



Google Earth Engine API

September 2, 2026

maXbox Starter Tutorial 194

Google Earth Engine combines a multi-petabyte catalog of satellite imagery and geospatial datasets with planetary-scale analysis capabilities. Scientists, researchers, and developers use Earth Engine to detect changes, map trends, and quantify differences on the Earth's surface. Earth Engine is now available for commercial use, and remains free for **academic and research** use.

We take a short look at the following API:

[GitHub – google/earthengine-api: Python and JavaScript bindings for calling the Earth Engine API. · GitHub](#)

Python and JavaScript client libraries for calling the Google Earth Engine API.

- [Earth Engine Homepage](#)
- [Web Code Editor](#)
- [Python Installation](#)

Here's an example screenshot and the corresponding Code Editor JavaScript code:

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Google Earth Engine API

Python and JavaScript client libraries for calling the Google Earth Engine API.

- [Earth Engine Homepage](#)
- [Web Code Editor](#)
- [Python Installation](#)

Here's an example screenshot and the corresponding Code Editor JavaScript code:

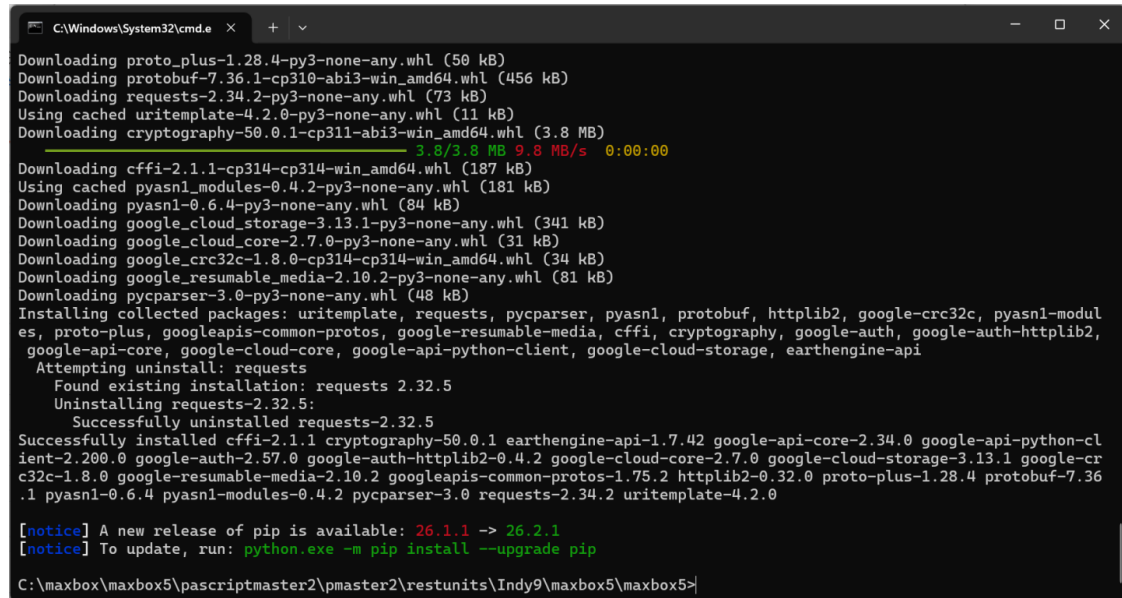


```
// Compute the trend of night-time   
  
// Adds a band containing image data  
function createTimeBand(img) {  
  var year = ee.Date(img.get('system:time_start')).getYear()  
  return ee.Image(year).byte().addB  
}
```

Python Code Example

First we have to install the Python Lib:

```
py -3.14 -m pip install earthengine-api
```



