

Streamer Installation Issues

Installing Intel Caffe:

We used this

<https://software.intel.com/en-us/articles/deep-learning-training-and-testing-on-a-single-node-intel-xeon-scalable-processor-system>

as our installation guide. We were originally unable to get past the **source** `/opt/intel/mlsl_2017.1.016/intel64/bin/mlslvars.sh` command on the UP board due to dependency issues with gstreamer. Then we tried another installation guide: <https://github.com/intel/caffe> and https://software.intel.com/articles/training-and-deploying-deep-learning-networks-with-caffe-optimized-for-intel-architecture?utm_source=ISTV&utm_medium=Video&utm_campaign=ISTV_2017#Installation. Here we could not get past the **source** `~/bashrc` command. We eventually tried to use the `build_intelcaffe.sh` and `docker` files to build it, which happened successfully, but both ended up having *distribute* folders with only *bin* and *lib*, both of which were empty.

Installing Streamer:

In installing Streamer we first ran into an issue with the **cmake** due our OpenCV version which we fixed by changing line 28 of the *CMakeLists.txt* file to **find_package(OpenCV 4.0 REQUIRED)**. After that, **make** ran fine, but **make tests** run into this issue:

```
highprecision-tower-7910:~/streamer/build
[ 89%] Built target test_camera_manager
Scanning dependencies of target test_strider
[ 91%] Building CXX object test_strider.dir/test_strider.cpp.o
[ 91%] Linking CXX executable test_strider
[ 91%] Built target test_strider
Scanning dependencies of target test_stream
[ 91%] Building CXX object test_stream.dir/test_stream.cpp.o
[ 91%] Linking CXX executable test_stream
[ 91%] Built target test_stream
Scanning dependencies of target test_tinytnt
[ 91%] Building CXX object test_tinytnt.dir/test_tinytnt.cpp.o
[ 91%] Linking CXX executable test_tinytnt
[ 91%] Built target test_tinytnt
Scanning dependencies of target test_gst_video_encoder
[ 91%] Building CXX object test_gst_video_encoder.dir/test_gst_video_encoder.cpp.o
[ 91%] Linking CXX executable test_gst_video_encoder
[ 91%] Built target test_gst_video_encoder
Scanning dependencies of target test_pipeline
[ 91%] Building CXX object test_pipeline.dir/test_pipeline.cpp.o
[ 91%] Linking CXX executable test_pipeline
[ 91%] Built target test_pipeline
Scanning dependencies of target test_context
[ 91%] Building CXX object test_context.dir/test_context.cpp.o
[ 91%] Linking CXX executable test_context
[ 91%] Built target test_context
Scanning dependencies of target test_vimba_camera
[ 91%] Building CXX object test_vimba_camera.dir/test_vimba_camera.cpp.o
[ 91%] Linking CXX executable test_vimba_camera
[ 91%] Built target test_vimba_camera
Scanning dependencies of target test_types
[ 91%] Building CXX object test_types.dir/test_types.cpp.o
In file included from /home/pushyant/streamer/3rdparty/googletest/include/gtest/gtest.h:1874:0,
                 from /home/pushyant/streamer/test/test_types.cpp:2:
/home/pushyant/streamer/test/test_types.cpp: In member function 'virtual void TestTypes_TestProcessorTypesStringConversion_Test::TestBody()':
/home/pushyant/streamer/test/test_types.cpp:70:13: error: 'PROCESSOR_TYPE_DB_WRITER' was not declared in this scope
   EXPECT_EQ(PROCESSOR_TYPE_DB_WRITER,
             ^
/home/pushyant/streamer/test/test_types.cpp:70:13: error: template argument 1 is invalid
   EXPECT_EQ(PROCESSOR_TYPE_DB_WRITER,
             ^
/home/pushyant/streamer/test/test_types.cpp:141:13: error: 'PROCESSOR_TYPE_OPENCV_PEOPLE_DETECTOR' was not declared in this scope
   EXPECT_EQ(PROCESSOR_TYPE_OPENCV_PEOPLE_DETECTOR,
             ^
/home/pushyant/streamer/test/test_types.cpp:141:13: error: template argument 1 is invalid
   EXPECT_EQ(PROCESSOR_TYPE_OPENCV_PEOPLE_DETECTOR,
             ^
test/ChakeFiles/test_types.dir/build.nmake:62: recipe for target 'test/ChakeFiles/test_types.dir/test_types.cpp.o' failed
make[1]: *** [test/ChakeFiles/test_types.dir/test_types.cpp.o] Error 1
ChakeFiles/makefile2:2092: recipe for target 'test/ChakeFiles/test_types.dir/all' failed
make[1]: *** [test/ChakeFiles/test_types.dir/all] Error 2
ChakeFiles/makefile2:2329: recipe for target 'test/ChakeFiles/test_types.dir/rule' failed
make[1]: *** [test/ChakeFiles/test_types.dir/rule] Error 2
ChakeFiles/makefile2:832: recipe for target 'tests' failed
make: *** [tests] Error 2
pushyant@precision-tower-7910:~/streamer/build$
```

