[NOTE: TO BE VALIDATED BY ENGINEERING TEAM[

Here are the instructions to accelerate TensorFlow models on Azure with the Intel® OpenVINOTM add-on for TensorFlow

1. Create a Virtual Machine – choose the Ubuntu Server 20.10 – Gen 2 mage

Graphical user interface, text, application, email

Description automatically generated

1. Pick an instance like HC44rs. The bigger the instance the higher the performance

Graphical user interface, text, application, email

Description automatically generated

1. Then download the \*.pem files for keys on your laptop.   
   chmod 400 the \*.pem key.
2. Get the public IP address of your instance   
     
     
   Graphical user interface, application, email

   Description automatically generated
3. ssh -i \*.pem <IP-addr-of-your-instance>

scp -i \*.pem <source-file> <IP-addr-of-your-instance>:/tmp

SSH and SCP with the Azure instance should be working (Note: It worked seamlessly on our team Intel provided Azure account, but developers might need to configure networking to enable this.)

1. **azureuser@tf-u27**:**~**$ python3 --version

Python 3.8.6

1. sudo apt-get update
2. sudo apt install python3-pip
3. sudo pip3 install -U tensorflow==2.2.2
4. sudo pip3 install -U --index-url https://test.pypi.org/simple/ --extra-index-url https://pypi.org/simple/ openvino-tensorflow-addon-abi0
5. Work around a syntax bug   
     
   sudo vi /usr/local/lib/python3.8/dist-packages/openvino\_tensorflow/\_\_init\_\_.py

Line 210:

"openvino tensorflow add-on built with Grappler: " + str(openvino\_tensorflow\_lib.is\_grappler\_enabled()) + "\n" **\**

Remove the backslash at the end of the line and save the file

1. Run the following command

**azureuser@tf-u26**:**~**$ python3 -c "import tensorflow as tf; print('TensorFlow version: ',tf.\_\_version\_\_); import openvino\_tensorflow; print(openvino\_tensorflow.\_\_version\_\_)"

TensorFlow version: 2.2.2

openvino tensorflow add-on version: 0.5.0

nGraph version used for this build: b'0.0.0+a8a6e8f'

TensorFlow version used for this build: v2.2.2-1-g876c0a59768

CXX11\_ABI flag used for this build: 0

openvino tensorflow add-on built with Grappler: False

1. git clone <https://github.com/openvinotoolkit/openvino_tensorflow.git>

Or just download the entire gitrepo as a zip/tar file to your local directory and scp it to the azure instance and unzip it in your home directory (Note: this is the path I followed since access to gitrepo is still restricted)

sudo apt install unzip

**azureuser@tf-u26**:**~**$ ls

**openvino\_tensorflow-master** **openvino\_tensorflow-master.zip**

**azureuser@tf-u26**:**~**$ cd openvino\_tensorflow-master/

**azureuser@tf-u27**:**~/openvino\_tensorflow-master**$ curl -L "https://storage.googleapis.com/download.tensorflow.org/models/inception\_v3\_2016\_08\_28\_frozen.pb.tar.gz" |

> tar -C ./examples/data -xz

% Total % Received % Xferd Average Speed Time Time Time Current

Dload Upload Total Spent Left Speed

100 84.5M 100 84.5M 0 0 41.4M 0 0:00:02 0:00:02 --:--:-- 41.4M

**azureuser@tf-u27**:**~/openvino\_tensorflow-master**$ python3 examples/classification\_sample.py

2021-03-16 18:49:47.205522: W tensorflow/stream\_executor/platform/default/dso\_loader.cc:55] Could not load dynamic library 'libcuda.so.1'; dlerror: libcuda.so.1: cannot open shared object file: No such file or directory

2021-03-16 18:49:47.205553: E tensorflow/stream\_executor/cuda/cuda\_driver.cc:313] failed call to cuInit: UNKNOWN ERROR (303)

2021-03-16 18:49:47.205574: I tensorflow/stream\_executor/cuda/cuda\_diagnostics.cc:156] kernel driver does not appear to be running on this host (tf-u27): /proc/driver/nvidia/version does not exist

2021-03-16 18:49:47.205753: I tensorflow/core/platform/cpu\_feature\_guard.cc:143] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX2 AVX512F FMA

2021-03-16 18:49:47.214779: I tensorflow/core/platform/profile\_utils/cpu\_utils.cc:102] CPU Frequency: 2693670000 Hz

2021-03-16 18:49:47.219130: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x7f881c000b60 initialized for platform Host (this does not guarantee that XLA will be used). Devices:

2021-03-16 18:49:47.219153: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): Host, Default Version

Available Backends:

CPU

Inference time in ms: 8.149624

military uniform 0.8343049

mortarboard 0.021869553

academic gown 0.010358133

pickelhaube 0.008008199

bulletproof vest 0.0053509558