

Pointly

API Specification

Version 1

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1. Getting started

The Pointly API can be used to utilize Pointly's Standard or Custom Classification models via a programming interface. Pointly API aims to automate the classification process as much as possible and make it convenient to process large datasets and to integrate Pointly models into other platforms.

We offer you a simple and easy-to-use set of endpoints which makes it possible to classify your point clouds in an automated way. Plus, you have an API page in Pointly app with useful statistics.

! ! ! Please keep in mind by default the API access is not enabled. Feel free to [contact us](#) for further information and to get started.

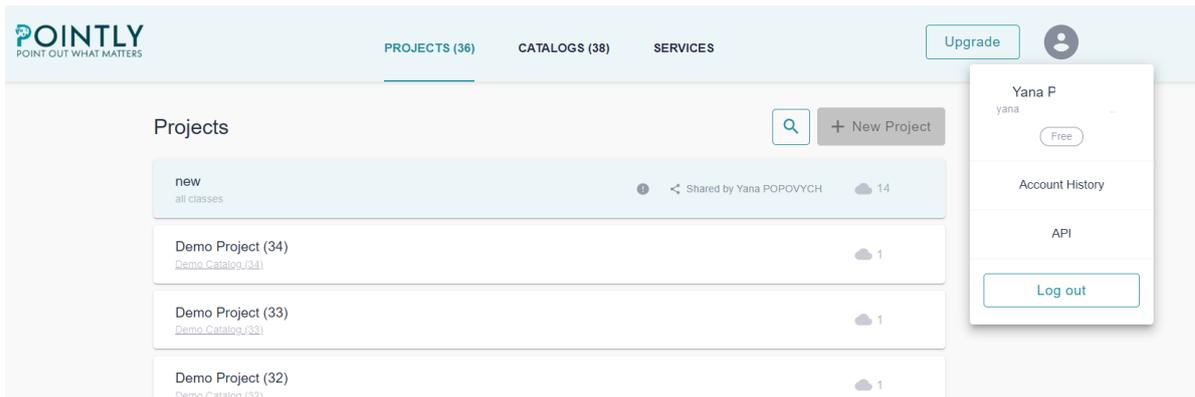
1.1. Payment and Account Limits

Billing for the API is usage-based and will be billed monthly. The accounting period ends on the last day of the month and payment is due within 14 days after receiving the invoice. This means that you pay for the number of points in your uploaded and successfully processed point clouds at the end of every month. The default monthly limit is 500 MPoints, and it's reset every first day of each month. The default limit can be extended at any time, so please contact us if you want to process larger amounts of data.

Please keep in mind that Pointly app and API subscriptions are billed independently. A Pointly Professional subscription is not required to use the API. Also, limits in Pointly app and API are tracked separately.

1.2. API Page

You can easily find the API section by clicking the Account icon in the upper right corner of Pointly app and then choosing API.



You can find information including your API credentials, current usage, and processing history on this page.

1.2.1. Client Credentials

The Client Credentials consist of a user's name (a UUID, unique identifier) and a client secret (a long unique string, which is next to impossible to guess). The Client Credentials differ from the Pointly web app login credentials, and even user's names are different. Client Credentials do not work to login to the Pointly web app, and vice versa: Pointly web app login does not allow to work with API.

Contact us, and we will generate Client Credentials for you. Once they are activated, you can find them on the appropriate widget on your API page.

1.2.2. Balance

This widget allows you to track your current balance easily and see how much of the monthly limit is used. The balance is displayed in the format n/N , where n is the number of uploaded points via API (for the current payment period), and N is your total limit for uploaded points.

1.2.3. Number of uploaded points for a period

This widget helps you to check the number of successfully uploaded points for a specific period. All you need is to set the Start and End dates. By default, it displays the number of points for the current payment period.

1.2.4. History of uploaded clouds

The history of uploaded files allows you to check all uploads to the system via API. This table provides you with a quick overview of each cloud and gives such details as the clouds' name, ID, creation date, points, status, and the name of the applied classifier.

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Pointly API

The Pointly API can be used to utilize Pointly's Standard or Custom Classification models via a programming interface. On this page you can find information about your API credentials, current usage and processing history. By default the API access is not enabled. Please contact us for further information and to get started.

