Paraview Client & Server

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Paraview can be run in a client-server mode.

In this tutorial we will run the Paraview GUI (client) on your desktop and `pvserver` (server) on Yeti.

We will be using a ssh tunnel for the communication between the Paraview client and server.

Running the Paraview GUI (client) on your desktop means all the rendering is still done using your desktop graphics processor. This will be a bottleneck if you are trying to visualize huge datasets.

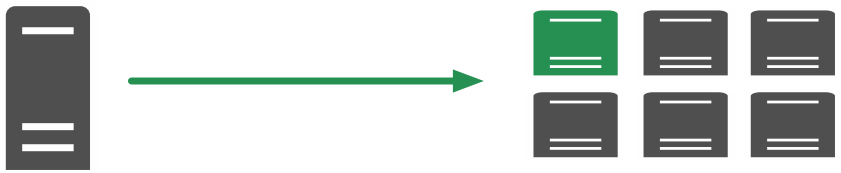
Yeti

1. Log in to Yeti.

```
laptop ~$ ssh yeti.cr.usgs.gov
```

2. Start a compute job.

```
yeti-login01 ~$ sinteractive -A training          \
                             -p prod              \
                             -t 01:00:00 -N 1     \
                             --reservation=training_prod_2 \
                             --exclusive
```



3. Start the paraview server.

```
compute80 ~$ module load viz/paraview-4.3.1-50
compute80 ~$ module load mpi/mpich-x86_64
compute80 ~$ mpiexec -np 8 pvserver \
                        --use-offscreen-rendering
```

The `pvserver` will bind to port 11111 by default.

4. Create a tunnel.

```
laptop ~$ ssh -f -N -L 11111:compute80:11111 \
                    yeti.cr.usgs.gov
```

The tunnel takes the form of

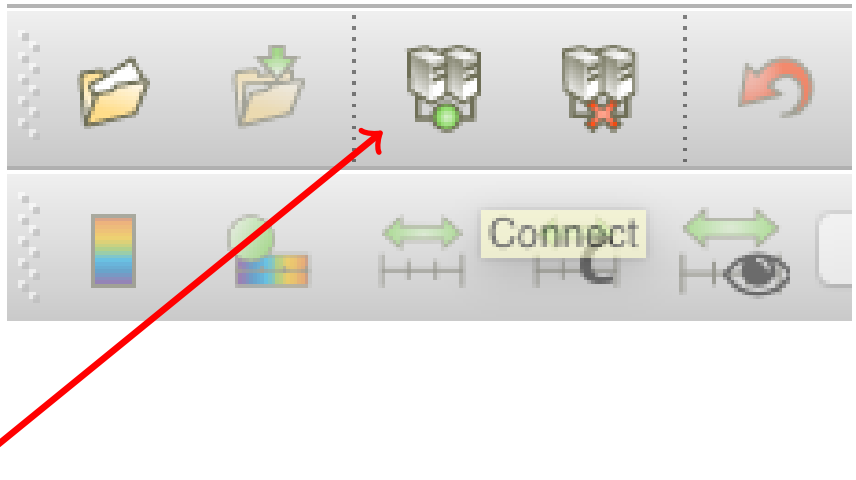
```
-L local_port:remote_host:remote_port
```

So we are forwarding the default Paraview port (11111) on our laptop to the compute node port 11111, through the login node.

