

# 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:

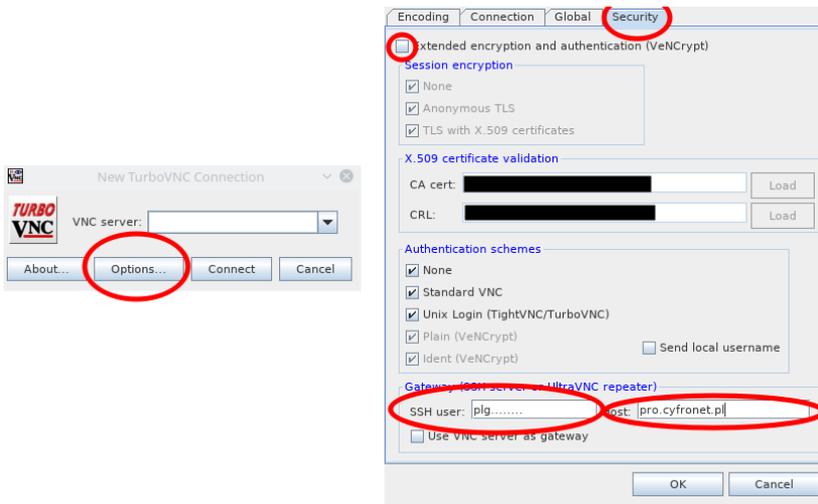
JOBID	HOST	DISPLAY
-----	-----	-----
4201152	p1788	1

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.

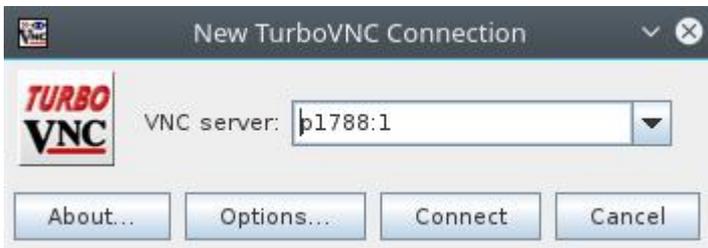
## Running Java TurboVNC client

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:

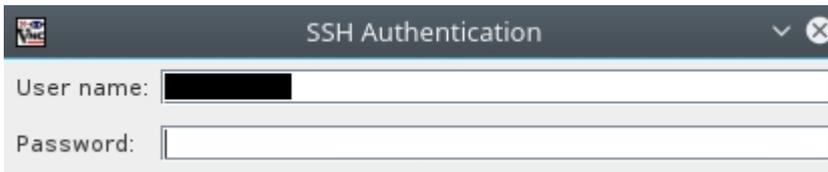
- `pro.cyfronet.pl` for Prometheus
- `ares.cyfronet.pl` for Ares



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.

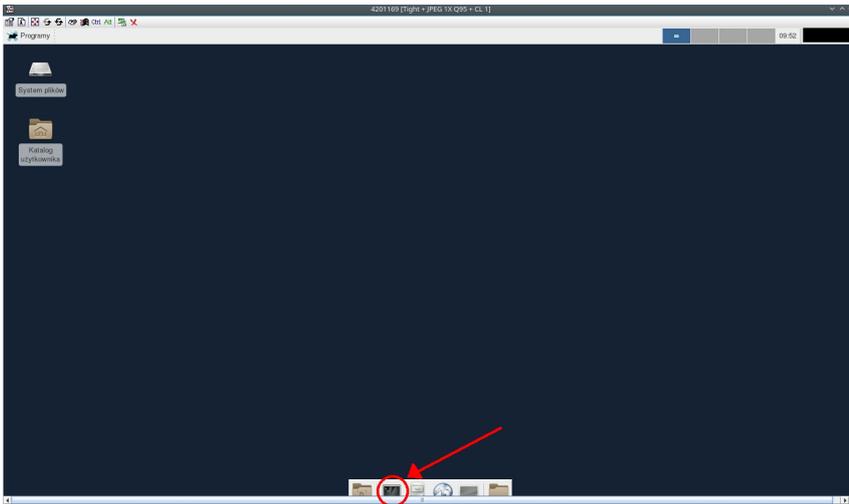
As output we will get one-time password (for external client) which we copy to VNC window. In the next steps we assume the password is '000000'.



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

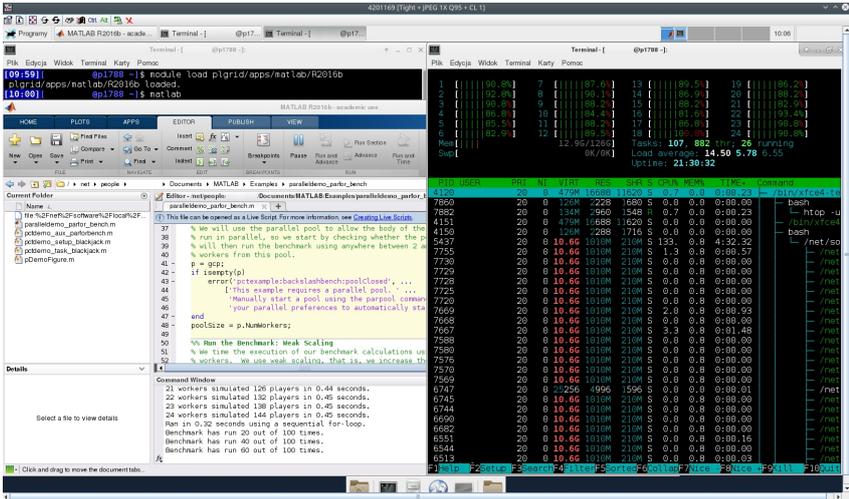
```
vncviewer -via plg...@pro.cyfronet.pl -password=000000 p1788:1
```

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



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

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



### Disconnection from the session

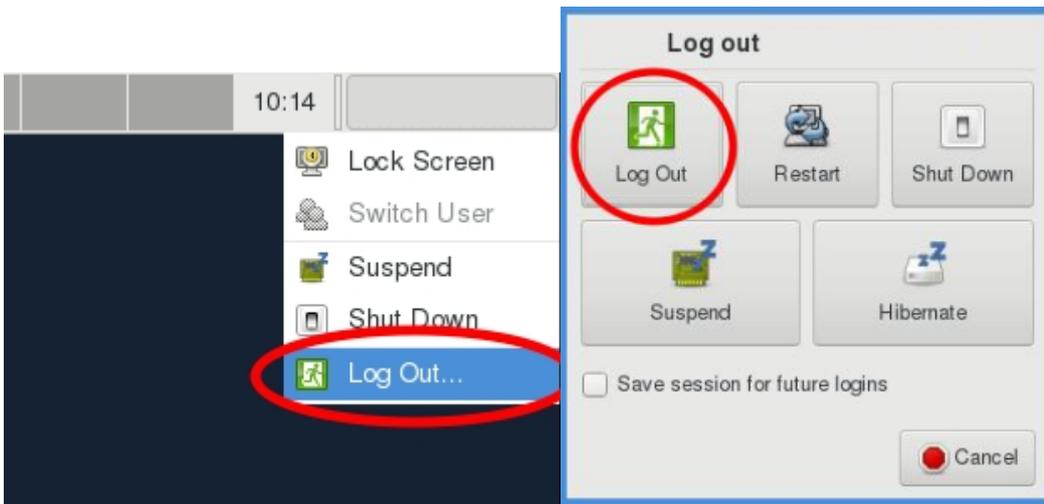
The session (main window of Java TurboVNC client) may be closed. To attach once more you need to recreate new password and connect as described above.

### Closing the session

To close the session and end the parallel 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**