ONNX Development Environment

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Outline

- ONNX
- ONNX Tensorflow Converter
  - Dependencies
    - ONNX
    - Tensorflow
  - Onnx-tf build
  - Quick verification

Overview

- The following instructions are to set up the development environment for the ONNX Tensorflow converter (https://github.com/onnx/onnx-tensorflow)
- We will go over the build process for the key converter dependencies ONNX and Tensorflow, but will not go into the development details for them, as additional details can be found, https://github.com/onnx/onnx and https://github.com/tensorflow/tensorflow, respectively.

ONNX

ONNX dependencies

- Python3: The following instructions assume python –V returns python 3.6.x. The recommendation is to use virtualenv as the system build-in python3 is somewhat broken and needs additional patch work.

  sudo pip install virtualenv (or sudo pip3 install virtualenv)
  virtualenv venv_py3
  virtualenv -p /usr/bin/python3 venv_py3
  source venv_py3/bin/activate

- git
- cmake (sudo apt install cmake)
- protobuf-compiler libprotoc-dev (sudo apt install protobuf-compiler libprotoc-dev)

ONNX

Build from source

- git clone https://github.com/onnx/onnx.git
- cd onnx
- git submodule update --init --recursive
- python setup.py install

Verification and test

- python -c "import onnx“
- pip install pytest nbval
- pytest

Tensorflow

Use the stable 2.x release

- The Tensorflow master can be built manually but we use the latest release for stability
- pip install -U tensorflow
- pip install -U tensorflow-addons
- Now Tensorflow 2.x stable release is ready

Verification and test

- python
- >>> import tensorflow as tf (uninstall and reinstall protobuf if you see ModuleNotFoundError: No module named 'google.protobuf')
- >>> tf.__version__ returns '2.1.0'
- >>> tf.add(1, 2).numpy() returns 3

ONNX-Tensorflow

ONNX-Tensorflow dependencies

- Python3 (same as slide 4)
- ONNX (source build from master)
- Tensorflow (latest stable 2.x release)

Build from source

- git clone https://github.com/onnx/onnx-tensorflow.git
- cd onnx-tensorflow
- pip install -e .

ONNX-Tensorflow

Verification and test

- python -c "import onnx_tf"
- python test/backend/test_model.py (quickly run the model test)
- python util/get_version.py (should see something below)

```
Python version:
3.6.9 (default, Nov  7 2019, 10:44:02)
[GCC 8.3.0]
ONNX version:
1.7.0
ONNX-TF version:
1.5.0
Tensorflow version:
2.1.0
```

ONNX-Tensorflow

Additional setup for code format and analysis

- Format code with yapf
  - pip install yapf
  - yapf -rip --style="{based_on_style: google, indent_width: 2}" $FilePath$
- Use pylint to check and analyze python code
  - pip install pylint
  - wget -O /tmp/pylintrc https://raw.githubusercontent.com/tensorflow/tensorflow/master/tensorflow/tools/ci_build/pylintrc
  - pylint --rcfile=/tmp/pylintrc myfile.py $FilePath$