13/09/2017

USING VNC FOR PRE/POST-PROCESSING

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WHAT IS VNC?

- Virtual Network Computing (VNC) is a graphical desktop sharing system that can be used to remotely control another computer.
- On HPC, VNC is particularly useful as an alternative to X forwarding to run graphically intensive applications, such as ParaView for post-processing OpenFOAM simulations.
- Furthermore, via VNC it is possible to access the clusters in a desktop environment, which makes file browsing and editing easier. For OpenFOAM users, accessing the clusters via VNC is handy for debugging, pre-processing and post-processing.

HOW TO SET UP VNC ON HPC (1)

Step 1: Start a VNC session

Use PuTTY to login to the HPC.

Execute the following command:

```
vncserver -geometry 1920x1080
```

The output looks like

```
New 'gligar0<x>.gligar.os:<y> (vsc4****)' desktop is gligar0<x>.gligar.os:<y>
```

or

```
New 'gligar0<x>.gligar.os:<zz> (vsc4****)' desktop is gligar0<x>.gligar.os:<zz>
```

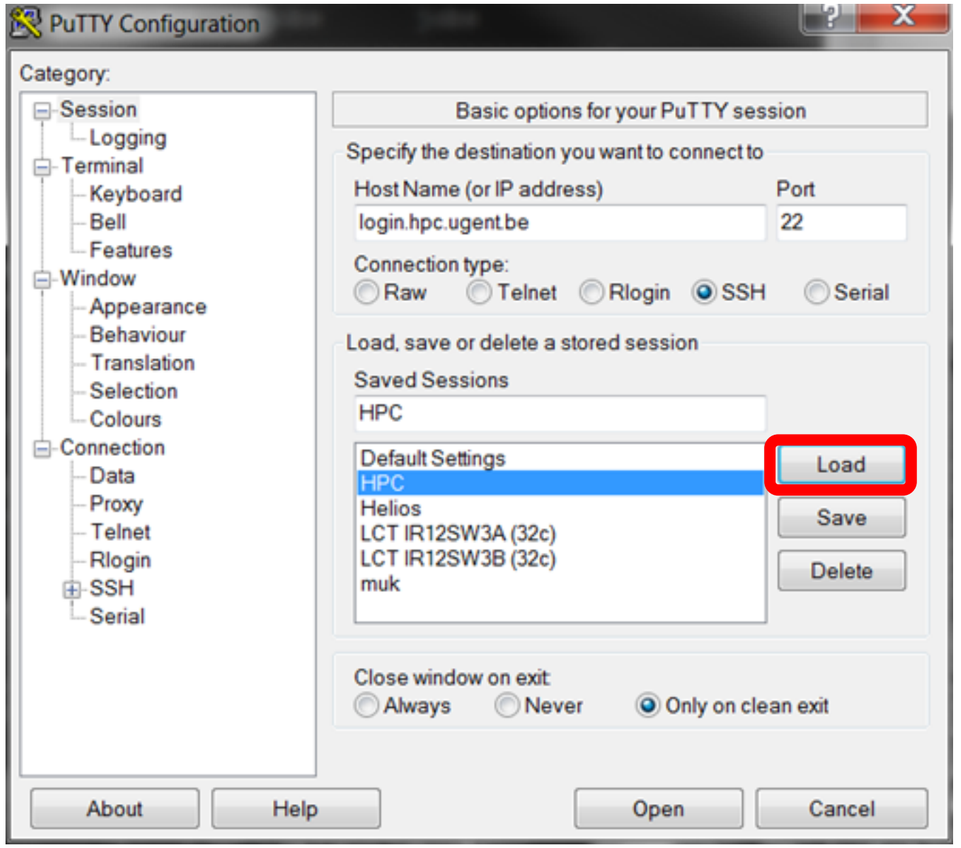
Remember the **<x>** and **<y>**, or **<x>** and **<zz>**

HOW TO SET UP VNC ON HPC (2)

Windows

Step 2: Configure an SSH tunnel

Launch PuTTY and load your previously saved HPC configuration by selecting the session name and clicking **Load**.



