Cloud AutoML Vision

Training Cloud-hosted models

You create a custom model by training it using a prepared dataset (https://cloud.google.com/vision/automl/docs/create-datasets). AutoML API uses the items from the dataset to train the model, test it, and evaluate (https://cloud.google.com/vision/automl/docs/evaluate) its performance. You review the results, adjust the training dataset as needed, and train a new model using the improved dataset.

Training a model can take several hours to complete. The AutoML API enables you to check the status (https://cloud.google.com/automl/docs/reference/rest/v1/projects.locations.operations/get) of training.

Since AutoML Vision creates a new model each time you start training, your project may include numerous models. You can get a list of the models in your project (https://cloud.google.com/vision/automl/docs/models#list-models) can delete models (https://cloud.google.com/vision/automl/docs/models#delete-model) you no longer need. Alternatively, you can use the Cloud AutoML Vision UI to list and delete models created via the AutoML API that you do not need anymore.

Note:

- Unless otherwise specified in applicable terms of service or documentation, custom models created in Cloud AutoML products cannot be exported.
- The maximum lifespan for a custom model is 18 months as of the GA release. You must create and train a new model to continue classifying content after that amount of time.
- Edge models are optimized for inference on an Edge device. Consequently, Edge model accuracy ***will differ*** from Cloud model accuracy.

Training models

When you have a dataset with a representative set of labeled training items, you are ready to create and train the custom model.

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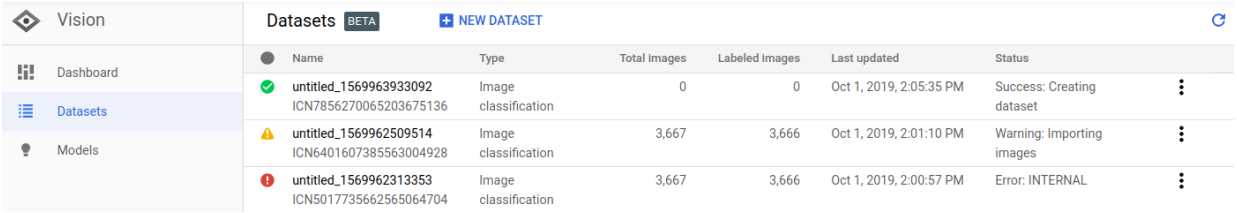
Note: Starting September 2019 we will start migrating AutoML Vision users to a new user interface that may affect the steps in this operation. This migration will occur in an on-going basis. See the "**Integrated UI**" tab for instructions using the updated interface.

