

# How to run FakeLowP vs Glow tests

This was tested on Ubuntu 16.04 LTS but should work in general Linux system. The tested compiler is Clang-8.

## Build Glow Onnxifi Library

Follow <https://github.com/pytorch/glow/blob/master/README.md> to install the dependency of Glow. Then at glow root run

```
mkdir build && cd build
cmake -G Ninja -DGLOW_BUILD_ONNXIFI_DYNLIB=ON ..
ninja all
```

Note that here you probably want to add other flags like `-DGLOW_WITH_NNPI=1` to enable specific backend if you have the flow set up. Also, make sure you have the `LD_LIBRARY_PATH` set correctly pointing to `libomp.so` path when compiling with `-DGLOW_WITH_NNPI=1`.

```
export LD_LIBRARY_PATH=/usr/lib/llvm-8/lib
```

Once built successfully, you will get an dynamic library at `build/lib/Onnxifi/libonnxifi.so`. We will use it later.

## Build and Install PyTorch

Follow <https://github.com/pytorch/pytorch/blob/master/README.md> to install the dependency of PyTorch. It might be easy to setup a python virtualenv or conda. And please use Python > 3.5.2 because hypothesis library will expose a bug in Python which is fixed after 3.5.2. Something like 3.7 might be good enough. You can install python3.7 with

```
sudo apt-get install -y build-essential checkinstall libreadline-gplv2-dev
libncursesw5-dev libssl-dev libsqlite3-dev tk-dev libgdbm-dev libc6-dev libbz2-dev
zlib1g-dev openssl libffi-dev python3-dev python3-setuptools wget
wget https://www.python.org/ftp/python/3.7.4/Python-3.7.4.tgz && tar -xf Python-
3.7.4.tgz
cd Python-3.7.4
./configure && make -j 8 && sudo make altinstall
```

Once you installed Python 3.7, here I give a virtualenv flow:

```
sudo pip3.7 install virtualenv
python3.7 -m venv venv3
source venv3/bin/activate
cd pytorch
pip install -r requirements.txt
pip install pytest hypothesis protobuf
```

You probably need to install `gflags-dev` too with

```
sudo apt-get install libgflags-dev
```

Once you have all the dependency libs installed, build PyTorch with FakeLowP op support

```
USE_CUDA=0 USE_ROCM=0 USE_FAKELOWP=ON DEBUG=1 CMAKE_BUILD_TYPE=Debug USE_GFLAGS=1  
USE_GLOG=1 USE_MKLDNN=0 BUILD_TEST=0 python setup.py install
```

The key options here are `USE_FAKELOWP=ON` which enables building of FakeLowP operators and `USE_GFLAGS=1` which enables gflags as we use gflags in Glow to pass options. Other flags are mostly for fast build time and debug purpose.

## Run the test

You can now run the tests with command like the following when you are inside the virtual python env:

```
OSS_ONNXIFI_LIB=${PATH_TO_GLOW}/build/lib/Onnxifi/libonnxifi.so pytest  
pytorch/caffe2/contrib/fakelowp/test --hypothesis-show-statistics
```