To get access to the API or in case you have any questions, please contact us via email: info@pointly.ai
 Api specification: [Link](#)

Usage current month ⓘ

±251K/500M

■ Available
■ Used

Processed points
In selected period

±251K

From: 2022-12-01 To: 2022-12-20

Credentials

Name: cb1c384-921a-4ca3-a6fd-a6867be80ad1

Secret: [REDACTED]

Activated: 2022-12-20

File name	Cloud ID	Creation date	Points	Status	Applied model
Test Cloud 3	4509b1d4-3e7d-42cf-a485-3631ebaf142d	2022-12-20	—	• Queued	Ground Classifie...
Test Cloud 2	eb8fc2a6-fba2-4235-bd87-67717c2efe74	2022-12-20	—	• Processing	Ground Classifie...
Test Cloud 1	ef1c658a-96d5-4875-a8f2-a8591223b65b	2022-12-20	±251K	• Ready	Ground Classifie...

2. Errors

Pointly uses conventional HTTP response codes to indicate the success or failure of an API request. In general: Codes in information the 2xx range indicate success. Codes in the 4xx range indicate an error that failed because of wrong input (e.g., a required parameter was omitted, etc.). Codes in the 5xx range indicate an error with Pointly's side (these are rare). For more details about status codes look [here](#).

Some 4xx errors that could be handled programmatically include an error code that briefly explains the error reported.

Common HTTP Status Codes	
200 - OK	The request succeeded. The result meaning of "success" depends on the HTTP method.
201 - Created	The request has succeeded and has led to the creation of a resource.
400 - Bad Request	The server cannot or will not process the request due to something that is perceived to be a client error (e.g., malformed request syntax, invalid request message framing, or deceptive request routing).

401 - Unauthorized	The client must authenticate itself to get the requested response. Access token is missing or invalid
403 - Forbidden	The client doesn't have access rights to perform the request.
404 - Not Found	The requested resource doesn't exist.
500 Internal Server Error	Something went wrong on Pointly side (These are rare.)

3. Endpoints

Below you will find the list of available endpoints and their brief description including Request and Successful Response Examples. Please pay attention that all requests have links as a variable. In the following examples replace {api-url} with one of the URL's specified below:

Pointly production environment: {api-url} = <https://api.pointly.ai>

3.1. Token

Request

cURL

```
curl --location --request POST '{api-url}/sts/connect/token' \
--header 'Content-Type: application/x-www-form-urlencoded' \
--data-urlencode 'client_id=8b2dda30-7de4-4390-9ee3-f67100181705' \
--data-urlencode 'client_secret=iym2b2SRolwqibjMjPVoAuXXo1HX655y6uuU' \
--data-urlencode 'grant_type=client_credentials' \
--data-urlencode 'scope=api'
```

You can find "client_id" and "client_secret" on API page.

Response Example

JSON

```
{
  "access_token": "TOKEN",
  "expires_in": 3600,
  "token_type": "Bearer",
  "scope": "api"
}
```

“expires_in” is in seconds.

3.2. Classifiers

Standard classifiers are trained models that can be used to classify point clouds automatically on upload. Each model is trained for a specific data type and set of objects.

Like the standard classifiers, Pointly offers you the training of custom classifiers. These are models which are trained accordingly to your requirements and available solely for you and your organization. Feel free to contact us to get more details on this.

3.2.1. Get all available classifiers

This endpoint allows you to see the list of all standard classifiers available for your account.

Request

cURL

```
curl --location --request GET '{api-url}/api/v1/standard-classifiers' \
--header 'Authorization: Bearer TOKEN'
```

Response Example

JSON

```
{
  "data": [
    {
      "id": "d032ca61-a438-413e-95aa-2298f3414e8d",
      "description": "Detect low point noise and ground",
      "name": "Ground Classifier (optimized for aerial lidar data)",
      "standardClasses": [
        {
          "classCode": 0,
          "colorCode": "#969696",
          "name": "Low Point (noise)",
          "description": ""
        },
        {
          "classCode": 2,
          "colorCode": "#795548",
          "name": "Ground",
          "description": "Ground"
        }
      ]
    },
    {
      "id": "fea078ee-3249-4322-b224-54ae13e3d442",
      "description": "Please note: This classifier is deprecated and will be removed soon.",
      "name": "Standard Classifier - Airborne Laser Scans",
      "standardClasses": [
        {
          "classCode": 2,
          "colorCode": "#795548",
          "name": "Ground",
          "description": "Ground"
        },
        {
          "classCode": 7,
          "colorCode": "#BF360C",
          "name": "Low Point (noise)",
          "description": "Low Point (noise)"
        }
      ]
    }
  ],
  "errors": null
}
```

3.2.2. Get the classifier by ID

It allows you to retrieve information on a specific classifier.

