

Running calculations with GUI: pro-viz

pro-viz is a new service for users of Ares or [Prometheus](#) which allows running GUI mode of software using [TurboVNC](#)



More about [TurboVNC](#) can be found on its page: [TurboVNC](#)

Service assumptions

Service should allow to run GUI software as Matlab, Mathematica, Maple, Ansys Workbench/Mechanical/Fluent/Electronic Desktop and more using HPC clusters.

Requirements

User need to install [TurboVNC](#) software on the PC which will be used for connection with cluster and of course has a grant on [Ares](#) or [Prometheus](#).

[TurboVNC](#) usually install in path `/opt/TurboVNC/bin` on Linux (Ubuntu, Mint, Fedora, etc.) so you may want to add this directory to your PATH env variable.

To run [TurboVNC](#) you have to install Java JRE x86.

Running pro-viz on a cluster

At first step user need to run pro-viz on the cluster. To use it you need to load software module of pro-viz: `module load tools/pro-viz` on Prometheus or pro-viz on Ares.

pro-viz command syntax is presented below:

pro-viz --help

```
Usage: pro-viz
start [-n CORES | -N NODES | -p PARTITION | -t TIME | -A ACCOUNT | -r RESERVATION | -g GPUS | -C
constraints | -m EMAIL-ADDRESS ] - start a new batch session
interactive [ -p PARTITION | -t TIME | -A ACCOUNT | -r RESERVATION | -g GPUS | -C constraints ] -
start a new interactive session
list - list all sessions
attach JOBID - attach session to a working job with JOBID
password JOBID - generate access token for session JOBID
stop JOBID - terminate session JOBID
killall - terminate all sessions
help - duh
```

In this tutorial will be presented running one job on cluster [Prometheus](#) with 1 full working node, 24CPU. To do this you need to run commands:

```
module load tools/pro-viz
```

```
pro-viz start -N 1 -n 24 -p plgrid -A provizgrant -t 03:00:00
```

Now the job need to start. Job status may be checked with `pro-viz list` command, which will list all jobs:

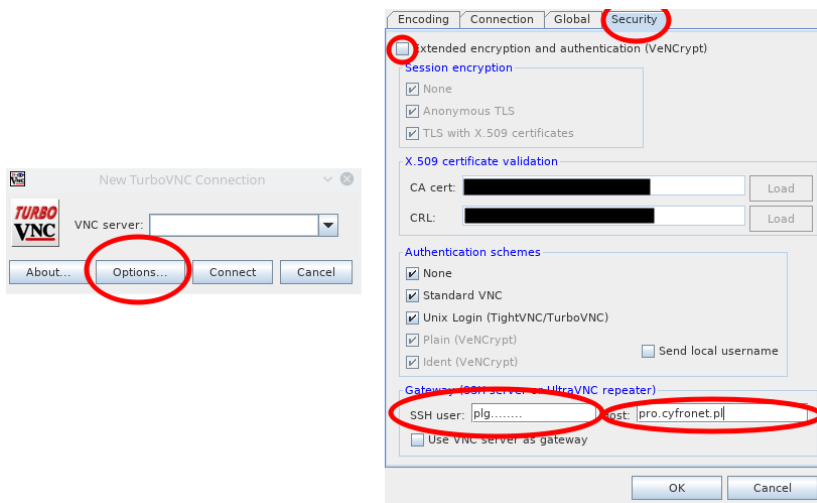
JOBID	HOST	DISPLAY
-----	-----	-----
4201152	p1788	1

The output means, that the job with JOBID 4201152 was started on working node p1788 on display 1. This info will be required to set up connection with Java [TurboVNC](#) client.

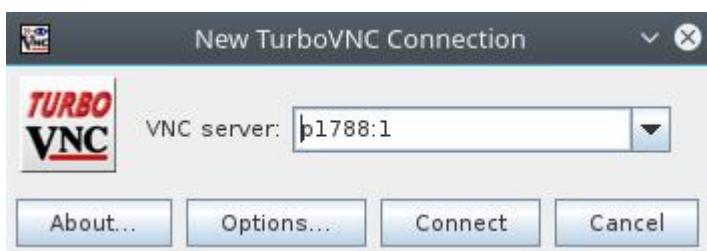
Running Java TurboVNC client

Now it is required to run Java TurboVNC client on your PC and set up connection using the data from pro-viz commands. First you need to open the tunnel to cluster with Java [TurboVNC](#) client: Options... -> Security -> Gateway (SSH server or UltraVNC repeater). You need to disable option Extended encryption and authentication (VeNCrypt) and set as 'SSH user' write PLGrid login: plg..., and as 'Host' cluster hostname:

- `pro.cyfronet.pl` for Prometheus
- `ares.cyfronet.pl` for Ares



After 'OK' go back to main window and as 'VNC server' write hostname and display in HOST:DISPLAY notation, ie. p1788:1:

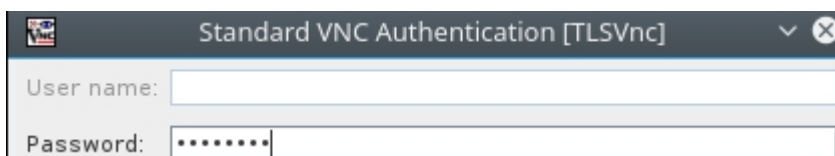


After 'Connect' you need to give password to the cluster, the username will be the same as in 'Gateway...' configuration:



Next you need to write password for VNC server. Password is generated with `pro-viz password JOBID`, where JOBID is ID of the job in `pro-viz list` command, ie. `pro-viz password 4201152`. Password is one-time password and may be created only for running jobs.

