

# Tunneling and Forwarding Ports

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Port forwarding is covered here. This is specifically for TensorBoard.

## TensorBoard Port-Forwarding

This section describes the steps to be followed to set-up port forwarding for applications, like TensorBoard, that run on this system and bind to one or more ports. This example uses 6006 and 16006 as port numbers. Using port numbers other than these may avoid collisions with other users.

### From your local machine

In the next command, there is **localhost:16006:localhost:16006**. Think of this as **here:there**. The first half is **here** on your local machine. The second half is **there** on the remote machine.

Run *replacing **CELSGCEUserID** with your CELS GCE User ID*.

```
ssh -N -f -L localhost:16006:localhost:16006  
CELSGCEUserID@homes.cels.anl.gov
```

Now **ssh** to the login node:

```
ssh CELSGCEUserID@homes.cels.anl.gov
```

### From **homes.cels.anl.gov**

Forward **habana-01.ai.alcf.anl.gov:6006** to **homes.cels.anl.gov:16006**.

Run

```
ssh -N -f -L localhost:16006:localhost:6006 CELSGCEUserID@habana-  
01.ai.alcf.anl.gov  
CELSGCEUserID@habana-01 password:
```

Now **ssh** to **habana-01**:

```
ssh CELSGCEUserID@habana-01.ai.alcf.anl.gov
```

### On **habana-01**

Activate your virtual environment:

```
CELSGCEUserID@habana-01:~$ source ~/path/to/my_env/bin/activate  
(my_env) CELSGCEUserID@habana-01:~$
```

Navigate to the appropriate directory for your model. Run your model.

```
cd /path/to/your/project  
python <your_model>
```

## On Another habana-01 Terminal Window

Navigate to the appropriate directory for your model:

```
cd ~/DL/ai-testbed-tutorials/habana/habana_starter  
tensorboard --logdir ./runs --port 6006
```

```
cd /path/to/your/project  
tensorboard --logdir ./runs --port 6006
```

## Browser on Local Machine

Then, navigate in your browser to, in this example, <http://localhost:16006> on your local machine.

## Notes

Explanation of **ssh** command:

```
-N : no remote commands  
-f : put ssh in the background  
-L <machine1>:<portA>:<machine2>:<portB> :
```

The full command line will forward <machine1>:<portA> (local scope) to <machine2>:<portB> (remote scope)

Adapted from: [How can I run Tensorboard on a remote server?](#)