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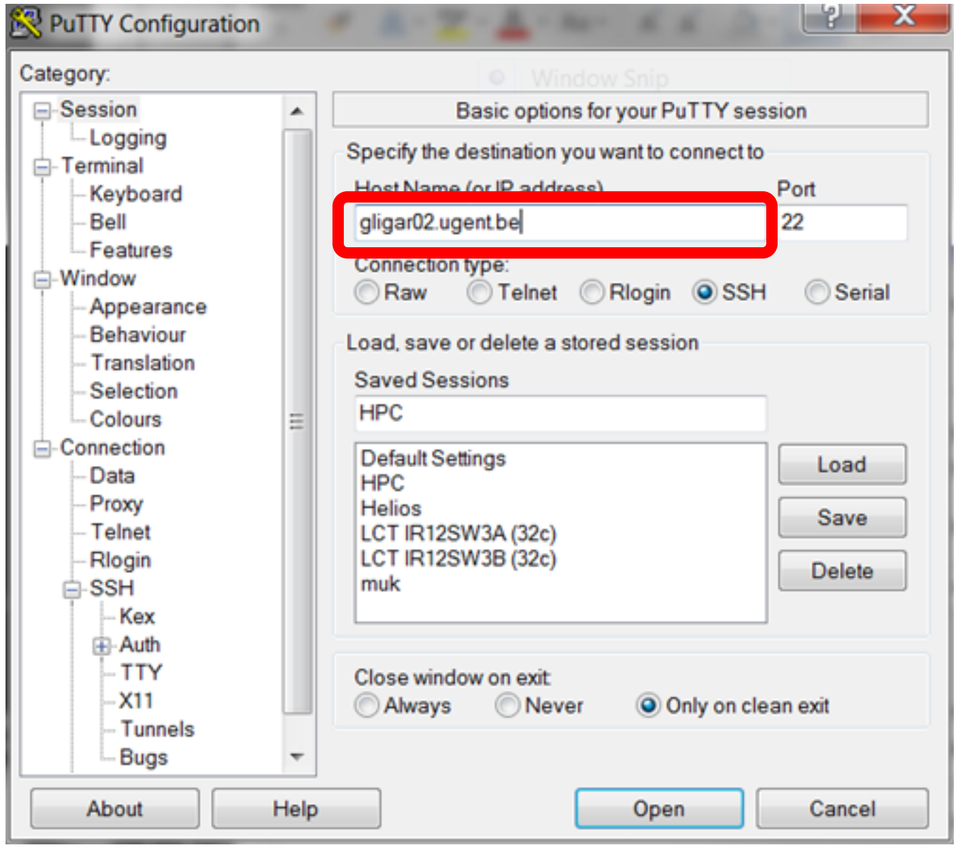
HOW TO SET UP VNC ON HPC (2)

Windows

Step 2: Configure an SSH tunnel

The VNC server runs on a specific login node (i.e. the <x> in the previous step). Make sure you connect to this login node, by changing **Host Name**.



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HOW TO SET UP VNC ON HPC (2)

Windows

Step 2: Configure an SSH tunnel

Select Connection → SSH → **Tunnels**

Enter these values:

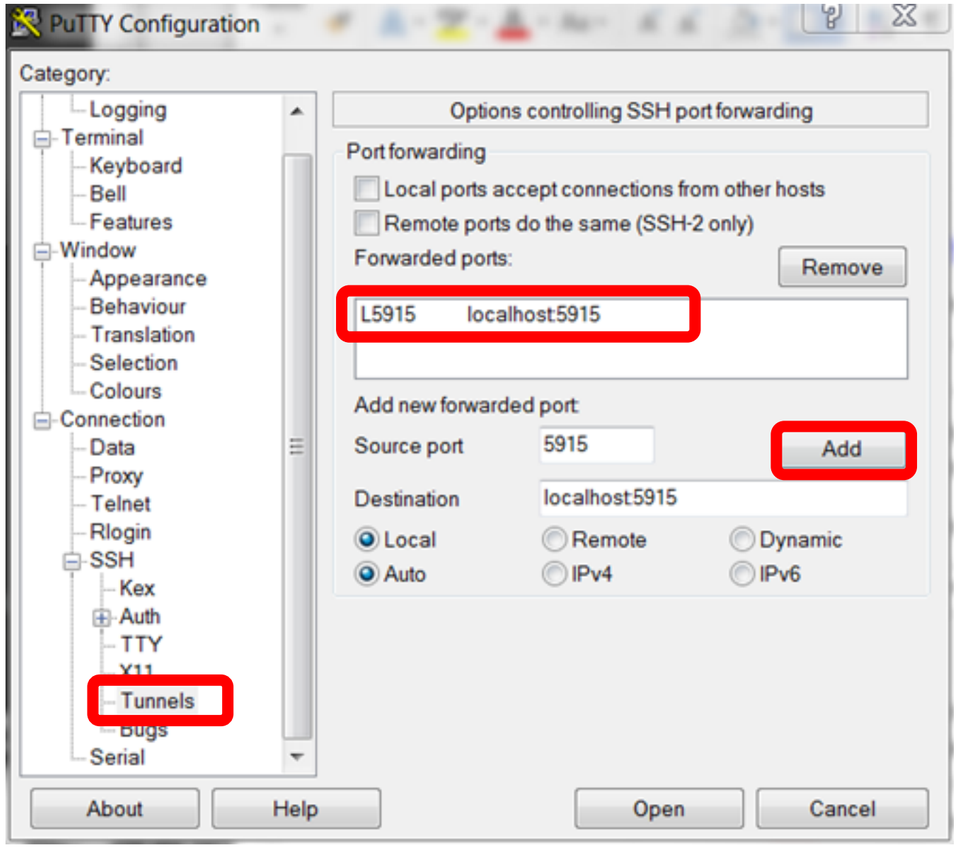
Source port:

