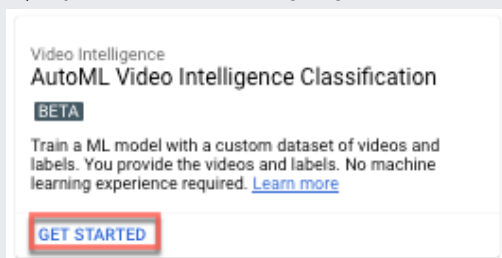


Product is in a pre-release state and might change or have limited support. For more information, see the [product launch stages](#) (/products/#product-launch-stages).

In this quickstart you will go through the process of annotating videos using a custom model.

Visit the [AutoML Video Classification UI](https://console.cloud.google.com/video-intelligence/introduction) (https://console.cloud.google.com/video-intelligence/introduction) and click **Enable API**.

1. Once the API is enabled, go to the [AutoML Video Classification UI](https://console.cloud.google.com/video-intelligence/introduction) (https://console.cloud.google.com/video-intelligence/introduction) and click **Get Started**.



The following screen appears:

**Create new dataset**

Dataset name \*  1  
 Use letters, numbers and underscores up to 32 characters.

Select your model objective

**Video Classification** 2  
 Get label predictions for entire videos, shots, and frames.

**Video Object Tracking**  
 Get labels, tracks, and timestamps for objects you want to track in video.

3

- (1) specify a name for this dataset
- (2) select **Video Classification**
- (3) click **Create Dataset**

2. The following screen appears:

Google Cloud Platform afci... 17

Video Intelligence afci...st2 BETA

Dashboard **IMPORT** VIDEOS TRAIN EVALUATE TEST & USE

Datasets

Models

Import videos

AutoML Video Intelligence uses your videos to train a custom machine learning model. [Learn more about preparing your data.](#)

- Upload labels in your CSV, or upload un-labeled videos, and use our labeling tool.
- At least 100 video segments per label is recommended.
- Processed videos will be stored on Cloud Storage. Standard pricing applies.

Select a CSV file on Cloud Storage

The CSV file should contain paths to your train, test, and/or unassigned CSV files. Videos must be .MOV, .MPEG4, .MP4, or .AVI. [Learn more.](#)

Example CSV:

```
TRAIN,gs://domestic-animals-vcv/horses/videos/train.csv
TEST,gs://domestic-animals-vcv/horses/videos/test.csv
```

1

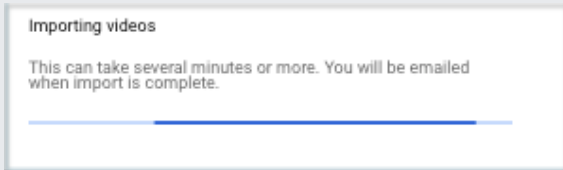
2

- (1) Provide the Cloud Storage URI of the CSV file that contains the URIs of your training data. (see [Prepare data \(/video-intelligence/automl/docs/prepare#csv\)](#))