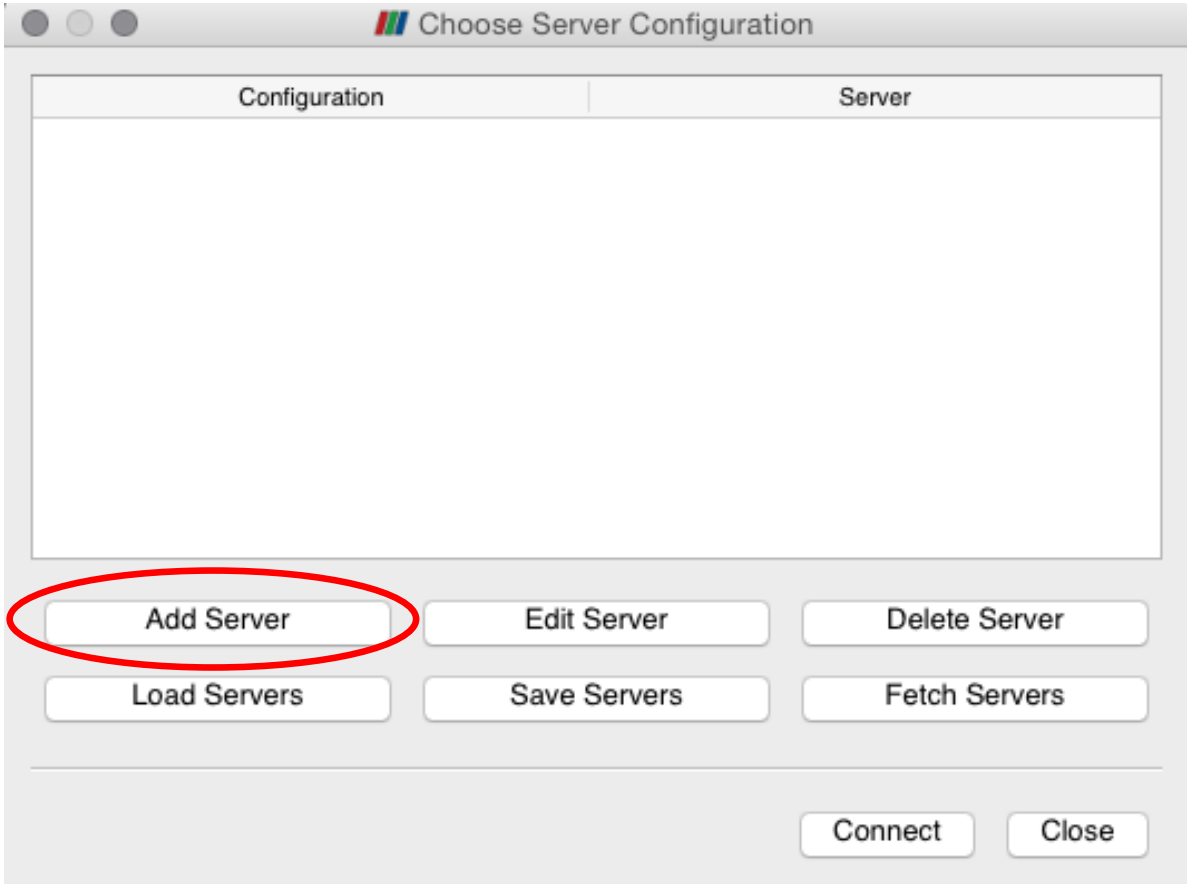
5. Start paraview locally.

```
laptop ~$ paraview
```

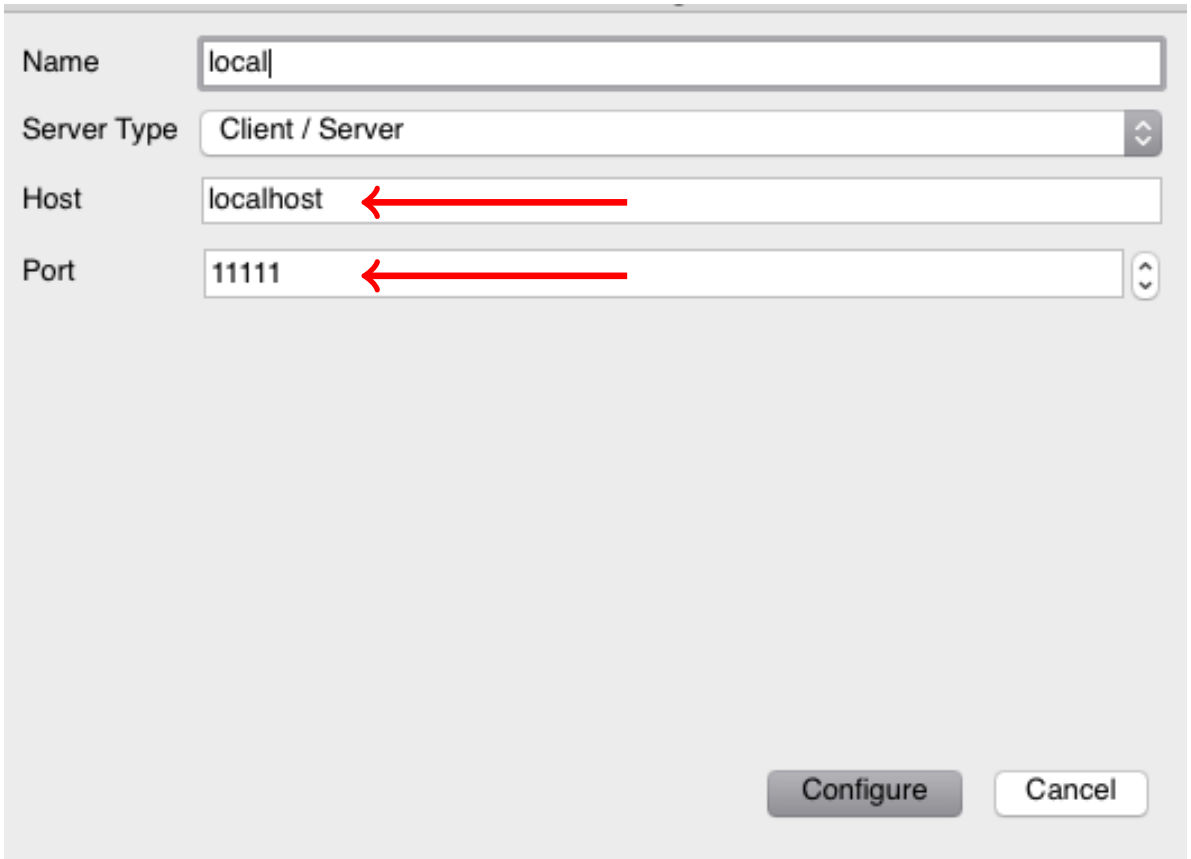
6. Create a new connection.



