VNC Access Instructions

How to use VNC to access the CSE EDA tools

Version 2022-09-08

2022: Xu Wang, Lena Peterson
2021: Lena Peterson
2020: Lena Peterson, Stavros Giannakopoulos
2019: Lena Peterson
2018: Lena Peterson, Andreas Torstensson, Erik Börjeson
Computer Science and Engineering
Chalmers University of Technology

1 Introduction

Starting fall 2019 we run all electronic-design automation (EDA) tools on a separate Linux server. And in 2022 the old server was replaced by one called `knuffodrag.ita.chalmers.se`. The computers in the two labs, 4220 and 4225, only run Windows 10. In the first half of this document the instructions assume that you are sitting at one of the lab computers. The second half tries to help you connect from your own computer either from home or if you sit somewhere else at Chalmers.

VNC stands for virtual network computing and is a platform-independent tool for screen sharing. You will run the entire EDA tools on `knuffodrag`; the only thing that will happen on the PC you are sitting at in the lab is that screen output is shown there and when you use the keyboard or mouse, these interactions will be forwarded to `knuffodrag`.

In VNC nomenclature, the client software is run on your computer (the lab PC if you are in the lab) while the server software is run on `knuffodrag`. The client is allowed to control the server by transmitting keyboard and mouse input, while the server sends rectangles from its frame buffer (i.e. the graphics) back to the client.

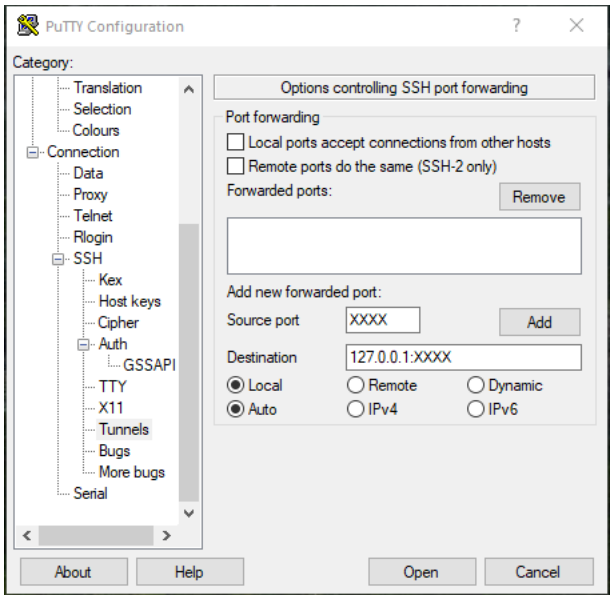
VNC uses a special TCP port for setting up the control and for the transmission of graphics and commands. The default (which we also use) is *port* = 5900 + *number*, where *number* is a unique number assigned to each user. Note that for you *number* will in many cases be larger than 99 since most of the lower ports are already in use! In order to connect to knuffodrag server you **must** replace any instance of *XXXX* in the following instructions with your unique number, as calculated above. If you have previously taken courses using the `knuffodrag` server, you should already have this number and a VNC password. **If you haven't been assigned a user number and a password, you will need to contact the teacher responsible for the course**. The instructions below assume that you have this information.

2 Connecting to the `knuffodrag` server from lab 4220/4225

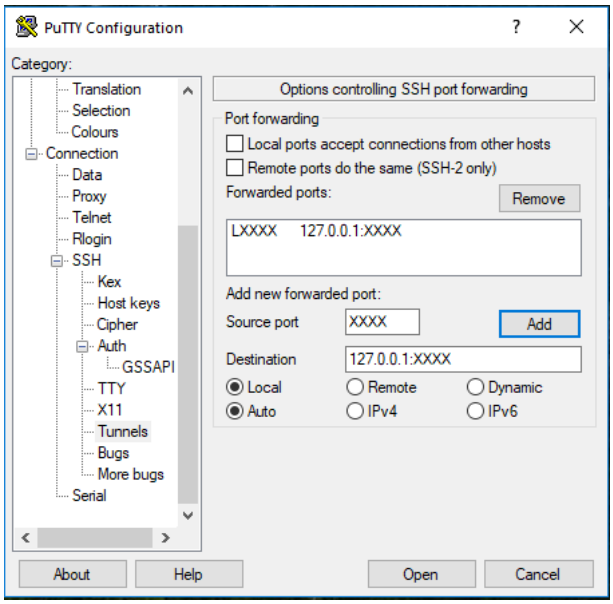
Log into the PC in the lab with your CID and the CID password.

Start the PuTTY application on the PC, which will open the PuTTY configuration window.

Go to **Connection** → **SSH** →**Tunnels**, which will open the window shown below.



