VNC for e-lab

- *VNC* (= virtual network computing) enables you to access a *graphical desktop* of a foreign computer, even if the *bandwidth is low*.
- VNC is a *Remote Desktop* solution, not to be confused with Microsoft Remote Desktop Connection (different Remote Desktop solution and protocol).
- With VNC, you *mainly access Linux computers*. You (students) don't have to care for the server (linux-side, institute computers), this is installed on all our lab-computers.

- The installed *vnc servers* connect with various *clients* (see below)
  The *vnc server* needs to be started (once) by your supervisor, and should be kept running all the time, so that you can also login, e.g., during the weekend.

- You can connect from your own computer running Linux, Windows or Mac OS X. This computer is the *client*, and the corresponding software is what you need to install (see below)!

- *Multiple users/clients can access a specific server session at the same time*, such that *Desktop Sharing is possible for working together* within our labs.

Required steps in brief

1. To connect to the server, a secure connection is required. To this end, a VPN (virtual private network) must to be used. Thus, a corresponding VPN client needs to be
   a) installed on your computer (only at the very first time), and
   b) started (before any *VNC* session) or is already running

2. Usually, the *VNC server* (on the remote machine) should already run or has to be started before your lab (responsibility of your supervisor, students have nothing to do in this regard)

3. Start the *VNC client* on your computer (if you install the recommended client, i.e., TigerVNC, almost no configuration is required). The size of the corresponding desktop can be simply adjusted.

4. Leave the session when you are finished

5. In case, reconnect to your session

6. End the VPN connection

VPN client

- You need a working campus account (username@campus.lmu.de) or a LRZ account

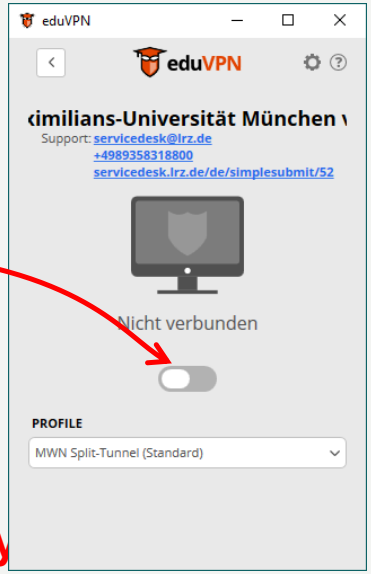
- Install the **EduVPN** client. Please go to https://doku.lrz.de/display/PUBLIC/VPN+-+eduVPN and follow the instructions for your operating system -> Installation (your OS) -> download page

- After installation and start, you have to provide “lmu.de” in the appearing searching mask.

- Click on “**Ludwig-Maximilians-Universität München via LRZ-VPN**“ (below the search mask), and after confirmation the application navigates you to the LMU campus login site, where you have to provide your credentials and some further confirmations.

- When the VPN client is running, you can simply switch it on or off by one button on the application. The software will run for 90 days, then an update of your login information will be requested.

- Please try this at home by yourself, **well in advance of the first lab day**



VNC client

- Here is the link to download the (recommended) software for Windows, MAC, and LINUX clients (your computer):
  https://github.com/TigerVNC/tigervnc/releases
  - Windows (64 bit; other versions also available for 32 bit):
    https://sourceforge.net/projects/tigervnc/files/stable/1.15.0/tigervnc64-1.15.0.exe
  - MAC:
    https://sourceforge.net/projects/tigervnc/files/stable/1.15.0/TigerVNC-1.15.0.dmg
  - Linux: install via package installer, package “tigervnc”;
    after installation, invoke “vncviewer”
    or see find binaries on
    https://sourceforge.net/projects/tigervnc/files/stable/1.15.0/

We have tested the installation on most systems, there should be no problems,
and there are (almost, see next slide) no specific configuration options.

[On certain Ubuntu (Linux) systems, you might need to update your xserver before being able to install TigerVNC. To avoid problems, read
https://askubuntu.com/questions/908918/updated-from-16-04-to-16-10-the-keyboard-and-mouse-no-longer-works-after-gettin
in brief: execute, in **recovery mode**,
`apt install xserver-xorg-input-all`]

- Please try this at home by yourself, **well in advance of the first lab day**!!!

Run VNC client

- open/start “TigerVNC viewer” (or vncviewer under Linux) on your computer (after installation);
  don’t forget to start VPN before (slide 3)
- -> a small panel should open

  requires input for VNC server -> host address:display number

  for our example: 10.163.174.58 (or, if working, ltsp08.usm.uni-muenchen.de) + : + display number
- for display number, ask your supervisor
- example: 10.163.174.58:1 [this should work for your trials]
- when you run the software for the first time: click “Options”, then tab “Misc”, and check “Shared”
- -> press connect
- -> new panel, asks for password [provided by your supervisor]
- for our example, use standard password for (non-numerical) lab: [will be provided during this session]

now you can change the remote desktop size in the usual way

NOTE: if more than one user connected (as in lab), changing the desktop size affects all other users as well. Please agree with your colleagues on the most favorable size.

To quit, just close the remote desktop in the standard way (via the uppermost window panel)

When you login again, the content of your most recent desktop is displayed, and you can continue your work

For your test, do not work on the connected (remote) machine

For supervisors: Dealing with the VNC server

Basic instructions can be found in
http://www.usm.uni-muenchen.de/compinfo/vnc.php
The software is installed on all machines used for the lab.
Each group will work on a specific machine (details to be communicated by Arno);
for each account, one specific server needs to be started (account “A” does not see the server running on account ”B”), to be identified via machine address and display number (see below)

available machines: ltsp04 to ltsp18 corresponding to 10.163.174.54 to 10.163.174.68
(e.g., ltsp10=10.163.174.60)

most important commands (after login to remote account via ssh, e.g.,
ssh -X galphot@ltsp10.usm.uni-muenchen.de)

START of vnc server session
vncserver [-geometry 1280x960] geometry usually not required

In case you start a session for the first time on a specific machine/account, and you are asked to define a password, you should provide the standard one (different for the *numprakt* and the other accounts, and starting with ‘2’ or ‘S’, respectively). This password is needed to login via TigerVNC viewer

- if the server setup asks for a “view only password”, answer with “n”

After the server has been started, an info about the display number is provided (:1, :2, etc.)
Remember this display number, since it is used as a unique identification for the account and session
Thus, to login via TigerVNC vierwer, only the machine address plus display number, but NOT the account is required.

reset password
either type “vncpasswd” and provide new password, or delete the file “passwd” in directory .vnc before starting a new session.

The server session should be always running, so that the students can also work over the weekend etc.
Only in case that the remote machine was restarted, also the vnc server must be restarted.
Please start or restart the server only when it is really necessary, i.e., at the first instance, or when it is “dead”.

List of running server sessions
vncserver -list

In most cases, only sessions with a (numerically) low display number will be present (:1, or :2, or :3, etc.)

Terminate server session
vncserver -kill :1 [or :2, etc., depending on which session you like to terminate]

NOTE: if you have killed/crashed a session undeliberately, there are two lock files which will prevent that a session with the same number can be (re-)opened. You have to delete the corresponding lock files manually (only the initiator of the session has the rights to do this).

Assume you want to clear session :2

rm /tmp/.X2-lock
rm /tmp/.X11-unix/X2

in case you want to delete the locks for session :1, just replace X2 by X1