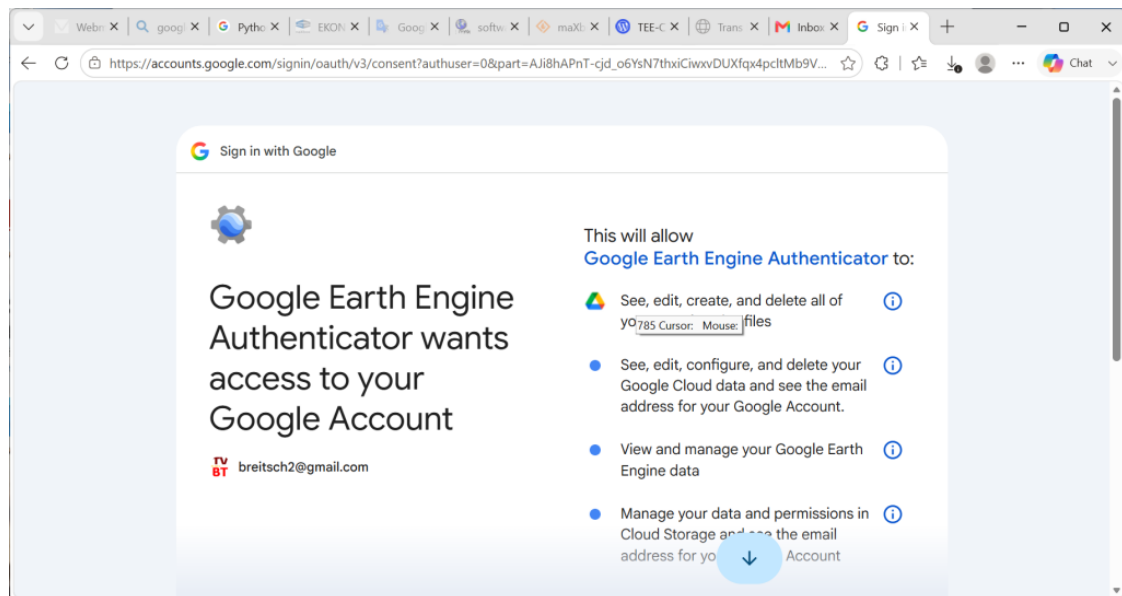
```
C:\Windows\System32\cmd.exe
Downloading proto-plus-1.28.4-py3-none-any.whl (50 kB)
Downloading protobuf-7.36.1-cp310-abi3-win_amd64.whl (456 kB)
Downloading requests-2.34.2-py3-none-any.whl (73 kB)
Using cached uritemplate-4.2.0-py3-none-any.whl (11 kB)
Downloading cryptography-50.0.1-cp311-abi3-win_amd64.whl (3.8 MB)
3.8/3.8 MB 9.8 MB/s 0:00:00
Downloading cffi-2.1.1-cp314-cp314-win_amd64.whl (187 kB)
Using cached pyasn1-modules-0.4.2-py3-none-any.whl (181 kB)
Downloading pyasn1-0.6.4-py3-none-any.whl (84 kB)
Downloading google-cloud-storage-3.13.1-py3-none-any.whl (341 kB)
Downloading google-cloud-core-2.7.0-py3-none-any.whl (31 kB)
Downloading google-crc32c-1.8.0-cp314-cp314-win_amd64.whl (34 kB)
Downloading google-resumable-media-2.10.2-py3-none-any.whl (81 kB)
Downloading pycparser-3.0-py3-none-any.whl (48 kB)
Installing collected packages: uritemplate, requests, pycparser, pyasn1, protobuf, httplib2, google-crc32c, pyasn1-modul
es, proto-plus, googleapis-common-protos, google-resumable-media, cffi, cryptography, google-auth, google-auth-http2,
google-api-core, google-cloud-core, google-api-python-client, google-cloud-storage, earthengine-api
Attempting uninstall: requests
Found existing installation: requests 2.32.5
Uninstalling requests-2.32.5:
Successfully uninstalled requests-2.32.5
Successfully installed cffi-2.1.1 cryptography-50.0.1 earthengine-api-1.7.42 google-api-core-2.34.0 google-api-python-cl
ient-2.200.0 google-auth-2.57.0 google-auth-http2-0.4.2 google-cloud-core-2.7.0 google-cloud-storage-3.13.1 google-cr
c32c-1.8.0 google-resumable-media-2.10.2 googleapis-common-protos-1.75.2 httplib2-0.32.0 proto-plus-1.28.4 protobuf-7.36
.1 pyasn1-0.6.4 pyasn1-modules-0.4.2 pycparser-3.0 requests-2.34.2 uritemplate-4.2.0

[notice] A new release of pip is available: 26.1.1 -> 26.2.1
[notice] To update, run: python.exe -m pip install --upgrade pip

C:\maxbox\maxbox5\pascriptmaster2\pmaster2\restunits\Indy9\maxbox5\maxbox5>
```

PIP Protocol

Then we open a project (used or new) with an existing google account:



Authenticator to use the API

Earth Engine runs in Google Cloud and requires Cloud Projects for access and API management. All Earth Engine calls (whether from the code editor, client