Request

cURL

```
curl --location --request GET '{api-url}/api/v1/standard-classifiers/{classifier_id}' \  
--header 'Authorization: Bearer TOKEN'
```

Response Example

JSON

```
{  
  "data": {  
    "id": "731db3b6-d399-4155-8489-4d538e46fa4d",  
    "description": "Detect low point noise and ground.",  
    "name": "Ground Classifier (optimized for aerial lidar data)",  
    "standardClasses": [  
      {  
        "classCode": 0,  
        "colorCode": "#969696",  
        "name": "Created, never classified",  
        "description": ""  
      },  
      {  
        "classCode": 2,  
        "colorCode": "#795548",  
        "name": "Ground",  
        "description": "Ground"  
      },  
      {  
        "classCode": 7,  
        "colorCode": "#BF360C",  
        "name": "Low Point (noise)",  
        "description": "Low Point (noise)"  
      }  
    ]  
  },  
  "errors": null  
}
```

3.3. Upload a point cloud

The process consists of 3 steps. Also, it includes point clouds processing by standard or custom classifiers. Please keep in mind that only **one** classifier could be applied to the cloud at the same time. In case you'd like to apply several classifiers, you need to upload the same cloud separately for each classifier.

3.3.1. Create a point cloud

This endpoint creates a new entity in the database. On that step you can name your cloud and specify a classifier which should be applied to the cloud. As an output you receive a Cloud ID that you would need in the next steps.

Keep in mind that all timestamps are in UTC.

Request

cURL

```
curl --location --request POST '{api-url}/api/v1/api-clouds' \  
--header 'Authorization: Bearer TOKEN \  
--header 'Content-Type: application/json' \  
--data-raw '{  
  "name": "cloud_11-12-2021",  
  "type": "laz",  
  "classifierId": "d032ca61-a438-413e-95aa-2298f3414e8d"  
}'
```

"name" is a point cloud name,

"type" is format of the uploaded file, valid values are "las" and "laz",

"classifierId" is the ID of classifier with which you would like to classify the cloud.

Response Example

JSON

```
{  
  "data": {  
    "result": "02550bfd-5015-4be4-9f81-d0b8529179ab"  
  },  
  "errors": null  
}
```

3.3.2. Get the link to Upload the cloud

Once the entity is created, you can request a link where the file can be uploaded. Note that the link is valid for 20 hours from the moment it is created. Also, it's a one-time link.

You can get the link to upload the cloud with the endpoint below:

Request

cURL

```
curl --location --request GET '{api-url}/api/v1/api-clouds/{Cloud_ID}/upload-url' \
--header 'Authorization: Bearer TOKEN'
```

Response Example

JSON

```
{
  "data": {
    "url": "https://pointlytestapicloud01.blob.core.windows.net/8b2dda30-7de4-4390-9ee3-f67100181705-clouds/02550bfd-5015-4be4-9f81-d0b8529179ab/Test%20cloud.laz?sv=2021-08-06&se=2022-11-22T09%3A38%3A34Z&sr=b&sp=w&sig=01U0Fi6xcl5qfrx3rDeGq550RiA%2Bqa9ZrVk1qZQDmXc%3D"
  },
  "errors": null
}
```

3.3.3. Uploading the file

And finally, when you have the link, you can use the endpoint below to upload the file to the system. Once the upload is completed, the file will be processed and classified right away.

Request

cURL

```
curl --location --request PUT '{url}' \
--header 'x-ms-blob-type: BlockBlob' \
--header 'Content-Type: application/octet-stream' \
--data-binary 'Path_to_your_file'
```

{url} is value for "url" taken from the previous endpoint's response

Response Example

201 Created

Please note that you could also upload the cloud in chunks which might be convenient for big files. Feel free to check [Operations on Block Blobs](#) by Microsoft to get more details.

The size of the file shouldn't exceed 5 Gb and 150 MPoints (the point cloud shouldn't consist of more than 150 MPoints).

3.4. Get all Clouds

You can always retrieve the list of all available clouds, including the ones with Status Failed. Note that deleted clouds are not shown in the list.

