Module: tf.compat.v1.graph\_util

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Helpers to manipulate a tensor graph in python.

Functions

[convert\_variables\_to\_constants(...)](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/convert_variables_to_constants): Replaces all the variables in a graph with constants of the same values. (deprecated)

[extract\_sub\_graph(...)](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/extract_sub_graph): Extract the subgraph that can reach any of the nodes in 'dest\_nodes'. (deprecated)

[import\_graph\_def(...)](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/graph_util/import_graph_def): Imports the graph from graph\_def into the current default Graph. (deprecated arguments)

[must\_run\_on\_cpu(...)](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/must_run_on_cpu): Returns True if the given node\_def must run on CPU, otherwise False. (deprecated)

[remove\_training\_nodes(...)](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/remove_training_nodes): Prunes out nodes that aren't needed for inference. (deprecated)

[tensor\_shape\_from\_node\_def\_name(...)](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/tensor_shape_from_node_def_name): Convenience function to get a shape from a NodeDef's input string. (deprecated)

# tf.compat.v1.graph\_util.convert\_variables\_to\_constants

Replaces all the variables in a graph with constants of the same values. (deprecated)

tf.compat.v1.graph\_util.convert\_variables\_to\_constants(  
    sess,  
    input\_graph\_def,  
    output\_node\_names,  
    variable\_names\_whitelist=None,  
    variable\_names\_blacklist=None  
)

Defined in [python/framework/graph\_util\_impl.py](https://github.com/tensorflow/tensorflow/tree/r2.0/tensorflow/python/framework/graph_util_impl.py).

**Warning:** THIS FUNCTION IS DEPRECATED. It will be removed in a future version. Instructions for updating: Use [**tf.compat.v1.graph\_util.convert\_variables\_to\_constants**](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/convert_variables_to_constants)

If you have a trained graph containing Variable ops, it can be convenient to convert them all to Const ops holding the same values. This makes it possible to describe the network fully with a single GraphDef file, and allows the removal of a lot of ops related to loading and saving the variables.

#### Args:

* **sess**: Active TensorFlow session containing the variables.
* **input\_graph\_def**: GraphDef object holding the network.
* **output\_node\_names**: List of name strings for the result nodes of the graph.
* **variable\_names\_whitelist**: The set of variable names to convert (by default, all variables are converted).
* **variable\_names\_blacklist**: The set of variable names to omit converting to constants.

#### Returns:

GraphDef containing a simplified version of the original.

# tf.compat.v1.graph\_util.extract\_sub\_graph

Extract the subgraph that can reach any of the nodes in 'dest\_nodes'. (deprecated)

tf.compat.v1.graph\_util.extract\_sub\_graph(  
    graph\_def,  
    dest\_nodes  
)

Defined in [python/framework/graph\_util\_impl.py](https://github.com/tensorflow/tensorflow/tree/r2.0/tensorflow/python/framework/graph_util_impl.py).

**Warning:** THIS FUNCTION IS DEPRECATED. It will be removed in a future version. Instructions for updating: Use [**tf.compat.v1.graph\_util.extract\_sub\_graph**](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/extract_sub_graph)

#### Args:

* **graph\_def**: A graph\_pb2.GraphDef proto.
* **dest\_nodes**: A list of strings specifying the destination node names.

#### Returns:

The GraphDef of the sub-graph.

#### Raises:

* **TypeError**: If 'graph\_def' is not a graph\_pb2.GraphDef proto.

# tf.compat.v1.graph\_util.must\_run\_on\_cpu

Returns True if the given node\_def must run on CPU, otherwise False. (deprecated)

tf.compat.v1.graph\_util.must\_run\_on\_cpu(  
    node,  
    pin\_variables\_on\_cpu=False  
)

Defined in [python/framework/graph\_util\_impl.py](https://github.com/tensorflow/tensorflow/tree/r2.0/tensorflow/python/framework/graph_util_impl.py).

**Warning:** THIS FUNCTION IS DEPRECATED. It will be removed in a future version. Instructions for updating: Use [**tf.compat.v1.graph\_util.must\_run\_on\_cpu**](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/must_run_on_cpu)

#### Args:

* **node**: The node to be assigned to a device. Could be either an ops.Operation or NodeDef.
* **pin\_variables\_on\_cpu**: If True, this function will return False if node\_def represents a variable-related op.

#### Returns:

True if the given node must run on CPU, otherwise False.

# tf.compat.v1.graph\_util.remove\_training\_nodes

Prunes out nodes that aren't needed for inference. (deprecated)

tf.compat.v1.graph\_util.remove\_training\_nodes(  
    input\_graph,  
    protected\_nodes=None  
)

Defined in [python/framework/graph\_util\_impl.py](https://github.com/tensorflow/tensorflow/tree/r2.0/tensorflow/python/framework/graph_util_impl.py).