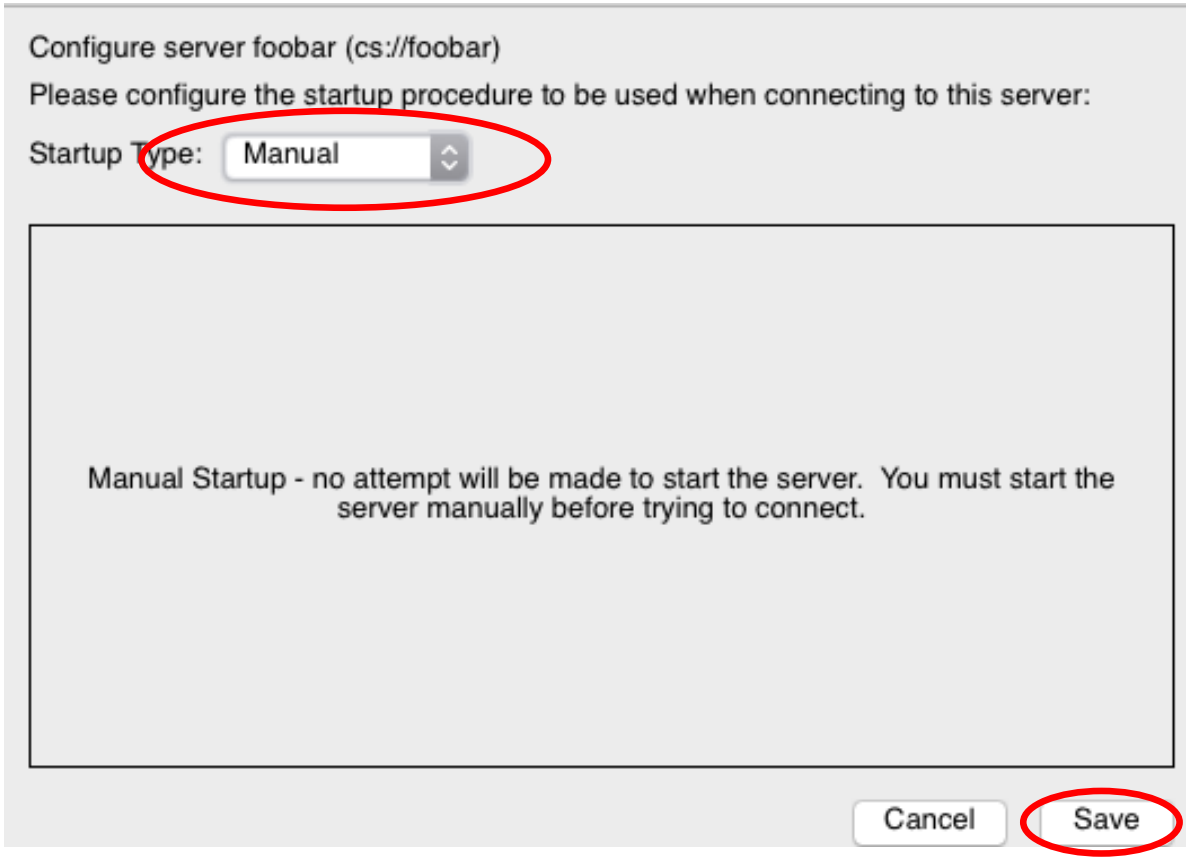
7. Add a new server.