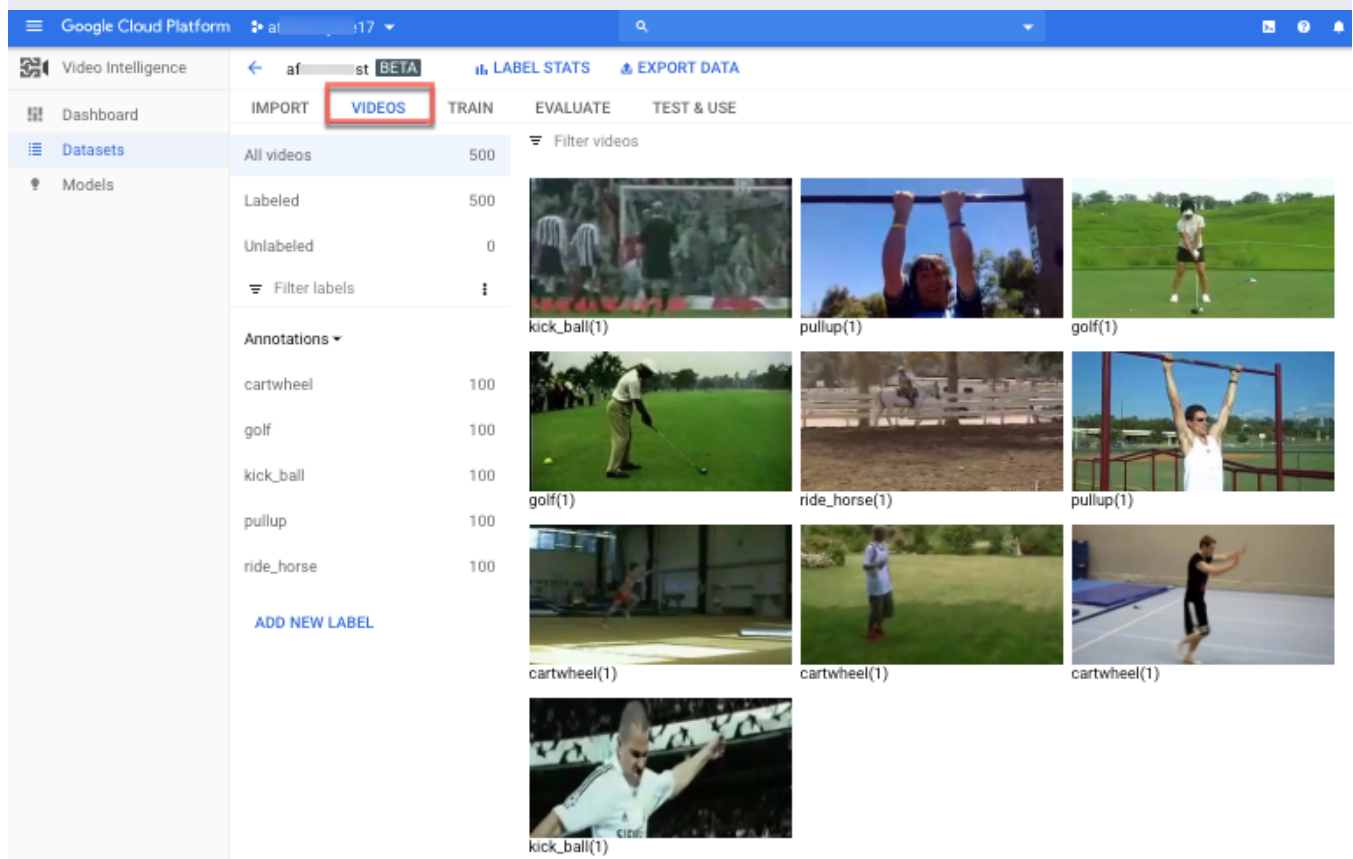
In this quickstart, use:

(2) Click **Continue** to begin importing your data.

The following screen appears:

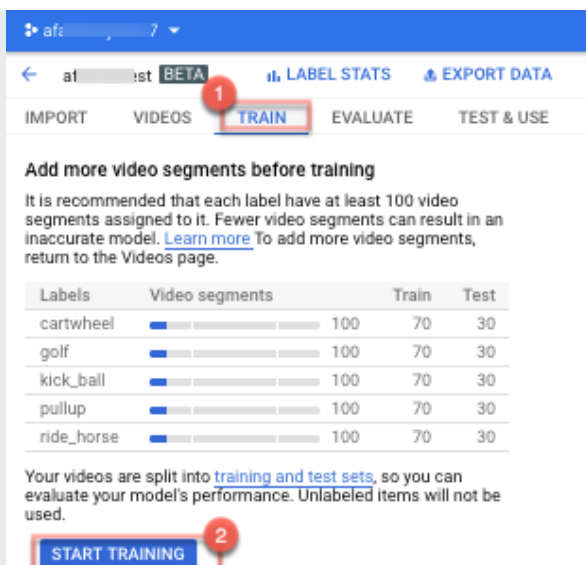


Once the import process has completed you will receive an email with a link to the dataset in the **Videos** tab.



To view any errors that occurred during the import process, switch to the **Import** tab and check any error messages.

1. Now that the dataset has been created and processed, go to the **Train** tab and click **Start Training**.



af: [redacted] 7

← at [redacted] :st BETA LABEL STATS EXPORT DATA

IMPORT VIDEOS **TRAIN** EVALUATE TEST & USE

**Add more video segments before training**

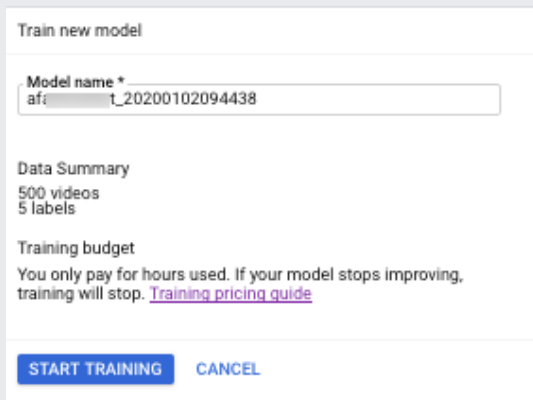
It is recommended that each label have at least 100 video segments assigned to it. Fewer video segments can result in an inaccurate model. [Learn more](#) To add more video segments, return to the Videos page.

