

## tf.scatter\_mul

```
scatter_mul(  
    ref,  
    indices,  
    updates,  
    use_locking=False,  
    name=None  
)
```

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

See the guide: [Variables > Sparse Variable Updates](#)

Multiplies sparse updates into a variable reference.

This operation computes

```
# Scalar indices  
ref[indices, ...] *= updates[...]  
  
# Vector indices (for each i)  
ref[indices[i], ...] *= updates[i, ...]  
  
# High rank indices (for each i, ..., j)  
ref[indices[i, ..., j], ...] *= updates[i, ..., j, ...]
```

This operation outputs `ref` after the update is done. This makes it easier to chain operations that need to use the reset value.

Duplicate entries are handled correctly: if multiple `indices` reference the same location, their contributions multiply.

Requires `updates.shape = indices.shape + ref.shape[1:]`.

Args:

- `ref`: A mutable `Tensor`. Must be one of the following types: `float32`, `float64`, `int64`, `int32`, `uint8`, `uint16`, `int16`, `int8`, `complex64`, `complex128`, `qint8`, `quint8`, `qint32`, `half`. Should be from a `Variable` node.
- `indices`: A `Tensor`. Must be one of the following types: `int32`, `int64`. A tensor of indices into the first dimension of `ref`.
- `updates`: A `Tensor`. Must have the same type as `ref`. A tensor of updated values to multiply to `ref`.
- `use_locking`: An optional `bool`. Defaults to `False`. If True, the operation will be protected by a lock; otherwise the behavior is undefined, but may exhibit less contention.
- `name`: A name for the operation (optional).

Returns:

Same as `ref`. Returned as a convenience for operations that want to use the updated values after the update is done.

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