590<y> or **59<zz>**

Destination:

localhost:590<y> or **localhost:59<zz>**

Click the **Add** button. Your tunnel will now appear in the list.



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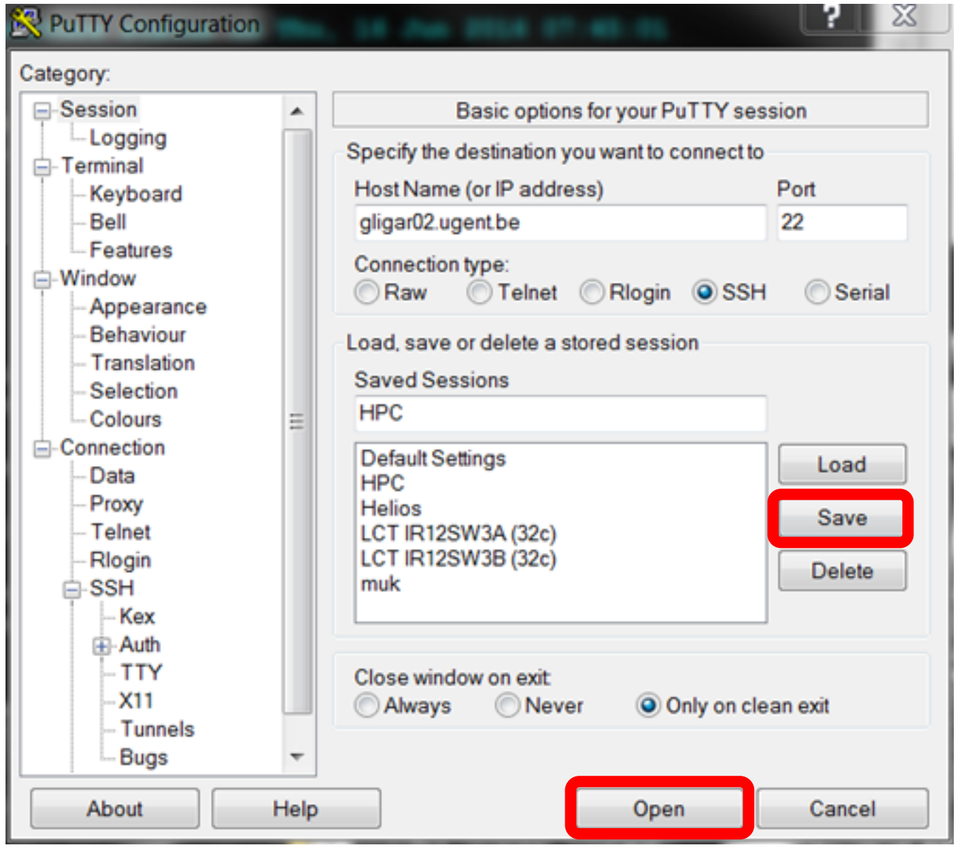
HOW TO SET UP VNC ON HPC (2)

Windows

Step 2: Configure an SSH tunnel

Save the session (optionally, under a different name)

Click **Open** to start the SSH terminal. *The tunnel will now be active as long as the terminal window stays running.*



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HOW TO SET UP VNC ON HPC (2)

