

## tf.contrib.gan.get\_joint\_train\_hooks

```
get_joint_train_hooks(train_steps=namedtuples.GANTrainSteps(1, 1))
```

Defined in [tensorflow/contrib/gan/python/train.py](#).

Returns a hooks function for sequential GAN training.

When using these train hooks, IT IS RECOMMENDED TO USE `use_locking=True` ON ALL OPTIMIZERS TO AVOID RACE CONDITIONS.

The order of steps taken is: 1) Combined generator and discriminator steps 2) Generator only steps, if any remain 3) Discriminator only steps, if any remain

**NOTE:** Unlike `get_sequential_train_hooks`, this method performs updates for the generator and discriminator simultaneously whenever possible. This reduces the number of `tf.Session` calls, and can also change the training semantics.

To illustrate the difference look at the following example:

`train_steps=namedtuples.GANTrainSteps(3, 5)` will cause `get_sequential_train_hooks` to make 8 session calls: 1) 3 generator steps 2) 5 discriminator steps

In contrast, `get_joint_train_steps` will make 5 session calls: 1) 3 generator + discriminator steps 2) 2 discriminator steps

### Args:

- `train_steps`: A `GANTrainSteps` tuple that determines how many generator and discriminator training steps to take.

### Returns:

A function that takes a `GANTrainOps` tuple and returns a list of hooks.

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