



Client VNC and Linux server configuration

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• Introduction

- This tutorial explains how to access a Linux workstation (server) from a windows PC or a Mac OS (client) with vnc protocol.
- It is assumed that the server has vncserver installed.
- The Windows client has a vnc client [1] and ssh client installed [2].
- The Mac client has a native vnc and ssh clients in Mac OS. It is also possible to use a different vnc client [1].
- This tutorial example presents username “user4” connecting to “micro1.lx.it.pt” server.
For the students case username will be IST ID “ist1x...x” and the server is described on this tutorial last page.
- vnc has many advantages over ssh with X forwarding. One is the fact that it doesn't consumes too much internet bandwidth; the other is that if the internet connection server-client accidentally closes, the restart is possible without losing anything because the server vncserver and applications are still running.

• Starting vncserver (Linux server)

Starting server “vncserver”

Before using VNC connection, vncserver must be running on the server side.

Login to your linux account with ssh (how-to on page 5 for window and MAC clients). Open a terminal window on the server.

Start vncserver with the command “vncserver :4 -depth 24 -geometry 1440x900”
Once again it was assumed that display number 4 is used.

Options:

-depth 24 defines the pixels depth in number of bits. For cadence 24 value is required.

-geometry defines the client display resolution. It depends on the client graphic card chosen resolution.

When starting vncserver for the first time, the system ask for a password. This password is only used for the vnc connection, it is not necessarily equal to the login one.

vncserver log file is displayed and the chosen display number is in the log file name.

vncserver also creates ~/.vnc directory and stores there the logfile, pid file and passwd file.

The command “vncserver -list” will list the displays you have running.

If necessary, to shutdown vncserver, the command “vncserver -kill :4” should be used (it was assumed that the display was number 4).

Please, avoid using more than one display

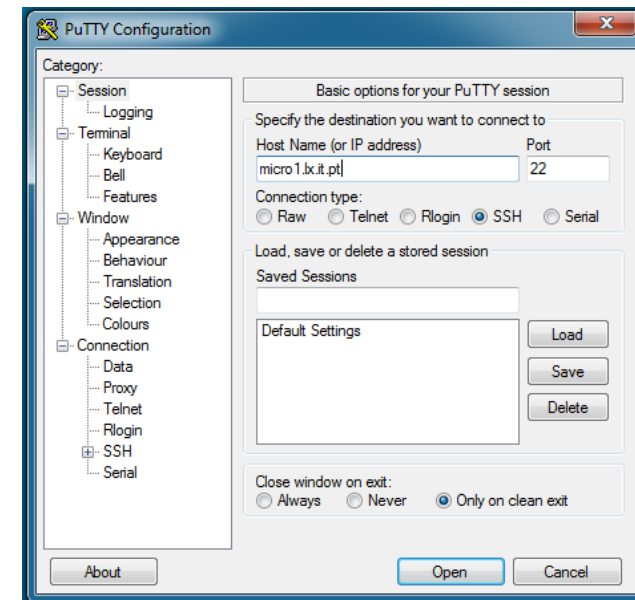
Finally, logout can be performed. After logout vncserver still runs and there is no need to restart it in the following sessions (*).

(*) If the server runs AFS authentication (like fatima and fatima2 servers), after logout, vncserver still runs for 8 hours long. After that it must be restarted again. If the server uses standard Linux authentication, vncserver continues running after logout for undetermined time (unless a reboot is performed).

• SSH connection (Windows client)

Filling Putty configuration

Run putty client to make a ssh secure connection to the server. Fill the server DNS name on “host name” field. Port 22 is used by default. Fill a name to identify this connection configuration on “Saved Sessions” field, and press “save”. Next time putty is opened the saved configuration can be loaded.



Client putty GUI

• SSH connection (MAC client)

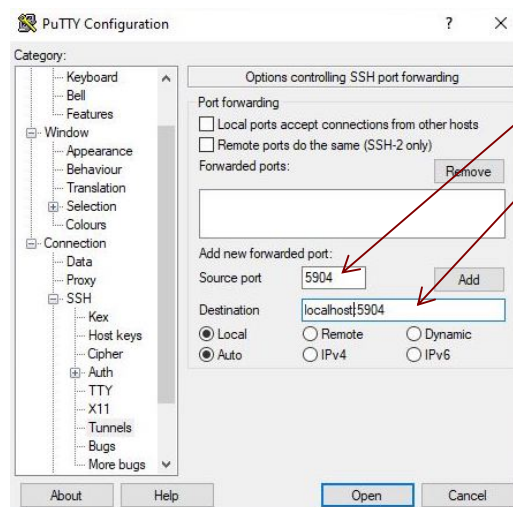
On Mac OS open a terminal window. Give the command

```
$ ssh user4@micro1.lx.it.pt
```

• SSH access with port forwarding (Windows client)

For starting a VNC session the ssh connection must be configured with a port forwarding. For that the previous configuration of putty ssh must be complemented.

