# TensorFlow-Slim NASNet-A Implementation/Checkpoints

This directory contains the code for the NASNet-A model from the paper Learning Transferable Architectures for Scalable Image Recognition by Zoph et al. In nasnet.py there are three different configurations of NASNet-A that are implementented. One of the models is the NASNet-A built for CIFAR-10 and the other two are variants of NASNet-A trained on ImageNet, which are listed below.

# Pre-Trained Models

Two NASNet-A checkpoints are available that have been trained on the ILSVRC-2012-CLS image classification dataset. Accuracies were computed by evaluating using a single image crop.

| Model Checkpoint | Million MACs | Million Parameters | Top-1 Accuracy | Top-5 Accuracy |
|---|---|---|---|---|
| NASNet-A_Mobile_224 | 564 | 5.3 | 74.0 | 91.6 |
| NASNet-A_Large_331 | 23800 | 88.9 | 82.7 | 96.2 |

Here is an example of how to download the NASNet-A_Mobile_224 checkpoint. The way to download the NASNet-A_Large_331 is the same.

```
CHECKPOINT_DIR=/tmp/checkpoints
mkdir ${CHECKPOINT_DIR}
cd ${CHECKPOINT_DIR}
wget https://storage.googleapis.com/download.tensorflow.org/models/nasnet-
a_mobile_04_10_2017.tar.gz
tar -xvf nasnet-a_mobile_04_10_2017.tar.gz
rm nasnet-a_mobile_04_10_2017.tar.gz
```

More information on integrating NASNet Models into your project can be found at the TF-Slim Image Classification Library.

To get started running models on-device go to TensorFlow Mobile.

## Sample Commands for using NASNet-A Mobile and Large Checkpoints for Inference

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Run eval with the NASNet-A mobile ImageNet model

```
DATASET_DIR=/tmp/imagenet
EVAL_DIR=/tmp/tfmodel/eval
CHECKPOINT_DIR=/tmp/checkpoints/model.ckpt
python tensorflow_models/research/slim/eval_image_classifier \
--checkpoint_path=${CHECKPOINT_DIR} \
--eval_dir=${EVAL_DIR} \
--dataset_dir=${DATASET_DIR} \
--dataset_name=imagenet \
```

```
--dataset_split_name=validation \
--model_name=nasnet_mobile \
--eval_image_size=224
```

Run eval with the NASNet-A large ImageNet model

```
DATASET_DIR=/tmp/imagenet
EVAL_DIR=/tmp/tfmodel/eval
CHECKPOINT_DIR=/tmp/checkpoints/model.ckpt
python tensorflow_models/research/slim/eval_image_classifier \
--checkpoint_path=${CHECKPOINT_DIR} \
--eval_dir=${EVAL_DIR} \
--dataset_dir=${DATASET_DIR} \
--dataset_name=imagenet \
--dataset_split_name=validation \
--model_name=nasnet_large \
--eval_image_size=331
```