

tf.clip_by_norm

```
clip_by_norm(  
    t,  
    clip_norm,  
    axes=None,  
    name=None  
)
```

Defined in [tensorflow/python/ops/clip_ops.py](#).

See the guide: [Training > Gradient Clipping](#)

Clips tensor values to a maximum L2-norm.

Given a tensor `t`, and a maximum clip value `clip_norm`, this operation normalizes `t` so that its L2-norm is less than or equal to `clip_norm`, along the dimensions given in `axes`. Specifically, in the default case where all dimensions are used for calculation, if the L2-norm of `t` is already less than or equal to `clip_norm`, then `t` is not modified. If the L2-norm is greater than `clip_norm`, then this operation returns a tensor of the same type and shape as `t` with its values set to:

$$t * clip_norm / l2norm(t)$$

In this case, the L2-norm of the output tensor is `clip_norm`.

As another example, if `t` is a matrix and `axes == [1]`, then each row of the output will have L2-norm equal to `clip_norm`. If `axes == [0]` instead, each column of the output will be clipped.

This operation is typically used to clip gradients before applying them with an optimizer.

Args:

- `t`: A `Tensor`.
- `clip_norm`: A 0-D (scalar) `Tensor` > 0. A maximum clipping value.
- `axes`: A 1-D (vector) `Tensor` of type int32 containing the dimensions to use for computing the L2-norm. If `None` (the default), uses all dimensions.
- `name`: A name for the operation (optional).

Returns:

A clipped `Tensor`.

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