For that in putty “SSH/tunnels” menu, configure port forwarding. This example will assume display number 4 is used. So, to use display 4 vncserver will use server port number 5904 (the rule is $\text{port} = 5900 + \text{display_number}$). So, server source 5904 port must be forward to destination client port 5904.



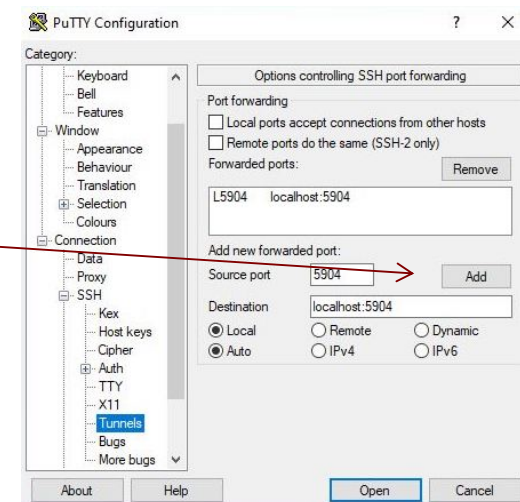
ssh/tunnels GUI

step 1

fill these fields

press Add

step 2



ssh/tunnels GUI

Save the session once again, then make the login by pressing “Open”. Authenticate with login and password. A terminal window will open from Linux server. Do not close this terminal during the session.

- **VNC access with vnc viewer (windows client)**

Starting client vnc viewer

Run vnc viewer on client machine.

On VNC server field, write “localhost:5904” (or “localhost:4”) instead.

Then enter vncserver password.

Chose vnc viewer definition to “high”.



Client vnc viewer GUI

Finally, the desired server desktop image appears in your Windows PC display. If you want, full screen mode can be used.



To end your work session, close the vncviewer and putty application.

Note: Don't make logout of your Linux session, otherwise you will get a blank screen. To solve this, you will need to kill vncserver and start it again in the server side. But this closes your running server applications.

- **SSH access with port forwarding (Mac OS client)**

For starting a VNC session the ssh connection must be configured with a port forwarding. For that the previous configuration of putty ssh must be complemented.

On Mac OS open a terminal window.

Once again for the same user, server and display number as before, give the following command.

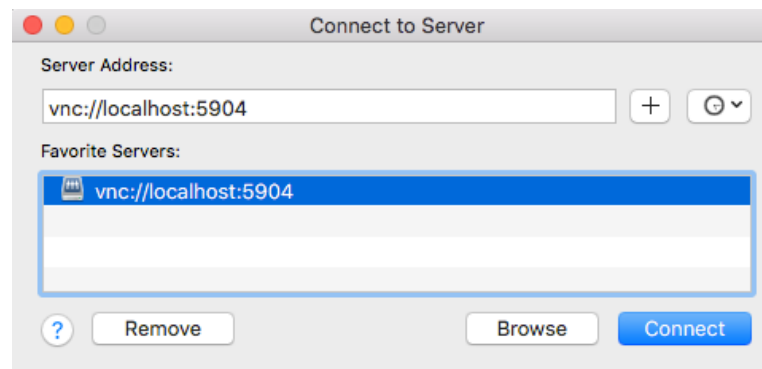
```
$ ssh -L 5904:localhost:5904 user4@micro1.lx.it.pt
```

After entering the password, a terminal window in Linux server will open. Do not close this terminal windows during the session.

- **VNC access with vnc viewer (Mac client)**

Starting macOS vnc viewer builtin client

On the Finder application, chose “Go/Connect to server” menu.
The following window appears.



On “Server address” field write “localhost:4” (or “localhost:5904”) instead.

Then press “connect” and enter vncserver password.

The session can be saved by pressing “+”.

Finally, the desired server desktop image appears in your Mac display. If you want, full screen mode can be used.



To end your work session, close the window and ssh connection.

Note: Don't make logout of your Linux session, otherwise you will get a blank screen. To solve this, you will need to kill vncserver and start it again in the server side. But this closes your running server applications.

- **Available cadence server machines at IST**

Alameda campus: `fatima2.vps.tecnico.ulisboa.pt`

Tagus Park campus: `fatima.vps.tecnico.ulisboa.pt`

Because internal network is firewall protected, files transfer to/from outside should be done with any sftp client.

- **References**

[1] `vncviewer` (<http://www.realvnc.com/>) is a freeware software. Other equivalent software can be used.

[2] `putty ssh` (<http://www.putty.org/>) is a freeware software. Other equivalent software can be used.