Request

cURL

```
curl --location --request GET '{api-url}/api/v1/api-clouds/all' \  
--header 'Authorization: Bearer TOKEN'
```

Response Example

JSON

```
{
  "data": [
    {
      "id": "896a37f2-f509-4fc8-a7f9-e44d30174137",
      "createdAt": "2022-11-11T14:10:52.516Z",
      "name": "test4",
      "ownerId": "8b2dda30-7de4-4390-9ee3-f67100181705",
      "pointCount": null,
      "status": 5,
      "statusDescription": "Failed",
      "standardClassifierId": "fea078ee-3249-4322-b224-54ae13e3d442",
      "type": "laz",
      "path": "8b2dda30-7de4-4390-9ee3-f67100181705-clouds/896a37f2-f509-4fc8-a7f9-e44d30174137/test4.laz"
    },
    {
      "id": "9307b743-f05a-49ef-b6b0-e40cc9962b3b",
      "createdAt": "2022-11-18T10:59:21.174Z",
      "name": "Test limits11",
      "ownerId": "8b2dda30-7de4-4390-9ee3-f67100181705",
      "pointCount": 660000,
      "status": 4,
      "statusDescription": "Ready",
      "standardClassifierId": "d032ca61-a438-413e-95aa-2298f3414e8d",
      "type": "laz",
      "path": "8b2dda30-7de4-4390-9ee3-f67100181705-clouds/9307b743-f05a-49ef-b6b0-e40cc9962b3b/Test limits11.laz"
    }
  ],
  "errors": null
}
```

3.5. Get a point cloud by ID

This endpoint returns you the information on a particular cloud. It is especially useful if you want to check the cloud's status and know if it's still processing or ready to be downloaded.

Request

cURL

```
curl --location --request GET '{api-url}/api/v1/api-clouds/{Cloud_ID}' \  
--header 'Authorization: Bearer TOKEN'
```

Response Example

JSON

```
{  
  "data": {  
    "id": "db683f70-f189-4afe-acc0-faab338855eb",  
    "createdAt": "2022-11-11T14:59:57.520Z",  
    "name": "test4",  
    "ownerId": "8b2dda30-7de4-4390-9ee3-f67100181705",  
    "pointCount": null,  
    "status": 5,  
    "statusDescription": "Failed",  
    "standardClassifierId": "fea078ee-3249-4322-b224-54ae13e3d442",  
    "type": "laz",  
    "path": "8b2dda30-7de4-4390-9ee3-f67100181705-clouds/db683f70-f189-4afe-acc0-faab338855eb/test4.laz"  
  },  
  "errors": null  
}
```

3.6. Download a point cloud

This option allows you to get the link to the successfully processed and classified cloud in status Ready so you can download it. This URL is totally secured and can be used only to download the file which you requested. Note that the link is valid for 20 hours from the moment it is created.

Request

cURL

```
curl --location --request GET '{api-url}/api/v1/api-clouds/{Cloud_ID}/download-url' \  
--header 'Authorization: Bearer TOKEN'
```

Response Example

JSON

```
{
  "data": {
    "url": "https://pointlytestapicloud01.blob.core.windows.net/8b2dda30-7de4-4390-9ee3-f67100181705-clouds/1352fec3-aded-4c68-93d4-368b5a55a669/Test%20limits2.laz?sv=2021-08-06&se=2022-11-23T06%3A20%3A10Z&sr=b&sp=r&sig=lp0Vxlaj4WuuR7C1DdjB5nqM9jCiJramrTr1dCNcgoU%3D"
  },
  "errors": null
}
```

3.7. Delete a point cloud

All processed files will be available for download in 10 days. Then they will expire and be automatically removed from the system. Though you can also delete files earlier using this API method. Expired and deleted point clouds are displayed on your API History page with different statuses: Expired and Deleted respectively.

Request

cURL

```
curl --location --request DELETE '{api-url}/api/v1/api-clouds/{Cloud_ID}' \
--header 'Authorization: Bearer TOKEN'
```

Response Example

JSON

```
{
  "data": {
    "result": "896a37f2-f509-4fc8-a7f9-e44d30174137"
  },
  "errors": null
}
```

3.8. Check the number of uploaded points

Using this endpoint, you can easily check your usage and the number of successfully uploaded points for a specific period.

Request

cURL

```
curl --location --request GET '{api-url}/api/v1/api-clouds/processed-points?&startDate={date}&endDate={date}' \  
--header 'Authorization: Bearer TOKEN'
```

{date} is a date in format *YYYY-mm-dd*. Start date should not exceed the End date.

Keep in mind that all timestamps are in UTC.

Response Example

JSON

```
{  
  "data": {  
    "points": 503125782,  
    "startDate": "2022-11-01",  
    "endDate": "2022-11-21"  
  },  
  "errors": null  
}
```