105</b>



sevenbridges-python is a [Python](#) library that provides an interface for the [Seven Bridges Platform](#) and [Cancer Genomics Cloud](#) public APIs.

The Seven Bridges Platform is a cloud-based environment for conducting bioinformatic analyses. It is a central hub for teams to store, analyze, and jointly interpret their bioinformatic data. The Platform co-locates analysis pipelines alongside the largest genomic datasets to optimize processing, allocating storage and compute resources on demand.

The The Cancer Genomics Cloud (CGC), powered by Seven Bridges, is also a cloud-based computation environment. It was built as one of three pilot systems funded by the National Cancer Institute to explore the paradigm of colocalizing massive genomics datasets, like The Cancer Genomics Atlas (TCGA), alongside secure and scalable computational resources to analyze them. The CGC makes more than a petabyte of multi-dimensional data available immediately to authorized researchers. You can add your own data to analyze alongside TCGA using predefined analytical workflows or your own tools.



## 1.1 Installation

The easiest way to install `sevenbridges-python` is using `pip`.

```
$ pip install sevenbridges-python
```

## 1.2 Get the Code

`sevenbridges-python` is actively developed on GitHub, where the [code](#) is always available.

The easiest way to obtain the source is to clone the public repository:

```
$ git clone git://github.com/sbg/sevenbridges-python.git
```

Once you have a copy of the source, you can embed it in your Python package, or install it into your site-packages by invoking:

```
$ python setup.py install
```

If you are interested in reviewing this documentation locally, clone the repository and invoke:

```
:: $ make html
```

from the docs folder.

## 1.3 Quickstart

On this page, you'll find a reference for the Seven Bridges API Python client.

We encourage you to consult our other API resources:

- The Seven Bridges Github repository, [okAPI](#), which includes Python example scripts such as recipes (which allow you to perform specific tasks) and tutorials (which will walk you through entire analyses) via the API. These recipes and tutorials make use of the `sevenbridges-python` bindings below.
- The Seven Bridges API documentation on our [Knowledge Center](#), which includes a reference collection of API requests to help you get started right away.

### 1.3.1 Authentication and Configuration

In order to authenticate with the API, you should pass the following items to `sevenbridges-python`:

- (a) Your authentication token
- (b) The API endpoint you will be interacting with. This is either the endpoint for the Seven Bridges Platform or for the Seven Bridges Cancer Genomics Cloud (CGC) or for CAVATICA.

You can find your authentication token on the respective pages:

- <https://igor.sbgenomics.com/developer> for the Seven Bridges Platform
- <https://cgc.sbgenomics.com/developer> for the CGC
- <https://cavatica.sbgenomics.com/developer> for Cavatica

The API endpoints for each environment are:

- <https://api.sbgenomics.com/v2> for the Seven Bridges Platform
- <https://cgc-api.sbgenomics.com/v2> for the CGC.
- <https://cavatica-api.sbgenomics.com/v2> for CAVATICA

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**Note:** We will see below how to supply information about your auth token and endpoint to the library.

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For more information about the API, including details of the available parameters for each API call, you should check the API documentation before using this library:

- <http://docs.sevenbridges.com/docs/the-api> for the Seven Bridges Platform.
- <http://docs.cancergenomicscloud.org/docs/the-cgc-api> for the CGC.
- <http://docs.cavatica.org/docs/the-api> for CAVATICA

### 1.3.2 How to use the Quickstart

We recommend that you pay particular attention to the section ‘Managing Projects’ of this Quickstart, since it contains general information on working with any kind of Platform or CGC resource (projects, files, tasks, etc) via the Python methods available in this library.

### 1.3.3 Initializing the library

Once you have obtained your authentication token from one of the URLs listed above, you can initialize the `Api` object defined by this library by passing in your authentication token and endpoint. There are three methods to do this. Details of each method are given below:

1. Pass the parameters `url` and `token` and optional `proxies` explicitly when initializing the API object.



2. Set the API endpoint and token to the environment variables `SB_API_ENDPOINT` and `SB_AUTH_TOKEN` respectively.
3. Use a configuration file `$HOME/.sevenbridges/credentials` with the defined credentials parameters. If `config` is used proxy settings will be read from `$HOME/.sevenbridges/sevenbridges-python/config.ini` like file for section `[proxies]`

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**Note:** Keep your authentication token safe! It encodes all your credentials on the Platform or CGC. Generally, we recommend storing the token in a configuration file, which will then be stored in your home folder rather than in the code itself. This prevents the authentication token from being committed to source code repositories.

---

## Import the library

You should begin by importing the API library `sevenbridges-python` to your python script that will interact with the API:

```
import sevenbridges as sbg
```

Then, use one of the following three methods to initialize the library:

### 1. Initialize the library explicitly

The library can be also instantiated explicitly by passing the URL and authentication token as key-value arguments into the `Api` object.

```
api = sbg.Api(url='https://api.sbgenomics.com/v2', token='<TOKEN_HERE>')
```

*Note* - you can initialize several API clients with different credentials or environments.

### 2. Initialize the library using environment variables

```
import os

# Usually these variables would be set in the shell beforehand
os.environ['SB_API_ENDPOINT'] = '<https://api.sbgenomics.com/v2' # or 'https://cgc-
↳api.sbgenomics.com/v2>' for cgc, or 'https://cavatica-api.sbgenomics.com/v2' for
↳cavatica
os.environ['SB_AUTH_TOKEN'] = '<TOKEN_HERE>'

api = sbg.Api()
```

### 3. Initialize the library using a configuration file

The configuration file, `$HOME/.sevenbridges/credentials`, has a simple `.ini` file format, with the environment (the Seven Bridges Platform, or the CGC, or Cavatica) indicated in square brackets, as shown:

```
[default]
api_endpoint = https://api.sbgenomics.com/v2
auth_token = <TOKEN_HERE>
```

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```
[cgc]
api_endpoint = https://cgc-api.sbgenomics.com/v2
auth_token = <TOKEN_HERE>

[cavatica]
api_endpoint = https://cavatica-api.sbgenomics.com/v2
auth_token = <TOKEN_HERE>
```

The `Api` object is the central resource for querying, saving and performing other actions on your resources on the Seven Bridges Platform or CGC. Once you have instantiated the configuration class, pass it to the API class constructor.

```
c = sbg.Config(profile='cgc')
api = sbg.Api(config=c)
```

If not profile is set it will use the default profile.

---

**Note:** if user creates the `api` object `api=sbg.Api()` and does not pass any information the library will first search whether the environment variables are set. If not it will check if the configuration file is present and read the [default] profile. If that also fail it will raise an exception

---

## Advance Access Features

Advance access features are subject to a change. To enable them just pass the `advance_access=True` flag when instantiating the library

```
api = sbg.Api(url='https://api.sbgenomics.com/v2', token='<TOKEN_HERE>', advance_
↪access=True)
```

---

### Note:

- Advance access features are subject to a change. No guarantee of any sort is given for AA API calls maintainability.
- 

If you fully understand the above mentioned limitation of Advance access features and are certain you want to use the features across your scripts, you can set this in the `$HOME/.sevenbridges/sevenbridges-python/config` configuration file.

```
[mode]
advance_access=True
```

## 1.3.4 Proxy configuration

Proxy configuration can be supplied in three different ways.

- explicit initialization

```
api = sb.Api(url='https://api.sbgenomics.com/v2', token='<TOKEN_HERE>',
proxies={'https_proxy':'host:port', 'http_proxy': 'host:port'})
```

- environment variables

```
os.environ['HTTP_PROXY'] = 'host:port'
os.environ['HTTPS_PROXY'] = 'host:port'
```

- `$HOME/sevenbridges/sevenbridges-python/config` configuration file

```
[proxies]
https_proxy=host:port
http_proxy=host:port
```

- Explicit with config

```
config = sb.Config(profile='my-profile',
                  proxies={'https_proxy':'host:port', 'http_proxy':
→ 'host:port'})
api = sb.Api(config=config)
```

---

**Note:** Once you set the proxy, all calls including upload and download will use the proxy settings.

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### 1.3.5 Low level configuration

For low level library tweaking such as: number of cached connections and number of parallel requests (useful only for multi-thread applications) there are few useful arguments when instantiating `Api`.

- Three arguments are directly exposed from requests library. Argument `pool_connections` is the number of urllib3 connection pools to cache. Argument `pool_maxsize` gives ability to constraint maximum number of parallel requests to save in the pool while `pool_block` flag tells whether the connection pool should block for connections. More detailed explanation of those arguments can be found [here](#).

```
api = sb.Api(
    pool_connections=<CONN_NUMBER>,
    pool_maxsize=<POOL_SIZE>,
    pool_block=<BLOCK_FLAG>
)
```

- There is a way to throttle number of parallel requests over all connection pools. That is done using `max_parallel_requests` argument.

```
api = sb.Api(max_parallel_requests=<MAX_PARALLEL>)
```

---

**Note:** Changing those values from default could affect performance.

---

### 1.3.6 Rate limit

For API requests that require authentication (i.e. all requests, except the call to list possible API paths), you can issue a maximum of 1000 requests per 300 seconds. Note that this limit is generally subject to change, depending on API usage and technical limits. Your current rate limit, the number of remaining requests available within the limit, and the time until your limit is reset can be obtained using your `Api` object, as follows.

```
api.limit
api.remaining
api.reset_time
```

### 1.3.7 Error Handlers

Error handler is a callable that accepts the `api` and `response` objects and returns the response object. They are most useful when additional logic needs to be implemented based on request result.

Example:

```
def error_handler(api, response):
    # Do something with the response object
    return response
```

`sevenbridges-python` library comes bundled with several useful error handlers. The most used ones are `maintenance_sleeper` and `rate_limit_sleeper` which pause your code execution until the SevenBridges/CGC public API is in maintenance mode or when the rate limit is breached.

Usage:

```
from sevenbridges.http.error_handlers import rate_limit_sleeper, maintenance_sleeper
api = sb.Api(url='https://api.sbgenomics.com/v2', token='<TOKEN_HERE>',
            error_handlers=[rate_limit_sleeper, maintenance_sleeper])
```

---

**Note:** Api object instantiated in this way with error handlers attached will be resilient to server maintenance and rate limiting.

---

### 1.3.8 Resource

Most objects handled by `sevenbridges-python` are inherited from the `Resource` model, which contains some basic methods for all inherited resources.

Resources support lazy fetching, so if a `Resource` is created with an `id` or `href` the client will fetch it from the API when any attribute is accessed directly (with a dot operator).

All resources contain the `api` property which is generally set by the client to be the previously configured default one, but it can be overridden on a `Resource` level.

All resources implement the following class methods:

- `get(id='resource_id')` - Sends a GET request to the API to retrieve the resource

All resources implement the following instance methods:

- `reload()` - Re-initializes the resource with it's data from the API server
- `delete()` - Sends a DELETE request to the API to delete the resource
- `field(name='field_name')` - Reads a field value without lazy fetching

### 1.3.9 Managing users

Currently any authenticated user can access his or her information by invoking the following method:

```
me = api.users.me()
```

Once you have initialized the library by authenticating yourself, the object `me` will contain your user information. This includes:

```
me.href
me.username
me.email
me.first_name
me.last_name
me.affiliation
me.phone
me.address
me.city
me.state
me.zip_code
me.country
me.role
```

For example, to obtain your email address invoke:

```
me.email
```

For user management in divisions and teams, the following are available:

```
# All users in division
users = api.users.query(division='<division_slug>')

# Division members
members = api.users.query(division='<division_slug>', role='member')

# Division admins
admins = api.users.query(division='<division_slug>', role='admin')

# Division external collaborators
external = api.users.query(division='<division_slug>', role='external_collaborator')

# Teams for a division
teams = api.teams.query(division='<division_slug>')

# All teams in division
teams_all = api.teams.query(division='<division_slug>', list_all=True)
```

For disabling users:

### 1.3.10 Managing projects

There are several methods on the `Api` object that can help you manage your projects.

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**Note:** If you are not familiar with the project structure of the Seven Bridges Platform and CGC, take a look at their respective documentation: [projects on the CGC](#) and [projects on the Seven Bridges Platform](#).

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## List Projects - introduction to pagination and iteration

In order to list your projects, invoke the `api.projects.query` method. This method follows server pagination and therefore allows pagination parameters to be passed to it. Passing a pagination parameter controls which resources you are shown. The `offset` parameter controls the start of the pagination while the `limit` parameter controls the number of items to be retrieved.

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**Note:** See the [Seven Bridges API overview](#) or the [CGC API overview](#) for details of how to refer to a project, and for examples of the pagination parameters.

---

Below is an example of how to get all your projects, using the `query` method and the pagination parameters `offset` of 0 and `limit` of 10.

```
project_list = api.projects.query(offset=0, limit=10)
```

`project_list` has now been defined to be an object of the type **collection** which acts just like a regular python list, and so supports indexing, slicing, iterating and other list functions. All collections in the `sevenbridges-python` library have two methods: `next_page` and `previous_page` which allow you to load the next or previous pagination pages.

There are several things you can do with a **collection** of any kind of object:

1. The generic query, e.g. `api.projects.query()`, accepts the pagination parameters `offset` and `limit` as introduced above.
2. If you wish to iterate on a complete **collection** use the `all()` method, which returns an iterator
3. If you want to manually iterate on the **collection** (page by page), use `next_page()` and `previous_page()` methods on the collection.
4. You can easily cast the **collection** to the list, so you can re-use it later by issuing the standard Python `project_list = list(api.projects.query().all())`.

```
# Get details of my first 10 projects.
project_list = api.projects.query(limit=10)
```

```
# Query projects by project name
project_list = api.projects.query(name=project_name)
```

```
# Iterate through all my projects and print their name and id
for project in api.projects.query().all():
    print (project.id,project.name)
```

```
# Get all my current projects and store them in a list
my_projects = list(api.projects.query().all())
```

## Get details of a single project

You can get details of a single project by issuing the `api.projects.get()` method with the parameter `id` set to the id of the project in question. Note that this call, as well as other calls to the API server may raise an exception which you can catch and process if required.

*Note* - To process errors from the library, import `SbgError` from `sevenbridges.errors`, as shown below.

```

from sevenbridges.errors import SbgError
try:
    project_id = 'doesnotexist/forsure'
    project = api.projects.get(id=project_id)
except SbgError as e:
    print (e.message)

```

Errors in `SbgError` have the properties `code` and `message` which refer to the number and text of 4-digit API status codes that are specific to the Seven Bridges Platform and API. To see all the available codes, see the documentation:

- <http://docs.sevenbridges.com/docs/api-status-codes> for the Seven Bridges Platform
- <http://docs.cancergenomicscloud.org/docs/api-status-codes> for the CGC.

## Project properties

Once you have obtained the `id` of a Project instance, you can see its properties. All projects have the following properties:

`href` - Project href on the API

`id` - Id of the project

`name` - name of the project

`description` - description of the project

`billing_group` - billing group attached to the project

`type` - type of the project (v1 or v2)

`tags` - list of project tags

`root_folder` - Id of project's root folder

`settings` - Project settings

`created_by` - Project creator

`created_on` - Date of creation

`modified_on` - Modification date

The property `href` `href` is a URL on the server that uniquely identifies the resource in question. All resources have this attribute. Each project also has a name, identifier, description indicating its use, a type, some tags and also a `billing_group` identifier representing the billing group that is attached to the project.

## Project methods – an introduction to methods in the sevenbridges-python library

There are two types of methods in the `sevenbridges-python` library: static and dynamic. Static methods are invoked on the `Api` object instance. Dynamic methods are invoked from the instance of the object representing the resource (e.g. the project).

Static methods include:

1. Create a new resource: for example, `api.projects.create(name="My new project", billing_group='296a98a9-424c-43f3-aec5-306e0e41c799')` creates a new resource. The parameters used will depend on the resource in question.
2. Get a resource: the method `api.projects.get(id='user/project')` returns details of a specific resource, denoted by its id.

3. Query resources - the method `api.projects.query()` method returns a pageable list of type `collection` of projects. The same goes for other resources, so `api.tasks.query(status='COMPLETED')` returns a **collection** of completed tasks with default paging.

Dynamic methods can be generic (for all resources) or specific to a single resource. They are called on a concrete object, such as a `Project` object.

So, suppose that `project` is an instance of `Project` object. Then, we can:

1. Delete the resource: `project.delete()` deletes the object (if deletion of this resource is supported on the API).
2. Reload the resource from server: `project.reload()` reloads the state of the object from the server.
3. Save changes to the server: `project.save()` saves all properties

The following example shows some of the methods used to manipulate projects.

```
# Get a collection of projects
projects = api.projects.query()

# Grab the first billing group
bg = api.billing_groups.query(limit=1)[0]

# Create a project using the billing group grabbed above
new_project = api.projects.create(name="My new project", billing_group=bg.id)

# Add a new member to the project
new_project.add_member(user='newuser', permissions= {'write':True, 'execute':True})
```

Other project methods include:

1. Get members of the project and their permissions - `project.get_members()` - returns a `Collection` of members and their permissions
2. Add a member to the project - `project.add_member()`
3. Add a team member to the project - `project.add_member_team()`
4. Add a division member to the project - `project.add_member_division()`
5. Remove a member from the project - `project.remove_member()`
6. List files from the project - `project.get_files()`
7. Add files to the project - `project.add_files()` - you can add a single `File` or a `Collection` of files
8. List apps from the project - `project.get_apps()`
9. List tasks from the project - `project.get_tasks()`

### 1.3.11 Managing datasets

The Cavatica Datasets API functionality is an advance access feature which allows you to manage datasets and their members using dedicated API calls.

The following operations are supported:

- `query()` - Query all datasets
- `get_owned_by()` - Get all datasets owned by a provided user
- `get()` - Get dataset with the provided id



- `save()` - Save changes to a dataset
- `delete()` - Delete dataset
- `get_members()` - Get all members of a dataset
- `get_member()` - Get details on a member of a dataset
- `add_member()` - Add a member to a dataset
- `remove_member()` - Remove member from a dataset

## Dataset properties

Each dataset has the following properties:

`href` - The URL of the dataset on the API server.

`id` - Dataset identifier.

`name` - Dataset name.

`description` - Dataset description.

## Member permissions

Dataset permissions can be accessed and edited directly on the member object.

## Examples

```
# List all public datasets
datasets = api.datasets.query(visibility='public')

# List all datasets owned by user
datasets = api.datasets.query()

# List datasets by owner
datasets_by_owner = api.datasets.get_owned_by('dataset_owner')

# Get details of a dataset
dataset = api.datasets.get('dataset_owner/dataset-name')

# List members of a dataset
members = dataset.get_members()

# Get details of a dataset member
member = dataset.get_member('dataset_member')

# Modify a dataset member's permissions
member.permissions['execute'] = False
member.save()

# Get a dataset member's permissions
permissions = member.permissions

# List dataset files
files = api.files.query(dataset=dataset)
```

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```
# Edit a dataset
dataset.description = 'A new description'
dataset.save()

# Remove a dataset member
dataset.remove_member(member=member)

# Add a dataset member
added_member = dataset.add_member(
    username='new_member',
    permissions={
        "write": True,
        "read": True,
        "copy": False,
        "execute": True,
        "admin": False
    }
)

# Delete a dataset
dataset.delete()
```

### 1.3.12 Manage billing

There are several methods on the `Api` object to can help you manage your billing information. The billing resources that you can interact with are *billing groups* and *invoices*.

#### Manage billing groups

Querying billing groups will return a standard **collection** object.

```
# Query billing groups
bgroup_list = api.billing_groups.query(offset=0, limit=10)
```

```
# Fetch a billing group's information
bg = api.billing_groups.get(id='f1969c90-da54-4118-8e96-c3f0b49a163d')
```

#### Billing group properties

The following properties are attached to each billing group:

`href` - Billing group href on the API server.

`id` - Billing group identifier.

`owner` - Username of the user that owns the billing group.

`name` - Billing group name.

`type` - Billing group type (free or regular)

`pending` - True if billing group is not yet approved, False if the billing group has been approved.

`disabled` - True if billing group is disabled, False if its enabled.

`balance` - Billing group balance.

## Billing group methods

There is one billing group method:

`breakdown()` fetches a cost breakdown by project and analysis for the selected billing group.

## Manage invoices

Querying invoices will return an Invoices **collection** object.

```
invoices = api.invoices.query()
```

Once you have obtained the invoice identifier you can also fetch specific invoice information.

```
invoices = api.invoices.get(id='6351830069')
```

## Invoice properties

The following properties are attached to each invoice.

`href` - Invoice href on the API server.

`id` - Invoice identifier.

`pending` - Set to `True` if invoice has not yet been approved by Seven Bridges, `False` otherwise.

`analysis_costs` - Costs of your analysis.

`storage_costs` - Storage costs.

`total` - Total costs.

`invoice_period` - Invoicing period (from-to)

### 1.3.13 Managing files and folders

Files are an integral part of each analysis. As for as all other resources, the `sevenbridges-python` library enables you to effectively query files, in order to retrieve each file's details and metadata. The request to get a file's information can be made in the same manner as for projects and billing, presented above.

Folders are represented as files with the type "folder".

The available methods for fetching specific files are `query` and `get`:

```
# Query all files in a project
file_list = api.files.query(project='user/my-project')
```

```
# Get a single file's information
file = api.files.get(id='5710141760b2b14e3cc146af')
```

## File properties

Each file has the following properties:

`href` - File href on the API server.

`id` - File identifier.

type - File type.

name - File name.

size - File size in bytes.

parent - Parent folder.

project - Identifier of the project that file is located in.

created\_on - Date of the file creation.

modified\_on - Last modification of the file.

origin - File origin information, indicating the task that created the file.

tags - File tags.

metadata - File metadata.

## File methods

Files have the following methods:

- Refresh the file with data from the server: `reload()`
- Copy the file from one project to another: `copy()`
- Download the file: `download()`
- Save modifications to the file to the server `save()`
- Delete the resource: `delete()`
- List files in folder: `list_files()`
- Create folder: `create_folder()`
- Copy file to folder: `copy_to_folder()`
- Move file to folder: `move_to_folder()`

See the examples below for information on the arguments these methods take:

## Examples

```
# Filter files by name to find only file names containing the specified string:
files = api.files.query(project='user/my-project')
my_file = [file for file in files if 'fasta' in file.name]

# Or simply query files by name if you know their exact file name(s)
files = api.files.query(project='user/myproject', names=['SRR062634.filt.fastq.gz',
↳ 'SRR062635.filt.fastq.gz'])
my_files = api.files.query(project='user/myproject', metadata = {'sample_id':
↳ 'SRR062634'})

# Query contents of a folder
parent = api.files.get('parent_folder_id')
result = api.files.query(parent=parent)

# Edit a file's metadata
my_file = my_files[0]
```

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```
my_file.metadata['sample_id'] = 'my-sample'
my_file.metadata['library'] = 'my-library'

# Add metadata (if you are starting with a file without metadata)
my_file = my_files[0]
my_file.metadata = {'sample_id' : 'my-sample',
                    'library' : 'my-library'
                    }

# Also set a tag on that file
my_file.tags = ['example']

# Save modifications
my_file.save()

# Copy a file between projects
new_file = my_file.copy(project='user/my-other-project', name='my-new-file')

# Download a file to the current working directory
# Optionally, path can contain a full path on local filesystem
new_file.download(path='my_new_file_on_disk')

# Get a folder
folder = api.files.get('file-identifier')

# List files in a folder
file_list = folder.list_files()

# Create folder (with a project or parent identifier)
new_folder = api.files.create_folder(
    name='new_folder_name', project='project-identifier',
)
new_folder = api.files.create_folder(
    name='new_folder_name', parent='parent-folder-identifier'
)

# Copy file to folder
copied_file = my_file.copy_to_folder(
    parent=new_folder, name='new-file-name'
)

# Move file to folder
moved_file = my_file.move_to_folder(
    parent=new_folder, name='new-file-name'
)
```

### List Files - introduction to pagination

The results of files queries - `api.files.query()` and `api.files.list_files()`, can be paginated in two ways: using offset or continuation token parameter.

Working with offset pagination is equivalent to that explained in ‘List Projects - introduction to pagination and iteration’ section, so one can get informed there about using `offset` and `limit` parameters.

The continuation token pagination can be achieved by using `cont_token` parameter (in combination with `limit`)

in query methods (`query()/list_files()`). This parameter is a base64 encoded value, telling server where to start next page. If one wants to use continuation token pagination, `query()/list_files()` method should be called with `cont_token` parameter, as in example below:

```
files_list = api.files.query(cont_token='init', limit=10)
```

The 'init' value is special initial value that should be passed at first call of `query()/list_files()` method if continuation token pagination is desired.

There are certain restrictions on using this parameter:

1. The continuation token pagination is advance access feature, so `cont_token` parameter can be used only if `advance_access` is set to `True`, otherwise `SbgError` will be returned.
2. The continuation token pagination cannot be used together with metadata filtering, so if `cont_token` and `metadata` parameters are both provided to `query()/list_files()`, `SbgError` will be returned.
3. The continuation token pagination and offset pagination are mutually exclusive, so if there are passed both `cont_token` and `offset` parameters to `query()/list_files()`, `SbgError` will be returned.

### 1.3.14 Managing file upload and download

`sevenbridges-python` library provides both synchronous and asynchronous way of uploading or downloading files.

#### File Download

Synchronous file download:

```
file = api.files.get('file-identifier')
file.download('/home/bar/foo/file.bam')
```

Asynchronous file download:

```
file = api.files.get('file-identifier')
download = file.download('/home/bar/foo.bam', wait=False)

download.path # Gets the target file path of the download.
download.status # Gets the status of the download.
download.progress # Gets the progress of the download as percentage.
download.start_time # Gets the start time of the download.
download.duration # Gets the download elapsed time.

download.start() # Starts the download.
download.pause() # Pauses the download.
download.resume() # Resumes the download.
download.stop() # Stops the download.
download.wait() # Block the main loop until download completes.
```

You can register the callback or error callback function to the download handle: `download.add_callback(callback=my_callback, errorback=my_error_back)`

Registered callback method will be invoked on completion of the download. The errorback method will be invoked if error happens during download.

## File Upload

Synchronous file upload:

```
# Get the project or parent folder to where we want to upload files.
project = api.projects.get('project-identifier')
api.files.upload('/home/bar/foo/file.fastq', project=project)

parent_folder = api.files.get('folder-identifier')
api.files.upload('/home/bar/foo/file.fastq', parent=parent_folder)

# Optionally we can set file name of the uploaded file.
api.files.upload('/home/bar/foo/file.fastq', project, file_name='new.fastq')
```

Asynchronous file upload:

```
upload = api.files.upload('/home/bar/foo/file.fastq', 'project-identifier',
↳wait=False)

upload.file_name # Gets the file name of the upload.
upload.status # Gets the status of the upload.
upload.progress # Gets the progress of the upload as percentage.
upload.start_time # Gets the start time of the upload.
upload.duration # Gets the upload elapsed time.

upload.start() # Starts the upload.
upload.pause() # Pauses the upload.
upload.resume() # Resumes the upload.
upload.stop() # Stops the upload.
upload.wait() # Block the main loop until upload completes.
```

You can register the callback or error callback in the same manner as it was described for asynchronous file download.

### 1.3.15 Managing volumes: connecting cloud storage to the Platform

Volumes authorize the Platform to access and query objects on a specified cloud storage (Amazon Web Services or Google Cloud Storage) on your behalf. As for all other resources, the sevenbridges-python library enables you to effectively query volumes, import files from a volume to a project or export files from a project to the volume.

The available methods for listing volumes, imports and exports are query and get, as for other objects:

```
# Query all volumes
volume_list = api.volumes.query()
# Query all imports
all_imports = api.imports.query()
# Query failed exports
failed_exports = api.exports.query(state='FAILED')
```

```
# Get a single volume's information
volume = api.volumes.get(id='user/volume')
# Get a single import's information
i = api.imports.get(id='08M4ywDZkQuJOb3L5M8mMSvzoeGezTdh')
# Get a single export's information
e = api.exports.get(id='0C7T8sBDP6aiNbwvXv12QZFPW55wJ3GJ')
```

## Volume properties

Each volume has the following properties:

`href` - Volume href on the API server.

`id` - Volume identifier in format owner/name.

`name` - Volume name. Learn more about this in our [Knowledge Center](#).

`access_mode` - Whether the volume was created as read-only (RO) or read-write (RW). Learn more about this in our [Knowledge Center](#).

`active` - Whether or not this volume is active.

`created_on` - Time when the volume was created.

`modified_on` - Time when the volume was last modified.

`description` - An optional description of this volume.

`service` - This object contains the information about the cloud service that this volume represents.

## Volume methods

Volumes have the following methods:

- Refresh the volume with data from the server: `reload()`
- Get imports for a particular volume `get_imports()`
- Get exports for a particular volume `get_exports()`
- Create a new volume based on the AWS S3 service - `create_s3_volume()`
- Create a new volume based on the Google Cloud Storage service - `create_google_volume()`
- Create a new volume based on the Aliyun service - `create_oss_volume()`
- Save modifications to the volume to the server `save()`
- Unlink the volume `delete()`
- Get volume members `get_members()`
- Add a member to the project - `add_member()`
- Add a team member to the project - `add_member_team()`
- Add a division member to the project - `add_member_division()`
- List files that belong to a volume - `list()`

See the examples below for information on the arguments these methods take:

## Examples

```
# Create a new volume based on AWS S3 for importing files
volume_import = api.volumes.create_s3_volume(
    name='my_input_volume',
    bucket='my_bucket',
    access_key_id='AKIAIOSFODNN7EXAMPLE',
    secret_access_key = 'wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY',
```

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```

    access_mode='RO'
)

# Create a new volume based on AWS S3 for exporting files
volume_export = api.volumes.create_s3_volume(
    name='my_output_volume',
    bucket='my_bucket',
    access_key_id='AKIAIOSFODNN7EXAMPLE',
    secret_access_key = 'wJalrXUtnFEMI/K7MDENG/bPxrFiCYEXAMPLEKEY',
    access_mode='RW'
)

# List all volumes available
volumes = api.volumes.query()

# List all files in volume
file_list = volume.list()

# The previous call only returns the first page of results, retrieving all
# files in a volume root directory is done by using 'all'. This does not
# include files in subdirectories
for volume_file in volume.list().all():
    print(volume_file)

# Subdirectories are stored in prefixes
prefixes = file_list.prefixes

# Files in first subdirectory
prefix = prefixes[0].prefix
file_list_sub = volume.list(prefix=prefix)

```

## Import properties

When you import a file from a volume into a project on the Platform, you are importing a file from your cloud storage provider (Amazon Web Services or Google Cloud Storage) via the volume onto the Platform.

If successful, an alias will be created on the Platform. Aliases appear as files on the Platform and can be copied, executed, and modified as such. They refer back to the respective file on the given volume.

Each import has the following properties:

`href` - Import href on the API server.

`id` - Import identifier.

`source` - Source of the import, object of type `VolumeFile`, contains info on volume and file location on the volume.

`destination` - Destination of the import, object of type `ImportDestination`, containing info on project where the file was imported to and name of the file in the project.

`state` - State of the import. Can be *PENDING*, *RUNNING*, *COMPLETED* and *FAILED*.

`result` - If the import was completed, contains the result of the import - a `File` object.

`error` - Contains the `Error` object if the import failed.

`overwrite` - Whether the import was set to overwrite file at destination or not.

`started_on` - Contains the date and time when the import was started.

`finished_on` - Contains the date and time when the import was finished.

`preserve_folder_structure` - Whether to keep the exact source folder structure. The default value is true if the item being imported is a folder. Should not be used if you are importing a file.

`autorename` - Whether to automatically rename the item (by prefixing its name with an underscore and number) if another one with the same name already exists at the destination.

### VolumeFile properties

`volume` - Volume ID from which to import the item.

`location` - Volume-specific location pointing to the file or folder to import. This location should be recognizable to the underlying cloud service as a valid key or path to the item. If the item being imported is a folder, its path should end with a `/`.

