

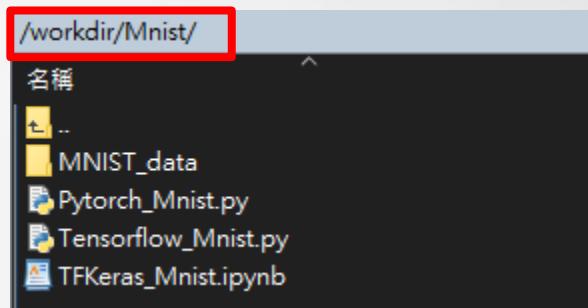
# 上機演練二

## Container Job操作

Video link : [https://youtu.be/a-rO8nNy\\_EA](https://youtu.be/a-rO8nNy_EA)

# 上機演練Container Job操作

- 請到雲端空間將Mnist壓縮檔下載，連結：<https://reurl.cc/V54QeA>
- 將壓縮檔解壓縮後，使用FTP工具將檔案上傳至帳號用戶空間  
(將Mnist資料夾上傳到/workdir目錄底下)
- Mnist資料夾內檔案：
  - Pytorch\_Mnist.py
  - Tensorflow\_Mnist.py
  - TFKeras\_Mnist.ipynb
  - MNIST\_data資料夾
- 上傳完成後，在路徑/workdir目錄下，可找到上傳的檔案  
(無論使用Container Job或 Container Service)



## Exercise2 : Container Job 實作手寫數字辨識(Pytorch)

- 本範例將使用Mnist資料夾Pytorch\_Mnist.py
- 建立一個CNN模型，用於辨識手寫數字
- 資料分為50000筆訓練資料、10000筆測試資料
- 訓練10 Epochs
- 模型評估:印出準確率，畫出Loss和Accuracy圖

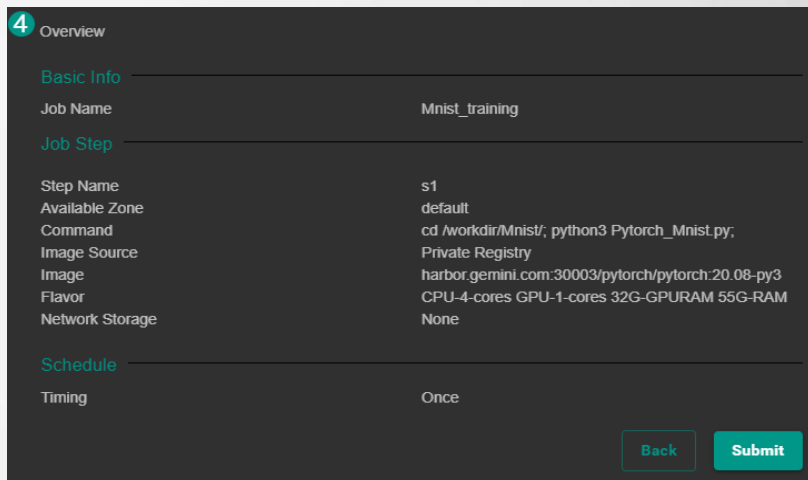
# Exercise2 : Container Job實作手寫數字辨識(Pytorch)

## 1. 建立Container Job，本範例將使用Mnist資料夾Pytorch\_Mnist.py

(1)建立Job請輸入以下資訊

Job Name	自行設定(例:Pytorch Mnist Training)
Step Name	自行設定(例:step 1)
Available Zone	default
Command	<code>cd /workdir/Mnist/;</code> (切換到Mnist資料夾) <code>python3 Pytorch_Mnist.py;</code> (使用python3指令執行程式)
Project	pytorch (使用pytorch鏡像)
Image	pytorch/pytorch
Image Tag	20.08-py3
Flavor	CPU-4-cores GPU-1-cores 32G-GPURAM 55G-RAM
Network Storage	None
Schedule Timing	Once

(2)輸入完成後請提交完成建立

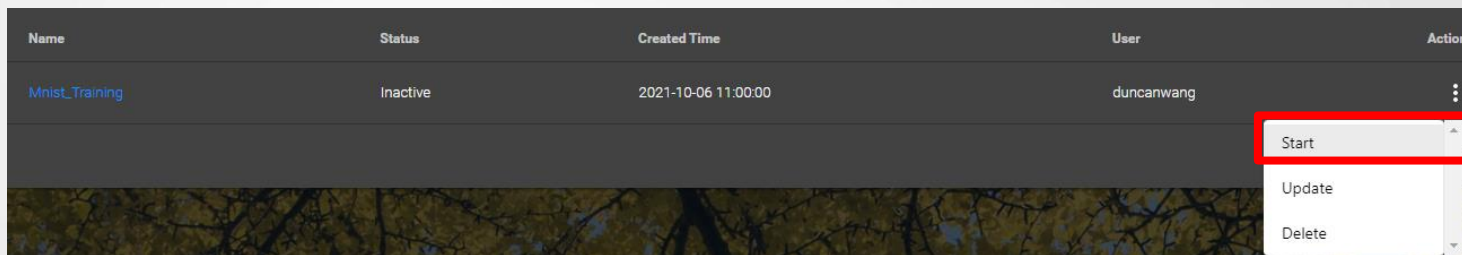


The screenshot shows a configuration page for a container job. It is titled '4 Overview' and is divided into three sections: 'Basic Info', 'Job Step', and 'Schedule'. The 'Basic Info' section shows 'Job Name' as 'Mnist\_training'. The 'Job Step' section shows 'Step Name' as 's1', 'Available Zone' as 'default', 'Command' as 'cd /workdir/Mnist/; python3 Pytorch\_Mnist.py;', 'Image Source' as 'Private Registry', 'Image' as 'harbor.gemini.com:30003/pytorch/pytorch:20.08-py3', 'Flavor' as 'CPU-4-cores GPU-1-cores 32G-GPURAM 55G-RAM', and 'Network Storage' as 'None'. The 'Schedule' section shows 'Timing' as 'Once'. At the bottom right, there are 'Back' and 'Submit' buttons.