This we fixed by simply commenting the lines out. After this, **make test** runs fine.

After this, we attempted to run some examples and ran **make apps** (following the **cmake** command for step 3 on 'Run basic image classification'), which ran into this issue:

```
446] Building CXX object src/Chakefiles/streamer.dir/processor/keyframe_detector/keyframe_detector.cpp.o
446] Building CXX object src/Chakefiles/streamer.dir/processor/keyframe_detector/keyframe_buffer.cpp.o
466] Building CXX object src/Chakefiles/streamer.dir/processor/jpeg_writer.cpp.o
466] Building CXX object src/Chakefiles/streamer.dir/processor/face_tracker.cpp.o
466] Building CXX object src/Chakefiles/streamer.dir/processor/writers/writer.cpp.o
466] Building CXX object src/Chakefiles/streamer.dir/processor/detectors/opencv_face_detector.cpp.o
476] Building CXX object src/Chakefiles/streamer.dir/processor/detectors/object_detector.cpp.o
476] Building CXX object src/Chakefiles/streamer.dir/processor/image_transformer.cpp.o
496] Building CXX object src/Chakefiles/streamer.dir/processor/pubsub/frame_publisher.cpp.o
496] Building CXX object src/Chakefiles/streamer.dir/processor/pubsub/frame_subscriber.cpp.o
496] Building CXX object src/Chakefiles/streamer.dir/processor/image_classifier.cpp.o
496] Building CXX object src/Chakefiles/streamer.dir/processor/image_segmenter.cpp.o
506] Building CXX object src/Chakefiles/streamer.dir/processor/receivers/receiver.cpp.o
In file included from /home/huston2/streamer/src/processor/receivers/receiver.cpp:18:
/home/huston2/streamer/src/processor/receivers/receiver.h:34:15: warning: 'Receiver::Receiver(const string&, const string&, const string&)'
std::string package_type_;
^
/home/huston2/streamer/src/processor/receivers/receiver.h:34:15: warning: 'std::string Receiver::aux_' [-Wreorder]
std::string aux_;
^
/home/huston2/streamer/src/processor/receivers/receiver.cpp:23:1: warning: 'when initialized here [-Wreorder]'
Receiver::Receiver(const std::string& endpoint, const std::string& package_type, const std::string& aux)
^
506] Building CXX object src/Chakefiles/streamer.dir/camera/camera.cpp.o
526] Building CXX object src/Chakefiles/streamer.dir/camera/camera_manager.cpp.o
526] Building CXX object src/Chakefiles/streamer.dir/camera/gst_camera.cpp.o
526] Building CXX object src/Chakefiles/streamer.dir/model/caffe_model.cpp.o
526] Building CXX object src/Chakefiles/streamer.dir/processor/caffe_facenet.cpp.o
536] Building CXX object src/Chakefiles/streamer.dir/processor/extractors/caffe_feature_extractor.cpp.o
/home/huston2/streamer/src/processor/extractors/caffe_feature_extractor.cpp: In member function 'virtual bool CaffeCNFFeatureExtractor::Init()':
/home/huston2/streamer/src/processor/extractors/caffe_feature_extractor.cpp:80:31: error: 'ResizeParameter' is not a member of 'caffe'
caffe::ResizeParameter* resize_param = transform_param.mutable_resize_param();
^
/home/huston2/streamer/src/processor/extractors/caffe_feature_extractor.cpp:80:27: error: 'resize_param' was not declared in this scope
caffe::ResizeParameter* resize_param = transform_param.mutable_resize_param();
^
/home/huston2/streamer/src/processor/extractors/caffe_feature_extractor.cpp:80:58: error: 'class caffe::TransformationParameter' has no member named 'mutable_resize_param'
caffe::ResizeParameter* resize_param = transform_param.mutable_resize_param();
^
/home/huston2/streamer/src/processor/extractors/caffe_feature_extractor.cpp:81:33: error: 'ResizeParameter_Resize_mode_WARP' is not a member of 'caffe'
resize_param->set_resize_mode(caffe::ResizeParameter_Resize_mode_WARP);
^
/home/huston2/streamer/src/processor/extractors/caffe_feature_extractor.cpp:91:33: error: 'ResizeParameter_Interp_mode_LINEAR' is not a member of 'caffe'
resize_param->add_interp_mode(caffe::ResizeParameter_Interp_mode_LINEAR);
^
src/Chakefiles/streamer.dir/build.make:1202: recipe for target 'src/Chakefiles/streamer.dir/processor/extractors/caffe_feature_extractor.cpp.o' failed
make[3]: *** [src/Chakefiles/streamer.dir/processor/extractors/caffe_feature_extractor.cpp.o] Error 1
Chakefiles/Makefile:117: recipe for target 'src/Chakefiles/streamer.dir/all' failed
make[2]: *** [src/Chakefiles/streamer.dir/all] Error 2
Chakefiles/Makefile:1206: recipe for target 'apps/Chakefiles/apps.dir/rule' failed
make[1]: *** [apps/Chakefiles/apps.dir/rule] Error 2
Makefile:481: recipe for target 'apps' failed
make: *** [apps] Error 2
```