### ImportDestination properties

`project` - The project in which to create the alias.

`parent` - The ID of the target folder to which the item should be imported. Should not be used together with `project`. If `parent` is used, the import will take place into the specified folder, within the project to which the folder belongs. If `project` is used, the items will be imported to the root of the project's files.

`name` - The name of the alias to create. This name should be unique to the project. If the name is already in use in the project, you should use the `overwrite` query parameter in this call to force any item with that name to be deleted before the alias is created. If `name` is omitted, the alias name will default to the last segment of the complete location (including the prefix) on the volume. Segments are considered to be separated with forward slashes `/`.

### Import methods

Imports have the following methods:

- Refresh the import with data from the server: `reload()`
- Start an import by specifying the source and the destination of the import - `submit_import()`
- Delete the import - `delete()`

See the examples below for information on the arguments these methods take:

### Examples

```
# Import a file to a project
my_project = api.projects.get(id='my_project')
bucket_location = 'fastq/my_file.fastq'
imp = api.imports.submit_import(volume=volume_import, project=my_project,
↪location=bucket_location)
# Wait until the import finishes
while True:
    import_status = imp.reload().state
    if import_status in (ImportExportState.COMPLETED, ImportExportState.FAILED):
        break
    time.sleep(10)
```

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```
# Continue with the import
if imp.state == ImportExportState.COMPLETED:
    imported_file = imp.result
```

## Export properties

When you export a file from a project on the Platform into a volume, you are essentially writing to your cloud storage bucket on Amazon Web Services or Google Cloud Storage via the volume.

Note that the file selected for export must not be a public file or an alias. Aliases are objects stored in your cloud storage bucket which have been made available on the Platform.

The volume you are exporting to must be configured for read-write access. To do this, set the `access_mode` parameter to `RW` when creating or modifying a volume. Learn more about this from our [Knowledge Center](#).

If an export command is successful, the original project file will become an alias to the newly exported object on the volume. The source file will be deleted from the Platform and, if no more copies of this file exist, it will no longer count towards your total storage price on the Platform. Once you export a file from the Platform to a volume, it is no longer part of the storage on the Platform and cannot be exported again.

Each export has the following properties:

`href` - Export href on the API server.

`id` - Export identifier.

`source` - Source of the export, object of type `File`

`destination` - Destination of the export, object of type `VolumeFile`, containing info on project where the file was imported to and name of the file in the project

`state` - State of the export. Can be `PENDING`, `RUNNING`, `COMPLETED` and `FAILED`.

`result` - If the export was completed, this contains the result of the import - a `File` object.

`error` - Contains the `Error` object if the export failed.

`overwrite` - Whether or not the export was set to overwrite the file at the destination.

`started_on` - Contains the date and time when the export was started.

`finished_on` - Contains the date and time when the export was finished.

## Export methods

Exports have the following methods:

- Refresh the export with data from the server: `reload()`
- Submit export, by specifying source and destination of the import: `submit_import()`
- Delete the export: `delete()`

See the examples below for information on the arguments these methods take:

## Examples

```
# Export a set of files to a volume
# Get files from a project
files_to_export = api.files.query(project=my_project).all()
# And export all the files to the output bucket
exports = []
for f in files_to_export:
    export = api.exports.submit_export(file=f, volume = volume_export, location=f.
↳name)
    exports.append(export)
# Wait for exports to finish:
num_exports = len(exports)
done = False

while not done:
    done_len = 0
    for e in exports:
        if e.reload().state in (ImportExportState.COMPLETED, ImportExportState.
↳FAILED):
            done_len += 1
            time.sleep(10)
    if done_len == num_exports:
        done = True
```

### 1.3.16 Managing divisions

Enterprise access to the Platform is available on demand and allows companies or organizations to mimic their internal structure and hierarchy on the Seven Bridges Platform, thus facilitating simpler and more efficient collaboration.

Enterprise accounts are granted to users through their organizations. The organization associated with the Enterprise account may create user groups (Divisions and Teams) composed of Enterprise account holders, which are used to enable collaboration between members of the organization.

A Division on the Platform is a subgroup of users within an Enterprise. Use the Division entity to replicate the structure and hierarchy of an organization, such as departmental groups on the Platform. Divisions are created by Enterprise account administrators, but may be assigned Division administrator to manage the Division.

A Team on the Platform is a subgroup of a Division. Teams may be created by the Division administrator to simplify adding multiple members to a project simultaneously. One Division member can belong to multiple Teams.

The available methods for listing division are `query` and `get`, as for other objects:

```
# Query all divisions user belongs to (division authentication token required)
division_collection = api.divisions.query()
# Get a single division's information
division = api.divisions.get(id='division-id')
```

#### Division properties

`id` - Division ID.

`name` - Division name. Learn more about this in our [Knowledge Center](#).

#### Division methods

Divisions have the following methods:

- Refresh the division with data from the server: `reload()`
- Get teams belonging to particular division `get_teams()`
- Get user members belonging to particular division `get_members()`

### 1.3.17 Managing apps

Managing apps (tools and workflows) with the `sevenbridges-python` library is simple. Apps on the Seven Bridges Platform and CGC are implemented using the Common Workflow Language (CWL) specification <https://github.com/common-workflow-language/common-workflow-language>.

Querying all apps or getting the details of a single app can be done in the same way as for other resources, using the `query()` and `get` methods. You can also invoke the following class-specific methods:

- `get_revision()` - Returns a specific app revision.
- `install_app()` - Installs your app on the server, using its CWL description.
- `create_revision()` - Creates a new revision of the specified app.
- `sync()` - Syncs the parent app changes with the current app instance.
- `copy()` - Copies the current app.

---

**Note:** Listing public apps can be achieved by invoking `api.apps.query(visibility='public')`

---

#### App properties

Each app has the following properties:

`href` - The URL of the app on the API server.

`id` - App identifier.

`name` - App name.

`project` - Identifier of the project that app is located in.

`revision` - App revision.

`raw` - Raw CWL description of the app.

#### App methods

- App only has class methods that were mentioned above.

### 1.3.18 Managing tasks

Tasks (pipeline executions) are easy to handle using the `sevenbridges-python` library. As with all resources you can `query()` your tasks, and `get()` a single task instance. You can also do much more. We will outline task properties and methods and show in the examples how easy is to run your first analysis using Python.

## Task properties

`href` - Task URL on the API server.

`id` - Task identifier.

`name` - Task name.

`status` - Task status.

`project` - Identifier of the project that the task is located in.

`app` - The identifier of the app that was used for the task.

`type` - Task type.

`created_by` - Username of the task creator.

`executed_by` - Username of the task executor.

`batch` - Boolean flag: `True` for batch tasks, `False` for regular & child tasks.

`batch_by` - Batching criteria.

`batch_group` - Batch group assigned to the child task calculated from the `batch_by` criteria.

`batch_input` - Input identifier on to which to apply batching.

`parent` - Parent task for a batch child.

`end_time` - Task end time.

`execution_settings` - Execution settings for the task.

`execution_status` - Task execution status.

`price` - Task cost.

`inputs` - Inputs that were submitted to the task.

`outputs` - Generated outputs from the task.

---

**Note:** Check the documentation on the [Seven Bridges API](#) and the [CGC API](#) for more details on batching criteria.

---

## Task methods

The following class and instance methods are available for tasks:

- Create a task on the server and, optionally, run it: `create()`.
- Query tasks: `query()`.
- Get single task's information: `get()`.
- Abort a running task: `abort()`.
- Run a draft task: `run()`
- Delete a draft task from the server: `delete()`.
- Refresh the task object information with the date from the server: `refresh()`.
- Save task modifications to the sever: `save()`.
- Get task execution details: `get_execution_details()`.

- Get batch children if the task is a batch task: `get_batch_children()`.
- Clone task and optionally run it: `clone()`.

### Task creation hints

- Both input files and parameters are passed the same way together in a single dictionary to `inputs`.
- **Supported execution settings are:**
  - `instance_type` - list or a string, can be 'AUTO' or an actual instance type, for example: `['c4.2xlarge;ebs-gp2;2000']`
  - `max_parallel_instances` - Number of instances,  $\geq 1$

### Querying tasks

- `api.tasks.query` always return an array of tasks. For single task inputs, use `api.tasks.query(project='my-project')[0]`.
- Queried tasks can be sorted with the `order_by` parameter. Supported fields are `created_time`, `start_time`, `name`, `end_time`, and `created_by`.
- Ordering can be specified with the `order` parameter. It is set to `desc` by default. Ascending order is set with `asc`.

---

**Note:** When querying running tasks it is recommended to use ordering, since the results are paginated and it is possible that some tasks will be duplicated or missed.

---

### Task Examples

#### Single task

```
# Task name
name = 'my-first-task'

# Project in which I want to run a task.
project = 'my-username/my-project'

# App I want to use to run a task
app = 'my-username/my-project/my-app'

# Inputs
inputs = {}
inputs['FastQC-Reads'] = api.files.query(project='my-project', metadata={'sample':
↳ 'some-sample'})

try:
    task = api.tasks.create(name=name, project=project, app=app, inputs=inputs,
↳ run=True)
except SbError:
    print('I was unable to run the task.')
```

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```
# Task can also be ran by invoking .run() method on the draft task.
task.run()
```

## Clone a task and run it with modification

Sometimes it is convenient to take an already executed task and change only some of the inputs, to then re-run it, using the clone method. Note: the clone method has the parameter `run=True` by default, so it is important to set it to `False` if modifications are needed.

```
# Getting the old task by id
old_task = api.tasks.get(old_task_id)

# clone it without launching it.
new_task = old_task.clone(run=False)

# Modify the inputs
new_task.inputs['somekey'] = "new value"

# Save the new task, and run it.
new_task.save()
new_task.run()
```

## Batch task

```
# Task name
name = 'my-first-task'

# Project in which to run the task.
project = 'my-username/my-project'

# App to use to run the task
app = 'my-username/my-project/my-app'

# Inputs
inputs = {}
inputs['FastQC-Reads'] = api.files.query(project=project, metadata={'sample': 'some-
→sample'})

# Specify that one task should be created per file (i.e. batch tasks by file).
batch_by = {'type': 'item'}

# Specify that the batch input is FastQC-Reads
batch_input = 'FastQC-Reads'

try:
    task = api.tasks.create(
        name=name, project=project, app=app, inputs=inputs,
        batch_input=batch_input, batch_by=batch_by, run=True
    )
except SbError:
    print('I was unable to run a batch task.')
```



## Secondary files

Accessing task input/output secondary files is possible using the `secondary_files` property on the input/output itself.

Example for outputs:

```
task = api.tasks.get('<task_id>')
secondary_files = task.outputs['<output_name>'].secondary_files
```

### 1.3.19 Managing bulk operations

Bulk operations are supported for:

- Files
- Import jobs
- Export jobs

All bulk operations return a list of objects that contain a resource or an error. The state of any object can be checked with the `valid` property. If `valid` is set to `True`, `resource` is available, otherwise `error` is populated. Example:

```
response = api.files.bulk_get(files=files)
for record in response:
    if record.valid:
        print(record.resource)
    else:
        print(record.error)
```

The maximum number of resources that can be processed in a single bulk call is 100.

## Files

The following operations are supported:

- `bulk_get()` - Retrieves multiple files.
- `bulk_edit()` - Modifies the existing information for specified files or add new information while preserving omitted parameters.
- `bulk_update()` - Sets new information for specified files, replacing all existing information and erasing omitted parameters.
- `bulk_delete()` - Deletes multiple files.

Retrieval and deletion are done by passing files (or file ids) in a list:

```
# Retrieve files
files = ['<FILE_ID>', '<FILE_ID>', '<FILE_ID>']
response = api.files.bulk_get(files=files)

# Delete files
files = [file1, file2, file3]
response = api.files.bulk_delete(files=files)
```

Editing and updating are done on file objects:

```
# Edit files
files = [edited_file1, edited_file2, edited_file3]
response = api.files.bulk_edit(files=files)

# Update files
files = [updated_file1, updated_file2, updated_file3]
response = api.files.bulk_update(files=files)
```

Properties that can be edited are name, tags and metadata.

## Tasks

The following operations are supported:

- `bulk_get()` - Retrieves multiple tasks.

Retrieval is done by passing tasks (or task ids) in a list:

```
# Retrieve tasks
tasks = ['<TASK_ID>', '<TASK_ID>', '<TASK_ID>']
response = api.tasks.bulk_get(tasks=tasks)
```

## Imports

The following operations are supported:

- `bulk_get()` - Retrieves multiple import jobs.
- `bulk_submit()` - Submits multiple import jobs.

Bulk retrieval, similarly to `api.files.bulk_get()`, requires a list of jobs:

```
# Retrieve imports
imports = ['<IMPORT_ID>', '<IMPORT_ID>', '<IMPORT_ID>']
response = api.imports.bulk_get(imports=imports)
```

Submitting in bulk can be done with a list of dictionaries with the required data for each job, for example:

```
volume = api.volumes.get('user/volume')
project = api.project.get('user/project')

# Submit import jobs
imports = [
    {
        'volume': volume,
        'location': '/data/example_file.txt',
        'project': project,
        'name': 'example_file.txt',
        'overwrite': False
    },
    {
        'volume': volume,
        'location': '/data/example_file_2.txt',
        'project': project,
        'name': 'example_file_2.txt',
        'overwrite': True
    }
]
```

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```

    }
]
response = api.imports.bulk_submit(imports=imports)

```

## Exports

The following operations are supported:

- `bulk_get()` - Retrieves multiple export jobs.
- `bulk_submit()` - Submits multiple export jobs.

Bulk retrieval, similarly to `api.files.bulk_get()`, requires a list of jobs:

```

# Retrieve exports
exports = ['<EXPORT_ID>', '<EXPORT_ID>', '<EXPORT_ID>']
response = api.exports.bulk_get(exports=exports)

```

Submitting in bulk can be done with a list of dictionaries with the required data for each job, for example:

```

volume = api.volumes.get('user/volume')

# Find some files to export
files_to_export = list(api.files.query(project='user/my-project').all())

# Create exports list
# We will be exporting all the files in a project (root folder only) to
# the volume, with a location same as the name of the file

exports = []

for file in files_to_export:
    export = {
        'file':file,
        'volume': volume,
        'location':file.name
    }
    exports.append(export)

response = api.exports.bulk_submit(exports=exports, copy_only=False)

```

### 1.3.20 Managing automations

The following operations are supported for automations:

- `query()` - Query all automations
- `get()` - Get automation with the provided id
- `get_packages()` - Get all packages of an automation
- `get_package()` - Get package with provided id
- `add_package()` - Add a package to an automation
- `archive()` - Archive an automation
- `restore()` - Restore an archived automation

- `get_members()` - Get all members of an automation
- `get_member()` - Get details on a member of an automation
- `add_member()` - Add a member to an automation
- `remove_member()` - Remove member from an automation
- `get_runs()` - Get automation runs

**The following operations are supported for automation packages:**

- `query()` - Query all automation packages
- `get()` - Get automation package with the provided id
- `create()` - Create automation package
- `archive()` - Archive an package
- `restore()` - Restore an archived package

The following operations are supported for automation runs:

- `query()` - Query all automation runs
- `get()` - Get automation run with the provided id
- `create()` - Create and start new automation run
- `rerun()` - Reruns an existing automation run
- `stop()` - Stop an automation run
- `get_log()` - Get log file contents for an automation run
- `get_state()` - Get state file contents for an automation run

## Properties

Each automation has the following properties:

`href` - The URL of the automation on the API server.

`id` - Automation identifier.

`name` - Automation name.

`description` - Automation description.

`owner` - Username of the user that owns the automation.

`created_by` - Username of the user that created the automation.

`created_on` - Date of the first automation creation.

`modified_by` - Username of the user that last modified the automation.

`modified_on` - Date of the last modification of the automation.

Each automation package has the following properties:

`id` - Automation package identifier.

`automation` - Identifier of the automation the package belongs to.

`version` - Automation package version.

`location` - Location identifier of uploaded automation package.

`created_by` - Username of the user that created the automation.

`created_on` - Date of the automation package creation.

`archived` - Flag indicating wheather automation package is arhived or not.

`custom_url` - Link to custom frontend page.

Each automation run has the following properties:

`href` - The URL of the automation run on the API server.

`id` - Automation identifier.

`automation` - Automation identifier of the automation the run belongs to.

`package` - Automation package identifier of the package the run belongs to.

`inputs` - Automation run input dictionary.

`settings` - Automation run settings override dictionary.

`created_on` - Date of the first automation run creation.

`start_time` - Date of the automation run start.

`end_time` - Date of the automation run end.

`resumed_from` - Automation run identifier of the automation run the run resumed from.

`created_by` - Username of the user that created the automation run.

`status` - Current status of the automation run.

`message` - Message output of the automation run.

`execution_details` - Execution details of the automation run.

## Examples

```
# Query automation runs with name parameter
api.automation_runs.query(name='automation_run_name')

# List all automations
automations = api.automations.query()

# Get details of an automation
automation = api.automations.get('automation_id')

# Create automation package from uploaded code package
automation_package = api.automation_packages.create('automation_id', 'version',
↳'location_id'):

# Add a code package to automation from local file
automation.add_package('version', 'file_path', schema={})

# Get automation package details
automation_package = api.automation_packages.get('package_id')

# Get automation runs with name parameter for existing automation
automation.get_runs(name='automation_run_name')

# List all packages that belong to an automation
```

(continues on next page)

```
packages = automation.get_packages()

# List all members that belong to an automation
members = automation.get_members()

# Get details of an automation member
member = automation.get_member('member_username')

# Add new member to automation
username = 'new_member_username'
permissions = {
    'read': True,
    'write': True,
    'copy': True,
    'execute': True,
    'admin': True,
}
new_member = automation.add_member(username, permissions)

# Edit member permissions
new_member.permissions['admin'] = False
new_member.save()

# Remove member from automation
automation.remove_member('automation_member')

# List automation runs
runs = api.automation_runs.query()

# Get details of an automation run
run = api.automation_runs.get('automation_run_id')

# Start a new automation run
new_run = api.automation_runs.create(
    package='package_id',
    name='automation_run_name',
    inputs={
        'x': 1,
        'y': 2,
        'z': 3
    }
)

# Stop an automation run
new_run.stop()

# Get automation run log
state = run.log()

# Get automation run state
state = run.state()
```

### 1.3.21 Managing async operations

The following operations are supported for async operations runs:

- `list_file_jobs()` - Query all async jobs for files.
- `get_copy_files_job()` - Get the details of an asynchronous bulk file copy job.
- `get_delete_files_job()` - Get the details of an asynchronous bulk file delete job.
- `get_file_move_job()` - Get the details of an asynchronous bulk file move job.
- `get_result()` - Parse results of a job as a bulk response.
- `file_bulk_copy()` - Perform a bulk copy operation of files and folders. Any underlying folder structure will be preserved.
- `file_bulk_move()` - Perform a bulk move operation of files and folders. Any underlying folder structure will be preserved.
- `file_bulk_delete()` - Perform a bulk delete operation of files and folders. Deleting folders which aren't empty is allowed.

## Properties

Each async job has the following properties:

`id` - Async job identifier.

`type` - The type of job, which is `COPY` in the case of copying files, `MOVE` in case of moving files and `DELETE` in case of deleting files.

`state` - Current job state (`RUNNING`, `FINISHED`, `SUBMITTED`, `RESOLVING`)

`result` - The result of the copy job.

`total_files` - The total number of files that were processed during the job.

`failed_files` - The number of files that failed to copy.

`completed_files` - The number of files that were successfully copied.

`started_on` - The time and date the copy job started.

`finished_on` - The time and date the copy job has finished.

## Examples

```
# Query all file jobs
all_jobs = api.async_jobs.list_file_jobs().all()

# Get file copy job by id
copy_job = api.async_jobs.get_file_copy_job(id='copy_job_id')

# Get file delete job by id
delete_job = api.async_jobs.get_file_delete_job(id='delete_job_id')

# Parse job results to bulk format
copy_job_results = copy_job.get_result()

# Check validity of each result in bulk format
for result in copy_job_results:
    if result.valid:
        print(result.resource)
    else:
```

(continues on next page)

```
print(result.error)

# Start bulk file copy job
files = [
    {
        'file': 'file_id_1',
        'parent': 'parent_id',
        'name': 'new_name_1',
    },
    {
        'file': 'file_id_2',
        'parent': 'parent_id',
        'name': 'new_name_2',
    },
]
new_copy_job = api.async_jobs.file_bulk_copy(files=files)

# Start bulk file delete job
files = [
    {
        'file': 'file_id_1'
    },
    {
        'file': 'file_id_2'
    },
]
new_delete_job = api.async_jobs.file_bulk_delete(files=files)

# Start bulk file move job
files = [
    {
        'file': 'file_id_1',
        'project': project_id,
        'name': 'name_1',
    },
    {
        'file': 'file_id_2',
        'project': project_id,
        'name': 'name_2',
    },
    {
        'file': 'file_id_3',
        'project': project_id,
        'name': 'name_2',
    }
]
new_move_job = api.async_jobs.file_bulk_move(files=files)
```

## 1.4 sevenbridges package

### 1.4.1 sevenbridges-python

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```
class sevenbridges.Api (url=None, token=None, oauth_token=None, config=None, timeout=None,  
download_max_workers=16, upload_max_workers=16, proxies=None,  
error_handlers=None, advance_access=False, pool_connections=10,  
pool_maxsize=100, pool_block=True, max_parallel_requests=100,  
retry_count=6, backoff_factor=1)
```

Bases: *sevenbridges.http.client.HttpClient*

Api aggregates all resource classes into single place

**actions**

alias of *sevenbridges.models.actions.Actions*

**apps**

alias of *sevenbridges.models.app.App*

**async\_jobs**

alias of *sevenbridges.models.async\_jobs.AsyncJob*

**automation\_packages**

alias of *sevenbridges.models.automation.AutomationPackage*

**automation\_runs**

alias of *sevenbridges.models.automation.AutomationRun*

**automations**

alias of *sevenbridges.models.automation.Automation*

**billing\_groups**

alias of *sevenbridges.models.billing\_group.BillingGroup*

**datasets**

alias of *sevenbridges.models.dataset.Dataset*

**divisions**

alias of *sevenbridges.models.division.Division*

**endpoints**

alias of *sevenbridges.models.endpoints.Endpoints*

**exports**

alias of *sevenbridges.models.storage\_export.Export*

**files**

alias of *sevenbridges.models.file.File*

**imports**

alias of *sevenbridges.models.storage\_import.Import*

**invoices**

alias of *sevenbridges.models.invoice.Invoice*

**markers**

alias of *sevenbridges.models.marker.Marker*

**projects**

alias of *sevenbridges.models.project.Project*

**rate\_limit**

alias of *sevenbridges.models.rate\_limit.RateLimit*

**tasks**

alias of *sevenbridges.models.task.Task*

**teams**

alias of *sevenbridges.models.team.Team*

**users**

alias of *sevenbridges.models.user.User*

**volumes**

alias of *sevenbridges.models.volume.Volume*

**class** *sevenbridges.AsyncJob* (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing async jobs

**completed\_files** = None

**deepcopy** ()

**equals** (*other*)

**failed\_files** = None

**classmethod** *file\_bulk\_copy* (*files*, *api=None*)

**classmethod** *file\_bulk\_delete* (*files*, *api=None*)

**classmethod** *file\_bulk\_move* (*files*, *api=None*)

**finished\_on** = None

**classmethod** *get\_file\_copy\_job* (*id*, *api=None*)

Retrieve file copy async job :param id: Async job identifier :param api: Api instance :return:

**classmethod** *get\_file\_delete\_job* (*id*, *api=None*)

**Parameters**

- **id** – Async job identifier
- **api** – Api instance

**Returns**

**classmethod** *get\_file\_move\_job* (*id*, *api=None*)

Retrieve file move async job :param id: Async job identifier :param api: Api instance :return:

**get\_result** (*api=None*)

Get async job result in bulk format :return: List of AsyncFileBulkRecord objects

**id** = None

**classmethod** *list\_file\_jobs* (*offset=None*, *limit=None*, *api=None*)

Query ( List ) async jobs :param offset: Pagination offset :param limit: Pagination limit :param api: Api instance :return: Collection object

**result** = None

**started\_on** = None

**state** = None

**total\_files** = None

**type** = None

**class** *sevenbridges.Automation* (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing automations.

**add\_member** (*user, permissions, api=None*)

Add member to the automation :param user: Member username :param permissions: Member permissions :param api: sevenbridges Api instance :return: AutomationMember object

**add\_package** (*version, file\_path, schema, file\_name=None, retry\_count=6, timeout=300, part\_size=None, api=None*)

Add a code package to automation template. :param version: The code package version. :param file\_path: Path to the code package file to be uploaded. :param schema: IO schema for main step of execution. :param part\_size: Size of upload part in bytes. :param file\_name: Optional file name. :param retry\_count: Upload retry count. :param timeout: Timeout for s3/google session. :param api: sevenbridges Api instance. :return: AutomationPackage

**archive** (*\*args, \*\*kwargs*)

**archived** = None

**billing\_group** = None

**classmethod create** (*name, description=None, billing\_group=None, secret\_settings=None, project\_based=None, memory\_limit=None, api=None*)

Create a automation template. :param name: Automation name. :param billing\_group: Automation billing group. :param description: Automation description. :param secret\_settings: Automation settings. :param project\_based: Create project based automation template. :param memory\_limit: Memory limit in MB. :param api: Api instance. :return:

**created\_by** = None

**created\_on** = None

**deepcopy** ()

**description** = None

**equals** (*other*)

**get\_member** (*username, api=None*)

Return specified automation member :param username: Member username :param api: sevenbridges Api instance. :return: AutomationMember object

**get\_members** (*offset=None, limit=None, api=None*)

Return list of automation members :param offset: Pagination offset. :param limit: Pagination limit. :param api: sevenbridges Api instance. :return: AutomationMember collection

**classmethod get\_package** (*package, api=None*)

Return specified automation member :param package: Automation Package Id :param api: sevenbridges Api instance. :return: AutomationMember object

**get\_packages** (*offset=None, limit=None, api=None*)

Return list of packages that belong to this automation :param offset: Pagination offset. :param limit: Pagination limit. :param api: sevenbridges Api instance. :return: AutomationPackage collection

**get\_runs** (*package=None, status=None, name=None, created\_by=None, created\_from=None, created\_to=None, project\_id=None, order\_by=None, order=None, offset=None, limit=None, api=None*)

Query automation runs that belong to this automation :param package: Package id :param status: Run status :param name: Automation run name :param created\_by: Username of member that created the run :param created\_from: Date the run was created after :param created\_to: Date the run was created before :param project\_id: Search runs by project id, if run is project based :param order\_by: Property by which to order results :param order: Ascending or Descending (“asc” or “desc”) :param offset: Pagination offset. :param limit: Pagination limit. :param api: sevenbridges Api instance :return: AutomationRun collection

**href = None**

**id = None**

**memory\_limit = None**

**modified\_by = None**

**modified\_on = None**

**name = None**

**owner = None**

**project\_based = None**

**classmethod query** (*name=None, include\_archived=False, project\_based=None, offset=None, limit=None, api=None*)

Query (List) automations. :param name: Automation name. :param include\_archived: Include archived automations also :param project\_based: Search project based automations :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: collection object

**remove\_member** (*user, api=None*)

Remove a member from the automation :param user: Member username :param api: sevenbridges Api instance :return: None

**restore** (*\*args, \*\*kwargs*)

**save** (*\*args, \*\*kwargs*)

**secret\_settings = None**

**class** sevenbridges.**AutomationRun** (*\*\*kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing automation runs.

**automation**

**classmethod create** (*package, inputs=None, settings=None, resume\_from=None, name=None, secret\_settings=None, memory\_limit=None, api=None*)

Create and start a new run. :param package: Automation package id :param inputs: Input dictionary :param settings: Settings override dictionary :param resume\_from: Run to resume from :param name: Automation run name :param secret\_settings: dict to override secret\_settings from automation template :param memory\_limit: Memory limit in MB. :param api: sevenbridges Api instance :return: AutomationRun object

**created\_by = None**

**created\_on = None**

**deepcopy** ()

**end\_time = None**

**equals** (*other*)

**execution\_details = None**

**get\_log\_file** (*api=None*)

Retrieve automation run log. :param api: sevenbridges Api instance :return: Log string

**get\_state** (*api=None*)

Retrieve automation run state. :param api: sevenbridges Api instance :return: State file json contents as string

**href = None**

```
id = None
```

```
inputs = None
```

```
memory_limit = None
```

```
message = None
```

```
name = None
```

```
outputs = None
```

```
package
```

```
project_id = None
```

```
classmethod query(automation=None, package=None, status=None, name=None, created_by=None, created_from=None, created_to=None, project_id=None, order_by=None, order=None, offset=None, limit=None, api=None)
```

Query (List) automation runs. :param name: Automation run name :param automation: Automation template :param package: Package :param status: Run status :param created\_by: Username of user that created the run :param order\_by: Property by which to order results :param order: Ascending or descending (“asc” or “desc”) :param created\_from: Date the run is created after :param created\_to: Date the run is created before :param project\_id: Id of project if Automation run is project based :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: collection object

```
classmethod rerun(id, package=None, inputs=None, settings=None, resume_from=None, name=None, secret_settings=None, merge=True, api=None)
```

Create and start rerun of existing automation. :param id: Automation id to rerun :param package: Automation package id :param inputs: Input dictionary :param settings: Settings override dictionary :param resume\_from: Run to resume from :param name: Automation run name :param secret\_settings: dict to override secret\_settings from automation template :param merge: merge settings and inputs of run :param api: sevenbridges Api instance :return: AutomationRun object

```
resumed_from = None
```

```
save(*args, **kwargs)
```

```
settings = None
```

```
start_time = None
```

```
status = None
```

```
stop(api=None)
```

Stop automation run. :param api: sevenbridges Api instance. :return: AutomationRun object

```
class sevenbridges.AutomationMember(**kwargs)
    Bases: sevenbridges.meta.resource.Resource
```

Central resource for managing automation members.

```
classmethod add(user, permissions, automation, api=None)
```

Add a member to the automation. :param user: Member username :param permissions: Permissions dictionary. :param automation: Automation object or id :param api: sevenbridges Api instance :return: Automation member object.

```
deepcopy()
```

```
email = None
```

```
equals(other)
```

**classmethod** `get` (*id, automation, api=None*)

Fetches the resource from the server. :param id: Automation member username :param automation: Automation id or object :param api: sevenbridges Api instance. :return: AutomationMember object.

**href** = None

**id** = None

**name** = None

**permissions**

**classmethod** `query` (*automation=None, offset=None, limit=None, api=None*)

Query (List) apps. :param automation: Automation id. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: collection object

**classmethod** `remove` (*user, automation, api=None*)

Remove a member from the automation. :param user: Member username :param automation: Automation id :param api: sevenbridges Api instance :return: None

**save** (*\*args, \*\*kwargs*)

**type** = None

**username** = None

**class** `sevenbridges.AutomationPackage` (*\*\*kwargs*)

Bases: `sevenbridges.meta.resource.Resource`

Central resource for managing automation packages.

**archive** (*\*args, \*\*kwargs*)

**archived** = None

**automation** = None

**classmethod** `create` (*automation, version, location, schema, memory\_limit=None, api=None*)

Create a code package. :param automation: Automation id. :param version: File ID of the uploaded code package. :param location: The code package version. :param schema: IO schema for main step of execution. :param memory\_limit: Memory limit in MB. :param api: Api instance. :return:

**created\_by** = None

**created\_on** = None

**custom\_url** = None

**deepcopy** ()

**equals** (*other*)

**id** = None

**location** = None

**memory\_limit** = None

**classmethod** `query` (*automation, offset=None, limit=None, api=None*)

Query (List) automation packages. :param automation: Automation id. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: collection object

**restore** (*\*args, \*\*kwargs*)

**save** (*\*args, \*\*kwargs*)

**schema** = None

**version = None**

**class** sevenbridges.**Config** (*profile=None, proxies=None, advance\_access=None*)

Bases: object

Utility configuration class.