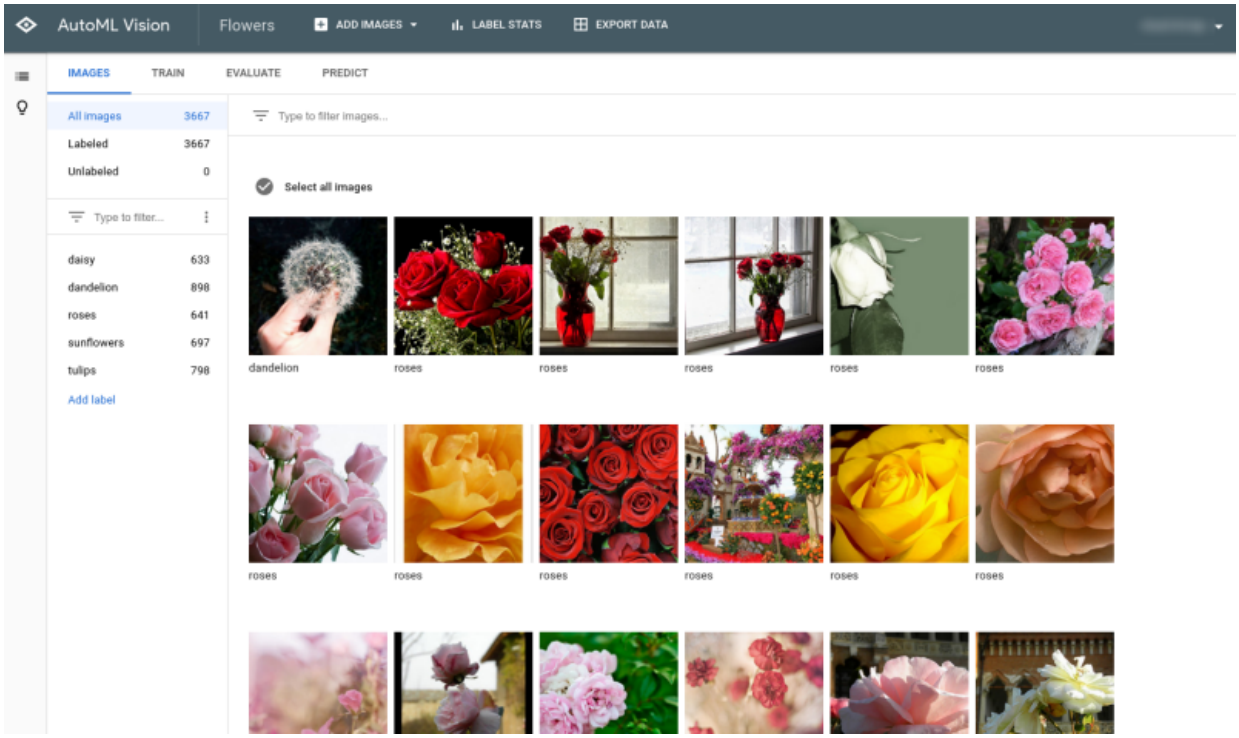
1. Open the AutoML Vision UI (https://console.cloud.google.com/vision).

   The **Datasets** page shows the available datasets for the current project.



2. Select the dataset you want to use to train the custom model.

   The display name of the selected dataset appears in the title bar, and the page lists the individual items in the dataset along with their labels.



3. When you are done reviewing the dataset, click the **Train** tab just below the title bar.

   The training page provides a basic analysis of your dataset and advises you about whether it is adequate for training. If AutoML Vision suggests changes, consider returning to the **Images** page and adding items or labels.

4. When the dataset is ready, click **Start Training**.

Training a model can take several hours to complete. After the model is successfully trained, you will receive a message at the email address that you used to sign up for the program.

List operations

You can list your project's operations, and filter results.

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Before using any of the request data below, make the following replacements:

- ***project-id***: your GCP project ID.

HTTP method and URL:

```
GET https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/ope
```

To send your request, choose one of these options:

CURL | POWERSHELL

Note: Ensure you have set the **GOOGLE_APPLICATION_CREDENTIALS** (https://cloud.google.com/docs/authentication/production) environment variable to your service account private key file path.

Execute the following command:

```
curl -X GET \
-H "Authorization: Bearer "$(gcloud auth application-default print-access-token)
https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/opera
```

The output you see will vary depending on the operations you have requested.

You can also filter the operations returned by using select query parameters (`operationId`, `done`, and `worksOn`). For example, to return a list of operations that have finished running modify the URL:

```
GET https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/oper
```

Getting the status of an operation

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Before using any of the request data below, make the following replacements:

- ***project-id***: your GCP project ID.
- ***operation-id***: the ID of your operation. The ID is the last element of the name of your operation. For example:
  - operation name: `projects/project-id/locations/location-id/operations/IOD5281059901324392598`
  - operation id: `IOD5281059901324392598`

HTTP method and URL:

```
GET https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/ope
```

To send your request, choose one of these options:

CURL | POWERSHELL

Note: Ensure you have set the GOOGLE_APPLICATION_CREDENTIALS (https://cloud.google.com/docs/authentication/production) environment variable to your service account private key file path.