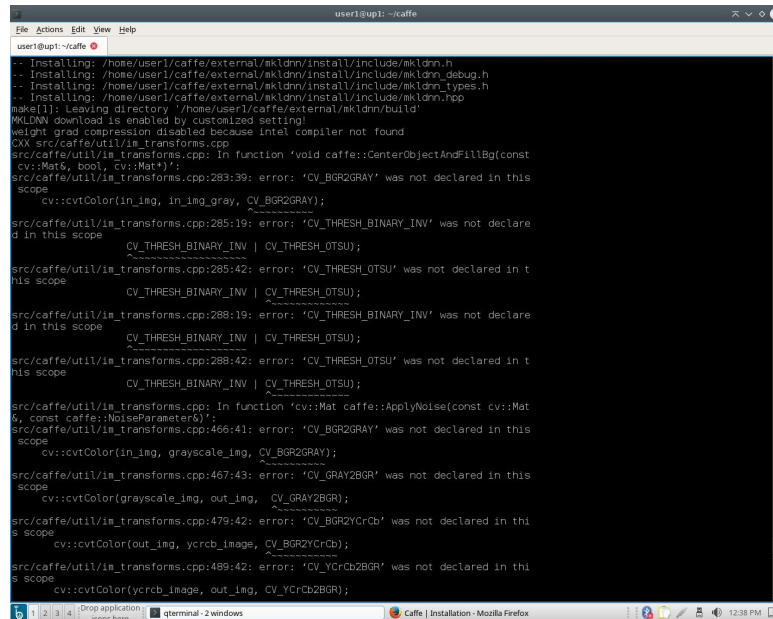
Tried to fix using **-DUSE_SSD=OFF** but the error still happened.

Without the **cmake** command for step 3, running just **make apps**, we found that the file **apps/classifiers/classifier.cpp** had to be fixed on lines 112 - 115 by **#define**'ing **CV_AA** and **CV_FONT_HERSHEY_PLAIN** outside the function (which we set as 1 and 2 respectively, and then swapped out in their place in the function calls). This successfully built apps.

We then tried to use the Dockerfile (with lines 299, 302, and 303 commented out). And ran into:

```
pushyami@Precision-tower-7910:~/streamer$ vim docker/streamer/Dockerfile
pushyami@Precision-tower-7910:~/streamer$ sudo docker build -f Dockerfile . -t streamer \
v --build-arg BACKEND=[cpu,opencv] \
v --build-arg USE_CAFFE=ON \
v --build-arg USE_SSD=ON \
v --build-arg USE_STRUCK=ON \
v --build-arg USE_WEBSOCKET=ON \
v --build-arg USE_MQTT=ON \
v --build-arg USE_KAFKA=ON \
v --build-arg USE_VDMS=ON \
v --build-arg USE_PYTHON=ON \
v --build-arg GITHUB_TOKEN=52fabed4f2615808ab75cbdf8d0c539036bd9db4 \
v --build-arg GITHUB_URL=github.com/syang100/streamer
unable to prepare context: unable to evaluate symlinks in Dockerfile path: lstat /home/pushyami/streamer/Dockerfile: no such file or directory
pushyami@Precision-tower-7910:~/streamer$ --build-arg STREAMER_HASH=704fe989d50ffa80ae404281ac28ddb6dfcaf8d8
--build-arg: command not found
pushyami@Precision-tower-7910:~/streamer$
```

