

## tf.sets.set\_union

## Contents

## Aliases:

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- `tf.contrib.metrics.set_union`
- `tf.sets.set_union`

```
set_union(  
    a,  
    b,  
    validate_indices=True  
)
```

Defined in `tensorflow/python/ops/sets_impl.py`.

See the guide: [Metrics \(contrib\) > Set Ops](#)

Compute set union of elements in last dimension of `a` and `b`.

All but the last dimension of `a` and `b` must match.

Example:

```

import tensorflow as tf
import collections

# [{1, 2}, {3}], [{4}, {5, 6}]
a = collections.OrderedDict([
    ((0, 0, 0), 1),
    ((0, 0, 1), 2),
    ((0, 1, 0), 3),
    ((1, 0, 0), 4),
    ((1, 1, 0), 5),
    ((1, 1, 1), 6),
])
a = tf.SparseTensor(list(a.keys()), list(a.values()), dense_shape=[2, 2, 2])

# [{1, 3}, {2}], [{4, 5}, {5, 6, 7, 8}]
b = collections.OrderedDict([
    ((0, 0, 0), 1),
    ((0, 0, 1), 3),
    ((0, 1, 0), 2),
    ((1, 0, 0), 4),
    ((1, 0, 1), 5),
    ((1, 1, 0), 5),
    ((1, 1, 1), 6),
    ((1, 1, 2), 7),
    ((1, 1, 3), 8),
])
b = tf.SparseTensor(list(b.keys()), list(b.values()), dense_shape=[2, 2, 4])

# `set_union` is applied to each aligned pair of sets.
tf.sets.set_union(a, b)

# The result will be a equivalent to either of:
#
# np.array([[{1, 2, 3}, {2, 3}], [{4, 5}, {5, 6, 7, 8}]])
#
# collections.OrderedDict([
#     ((0, 0, 0), 1),
#     ((0, 0, 1), 2),
#     ((0, 0, 2), 3),
#     ((0, 1, 0), 2),
#     ((0, 1, 1), 3),
#     ((1, 0, 0), 4),
#     ((1, 0, 1), 5),
#     ((1, 1, 0), 5),
#     ((1, 1, 1), 6),
#     ((1, 1, 2), 7),
#     ((1, 1, 3), 8),
# ])

```

#### Args:

- **a**: **Tensor** or **SparseTensor** of the same type as **b**. If sparse, indices must be sorted in row-major order.
- **b**: **Tensor** or **SparseTensor** of the same type as **a**. If sparse, indices must be sorted in row-major order.
- **validate\_indices**: Whether to validate the order and range of sparse indices in **a** and **b**.

#### Returns:

A **SparseTensor** whose shape is the same rank as **a** and **b**, and all but the last dimension the same. Elements along the last dimension contain the unions.

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