**class** sevenbridges.**Invoice** (*\*\*kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing invoices.

**analysis\_costs**

**deepcopy** ()

**equals** (*other*)

**href** = None

**id** = None

**invoice\_period**

**pending** = None

**classmethod query** (*offset=None, limit=None, api=None*)

Query (List) invoices. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

**storage\_costs**

**total**

**class** sevenbridges.**BillingGroup** (*\*\*kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing billing groups.

**balance**

**breakdown** ()

Get Billing group breakdown for the current billing group.

**deepcopy** ()

**disabled** = None

**equals** (*other*)

**href** = None

**id** = None

**name** = None

**owner** = None

**pending** = None

**classmethod query** (*offset=None, limit=None, api=None*)

Query (List) billing group. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object. :param api: Api instance.

**type** = None

```
class sevenbridges.BillingGroupBreakdown (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Central resource for managing billing group breakdowns.
    deepcopy ()
    equals (other)
    href = None
    project_breakdown
    total_spending
class sevenbridges.User (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Central resource for managing users.
    address = None
    affiliation = None
    city = None
    country = None
    deepcopy ()
    disable (api=None)
        Disable user :param api: Api instance. :return:
    email = None
    equals (other)
    first_name = None
    classmethod get (user, api=None)
        Fetches the resource from the server. :param id: Resource identifier :param api: sevenbridges Api instance.
        :return: Resource object.
    href = None
    last_name = None
    classmethod me (api=None)
        Retrieves current user information. :param api: Api instance. :return: User object.
    phone = None
    classmethod query (division, role=None, offset=None, limit=None, api=None)
        Query division users :param division: Division slug. :param role: User role in division. :param offset:
        Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.
    role = None
    state = None
    username = None
    zip_code = None
class sevenbridges.Endpoints (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Central resource for managing Endpoints.
```



```

action_url = None
apps_url = None
billing_url = None
deepcopy()
equals(other)
files_url = None
classmethod get(api=None, **kwargs)
    Get api links. :param api: Api instance. :return: Endpoints object.
projects_url = None
rate_limit_url = None
tasks_url = None
upload_url = None
user_url = None
users_url = None

```

```
class sevenbridges.Project(**kwargs)
```

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing projects.

```
add_files(files)
```

Adds files to this project. :param files: List of files or a Collection object.

```
add_member(user, permissions)
```

Add a member to the project. :param user: Member username :param permissions: Permissions dictionary. :return: Member object.

```
add_member_division(division, permissions)
```

Add a member (team) to a project. :param division: Division object or division identifier. :param permissions: Permissions dictionary. :return: Member object.

```
add_member_email(email, permissions=None)
```

Add a member to the project using member email. :param email: Member email. :param permissions: Permissions dictionary. :return: Member object.

```
add_member_team(team, permissions)
```

Add a member (team) to a project. :param team: Team object or team identifier. :param permissions: Permissions dictionary. :return: Member object.

```
billing_group = None
```

```
classmethod create(name, billing_group=None, description=None, tags=None, settings=None, api=None)
```

Create a project. :param name: Project name. :param billing\_group: Project billing group. :param description: Project description. :param tags: Project tags. :param settings: Project settings. :param api: Api instance. :return:

```
create_task(name, app, revision=None, batch_input=None, batch_by=None, inputs=None, description=None, run=False, disable_batch=False, interruptible=True, execution_settings=None)
```

Creates a task for this project.

#### Parameters

- **name** – Task name.
- **app** – CWL app identifier.
- **revision** – CWL app revision.
- **batch\_input** – Batch input.
- **batch\_by** – Batch criteria.
- **inputs** – Input map.
- **description** – Task description.
- **run** – True if you want to run a task upon creation.
- **disable\_batch** – True if you want to disable batching.
- **interruptible** – True if you want to use interruptible instances.
- **execution\_settings** – Execution settings for the task.

**Returns** Task object.

**created\_by** = None

**created\_on** = None

**deepcopy** ()

**description** = None

**equals** (*other*)

**get\_apps** (*offset=None, limit=None*)

Retrieves apps in this project. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_exports** (*volume=None, state=None, offset=None, limit=None*)

Fetches exports for this volume. :param volume: Optional volume identifier. :param state: Optional state. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_files** (*offset=None, limit=None*)

Retrieves files in this project. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_imports** (*volume=None, state=None, offset=None, limit=None*)

Fetches imports for this project. :param volume: Optional volume identifier. :param state: Optional state. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_member** (*username, api=None*)

Fetches information about a single project member :param username: Member name :param api: Api instance :return: Member object

**get\_members** (*offset=None, limit=None*)

Retrieves project members. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_tasks** (*status=None, offset=None, limit=None*)

Retrieves tasks in this project. :param status: Optional task status. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**href** = None

**id** = None

**modified\_on** = None

```

name = None

classmethod query (owner=None, name=None, offset=None, limit=None, api=None)
    Query (List) projects :param owner: Owner username. :param name: Project name :param offset: Pagina-
    tion offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

remove_member (user)
    Remove member from the project. :param user: User to be removed.

root_folder = None

save (*args, **kwargs)

settings

tags = None

type = None

class sevenbridges.Task (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Central resource for managing tasks.

    abort (*args, **kwargs)

    app = None

    batch = None

    batch_by

    batch_group

    batch_input = None

    classmethod bulk_get (tasks, api=None)
        Retrieve tasks with specified ids in bulk :param tasks: Tasks to be retrieved. :param api: Api instance.
        :return: List of TaskBulkRecord objects.

    clone (run=True)
        Clone task :param run: run task after cloning :return: Task object.

    classmethod create (name, project, app, revision=None, batch_input=None, batch_by=None, in-
        puts=None, description=None, run=False, disable_batch=False, interrupt-
        ible=None, execution_settings=None, api=None)
        Creates a task on server. :param name: Task name. :param project: Project identifier. :param app: CWL
        app identifier. :param revision: CWL app revision. :param batch_input: Batch input. :param batch_by:
        Batch criteria. :param inputs: Input map. :param description: Task description. :param run: True if you
        want to run a task upon creation. :param disable_batch: If True disables batching of a batch task. :param
        interruptible: If True interruptible instance will be used. :param execution_settings: Execution settings for
        the task. :param api: Api instance. :return: Task object. :raises: TaskValidationError if validation Fails.
        :raises: SbgError if any exception occurs during request.

    created_by = None

    created_time = None

    deepcopy ()

    description = None

    end_time = None

    equals (other)

    errors = None

```

**executed\_by** = None

**execution\_settings** = None

**execution\_status**

**get\_batch\_children** (*status=None, created\_from=None, created\_to=None, started\_from=None, started\_to=None, ended\_from=None, ended\_to=None, order\_by=None, order=None, offset=None, limit=None, api=None*)

Retrieves batch child tasks for this task if its a batch task. :return: Collection instance. :raises SbError if task is not a batch task.

**get\_execution\_details** ()

Retrieves execution details for a task. :return: Execution details instance.

**href** = None

**id** = None

**inputs**

**name** = None

**outputs**

**parent** = None

**price**

**project** = None

**classmethod query** (*project=None, status=None, batch=None, parent=None, created\_from=None, created\_to=None, started\_from=None, started\_to=None, ended\_from=None, ended\_to=None, offset=None, limit=None, order\_by=None, order=None, api=None*)

Query (List) tasks. Date parameters may be both strings and python date objects. :param project: Target project. optional. :param status: Task status. :param batch: Only batch tasks. :param parent: Parent batch task identifier. :param ended\_to: All tasks that ended until this date. :param ended\_from: All tasks that ended from this date. :param started\_to: All tasks that were started until this date. :param started\_from: All tasks that were started from this date. :param created\_to: All tasks that were created until this date. :param created\_from: All tasks that were created from this date. :param offset: Pagination offset. :param limit: Pagination limit. :param order\_by: Property to order by. :param order: Ascending or descending ordering. :param api: Api instance. :return: Collection object.

**run** (*\*args, \*\*kwargs*)

**save** (*\*args, \*\*kwargs*)

**start\_time** = None

**status** = None

**type** = None

**use\_interruptible\_instances** = None

**wait** (*period=10, callback=None, \*args, \*\*kwargs*)

Wait until task is complete :param period: Time in seconds between reloads :param callback: Function to call after the task has finished,

arguments and keyword arguments can be provided for it

**Returns** Return value of provided callback function or None if a callback function was not provided

**warnings = None**

**class** sevenbridges.**App** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing apps.

**copy** (project, name=None, strategy=None, use\_revision=False, api=None)

Copies the current app. :param project: Destination project. :param name: Destination app name. :param strategy: App copy strategy. :param use\_revision: Copy from set app revision. :param api: Api instance. :return: Copied App object.

#### Copy strategies

**clone copy all revisions and continue getting updates form the** original app (default method when the key is omitted)

**direct copy only the latest revision and get the updates from** this point on

**clone\_direct copy the app like the direct strategy, but keep all** revisions

**transient copy only the latest revision and continue getting** updates from the original app

**classmethod create\_revision** (id, revision, raw, api=None)

Create a new app revision. :param id: App identifier. :param revision: App revision. :param raw: Raw cwl object. :param api: Api instance. :return: App object.

**deepcopy** ()

**equals** (other)

**classmethod get\_revision** (id, revision, api=None)

Get app revision. :param id: App identifier. :param revision: App revision :param api: Api instance. :return: App object.

**href = None**

**id**

**classmethod install\_app** (id, raw, api=None, raw\_format=None)

Installs and app. :param id: App identifier. :param raw: Raw cwl data. :param api: Api instance. :param raw\_format: Format of raw app data being sent, json by default :return: App object.

**name = None**

**project = None**

**classmethod query** (project=None, visibility=None, q=None, id=None, offset=None, limit=None, api=None)

Query (List) apps. :param project: Source project. :param visibility: private/public for private or public apps. :param q: List containing search terms. :param id: List contains app ids. Fetch apps with specific ids. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: collection object

**raw = None**

**revision = None**

**sync** ()

Syncs the parent app changes with the current app instance. :return: Synced App object.

**class** sevenbridges.**Member** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing members. This resource is reused on both projects and volumes.

```
deepcopy ()
email = None
equals (other)
href = None
id = None
permissions
save (*args, **kwargs)
type = None
username = None
```

```
class sevenbridges.Permissions (**kwargs)
    Bases: sevenbridges.meta.comp_mutable_dict.CompoundMutableDict, sevenbridges.meta.resource.Resource
```

Members permissions resource.

```
class sevenbridges.File (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
```

Central resource for managing files.

```
FOLDER_TYPE = 'folder'
```

```
classmethod bulk_delete (files, api=None)
    Delete files with specified ids in bulk :param files: Files to be deleted. :param api: Api instance. :return:
    List of FileBulkRecord objects.
```

```
classmethod bulk_edit (files, api=None)
    This call edits the details for multiple specified files. Use this call to modify the existing information for
    the files or add new information while preserving omitted parameters. For each of the specified files, the
    call edits its name, tags and metadata. :param files: List of file instances. :param api: Api instance. :return:
    List of FileBulkRecord objects.
```

```
classmethod bulk_get (files, api=None)
    Retrieve files with specified ids in bulk :param files: Files to be retrieved. :param api: Api instance. :return:
    List of FileBulkRecord objects.
```

```
classmethod bulk_update (files, api=None)
    This call updates the details for multiple specified files. Use this call to set new information for the files,
    thus replacing all existing information and erasing omitted parameters. For each of the specified files, the
    call sets a new name, new tags and metadata. :param files: List of file instances. :param api: Api instance.
    :return: List of FileBulkRecord objects.
```

```
content (path=None, overwrite=True, encoding='utf-8')
    Downloads file to the specified path or as temporary file and reads the file content in memory.
```

Should not be used on very large files.

#### Parameters

- **path** – Path for file download If omitted tmp file will be used.
- **overwrite** – Overwrite file if exists locally
- **encoding** – File encoding, by default it is UTF-8

**Returns** File content.

**copy** (*project, name=None*)

Copies the current file. :param project: Destination project. :param name: Destination file name. :return: Copied File object.

**copy\_to\_folder** (*parent, name=None, api=None*)

Copy file to folder :param parent: Folder to copy file to :param name: New file name :param api: Api instance :return: New file instance

**classmethod create\_folder** (*name, parent=None, project=None, api=None*)

Create a new folder :param name: Folder name :param parent: Parent folder :param project: Project to create folder in :param api: Api instance :return: New folder

**created\_on = None**

**deepcopy** ()

**download** (*path, retry=6, timeout=300, chunk\_size=None, wait=True, overwrite=False*)

Downloads the file and returns a download handle. Download will not start until .start() method is invoked. :param path: Full path to the new file. :param retry: Number of retries if error occurs during download. :param timeout: Timeout for http requests. :param chunk\_size: Chunk size in bytes. :param wait: If true will wait for download to complete. :param overwrite: If True will silently overwrite existing file. :return: Download handle.

**download\_info** ()

Fetches download information containing file url that can be used to download file. :return: Download info object.

**equals** (*other*)

**href = None**

**id = None**

**is\_folder** ()

**list\_files** (*offset=None, limit=None, api=None, cont\_token=None*)

List files in a folder :param api: Api instance :param offset: Pagination offset :param limit: Pagination limit :param cont\_token: Pagination continuation token :return: List of files

**metadata**

**modified\_on = None**

**move\_to\_folder** (*parent, name=None, api=None*)

Move file to folder :param parent: Folder to move file to :param name: New file name :param api: Api instance :return: New file instance

**name = None**

**origin**

**parent = None**

**project = None**

**classmethod query** (*project=None, names=None, metadata=None, origin=None, tags=None, offset=None, limit=None, dataset=None, api=None, parent=None, cont\_token=None*)

Query ( List ) files, requires project or dataset :param project: Project id :param names: Name list :param metadata: Metadata query dict :param origin: Origin query dict :param tags: List of tags to filter on :param offset: Pagination offset :param limit: Pagination limit :param dataset: Dataset id :param api: Api instance. :param parent: Folder id or File object with type folder :param cont\_token: Pagination continuation token :return: Collection object.

**reload()**

Refreshes the file with the data from the server.

**save** (\*args, \*\*kwargs)

**secondary\_files**

**size = None**

**storage**

**stream** (part\_size=32768)

Creates an iterator which can be used to stream the file content. :param part\_size: Size of the part in bytes.  
Default 32KB :return Iterator

**tags = None**

**type = None**

**classmethod upload** (path, project=None, parent=None, file\_name=None, overwrite=False, retry=6, timeout=300, part\_size=None, wait=True, api=None)

Uploads a file using multipart upload and returns an upload handle if the wait parameter is set to False. If wait is set to True it will block until the upload is completed.

#### Parameters

- **path** – File path on local disc.
- **project** – Project identifier
- **parent** – Parent folder identifier
- **file\_name** – Optional file name.
- **overwrite** – If true will overwrite the file on the server.
- **retry** – Number of retries if error occurs during upload.
- **timeout** – Timeout for http requests.
- **part\_size** – Part size in bytes.
- **wait** – If true will wait for upload to complete.
- **api** – Api instance.

**class** sevenbridges.**Export** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing exports.

**classmethod bulk\_get** (exports, api=None)

Retrieve exports in bulk. :param exports: Exports to be retrieved. :param api: Api instance. :return: list of ExportBulkRecord objects.

**classmethod bulk\_submit** (exports, copy\_only=False, api=None)

Create exports in bulk. :param exports: List of dicts describing a wanted export. :param copy\_only: If true files are kept on SevenBridges bucket. :param api: Api instance. :return: list of ExportBulkRecord objects.

**deepcopy** ()

**destination**

**equals** (other)

**error**



**finished\_on = None**

**href = None**

**id = None**

**overwrite = None**

**properties**

**classmethod query** (*volume=None, state=None, offset=None, limit=None, api=None*)

Query (List) exports. :param volume: Optional volume identifier. :param state: Optional import sate. :param api: Api instance. :return: Collection object.

**result**

**source**

**started\_on = None**

**state = None**

**classmethod submit\_export** (*file, volume, location, properties=None, overwrite=False, copy\_only=False, api=None*)

Submit new export job. :param file: File to be exported. :param volume: Volume identifier. :param location: Volume location. :param properties: Properties dictionary. :param overwrite: If true it will overwrite file if exists :param copy\_only: If true files are kept on SevenBridges bucket. :param api: Api Instance. :return: Export object.

**class sevenbridges.Import** (*\*\*kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing imports.

**autorename = None**

**classmethod bulk\_get** (*imports, api=None*)

Retrieve imports in bulk :param imports: Imports to be retrieved. :param api: Api instance. :return: List of ImportBulkRecord objects.

**classmethod bulk\_submit** (*imports, api=None*)

Submit imports in bulk :param imports: List of dicts describing a wanted import. :param api: Api instance. :return: List of ImportBulkRecord objects.

**deepcopy** ()

**destination**

**equals** (*other*)

**error**

**finished\_on = None**

**href = None**

**id = None**

**overwrite = None**

**preserve\_folder\_structure = None**

**classmethod query** (*project=None, volume=None, state=None, offset=None, limit=None, api=None*)

Query (List) imports. :param project: Optional project identifier. :param volume: Optional volume identifier. :param state: Optional import sate. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

**result**

**source**

**started\_on = None**

**state = None**

**classmethod submit\_import** (*volume, location, project=None, name=None, overwrite=False, properties=None, parent=None, preserve\_folder\_structure=True, autorename=False, api=None*)

Submits new import job. :param volume: Volume identifier. :param location: Volume location. :param project: Project identifier. :param name: Optional file name. :param overwrite: If true it will overwrite file if exists. :param properties: Properties dictionary. :param parent: The ID of the target folder to which the item should be

imported. Should not be used together with project.

#### Parameters

- **preserve\_folder\_structure** – Whether to keep the exact source folder structure. The default value is true if the item being imported is a folder. Should not be used if you are importing a file.
- **autorename** – Whether to automatically rename the item (by prefixing its name with an underscore and number) if another one with the same name already exists at the destination.
- **api** – Api instance.

**Returns** Import object.

**class** `sevenbridges.Volume` (*\*\*kwargs*)

Bases: `sevenbridges.meta.resource.Resource`

Central resource for managing volumes.

**access\_mode = None**

**active = None**

**add\_member** (*user, permissions*)

Add a member to the volume. :param user: Member username :param permissions: Permissions dictionary. :return: Member object.

**add\_member\_division** (*division, permissions*)

Add a member (team) to a volume. :param division: Division object or division identifier. :param permissions: Permissions dictionary. :return: Member object.

**add\_member\_team** (*team, permissions*)

Add a member (team) to a volume. :param team: Team object or team identifier. :param permissions: Permissions dictionary. :return: Member object.

**classmethod create\_google\_volume** (*name, bucket, client\_email, private\_key, access\_mode, description=None, prefix=None, properties=None, api=None*)

Create s3 volume. :param name: Volume name. :param bucket: Referenced bucket. :param client\_email: Google client email. :param private\_key: Google client private key. :param access\_mode: Access Mode. :param description: Volume description. :param prefix: Volume prefix. :param properties: Volume properties. :param api: Api instance. :return: Volume object.

**classmethod create\_oss\_volume** (*name, bucket, endpoint, access\_key\_id, secret\_access\_key, access\_mode, description=None, prefix=None, properties=None, api=None*)

Create oss volume. :param name: Volume name. :param bucket: Referenced bucket. :param access\_key\_id: Access key identifier. :param secret\_access\_key: Secret access key. :param access\_mode: Access Mode. :param endpoint: Volume Endpoint. :param description: Volume description. :param prefix: Volume prefix. :param properties: Volume properties. :param api: Api instance. :return: Volume object.

**classmethod create\_s3\_volume** (*name, bucket, access\_key\_id, secret\_access\_key, access\_mode, description=None, prefix=None, properties=None, api=None*)

Create s3 volume. :param name: Volume name. :param bucket: Referenced bucket. :param access\_key\_id: Amazon access key identifier. :param secret\_access\_key: Amazon secret access key. :param access\_mode: Access Mode. :param description: Volume description. :param prefix: Volume prefix. :param properties: Volume properties. :param api: Api instance. :return: Volume object.

**created\_on = None**

**deepcopy** ()

**description = None**

**equals** (*other*)

**get\_exports** (*state=None, offset=None, limit=None*)

Fetches exports for this volume. :param state: Optional state. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_imports** (*project=None, state=None, offset=None, limit=None*)

Fetches imports for this volume. :param project: Optional project identifier. :param state: Optional state. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_member** (*username, api=None*)

Fetches information about a single volume member :param username: Member name :param api: Api instance :return: Member object

**get\_members** (*offset=None, limit=None*)

Retrieves volume members. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_volume\_object\_info** (*location*)

Fetches information about single volume object - usually file :param location: object location :return:

**href = None**

**id = None**

**list** (*prefix=None, limit=None*)

**modified\_on = None**

**name = None**

**classmethod query** (*offset=None, limit=None, api=None*)

Query (List) volumes. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

**remove\_member** (*user*)

Remove member from the volume. :param user: User to be removed.

**save** (*\*args, \*\*kwargs*)

**service**

```

class sevenbridges.VolumeObject (**kwargs)
    Bases: sevenbridges.meta.resource.Resource

    Volume object resource contains information about single file (object) entry in a specific volume.

    deepcopy ()

    equals (other)

    href = None

    location = None

    metadata = None

    type = None

    volume = None

class sevenbridges.Marker (**kwargs)
    Bases: sevenbridges.meta.resource.Resource

    chromosome = None

    classmethod create (file, name, position, chromosome, private=True, api=None)
        Create a marker on a file. :param file: File object or identifier. :param name: Marker name. :param
        position: Marker position object. :param chromosome: Chromosome number. :param private: Whether
        the marker is private or public. :param api: Api instance. :return: Marker object.

    created_by = None

    created_time = None

    deepcopy ()

    equals (other)

    file = None

    href = None

    id = None

    name = None

    position

    classmethod query (file, offset=None, limit=None, api=None)
        Queries genome markers on a file. :param file: Genome file - Usually bam file. :param offset: Pagination
        offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

    save (*args, **kwargs)

class sevenbridges.Division (**kwargs)
    Bases: sevenbridges.meta.resource.Resource

    Central resource for managing divisions.

    deepcopy ()

    equals (other)

    get_members (role=None, offset=None, limit=None)

    get_teams (offset=None, limit=None)

    href = None

    id = None

```

**name** = None

**classmethod query** (*offset=None, limit=None, api=None*)

Query (List) divisions.

**Parameters**

- **offset** – Pagination offset.
- **limit** – Pagination limit.
- **api** – Api instance.

**Returns** Collection object.

**class** `sevenbridges.Team` (*\*\*kwargs*)

Bases: `sevenbridges.meta.resource.Resource`

Central resource for managing teams.

**add\_member** (*user*)

Add member to team :param user: User object or user's username :return: Added user.

**classmethod create** (*name, division, api=None*)

Create team within a division :param name: Team name. :param division: Parent division. :param api: Api instance. :return: Team object.

**deepcopy** ()

**equals** (*other*)

**get\_members** (*offset=None, limit=None*)

Fetch team members for current team. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**href** = None

**id** = None

**name** = None

**classmethod query** (*division, list\_all=False, offset=None, limit=None, api=None*)

**Parameters**

- **division** – Division slug.
- **list\_all** – List all teams in division.
- **offset** – Pagination offset.
- **limit** – Pagination limit.
- **api** – Api instance.

**Returns** Collection object.

**remove\_member** (*user*)

Remove member from the team. :param user: User to be removed.

**save** (*\*args, \*\*kwargs*)

**class** `sevenbridges.TeamMember` (*\*\*kwargs*)

Bases: `sevenbridges.meta.resource.Resource`

Central resource for managing team members.

**deepcopy** ()

```

equals (other)
href = None
id = None
role = None
username = None
class sevenbridges.Dataset (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Central resource for managing datasets.
add_member (username, permissions, api=None)
    Add member to a dataset :param username: Member username :param permissions: Permissions dict
    :param api: Api instance :return: New member instance
deepcopy ()
description = None
equals (other)
get_member (username, api=None)
    Retrieve dataset member :param username: Member name :param api: Api instance :return: Member
    object
get_members (api=None)
    Retrieve dataset members :param api: Api instance :return: Collection object
classmethod get_owned_by (username, api=None)
    Query ( List ) datasets by owner :param api: Api instance :param username: Owner username :return:
    Collection object
href = None
id = None
name = None
classmethod query (visibility=None, api=None)
    Query ( List ) datasets :param visibility: If provided as 'public', retrieves public datasets :param api: Api
    instance :return: Collection object
remove_member (member, api=None)
    Remove member from a dataset :param member: Member username :param api: Api instance :return:
    None
save (*args, **kwargs)
class sevenbridges.BulkRecord (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
deepcopy ()
equals (other)
error
classmethod parse_records (response, api=None)
resource
valid

```

```
class sevenbridges.AppCopyStrategy
    Bases: object

    CLONE = 'clone'

    CLONE_DIRECT = 'clone_direct'

    DIRECT = 'direct'

    TRANSIENT = 'transient'

class sevenbridges.AppRawFormat
    Bases: object

    JSON = 'json'

    YAML = 'yaml'

class sevenbridges.AppCopyStrategy
    Bases: object

    CLONE = 'clone'

    CLONE_DIRECT = 'clone_direct'

    DIRECT = 'direct'

    TRANSIENT = 'transient'

class sevenbridges.AsyncFileOperations
    Bases: object

    COPY = 'copy'

    DELETE = 'delete'

    MOVE = 'move'

class sevenbridges.AsyncJobStates
    Bases: object

    FINISHED = 'FINISHED'

    RESOLVING = 'RESOLVING'

    RUNNING = 'RUNNING'

    SUBMITTED = 'SUBMITTED'

class sevenbridges.AutomationRunActions
    Bases: object

    RERUN = 'rerun'

    STOP = 'stop'

class sevenbridges.DivisionRole
    Bases: object

    ADMIN = 'admin'

    EXTERNAL_COLLABORATOR = 'external_collaborator'

    MEMBER = 'member'

class sevenbridges.FileStorageType
    Bases: object

    PLATFORM = 'PLATFORM'
```

```
VOLUME = 'VOLUME'

class sevenbridges.ImportExportState
    Bases: object

    COMPLETED = 'COMPLETED'

    FAILED = 'FAILED'

    PENDING = 'PENDING'

    RUNNING = 'RUNNING'

class sevenbridges.TaskStatus
    Bases: object

    ABORTED = 'ABORTED'

    ABORTING = 'ABORTING'

    COMPLETED = 'COMPLETED'

    CREATING = 'CREATING'

    DRAFT = 'DRAFT'

    FAILED = 'FAILED'

    QUEUED = 'QUEUED'

    RUNNING = 'RUNNING'

    terminal_states = ['COMPLETED', 'FAILED', 'ABORTED']

class sevenbridges.TransferState
    Bases: object

    ABORTED = 'ABORTED'

    COMPLETED = 'COMPLETED'

    FAILED = 'FAILED'

    PAUSED = 'PAUSED'

    PREPARING = 'PREPARING'

    RUNNING = 'RUNNING'

    STOPPED = 'STOPPED'

class sevenbridges.VolumeAccessMode
    Bases: object

    READ_ONLY = 'RO'

    READ_WRITE = 'RW'

class sevenbridges.VolumeType
    Bases: object

    GOOGLE = 'GCS'

    OSS = 'OSS'

    S3 = 'S3'

class sevenbridges.PartSize
    Bases: object
```



`DOWNLOAD_MINIMUM_PART_SIZE = 5242880`

`GB = 1073741824`

`KB = 1024`

`MAXIMUM_OBJECT_SIZE = 5497558138880`

`MAXIMUM_TOTAL_PARTS = 10000`

`MAXIMUM_UPLOAD_SIZE = 5368709120`

`MB = 1048576`

`TB = 1099511627776`

`UPLOAD_MINIMUM_PART_SIZE = 5242880`

`UPLOAD_RECOMMENDED_SIZE = 33554432`

**exception** `sevenbridges.SbgError` (*message=None, code=None, status=None, more\_info=None*)

Bases: `Exception`

Base class for SBG errors.

Provides a base exception for all errors that are thrown by sevenbridges-python library.

**exception** `sevenbridges.ResourceNotModified`

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.ReadOnlyPropertyError` (*message*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.ValidationError` (*message*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.TaskValidationError` (*message, task=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.PaginationError` (*message*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.BadRequest` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.Unauthorized` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.Forbidden` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.NotFound` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.Conflict` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.TooManyRequests` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.ServerError` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.ServiceUnavailable` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.MethodNotAllowed` (*code=None, message=None, more\_info=None*)  
Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.RequestTimeout` (*code=None, message=None, more\_info=None*)  
Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.LocalFileAlreadyExists` (*code=None, message=None, more\_info=None*)  
Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.ExecutionDetailsInvalidTaskType` (*code=None, message=None, more\_info=None*)  
Bases: `sevenbridges.errors.SbgError`

## 1.4.2 Subpackages

### sevenbridges.http package

#### Submodules

#### sevenbridges.http.client module

**class** `sevenbridges.http.client.AAHeader`  
Bases: `object`

**key** = 'X-Sbg-Advance-Access'  
**value** = 'Advance'

**class** `sevenbridges.http.client.HttpClient` (*url=None, token=None, oauth\_token=None, config=None, timeout=None, proxies=None, error\_handlers=None, advance\_access=False, pool\_connections=None, pool\_maxsize=None, pool\_block=True, max\_parallel\_requests=None, retry\_count=None, backoff\_factor=None*)  
Bases: `object`

Implementation of all low-level API stuff, creating and sending requests, returning raw responses, authorization, etc.

**add\_error\_handler** (*handler*)

**delete** (*url, headers=None, params=None, append\_base=True*)

**get** (*url, headers=None, params=None, data=None, append\_base=True, stream=False*)

**limit**

**patch** (*url, headers=None, params=None, data=None, append\_base=True*)

**post** (*url, headers=None, params=None, data=None, append\_base=True*)

**put** (*url, headers=None, params=None, data=None, append\_base=True*)

**remaining**

**remove\_error\_handler** (*handler*)

**request\_id**

`reset_time``session``class sevenbridges.http.client.RequestSession`Bases: `requests.sessions.Session`

Client session class

`send(request, **kwargs)`

Send prepared request :param request: Prepared request to be sent :param kwargs: request keyword arguments :return: Request response

`sevenbridges.http.client.config_vars(profiles, advance_access)`

Utility method to fetch config vars using ini section profile :param profiles: profile name. :param advance\_access: advance\_access flag. :return:

`sevenbridges.http.client.generate_session(pool_connections, pool_maxsize, pool_block, proxies=None, retry_count=None, backoff_factor=None)`

Utility method to generate request sessions. :param pool\_connections: The number of urllib3 connection pools to

cache.

#### Parameters

- **pool\_maxsize** – The maximum number of connections to save in the pool.
- **pool\_block** – Whether the connection pool should block for connections.
- **proxies** – Proxies dictionary.
- **retry\_count** – Number of retries to attempt
- **backoff\_factor** – Backoff factor for retries

**Returns** `requests.Session` object.`sevenbridges.http.client.mask_secrets(request_data)`

### sevenbridges.http.error\_handlers module

`sevenbridges.http.error_handlers.general_error_sleeper(api, response, sleep=300)`Pauses the execution if response status code is > 500. :param api: Api instance. :param response: `requests.Response` object :param sleep: Time to sleep in between the requests.`sevenbridges.http.error_handlers.maintenance_sleeper(api, response, sleep=300)`Pauses the execution if sevenbridges api is under maintenance. :param api: Api instance. :param response: `requests.Response` object. :param sleep: Time to sleep in between the requests.`sevenbridges.http.error_handlers.rate_limit_sleeper(api, response)`Pauses the execution if rate limit is breached. :param api: Api instance. :param response: `requests.Response` object`sevenbridges.http.error_handlers.repeatable_handler(f)`

Marks 'repeatable' error handlers. Error handler is repeatable if propagate input response in case of no error handling occurred.