Step 2: Configure an SSH tunnel

On UNIX systems, connect to HPC via the terminal and use the **‘-L’** option to create the SSH tunnel

```
ssh -X vsc4****@gligar0<x>.ugent.be -L 5915:localhost:5915
```

HOW TO SET UP VNC ON HPC (3)

Step 3: Start VNC client

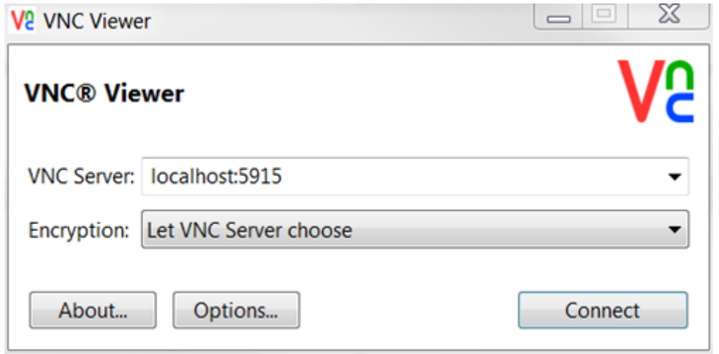
Download and install VNC Viewer (www.realvnc.com)

When VNC Viewer starts, enter

VNC Server:

localhost:590<x> or **localhost:59<zz>**

Click **Connect**



When prompted for a password, use the password you set in the very first step.
When prompted for empty or default panel, choose default.

REMARKS

- It is important to remember that VNC sessions are permanent. They survive network problems and (unintended) connection loss. This means that you can logout and go home without a problem. This also means that you don't have to start vncserver each time you want to use it. You can find the current available session in the log-file in the ***.vnc*** folder of your $VSC_HOME directory.
- To stop the VNC-server, execute the following command

```
vncserver -kill gligar<x>.gligar.os:<y>
```

- The size of the VNC window can be adjusted while the vncserver is running. To enable this, add a file named ***config*** in the ***.vnc*** folder with the following contents:

```
-randr 800x600,1920x1080,1920x1200,<other_size>
```

To select a different window size, execute the following command in a terminal inside your VNC session

```
xrandr -s 1920x1200
```

- To list all running vnc sessions, execute

```
vncserver -list
```

SOME ADDITIONAL TIPS/SETTINGS

- Open a terminal window: right click ‘Open terminal here’.

  Edit → Preferences → Compatibility →

  Backspace key generates: ASCII DEL

- Open a file brower: right click ‘Applications → File manager’
- You can personalize your VNC Desktop with useful shortcuts etc.

OPENFOAM IN A VNC SESSION

- In VNC viewer, open a terminal and submit an interactive job using
  `qsub -X -I -W x=FLAGS:ADVRES:openfoam.18 script.sh`
- Load all necessary modules

```
module load OpenFOAM/4.1-intel-2017a
source $FOAM_BASH
export GALLIUM_DRIVER=swr
```

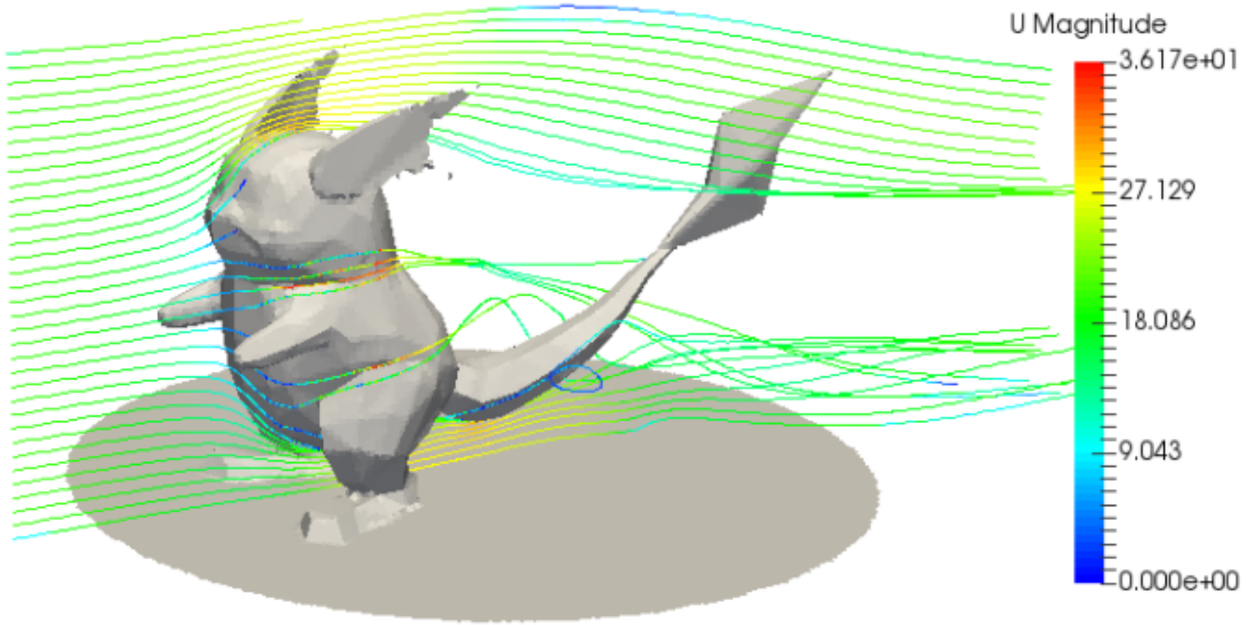
- Make directory `$VSC_SCRATCH_NODE/$USER`.
- Copy the tutorial files from `/apps/gent/tutorials/OpenFOAM/OF-VNC-tutorial` to `$VSC_SCRATCH_NODE/$USER`.
- Run it by executing `./Allrun`
- Copy files to `$VSC_DATA` to post-process