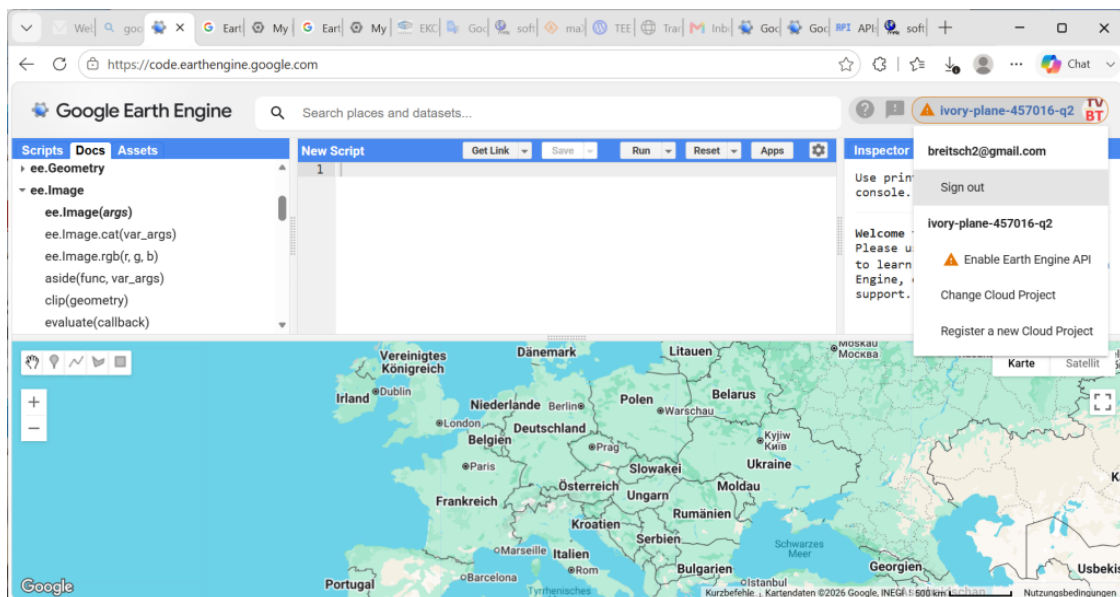
libraries, apps, or the REST API) are routed through a Cloud Project. This allows you to use the Cloud Console for access control, resource management, and usage monitoring. After that we got an access:

Google Earth Engine authorization successful!

Credentials have been retrieved. Please close this window.



Projects created during registration can be managed in the Google Cloud Console. You can enable or disable the Earth Engine API on the “Earth Engine API” page in the Cloud Console.



Each Project has Enabler / Disabler

Clientlibraries (Python, JavaScript)

The `ee.Initialize()` function specifies a project for Earth Engine requests originating from the Python and JavaScript client libraries. There are several ways to configure the project specification. See the Authentication and Initialization page for more information.

This code can be automatised with Python4Delphi in maXbox:

```
1 | function PyCode2GoogleEarthEngineAPI(my_project, aAPIKey: str)
```

```

2  begin
3  with TPythonEngine.Create(nil) do begin
4  try
5      loadDLL;
6      autofinalize:= false;
7      ExecString('import io,sys');
8      execString('import ee');
9      execStr('ee.Authenticate()');
10     execstr('output = io.StringIO()') //for print out
11     ExecStr('ee.Initialize(project="'+my_project+'"'+lf+
12             //'files = {"image": image_file_descriptor}'+lf+
13             //'headers= {"X-API-Key":'+aAPIKey+'}'+lf+
14             'print(ee.String("Hello from Earth Engine servers'))');
15     println(stringreplace(evalstr('output.getvalue().strip()
16                                     #10,#13#10,[rfReplaceAll, rfIgnore
17                                     //result:= ((EvalStr('r.json()'))));
18 except
19     raiseError;
20 finally
21     free;
22 end;
23 end;
24 end;

```

[ngine_API1.7.txt/download](#)

If you want to associate Earth Engine calls from the command-line tool with a cloud project, use the `–project` parameter in your call to `earthengine` or set a default project with `set_project`.

The path to the credentials is stored in the `GOOGLE_APPLICATION_CREDENTIALS` environment variable. To authenticate and initialize Earth Engine using the credentials, see the snippet below.

```
1 import json
2 import os
3
4 from google.auth import identity_pool
5
6 scopes = [
7     "https://www.googleapis.com/auth/cloud-platform",
8     "https://www.googleapis.com/auth/earthengine",
9 ]
10 path = os.environ["GOOGLE_APPLICATION_CREDENTIALS"]
11 info = json.load(open(path))
12 credentials = identity_pool.Credentials.from_info(info).with_
13 ee.Initialize(credentials, project=credentials.project_number)
```

When no used project can be found or the enabler is blocked you got an exception:

Exception: EEEException: Google Earth Engine API has not been used in project ivory-plane-457016-q2 before or it is disabled. Enable it by visiting <https://console.developers.google.com/apis/api/earthengine.googleapis.com/overview?project=ivory-plane-457016-q2> then retry.

If you enabled this API recently, wait a few minutes for the action to propagate to our systems and retry.

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