## sevenbridges.meta package

### Submodules

#### sevenbridges.meta.collection module

**class** sevenbridges.meta.collection.**Collection** (*resource, href, total, items, links, api*)

Bases: list

Wrapper for SevenBridges pageable resources. Among the actual collection items it contains information regarding the total number of entries available in on the server and resource href.

**all** ()

Fetches all available items. :return: Collection object.

**next\_page** ()

Fetches next result set. :return: Collection object.

**previous\_page** ()

Fetches previous result set. :return: Collection object.

**resource = None**

**total**

**class** sevenbridges.meta.collection.**VolumeCollection** (*href, items, links, prefixes, api*)

Bases: *sevenbridges.meta.collection.Collection*

**next\_page** ()

Fetches next result set. :return: VolumeCollection object.

**previous\_page** ()

Fetches previous result set. :return: Collection object.

**total**

#### sevenbridges.meta.comp\_mutable\_dict module

**class** sevenbridges.meta.comp\_mutable\_dict.**CompoundMutableDict** (*\*\*kwargs*)

Bases: dict

Resource used for mutable compound dictionaries.

**equals** (*other*)

**items** () → a set-like object providing a view on D's items

**update** (*[E], \*\*F*) → None. Update D from dict/iterable E and F.

If E is present and has a .keys() method, then does: for k in E: D[k] = E[k] If E is present and lacks a .keys() method, then does: for k, v in E: D[k] = v In either case, this is followed by: for k in F: D[k] = F[k]

#### sevenbridges.meta.data module

**class** sevenbridges.meta.data.**DataContainer** (*urls, api, parent*)

Bases: object

Utility for fetching data from the API server using, resource identifier or href.

**fetch** (*item=None*)

**sevenbridges.meta.fields module**

```
class sevenbridges.meta.fields.BasicListField(name=None, read_only=False,
                                             max_length=None)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
    validate(value)
```

```
class sevenbridges.meta.fields.BooleanField(name=None, read_only=False)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
    validate(value)
```

```
class sevenbridges.meta.fields.CompoundField(cls, name=None, read_only=False, valida-
                                             tor=None)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
class sevenbridges.meta.fields.CompoundListField(cls, name=None, read_only=True)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
class sevenbridges.meta.fields.DateTimeField(name=None, read_only=True)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
class sevenbridges.meta.fields.DictField(name=None, read_only=False)
```

```
    Bases: sevenbridges.meta.fields.Field, dict
```

```
class sevenbridges.meta.fields.Field(name=None, read_only=True, validator=None)
```

```
    Bases: object
```

```
    validate(value)
```

```
class sevenbridges.meta.fields.FloatField(name=None, read_only=False)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
    validate(value)
```

```
class sevenbridges.meta.fields.HrefField(name=None)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
class sevenbridges.meta.fields.IntegerField(name=None, read_only=False)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
    validate(value)
```

```
class sevenbridges.meta.fields.ObjectIdField(name=None, read_only=True)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
class sevenbridges.meta.fields.StringField(name=None, read_only=False,
                                             max_length=None)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
    validate(value)
```

```
class sevenbridges.meta.fields.UuidField(name=None, read_only=True)
```

```
    Bases: sevenbridges.meta.fields.Field
```

```
    validate(value)
```

**sevenbridges.meta.resource module**

```
class sevenbridges.meta.resource.Resource(api, *args, **kwargs)
```

```
    Bases: object
```

Resource is base class for all resources, hiding implementation details of magic of injecting instance of API and common operations (like generic query).

**delete** ()

Deletes the resource on the server.

**field** (*name*)

Return field value if it's set :param name: Field name :return: Field value or None

**classmethod get** (*id, api=None*)

Fetches the resource from the server. :param id: Resource identifier :param api: sevenbridges Api instance. :return: Resource object.

**reload** ()

Refreshes the resource with the data from the server.

**update\_old** ()

**class** sevenbridges.meta.resource.**ResourceMeta**

Bases: type

Metaclass for all resources, knows how to inject instance of API from class that contains classes with this meta. Class that contains this class has to have 'api' property which will be injected into class level API property of Resource class.

Creates constructors for all resources and manages instantiation of resource fields.

## sevenbridges.meta.transformer module

**class** sevenbridges.meta.transformer.**Transform**

Bases: object

**static to\_app** (*app*)

Serializes app to id string :param app: object to serialize :return: string id

**static to\_async\_job** (*async\_job*)

**static to\_automation** (*automation*)

**static to\_automation\_member** (*member*)

**static to\_automation\_package** (*package*)

**static to\_billing\_group** (*billing\_group*)

Serializes billing\_group to id string :param billing\_group: object to serialize :return: string id

**static to\_dataset** (*dataset*)

**static to\_datestring** (*d*)

Serializes date to string :param d: object to serialize :return: string date

**static to\_division** (*division*)

Serializes division to id string :param division: object to serialize :return: string id

**static to\_export** (*export*)

Serializes export to id string :param export: object to serialize :return: string id

**static to\_file** (*file\_*)

Serializes file to id string :param **file\_**: object to serialize :return: string id

**static to\_import** (*import\_*)

Serializes import to id string :param **import\_**: object to serialize :return: string id

**static to\_location** (*location*)

Serializes location to string :param location: object to serialize :return: string

**static to\_marker** (*marker*)

Serializes marker to string :param marker: object to serialize :return: string id

**static to\_member** (*member*)

**static to\_project** (*project*)

Serializes project to id string :param project: object to serialize :return: string id

**static to\_resource** (*resource*)

**static to\_task** (*task*)

Serializes task to id string :param task: object to serialize :return: string id

**static to\_team** (*team*)

Serializes team to id string :param team: object to serialize :return: string id

**static to\_user** (*user*)

Serializes user to id string :param user: object to serialize :return: string id

**static to\_volume** (*volume*)

Serializes volume to id string :param volume: object to serialize :return: string id

## sevenbridges.models package

### Subpackages

#### sevenbridges.models.compound package

### Subpackages

#### sevenbridges.models.compound.billing package

### Submodules

#### sevenbridges.models.compound.billing.invoice\_period module

**class** sevenbridges.models.compound.billing.invoice\_period.**InvoicePeriod** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Invoice period resource contains datetime information about the invoice. It has from and to fields which represent the interval period for this invoice.

**deepcopy** ()

**equals** (*other*)

**from\_** = None

**to** = None

#### sevenbridges.models.compound.billing.project\_breakdown module

**class** sevenbridges.models.compound.billing.project\_breakdown.**ProjectBreakdown** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Project breakdown resource contains information regarding billing group project breakdown costs.

**analysis\_spending**

**deepcopy** ()

**equals** (*other*)

**href** = None

**task\_breakdown**

### sevenbridges.models.compound.billing.task\_breakdown module

**class** sevenbridges.models.compound.billing.task\_breakdown.**TaskBreakdown** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Task breakdown resource contains information regarding billing group analysis breakdown costs.

**deepcopy** ()

**equals** (*other*)

**href** = None

**runner\_username** = None

**task\_cost**

**time\_finished** = None

**time\_started** = None

### sevenbridges.models.compound.files package

#### Submodules

### sevenbridges.models.compound.files.download\_info module

**class** sevenbridges.models.compound.files.download\_info.**DownloadInfo** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Download info resource contains download url for the file.

**deepcopy** ()

**equals** (*other*)

**url** = None

### sevenbridges.models.compound.files.file\_origin module

**class** sevenbridges.models.compound.files.file\_origin.**FileOrigin** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

File origin resource contains information about origin of a file. Among others it contains information about the task if the file was produced during executions of a analysis.

**deepcopy** ()



**equals** (*other*)

**task** = None

### sevenbridges.models.compound.files.file\_storage module

**class** sevenbridges.models.compound.files.file\_storage.**FileStorage** (\*\**kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

File storage resource contains information about the storage location of the file if the file is imported on or exported to an external volume.

**deepcopy** ()

**equals** (*other*)

**location** = None

**type** = None

**volume** = None

### sevenbridges.models.compound.files.metadata module

**class** sevenbridges.models.compound.files.metadata.**Metadata** (\*\**kwargs*)

Bases: *sevenbridges.meta.comp\_mutable\_dict.CompoundMutableDict*, *sevenbridges.meta.resource.Resource*

File metadata resource.

### sevenbridges.models.compound.jobs package

#### Submodules

### sevenbridges.models.compound.jobs.job module

**class** sevenbridges.models.compound.jobs.job.**Job** (\*\**kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

Job resource contains information for a single executed node in the analysis.

**command\_line** = None

**deepcopy** ()

**docker**

**end\_time** = None

**equals** (*other*)

**instance**

**logs**

**name** = None

**retried** = None

**start\_time** = None

**status = None**

### sevenbridges.models.compound.jobs.job\_docker module

**class** sevenbridges.models.compound.jobs.job\_docker.**JobDocker** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

JobDocker resource contains information for a docker image that was used for execution of a single job.

**checksum = None**

**deepcopy** ()

**equals** (*other*)

### sevenbridges.models.compound.jobs.job\_instance module

**class** sevenbridges.models.compound.jobs.job\_instance.**Instance** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Instance resource contains information regarding the instance on which the job was executed.

**deepcopy** ()

**disk**

**equals** (*other*)

**id = None**

**provider = None**

**type = None**

### sevenbridges.models.compound.jobs.job\_instance\_disk module

**class** sevenbridges.models.compound.jobs.job\_instance\_disk.**Disk** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Disk resource contains information about EBS disk size.

**deepcopy** ()

**equals** (*other*)

**size = None**

**type = None**

**unit = None**

### sevenbridges.models.compound.jobs.job\_log module

**class** sevenbridges.models.compound.jobs.job\_log.**Logs** (\*\*kwargs)

Bases: *sevenbridges.meta.comp\_mutable\_dict.CompoundMutableDict*, *sevenbridges.meta.resource.Resource*

Task output resource.

## sevenbridges.models.compound.limits package

### Submodules

#### sevenbridges.models.compound.limits.rate module

**class** sevenbridges.models.compound.limits.rate.**Rate** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Rate resource.

**deepcopy** ()

**equals** (*other*)

**limit** = None

**remaining** = None

**reset** = None

## sevenbridges.models.compound.markers package

### Submodules

#### sevenbridges.models.compound.markers.position module

**class** sevenbridges.models.compound.markers.position.**MarkerPosition** (\*\*kwargs)

Bases: *sevenbridges.meta.comp\_mutable\_dict.CompoundMutableDict*, *sevenbridges.meta.resource.Resource*

Marker position resource

## sevenbridges.models.compound.projects package

### Submodules

#### sevenbridges.models.compound.projects.permissions module

**class** sevenbridges.models.compound.projects.permissions.**Permissions** (\*\*kwargs)

Bases: *sevenbridges.meta.comp\_mutable\_dict.CompoundMutableDict*, *sevenbridges.meta.resource.Resource*

Members permissions resource.

#### sevenbridges.models.compound.projects.settings module

**class** sevenbridges.models.compound.projects.settings.**Settings** (\*\*kwargs)

Bases: *sevenbridges.meta.comp\_mutable\_dict.CompoundMutableDict*, *sevenbridges.meta.resource.Resource*

Project settings resource.

## sevenbridges.models.compound.tasks package

`sevenbridges.models.compound.tasks.map_input_output` (*item*, *api*)

Maps item to appropriate sevenbridges object. :param item: Input/Output value. :param api: Api instance.  
:return: Mapped object.

## Submodules

### sevenbridges.models.compound.tasks.batch\_by module

**class** `sevenbridges.models.compound.tasks.batch_by.BatchBy` (\*\*kwargs)

Bases: `sevenbridges.meta.resource.Resource`, dict

Task batch by resource.

**equals** (*other*)

**update** (*[E]*, \*\**F*) → None. Update D from dict/iterable E and F.

If E is present and has a .keys() method, then does: for k in E: D[k] = E[k] If E is present and lacks a .keys() method, then does: for k, v in E: D[k] = v In either case, this is followed by: for k in F: D[k] = F[k]

### sevenbridges.models.compound.tasks.batch\_group module

**class** `sevenbridges.models.compound.tasks.batch_group.BatchGroup` (\*\*kwargs)

Bases: `sevenbridges.meta.resource.Resource`

Batch group for a batch task. Represents the group that is assigned to the child task from the batching criteria that was used when the task was started.

**deepcopy** ()

**equals** (*other*)

**fields** = None

**value** = None

### sevenbridges.models.compound.tasks.execution\_status module

**class** `sevenbridges.models.compound.tasks.execution_status.ExecutionStatus` (\*\*kwargs)

Bases: `sevenbridges.meta.resource.Resource`

Task execution status resource.

Contains information about the number of completed task steps, total number of task steps, current execution message and information regarding computation limits.

In case of a batch task it also contains the number of queued, running, completed, failed and aborted tasks.

**aborted** = None

**account\_limit** = None

**completed** = None

**deepcopy** ()

**duration** = None

```
equals (other)
execution_duration = None
failed = None
instance_init = None
message = None
message_code = None
queued = None
queued_duration = None
running = None
running_duration = None
steps_completed = None
steps_total = None
system_limit = None
```

### sevenbridges.models.compound.tasks.input module

```
class sevenbridges.models.compound.tasks.input.Input (**kwargs)
    Bases: sevenbridges.meta.comp_mutable_dict.CompoundMutableDict, sevenbridges.meta.resource.Resource
    Task input resource.
```

### sevenbridges.models.compound.tasks.output module

```
class sevenbridges.models.compound.tasks.output.Output (**kwargs)
    Bases: sevenbridges.meta.comp_mutable_dict.CompoundMutableDict, sevenbridges.meta.resource.Resource
    Task output resource.
```

### sevenbridges.models.compound.volumes package

#### Submodules

#### sevenbridges.models.compound.volumes.import\_destination module

```
class sevenbridges.models.compound.volumes.import_destination.ImportDestination (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    ImportDestination resource describes the location of the file imported on to SevenBridges platform or related product.
    deepcopy ()
    equals (other)
    name = None
```

```
parent = None
project = None
```

### sevenbridges.models.compound.volumes.properties module

```
class sevenbridges.models.compound.volumes.properties.VolumeProperties (**kwargs)
    Bases: sevenbridges.meta.comp_mutable_dict.CompoundMutableDict, sevenbridges.meta.resource.Resource
    Volume permissions resource.
```

### sevenbridges.models.compound.volumes.service module

```
class sevenbridges.models.compound.volumes.service.VolumeService (**kwargs)
    Bases: sevenbridges.meta.comp_mutable_dict.CompoundMutableDict, sevenbridges.meta.resource.Resource
    Volume Service resource. Contains information about external storage provider.
```

### sevenbridges.models.compound.volumes.volume\_file module

```
class sevenbridges.models.compound.volumes.volume_file.VolumeFile (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    VolumeFile resource describes the location of the file on the external volume.
    deepcopy ()
    equals (other)
    location = None
    volume = None
```

### sevenbridges.models.compound.volumes.volume\_object module

```
class sevenbridges.models.compound.volumes.volume_object.VolumeObject (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Volume object resource contains information about single file (object) entry in a specific volume.
    deepcopy ()
    equals (other)
    href = None
    location = None
    metadata = None
    type = None
    volume = None
```

## sevenbridges.models.compound.volumes.volume\_prefix module

**class** sevenbridges.models.compound.volumes.volume\_prefix.**VolumePrefix** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Volume prefix resource contains information about volume prefixes

**deepcopy** ()

**equals** (*other*)

**href** = None

**prefix** = None

**volume** = None

## Submodules

### sevenbridges.models.compound.error module

**class** sevenbridges.models.compound.error.**Error** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Error resource describes the error that happened and provides http status, custom codes and messages as well as the link to online resources.

**code** = None

**deepcopy** ()

**equals** (*other*)

**message** = None

**more\_info** = None

**status** = None

### sevenbridges.models.compound.price module

**class** sevenbridges.models.compound.price.**Price** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Price resource contains an information regarding the currency and the monet value of a certain resource.

**amount** = None

**breakdown**

**currency** = None

**deepcopy** ()

**equals** (*other*)

## sevenbridges.models.compound.price\_breakdown module

**class** sevenbridges.models.compound.price\_breakdown.**Breakdown** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Breakdown resource contains price breakdown by storage and computation.

**computation** = None

**data\_transfer** = None

**deepcopy** ()

**equals** (*other*)

**storage** = None

## Submodules

### sevenbridges.models.actions module

**class** sevenbridges.models.actions.**Actions** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

**classmethod** **bulk\_copy\_files** (*files, destination\_project, api=None*)

Bulk copy of files. :param files: List containing files to be copied. :param destination\_project: Destination project. :param api: Api instance. :return: MultiStatus copy result.

**deepcopy** ()

**equals** (*other*)

**classmethod** **send\_feedback** (*type='IDEA', referrer=None, text=None, api=None*)

Sends feedback to sevenbridges. :param type: FeedbackType wither IDEA, PROBLEM or THOUGHT. :param text: Feedback text. :param referrer: Feedback referrer. :param api: Api instance.

### sevenbridges.models.app module

**class** sevenbridges.models.app.**App** (\*\*kwargs)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing apps.

**copy** (*project, name=None, strategy=None, use\_revision=False, api=None*)

Copies the current app. :param project: Destination project. :param name: Destination app name. :param strategy: App copy strategy. :param use\_revision: Copy from set app revision. :param api: Api instance. :return: Copied App object.

#### Copy strategies

**clone copy all revisions and continue getting updates form the** original app (default method when the key is omitted)

**direct copy only the latest revision and get the updates from** this point on

**clone\_direct copy the app like the direct strategy, but keep all** revisions

**transient copy only the latest revision and continue getting** updates from the original app



```

classmethod create_revision (id, revision, raw, api=None)
    Create a new app revision. :param id: App identifier. :param revision: App revision. :param raw: Raw cwl
    object. :param api: Api instance. :return: App object.

deepcopy ()

equals (other)

classmethod get_revision (id, revision, api=None)
    Get app revision. :param id: App identifier. :param revision: App revision :param api: Api instance.
    :return: App object.

href = None

id

classmethod install_app (id, raw, api=None, raw_format=None)
    Installs and app. :param id: App identifier. :param raw: Raw cwl data. :param api: Api instance. :param
    raw_format: Format of raw app data being sent, json by default :return: App object.

name = None

project = None

classmethod query (project=None, visibility=None, q=None, id=None, offset=None, limit=None,
api=None)
    Query (List) apps. :param project: Source project. :param visibility: private/public for private or public
    apps. :param q: List containing search terms. :param id: List contains app ids. Fetch apps with specific
    ids. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return:
    collection object

raw = None

revision = None

sync ()
    Syncs the parent app changes with the current app instance. :return: Synced App object.

```

### sevenbridges.models.billing\_breakdown module

```

class sevenbridges.models.billing_breakdown.BillingGroupBreakdown (**kwargs)
    Bases: sevenbridges.meta.resource.Resource

    Central resource for managing billing group breakdowns.

    deepcopy ()

    equals (other)

    href = None

    project_breakdown

    total_spending

```

### sevenbridges.models.billing\_group module

```

class sevenbridges.models.billing_group.BillingGroup (**kwargs)
    Bases: sevenbridges.meta.resource.Resource

    Central resource for managing billing groups.

```

**balance**

**breakdown** ()

Get Billing group breakdown for the current billing group.

**deepcopy** ()

**disabled** = None

**equals** (*other*)

**href** = None

**id** = None

**name** = None

**owner** = None

**pending** = None

**classmethod query** (*offset=None, limit=None, api=None*)

Query (List) billing group. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object. :param api: Api instance.

**type** = None

## sevenbridges.models.division module

**class** sevenbridges.models.division.**Division** (\*\**kwargs*)

Bases: [sevenbridges.meta.resource.Resource](#)

Central resource for managing divisions.

**deepcopy** ()

**equals** (*other*)

**get\_members** (*role=None, offset=None, limit=None*)

**get\_teams** (*offset=None, limit=None*)

**href** = None

**id** = None

**name** = None

**classmethod query** (*offset=None, limit=None, api=None*)

Query (List) divisions.

### Parameters

- **offset** – Pagination offset.
- **limit** – Pagination limit.
- **api** – Api instance.

**Returns** Collection object.

**sevenbridges.models.endpoints module**

```

class sevenbridges.models.endpoints.Endpoints(**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Central resource for managing Endpoints.
    action_url = None
    apps_url = None
    billing_url = None
    deepcopy()
    equals(other)
    files_url = None
    classmethod get(api=None, **kwargs)
        Get api links. :param api: Api instance. :return: Endpoints object.
    projects_url = None
    rate_limit_url = None
    tasks_url = None
    upload_url = None
    user_url = None
    users_url = None

```

**sevenbridges.models.enums module**

```

class sevenbridges.models.enums.AppCopyStrategy
    Bases: object
    CLONE = 'clone'
    CLONE_DIRECT = 'clone_direct'
    DIRECT = 'direct'
    TRANSIENT = 'transient'

class sevenbridges.models.enums.AppRawFormat
    Bases: object
    JSON = 'json'
    YAML = 'yaml'

class sevenbridges.models.enums.AsyncFileOperations
    Bases: object
    COPY = 'copy'
    DELETE = 'delete'
    MOVE = 'move'

class sevenbridges.models.enums.AsyncJobStates
    Bases: object

```

```
    FINISHED = 'FINISHED'
    RESOLVING = 'RESOLVING'
    RUNNING = 'RUNNING'
    SUBMITTED = 'SUBMITTED'

class sevenbridges.models.enums.AutomationRunActions
    Bases: object

    RERUN = 'rerun'
    STOP = 'stop'

class sevenbridges.models.enums.AutomationStatus
    Bases: object

    ABORTED = 'ABORTED'
    CREATED = 'CREATED'
    FAILED = 'FAILED'
    FINISHED = 'FINISHED'
    QUEUED_FOR_EXECUTION = 'QUEUED_FOR_EXECUTION'
    QUEUED_FOR_TERMINATION = 'QUEUED_FOR_TERMINATION'
    RUNNING = 'RUNNING'
    SENT_TO_EXECUTION = 'SENT_TO_EXECUTION'
    terminal_states = ['FINISHED', 'FAILED', 'ABORTED']

class sevenbridges.models.enums.DivisionRole
    Bases: object

    ADMIN = 'admin'
    EXTERNAL_COLLABORATOR = 'external_collaborator'
    MEMBER = 'member'

class sevenbridges.models.enums.FeedbackType
    Bases: object

    IDEA = 'IDEA'
    PROBLEM = 'PROBLEM'
    THOUGHT = 'THOUGHT'

class sevenbridges.models.enums.FileApiFormats
    Bases: object

    FILE = 'File'
    FOLDER = 'Directory'

class sevenbridges.models.enums.FileStorageType
    Bases: object

    PLATFORM = 'PLATFORM'
    VOLUME = 'VOLUME'
```

```
class sevenbridges.models.enums.ImportExportState
    Bases: object

    COMPLETED = 'COMPLETED'

    FAILED = 'FAILED'

    PENDING = 'PENDING'

    RUNNING = 'RUNNING'

class sevenbridges.models.enums.PartSize
    Bases: object

    DOWNLOAD_MINIMUM_PART_SIZE = 5242880

    GB = 1073741824

    KB = 1024

    MAXIMUM_OBJECT_SIZE = 5497558138880

    MAXIMUM_TOTAL_PARTS = 10000

    MAXIMUM_UPLOAD_SIZE = 5368709120

    MB = 1048576

    TB = 1099511627776

    UPLOAD_MINIMUM_PART_SIZE = 5242880

    UPLOAD_RECOMMENDED_SIZE = 33554432

class sevenbridges.models.enums.RequestParameters
    Bases: object

    DEFAULT_BACKOFF_FACTOR = 1

    DEFAULT_BULK_LIMIT = 100

    DEFAULT_RETRY_COUNT = 6

    DEFAULT_TIMEOUT = 300

    MAX_URL_LENGTH = 6000

class sevenbridges.models.enums.TaskStatus
    Bases: object

    ABORTED = 'ABORTED'

    ABORTING = 'ABORTING'

    COMPLETED = 'COMPLETED'

    CREATING = 'CREATING'

    DRAFT = 'DRAFT'

    FAILED = 'FAILED'

    QUEUED = 'QUEUED'

    RUNNING = 'RUNNING'

    terminal_states = ['COMPLETED', 'FAILED', 'ABORTED']

class sevenbridges.models.enums.TransferState
    Bases: object
```

```
ABORTED = 'ABORTED'  
COMPLETED = 'COMPLETED'  
FAILED = 'FAILED'  
PAUSED = 'PAUSED'  
PREPARING = 'PREPARING'  
RUNNING = 'RUNNING'  
STOPPED = 'STOPPED'
```

```
class sevenbridges.models.enums.VolumeAccessMode  
    Bases: object  
    READ_ONLY = 'RO'  
    READ_WRITE = 'RW'
```

```
class sevenbridges.models.enums.VolumeType  
    Bases: object  
    GOOGLE = 'GCS'  
    OSS = 'OSS'  
    S3 = 'S3'
```

### sevenbridges.models.execution\_details module

```
class sevenbridges.models.execution_details.ExecutionDetails(**kwargs)  
    Bases: sevenbridges.meta.resource.Resource  
    Task execution details.  
    deepcopy()  
    end_time = None  
    equals(other)  
    href = None  
    jobs  
    message = None  
    start_time = None  
    status = None
```

### sevenbridges.models.file module

```
class sevenbridges.models.file.File(**kwargs)  
    Bases: sevenbridges.meta.resource.Resource  
    Central resource for managing files.  
    FOLDER_TYPE = 'folder'
```

**classmethod bulk\_delete** (*files, api=None*)

Delete files with specified ids in bulk :param files: Files to be deleted. :param api: Api instance. :return: List of FileBulkRecord objects.

**classmethod bulk\_edit** (*files, api=None*)

This call edits the details for multiple specified files. Use this call to modify the existing information for the files or add new information while preserving omitted parameters. For each of the specified files, the call edits its name, tags and metadata. :param files: List of file instances. :param api: Api instance. :return: List of FileBulkRecord objects.

**classmethod bulk\_get** (*files, api=None*)

Retrieve files with specified ids in bulk :param files: Files to be retrieved. :param api: Api instance. :return: List of FileBulkRecord objects.

**classmethod bulk\_update** (*files, api=None*)

This call updates the details for multiple specified files. Use this call to set new information for the files, thus replacing all existing information and erasing omitted parameters. For each of the specified files, the call sets a new name, new tags and metadata. :param files: List of file instances. :param api: Api instance. :return: List of FileBulkRecord objects.

**content** (*path=None, overwrite=True, encoding='utf-8'*)

Downloads file to the specified path or as temporary file and reads the file content in memory.

Should not be used on very large files.

#### Parameters

- **path** – Path for file download If omitted tmp file will be used.
- **overwrite** – Overwrite file if exists locally
- **encoding** – File encoding, by default it is UTF-8

**Returns** File content.

**copy** (*project, name=None*)

Copies the current file. :param project: Destination project. :param name: Destination file name. :return: Copied File object.

**copy\_to\_folder** (*parent, name=None, api=None*)

Copy file to folder :param parent: Folder to copy file to :param name: New file name :param api: Api instance :return: New file instance

**classmethod create\_folder** (*name, parent=None, project=None, api=None*)

Create a new folder :param name: Folder name :param parent: Parent folder :param project: Project to create folder in :param api: Api instance :return: New folder

**created\_on = None**

**deepcopy** ()

**download** (*path, retry=6, timeout=300, chunk\_size=None, wait=True, overwrite=False*)

Downloads the file and returns a download handle. Download will not start until .start() method is invoked. :param path: Full path to the new file. :param retry: Number of retries if error occurs during download. :param timeout: Timeout for http requests. :param chunk\_size: Chunk size in bytes. :param wait: If true will wait for download to complete. :param overwrite: If True will silently overwrite existing file. :return: Download handle.

**download\_info** ()

Fetches download information containing file url that can be used to download file. :return: Download info object.

**equals** (*other*)

**href** = None

**id** = None

**is\_folder** ()

**list\_files** (*offset=None, limit=None, api=None, cont\_token=None*)

List files in a folder :param api: Api instance :param offset: Pagination offset :param limit: Pagination limit :param cont\_token: Pagination continuation token :return: List of files

**metadata**

**modified\_on** = None

**move\_to\_folder** (*parent, name=None, api=None*)

Move file to folder :param parent: Folder to move file to :param name: New file name :param api: Api instance :return: New file instance

**name** = None

**origin**

**parent** = None

**project** = None

**classmethod query** (*project=None, names=None, metadata=None, origin=None, tags=None, offset=None, limit=None, dataset=None, api=None, parent=None, cont\_token=None*)

Query ( List ) files, requires project or dataset :param project: Project id :param names: Name list :param metadata: Metadata query dict :param origin: Origin query dict :param tags: List of tags to filter on :param offset: Pagination offset :param limit: Pagination limit :param dataset: Dataset id :param api: Api instance. :param parent: Folder id or File object with type folder :param cont\_token: Pagination continuation token :return: Collection object.

**reload** ()

Refreshes the file with the data from the server.

**save** (*\*args, \*\*kwargs*)

**secondary\_files**

**size** = None

**storage**

**stream** (*part\_size=32768*)

Creates an iterator which can be used to stream the file content. :param part\_size: Size of the part in bytes. Default 32KB :return Iterator

**tags** = None

**type** = None

**classmethod upload** (*path, project=None, parent=None, file\_name=None, overwrite=False, retry=6, timeout=300, part\_size=None, wait=True, api=None*)

Uploads a file using multipart upload and returns an upload handle if the wait parameter is set to False. If wait is set to True it will block until the upload is completed.

#### Parameters

- **path** – File path on local disc.
- **project** – Project identifier



- **parent** – Parent folder identifier
- **file\_name** – Optional file name.
- **overwrite** – If true will overwrite the file on the server.
- **retry** – Number of retries if error occurs during upload.
- **timeout** – Timeout for http requests.
- **part\_size** – Part size in bytes.
- **wait** – If true will wait for upload to complete.
- **api** – Api instance.

```
class sevenbridges.models.file.FileBulkRecord (**kwargs)
    Bases: sevenbridges.models.bulk.BulkRecord

    deepcopy ()
    equals (other)
    resource
```

### sevenbridges.models.invoice module

```
class sevenbridges.models.invoice.Invoice (**kwargs)
    Bases: sevenbridges.meta.resource.Resource

    Central resource for managing invoices.

    analysis_costs
    deepcopy ()
    equals (other)
    href = None
    id = None
    invoice_period
    pending = None
    classmethod query (offset=None, limit=None, api=None)
        Query (List) invoices. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api
        instance. :return: Collection object.

    storage_costs
    total
```

### sevenbridges.models.link module

```
class sevenbridges.models.link.Link (**kwargs)
    Bases: sevenbridges.meta.resource.Resource

    Pagination links.

    deepcopy ()
    equals (other)
```

```
href = None
method = None
rel = None
```

```
class sevenbridges.models.link.VolumeLink (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Pagination links for volumes.
    deepcopy ()
    equals (other)
    next = None
```

### sevenbridges.models.marker module

```
class sevenbridges.models.marker.Marker (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    chromosome = None
    classmethod create (file, name, position, chromosome, private=True, api=None)
        Create a marker on a file. :param file: File object or identifier. :param name: Marker name. :param
        position: Marker position object. :param chromosome: Chromosome number. :param private: Whether
        the marker is private or public. :param api: Api instance. :return: Marker object.
    created_by = None
    created_time = None
    deepcopy ()
    equals (other)
    file = None
    href = None
    id = None
    name = None
    position
    classmethod query (file, offset=None, limit=None, api=None)
        Queries genome markers on a file. :param file: Genome file - Usually bam file. :param offset: Pagination
        offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.
    save (*args, **kwargs)
```

### sevenbridges.models.member module

```
class sevenbridges.models.member.Member (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Central resource for managing members. This resource is reused on both projects and volumes.
    deepcopy ()
    email = None
```

```

equals (other)
href = None
id = None
permissions
save (*args, **kwargs)
type = None
username = None

```

## sevenbridges.models.project module

```

class sevenbridges.models.project.Project (**kwargs)
    Bases: sevenbridges.meta.resource.Resource

    Central resource for managing projects.

add_files (files)
    Adds files to this project. :param files: List of files or a Collection object.

add_member (user, permissions)
    Add a member to the project. :param user: Member username :param permissions: Permissions dictionary.
    :return: Member object.

add_member_division (division, permissions)
    Add a member (team) to a project. :param division: Division object or division identifier. :param permis-
    sions: Permissions dictionary. :return: Member object.

add_member_email (email, permissions=None)
    Add a member to the project using member email. :param email: Member email. :param permissions:
    Permissions dictionary. :return: Member object.

add_member_team (team, permissions)
    Add a member (team) to a project. :param team: Team object or team identifier. :param permissions:
    Permissions dictionary. :return: Member object.

billing_group = None

classmethod create (name, billing_group=None, description=None, tags=None, settings=None,
                    api=None)
    Create a project. :param name: Project name. :param billing_group: Project billing group. :param de-
    scription: Project description. :param tags: Project tags. :param settings: Project settings. :param api: Api
    instance. :return:

create_task (name, app, revision=None, batch_input=None, batch_by=None, inputs=None,
              description=None, run=False, disable_batch=False, interruptible=True, execu-
              tion_settings=None)
    Creates a task for this project.

    Parameters
    • name – Task name.
    • app – CWL app identifier.
    • revision – CWL app revision.
    • batch_input – Batch input.
    • batch_by – Batch criteria.