Also ran into a different issue (attempting to resolve what was ran to cause it):



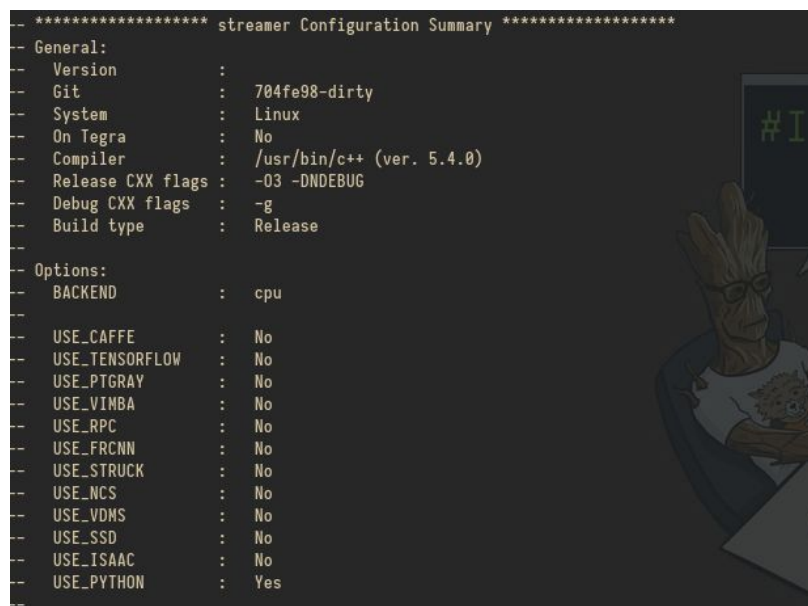
```
user1@up1: ~$ cd caffe
-- Installing: /home/user1/caffe/external/mkldnn/install/include/mkldnn.h
-- Installing: /home/user1/caffe/external/mkldnn/install/include/mkldnn_debug.h
-- Installing: /home/user1/caffe/external/mkldnn/install/include/mkldnn_types.h
-- Installing: /home/user1/caffe/external/mkldnn/install/include/mkldnn.hpp
make[1]: Leaving directory '/home/user1/caffe/external/mkldnn/build'
MKLDNN download is enabled by customized setting!
weight_grad compression disabled because intel compiler not found
CXX src/caffe/util/image_transforms.cpp
src/caffe/util/image_transforms.cpp: In function 'void caffe::CenterObjectAndFillBg(const cv::Mat&, bool, cv::Mat*)':
src/caffe/util/image_transforms.cpp:283:39: error: 'CV_BGR2GRAY' was not declared in this scope
    cv::cvtColor(in_img, in_img_gray, CV_BGR2GRAY);
                                      ^
src/caffe/util/image_transforms.cpp:285:19: error: 'CV_THRESH_BINARY_INV' was not declared in this scope
    CV_THRESH_BINARY_INV | CV_THRESH_OTSU);
    ^
src/caffe/util/image_transforms.cpp:285:42: error: 'CV_THRESH_OTSU' was not declared in this scope
    CV_THRESH_BINARY_INV | CV_THRESH_OTSU);
    ^
src/caffe/util/image_transforms.cpp:288:19: error: 'CV_THRESH_BINARY_INV' was not declared in this scope
    CV_THRESH_BINARY_INV | CV_THRESH_OTSU);
    ^
src/caffe/util/image_transforms.cpp:288:42: error: 'CV_THRESH_OTSU' was not declared in this scope
    CV_THRESH_BINARY_INV | CV_THRESH_OTSU);
    ^
src/caffe/util/image_transforms.cpp: In function 'cv::Mat caffe::ApplyNoise(const cv::Mat&, const caffe::NoiseParameters&)':
src/caffe/util/image_transforms.cpp:466:41: error: 'CV_BGR2GRAY' was not declared in this scope
    cv::cvtColor(in_img, grayscale_img, CV_BGR2GRAY);
                                      ^
src/caffe/util/image_transforms.cpp:467:43: error: 'CV_GRAY2BGR' was not declared in this scope
    cv::cvtColor(grayscale_img, out_img, CV_GRAY2BGR);
                                      ^
src/caffe/util/image_transforms.cpp:479:42: error: 'CV_BGR2YCrCb' was not declared in this scope
    cv::cvtColor(out_img, ycrb_image, CV_BGR2YCrCb);
                                      ^
src/caffe/util/image_transforms.cpp:489:42: error: 'CV_YCrCb2BGR' was not declared in this scope
    cv::cvtColor(ycrb_image, out_img, CV_YCrCb2BGR);
                                      ^
```

