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# **dymaxionlabs Documentation**

*Release unknown*

**Dymaxion Labs**

**Oct 07, 2019**



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This is the Python package for accessing the Dymaxion Labs Platform.



# CHAPTER 1

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## Features

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The Dymaxion Labs Platform allows you:

- Download and upload satellite and drone images.
- Train machine learning models for object detection, segmentation, change detection, and more.
- Work your data using a REST API and Python.

This is a publicly installable package. However, if you want access to our full Platform, you will need to create a Dymaxion Labs account.





## CHAPTER 2

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### Install

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Install the latest client package via pip:

```
pip install dymaxionlabs
```



## CHAPTER 3

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### Authentication

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Sing up at <https://app.dymaxionlabs.com/signup> if you don't have a user yet, otherwise log in.

When entering the first time, you will be asked to create a new Project. After naming your project you will enter the main dashboard. Take note of your Project Id.

Now enter the API Key section, create a new API key and copy the generated key.

You need to set both keys as environment variables, like this:

```
export DYM_API_KEY=...  
export DYM_PROJECT_ID=...
```

You can also do this from Python:

```
import os  
  
os.environ["DYM_API_KEY"] = "insert-api-key"  
os.environ["DYM_PROJECT_ID"] = "insert-project-id"
```

From now on, you have full access to the Dymaxion Labs API from Python.



## CHAPTER 4

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### Examples

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To use your models for predicting, you have to know their UUID.

You can obtain this by visiting the models page: <https://app.dymaxionlabs.com/home/models>. Click on the Edit button of your model, then on Show UUID menu option. Copy this and pass it as parameter to the `Estimator` constructor.

You can predict objects in local images. For example, if you have `img.jpg`:

```
import time
from dymaxionlabs.models import Estimator

model = Estimator('b4676699-27c8-4193-a24c-cffaf88cce92')

job = model.predict_files(local_files=['./img.jpg'])

# Wait for results
while not job.status():
    print("Waiting for results...")
    time.sleep(60)

# Download results to ./results directory (will be created if not exists)
job.download_results("./results")
```

or use previously uploaded files (*remote*)

```
import time
from dymaxionlabs.models import Estimator, Project

project = Project()
files = project.files()
first_file = files[0]

model = Estimator('b4676699-27c8-4193-a24c-cffaf88cce92')

job = model.predict_files(remote_files=[first_file.name])
```

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```
# Wait for results
while not job.status():
    print("Waiting for seconds results...")
    time.sleep(60)

# Download results to ./results directory (will be created if not exists)
job.download_results("./results")
```

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## 5.2 Contributors

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## 5.3 Changelog

### 5.3.1 Version 0.1

- Upload and download files
- Predict using a trained estimator

## 5.4 dymaxionlabs

### 5.4.1 dymaxionlabs package

#### Submodules

#### dymaxionlabs.files module

```
class dymaxionlabs.files.File (project, name, metadata)  
    Bases: object
```

```
download()  
    Download file and save it to +output_dir+  
    If the directory does not exist it will be created.
```

Parameters **output\_dir** – path to store file

```
dymaxionlabs.files.download (filename, output_dir='')  
    Download a file named +filename+ to +output_dir+
```

If the output directory does not exist it will be created.

#### Parameters

- **filename** – image name
- **output\_dir** – local destination to store the image

```
dymaxionlabs.files.upload (filename)  
    Upload a file named +filename+
```

Parameters -- **path to local file** (*filename*) –

**Returns** Returns the detail of the object that was created in DymaxionLabs's server

**Raises** `FileExistsError` – The filename argument does not correspond to an existing file

## dymaxionlabs.models module

**class** `dymaxionlabs.models.Estimator (uuid)`

Bases: `object`

Class that represents an Estimator in DymaxionLabs API

**classmethod** `all ()`

Obtain all UUIDs of estimators from your project

**Returns** Returns an array of UUIDs

**predict\_files** (*remote\_files=[], local\_files=[]*)

Predict files

This function will start a prediction job over the specified files. You can predict over already upload images by providing a list of `+remote_files+`, or over images in your disk by providing a list of `+local_files+`. Local files will be uploaded before prediction.

**Parameters**

- **remote\_files** – array of string with the names of already uploaded files
- **local\_files** – array of string with the names of local files

**Returns** Returns a dict with info about the new PredictionJob

**class** `dymaxionlabs.models.PredictionJob (id, estimator, finished, image_files, result_files)`

Bases: `object`

Class that represents a PredictionJob in DymaxionLabs API

A PredictionJob is a background job that performs the prediction using a previously trained Estimator and your uploaded images.

**download\_results** (*output\_dir='.'*)

Download results from a finished PredictionJob

**Parameters** **output\_dir** – path for storing results

**status** ()

Get status of a PredictionJob

**Returns** Returns a boolean whether the job finished or not

**class** `dymaxionlabs.models.Project`

Bases: `object`

**files** ()

Obtain all info about the uploaded files from your project

**Returns** Returns a array of File objects

## dymaxionlabs.utils module

`dymaxionlabs.utils.get_api_key ()`

Get current API Key from environment

```
dymaxionlabs.utils.get_api_url()
```

Get current API URL from environment

```
dymaxionlabs.utils.get_project_id()
```

Get current Project uuid from environment

## **Module contents**

Package to integrate the DymaxionLabs's functionality:

- Upload images
- Predict imagenets based in object detection models
- Download results

## CHAPTER 6

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