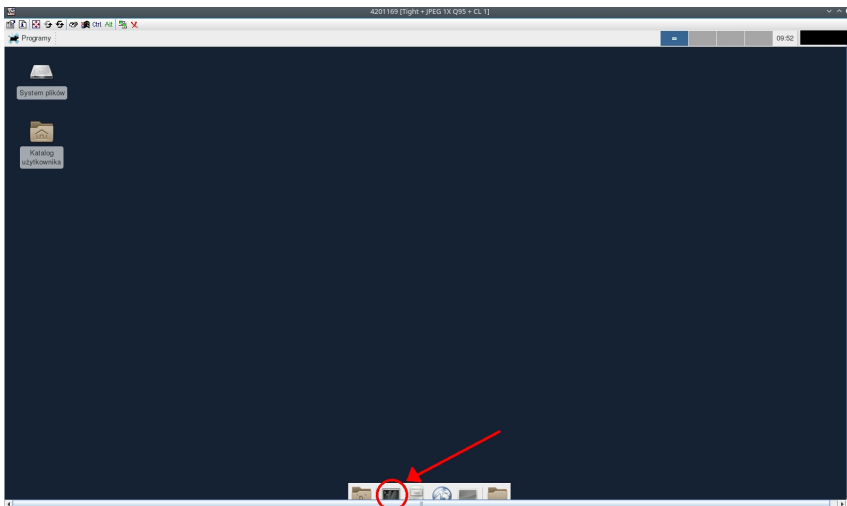
As output we will get one-time password (for external client) which we copy to VNC window. In the next steps we assume the password is '000000'.



If you use linux/macos termina, you may use command `vncviewer`, which is also present as output:

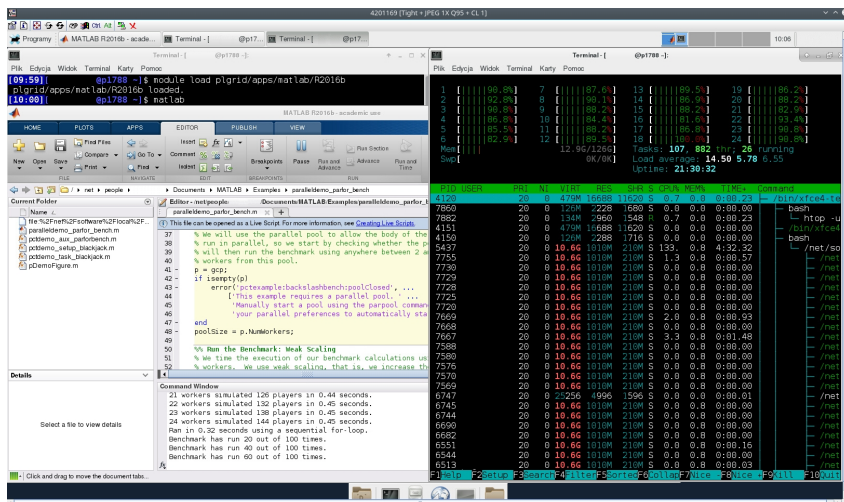
```
vncviewer -via plg...@pro.cyfronet.pl -password=000000 p1788:1
```

After connect you can use the terminal and run software as usual, but with GUI available.



! First module loaded in terminal will be tools/pro-viz

Below you can see Matlab example in GUI on pro-viz:



Disconnection from the session

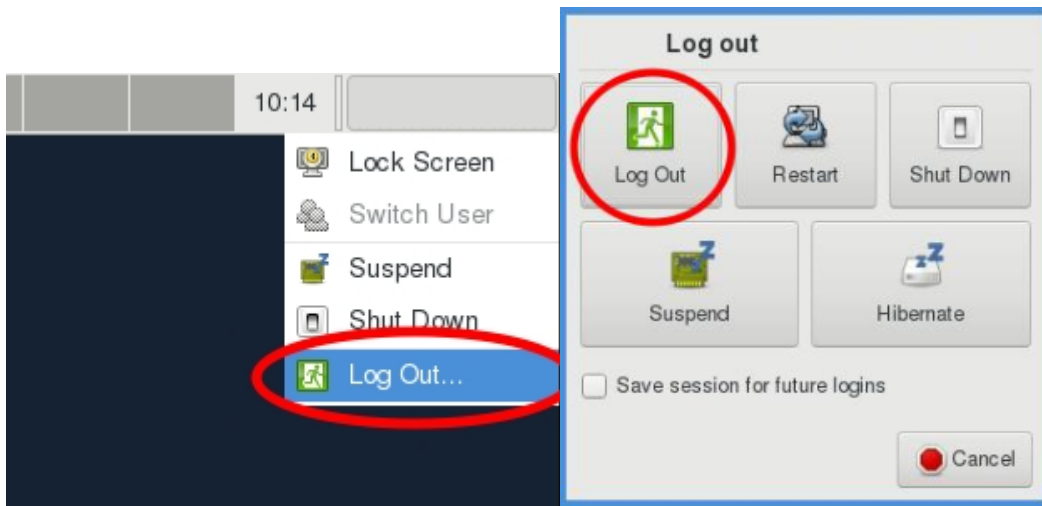
The session (main window of Java [TurboVNC](#) client) may be closed. To attach once more you need to recreate new password and connect as described above.

Closing the session

To close the session and end the job you may stop it from the terminal using `pro-viz stop` command:

```
pro-viz stop 4201152
```

Of using logout from Xfce GUI:



Software-specific configuration

[Jupyter via pro-viz service](#)

Prometheus

Ares