```

- **inputs** – Input map.
- **description** – Task description.
- **run** – True if you want to run a task upon creation.
- **disable\_batch** – True if you want to disable batching.
- **interruptible** – True if you want to use interruptible instances.
- **execution\_settings** – Execution settings for the task.

**Returns** Task object.

**created\_by** = None

**created\_on** = None

**deepcopy** ()

**description** = None

**equals** (*other*)

**get\_apps** (*offset=None, limit=None*)

Retrieves apps in this project. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_exports** (*volume=None, state=None, offset=None, limit=None*)

Fetches exports for this volume. :param volume: Optional volume identifier. :param state: Optional state. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_files** (*offset=None, limit=None*)

Retrieves files in this project. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_imports** (*volume=None, state=None, offset=None, limit=None*)

Fetches imports for this project. :param volume: Optional volume identifier. :param state: Optional state. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_member** (*username, api=None*)

Fetches information about a single project member :param username: Member name :param api: Api instance :return: Member object

**get\_members** (*offset=None, limit=None*)

Retrieves project members. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_tasks** (*status=None, offset=None, limit=None*)

Retrieves tasks in this project. :param status: Optional task status. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**href** = None

**id** = None

**modified\_on** = None

**name** = None

**classmethod query** (*owner=None, name=None, offset=None, limit=None, api=None*)

Query (List) projects :param owner: Owner username. :param name: Project name :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

**remove\_member** (*user*)

Remove member from the project. :param user: User to be removed.

```

root_folder = None
save (*args, **kwargs)
settings
tags = None
type = None

```

### sevenbridges.models.rate\_limit module

```

class sevenbridges.models.rate_limit.RateLimit (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Rate limit resource contains info regarding request and computation rate limits.
    deepcopy ()
    equals (other)
    classmethod get (id=None, api=None)
        Fetches the resource from the server. :param id: Resource identifier :param api: sevenbridges Api instance.
        :return: Resource object.
    instance_limit
    rate

```

### sevenbridges.models.storage\_export module

```

class sevenbridges.models.storage_export.Export (**kwargs)
    Bases: sevenbridges.meta.resource.Resource
    Central resource for managing exports.
    classmethod bulk_get (exports, api=None)
        Retrieve exports in bulk. :param exports: Exports to be retrieved. :param api: Api instance. :return: list of
        ExportBulkRecord objects.
    classmethod bulk_submit (exports, copy_only=False, api=None)
        Create exports in bulk. :param exports: List of dicts describing a wanted export. :param copy_only: If
        true files are kept on SevenBridges bucket. :param api: Api instance. :return: list of ExportBulkRecord
        objects.
    deepcopy ()
    destination
    equals (other)
    error
    finished_on = None
    href = None
    id = None
    overwrite = None
    properties

```

**classmethod** `query` (*volume=None, state=None, offset=None, limit=None, api=None*)

Query (List) exports. :param volume: Optional volume identifier. :param state: Optional import state.  
:param api: Api instance. :return: Collection object.

**result**

**source**

**started\_on = None**

**state = None**

**classmethod** `submit_export` (*file, volume, location, properties=None, overwrite=False, copy\_only=False, api=None*)

Submit new export job. :param file: File to be exported. :param volume: Volume identifier. :param location: Volume location. :param properties: Properties dictionary. :param overwrite: If true it will overwrite file if exists :param copy\_only: If true files are kept on SevenBridges bucket. :param api: Api Instance. :return: Export object.

**class** `sevenbridges.models.storage_export.ExportBulkRecord` (\*\*kwargs)

Bases: `sevenbridges.models.bulk.BulkRecord`

**deepcopy** ()

**equals** (*other*)

**resource**

## **sevenbridges.models.storage\_import module**

**class** `sevenbridges.models.storage_import.Import` (\*\*kwargs)

Bases: `sevenbridges.meta.resource.Resource`

Central resource for managing imports.

**autorename = None**

**classmethod** `bulk_get` (*imports, api=None*)

Retrieve imports in bulk :param imports: Imports to be retrieved. :param api: Api instance. :return: List of ImportBulkRecord objects.

**classmethod** `bulk_submit` (*imports, api=None*)

Submit imports in bulk :param imports: List of dicts describing a wanted import. :param api: Api instance. :return: List of ImportBulkRecord objects.

**deepcopy** ()

**destination**

**equals** (*other*)

**error**

**finished\_on = None**

**href = None**

**id = None**

**overwrite = None**

**preserve\_folder\_structure = None**

**classmethod query** (*project=None, volume=None, state=None, offset=None, limit=None, api=None*)

Query (List) imports. :param project: Optional project identifier. :param volume: Optional volume identifier. :param state: Optional import sate. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

**result**

**source**

**started\_on = None**

**state = None**

**classmethod submit\_import** (*volume, location, project=None, name=None, overwrite=False, properties=None, parent=None, preserve\_folder\_structure=True, autorename=False, api=None*)

Submits new import job. :param volume: Volume identifier. :param location: Volume location. :param project: Project identifier. :param name: Optional file name. :param overwrite: If true it will overwrite file if exists. :param properties: Properties dictionary. :param parent: The ID of the target folder to which the item should be

imported. Should not be used together with project.

#### Parameters

- **preserve\_folder\_structure** – Whether to keep the exact source folder structure. The default value is true if the item being imported is a folder. Should not be used if you are importing a file.
- **autorename** – Whether to automatically rename the item (by prefixing its name with an underscore and number) if another one with the same name already exists at the destination.
- **api** – Api instance.

**Returns** Import object.

**class** sevenbridges.models.storage\_import.**ImportBulkRecord** (\*\**kwargs*)

Bases: sevenbridges.models.bulk.BulkRecord

**deepcopy** ()

**equals** (*other*)

**resource**

#### sevenbridges.models.task module

**class** sevenbridges.models.task.**Task** (\*\**kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing tasks.

**abort** (*\*args, \*\*kwargs*)

**app = None**

**batch = None**

**batch\_by**

**batch\_group**

**batch\_input = None**

**classmethod bulk\_get** (*tasks, api=None*)

Retrieve tasks with specified ids in bulk :param tasks: Tasks to be retrieved. :param api: Api instance.  
:return: List of TaskBulkRecord objects.

**clone** (*run=True*)

Clone task :param run: run task after cloning :return: Task object.

**classmethod create** (*name, project, app, revision=None, batch\_input=None, batch\_by=None, inputs=None, description=None, run=False, disable\_batch=False, interruptible=None, execution\_settings=None, api=None*)

Creates a task on server. :param name: Task name. :param project: Project identifier. :param app: CWL app identifier. :param revision: CWL app revision. :param batch\_input: Batch input. :param batch\_by: Batch criteria. :param inputs: Input map. :param description: Task description. :param run: True if you want to run a task upon creation. :param disable\_batch: If True disables batching of a batch task. :param interruptible: If True interruptible instance will be used. :param execution\_settings: Execution settings for the task. :param api: Api instance. :return: Task object. :raises: TaskValidationError if validation Fails. :raises: SbgError if any exception occurs during request.

**created\_by = None**

**created\_time = None**

**deepcopy** ()

**description = None**

**end\_time = None**

**equals** (*other*)

**errors = None**

**executed\_by = None**

**execution\_settings = None**

**execution\_status**

**get\_batch\_children** (*status=None, created\_from=None, created\_to=None, started\_from=None, started\_to=None, ended\_from=None, ended\_to=None, order\_by=None, order=None, offset=None, limit=None, api=None*)

Retrieves batch child tasks for this task if its a batch task. :return: Collection instance. :raises SbgError if task is not a batch task.

**get\_execution\_details** ()

Retrieves execution details for a task. :return: Execution details instance.

**href = None**

**id = None**

**inputs**

**name = None**

**outputs**

**parent = None**

**price**

**project = None**



**classmethod query** (*project=None, status=None, batch=None, parent=None, created\_from=None, created\_to=None, started\_from=None, started\_to=None, ended\_from=None, ended\_to=None, offset=None, limit=None, order\_by=None, order=None, api=None*)

Query (List) tasks. Date parameters may be both strings and python date objects. :param project: Target project. optional. :param status: Task status. :param batch: Only batch tasks. :param parent: Parent batch task identifier. :param ended\_to: All tasks that ended until this date. :param ended\_from: All tasks that ended from this date. :param started\_to: All tasks that were started until this date. :param started\_from: All tasks that were started from this date. :param created\_to: All tasks that were created until this date. :param created\_from: All tasks that were created from this date. :param offset: Pagination offset. :param limit: Pagination limit. :param order\_by: Property to order by. :param order: Ascending or descending ordering. :param api: Api instance. :return: Collection object.

**run** (*\*args, \*\*kwargs*)

**save** (*\*args, \*\*kwargs*)

**start\_time = None**

**status = None**

**type = None**

**use\_interruptible\_instances = None**

**wait** (*period=10, callback=None, \*args, \*\*kwargs*)

Wait until task is complete :param period: Time in seconds between reloads :param callback: Function to call after the task has finished,

arguments and keyword arguments can be provided for it

**Returns** Return value of provided callback function or None if a callback function was not provided

**warnings = None**

**class** `sevenbridges.models.task.TaskBulkRecord` (*\*\*kwargs*)

Bases: `sevenbridges.models.bulk.BulkRecord`

**deepcopy** ()

**equals** (*other*)

**resource**

## sevenbridges.models.team module

**class** `sevenbridges.models.team.Team` (*\*\*kwargs*)

Bases: `sevenbridges.meta.resource.Resource`

Central resource for managing teams.

**add\_member** (*user*)

Add member to team :param user: User object or user's username :return: Added user.

**classmethod create** (*name, division, api=None*)

Create team within a division :param name: Team name. :param division: Parent division. :param api: Api instance. :return: Team object.

**deepcopy** ()

**equals** (*other*)

**get\_members** (*offset=None, limit=None*)

Fetch team members for current team. :param offset: Pagination offset. :param limit: Pagination limit.  
:return: Collection object.

**href** = None

**id** = None

**name** = None

**classmethod query** (*division, list\_all=False, offset=None, limit=None, api=None*)

**Parameters**

- **division** – Division slug.
- **list\_all** – List all teams in division.
- **offset** – Pagination offset.
- **limit** – Pagination limit.
- **api** – Api instance.

**Returns** Collection object.

**remove\_member** (*user*)

Remove member from the team. :param user: User to be removed.

**save** (*\*args, \*\*kwargs*)

## sevenbridges.models.team\_member module

**class** sevenbridges.models.team\_member.**TeamMember** (*\*\*kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing team members.

**deepcopy** ()

**equals** (*other*)

**href** = None

**id** = None

**role** = None

**username** = None

## sevenbridges.models.user module

**class** sevenbridges.models.user.**User** (*\*\*kwargs*)

Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing users.

**address** = None

**affiliation** = None

**city** = None

**country** = None

**deepcopy** ()

**disable** (*api=None*)  
Disable user :param api: Api instance. :return:

**email** = None

**equals** (*other*)

**first\_name** = None

**classmethod get** (*user, api=None*)  
Fetches the resource from the server. :param id: Resource identifier :param api: sevenbridges Api instance.  
:return: Resource object.

**href** = None

**last\_name** = None

**classmethod me** (*api=None*)  
Retrieves current user information. :param api: Api instance. :return: User object.

**phone** = None

**classmethod query** (*division, role=None, offset=None, limit=None, api=None*)  
Query division users :param division: Division slug. :param role: User role in division. :param offset:  
Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

**role** = None

**state** = None

**username** = None

**zip\_code** = None

## sevenbridges.models.volume module

**class** sevenbridges.models.volume.**Volume** (\*\**kwargs*)  
Bases: *sevenbridges.meta.resource.Resource*

Central resource for managing volumes.

**access\_mode** = None

**active** = None

**add\_member** (*user, permissions*)  
Add a member to the volume. :param user: Member username :param permissions: Permissions dictionary.  
:return: Member object.

**add\_member\_division** (*division, permissions*)  
Add a member (team) to a volume. :param division: Division object or division identifier. :param permis-  
sions: Permissions dictionary. :return: Member object.

**add\_member\_team** (*team, permissions*)  
Add a member (team) to a volume. :param team: Team object or team identifier. :param permissions:  
Permissions dictionary. :return: Member object.

**classmethod create\_google\_volume** (*name, bucket, client\_email, private\_key, access\_mode,*  
*description=None, prefix=None, properties=None,*  
*api=None*)  
Create s3 volume. :param name: Volume name. :param bucket: Referenced bucket. :param client\_email:  
Google client email. :param private\_key: Google client private key. :param access\_mode: Access Mode.

:param description: Volume description. :param prefix: Volume prefix. :param properties: Volume properties. :param api: Api instance. :return: Volume object.

**classmethod create\_oss\_volume** (*name, bucket, endpoint, access\_key\_id, secret\_access\_key, access\_mode, description=None, prefix=None, properties=None, api=None*)

Create oss volume. :param name: Volume name. :param bucket: Referenced bucket. :param access\_key\_id: Access key identifier. :param secret\_access\_key: Secret access key. :param access\_mode: Access Mode. :param endpoint: Volume Endpoint. :param description: Volume description. :param prefix: Volume prefix. :param properties: Volume properties. :param api: Api instance. :return: Volume object.

**classmethod create\_s3\_volume** (*name, bucket, access\_key\_id, secret\_access\_key, access\_mode, description=None, prefix=None, properties=None, api=None*)

Create s3 volume. :param name: Volume name. :param bucket: Referenced bucket. :param access\_key\_id: Amazon access key identifier. :param secret\_access\_key: Amazon secret access key. :param access\_mode: Access Mode. :param description: Volume description. :param prefix: Volume prefix. :param properties: Volume properties. :param api: Api instance. :return: Volume object.

**created\_on = None**

**deepcopy** ()

**description = None**

**equals** (*other*)

**get\_exports** (*state=None, offset=None, limit=None*)

Fetches exports for this volume. :param state: Optional state. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_imports** (*project=None, state=None, offset=None, limit=None*)

Fetches imports for this volume. :param project: Optional project identifier. :param state: Optional state. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_member** (*username, api=None*)

Fetches information about a single volume member :param username: Member name :param api: Api instance :return: Member object

**get\_members** (*offset=None, limit=None*)

Retrieves volume members. :param offset: Pagination offset. :param limit: Pagination limit. :return: Collection object.

**get\_volume\_object\_info** (*location*)

Fetches information about single volume object - usually file :param location: object location :return:

**href = None**

**id = None**

**list** (*prefix=None, limit=None*)

**modified\_on = None**

**name = None**

**classmethod query** (*offset=None, limit=None, api=None*)

Query (List) volumes. :param offset: Pagination offset. :param limit: Pagination limit. :param api: Api instance. :return: Collection object.

**remove\_member** (*user*)

Remove member from the volume. :param user: User to be removed.

**save** (\*args, \*\*kwargs)

**service**

## sevenbridges.transfer package

### Submodules

#### sevenbridges.transfer.download module

**class** sevenbridges.transfer.download.DPartedFile(*file\_path, session, url, file\_size, part\_size, timeout, pool*)

Bases: object

**done** ()

**get\_parts** ()

Partitions the file and saves the part information in memory.

**submit** ()

Partitions the file into chunks and submits them into group of 4 for download on the api download pool.

**class** sevenbridges.transfer.download.Download(*url, file\_path, part\_size=None, retry\_count=None, timeout=None, api=None*)

Bases: threading.Thread

**add\_callback** (*callback=None, errorback=None*)

Adds a callback that will be called when the download finishes successfully or when error is raised.

**add\_progress\_callback** (*callback=None*)

Adds a progress callback that will be called each time a get\_parts is successfully downloaded. The first argument of the progress callback will be a progress object described in sevenbridges.transfer.utils

**Parameters** **callback** – Callback function

**duration**

**path**

**pause** ()

Pauses the download. :raises SbgError: If upload is not in RUNNING state.

**progress**

**resume** ()

Resumes the download. :raises SbgError: If download is not in RUNNING state.

**run** ()

Runs the thread! Should not be used use start() method instead.

**start** ()

Starts the download. :raises SbgError: If download is not in PREPARING state.

**start\_time**

**status**

**stop** ()

Stops the download. :raises SbgError: If download is not in PAUSED or RUNNING state.

**wait ()**  
Blocks until download is completed.

### sevenbridges.transfer.upload module

**class** sevenbridges.transfer.upload.**CodePackageUPartedFile** (*fp, file\_size, part\_size, upload, timeout, storage\_session, api*)

Bases: *sevenbridges.transfer.upload.UPartedFile*

**class** sevenbridges.transfer.upload.**CodePackageUpload** (*file\_path, automation\_id, file\_name=None, part\_size=None, retry\_count=6, timeout=300, api=None*)

Bases: *sevenbridges.transfer.upload.Upload*

**partition\_file** (*fp*)

**class** sevenbridges.transfer.upload.**UPartedFile** (*fp, file\_size, part\_size, upload, timeout, storage\_session, api*)

Bases: object

**done ()**

**get\_parts ()**

Partitions the file and saves the parts to be uploaded in memory.

**submit ()**

Partitions the file into chunks and submits them into group of 4 for upload on the api upload pool. :return: Futures

**class** sevenbridges.transfer.upload.**Upload** (*file\_path, project=None, parent=None, file\_name=None, overwrite=False, part\_size=None, retry\_count=None, timeout=None, api=None*)

Bases: *threading.Thread*

**add\_callback** (*callback=None, errorback=None*)

Adds a callback that will be called when the upload finishes successfully or when error is raised.

**add\_progress\_callback** (*callback=None*)

Adds a progress callback that will be called each time a `get_parts` is successfully uploaded. The first argument of the progress callback will be a progress object described in `sevenbridges.transfer.utils`

**Parameters** `callback` – Callback function

**duration**

**file\_name**

**partition\_file** (*fp*)

**pause ()**

Pauses the upload. :raises SbgError: If upload is not in RUNNING state.

**progress**

**result ()**

**resume ()**

Resumes the upload that was paused. :raises SbgError: If upload is not in PAUSED state.

**run()**  
Runs the thread! Should not be used use start() method instead.

**start()**  
Starts the upload. :raises SbgError: If upload is not in PREPARING state.

**start\_time**

**status**

**stop()**  
Stops the upload. :raises SbgError: If upload is not in PAUSED or RUNNING state.

**wait()**  
Blocks until upload is completed.

### sevenbridges.transfer.utils module

**class** sevenbridges.transfer.utils.**Part** (*start=None, size=None*)  
Bases: object

**size**

**start**

**class** sevenbridges.transfer.utils.**Progress** (*num\_of\_parts, parts\_done, bytes\_done, file\_size, duration*)  
Bases: object

**bandwidth**

**bytes\_done**

**duration**

**file\_size**

**num\_of\_parts**

**parts\_done**

**progress**

sevenbridges.transfer.utils.**simple\_progress\_bar** (*progress*)

sevenbridges.transfer.utils.**total\_parts** (*file\_size, part\_size*)

### 1.4.3 Submodules

#### 1.4.4 sevenbridges.api module

**class** sevenbridges.api.**Api** (*url=None, token=None, oauth\_token=None, config=None, timeout=None, download\_max\_workers=16, upload\_max\_workers=16, proxies=None, error\_handlers=None, advance\_access=False, pool\_connections=10, pool\_maxsize=100, pool\_block=True, max\_parallel\_requests=100, retry\_count=6, backoff\_factor=1*)  
Bases: *sevenbridges.http.client.HttpClient*

Api aggregates all resource classes into single place

**actions**  
alias of *sevenbridges.models.actions.Actions*

**apps**  
alias of *sevenbridges.models.app.App*

**async\_jobs**  
alias of *sevenbridges.models.async\_jobs.AsyncJob*

**automation\_packages**  
alias of *sevenbridges.models.automation.AutomationPackage*

**automation\_runs**  
alias of *sevenbridges.models.automation.AutomationRun*

**automations**  
alias of *sevenbridges.models.automation.Automation*

**billing\_groups**  
alias of *sevenbridges.models.billing\_group.BillingGroup*

**datasets**  
alias of *sevenbridges.models.dataset.Dataset*

**divisions**  
alias of *sevenbridges.models.division.Division*

**endpoints**  
alias of *sevenbridges.models.endpoints.Endpoints*

**exports**  
alias of *sevenbridges.models.storage\_export.Export*

**files**  
alias of *sevenbridges.models.file.File*

**imports**  
alias of *sevenbridges.models.storage\_import.Import*

**invoices**  
alias of *sevenbridges.models.invoice.Invoice*

**markers**  
alias of *sevenbridges.models.marker.Marker*

**projects**  
alias of *sevenbridges.models.project.Project*

**rate\_limit**  
alias of *sevenbridges.models.rate\_limit.RateLimit*

**tasks**  
alias of *sevenbridges.models.task.Task*

**teams**  
alias of *sevenbridges.models.team.Team*

**users**  
alias of *sevenbridges.models.user.User*

**volumes**  
alias of *sevenbridges.models.volume.Volume*



### 1.4.5 sevenbridges.config module

**class** `sevenbridges.config.Config` (*profile=None, proxies=None, advance\_access=None*)  
 Bases: `object`

Utility configuration class.

**class** `sevenbridges.config.UserProfile` (*profile*)  
 Bases: `object`

**CONFIG** = `'/home/docs/.sevenbridges/sevenbridges-python/config'`

**CREDENTIALS** = `'/home/docs/.sevenbridges/credentials'`

**advance\_access**

**api\_endpoint**

**auth\_token**

**proxies**

`sevenbridges.config.format_proxies` (*proxies*)

Helper method for request proxy key compatibility. :param proxies: Proxies dictionary :return: Dict compatible with request proxy format.

### 1.4.6 sevenbridges.decorators module

`sevenbridges.decorators.check_for_error` (*func*)

Executes the wrapped function and inspects the response object for specific errors.

`sevenbridges.decorators.inplace_reload` (*method*)

Executes the wrapped function and reloads the object with data returned from the server.

`sevenbridges.decorators.throttle` (*func*)

Throttles number of parallel requests made by threads from single HttpClient session.

### 1.4.7 sevenbridges.errors module

**exception** `sevenbridges.errors.AdvanceAccessError` (*message=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.BadRequest` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.Conflict` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.ExecutionDetailsInvalidTaskType` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.Forbidden` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.LocalFileAlreadyExists` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.MethodNotAllowed` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.NonJSONResponseError` (*status, code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.NotFound` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.PaginationError` (*message*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.ReadOnlyPropertyError` (*message*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.RequestTimeout` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.ResourceNotModified`

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.SbgError` (*message=None, code=None, status=None, more\_info=None*)

Bases: `Exception`

Base class for SBG errors.

Provides a base exception for all errors that are thrown by sevenbridges-python library.

**exception** `sevenbridges.errors.ServerError` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.ServiceUnavailable` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.TaskValidationError` (*message, task=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.TooManyRequests` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.URITooLong` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.Unauthorized` (*code=None, message=None, more\_info=None*)

Bases: `sevenbridges.errors.SbgError`

**exception** `sevenbridges.errors.ValidationError` (*message*)

Bases: `sevenbridges.errors.SbgError`

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## Python Module Index

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### S

sevenbridges, 36  
sevenbridges.api, 99  
sevenbridges.config, 101  
sevenbridges.decorators, 101  
sevenbridges.errors, 101  
sevenbridges.http, 62  
sevenbridges.http.client, 62  
sevenbridges.http.error\_handlers, 63  
sevenbridges.meta, 64  
sevenbridges.meta.collection, 64  
sevenbridges.meta.comp\_mutable\_dict, 64  
sevenbridges.meta.data, 64  
sevenbridges.meta.fields, 65  
sevenbridges.meta.resource, 65  
sevenbridges.meta.transformer, 66  
sevenbridges.models, 67  
sevenbridges.models.actions, 76  
sevenbridges.models.app, 76  
sevenbridges.models.billing\_breakdown, 77  
sevenbridges.models.billing\_group, 77  
sevenbridges.models.compound, 67  
sevenbridges.models.compound.billing, 67  
sevenbridges.models.compound.billing.invoice\_period, 67  
sevenbridges.models.compound.billing.project\_breakdown, 67  
sevenbridges.models.compound.billing.task\_breakdown, 68  
sevenbridges.models.compound.error, 75  
sevenbridges.models.compound.files, 68  
sevenbridges.models.compound.files.download\_info, 68  
sevenbridges.models.compound.files.file\_origin, 68  
sevenbridges.models.compound.files.file\_storage, 69  
sevenbridges.models.compound.files.metadata, 69  
sevenbridges.models.compound.jobs, 69  
sevenbridges.models.compound.jobs.job, 69  
sevenbridges.models.compound.jobs.job\_docker, 70  
sevenbridges.models.compound.jobs.job\_instance, 70  
sevenbridges.models.compound.jobs.job\_instance\_dis, 70  
sevenbridges.models.compound.jobs.job\_log, 70  
sevenbridges.models.compound.limits, 71  
sevenbridges.models.compound.limits.rate, 71  
sevenbridges.models.compound.markers, 71  
sevenbridges.models.compound.markers.position, 71  
sevenbridges.models.compound.price, 75  
sevenbridges.models.compound.price\_breakdown, 76  
sevenbridges.models.compound.projects, 71  
sevenbridges.models.compound.projects.permissions, 71  
sevenbridges.models.compound.projects.settings, 71  
sevenbridges.models.compound.tasks, 72  
sevenbridges.models.compound.tasks.batch\_by, 72  
sevenbridges.models.compound.tasks.batch\_group, 72  
sevenbridges.models.compound.tasks.execution\_status, 72  
sevenbridges.models.compound.tasks.input, 73  
sevenbridges.models.compound.tasks.output, 73

- sevenbridges.models.compound.volumes,  
73
- sevenbridges.models.compound.volumes.import\_destination,  
73
- sevenbridges.models.compound.volumes.properties,  
74
- sevenbridges.models.compound.volumes.service,  
74
- sevenbridges.models.compound.volumes.volume\_file,  
74
- sevenbridges.models.compound.volumes.volume\_object,  
74
- sevenbridges.models.compound.volumes.volume\_prefix,  
75
- sevenbridges.models.division, 78
- sevenbridges.models.endpoints, 79
- sevenbridges.models.enums, 79
- sevenbridges.models.execution\_details,  
82
- sevenbridges.models.file, 82
- sevenbridges.models.invoice, 85
- sevenbridges.models.link, 85
- sevenbridges.models.marker, 86
- sevenbridges.models.member, 86
- sevenbridges.models.project, 87
- sevenbridges.models.rate\_limit, 89
- sevenbridges.models.storage\_export, 89
- sevenbridges.models.storage\_import, 90
- sevenbridges.models.task, 91
- sevenbridges.models.team, 93
- sevenbridges.models.team\_member, 94
- sevenbridges.models.user, 94
- sevenbridges.models.volume, 95
- sevenbridges.transfer, 97
- sevenbridges.transfer.download, 97
- sevenbridges.transfer.upload, 98
- sevenbridges.transfer.utils, 99