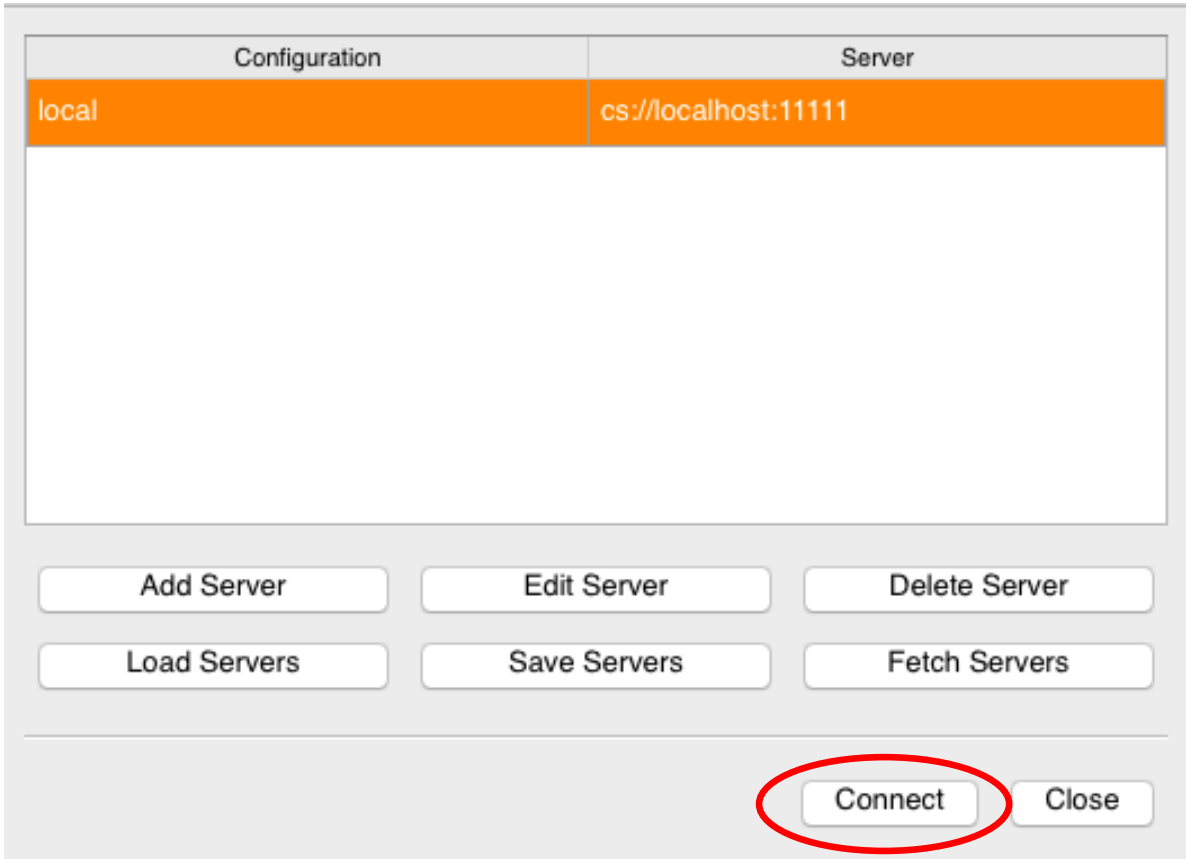
8. New server definitions.
   - 8.1 It can have any unique name.
   - 8.2 Use the localhost (loop-back)
   - 8.3 Use the local port in the ssh tunnel we just defined.