Execute the following command:

```
curl -X GET \
-H "Authorization: Bearer "$(gcloud auth application-default print-access-token)
https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/opera
```

You should see output similar to the following for a completed **import operation**:

```
{
  "name": "projects/project-id/locations/us-central1/operations/operation-id",
  "metadata": {
    "@type": "type.googleapis.com/google.cloud.automl.v1.OperationMetadata",
    "createTime": "2018-10-29T15:56:29.176485Z",
    "updateTime": "2018-10-29T16:10:41.326614Z",
```

```
    "importDataDetails": {}
  },
  "done": true,
  "response": {
    "@type": "type.googleapis.com/google.protobuf.Empty"
  }
}
```

You should see output similar to the following for a completed **create model operation**:

```
{
  "name": "projects/project-id/locations/us-central1/operations/operation-id",
  "metadata": {
    "@type": "type.googleapis.com/google.cloud.automl.v1.OperationMetadata",
    "createTime": "2019-07-22T18:35:06.881193Z",
    "updateTime": "2019-07-22T19:58:44.972235Z",
    "createModelDetails": {}
  },
  "done": true,
  "response": {
    "@type": "type.googleapis.com/google.cloud.automl.v1.Model",
    "name": "projects/project-id/locations/us-central1/models/model-id"
  }
}
```

Cancelling an Operation

You can cancel an import or training task using the operation ID.

REST & CMD LINE

Before using any of the request data below, make the following replacements:

- ***project-id***: your GCP project ID.
- ***operation-id***: the ID of your operation. The ID is the last element of the name of your operation. For example:
  - operation name: `projects/project-id/locations/location-id/operations/IOD5281059901324392598`
  - operation id: **`IOD5281059901324392598`**

HTTP method and URL:

```
POST https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/op
```

To send your request, choose one of these options:

CURL POWERSHELL

Note: Ensure you have set the **GOOGLE_APPLICATION_CREDENTIALS** (https://cloud.google.com/docs/authentication/production) environment variable to your service account private key file path.

Execute the following command:

```
curl -X POST \
-H "Authorization: Bearer "$(gcloud auth application-default print-access-token)
-H "Content-Type: application/json; charset=utf-8" \
-d "" \
https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/opera
```

You will see an empty JSON object returned from a successful request:

```
{}
```

Getting information about a model

When training is complete, you can get information about the newly created model.

The examples in this section return the basic metadata about a model. To get details about a model's accuracy and readiness, see the "Evaluating models" topic.

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Before using any of the request data below, make the following replacements:

- ***project-id***: your GCP project ID.

- ***model-id***: the ID of your model, from the response when you created the model. The ID is the last element of the name of your model. For example:
  - model name: `projects/project-id/locations/location-id/models/IOD4412217016962778756`
  - model id: `IOD4412217016962778756`

HTTP method and URL:

```
GET https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/mod
```

To send your request, choose one of these options:

CURL POWERSHELL

Note: Ensure you have set the **GOOGLE_APPLICATION_CREDENTIALS** (https://cloud.google.com/docs/authentication/production) environment variable to your service account private key file path.

Execute the following command:

```
curl -X GET \
-H "Authorization: Bearer "$(gcloud auth application-default print-access-token)
https://automl.googleapis.com/v1/projects/project-id/locations/us-central1/model
```

You should receive a JSON response similar to the following:

```
{
  "name": "projects/project-id/locations/us-central1/models/model-id",
  "displayName": "display-name",
  "datasetId": "dataset-id",
  "createTime": "2019-10-29T19:06:38.048492Z",
  "deploymentState": "UNDEPLOYED",
  "updateTime": "2019-10-29T19:35:19.104716Z",
  "imageClassificationModelMetadata": {
    "trainBudget": "1",
    "modelType": "cloud",
    "nodeQps": 3.2
  }
}
```

Note: Before you will be able to use your model for online predictions, you will need to deploy (https://cloud.google.com/vision/automl/docs/predict#deploy_your_model) it.

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