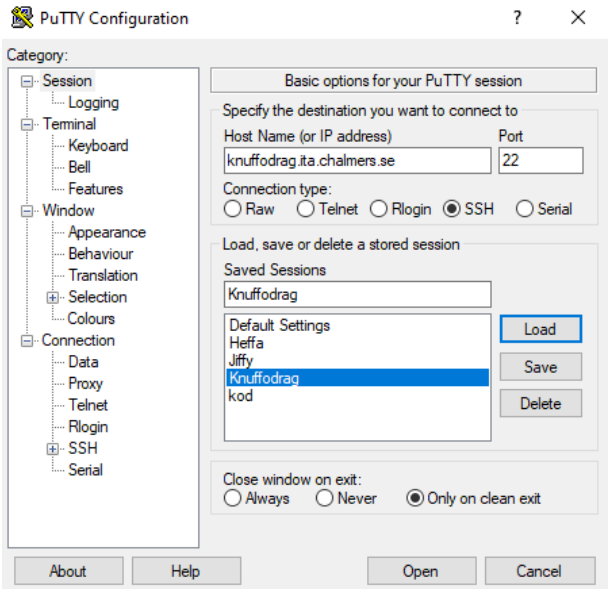
Fill in the ”Source port” and ”Destination” fields using your designated port (replacing *XXXX* in the above figure) and press **Add**. The window should now look as shown below.



Return to the ”Session” category in the left window pane; it is at the top so you may have to scroll up.

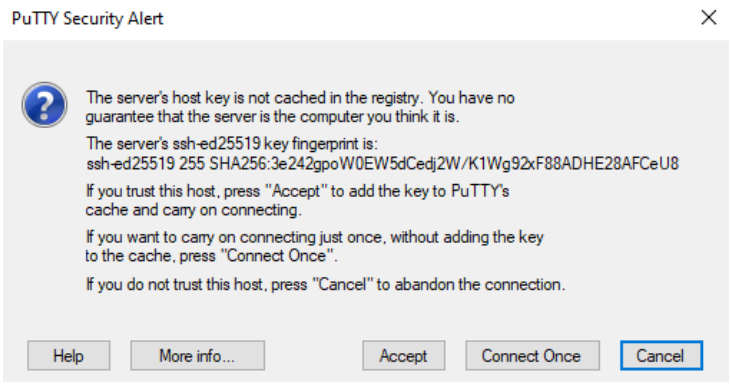
Add destination host name as shown below, give the session a name (here we called it Knuffo-drag) and save it by pressing the **Save** button.

Saving the session will allow you to load it again as long as you use the same computer.



Connect to the server by pressing the **Open** button.

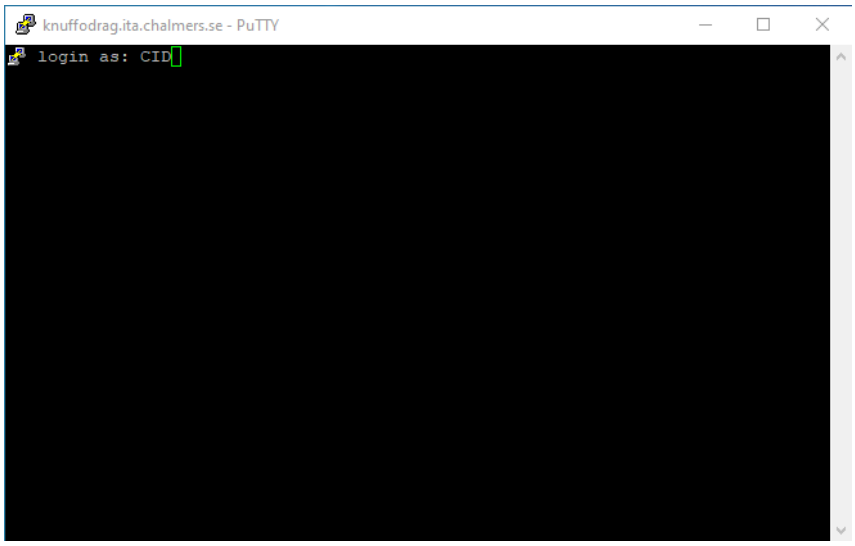
Accept the server's host key in the pop-up window that appears by pressing the **Accept** button.



A login window from `knuffodrag` appears next.

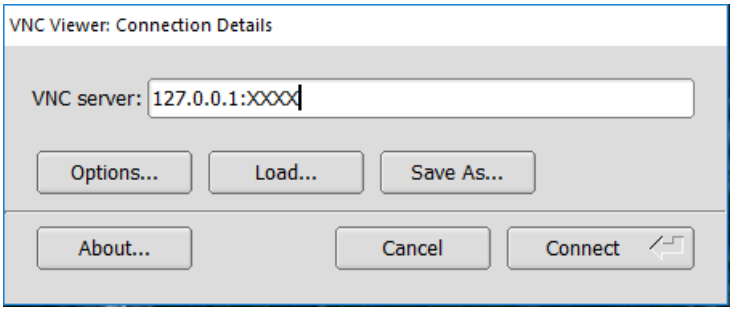
Input your CID to login, use your CID password when prompted.

Leave this window open until you are done using VNC, it maintains your connection to the server. If you accidentally close this window you will have to reopen PuTTY, load or reenter your settings and then open the connection again. Note that you do not have to worry much if this happens while you use any EDA tools, since the EDA tools will not shut down due to loss of the VNC connection.