| Labels     | Video segments | Train | Test |
|------------|----------------|-------|------|
| cartwheel  | 100            | 70    | 30   |
| golf       | 100            | 70    | 30   |
| kick_ball  | 100            | 70    | 30   |
| pullup     | 100            | 70    | 30   |
| ride_horse | 100            | 70    | 30   |

Your videos are split into [training and test sets](#), so you can evaluate your model's performance. Unlabeled items will not be used.

**START TRAINING** 2

The **Train new model** screen appears:



Train new model

Model name \*  
af: [redacted]\_t\_20200102094438

Data Summary  
500 videos  
5 labels

Training budget  
You only pay for hours used. If your model stops improving, training will stop. [Training pricing guide](#)

**START TRAINING** CANCEL

## 2. Click **Start Training**.

Training is now initiated for your model. For this particular dataset, the service will email you with a link to the results.

Google Cloud Platform af

Video Intelligence af test BETA LABEL STATS EXPORT DATA

Dashboard Datasets Models

IMPORT VIDEOS TRAIN EVALUATE TEST & USE

Models TRAIN NEW MODEL

Video Classification af: 94438

Average precision: 1.0  
Precision: 100%  
Recall: 99.33%

Model ID VCN8140410258100060160  
Created Jan 2, 2020, 9:49:26 AM  
Data 500 videos, 500 annotations, 5 labels

SEE FULL EVALUATION

The service automatically deploys your model.

3. Click the **Evaluate** tab to get more details about F1, Precision, and Recall scores, etc.

The **Evaluate** view appears:

Google Cloud Platform afarmertest-june17

Video Intelligence afarmertest BETA LABEL STATS EXPORT DATA

Dashboard Datasets Models

IMPORT VIDEOS TRAIN EVALUATE TEST & USE

Model afarmertest\_20200102094438

Model created Jan 2, 2020, 9:49 AM  
Analyzed 150 videos, 150 annotations  
Avg precision 1.000  
Precision 100.0%  
Recall 99.3%

Filter labels: All labels, pullup, cartwheel, ride\_horse, golf, kick\_ball

All labels  
Score threshold: 0.50  
Displaying nearest threshold: 0.50

Total Videos: 500  
Total Annotations: 500  
Train Videos: 350  
Train Annotations: 350  
Precision: 100.0%  
Recall: 99.3%

All test videos are evaluated at the time of training. If you modify this dataset after training, those modifications will not be reflected here.  
[Learn more about these metrics and graphs](#)

Confusion matrix  
This table helps you understand where misclassifications occur (which labels get "confused" with each other). The top three misclassifications per label are shown here.

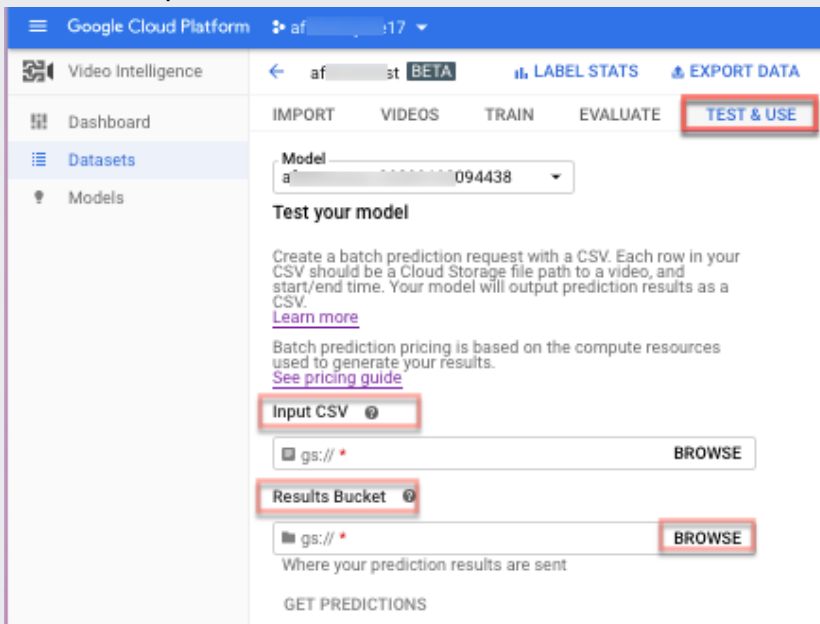
| True Label ↑ | Correct Prediction | Confused with... |
|--------------|--------------------|------------------|
| cartwheel    | 100%               |                  |
| golf         | 100%               |                  |
| kick_ball    | 100%               |                  |
| pullup       | 100%               |                  |
| ride_horse   | 100%               |                  |

To make a prediction using your custom model—that is, to classify a video, select the **Test & Use** tab for the model.