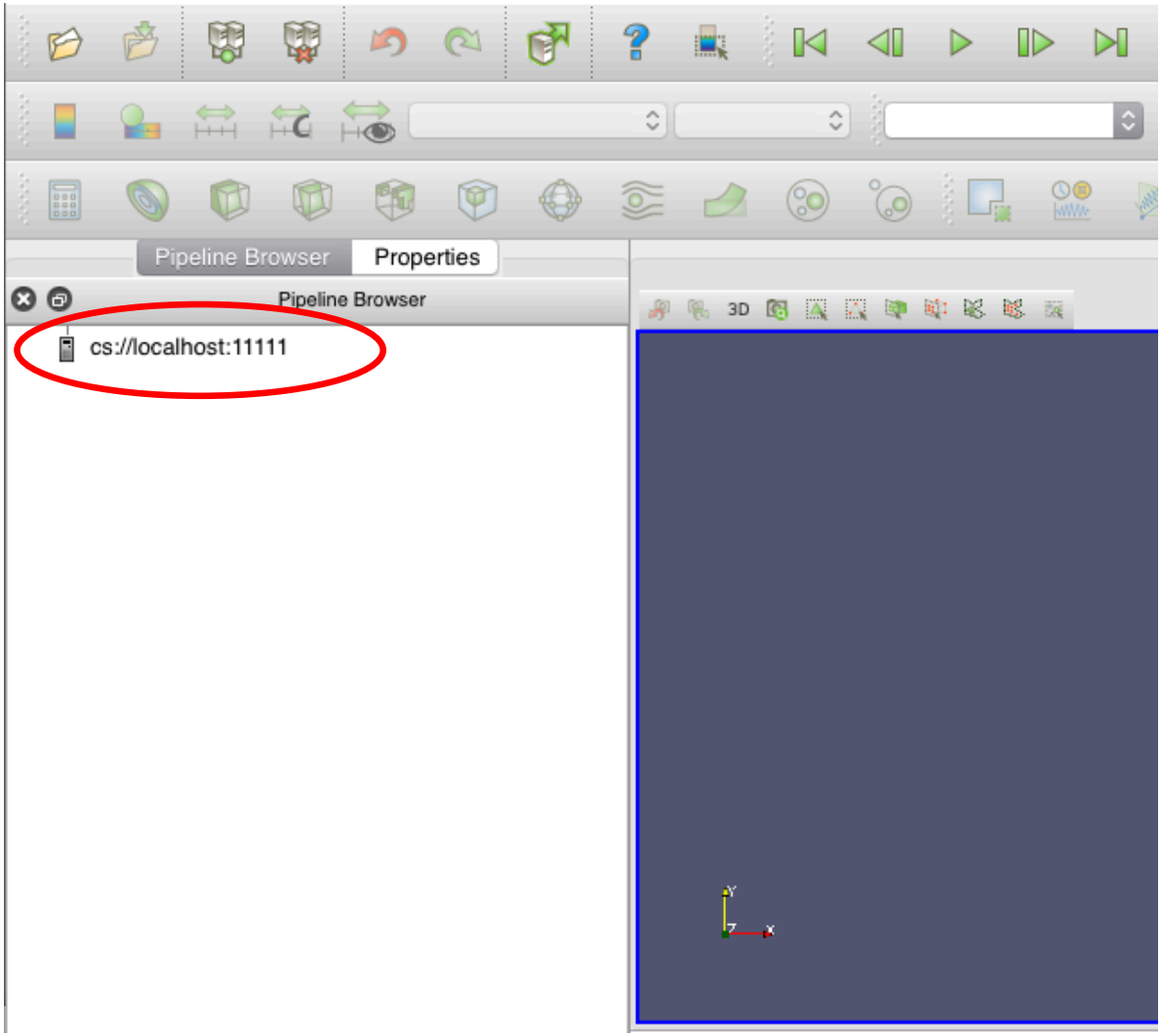
9. Use the manual startup procedure, since `pvserver` is already running on the compute node.



10. Connect to the new server.



11. The **Pipeline Browser** should now show this connection.



Possible Issues

1. Client and server version mismatch.

2. Firewalls

2.1 The login server does not allow port forwarding to the compute nodes.

- Select a **reverse connection** under the server type on slide 9.
- Start the `pvserver` with the additional options

  ```
  --reverse-connection --client-host=AA.BB.CC.DD
  ```

  with the appropriate hostname or IP address of your client.

2.2 The client is behind a firewall as well.

- Create a reverse tunnel, step 4 on slide 6.

  ```
  ssh -f -N -R 11111:localhost:11111 yeti.cr.usgs.gov
  ```

- Create a tunnel from the compute node back to the login node.

  ```
  ssh -f -N -L 11111:localhost:11111 yeti.cr.usgs.gov
  ```

- Select a **reverse connection** under the server type on slide 9.
- Start the `pvserver` with the additional options

  ```
  --reverse-connection --client-host=AA.BB.CC.DD
  ```

  with the appropriate hostname or IP address of your client.

Questions?
Survey

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