4 Overview	
Basic Info	
Job Name	Mnist_training
Job Step	
Step Name	s1
Available Zone	default
Command	cd /workdir/Mnist/; python3 Pytorch_Mnist.py;
Image Source	Private Registry
Image	harbor.gemini.com:30003/pytorch/pytorch:20.08-py3
Flavor	CPU-4-cores GPU-1-cores 32G-GPURAM 55G-RAM
Network Storage	None
Schedule	
Timing	Once
Back Submit	

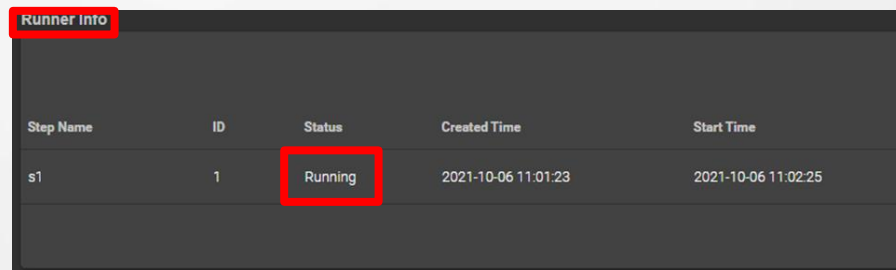
## Exercise2 : Container Job實作手寫數字辨識(Pytorch)

2. 請手動啟動Job，狀態更新為Active，Container即開始啟動



Name	Status	Created Time	User	Action
Mnist_Training	Inactive	2021-10-06 11:00:00	duncanwang	<ul style="list-style-type: none"><li>Start</li><li>Update</li><li>Delete</li></ul>

3. 點選Job，切換到Runner Info，程式執行中狀態為Running



Step Name	ID	Status	Created Time	Start Time
s1	1	Running	2021-10-06 11:01:23	2021-10-06 11:02:25

# Exercise2 : Container Job實作手寫數字辨識(Pytorch)

4. 執行完畢狀態為Finished，點擊log，可觀看執行結果

Runner Info

Enter Keyv

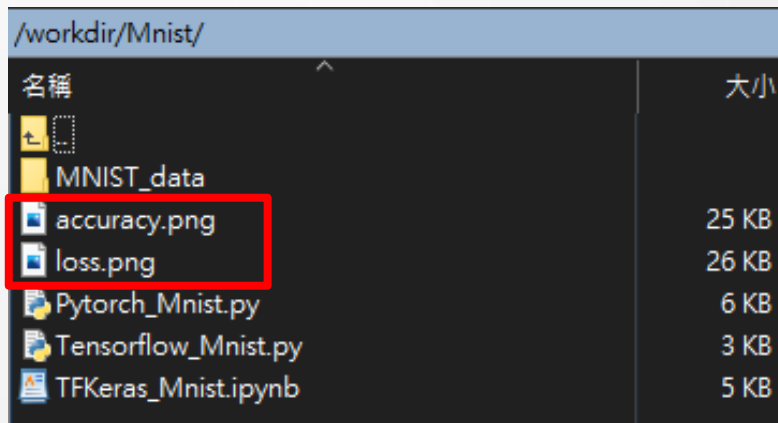
Step Name	ID	Status	Created Time	Start Time	Duration	Log
s1	1	Finished	2021-10-06 11:01:23	2021-10-06 11:02:25	00:01:40	Log

Number of Rows: 25 ▾

```
Epoch: 7 : train loss: 0.0429 | train accuracy:98.7050
| test loss: 0.0425 | test accuracy:98.6300
Epoch: 8 : train loss: 0.0391 | train accuracy:98.8283
| test loss: 0.0451 | test accuracy:98.4600
Epoch: 9 : train loss: 0.0358 | train accuracy:98.9183
| test loss: 0.0380 | test accuracy:98.7000
Epoch: 10 : train loss: 0.0326 | train accuracy:98.9750
| test loss: 0.0392 | test accuracy:98.7100
Finished Training
```

## Exercise2 : Container Job實作手寫數字辨識(Pytorch)

5. Pytorch\_Mnist.py執行完畢會畫出loss.png和accuracy.png兩張圖，回到FTP工具可在工作目錄Mnist內找到，可再將兩張圖傳回本地端。



名稱	大小
MNIST_data	
accuracy.png	25 KB
loss.png	26 KB
Pytorch_Mnist.py	6 KB
Tensorflow_Mnist.py	3 KB
TFKeras_Mnist.ipynb	5 KB

# Exercise2 : Container Job 實作手寫數字辨識(Pytorch)

6. 訓練10 Epochs結果，可觀察到模型預測訓練資料和測試資料 loss有下降、accuracy有提升，準確率皆達98%