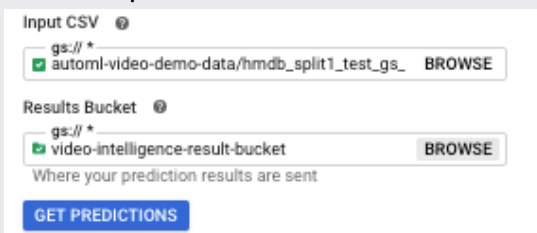
1. In the **Input CSV** field, add:

`gs://automl-video-demo-data/hmdb_split1_test_gs_predict.csv` (see [Prepare data](#) (/video-intelligence/automl/docs/prepare#csv))

2. Under **Results bucket**, click **Browse** to select, or create a directory within your Cloud Storage bucket where the annotation results will be stored. When creating your bucket, make sure the location is specified as US-CENTRAL1.



For example:



You may actually want to create a specific 'results' folder in your Cloud Storage bucket to hold the annotation results. By doing so, you can more easily access older predictions by loading the `video_classification.csv` file contained in the results directory.

### 3. Click **Get Predictions**.

You will receive an email with a link to the dataset.

The screenshot shows the Google Cloud Platform Video Intelligence console. The left sidebar has 'Video Intelligence' selected, with 'Datasets' and 'Models' visible. The main content area is titled 'af...est BETA' and has tabs for 'IMPORT', 'VIDEOS', 'TRAIN', 'EVALUATE', and 'TEST & USE'. The 'TEST & USE' tab is active, showing a model dropdown set to 'afarmertest\_20200102094438'. Below this, there's a 'Test your model' section with instructions and a 'Learn more' link. The 'Input CSV' field contains 'gs://automl-video-demo-data/hmdb\_split1\_test\_gs\_' with a 'BROWSE' button. The 'Results Bucket' field contains 'yet-another-bucket' with a 'BROWSE' button. A 'GET PREDICTIONS' button is visible. At the bottom, a 'Recent Predictions' table is shown:

| Input                                    | Results directory                                   | Predictions          | Created                 |
|--|---|----------------------|-------------------------|
| gs://.../hmdb_split1_test_gs_predict.csv | predi...est_20200102094438-2020-01-02T23:28:18.457Z | <a href="#">VIEW</a> | Jan 2, 2020, 3:28:18 PM |

The process for getting predictions can take some time, depending on the number of videos that you want annotated.

When the process has completed, the results appear on the page for the model under **Recent Predictions**. To view the results, do the following:

1. Under **Recent Predictions** in the **Predictions** column, click **View** for the prediction you want to look at.
2. Under **Video**, select the name of the video you want to see the results for.

prediction-[redacted] 778Z

gs://automl-video-demo-data/hmdb51/Michelle\_Wie\_Golf\_... ▾

Select a video to view predictions.

Confidence  0.21

PREDICT ON: **1 SECOND INTERVAL** SHOT SEGMENT

| Predicted Results                       | 00:00.0   | 00:0.5 | 00:01 | 00:1.5 | 00:02 | 00:2.5 | 00:03 |
|---|---|--------|-------|--------|-------|--------|-------|
| <span style="color: red;">■</span> golf | [Timeline bar with red segment from ~00:01.2 to ~00:02.2] |        |       |        |       |        |       |

In the results for your video annotation, AutoML Video Classification provides three types of information:

- Labels for the video. You can find this information under the **Segment** tab below the video on the results page.
- Labels for shots within the video. You can find this information under the **Shot** tab below the video on the results page.
- Labels for each 1-second interval within the video. You can find this information under the **1 Second Interval** tab below the video on the results page.

If you want to see more labels, you can change the threshold score when you request a prediction. AutoML Video Classification only displays the labels that are above the specified threshold.

If the prediction fails, the results in the list show a red icon on the **Recent Predictions** list.

If only one video in the prediction attempt failed, the prediction shows green in the **Recent Predictions** list. On the results page for that prediction, you can see the results for the videos that AutoML



Video Classification annotated.