## A

- AAHeader (class in *sevenbridges.http.client*), 62
- abort() (*sevenbridges.models.task.Task* method), 91
- abort() (*sevenbridges.Task* method), 47
- aborted (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus* attribute), 72
- ABORTED (*sevenbridges.models.enums.AutomationStatus* attribute), 80
- ABORTED (*sevenbridges.models.enums.TaskStatus* attribute), 81
- ABORTED (*sevenbridges.models.enums.TransferState* attribute), 81
- ABORTED (*sevenbridges.TaskStatus* attribute), 60
- ABORTED (*sevenbridges.TransferState* attribute), 60
- ABORTING (*sevenbridges.models.enums.TaskStatus* attribute), 81
- ABORTING (*sevenbridges.TaskStatus* attribute), 60
- access\_mode (*sevenbridges.models.volume.Volume* attribute), 95
- access\_mode (*sevenbridges.Volume* attribute), 54
- account\_limit (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus* attribute), 72
- action\_url (*sevenbridges.Endpoints* attribute), 44
- action\_url (*sevenbridges.models.endpoints.Endpoints* attribute), 79
- Actions (class in *sevenbridges.models.actions*), 76
- actions (*sevenbridges.Api* attribute), 37
- actions (*sevenbridges.api.Api* attribute), 99
- active (*sevenbridges.models.volume.Volume* attribute), 95
- active (*sevenbridges.Volume* attribute), 54
- add() (*sevenbridges.AutomationMember* class method), 41
- add\_callback() (*sevenbridges.transfer.download.Download* method), 97
- add\_callback() (*sevenbridges.transfer.upload.Upload* method), 98
- add\_error\_handler() (*sevenbridges.http.client.HttpClient* method), 62
- add\_files() (*sevenbridges.models.project.Project* method), 45
- add\_files() (*sevenbridges.Project* method), 87
- add\_member() (*sevenbridges.Automation* method), 39
- add\_member() (*sevenbridges.Dataset* method), 58
- add\_member() (*sevenbridges.models.project.Project* method), 87
- add\_member() (*sevenbridges.models.team.Team* method), 93
- add\_member() (*sevenbridges.models.volume.Volume* method), 95
- add\_member() (*sevenbridges.Project* method), 45
- add\_member() (*sevenbridges.Team* method), 57
- add\_member() (*sevenbridges.Volume* method), 54
- add\_member\_division() (*sevenbridges.models.project.Project* method), 87
- add\_member\_division() (*sevenbridges.models.volume.Volume* method), 95
- add\_member\_division() (*sevenbridges.Project* method), 45
- add\_member\_division() (*sevenbridges.Volume* method), 54
- add\_member\_email() (*sevenbridges.models.project.Project* method), 87
- add\_member\_email() (*sevenbridges.Project* method), 45
- add\_member\_team() (*sevenbridges.models.project.Project* method), 87
- add\_member\_team() (*sevenbridges.models.volume.Volume* method), 95
- add\_member\_team() (*sevenbridges.Project* method), 45

add\_member\_team() (*sevenbridges.Volume* method), 54  
 add\_package() (*sevenbridges.Automation* method), 39  
 add\_progress\_callback() (*sevenbridges.transfer.download.Download* method), 97  
 add\_progress\_callback() (*sevenbridges.transfer.upload.Upload* method), 98  
 address (*sevenbridges.models.user.User* attribute), 94  
 address (*sevenbridges.User* attribute), 44  
 ADMIN (*sevenbridges.DivisionRole* attribute), 59  
 ADMIN (*sevenbridges.models.enums.DivisionRole* attribute), 80  
 advance\_access (*sevenbridges.config.UserProfile* attribute), 101  
 AdvanceAccessError, 101  
 affiliation (*sevenbridges.models.user.User* attribute), 94  
 affiliation (*sevenbridges.User* attribute), 44  
 all() (*sevenbridges.meta.collection.Collection* method), 64  
 amount (*sevenbridges.models.compound.price.Price* attribute), 75  
 analysis\_costs (*sevenbridges.Invoice* attribute), 43  
 analysis\_costs (*sevenbridges.models.invoice.Invoice* attribute), 85  
 analysis\_spending (*sevenbridges.models.compound.billing.project\_breakdown.ProjectBreakdown* attribute), 68  
 Api (*class in sevenbridges*), 37  
 Api (*class in sevenbridges.api*), 99  
 api\_endpoint (*sevenbridges.config.UserProfile* attribute), 101  
 App (*class in sevenbridges*), 49  
 App (*class in sevenbridges.models.app*), 76  
 app (*sevenbridges.models.task.Task* attribute), 91  
 app (*sevenbridges.Task* attribute), 47  
 AppCopyStrategy (*class in sevenbridges*), 58, 59  
 AppCopyStrategy (*class in sevenbridges.models.enums*), 79  
 AppRawFormat (*class in sevenbridges*), 59  
 AppRawFormat (*class in sevenbridges.models.enums*), 79  
 apps (*sevenbridges.Api* attribute), 37  
 apps (*sevenbridges.api.Api* attribute), 99  
 apps\_url (*sevenbridges.Endpoints* attribute), 45  
 apps\_url (*sevenbridges.models.endpoints.Endpoints* attribute), 79  
 archive() (*sevenbridges.Automation* method), 39  
 archive() (*sevenbridges.AutomationPackage* method), 42  
 archived (*sevenbridges.Automation* attribute), 39  
 archived (*sevenbridges.AutomationPackage* attribute), 42  
 async\_jobs (*sevenbridges.Api* attribute), 37  
 async\_jobs (*sevenbridges.api.Api* attribute), 100  
 AsyncFileOperations (*class in sevenbridges*), 59  
 AsyncFileOperations (*class in sevenbridges.models.enums*), 79  
 AsyncJob (*class in sevenbridges*), 38  
 AsyncJobStates (*class in sevenbridges*), 59  
 AsyncJobStates (*class in sevenbridges.models.enums*), 79  
 auth\_token (*sevenbridges.config.UserProfile* attribute), 101  
 Automation (*class in sevenbridges*), 38  
 automation (*sevenbridges.AutomationPackage* attribute), 42  
 automation (*sevenbridges.AutomationRun* attribute), 40  
 automation\_packages (*sevenbridges.Api* attribute), 37  
 automation\_packages (*sevenbridges.api.Api* attribute), 100  
 automation\_runs (*sevenbridges.Api* attribute), 37  
 automation\_runs (*sevenbridges.api.Api* attribute), 100  
 AutomationMember (*class in sevenbridges*), 41  
 AutomationPackage (*class in sevenbridges*), 42  
 AutomationRun (*class in sevenbridges*), 40  
 AutomationRunActions (*class in sevenbridges*), 59  
 AutomationRunActions (*class in sevenbridges.models.enums*), 80  
 automations (*sevenbridges.Api* attribute), 37  
 automations (*sevenbridges.api.Api* attribute), 100  
 AutomationStatus (*class in sevenbridges.models.enums*), 80  
 autorename (*sevenbridges.Import* attribute), 53  
 autorename (*sevenbridges.models.storage\_import.Import* attribute), 90

## B

BadRequest, 61, 101  
 balance (*sevenbridges.BillingGroup* attribute), 43  
 balance (*sevenbridges.models.billing\_group.BillingGroup* attribute), 77  
 bandwidth (*sevenbridges.transfer.utils.Progress* attribute), 99  
 BasicListField (*class in sevenbridges.meta.fields*), 65  
 batch (*sevenbridges.models.task.Task* attribute), 91  
 batch (*sevenbridges.Task* attribute), 47  
 batch\_by (*sevenbridges.models.task.Task* attribute), 91  
 batch\_by (*sevenbridges.Task* attribute), 47

- batch\_group (*sevenbridges.models.task.Task* attribute), 91
- batch\_group (*sevenbridges.Task* attribute), 47
- batch\_input (*sevenbridges.models.task.Task* attribute), 91
- batch\_input (*sevenbridges.Task* attribute), 47
- BatchBy (class in *sevenbridges.models.compound.tasks.batch\_by*), 72
- BatchGroup (class in *sevenbridges.models.compound.tasks.batch\_group*), 72
- billing\_group (*sevenbridges.Automation* attribute), 39
- billing\_group (*sevenbridges.models.project.Project* attribute), 87
- billing\_group (*sevenbridges.Project* attribute), 45
- billing\_groups (*sevenbridges.Api* attribute), 37
- billing\_groups (*sevenbridges.api.Api* attribute), 100
- billing\_url (*sevenbridges.Endpoints* attribute), 45
- billing\_url (*sevenbridges.models.endpoints.Endpoints* attribute), 79
- BillingGroup (class in *sevenbridges*), 43
- BillingGroup (class in *sevenbridges.models.billing\_group*), 77
- BillingGroupBreakdown (class in *sevenbridges*), 43
- BillingGroupBreakdown (class in *sevenbridges.models.billing\_breakdown*), 77
- BooleanField (class in *sevenbridges.meta.fields*), 65
- Breakdown (class in *sevenbridges.models.compound.price\_breakdown*), 76
- breakdown (*sevenbridges.models.compound.price.Price* attribute), 75
- breakdown () (*sevenbridges.BillingGroup* method), 43
- breakdown () (*sevenbridges.models.billing\_group.BillingGroup* method), 78
- bulk\_copy\_files () (*sevenbridges.models.actions.Actions* class method), 76
- bulk\_delete () (*sevenbridges.File* class method), 50
- bulk\_delete () (*sevenbridges.models.file.File* class method), 82
- bulk\_edit () (*sevenbridges.File* class method), 50
- bulk\_edit () (*sevenbridges.models.file.File* class method), 83
- bulk\_get () (*sevenbridges.Export* class method), 52
- bulk\_get () (*sevenbridges.File* class method), 50
- bulk\_get () (*sevenbridges.Import* class method), 53
- bulk\_get () (*sevenbridges.models.file.File* class method), 83
- bulk\_get () (*sevenbridges.models.storage\_export.Export* class method), 89
- bulk\_get () (*sevenbridges.models.storage\_import.Import* class method), 90
- bulk\_get () (*sevenbridges.models.task.Task* class method), 92
- bulk\_get () (*sevenbridges.Task* class method), 47
- bulk\_submit () (*sevenbridges.Export* class method), 52
- bulk\_submit () (*sevenbridges.Import* class method), 53
- bulk\_submit () (*sevenbridges.models.storage\_export.Export* class method), 89
- bulk\_submit () (*sevenbridges.models.storage\_import.Import* class method), 90
- bulk\_update () (*sevenbridges.File* class method), 50
- bulk\_update () (*sevenbridges.models.file.File* class method), 83
- BulkRecord (class in *sevenbridges*), 58
- bytes\_done (*sevenbridges.transfer.utils.Progress* attribute), 99
- ## C
- check\_for\_error () (in module *sevenbridges.decorators*), 101
- checksum (*sevenbridges.models.compound.jobs.job\_docker.JobDocker* attribute), 70
- chromosome (*sevenbridges.Marker* attribute), 56
- chromosome (*sevenbridges.models.marker.Marker* attribute), 86
- city (*sevenbridges.models.user.User* attribute), 94
- city (*sevenbridges.User* attribute), 44
- CLONE (*sevenbridges.AppCopyStrategy* attribute), 59
- CLONE (*sevenbridges.models.enums.AppCopyStrategy* attribute), 79
- clone () (*sevenbridges.models.task.Task* method), 92
- clone () (*sevenbridges.Task* method), 47
- CLONE\_DIRECT (*sevenbridges.AppCopyStrategy* attribute), 59
- CLONE\_DIRECT (*sevenbridges.models.enums.AppCopyStrategy* attribute), 79
- code (*sevenbridges.models.compound.error.Error* attribute), 75
- CodePackageUPartedFile (class in *sevenbridges.transfer.upload*), 98
- CodePackageUpload (class in *sevenbridges.transfer.upload*), 98
- Collection (class in *sevenbridges.meta.collection*), 64

[command\\_line](#) (*sevenbridges.models.compound.jobs.job.Job* attribute), 69  
[COMPLETED](#) (*sevenbridges.ImportExportState* attribute), 60  
[completed](#) (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus* attribute), 72  
[COMPLETED](#) (*sevenbridges.models.enums.ImportExportState* attribute), 81  
[COMPLETED](#) (*sevenbridges.models.enums.TaskStatus* attribute), 81  
[COMPLETED](#) (*sevenbridges.models.enums.TransferState* attribute), 82  
[COMPLETED](#) (*sevenbridges.TaskStatus* attribute), 60  
[COMPLETED](#) (*sevenbridges.TransferState* attribute), 60  
[completed\\_files](#) (*sevenbridges.AsyncJob* attribute), 38  
[CompoundField](#) (class in *sevenbridges.meta.fields*), 65  
[CompoundListField](#) (class in *sevenbridges.meta.fields*), 65  
[CompoundMutableDict](#) (class in *sevenbridges.meta.comp\_mutable\_dict*), 64  
[computation](#) (*sevenbridges.models.compound.price\_breakdown.Breakdown* attribute), 76  
[Config](#) (class in *sevenbridges*), 43  
[Config](#) (class in *sevenbridges.config*), 101  
[CONFIG](#) (*sevenbridges.config.UserProfile* attribute), 101  
[config\\_vars\(\)](#) (in module *sevenbridges.http.client*), 63  
[Conflict](#), 61, 101  
[content\(\)](#) (*sevenbridges.File* method), 50  
[content\(\)](#) (*sevenbridges.models.file.File* method), 83  
[COPY](#) (*sevenbridges.AsyncFileOperations* attribute), 59  
[COPY](#) (*sevenbridges.models.enums.AsyncFileOperations* attribute), 79  
[copy\(\)](#) (*sevenbridges.App* method), 49  
[copy\(\)](#) (*sevenbridges.File* method), 50  
[copy\(\)](#) (*sevenbridges.models.app.App* method), 76  
[copy\(\)](#) (*sevenbridges.models.file.File* method), 83  
[copy\\_to\\_folder\(\)](#) (*sevenbridges.File* method), 51  
[copy\\_to\\_folder\(\)](#) (*sevenbridges.models.file.File* method), 83  
[country](#) (*sevenbridges.models.user.User* attribute), 94  
[country](#) (*sevenbridges.User* attribute), 44  
[create\(\)](#) (*sevenbridges.Automation* class method), 39  
[create\(\)](#) (*sevenbridges.AutomationPackage* class method), 42  
[create\(\)](#) (*sevenbridges.AutomationRun* class method), 40  
[create\(\)](#) (*sevenbridges.Marker* class method), 56  
[create\(\)](#) (*sevenbridges.models.marker.Marker* class method), 86  
[create\(\)](#) (*sevenbridges.models.project.Project* class method), 87  
[create\(\)](#) (*sevenbridges.models.task.Task* class method), 92  
[create\(\)](#) (*sevenbridges.models.team.Team* class method), 81  
[create\(\)](#) (*sevenbridges.Project* class method), 45  
[create\(\)](#) (*sevenbridges.Task* class method), 47  
[create\(\)](#) (*sevenbridges.Team* class method), 57  
[create\\_folder\(\)](#) (*sevenbridges.File* class method), 51  
[create\\_folder\(\)](#) (*sevenbridges.models.file.File* class method), 83  
[create\\_google\\_volume\(\)](#) (*sevenbridges.models.volume.Volume* class method), 95  
[create\\_google\\_volume\(\)](#) (*sevenbridges.Volume* class method), 54  
[create\\_oss\\_volume\(\)](#) (*sevenbridges.models.volume.Volume* class method), 96  
[create\\_oss\\_volume\(\)](#) (*sevenbridges.Volume* class method), 54  
[create\\_revision\(\)](#) (*sevenbridges.App* class method), 49  
[create\\_revision\(\)](#) (*sevenbridges.models.app.App* class method), 76  
[create\\_s3\\_volume\(\)](#) (*sevenbridges.models.volume.Volume* class method), 96  
[create\\_s3\\_volume\(\)](#) (*sevenbridges.Volume* class method), 55  
[create\\_task\(\)](#) (*sevenbridges.models.project.Project* method), 87  
[create\\_task\(\)](#) (*sevenbridges.Project* method), 45  
[CREATED](#) (*sevenbridges.models.enums.AutomationStatus* attribute), 80  
[created\\_by](#) (*sevenbridges.Automation* attribute), 39  
[created\\_by](#) (*sevenbridges.AutomationPackage* attribute), 42  
[created\\_by](#) (*sevenbridges.AutomationRun* attribute), 40  
[created\\_by](#) (*sevenbridges.Marker* attribute), 56  
[created\\_by](#) (*sevenbridges.models.marker.Marker* attribute), 86  
[created\\_by](#) (*sevenbridges.models.project.Project* attribute), 88  
[created\\_by](#) (*sevenbridges.models.task.Task* attribute), 92  
[created\\_by](#) (*sevenbridges.Project* attribute), 46  
[created\\_by](#) (*sevenbridges.Task* attribute), 47  
[created\\_on](#) (*sevenbridges.Automation* attribute), 39  
[created\\_on](#) (*sevenbridges.AutomationPackage* attribute), 42



created\_on (*sevenbridges.AutomationRun* attribute), 40  
 created\_on (*sevenbridges.File* attribute), 51  
 created\_on (*sevenbridges.models.file.File* attribute), 83  
 created\_on (*sevenbridges.models.project.Project* attribute), 88  
 created\_on (*sevenbridges.models.volume.Volume* attribute), 96  
 created\_on (*sevenbridges.Project* attribute), 46  
 created\_on (*sevenbridges.Volume* attribute), 55  
 created\_time (*sevenbridges.Marker* attribute), 56  
 created\_time (*sevenbridges.models.marker.Marker* attribute), 86  
 created\_time (*sevenbridges.models.task.Task* attribute), 92  
 created\_time (*sevenbridges.Task* attribute), 47  
 CREATING (*sevenbridges.models.enums.TaskStatus* attribute), 81  
 CREATING (*sevenbridges.TaskStatus* attribute), 60  
 CREDENTIALS (*sevenbridges.config.UserProfile* attribute), 101  
 currency (*sevenbridges.models.compound.price.Price* attribute), 75  
 custom\_url (*sevenbridges.AutomationPackage* attribute), 42

## D

data\_transfer (*sevenbridges.models.compound.price\_breakdown.Breakdown* attribute), 76  
 DataContainer (*class in sevenbridges.meta.data*), 64  
 Dataset (*class in sevenbridges*), 58  
 datasets (*sevenbridges.Api* attribute), 37  
 datasets (*sevenbridges.api.Api* attribute), 100  
 DateTimeField (*class in sevenbridges.meta.fields*), 65  
 deepcopy () (*sevenbridges.App* method), 49  
 deepcopy () (*sevenbridges.AsyncJob* method), 38  
 deepcopy () (*sevenbridges.Automation* method), 39  
 deepcopy () (*sevenbridges.AutomationMember* method), 41  
 deepcopy () (*sevenbridges.AutomationPackage* method), 42  
 deepcopy () (*sevenbridges.AutomationRun* method), 40  
 deepcopy () (*sevenbridges.BillingGroup* method), 43  
 deepcopy () (*sevenbridges.BillingGroupBreakdown* method), 44  
 deepcopy () (*sevenbridges.BulkRecord* method), 58  
 deepcopy () (*sevenbridges.Dataset* method), 58  
 deepcopy () (*sevenbridges.Division* method), 56  
 deepcopy () (*sevenbridges.Endpoints* method), 45  
 deepcopy () (*sevenbridges.Export* method), 52

deepcopy () (*sevenbridges.File* method), 51  
 deepcopy () (*sevenbridges.Import* method), 53  
 deepcopy () (*sevenbridges.Invoice* method), 43  
 deepcopy () (*sevenbridges.Marker* method), 56  
 deepcopy () (*sevenbridges.Member* method), 49  
 deepcopy () (*sevenbridges.models.actions.Actions* method), 76  
 deepcopy () (*sevenbridges.models.app.App* method), 77  
 deepcopy () (*sevenbridges.models.billing\_breakdown.BillingGroupBreakdown* method), 77  
 deepcopy () (*sevenbridges.models.billing\_group.BillingGroup* method), 78  
 deepcopy () (*sevenbridges.models.compound.billing.invoice\_period.InvoicePeriod* method), 67  
 deepcopy () (*sevenbridges.models.compound.billing.project\_breakdown.ProjectBreakdown* method), 68  
 deepcopy () (*sevenbridges.models.compound.billing.task\_breakdown.TaskBreakdown* method), 68  
 deepcopy () (*sevenbridges.models.compound.error.Error* method), 75  
 deepcopy () (*sevenbridges.models.compound.files.download\_info.DownloadInfo* method), 68  
 deepcopy () (*sevenbridges.models.compound.files.file\_origin.FileOrigin* method), 68  
 deepcopy () (*sevenbridges.models.compound.files.file\_storage.FileStorage* method), 69  
 deepcopy () (*sevenbridges.models.compound.jobs.job.Job* method), 69  
 deepcopy () (*sevenbridges.models.compound.jobs.job\_docker.JobDocker* method), 70  
 deepcopy () (*sevenbridges.models.compound.jobs.job\_instance.Instance* method), 70  
 deepcopy () (*sevenbridges.models.compound.jobs.job\_instance\_disk.InstanceDisk* method), 70  
 deepcopy () (*sevenbridges.models.compound.limits.rate.Rate* method), 71  
 deepcopy () (*sevenbridges.models.compound.price.Price* method), 75  
 deepcopy () (*sevenbridges.models.compound.price\_breakdown.Breakdown* method), 76  
 deepcopy () (*sevenbridges.models.compound.tasks.batch\_group.BatchGroup* method), 72  
 deepcopy () (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus* method), 72  
 deepcopy () (*sevenbridges.models.compound.volumes.import\_destination.ImportDestination* method), 73  
 deepcopy () (*sevenbridges.models.compound.volumes.volume\_file.VolumeFile* method), 74  
 deepcopy () (*sevenbridges.models.compound.volumes.volume\_object.VolumeObject* method), 74  
 deepcopy () (*sevenbridges.models.compound.volumes.volume\_prefix.VolumePrefix* method), 75  
 deepcopy () (*sevenbridges.models.division.Division*

method), 78

deepcopy () (sevenbridges.models.endpoints.Endpoints method), 79

deepcopy () (sevenbridges.models.execution\_details.ExecutionDetails method), 82

deepcopy () (sevenbridges.models.file.File method), 83

deepcopy () (sevenbridges.models.file.FileBulkRecord method), 85

deepcopy () (sevenbridges.models.invoice.Invoice method), 85

deepcopy () (sevenbridges.models.link.Link method), 85

deepcopy () (sevenbridges.models.link.VolumeLink method), 86

deepcopy () (sevenbridges.models.marker.Marker method), 86

deepcopy () (sevenbridges.models.member.Member method), 86

deepcopy () (sevenbridges.models.project.Project method), 88

deepcopy () (sevenbridges.models.rate\_limit.RateLimit method), 89

deepcopy () (sevenbridges.models.storage\_export.Export method), 89

deepcopy () (sevenbridges.models.storage\_export.ExportBulkRecord method), 90

deepcopy () (sevenbridges.models.storage\_import.Import method), 90

deepcopy () (sevenbridges.models.storage\_import.ImportBulkRecord method), 91

deepcopy () (sevenbridges.models.task.Task method), 92

deepcopy () (sevenbridges.models.task.TaskBulkRecord method), 93

deepcopy () (sevenbridges.models.team.Team method), 93

deepcopy () (sevenbridges.models.team\_member.TeamMember method), 94

deepcopy () (sevenbridges.models.user.User method), 94

deepcopy () (sevenbridges.models.volume.Volume method), 96

deepcopy () (sevenbridges.Project method), 46

deepcopy () (sevenbridges.Task method), 47

deepcopy () (sevenbridges.Team method), 57

deepcopy () (sevenbridges.TeamMember method), 57

deepcopy () (sevenbridges.User method), 44

deepcopy () (sevenbridges.Volume method), 55

deepcopy () (sevenbridges.VolumeObject method), 56

DEFAULT\_BACKOFF\_FACTOR (sevenbridges.models.enums.RequestParameters attribute), 81

DEFAULT\_BULK\_LIMIT (sevenbridges.models.enums.RequestParameters attribute), 81

DEFAULT\_RETRY\_COUNT (sevenbridges.models.enums.RequestParameters attribute), 81

DEFAULT\_TIMEOUT (sevenbridges.models.enums.RequestParameters attribute), 81

DELETE (sevenbridges.AsyncFileOperations attribute), 59

DELETE (sevenbridges.models.enums.AsyncFileOperations attribute), 79

delete () (sevenbridges.http.client.HttpClient method), 62

delete () (sevenbridges.meta.resource.Resource method), 66

description (sevenbridges.Automation attribute), 39

description (sevenbridges.Dataset attribute), 58

description (sevenbridges.models.project.Project attribute), 88

description (sevenbridges.models.task.Task attribute), 92

description (sevenbridges.models.volume.Volume attribute), 96

description (sevenbridges.Project attribute), 46

description (sevenbridges.Task attribute), 47

description (sevenbridges.Volume attribute), 55

destination (sevenbridges.Export attribute), 52

destination (sevenbridges.Import attribute), 53

destination (sevenbridges.models.storage\_export.Export attribute), 89

destination (sevenbridges.models.storage\_import.Import attribute), 90

DictField (class in sevenbridges.meta.fields), 65

DIRECT (sevenbridges.AppCopyStrategy attribute), 59

DIRECT (sevenbridges.models.enums.AppCopyStrategy attribute), 79

disable () (sevenbridges.models.user.User method), 95

disable () (sevenbridges.User method), 44

disabled (sevenbridges.BillingGroup attribute), 43

disabled (sevenbridges.models.billing\_group.BillingGroup attribute), 78

Disk (class in sevenbridges.models.compound.jobs.job\_instance\_disk), 70

disk (sevenbridges.models.compound.jobs.job\_instance.Instance attribute), 70

Division (class in sevenbridges), 56

Division (class in sevenbridges.models.division), 78

DivisionRole (class in sevenbridges), 59

DivisionRole (class in sevenbridges.models.enums),

- 80
- divisions (*sevenbridges.Api* attribute), 37
- divisions (*sevenbridges.api.Api* attribute), 100
- docker (*sevenbridges.models.compound.jobs.job.Job* attribute), 69
- done() (*sevenbridges.transfer.download.DPartedFile* method), 97
- done() (*sevenbridges.transfer.upload.UPartedFile* method), 98
- Download (*class in sevenbridges.transfer.download*), 97
- download() (*sevenbridges.File* method), 51
- download() (*sevenbridges.models.file.File* method), 83
- download\_info() (*sevenbridges.File* method), 51
- download\_info() (*sevenbridges.models.file.File* method), 83
- DOWNLOAD\_MINIMUM\_PART\_SIZE (*sevenbridges.models.enums.PartSize* attribute), 81
- DOWNLOAD\_MINIMUM\_PART\_SIZE (*sevenbridges.PartSize* attribute), 60
- DownloadInfo (*class in sevenbridges.models.compound.files.download\_info*), 68
- DPartedFile (*class in sevenbridges.transfer.download*), 97
- DRAFT (*sevenbridges.models.enums.TaskStatus* attribute), 81
- DRAFT (*sevenbridges.TaskStatus* attribute), 60
- duration (*sevenbridges.models.compound.tasks.execution\_details.ExecutionDetails* attribute), 72
- duration (*sevenbridges.transfer.download.Download* attribute), 97
- duration (*sevenbridges.transfer.upload.Upload* attribute), 98
- duration (*sevenbridges.transfer.utils.Progress* attribute), 99
- ## E
- email (*sevenbridges.AutomationMember* attribute), 41
- email (*sevenbridges.Member* attribute), 50
- email (*sevenbridges.models.member.Member* attribute), 86
- email (*sevenbridges.models.user.User* attribute), 95
- email (*sevenbridges.User* attribute), 44
- end\_time (*sevenbridges.AutomationRun* attribute), 40
- end\_time (*sevenbridges.models.compound.jobs.job.Job* attribute), 69
- end\_time (*sevenbridges.models.execution\_details.ExecutionDetails* attribute), 82
- end\_time (*sevenbridges.models.task.Task* attribute), 92
- end\_time (*sevenbridges.Task* attribute), 47
- Endpoints (*class in sevenbridges*), 44
- Endpoints (*class in sevenbridges.models.endpoints*), 79
- endpoints (*sevenbridges.Api* attribute), 37
- endpoints (*sevenbridges.api.Api* attribute), 100
- equals() (*sevenbridges.App* method), 49
- equals() (*sevenbridges.AsyncJob* method), 38
- equals() (*sevenbridges.Automation* method), 39
- equals() (*sevenbridges.AutomationMember* method), 41
- equals() (*sevenbridges.AutomationPackage* method), 42
- equals() (*sevenbridges.AutomationRun* method), 40
- equals() (*sevenbridges.BillingGroup* method), 43
- equals() (*sevenbridges.BillingGroupBreakdown* method), 44
- equals() (*sevenbridges.BulkRecord* method), 58
- equals() (*sevenbridges.Dataset* method), 58
- equals() (*sevenbridges.Division* method), 56
- equals() (*sevenbridges.Endpoints* method), 45
- equals() (*sevenbridges.Export* method), 52
- equals() (*sevenbridges.File* method), 51
- equals() (*sevenbridges.Import* method), 53
- equals() (*sevenbridges.Invoice* method), 43
- equals() (*sevenbridges.Marker* method), 56
- equals() (*sevenbridges.Member* method), 50
- equals() (*sevenbridges.meta.comp\_mutable\_dict.CompoundMutableDict* method), 64
- equals() (*sevenbridges.models.actions.Actions* method), 76
- equals() (*sevenbridges.models.app.App* method), 77
- equals() (*sevenbridges.models.billing\_breakdown.BillingGroupBreakdown* method), 77
- equals() (*sevenbridges.models.billing\_group.BillingGroup* method), 78
- equals() (*sevenbridges.models.compound.billing.invoice\_period.InvoicePeriod* method), 67
- equals() (*sevenbridges.models.compound.billing.project\_breakdown.ProjectBreakdown* method), 68
- equals() (*sevenbridges.models.compound.billing.task\_breakdown.TaskBreakdown* method), 68
- equals() (*sevenbridges.models.compound.error.Error* method), 75
- equals() (*sevenbridges.models.compound.files.download\_info.DownloadInfo* method), 68
- equals() (*sevenbridges.models.compound.files.file\_origin.FileOrigin* method), 68
- equals() (*sevenbridges.models.compound.files.file\_storage.FileStorage* method), 69
- equals() (*sevenbridges.models.compound.jobs.job.Job* method), 69
- equals() (*sevenbridges.models.compound.jobs.job\_docker.JobDocker* method), 70
- equals() (*sevenbridges.models.compound.jobs.job\_instance.Instance* method), 70

[equals \(\) \(sevenbridges.models.compound.jobs.job\\_instance\\_disk.Disk method\), 70](#)  
[equals \(\) \(sevenbridges.models.compound.limits.rate.Rate method\), 71](#)  
[equals \(\) \(sevenbridges.models.compound.price.Price method\), 75](#)  
[equals \(\) \(sevenbridges.models.compound.price\\_breakdown.PriceBreakdown method\), 76](#)  
[equals \(\) \(sevenbridges.models.compound.tasks.batch\\_by.BatchBy method\), 72](#)  
[equals \(\) \(sevenbridges.models.compound.tasks.batch\\_group.BatchGroup method\), 72](#)  
[equals \(\) \(sevenbridges.models.compound.tasks.execution\\_details.ExecutionDetails method\), 72](#)  
[equals \(\) \(sevenbridges.models.compound.volumes.import\\_destination.ImportDestination method\), 73](#)  
[equals \(\) \(sevenbridges.models.compound.volumes.volume\\_file.VolumeFile method\), 74](#)  
[equals \(\) \(sevenbridges.models.compound.volumes.volume\\_object.VolumeObject method\), 74](#)  
[equals \(\) \(sevenbridges.models.compound.volumes.volume\\_prefix.VolumePrefix method\), 75](#)  
[equals \(\) \(sevenbridges.models.division.Division method\), 78](#)  
[equals \(\) \(sevenbridges.models.endpoints.Endpoints method\), 79](#)  
[equals \(\) \(sevenbridges.models.execution\\_details.ExecutionDetails method\), 82](#)  
[equals \(\) \(sevenbridges.models.file.File method\), 83](#)  
[equals \(\) \(sevenbridges.models.file.FileBulkRecord method\), 85](#)  
[equals \(\) \(sevenbridges.models.invoice.Invoice method\), 85](#)  
[equals \(\) \(sevenbridges.models.link.Link method\), 85](#)  
[equals \(\) \(sevenbridges.models.link.VolumeLink method\), 86](#)  
[equals \(\) \(sevenbridges.models.marker.Marker method\), 86](#)  
[equals \(\) \(sevenbridges.models.member.Member method\), 86](#)  
[equals \(\) \(sevenbridges.models.project.Project method\), 88](#)  
[equals \(\) \(sevenbridges.models.rate\\_limit.RateLimit method\), 89](#)  
[equals \(\) \(sevenbridges.models.storage\\_export.Export method\), 89](#)  
[equals \(\) \(sevenbridges.models.storage\\_export.ExportBulkRecord method\), 90](#)  
[equals \(\) \(sevenbridges.models.storage\\_import.Import method\), 90](#)  
[equals \(\) \(sevenbridges.models.storage\\_import.ImportBulkRecord method\), 91](#)  
[equals \(\) \(sevenbridges.models.task.Task method\), 92](#)  
[equals \(\) \(sevenbridges.models.task.TaskBulkRecord method\), 93](#)  
[equals \(\) \(sevenbridges.models.team.Team method\), 93](#)  
[equals \(\) \(sevenbridges.models.team\\_member.TeamMember method\), 94](#)  
[equals \(\) \(sevenbridges.models.user.User method\), 95](#)  
[equals \(\) \(sevenbridges.models.volume.Volume method\), 96](#)  
[equals \(\) \(sevenbridges.Project method\), 46](#)  
[equals \(\) \(sevenbridges.Task method\), 47](#)  
[equals \(\) \(sevenbridges.Team method\), 57](#)  
[equals \(\) \(sevenbridges.TeamMember method\), 57](#)  
[equals \(\) \(sevenbridges.User method\), 44](#)  
[equals \(\) \(sevenbridges.Volume method\), 55](#)  
[equals \(\) \(sevenbridges.VolumeObject method\), 56](#)  
[Error \(class in sevenbridges.models.compound.error\), 56](#)  
[error \(sevenbridges.BulkRecord attribute\), 58](#)  
[error \(sevenbridges.Import attribute\), 53](#)  
[error \(sevenbridges.models.storage\\_export.Export attribute\), 89](#)  
[error \(sevenbridges.models.storage\\_import.Import attribute\), 90](#)  
[errors \(sevenbridges.models.task.Task attribute\), 92](#)  
[errors \(sevenbridges.Task attribute\), 47](#)  
[executed\\_by \(sevenbridges.models.task.Task attribute\), 92](#)  
[executed\\_by \(sevenbridges.Task attribute\), 47](#)  
[execution\\_details \(sevenbridges.AutomationRun attribute\), 40](#)  
[execution\\_duration \(sevenbridges.models.compound.tasks.execution\\_status.ExecutionStatus attribute\), 73](#)  
[execution\\_settings \(sevenbridges.models.task.Task attribute\), 92](#)  
[execution\\_settings \(sevenbridges.Task attribute\), 48](#)  
[execution\\_status \(sevenbridges.models.task.Task attribute\), 92](#)  
[execution\\_status \(sevenbridges.Task attribute\), 48](#)  
[ExecutionDetails \(class in sevenbridges.models.execution\\_details\), 82](#)  
[ExecutionDetailsInvalidTaskType, 62, 101](#)  
[ExecutionStatus \(class in sevenbridges.models.compound.tasks.execution\\_status\), 72](#)  
[Export \(class in sevenbridges\), 52](#)  
[Export \(class in sevenbridges.models.storage\\_export\), 89](#)  
[ExportBulkRecord \(class in sevenbridges.models.storage\\_export\), 90](#)  
[exports \(sevenbridges.Api attribute\), 37](#)  
[exports \(sevenbridges.api.Api attribute\), 100](#)

