TensorFlow    API r1.4

# tf.keras.callbacks.ReduceLROnPlateau

## Class **ReduceLROnPlateau**

Inherits From: **Callback**

Defined in **tensorflow/python/keras/_impl/keras/callbacks.py** .

Reduce learning rate when a metric has stopped improving.

Models often benefit from reducing the learning rate by a factor of 2-10 once learning stagnates. This callback monitors a quantity and if no improvement is seen for a 'patience' number of epochs, the learning rate is reduced.

Example:

```
reduce_lr = ReduceLROnPlateau(monitor='val_loss', factor=0.2,
                              patience=5, min_lr=0.001)
model.fit(X_train, Y_train, callbacks=[reduce_lr])
```

## Arguments:

- `monitor` : quantity to be monitored.
- `factor` : factor by which the learning rate will be reduced. new_lr = lr * factor
- `patience` : number of epochs with no improvement after which learning rate will be reduced.
- `verbose` : int. 0: quiet, 1: update messages.
- `mode` : one of {auto, min, max}. In `min` mode, lr will be reduced when the quantity monitored has stopped decreasing; in `max` mode it will be reduced when the quantity monitored has stopped increasing; in `auto` mode, the direction is automatically inferred from the name of the monitored quantity.
- `epsilon` : threshold for measuring the new optimum, to only focus on significant changes.
- `cooldown` : number of epochs to wait before resuming normal operation after lr has been reduced.
- `min_lr` : lower bound on the learning rate.

## Methods

### **\_\_init\_\_**

```
__init__(
    monitor='val_loss',
    factor=0.1,
    patience=10,
    verbose=0,
    mode='auto',
    epsilon=0.0001,
    cooldown=0,
    min_lr=0
)
```

## in_cooldown

```
in_cooldown()
```

## on_batch_begin

```
on_batch_begin(
    batch,
    logs=None
)
```

## on_batch_end

```
on_batch_end(
    batch,
    logs=None
)
```

## on_epoch_begin

```
on_epoch_begin(
    epoch,
    logs=None
)
```

## on_epoch_end

```
on_epoch_end(
    epoch,
    logs=None
)
```

## on_train_begin

```
on_train_begin(logs=None)
```

## on_train_end

```
on_train_end(logs=None)
```

## set_model

```
set_model(model)
```

## set_params

```
set_params(params)
```

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