Streamer Py errors:

Even after setting the cmake argument to build with python support, as seen:

```
amolj@Precision-tower-7910:~/streamer$ cmake -DCMAKE_BUILD_TYPE=Release -DBACKEND=cuda -DTEST_ON=yes -D USE_PYTHON=yes ..
```

And seeing the corresponding option respected in the cmake summary:



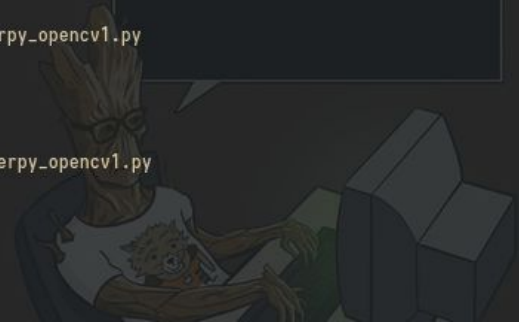
```
***** streamer Configuration Summary *****
-- General:
--   Version      : 
--   Git          : 704fe98-dirty
--   System       : Linux
--   On Tegra     : No
--   Compiler     : /usr/bin/c++ (ver. 5.4.0)
--   Release CXX flags : -O3 -DNDEBUG
--   Debug CXX flags  : -g
--   Build type    : Release
-- Options:
--   BACKEND      : cuda
--   USE_CAFFE    : No
--   USE_TENSORFLOW : No
--   USE_PTGRAY   : No
--   USE_VIMBA    : No
--   USE_RPC      : No
--   USE_FRCNN    : No
--   USE_STRUCK   : No
--   USE_NCS      : No
--   USE_VDMS     : No
--   USE_SSD      : No
--   USE_ISAAC    : No
--   USE_PYTHON   : Yes
```

Every single python program fails to find the streamer module:

It's a similar problem with the programs in the python folder, as they end up complaining about missing modules:

```
amolj@Precision-tower-7910:~/streamer/examples/python$ ls
streamerpy_classifier1.py streamerpy_classifier3.py streamerpy_detector2.py streamerpy_opencv1.py streamerpy_opencv3.py streamerpy_
streamerpy_classifier2.py streamerpy_detector1.py streamerpy_detector3.py streamerpy_opencv2.py streamerpy_pipeline1.py streamerpy_
amolj@Precision-tower-7910:~/streamer/examples/python$ python2 streamerpy_classifier1.py
Traceback (most recent call last):
  File "streamerpy_classifier1.py", line 3, in <module>
    import streamerpy
ImportError: No module named streamerpy
amolj@Precision-tower-7910:~/streamer/examples/python$ python streamerpy_classifier1.py
Traceback (most recent call last):
  File "streamerpy_classifier1.py", line 3, in <module>
    import streamerpy
ImportError: No module named streamerpy
amolj@Precision-tower-7910:~/streamer/examples/python$ python streamerpy_opencv1.py
Traceback (most recent call last):
  File "streamerpy_opencv1.py", line 3, in <module>
    import streamerpy
ImportError: No module named streamerpy
amolj@Precision-tower-7910:~/streamer/examples/python$ python2 streamerpy_opencv1.py
Traceback (most recent call last):
  File "streamerpy_opencv1.py", line 3, in <module>
    import streamerpy
ImportError: No module named streamerpy
amolj@Precision-tower-7910:~/streamer/examples/python$
```

#I AM ROOT!_



```
amolj@Precision-tower-7910:~/streamer/python$ ls
__init__.py  requirements.txt  streamer  streamer
amolj@Precision-tower-7910:~/streamer/python$ python streamer_example.py
Traceback (most recent call last):
  File "streamer_example.py", line 2, in <module>
    import streamer.camera
  File "/home/amolj/streamer/python/streamer/camera.py", line 1, in <module>
    import core
  File "/home/amolj/streamer/python/streamer/core.py", line 1, in <module>
    import requests
ImportError: No module named requests
amolj@Precision-tower-7910:~/streamer/python$
```