EXTERNAL\_COLLABORATOR (*sevenbridges.DivisionRole* attribute), 59  
 EXTERNAL\_COLLABORATOR (*sevenbridges.models.enums.DivisionRole* attribute), 80

## F

FAILED (*sevenbridges.ImportExportState* attribute), 60  
 failed (*sevenbridges.models.compound.tasks.execution\_state* attribute), 73  
 FAILED (*sevenbridges.models.enums.AutomationStatus* attribute), 80  
 FAILED (*sevenbridges.models.enums.ImportExportState* attribute), 81  
 FAILED (*sevenbridges.models.enums.TaskStatus* attribute), 81  
 FAILED (*sevenbridges.models.enums.TransferState* attribute), 82  
 FAILED (*sevenbridges.TaskStatus* attribute), 60  
 FAILED (*sevenbridges.TransferState* attribute), 60  
 failed\_files (*sevenbridges.AsyncJob* attribute), 38  
 FeedbackType (class in *sevenbridges.models.enums*), 80  
 fetch() (*sevenbridges.meta.data.DataContainer* method), 64  
 Field (class in *sevenbridges.meta.fields*), 65  
 field() (*sevenbridges.meta.resource.Resource* method), 66  
 fields (*sevenbridges.models.compound.tasks.batch\_group* attribute), 72  
 File (class in *sevenbridges*), 50  
 File (class in *sevenbridges.models.file*), 82  
 file (*sevenbridges.Marker* attribute), 56  
 FILE (*sevenbridges.models.enums.FileApiFormats* attribute), 80  
 file (*sevenbridges.models.marker.Marker* attribute), 86  
 file\_bulk\_copy() (*sevenbridges.AsyncJob* class method), 38  
 file\_bulk\_delete() (*sevenbridges.AsyncJob* class method), 38  
 file\_bulk\_move() (*sevenbridges.AsyncJob* class method), 38  
 file\_name (*sevenbridges.transfer.upload.Upload* attribute), 98  
 file\_size (*sevenbridges.transfer.utils.Progress* attribute), 99  
 FileApiFormats (class in *sevenbridges.models.enums*), 80  
 FileBulkRecord (class in *sevenbridges.models.file*), 85  
 FileOrigin (class in *sevenbridges.models.compound.files.file\_origin*), 68  
 files (*sevenbridges.Api* attribute), 37

files (*sevenbridges.api.Api* attribute), 100  
 files\_url (*sevenbridges.Endpoints* attribute), 45  
 files\_url (*sevenbridges.models.endpoints.Endpoints* attribute), 79  
 FileStorage (class in *sevenbridges.models.compound.files.file\_storage*), 69  
 FileStorageType (class in *sevenbridges*), 59  
 FileExportState (class in *sevenbridges.models.enums*), 80  
 FINISHED (*sevenbridges.AsyncJobStates* attribute), 59  
 FINISHED (*sevenbridges.models.enums.AsyncJobStates* attribute), 79  
 FINISHED (*sevenbridges.models.enums.AutomationStatus* attribute), 80  
 finished\_on (*sevenbridges.AsyncJob* attribute), 38  
 finished\_on (*sevenbridges.Export* attribute), 52  
 finished\_on (*sevenbridges.Import* attribute), 53  
 finished\_on (*sevenbridges.models.storage\_export.Export* attribute), 89  
 finished\_on (*sevenbridges.models.storage\_import.Import* attribute), 90  
 first\_name (*sevenbridges.models.user.User* attribute), 95  
 first\_name (*sevenbridges.User* attribute), 44  
 FloatField (class in *sevenbridges.meta.fields*), 65  
 FOLDER (*sevenbridges.models.enums.FileApiFormats* attribute), 80  
 FOLDER\_TYPE (*sevenbridges.File* attribute), 50  
 FOLDER\_TYPE (*sevenbridges.models.file.File* attribute), 82  
 Forbidden, 61, 101  
 format\_proxies() (in module *sevenbridges.config*), 101  
 from\_ (*sevenbridges.models.compound.billing.invoice\_period.InvoicePeriod* attribute), 67

## G

GB (*sevenbridges.models.enums.PartSize* attribute), 81  
 GB (*sevenbridges.PartSize* attribute), 61  
 general\_error\_sleeper() (in module *sevenbridges.http.error\_handlers*), 63  
 generate\_session() (in module *sevenbridges.http.client*), 63  
 get () (*sevenbridges.AutomationMember* class method), 41  
 get () (*sevenbridges.Endpoints* class method), 45  
 get () (*sevenbridges.http.client.HttpClient* method), 62  
 get () (*sevenbridges.meta.resource.Resource* class method), 66  
 get () (*sevenbridges.models.endpoints.Endpoints* class method), 79

- get () (*sevenbridges.models.rate\_limit.RateLimit class method*), 89
  - get () (*sevenbridges.models.user.User class method*), 95
  - get () (*sevenbridges.User class method*), 44
  - get\_apps () (*sevenbridges.models.project.Project method*), 88
  - get\_apps () (*sevenbridges.Project method*), 46
  - get\_batch\_children () (*sevenbridges.models.task.Task method*), 92
  - get\_batch\_children () (*sevenbridges.Task method*), 48
  - get\_execution\_details () (*sevenbridges.models.task.Task method*), 92
  - get\_execution\_details () (*sevenbridges.Task method*), 48
  - get\_exports () (*sevenbridges.models.project.Project method*), 88
  - get\_exports () (*sevenbridges.models.volume.Volume method*), 96
  - get\_exports () (*sevenbridges.Project method*), 46
  - get\_exports () (*sevenbridges.Volume method*), 55
  - get\_file\_copy\_job () (*sevenbridges.AsyncJob class method*), 38
  - get\_file\_delete\_job () (*sevenbridges.AsyncJob class method*), 38
  - get\_file\_move\_job () (*sevenbridges.AsyncJob class method*), 38
  - get\_files () (*sevenbridges.models.project.Project method*), 88
  - get\_files () (*sevenbridges.Project method*), 46
  - get\_imports () (*sevenbridges.models.project.Project method*), 88
  - get\_imports () (*sevenbridges.models.volume.Volume method*), 96
  - get\_imports () (*sevenbridges.Project method*), 46
  - get\_imports () (*sevenbridges.Volume method*), 55
  - get\_log\_file () (*sevenbridges.AutomationRun method*), 40
  - get\_member () (*sevenbridges.Automation method*), 39
  - get\_member () (*sevenbridges.Dataset method*), 58
  - get\_member () (*sevenbridges.models.project.Project method*), 88
  - get\_member () (*sevenbridges.models.volume.Volume method*), 96
  - get\_member () (*sevenbridges.Project method*), 46
  - get\_member () (*sevenbridges.Volume method*), 55
  - get\_members () (*sevenbridges.Automation method*), 39
  - get\_members () (*sevenbridges.Dataset method*), 58
  - get\_members () (*sevenbridges.Division method*), 56
  - get\_members () (*sevenbridges.models.division.Division method*), 78
  - get\_members () (*sevenbridges.models.project.Project method*), 88
  - get\_members () (*sevenbridges.models.team.Team method*), 94
  - get\_members () (*sevenbridges.models.volume.Volume method*), 96
  - get\_members () (*sevenbridges.Project method*), 46
  - get\_members () (*sevenbridges.Team method*), 57
  - get\_members () (*sevenbridges.Volume method*), 55
  - get\_owned\_by () (*sevenbridges.Dataset class method*), 58
  - get\_package () (*sevenbridges.Automation class method*), 39
  - get\_packages () (*sevenbridges.Automation method*), 39
  - get\_parts () (*sevenbridges.transfer.download.DPartedFile method*), 97
  - get\_parts () (*sevenbridges.transfer.upload.UPartedFile method*), 98
  - get\_result () (*sevenbridges.AsyncJob method*), 38
  - get\_revision () (*sevenbridges.App class method*), 49
  - get\_revision () (*sevenbridges.models.app.App class method*), 77
  - get\_runs () (*sevenbridges.Automation method*), 39
  - get\_state () (*sevenbridges.AutomationRun method*), 40
  - get\_tasks () (*sevenbridges.models.project.Project method*), 88
  - get\_tasks () (*sevenbridges.Project method*), 46
  - get\_teams () (*sevenbridges.Division method*), 56
  - get\_teams () (*sevenbridges.models.division.Division method*), 78
  - get\_volume\_object\_info () (*sevenbridges.models.volume.Volume method*), 96
  - get\_volume\_object\_info () (*sevenbridges.Volume method*), 55
  - GOOGLE (*sevenbridges.models.enums.VolumeType attribute*), 82
  - GOOGLE (*sevenbridges.VolumeType attribute*), 60
- ## H
- href (*sevenbridges.App attribute*), 49
  - href (*sevenbridges.Automation attribute*), 39
  - href (*sevenbridges.AutomationMember attribute*), 42
  - href (*sevenbridges.AutomationRun attribute*), 40
  - href (*sevenbridges.BillingGroup attribute*), 43
  - href (*sevenbridges.BillingGroupBreakdown attribute*), 44
  - href (*sevenbridges.Dataset attribute*), 58
  - href (*sevenbridges.Division attribute*), 56

- [href \(sevenbridges.Export attribute\), 53](#)
- [href \(sevenbridges.File attribute\), 51](#)
- [href \(sevenbridges.Import attribute\), 53](#)
- [href \(sevenbridges.Invoice attribute\), 43](#)
- [href \(sevenbridges.Marker attribute\), 56](#)
- [href \(sevenbridges.Member attribute\), 50](#)
- [href \(sevenbridges.models.app.App attribute\), 77](#)
- [href \(sevenbridges.models.billing\\_breakdown.BillingGroupBreakdown attribute\), 77](#)
- [href \(sevenbridges.models.billing\\_group.BillingGroup attribute\), 78](#)
- [href \(sevenbridges.models.compound.billing.project\\_breakdown.ProjectBreakdown attribute\), 68](#)
- [href \(sevenbridges.models.compound.billing.task\\_breakdown.TaskBreakdown attribute\), 68](#)
- [href \(sevenbridges.models.compound.volumes.volume\\_object.VolumeObject attribute\), 74](#)
- [href \(sevenbridges.models.compound.volumes.volume\\_prefix.VolumePrefix attribute\), 75](#)
- [href \(sevenbridges.models.division.Division attribute\), 78](#)
- [href \(sevenbridges.models.execution\\_details.ExecutionDetails attribute\), 82](#)
- [href \(sevenbridges.models.file.File attribute\), 84](#)
- [href \(sevenbridges.models.invoice.Invoice attribute\), 85](#)
- [href \(sevenbridges.models.link.Link attribute\), 85](#)
- [href \(sevenbridges.models.marker.Marker attribute\), 86](#)
- [href \(sevenbridges.models.member.Member attribute\), 87](#)
- [href \(sevenbridges.models.project.Project attribute\), 88](#)
- [href \(sevenbridges.models.storage\\_export.Export attribute\), 89](#)
- [href \(sevenbridges.models.storage\\_import.Import attribute\), 90](#)
- [href \(sevenbridges.models.task.Task attribute\), 92](#)
- [href \(sevenbridges.models.team.Team attribute\), 94](#)
- [href \(sevenbridges.models.team\\_member.TeamMember attribute\), 94](#)
- [href \(sevenbridges.models.user.User attribute\), 95](#)
- [href \(sevenbridges.models.volume.Volume attribute\), 96](#)
- [href \(sevenbridges.Project attribute\), 46](#)
- [href \(sevenbridges.Task attribute\), 48](#)
- [href \(sevenbridges.Team attribute\), 57](#)
- [href \(sevenbridges.TeamMember attribute\), 58](#)
- [href \(sevenbridges.User attribute\), 44](#)
- [href \(sevenbridges.Volume attribute\), 55](#)
- [href \(sevenbridges.VolumeObject attribute\), 56](#)
- [HrefField \(class in sevenbridges.meta.fields\), 65](#)
- [HttpClient \(class in sevenbridges.http.client\), 62](#)
- I**
- [id \(sevenbridges.App attribute\), 49](#)
- [id \(sevenbridges.AsyncJob attribute\), 38](#)
- [id \(sevenbridges.Automation attribute\), 40](#)
- [id \(sevenbridges.AutomationMember attribute\), 42](#)
- [id \(sevenbridges.AutomationPackage attribute\), 42](#)
- [id \(sevenbridges.AutomationRun attribute\), 40](#)
- [id \(sevenbridges.BillingGroup attribute\), 43](#)
- [id \(sevenbridges.Dataset attribute\), 58](#)
- [id \(sevenbridges.Division attribute\), 56](#)
- [id \(sevenbridges.Export attribute\), 53](#)
- [id \(sevenbridges.File attribute\), 51](#)
- [id \(sevenbridges.Import attribute\), 53](#)
- [id \(sevenbridges.Invoice attribute\), 43](#)
- [id \(sevenbridges.Marker attribute\), 56](#)
- [id \(sevenbridges.Member attribute\), 50](#)
- [id \(sevenbridges.models.app.App attribute\), 77](#)
- [id \(sevenbridges.models.billing\\_group.BillingGroup attribute\), 78](#)
- [id \(sevenbridges.models.compound.jobs.job\\_instance.Instance attribute\), 70](#)
- [id \(sevenbridges.models.division.Division attribute\), 78](#)
- [id \(sevenbridges.models.file.File attribute\), 84](#)
- [id \(sevenbridges.models.invoice.Invoice attribute\), 85](#)
- [id \(sevenbridges.models.marker.Marker attribute\), 86](#)
- [id \(sevenbridges.models.member.Member attribute\), 87](#)
- [id \(sevenbridges.models.project.Project attribute\), 88](#)
- [id \(sevenbridges.models.storage\\_export.Export attribute\), 89](#)
- [id \(sevenbridges.models.storage\\_import.Import attribute\), 90](#)
- [id \(sevenbridges.models.task.Task attribute\), 92](#)
- [id \(sevenbridges.models.team.Team attribute\), 94](#)
- [id \(sevenbridges.models.team\\_member.TeamMember attribute\), 94](#)
- [id \(sevenbridges.models.volume.Volume attribute\), 96](#)
- [id \(sevenbridges.Project attribute\), 46](#)
- [id \(sevenbridges.Task attribute\), 48](#)
- [id \(sevenbridges.Team attribute\), 57](#)
- [id \(sevenbridges.TeamMember attribute\), 58](#)
- [id \(sevenbridges.Volume attribute\), 55](#)
- [IDEA \(sevenbridges.models.enums.FeedbackType attribute\), 80](#)
- [Import \(class in sevenbridges\), 53](#)
- [Import \(class in sevenbridges.models.storage\\_import\), 90](#)
- [ImportBulkRecord \(class in sevenbridges.models.storage\\_import\), 91](#)
- [ImportDestination \(class in sevenbridges.models.compound.volumes.import\\_destination\), 73](#)
- [ImportExportState \(class in sevenbridges\), 60](#)
- [ImportExportState \(class in sevenbridges.models.enums\), 80](#)
- [imports \(sevenbridges.Api attribute\), 37](#)
- [imports \(sevenbridges.api.Api attribute\), 100](#)
- [inplace\\_reload\(\) \(in module sevenbridges.decorators\), 101](#)

Input (class in sevenbridges.models.compound.tasks.input), 73  
 inputs (sevenbridges.AutomationRun attribute), 41  
 inputs (sevenbridges.models.task.Task attribute), 92  
 inputs (sevenbridges.Task attribute), 48  
 install\_app() (sevenbridges.App class method), 49  
 install\_app() (sevenbridges.models.app.App class method), 77  
 Instance (class in sevenbridges.models.compound.jobs.job\_instance), 70  
 instance (sevenbridges.models.compound.jobs.job.Job attribute), 69  
 instance\_init (sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus attribute), 73  
 instance\_limit (sevenbridges.models.rate\_limit.RateLimit attribute), 89  
 IntegerField (class in sevenbridges.meta.fields), 65  
 Invoice (class in sevenbridges), 43  
 Invoice (class in sevenbridges.models.invoice), 85  
 invoice\_period (sevenbridges.Invoice attribute), 43  
 invoice\_period (sevenbridges.models.invoice.Invoice attribute), 85  
 InvoicePeriod (class in sevenbridges.models.compound.billing.invoice\_period), 67  
 invoices (sevenbridges.Api attribute), 37  
 invoices (sevenbridges.api.Api attribute), 100  
 is\_folder() (sevenbridges.File method), 51  
 is\_folder() (sevenbridges.models.file.File method), 84  
 items() (sevenbridges.meta.comp\_mutable\_dict.CompoundMutableDict method), 64

**J**

Job (class in sevenbridges.models.compound.jobs.job), 69  
 JobDocker (class in sevenbridges.models.compound.jobs.job\_docker), 70  
 jobs (sevenbridges.models.execution\_details.ExecutionDetails attribute), 82  
 JSON (sevenbridges.AppRawFormat attribute), 59  
 JSON (sevenbridges.models.enums.AppRawFormat attribute), 79

**K**

KB (sevenbridges.models.enums.PartSize attribute), 81  
 KB (sevenbridges.PartSize attribute), 61  
 key (sevenbridges.http.client.AAHeader attribute), 62

**L**

last\_name (sevenbridges.models.user.User attribute), 95  
 last\_name (sevenbridges.User attribute), 44  
 limit (sevenbridges.http.client.HttpClient attribute), 62  
 limit (sevenbridges.models.compound.limits.rate.Rate attribute), 71  
 Link (class in sevenbridges.models.link), 85  
 list() (sevenbridges.models.volume.Volume method), 96  
 list() (sevenbridges.Volume method), 55  
 list\_file\_jobs() (sevenbridges.AsyncJob class method), 38  
 list\_files() (sevenbridges.File method), 51  
 list\_files() (sevenbridges.models.file.File method), 84  
 LocalFileAlreadyExists, 62, 101  
 location (sevenbridges.AutomationPackage attribute), 42  
 location (sevenbridges.models.compound.files.file\_storage.FileStorage attribute), 69  
 location (sevenbridges.models.compound.volumes.volume\_file.VolumeFile attribute), 74  
 location (sevenbridges.models.compound.volumes.volume\_object.VolumeObject attribute), 74  
 location (sevenbridges.VolumeObject attribute), 56  
 Logs (class in sevenbridges.models.compound.jobs.job\_log), 70  
 logs (sevenbridges.models.compound.jobs.job.Job attribute), 69

**M**

maintenance\_sleeper() (in module sevenbridges.http.error\_handlers), 63  
 map\_input\_output() (in module sevenbridges.models.compound.tasks), 72  
 Marker (class in sevenbridges), 56  
 Marker (class in sevenbridges.models.marker), 86  
 MarkerPosition (class in sevenbridges.models.compound.markers.position), 71  
 markers (sevenbridges.Api attribute), 37  
 markers (sevenbridges.api.Api attribute), 100  
 mask\_secrets() (in module sevenbridges.http.client), 63  
 MAX\_URL\_LENGTH (sevenbridges.models.enums.RequestParameters attribute), 81  
 MAXIMUM\_OBJECT\_SIZE (sevenbridges.models.enums.PartSize attribute), 81  
 MAXIMUM\_OBJECT\_SIZE (sevenbridges.PartSize attribute), 61



- [MAXIMUM\\_TOTAL\\_PARTS \(sevenbridges.models.enums.PartSize attribute\)](#), 81  
[MAXIMUM\\_TOTAL\\_PARTS \(sevenbridges.PartSize attribute\)](#), 61  
[MAXIMUM\\_UPLOAD\\_SIZE \(sevenbridges.models.enums.PartSize attribute\)](#), 81  
[MAXIMUM\\_UPLOAD\\_SIZE \(sevenbridges.PartSize attribute\)](#), 61  
[MB \(sevenbridges.models.enums.PartSize attribute\)](#), 81  
[MB \(sevenbridges.PartSize attribute\)](#), 61  
[me \(\) \(sevenbridges.models.user.User class method\)](#), 95  
[me \(\) \(sevenbridges.User class method\)](#), 44  
[Member \(class in sevenbridges\)](#), 49  
[Member \(class in sevenbridges.models.member\)](#), 86  
[MEMBER \(sevenbridges.DivisionRole attribute\)](#), 59  
[MEMBER \(sevenbridges.models.enums.DivisionRole attribute\)](#), 80  
[memory\\_limit \(sevenbridges.Automation attribute\)](#), 40  
[memory\\_limit \(sevenbridges.AutomationPackage attribute\)](#), 42  
[memory\\_limit \(sevenbridges.AutomationRun attribute\)](#), 41  
[message \(sevenbridges.AutomationRun attribute\)](#), 41  
[message \(sevenbridges.models.compound.error.Error attribute\)](#), 75  
[message \(sevenbridges.models.compound.tasks.execution\\_status.ExecutionStatus attribute\)](#), 73  
[message \(sevenbridges.models.execution\\_details.ExecutionDetails attribute\)](#), 82  
[message\\_code \(sevenbridges.models.compound.tasks.execution\\_status.ExecutionStatus attribute\)](#), 73  
[Metadata \(class in sevenbridges.models.compound.files.metadata\)](#), 69  
[metadata \(sevenbridges.File attribute\)](#), 51  
[metadata \(sevenbridges.models.compound.volumes.volume\\_object.VolumeObject attribute\)](#), 74  
[metadata \(sevenbridges.models.file.File attribute\)](#), 84  
[metadata \(sevenbridges.VolumeObject attribute\)](#), 56  
[method \(sevenbridges.models.link.Link attribute\)](#), 86  
[MethodNotAllowed](#), 61, 101  
[modified\\_by \(sevenbridges.Automation attribute\)](#), 40  
[modified\\_on \(sevenbridges.Automation attribute\)](#), 40  
[modified\\_on \(sevenbridges.File attribute\)](#), 51  
[modified\\_on \(sevenbridges.models.file.File attribute\)](#), 84  
[modified\\_on \(sevenbridges.models.project.Project attribute\)](#), 88  
[modified\\_on \(sevenbridges.models.volume.Volume attribute\)](#), 96  
[modified\\_on \(sevenbridges.Project attribute\)](#), 46  
[modified\\_on \(sevenbridges.Volume attribute\)](#), 55  
[more\\_info \(sevenbridges.models.compound.error.Error attribute\)](#), 75  
[MOVE \(sevenbridges.AsyncFileOperations attribute\)](#), 59  
[MOVE \(sevenbridges.models.enums.AsyncFileOperations attribute\)](#), 79  
[move\\_to\\_folder \(\) \(sevenbridges.File method\)](#), 51  
[move\\_to\\_folder \(\) \(sevenbridges.models.file.File method\)](#), 84  

## N

[name \(sevenbridges.App attribute\)](#), 49  
[name \(sevenbridges.Automation attribute\)](#), 40  
[name \(sevenbridges.AutomationMember attribute\)](#), 42  
[name \(sevenbridges.AutomationRun attribute\)](#), 41  
[name \(sevenbridges.BillingGroup attribute\)](#), 43  
[name \(sevenbridges.Dataset attribute\)](#), 58  
[name \(sevenbridges.Division attribute\)](#), 56  
[name \(sevenbridges.File attribute\)](#), 51  
[name \(sevenbridges.Marker attribute\)](#), 56  
[name \(sevenbridges.models.app.App attribute\)](#), 77  
[name \(sevenbridges.models.billing\\_group.BillingGroup attribute\)](#), 78  
[name \(sevenbridges.models.compound.jobs.job.Job attribute\)](#), 69  
[name \(sevenbridges.models.compound.volumes.import\\_destination.ImportDestination attribute\)](#), 73  
[name \(sevenbridges.models.division.Division attribute\)](#), 78  
[name \(sevenbridges.models.file.File attribute\)](#), 84  
[name \(sevenbridges.models.marker.Marker attribute\)](#), 86  
[name \(sevenbridges.models.project.Project attribute\)](#), 88  
[name \(sevenbridges.models.task.Task attribute\)](#), 92  
[name \(sevenbridges.models.team.Team attribute\)](#), 94  
[name \(sevenbridges.models.volume.Volume attribute\)](#), 96  
[name \(sevenbridges.Project attribute\)](#), 46  
[name \(sevenbridges.Task attribute\)](#), 48  
[name \(sevenbridges.Team attribute\)](#), 57  
[name \(sevenbridges.Volume attribute\)](#), 55  
[next \(sevenbridges.models.link.VolumeLink attribute\)](#), 86  
[next\\_page \(\) \(sevenbridges.meta.collection.Collection method\)](#), 64  
[next\\_page \(\) \(sevenbridges.meta.collection.VolumeCollection method\)](#), 64  
[NonJSONResponseError](#), 102  
[NotFound](#), 61, 102  
[num\\_of\\_parts \(sevenbridges.transfer.utils.Progress attribute\)](#), 99

## O

ObjectIdField (class in *sevenbridges.meta.fields*), 65

origin (*sevenbridges.File* attribute), 51

origin (*sevenbridges.models.file.File* attribute), 84

OSS (*sevenbridges.models.enums.VolumeType* attribute), 82

OSS (*sevenbridges.VolumeType* attribute), 60

Output (class in *sevenbridges.models.compound.tasks.output*), 73

outputs (*sevenbridges.AutomationRun* attribute), 41

outputs (*sevenbridges.models.task.Task* attribute), 92

outputs (*sevenbridges.Task* attribute), 48

overwrite (*sevenbridges.Export* attribute), 53

overwrite (*sevenbridges.Import* attribute), 53

overwrite (*sevenbridges.models.storage\_export.Export* attribute), 89

overwrite (*sevenbridges.models.storage\_import.Import* attribute), 90

owner (*sevenbridges.Automation* attribute), 40

owner (*sevenbridges.BillingGroup* attribute), 43

owner (*sevenbridges.models.billing\_group.BillingGroup* attribute), 78

## P

package (*sevenbridges.AutomationRun* attribute), 41

PaginationError, 61, 102

parent (*sevenbridges.File* attribute), 51

parent (*sevenbridges.models.compound.volumes.import\_destination.ImportDestination* attribute), 73

parent (*sevenbridges.models.file.File* attribute), 84

parent (*sevenbridges.models.task.Task* attribute), 92

parent (*sevenbridges.Task* attribute), 48

parse\_records() (*sevenbridges.BulkRecord* class method), 58

Part (class in *sevenbridges.transfer.utils*), 99

partition\_file() (*sevenbridges.transfer.upload.CodePackageUpload* method), 98

partition\_file() (*sevenbridges.transfer.upload.Upload* method), 98

parts\_done (*sevenbridges.transfer.utils.Progress* attribute), 99

PartSize (class in *sevenbridges*), 60

PartSize (class in *sevenbridges.models.enums*), 81

patch() (*sevenbridges.http.client.HttpClient* method), 62

path (*sevenbridges.transfer.download.Download* attribute), 97

pause() (*sevenbridges.transfer.download.Download* method), 97

pause() (*sevenbridges.transfer.upload.Upload* method), 98

PAUSED (*sevenbridges.models.enums.TransferState* attribute), 82

PAUSED (*sevenbridges.TransferState* attribute), 60

pending (*sevenbridges.BillingGroup* attribute), 43

PENDING (*sevenbridges.ImportExportState* attribute), 60

pending (*sevenbridges.Invoice* attribute), 43

pending (*sevenbridges.models.billing\_group.BillingGroup* attribute), 78

PENDING (*sevenbridges.models.enums.ImportExportState* attribute), 81

pending (*sevenbridges.models.invoice.Invoice* attribute), 85

Permissions (class in *sevenbridges*), 50

Permissions (class in *sevenbridges.models.compound.projects.permissions*), 71

permissions (*sevenbridges.AutomationMember* attribute), 42

permissions (*sevenbridges.Member* attribute), 50

permissions (*sevenbridges.models.member.Member* attribute), 87

phone (*sevenbridges.models.user.User* attribute), 95

phone (*sevenbridges.User* attribute), 44

PLATFORM (*sevenbridges.FileStorageType* attribute), 59

PLATFORM (*sevenbridges.models.enums.FileStorageType* attribute), 80

position (*sevenbridges.Marker* attribute), 56

position (*sevenbridges.models.marker.Marker* attribute), 86

post() (*sevenbridges.http.client.HttpClient* method), 62

prefix (*sevenbridges.models.compound.volumes.volume\_prefix.VolumePrefix* attribute), 75

