

tf.train.ClusterSpec

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Class ClusterSpec

Defined in [tensorflow/python/training/server_lib.py](#).

See the guide: [Training > Distributed execution](#)

Represents a cluster as a set of "tasks", organized into "jobs".

A `tf.train.ClusterSpec` represents the set of processes that participate in a distributed TensorFlow computation. Every `tf.train.Server` is constructed in a particular cluster.

To create a cluster with two jobs and five tasks, you specify the mapping from job names to lists of network addresses (typically hostname-port pairs).

```
cluster = tf.train.ClusterSpec({"worker": ["worker0.example.com:2222",
                                           "worker1.example.com:2222",
                                           "worker2.example.com:2222"],
                              "ps": ["ps0.example.com:2222",
                                      "ps1.example.com:2222"]})
```

Each job may also be specified as a sparse mapping from task indices to network addresses. This enables a server to be configured without needing to know the identity of (for example) all other worker tasks:

```
cluster = tf.train.ClusterSpec({"worker": {1: "worker1.example.com:2222"},
                              "ps": ["ps0.example.com:2222",
                                      "ps1.example.com:2222"]})
```

Properties

jobs

Returns a list of job names in this cluster.

Returns:

A list of strings, corresponding to the names of jobs in this cluster.

Methods

`__init__`

```
__init__(cluster)
```

Creates a `ClusterSpec`.

Args:

- `cluster`: A dictionary mapping one or more job names to (i) a list of network addresses, or (ii) a dictionary mapping integer task indices to network addresses; or a `tf.train.ClusterDef` protocol buffer.

Raises:

- `TypeError`: If `cluster` is not a dictionary mapping strings to lists of strings, and not a `tf.train.ClusterDef` protobuf.

`__bool__`

```
__bool__()
```

`__eq__`

```
__eq__(other)
```

`__ne__`

```
__ne__(other)
```

`__nonzero__`

```
__nonzero__()
```

`as_cluster_def`

```
as_cluster_def()
```

Returns a `tf.train.ClusterDef` protocol buffer based on this cluster.

`as_dict`

```
as_dict()
```

Returns a dictionary from job names to their tasks.

For each job, if the task index space is dense, the corresponding value will be a list of network addresses; otherwise it will be a dictionary mapping (sparse) task indices to the corresponding addresses.

Returns:

A dictionary mapping job names to lists or dictionaries describing the tasks in those jobs.

job_tasks

```
job_tasks(job_name)
```

Returns a mapping from task ID to address in the given job.

NOTE: For backwards compatibility, this method returns a list. If the given job was defined with a sparse set of task indices, the length of this list may not reflect the number of tasks defined in this job. Use the `tf.train.ClusterSpec.num_tasks` method to find the number of tasks defined in a particular job.

Args:

- `job_name`: The string name of a job in this cluster.

Returns:

A list of task addresses, where the index in the list corresponds to the task index of each task. The list may contain `None` if the job was defined with a sparse set of task indices.

Raises:

- `ValueError`: If `job_name` does not name a job in this cluster.

num_tasks

```
num_tasks(job_name)
```

Returns the number of tasks defined in the given job.

Args:

- `job_name`: The string name of a job in this cluster.

Returns:

The number of tasks defined in the given job.

Raises:

- `ValueError`: If `job_name` does not name a job in this cluster.

task_address

```
task_address(  
    job_name,  
    task_index  
)
```

Returns the address of the given task in the given job.

Args:

- `job_name` : The string name of a job in this cluster.
- `task_index` : A non-negative integer.

Returns:

The address of the given task in the given job.

Raises:

- `ValueError` : If `job_name` does not name a job in this cluster, or no task with index `task_index` is defined in that job.

task_indices

```
task_indices(job_name)
```

Returns a list of valid task indices in the given job.

Args:

- `job_name` : The string name of a job in this cluster.

Returns:

A list of valid task indices in the given job.

Raises:

- `ValueError` : If `job_name` does not name a job in this cluster, or no task with index `task_index` is defined in that job.

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