PRE/POST-PROCESSING USING VNC

Run `paraFoam`

Evaluate the mesh you created and plot streamlines

How aerodynamic is Raichu



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WHAT DID WE LEARN TODAY?

Virtual Network Computing (VNC) is a graphical desktop sharing system that can be used to remotely control another computer. Using VNC, the HPC clusters can be accessed in a desktop environment.

It is easy to setup a VNC session on HPC. VNC sessions are permanent, until you kill them.

Using VNC to run graphical applications (such as ParaView) is much faster than using the X Window system. This is a major benefit during pre-processing (e.g. to study the mesh you created with snappyHexMesh) and post-processing.

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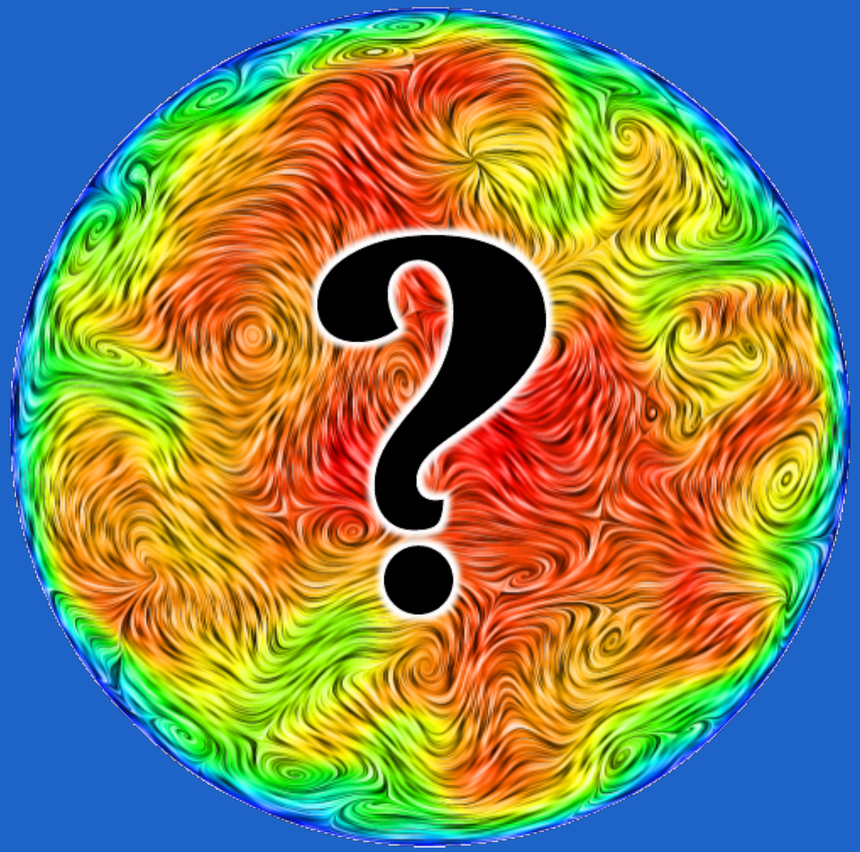

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