PREPARING (*sevenbridges.models.enums.TransferState* attribute), 82

PREPARING (*sevenbridges.TransferState* attribute), 60

preserve\_folder\_structure (*sevenbridges.Import* attribute), 53

preserve\_folder\_structure (*sevenbridges.models.storage\_import.Import* attribute), 90

previous\_page() (*sevenbridges.meta.collection.Collection* method), 64

previous\_page() (*sevenbridges.meta.collection.VolumeCollection* method), 64

Price (class in *sevenbridges.models.compound.price*), 75

price (*sevenbridges.models.task.Task* attribute), 92

price (*sevenbridges.Task* attribute), 48

- PROBLEM (*sevenbridges.models.enums.FeedbackType attribute*), 80
- Progress (*class in sevenbridges.transfer.utils*), 99
- progress (*sevenbridges.transfer.download.Download attribute*), 97
- progress (*sevenbridges.transfer.upload.Upload attribute*), 98
- progress (*sevenbridges.transfer.utils.Progress attribute*), 99
- Project (*class in sevenbridges*), 45
- Project (*class in sevenbridges.models.project*), 87
- project (*sevenbridges.App attribute*), 49
- project (*sevenbridges.File attribute*), 51
- project (*sevenbridges.models.app.App attribute*), 77
- project (*sevenbridges.models.compound.volumes.import\_destination (sevenbridges.models.compound.volumes.import\_destination attribute)*), 74
- project (*sevenbridges.models.file.File attribute*), 84
- project (*sevenbridges.models.task.Task attribute*), 92
- project (*sevenbridges.Task attribute*), 48
- project\_based (*sevenbridges.Automation attribute*), 40
- project\_breakdown (*sevenbridges.BillingGroupBreakdown attribute*), 44
- project\_breakdown (*sevenbridges.models.billing\_breakdown.BillingGroupBreakdown attribute*), 77
- project\_id (*sevenbridges.AutomationRun attribute*), 41
- ProjectBreakdown (*class in sevenbridges.models.compound.billing.project\_breakdown*), 67
- projects (*sevenbridges.Api attribute*), 37
- projects (*sevenbridges.api.Api attribute*), 100
- projects\_url (*sevenbridges.Endpoints attribute*), 45
- projects\_url (*sevenbridges.models.endpoints.Endpoints attribute*), 79
- properties (*sevenbridges.Export attribute*), 53
- properties (*sevenbridges.models.storage\_export.Export attribute*), 89
- provider (*sevenbridges.models.compound.jobs.job\_instance\_provider attribute*), 70
- proxies (*sevenbridges.config.UserProfile attribute*), 101
- put () (*sevenbridges.http.client.HttpClient method*), 62
- Q**
- query () (*sevenbridges.App class method*), 49
- query () (*sevenbridges.Automation class method*), 40
- query () (*sevenbridges.AutomationMember class method*), 42
- query () (*sevenbridges.AutomationPackage class method*), 42
- query () (*sevenbridges.AutomationRun class method*), 41
- query () (*sevenbridges.BillingGroup class method*), 43
- query () (*sevenbridges.Dataset class method*), 58
- query () (*sevenbridges.Division class method*), 57
- query () (*sevenbridges.Export class method*), 53
- query () (*sevenbridges.File class method*), 51
- query () (*sevenbridges.Import class method*), 53
- query () (*sevenbridges.Invoice class method*), 43
- query () (*sevenbridges.Marker class method*), 56
- query () (*sevenbridges.models.app.App class method*), 77
- query () (*sevenbridges.models.billing\_group.BillingGroup class method*), 78
- query () (*sevenbridges.models.compound.volumes.import\_destination (sevenbridges.models.compound.volumes.import\_destination attribute)*), 78
- query () (*sevenbridges.models.file.File class method*), 84
- query () (*sevenbridges.models.invoice.Invoice class method*), 85
- query () (*sevenbridges.models.marker.Marker class method*), 86
- query () (*sevenbridges.models.project.Project class method*), 88
- query () (*sevenbridges.models.storage\_export.Export class method*), 89
- query () (*sevenbridges.models.storage\_import.Import class method*), 90
- query () (*sevenbridges.models.task.Task class method*), 92
- query () (*sevenbridges.models.team.Team class method*), 94
- query () (*sevenbridges.models.user.User class method*), 95
- query () (*sevenbridges.models.volume.Volume class method*), 96
- query () (*sevenbridges.Project class method*), 47
- query () (*sevenbridges.Task class method*), 48
- query () (*sevenbridges.Team class method*), 57
- query () (*sevenbridges.User class method*), 44
- query () (*sevenbridges.Volume class method*), 55
- queued\_duration (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus attribute*), 73
- QUEUED (*sevenbridges.models.enums.TaskStatus attribute*), 81
- QUEUED (*sevenbridges.TaskStatus attribute*), 60
- queued\_duration (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus attribute*), 73
- QUEUED\_FOR\_EXECUTION (*sevenbridges.models.enums.AutomationStatus attribute*), 80
- QUEUED\_FOR\_TERMINATION (*sevenbridges.models.enums.AutomationStatus attribute*), 80

attribute), 80

## R

- Rate (class in *sevenbridges.models.compound.limits.rate*), 71
- rate (*sevenbridges.models.rate\_limit.RateLimit* attribute), 89
- rate\_limit (*sevenbridges.Api* attribute), 37
- rate\_limit (*sevenbridges.api.Api* attribute), 100
- rate\_limit\_sleeper() (in module *sevenbridges.http.error\_handlers*), 63
- rate\_limit\_url (*sevenbridges.Endpoints* attribute), 45
- rate\_limit\_url (*sevenbridges.models.endpoints.Endpoints* attribute), 79
- RateLimit (class in *sevenbridges.models.rate\_limit*), 89
- raw (*sevenbridges.App* attribute), 49
- raw (*sevenbridges.models.app.App* attribute), 77
- READ\_ONLY (*sevenbridges.models.enums.VolumeAccessMode* attribute), 82
- READ\_ONLY (*sevenbridges.VolumeAccessMode* attribute), 60
- READ\_WRITE (*sevenbridges.models.enums.VolumeAccessMode* attribute), 82
- READ\_WRITE (*sevenbridges.VolumeAccessMode* attribute), 60
- ReadOnlyPropertyError, 61, 102
- rel (*sevenbridges.models.link.Link* attribute), 86
- reload() (*sevenbridges.File* method), 51
- reload() (*sevenbridges.meta.resource.Resource* method), 66
- reload() (*sevenbridges.models.file.File* method), 84
- remaining (*sevenbridges.http.client.HttpClient* attribute), 62
- remaining (*sevenbridges.models.compound.limits.rate.Rate* attribute), 71
- remove() (*sevenbridges.AutomationMember* class method), 42
- remove\_error\_handler() (*sevenbridges.http.client.HttpClient* method), 62
- remove\_member() (*sevenbridges.Automation* method), 40
- remove\_member() (*sevenbridges.Dataset* method), 58
- remove\_member() (*sevenbridges.models.project.Project* method), 88
- remove\_member() (*sevenbridges.models.team.Team* method), 94
- remove\_member() (*sevenbridges.models.volume.Volume* method), 96
- remove\_member() (*sevenbridges.Project* method), 47
- remove\_member() (*sevenbridges.Team* method), 57
- remove\_member() (*sevenbridges.Volume* method), 55
- repeatable\_handler() (in module *sevenbridges.http.error\_handlers*), 63
- request\_id (*sevenbridges.http.client.HttpClient* attribute), 62
- RequestParameters (class in *sevenbridges.models.enums*), 81
- RequestSession (class in *sevenbridges.http.client*), 63
- RequestTimeout, 62, 102
- RERUN (*sevenbridges.AutomationRunActions* attribute), 59
- RERUN (*sevenbridges.models.enums.AutomationRunActions* attribute), 80
- rerun() (*sevenbridges.AutomationRun* class method), 41
- reset (*sevenbridges.models.compound.limits.rate.Rate* attribute), 71
- reset\_time (*sevenbridges.http.client.HttpClient* attribute), 62
- RESOLVING (*sevenbridges.AsyncJobStates* attribute), 59
- RESOLVING (*sevenbridges.models.enums.AsyncJobStates* attribute), 80
- Resource (class in *sevenbridges.meta.resource*), 65
- resource (*sevenbridges.BulkRecord* attribute), 58
- resource (*sevenbridges.meta.collection.Collection* attribute), 64
- resource (*sevenbridges.models.file.FileBulkRecord* attribute), 85
- resource (*sevenbridges.models.storage\_export.ExportBulkRecord* attribute), 90
- resource (*sevenbridges.models.storage\_import.ImportBulkRecord* attribute), 91
- resource (*sevenbridges.models.task.TaskBulkRecord* attribute), 93
- ResourceMeta (class in *sevenbridges.meta.resource*), 66
- ResourceNotModified, 61, 102
- restore() (*sevenbridges.Automation* method), 40
- restore() (*sevenbridges.AutomationPackage* method), 42
- result (*sevenbridges.AsyncJob* attribute), 38
- result (*sevenbridges.Export* attribute), 53
- result (*sevenbridges.Import* attribute), 53
- result (*sevenbridges.models.storage\_export.Export* attribute), 90
- result (*sevenbridges.models.storage\_import.Import* attribute), 91
- result() (*sevenbridges.transfer.upload.Upload* method), 98
- resume() (*sevenbridges.transfer.download.Download* method), 97

- resume () (*sevenbridges.transfer.upload.Upload method*), 98
- resumed\_from (*sevenbridges.AutomationRun attribute*), 41
- retried (*sevenbridges.models.compound.jobs.job.Job attribute*), 69
- revision (*sevenbridges.App attribute*), 49
- revision (*sevenbridges.models.app.App attribute*), 77
- role (*sevenbridges.models.team\_member.TeamMember attribute*), 94
- role (*sevenbridges.models.user.User attribute*), 95
- role (*sevenbridges.TeamMember attribute*), 58
- role (*sevenbridges.User attribute*), 44
- root\_folder (*sevenbridges.models.project.Project attribute*), 88
- root\_folder (*sevenbridges.Project attribute*), 47
- run () (*sevenbridges.models.task.Task method*), 93
- run () (*sevenbridges.Task method*), 48
- run () (*sevenbridges.transfer.download.Download method*), 97
- run () (*sevenbridges.transfer.upload.Upload method*), 98
- runner\_username (*sevenbridges.models.compound.billing.task\_breakdown.TaskBreakdown attribute*), 68
- RUNNING (*sevenbridges.AsyncJobStates attribute*), 59
- RUNNING (*sevenbridges.ImportExportState attribute*), 60
- running (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus attribute*), 73
- RUNNING (*sevenbridges.models.enums.AsyncJobStates attribute*), 80
- RUNNING (*sevenbridges.models.enums.AutomationStatus attribute*), 80
- RUNNING (*sevenbridges.models.enums.ImportExportState attribute*), 81
- RUNNING (*sevenbridges.models.enums.TaskStatus attribute*), 81
- RUNNING (*sevenbridges.models.enums.TransferState attribute*), 82
- RUNNING (*sevenbridges.TaskStatus attribute*), 60
- RUNNING (*sevenbridges.TransferState attribute*), 60
- running\_duration (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus attribute*), 73
- S**
- S3 (*sevenbridges.models.enums.VolumeType attribute*), 82
- S3 (*sevenbridges.VolumeType attribute*), 60
- save () (*sevenbridges.Automation method*), 40
- save () (*sevenbridges.AutomationMember method*), 42
- save () (*sevenbridges.AutomationPackage method*), 42
- save () (*sevenbridges.AutomationRun method*), 41
- save () (*sevenbridges.Dataset method*), 58
- save () (*sevenbridges.File method*), 52
- save () (*sevenbridges.Marker method*), 56
- save () (*sevenbridges.Member method*), 50
- save () (*sevenbridges.models.file.File method*), 84
- save () (*sevenbridges.models.marker.Marker method*), 86
- save () (*sevenbridges.models.member.Member method*), 87
- save () (*sevenbridges.models.project.Project method*), 89
- save () (*sevenbridges.models.task.Task method*), 93
- save () (*sevenbridges.models.team.Team method*), 94
- save () (*sevenbridges.models.volume.Volume method*), 96
- save () (*sevenbridges.Project method*), 47
- save () (*sevenbridges.Task method*), 48
- save () (*sevenbridges.Team method*), 57
- save () (*sevenbridges.Volume method*), 55
- SbgError, 61, 102
- schema (*sevenbridges.AutomationPackage attribute*), 42
- secondary\_files (*sevenbridges.File attribute*), 52
- secondary\_files (*sevenbridges.models.file.File attribute*), 84
- secret\_settings (*sevenbridges.Automation attribute*), 40
- send () (*sevenbridges.http.client.RequestSession method*), 63
- send () (*sevenbridges.models.actions.Actions class method*), 76
- SENT\_TO\_EXECUTION (*sevenbridges.models.enums.AutomationStatus attribute*), 80
- ServerError, 61, 102
- service (*sevenbridges.models.volume.Volume attribute*), 97
- service (*sevenbridges.Volume attribute*), 55
- ServiceUnavailable, 61, 102
- session (*sevenbridges.http.client.HttpClient attribute*), 63
- Settings (*class in sevenbridges.models.compound.projects.settings*), 41
- settings (*sevenbridges.AutomationRun attribute*), 41
- settings (*sevenbridges.models.project.Project attribute*), 89
- settings (*sevenbridges.Project attribute*), 47
- sevenbridges (*module*), 36
- sevenbridges.api (*module*), 99
- sevenbridges.config (*module*), 101
- sevenbridges.decorators (*module*), 101
- sevenbridges.errors (*module*), 101
- sevenbridges.http (*module*), 62

[sevenbridges.http.client \(module\), 62](#)  
[sevenbridges.http.error\\_handlers \(module\), 63](#)  
[sevenbridges.meta \(module\), 64](#)  
[sevenbridges.meta.collection \(module\), 64](#)  
[sevenbridges.meta.comp\\_mutable\\_dict \(module\), 64](#)  
[sevenbridges.meta.data \(module\), 64](#)  
[sevenbridges.meta.fields \(module\), 65](#)  
[sevenbridges.meta.resource \(module\), 65](#)  
[sevenbridges.meta.transformer \(module\), 66](#)  
[sevenbridges.models \(module\), 67](#)  
[sevenbridges.models.actions \(module\), 76](#)  
[sevenbridges.models.app \(module\), 76](#)  
[sevenbridges.models.billing\\_breakdown \(module\), 77](#)  
[sevenbridges.models.billing\\_group \(module\), 77](#)  
[sevenbridges.models.compound \(module\), 67](#)  
[sevenbridges.models.compound.billing \(module\), 67](#)  
[sevenbridges.models.compound.billing.invoice\\_breakdown \(module\), 67](#)  
[sevenbridges.models.compound.billing.projects\\_breakdown \(module\), 67](#)  
[sevenbridges.models.compound.billing.tasks\\_breakdown \(module\), 68](#)  
[sevenbridges.models.compound.error \(module\), 75](#)  
[sevenbridges.models.compound.files \(module\), 68](#)  
[sevenbridges.models.compound.files.download \(module\), 68](#)  
[sevenbridges.models.compound.files.file\\_service \(module\), 68](#)  
[sevenbridges.models.compound.files.file\\_storage \(module\), 69](#)  
[sevenbridges.models.compound.files.metadata \(module\), 69](#)  
[sevenbridges.models.compound.jobs \(module\), 69](#)  
[sevenbridges.models.compound.jobs.job \(module\), 69](#)  
[sevenbridges.models.compound.jobs.job\\_document \(module\), 70](#)  
[sevenbridges.models.compound.jobs.job\\_instance \(module\), 70](#)  
[sevenbridges.models.compound.jobs.job\\_instance\\_document \(module\), 70](#)  
[sevenbridges.models.compound.jobs.job\\_log \(module\), 70](#)  
[sevenbridges.models.compound.limits \(module\), 71](#)  
[sevenbridges.models.compound.limits.rate \(module\), 71](#)  
[sevenbridges.models.compound.markers \(module\), 71](#)  
[sevenbridges.models.compound.markers.position \(module\), 71](#)  
[sevenbridges.models.compound.price \(module\), 75](#)  
[sevenbridges.models.compound.price\\_breakdown \(module\), 76](#)  
[sevenbridges.models.compound.projects \(module\), 71](#)  
[sevenbridges.models.compound.projects.permissions \(module\), 71](#)  
[sevenbridges.models.compound.projects.settings \(module\), 71](#)  
[sevenbridges.models.compound.tasks \(module\), 72](#)  
[sevenbridges.models.compound.tasks.batch\\_by \(module\), 72](#)  
[sevenbridges.models.compound.tasks.batch\\_group \(module\), 72](#)  
[sevenbridges.models.compound.tasks.execution\\_status \(module\), 72](#)  
[sevenbridges.models.compound.tasks.input \(module\), 73](#)  
[sevenbridges.models.compound.tasks.output \(module\), 73](#)  
[sevenbridges.models.compound.volumes \(module\), 73](#)  
[sevenbridges.models.compound.volumes.import\\_destination \(module\), 73](#)  
[sevenbridges.models.compound.volumes.properties \(module\), 74](#)  
[sevenbridges.models.compound.volumes.service \(module\), 74](#)  
[sevenbridges.models.compound.volumes.volume\\_file \(module\), 74](#)  
[sevenbridges.models.compound.volumes.volume\\_object \(module\), 74](#)  
[sevenbridges.models.compound.volumes.volume\\_prefix \(module\), 75](#)  
[sevenbridges.models.division \(module\), 78](#)  
[sevenbridges.models.endpoints \(module\), 79](#)  
[sevenbridges.models.enums \(module\), 79](#)  
[sevenbridges.models.execution\\_details \(module\), 82](#)  
[sevenbridges.models.file \(module\), 82](#)  
[sevenbridges.models.invoice \(module\), 85](#)  
[sevenbridges.models.link \(module\), 85](#)  
[sevenbridges.models.marker \(module\), 86](#)  
[sevenbridges.models.member \(module\), 86](#)  
[sevenbridges.models.project \(module\), 87](#)  
[sevenbridges.models.rate\\_limit \(module\), 89](#)

- sevenbridges.models.storage\_export (*module*), 89
- sevenbridges.models.storage\_import (*module*), 90
- sevenbridges.models.task (*module*), 91
- sevenbridges.models.team (*module*), 93
- sevenbridges.models.team\_member (*module*), 94
- sevenbridges.models.user (*module*), 94
- sevenbridges.models.volume (*module*), 95
- sevenbridges.transfer (*module*), 97
- sevenbridges.transfer.download (*module*), 97
- sevenbridges.transfer.upload (*module*), 98
- sevenbridges.transfer.utils (*module*), 99
- simple\_progress\_bar() (*in module sevenbridges.transfer.utils*), 99
- size (*sevenbridges.File attribute*), 52
- size (*sevenbridges.models.compound.jobs.job\_instance\_disk.Disk attribute*), 70
- size (*sevenbridges.models.file.File attribute*), 84
- size (*sevenbridges.transfer.utils.Part attribute*), 99
- source (*sevenbridges.Export attribute*), 53
- source (*sevenbridges.Import attribute*), 54
- source (*sevenbridges.models.storage\_export.Export attribute*), 90
- source (*sevenbridges.models.storage\_import.Import attribute*), 91
- start (*sevenbridges.transfer.utils.Part attribute*), 99
- start () (*sevenbridges.transfer.download.Download method*), 97
- start () (*sevenbridges.transfer.upload.Upload method*), 99
- start\_time (*sevenbridges.AutomationRun attribute*), 41
- start\_time (*sevenbridges.models.compound.jobs.job.Job attribute*), 69
- start\_time (*sevenbridges.models.execution\_details.ExecutionDetails attribute*), 82
- start\_time (*sevenbridges.models.task.Task attribute*), 93
- start\_time (*sevenbridges.Task attribute*), 48
- start\_time (*sevenbridges.transfer.download.Download attribute*), 97
- start\_time (*sevenbridges.transfer.upload.Upload attribute*), 99
- started\_on (*sevenbridges.AsyncJob attribute*), 38
- started\_on (*sevenbridges.Export attribute*), 53
- started\_on (*sevenbridges.Import attribute*), 54
- started\_on (*sevenbridges.models.storage\_export.Export attribute*), 90
- started\_on (*sevenbridges.models.storage\_import.Import attribute*), 91
- state (*sevenbridges.AsyncJob attribute*), 38
- state (*sevenbridges.Export attribute*), 53
- state (*sevenbridges.Import attribute*), 54
- state (*sevenbridges.models.storage\_export.Export attribute*), 90
- state (*sevenbridges.models.storage\_import.Import attribute*), 91
- state (*sevenbridges.models.user.User attribute*), 95
- state (*sevenbridges.User attribute*), 44
- status (*sevenbridges.AutomationRun attribute*), 41
- status (*sevenbridges.models.compound.error.Error attribute*), 75
- status (*sevenbridges.models.compound.jobs.job.Job attribute*), 69
- status (*sevenbridges.models.execution\_details.ExecutionDetails attribute*), 82
- status (*sevenbridges.models.task.Task attribute*), 93
- status (*sevenbridges.Task attribute*), 48
- status (*sevenbridges.transfer.download.Download attribute*), 97
- status (*sevenbridges.transfer.upload.Upload attribute*), 99
- steps\_completed (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus attribute*), 73
- steps\_total (*sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus attribute*), 73
- STOP (*sevenbridges.AutomationRunActions attribute*), 59
- STOP (*sevenbridges.models.enums.AutomationRunActions attribute*), 80
- stop () (*sevenbridges.AutomationRun method*), 41
- stop () (*sevenbridges.transfer.download.Download method*), 97
- stop () (*sevenbridges.transfer.upload.Upload method*), 99
- STOPPED (*sevenbridges.models.enums.TransferState attribute*), 82
- STOPPED (*sevenbridges.TransferState attribute*), 60
- storage (*sevenbridges.File attribute*), 52
- storage (*sevenbridges.models.compound.price\_breakdown.Breakdown attribute*), 76
- storage (*sevenbridges.models.file.File attribute*), 84
- storage\_costs (*sevenbridges.Invoice attribute*), 43
- storage\_costs (*sevenbridges.models.invoice.Invoice attribute*), 85
- stream () (*sevenbridges.File method*), 52
- stream () (*sevenbridges.models.file.File method*), 84
- StringField (*class in sevenbridges.meta.fields*), 65
- submit () (*sevenbridges.transfer.download.DPartedFile method*), 97
- submit () (*sevenbridges.transfer.upload.UPartedFile method*), 98
- submit\_export () (*sevenbridges.Export class*

method), 53  
 submit\_export() (sevenbridges.models.storage\_export.Export class method), 90  
 submit\_import() (sevenbridges.Import class method), 54  
 submit\_import() (sevenbridges.models.storage\_import.Import class method), 91  
 SUBMITTED (sevenbridges.AsyncJobStates attribute), 59  
 SUBMITTED (sevenbridges.models.enums.AsyncJobStates attribute), 80  
 sync() (sevenbridges.App method), 49  
 sync() (sevenbridges.models.app.App method), 77  
 system\_limit (sevenbridges.models.compound.tasks.execution\_status.ExecutionStatus attribute), 73

## T

tags (sevenbridges.File attribute), 52  
 tags (sevenbridges.models.file.File attribute), 84  
 tags (sevenbridges.models.project.Project attribute), 89  
 tags (sevenbridges.Project attribute), 47  
 Task (class in sevenbridges), 47  
 Task (class in sevenbridges.models.task), 91  
 task (sevenbridges.models.compound.files.file\_origin.FileOrigin attribute), 69  
 task\_breakdown (sevenbridges.models.compound.billing.project\_breakdown.ProjectBreakdown attribute), 68  
 task\_cost (sevenbridges.models.compound.billing.task\_breakdown.TaskBreakdown attribute), 68  
 TaskBreakdown (class in sevenbridges.models.compound.billing.task\_breakdown), 68  
 TaskBulkRecord (class in sevenbridges.models.task), 93  
 tasks (sevenbridges.Api attribute), 37  
 tasks (sevenbridges.api.Api attribute), 100  
 tasks\_url (sevenbridges.Endpoints attribute), 45  
 tasks\_url (sevenbridges.models.endpoints.Endpoints attribute), 79  
 TaskStatus (class in sevenbridges), 60  
 TaskStatus (class in sevenbridges.models.enums), 81  
 TaskValidationError, 61, 102  
 TB (sevenbridges.models.enums.PartSize attribute), 81  
 TB (sevenbridges.PartSize attribute), 61  
 Team (class in sevenbridges), 57  
 Team (class in sevenbridges.models.team), 93  
 TeamMember (class in sevenbridges), 57  
 TeamMember (class in sevenbridges.models.team\_member), 94  
 teams (sevenbridges.Api attribute), 37  
 teams (sevenbridges.api.Api attribute), 100  
 terminal\_states (sevenbridges.models.enums.AutomationStatus attribute), 80  
 terminal\_states (sevenbridges.models.enums.TaskStatus attribute), 81  
 terminal\_states (sevenbridges.TaskStatus attribute), 60  
 THOUGHT (sevenbridges.models.enums.FeedbackType attribute), 80  
 throttle() (in module sevenbridges.decorators), 101  
 time\_finished (sevenbridges.models.compound.billing.task\_breakdown.TaskBreakdown attribute), 68  
 time\_started (sevenbridges.models.compound.billing.task\_breakdown.TaskBreakdown attribute), 68  
 to (sevenbridges.models.compound.billing.invoice\_period.InvoicePeriod attribute), 67  
 to\_app() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_async\_job() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_automation() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_automation\_member() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_automation\_package() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_billing\_group() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_dataset() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_datestring() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_division() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_export() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_file() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_import() (sevenbridges.meta.transformer.Transform static method), 66  
 to\_location() (sevenbridges.meta.transformer.Transform static method), 66



*bridges.meta.transformer.Transform method*), 66  
 to\_marker() (*sevenbridges.meta.transformer.Transform method*), 67  
 to\_member() (*sevenbridges.meta.transformer.Transform method*), 67  
 to\_project() (*sevenbridges.meta.transformer.Transform method*), 67  
 to\_resource() (*sevenbridges.meta.transformer.Transform method*), 67  
 to\_task() (*sevenbridges.meta.transformer.Transform static method*), 67  
 to\_team() (*sevenbridges.meta.transformer.Transform static method*), 67  
 to\_user() (*sevenbridges.meta.transformer.Transform static method*), 67  
 to\_volume() (*sevenbridges.meta.transformer.Transform static method*), 67  
 TooManyRequests, 61, 102  
 total (*sevenbridges.Invoice attribute*), 43  
 total (*sevenbridges.meta.collection.Collection attribute*), 64  
 total (*sevenbridges.meta.collection.VolumeCollection attribute*), 64  
 total (*sevenbridges.models.invoice.Invoice attribute*), 85  
 total\_files (*sevenbridges.AsyncJob attribute*), 38  
 total\_parts() (in module *sevenbridges.transfer.utils*), 99  
 total\_spending (*sevenbridges.BillingGroupBreakdown attribute*), 44  
 total\_spending (*sevenbridges.models.billing\_breakdown.BillingGroupBreakdown attribute*), 77  
 TransferState (class in *sevenbridges*), 60  
 TransferState (class in *sevenbridges.models.enums*), 81  
 Transform (class in *sevenbridges.meta.transformer*), 66  
 TRANSIENT (*sevenbridges.AppCopyStrategy attribute*), 59  
 TRANSIENT (*sevenbridges.models.enums.AppCopyStrategy attribute*), 79  
 type (*sevenbridges.AsyncJob attribute*), 38  
 type (*sevenbridges.AutomationMember attribute*), 42  
 type (*sevenbridges.BillingGroup attribute*), 43  
 type (*sevenbridges.File attribute*), 52  
 type (*sevenbridges.Member attribute*), 50  
 static type (*sevenbridges.models.billing\_group.BillingGroup attribute*), 78  
 static type (*sevenbridges.models.compound.files.file\_storage.FileStorage attribute*), 69  
 static type (*sevenbridges.models.compound.jobs.job\_instance.Instance attribute*), 70  
 static type (*sevenbridges.models.compound.jobs.job\_instance\_disk.Disk attribute*), 70  
 static type (*sevenbridges.models.compound.volumes.volume\_object.VolumeObject attribute*), 74  
 static type (*sevenbridges.models.file.File attribute*), 84  
 static type (*sevenbridges.models.member.Member attribute*), 87  
 static type (*sevenbridges.models.project.Project attribute*), 89  
 static type (*sevenbridges.models.task.Task attribute*), 93  
 static type (*sevenbridges.Project attribute*), 47  
 static type (*sevenbridges.Task attribute*), 48  
 static type (*sevenbridges.VolumeObject attribute*), 56  
**U**  
 Unauthorized, 61, 102  
 unit (*sevenbridges.models.compound.jobs.job\_instance\_disk.Disk attribute*), 70  
 UPartedFile (class in *sevenbridges.transfer.upload*), 98  
 update() (*sevenbridges.meta.comp\_mutable\_dict.CompoundMutableDict method*), 64  
 update() (*sevenbridges.models.compound.tasks.batch\_by.BatchBy method*), 72  
 update\_old() (*sevenbridges.meta.resource.Resource method*), 66  
 Upload (class in *sevenbridges.transfer.upload*), 98  
 upload() (*sevenbridges.File class method*), 52  
 upload() (*sevenbridges.models.file.File class method*), 84  
 UPLOAD\_MINIMUM\_PART\_SIZE (*sevenbridges.models.enums.PartSize attribute*), 81  
 UPLOAD\_MINIMUM\_PART\_SIZE (*sevenbridges.PartSize attribute*), 61  
 UPLOAD\_RECOMMENDED\_SIZE (*sevenbridges.models.enums.PartSize attribute*), 81  
 UPLOAD\_RECOMMENDED\_SIZE (*sevenbridges.PartSize attribute*), 61  
 upload\_url (*sevenbridges.Endpoints attribute*), 45  
 upload\_url (*sevenbridges.models.endpoints.Endpoints attribute*), 79  
 URITooLong, 102  
 url (*sevenbridges.models.compound.files.download\_info.DownloadInfo attribute*), 68  
 use\_interruptible\_instances (*sevenbridges.models.task.Task attribute*), 93

- use\_interruptible\_instances (*sevenbridges.Task* attribute), 48
  - User (class in *sevenbridges*), 44
  - User (class in *sevenbridges.models.user*), 94
  - user\_url (*sevenbridges.Endpoints* attribute), 45
  - user\_url (*sevenbridges.models.endpoints.Endpoints* attribute), 79
  - username (*sevenbridges.AutomationMember* attribute), 42
  - username (*sevenbridges.Member* attribute), 50
  - username (*sevenbridges.models.member.Member* attribute), 87
  - username (*sevenbridges.models.team\_member.TeamMember* attribute), 94
  - username (*sevenbridges.models.user.User* attribute), 95
  - username (*sevenbridges.TeamMember* attribute), 58
  - username (*sevenbridges.User* attribute), 44
  - UserProfile (class in *sevenbridges.config*), 101
  - users (*sevenbridges.Api* attribute), 38
  - users (*sevenbridges.api.Api* attribute), 100
  - users\_url (*sevenbridges.Endpoints* attribute), 45
  - users\_url (*sevenbridges.models.endpoints.Endpoints* attribute), 79
  - UuidField (class in *sevenbridges.meta.fields*), 65
- ## V
- valid (*sevenbridges.BulkRecord* attribute), 58
  - validate() (*sevenbridges.meta.fields.BasicListField* method), 65
  - validate() (*sevenbridges.meta.fields.BooleanField* method), 65
  - validate() (*sevenbridges.meta.fields.Field* method), 65
  - validate() (*sevenbridges.meta.fields.FloatField* method), 65
  - validate() (*sevenbridges.meta.fields.IntegerField* method), 65
  - validate() (*sevenbridges.meta.fields.StringField* method), 65
  - validate() (*sevenbridges.meta.fields.UuidField* method), 65
  - ValidationError, 61, 102
  - value (*sevenbridges.http.client.AAHeader* attribute), 62
  - value (*sevenbridges.models.compound.tasks.batch\_group.BatchGroup* attribute), 72
  - version (*sevenbridges.AutomationPackage* attribute), 42
  - Volume (class in *sevenbridges*), 54
  - Volume (class in *sevenbridges.models.volume*), 95
  - VOLUME (*sevenbridges.FileStorageType* attribute), 59
  - volume (*sevenbridges.models.compound.files.file\_storage.FileStorage* attribute), 69
  - volume (*sevenbridges.models.compound.volumes.volume\_file.VolumeFile* attribute), 74
  - volume (*sevenbridges.models.compound.volumes.volume\_object.VolumeObject* attribute), 74
  - volume (*sevenbridges.models.compound.volumes.volume\_prefix.VolumePrefix* attribute), 75
  - VOLUME (*sevenbridges.models.enums.FileStorageType* attribute), 80
  - volume (*sevenbridges.VolumeObject* attribute), 56
  - VolumeAccessMode (class in *sevenbridges*), 60
  - VolumeAccessMode (class in *sevenbridges.models.enums*), 82
  - VolumeCollection (class in *sevenbridges.meta.collection*), 64
  - VolumeFile (class in *sevenbridges.models.compound.volumes.volume\_file*), 74
  - VolumeLink (class in *sevenbridges.models.link*), 86
  - VolumeObject (class in *sevenbridges*), 55
  - VolumeObject (class in *sevenbridges.models.compound.volumes.volume\_object*), 74
  - VolumePrefix (class in *sevenbridges.models.compound.volumes.volume\_prefix*), 75
  - VolumeProperties (class in *sevenbridges.models.compound.volumes.properties*), 74
  - volumes (*sevenbridges.Api* attribute), 38
  - volumes (*sevenbridges.api.Api* attribute), 100
  - VolumeService (class in *sevenbridges.models.compound.volumes.service*), 74
  - VolumeType (class in *sevenbridges*), 60
  - VolumeType (class in *sevenbridges.models.enums*), 82
- ## W
- wait() (*sevenbridges.models.task.Task* method), 93
  - wait() (*sevenbridges.Task* method), 48
  - wait() (*sevenbridges.transfer.download.Download* method), 97
  - wait() (*sevenbridges.transfer.upload.Upload* method), 99
  - warnings (*sevenbridges.models.task.Task* attribute), 93
  - BatchGroup (*sevenbridges.Task* attribute), 48
- ## Y
- YAML (*sevenbridges.AppRawFormat* attribute), 59
  - YAML (*sevenbridges.models.enums.AppRawFormat* attribute), 79
- ## Z
- zip\_code (*sevenbridges.models.user.User* attribute), 95

zip\_code (*sevenbridges.User* attribute), 44