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:

```bash
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)

Step 2: Configure an SSH tunnel

Launch PuTTY and load your previously saved HPC configuration by selecting the session name and clicking **Load**.
HOW TO SET UP VNC ON HPC (2)

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.
HOW TO SET UP VNC ON HPC (2)

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.
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.
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](http://www.realvnc.com))

When VNC Viewer starts, enter

VNC Server:

`localhost:590` 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

\[ \text{vncserver -kill gligar<x>.gligar.os:<y>} \]

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:

\[-\text{randr 800x600,1920x1080,1920x1200,<other_size>}\]

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

\[ \text{xrandr -s 1920x1200} \]

To list all running vnc sessions, execute

\[ \text{vncserver -list} \]
SOME ADDITIONAL TIPS/SETTINGS

- Open a terminal window: right click ‘Open terminal here’.
  Edit → Preferences → Compatibility →
  Backspace key generates: ASCII DEL
- Open a file browser: 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:
  \[ \text{qsub } -X -I -W x=FLAGS:ADVRES:openfoam.18 \text{ script.sh} \]
- 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?
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.