

tf.keras.metrics.RootMeanSquaredError



[TensorFlow](#)
[1 version](#)

[\(/versions/r1.15/api_docs/python/tf/keras/metrics/RootMeanSquaredError\)](https://www.tensorflow.org/api_docs/python/tf/keras/metrics/RootMeanSquaredError)



[View source](#) (<https://github.com/tensorflow/tensorflow/blob/r1.15/tensorflow/python/keras/metrics.py#L2767>).
[on GitHub](#)

Computes root mean squared error metric between `y_true` and `y_pred`.

Inherits From: [Mean](#) (https://www.tensorflow.org/api_docs/python/tf/keras/metrics/Mean), [Metric](#) (https://www.tensorflow.org/api_docs/python/tf/keras/metrics/Metric), [Layer](#) (https://www.tensorflow.org/api_docs/python/tf/keras/layers/Layer), [Module](#) (https://www.tensorflow.org/api_docs/python/tf/Module)

[+ View aliases](#)

Main aliases

[tf.metrics.RootMeanSquaredError](#)

(https://www.tensorflow.org/api_docs/python/tf/keras/metrics/RootMeanSquaredError)

Compat aliases for migration

See [Migration guide](#) (<https://www.tensorflow.org/guide/migrate>) for more details.

[tf.compat.v1.keras.metrics.RootMeanSquaredError](#)

(https://www.tensorflow.org/api_docs/python/tf/keras/metrics/RootMeanSquaredError)

```
tf.keras.metrics.RootMeanSquaredError(  
    name='root_mean_squared_error', dtype=None  
)
```

Used in the notebooks

Used in the tutorials

- [Recommending movies: ranking](#) (https://www.tensorflow.org/recommenders/examples/basic_ranking)
- [Deep & Cross Network \(DCN\)](#) (<https://www.tensorflow.org/recommenders/examples/dcn>)
- [Multi-task recommenders](#) (<https://www.tensorflow.org/recommenders/examples/multitask>)

Standalone usage:

```
>>> m = tf.keras.metrics.RootMeanSquaredError()
>>> m.update_state([[0, 1], [0, 0]], [[1, 1], [0, 0]])
>>> m.result().numpy()
0.5

>>> m.reset_state()
>>> m.update_state([[0, 1], [0, 0]], [[1, 1], [0, 0]],
...               sample_weight=[1, 0])
>>> m.result().numpy()
0.70710677
```

Usage with `compile()` API:

```
model.compile(
    optimizer='sgd',
    loss='mse',
    metrics=[tf.keras.metrics.RootMeanSquaredError()])
```

Methods

`reset_state`

[View source](https://github.com/tensorflow/tensorflow/blob/v2.5.0/tensorflow/python/keras/metrics.py#L247-L260) (https://github.com/tensorflow/tensorflow/blob/v2.5.0/tensorflow/python/keras/metrics.py#L247-L260)

```
reset_state()
```

Resets all of the metric state variables.

This function is called between epochs/steps, when a metric is evaluated during training.

`result`

[View source](https://github.com/tensorflow/tensorflow/blob/v2.5.0/tensorflow/python/keras/metrics.py#L2766-L2767) (https://github.com/tensorflow/tensorflow/blob/v2.5.0/tensorflow/python/keras/metrics.py#L2766-L2767)

```
result()
```

Computes and returns the metric value tensor.

Result computation is an idempotent operation that simply calculates the metric value using the state variables.

update_state

[View source](https://github.com/tensorflow/tensorflow/blob/v2.5.0/tensorflow/python/keras/metrics.py#L2745-L2764) (https://github.com/tensorflow/tensorflow/blob/v2.5.0/tensorflow/python/keras/metrics.py#L2745-L2764)

```
update_state(  
    y_true, y_pred, sample_weight=None  
)
```

Accumulates root mean squared error statistics.

Args

y_true	The ground truth values.
y_pred	The predicted values.
sample_weight	Optional weighting of each example. Defaults to 1. Can be a <code>Tensor</code> whose rank is either 0, or the same rank as <code>y_true</code> , and must be broadcastable to <code>y_true</code> .

Returns

Update op.

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Last updated 2021-05-14 UTC.