**1. Set Up Your Google Cloud Project**

1. **Create a Google Cloud Project:**
   * Go to the Google Cloud Console.
   * Click on the project dropdown in the top-left corner and select "New Project".
   * Name your project and click "Create".
2. **Enable Billing:**
   * Go to the Billing section in the Google Cloud Console and link a billing account to your project.
3. **Enable APIs:**
   * Navigate to the "API & Services" dashboard.
   * Click "Enable APIs and Services" and enable the "Compute Engine API" and "Cloud Storage API".

**2. Set Up Google Cloud Storage**

1. **Upload Your Data to Cloud Storage:**
   * Go to the Cloud Storage section.
   * Click on your bucket dclde2026\_hdf5s.
   * Upload your HDF5 files into this bucket.

**3. Set Up a Compute Engine VM**

1. **Create a Virtual Machine:**
   * Go to the Compute Engine VM instances page.
   * Click "Create Instance".
   * Choose the desired machine type and configure the VM according to your needs.
   * Ensure you select a region close to your bucket to minimize latency.
   * Under "Boot disk", choose a Linux distribution (e.g., Ubuntu).
   * Under "Firewall", check both boxes to allow HTTP and HTTPS traffic if needed.
   * Click "Create" to launch the VM.
2. **Connect to Your VM:**
   * After the VM is created, click "SSH" to connect to it via the browser-based SSH terminal.

**4. Set Up Your Python Environment**

1. **Install Necessary Packages:**
   * Update the package list and install Python, pip, and virtualenv:

**Copy files to virtual machine**

Connect to cloud storage (follow directions in terminal)

gcloud auth login

List files/folders

gsutil ls gs://dclde2026\_hdf5s/hdf5s/

copy files

gsutil cp gs://dclde2026\_hdf5s/hdf5s/Malahat\_Balanced\_melSpec\_16khz\_PCEN\_RTW\_normSpec.h5 /home/kpalmer/

**Create or start python virtual environment**

bash

sudo apt-get update

sudo apt-get install python3-pip python3-dev python3-venv

python3 -m venv myenv

source myenv/bin/activate

pip install h5py tensorflow numpy pandas librosa scikit-learn jsons h5py google-cloud-storage matplotlib

If already created use

source myenv/bin/activate

gsutil cp gs://dclde2026\_hdf5s/src/gsDriver.py ~/

gsutil cp gs://dclde2026\_hdf5s/src/EcotypeDefs.py ~/

python3 gsDriver.py

**To run in the background use**

nohup python3 gsDriver.py &

**To run in the background and see what’s being printed to the screen**

tail -f nohup.out

**If there are issues copying back to google buckets, then check the authentication**

gcloud auth login