tf.DeviceSpec

Contents

Class DeviceSpec
Properties
job
replica

Class **DeviceSpec**

Defined in `tensorflow/python/framework/device.py`.

Represents a (possibly partial) specification for a TensorFlow device.

`DeviceSpec`s are used throughout TensorFlow to describe where state is stored and computations occur. Using `DeviceSpec` allows you to parse device spec strings to verify their validity, merge them or compose them programmatically.

Example:

```
# Place the operations on device "GPU:0" in the "ps" job.
device_spec = DeviceSpec(job="ps", device_type="GPU", device_index=0)
with tf.device(device_spec):
  # Both my_var and squared_var will be placed on /job:ps/device:GPU:0.
  my_var = tf.Variable(..., name="my_variable")
  squared_var = tf.square(my_var)
```

If a `DeviceSpec` is partially specified, it will be merged with other `DeviceSpec`s according to the scope in which it is defined. `DeviceSpec` components defined in inner scopes take precedence over those defined in outer scopes.

```
with tf.device(DeviceSpec(job="train", )):
  with tf.device(DeviceSpec(job="ps", device_type="GPU", device_index=0):
    # Nodes created here will be assigned to /job:ps/device:GPU:0.
  with tf.device(DeviceSpec(device_type="GPU", device_index=1):
    # Nodes created here will be assigned to /job:train/device:GPU:1.
```

A `DeviceSpec` consists of 5 components -- each of which is optionally specified:

- Job: The job name.
- Replica: The replica index.
- Task: The task index.
- Device type: The device type string (e.g. "CPU" or "GPU").
- Device index: The device index.

Properties

`job`

`replica`

`task`

Methods

`__init__`

```
__init__(
    job=None,
    replica=None,
    task=None,
    device_type=None,
    device_index=None
)
```

Create a new `DeviceSpec` object.

Args:

- `job`: string. Optional job name.
- `replica`: int. Optional replica index.
- `task`: int. Optional task index.
- `device_type`: Optional device type string (e.g. "CPU" or "GPU")
- `device_index`: int. Optional device index. If left unspecified, device represents 'any' device_index.

`from_string`

```
@staticmethod
from_string(spec)
```

Construct a `DeviceSpec` from a string.

Args:

- `spec`: a string of the form /job:/replica:/task:/device:CPU: or /job:/replica:/task:/device:GPU: as cpu and gpu are mutually exclusive. All entries are optional.

Returns:

A DeviceSpec.

`merge_from`

```
merge_from(dev)
```

Merge the properties of "dev" into this `DeviceSpec`.

Args:

- `dev`: a `DeviceSpec`.

`parse_from_string`

```
parse_from_string(spec)
```

Parse a `DeviceSpec` name into its components.

Args:

- `spec`: a string of the form /job:/replica:/task:/device:CPU: or /job:/replica:/task:/device:GPU: as cpu and gpu are mutually exclusive. All entries are optional.

Returns:

The `DeviceSpec`.

Raises:

- `ValueError`: if the spec was not valid.

`to_string`

```
to_string()
```

Return a string representation of this `DeviceSpec`.

Returns:

a string of the form /job:/replica:/task:/device::.

Except as otherwise noted, the content of this page is licensed under the Creative Commons Attribution 3.0 License, and code samples are licensed under the Apache 2.0 License. For details, see our Site Policies. Java is a registered trademark of Oracle and/or its affiliates.

Last updated November 2, 2017.