**Warning:** THIS FUNCTION IS DEPRECATED. It will be removed in a future version. Instructions for updating: Use [**tf.compat.v1.graph\_util.remove\_training\_nodes**](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/remove_training_nodes)

There are nodes like Identity and CheckNumerics that are only useful during training, and can be removed in graphs that will be used for nothing but inference. Here we identify and remove them, returning an equivalent graph. To be specific, CheckNumerics nodes are always removed, and Identity nodes that aren't involved in control edges are spliced out so that their input and outputs are directly connected.

#### Args:

* **input\_graph**: Model to analyze and prune.
* **protected\_nodes**: An optional list of names of nodes to be kept unconditionally. This is for example useful to preserve Identity output nodes.

#### Returns:

A list of nodes with the unnecessary ones removed.

tf.compat.v1.graph\_util.tensor\_shape\_from\_node\_def\_name

Convenience function to get a shape from a NodeDef's input string. (deprecated)

tf.compat.v1.graph\_util.tensor\_shape\_from\_node\_def\_name(  
    graph,  
    input\_name  
)

Defined in [python/framework/graph\_util\_impl.py](https://github.com/tensorflow/tensorflow/tree/r2.0/tensorflow/python/framework/graph_util_impl.py).

**Warning:** THIS FUNCTION IS DEPRECATED. It will be removed in a future version. Instructions for updating: Use [**tf.compat.v1.graph\_util.tensor\_shape\_from\_node\_def\_name**](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/compat/v1/graph_util/tensor_shape_from_node_def_name)

# tf.graph\_util.import\_graph\_def

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* [Aliases:](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/graph_util/import_graph_def#aliases)

Imports the graph from graph\_def into the current default Graph. (deprecated arguments)

### Aliases:

* tf.compat.v1.graph\_util.import\_graph\_def
* tf.compat.v1.import\_graph\_def
* tf.compat.v2.graph\_util.import\_graph\_def
* tf.compat.v2.import\_graph\_def
* tf.graph\_util.import\_graph\_def
* tf.import\_graph\_def

tf.graph\_util.import\_graph\_def(  
    graph\_def,  
    input\_map=None,  
    return\_elements=None,  
    name=None,  
    op\_dict=None,  
    producer\_op\_list=None  
)

Defined in [python/framework/importer.py](https://github.com/tensorflow/tensorflow/tree/r2.0/tensorflow/python/framework/importer.py).

**Warning:** SOME ARGUMENTS ARE DEPRECATED: **(op\_dict)**. They will be removed in a future version. Instructions for updating: Please file an issue at https://github.com/tensorflow/tensorflow/issues if you depend on this feature.

This function provides a way to import a serialized TensorFlow [GraphDef](https://www.tensorflow.org/code/tensorflow/core/framework/graph.proto) protocol buffer, and extract individual objects in the GraphDef as [tf.Tensor](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/Tensor) and [tf.Operation](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/Operation) objects. Once extracted, these objects are placed into the current default Graph. See [tf.Graph.as\_graph\_def](https://www.tensorflow.org/versions/r2.0/api_docs/python/tf/Graph#as_graph_def) for a way to create a GraphDef proto.

#### Args:

* **graph\_def**: A GraphDef proto containing operations to be imported into the default graph.
* **input\_map**: A dictionary mapping input names (as strings) in graph\_def to Tensor objects. The values of the named input tensors in the imported graph will be re-mapped to the respective Tensor values.
* **return\_elements**: A list of strings containing operation names in graph\_def that will be returned as Operation objects; and/or tensor names in graph\_def that will be returned as Tensor objects.
* **name**: (Optional.) A prefix that will be prepended to the names in graph\_def. Note that this does not apply to imported function names. Defaults to "import".
* **op\_dict**: (Optional.) Deprecated, do not use.
* **producer\_op\_list**: (Optional.) An OpList proto with the (possibly stripped) list of OpDefs used by the producer of the graph. If provided, unrecognized attrs for ops in graph\_def that have their default value according to producer\_op\_list will be removed. This will allow some more GraphDefs produced by later binaries to be accepted by earlier binaries.

#### Returns:

A list of Operation and/or Tensor objects from the imported graph, corresponding to the names in return\_elements, and None if returns\_elements is None.

#### Raises:

* **TypeError**: If graph\_def is not a GraphDef proto, input\_map is not a dictionary mapping strings to Tensor objects, or return\_elements is not a list of strings.
* **ValueError**: If input\_map, or return\_elements contains names that do not appear in graph\_def, or graph\_def is not well-formed (e.g. it refers to an unknown tensor).