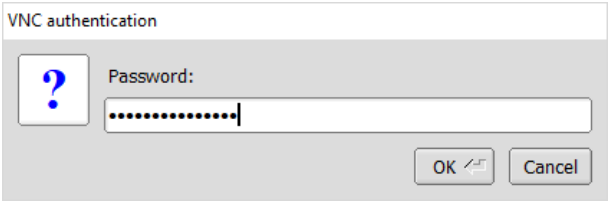


In Windows, start the ”TigerVNC Viewer” application.

In ”TigerVNC Viewer”, input the tunnel destination from PuTTY as shown below, using your designated port, and press **Connect**.



Input your VNC password in the password prompt shown next. (This is the only place where the VNC password is used, other places use the CID password).



You should now arrive at the knuffodrag login screen, It should show your name as well as your CID. Use your CID password to log in.

When logged in you should now see the Linux desktop, where you can access the Terminal and other applications. If you close this window you will have to repeat the steps starting with launching the ”TigerVNC Viewer” application.

The window can be resized if you want it larger or smaller. If the resolution does not automatically update when you resize the window, try opening **Applications** → **System tools** → **Settings** → **Devices** in the top bar. If the resolution is not adjusted automatically, select an appropriate value (e.g. 1920×1137 when maximized) and click **Apply**.

A menu for the VNC client can be opened by pressing the **F8** key, where options such as full-screen mode can be selected.

3 Connecting to the `knuffodrag` server from another computer

Here are instructions on how to connect for some other computer, such as your own laptop.

What you need to succeed:

1. Your CID and your CID password.
2. A computer with an IP address on the Chalmers network. If you are not at Chalmers use VPN to get a Chalmers IP address.
3. An ssh client (system default on MacOS or Linux, for Windows we recommend Putty).
4. A vnc client (system default on MacOS or Linux, for Windows we recommend TigerVNC).
5. Your VNC session (*number*) and VNC *port* (which is 5900+ *number*).
6. Your VNC password.

3.1 Linux

Reminder: If necessary first connect your local computer to Chalmers network using VPN.

1. In a terminal window on your local computer run the command

   `vncviewer -via CID@knuffodrag.ita.chalmers.se localhost:port`

   where *CID* is you Chalmers ID and *port* is your personal VNC port.

2. When prompted for a password type in your CID password.

3. When prompted type in your VNC password.

4. The knuffodrag Linux desktop appears with your name and CID. Enter you CID password to login.

3.2 MacOS

MacOS has a built-in VNC client called **Screen sharing** so you do not need to install any other VNC-client program.

Reminder: If necessary first connect your local computer to Chalmers network using VPN.

When we tested the procdure described below on September 7, 2022, we encountered a connection failure due to incompatible versions of the MacOS VNC server and the VNC server running on knuffodrag. If you also encounter this problem, the solution we found was to use TigerVNC instead of the built-in VNC server. We used the latest stable version of TigerVNC, 1.12.0; it did the trick. We do not know if this problem has anything to do with the version of macOS. But for you information the macOS version we used was 12.5.1 (Monterey).

1. Open the **Terminal** application.

2. In a Terminal window run the command

   `ssh -l CID -L port:127.0.0.1:port CID@knuffodrag.ita.chalmers.se`

   where *CID* is your Chalmers ID and *port* is 5900 + *number*. Enter your CID password when prompted.

3. In the Finder locate the **Go** pull-down menu. Go to the bottom of that menu where is says **Connect to Server...**.

4. A pop-up window appears. Most likely you will already see `vnc://127.0.0.1:port` entered at the top as the server to connect to. If not enter the server address there. Press **Connect**.

5. The application **Screen sharing** is started. Another pop-up window appears. Enter your VNC password and press **Sign in**.

6. The knuffodrag Linux Desktop appears with you name and CID. Enter you CID password to login.

Instead of steps 3 and 4 above, opening the connection using **Connect to Server...**, you can type in the vnc server address (as shown in step 4) in **Safari** (but note that no other browser works). A pop-up window then appears which asks if you want to allow the page to open the application **Screen sharing**. Press **Allow**. Then proceed from step 5 above.

3.3 Windows

On your own Windows computer the details will vary depending on your computer configuration. However, if your computer runs Windows 10, and you use Putty and TigerVNC the steps should be quite similar to the ones shown in section 2. So we will not repeat them here.

Putty can be downloaded from `https://www.putty.org/`

TigerVNC can be downloaded from:
`https://sourceforge.net/projects/tigervnc/files/stable/1.12.0/`
This is the newest stable version. If you encounter problems with it we recommend that you try with an earlier version. The VNCserver at `knuffodrag` currently has version 1.8.0 (September 8, 2022).

There are also many other applications that can be used for the same purpose; if you already have some other favourites installed then you can surely use those instead.

Reminder: If necessary, first connect your local computer to Chalmers network using VPN following the instructions found in the Service Portal:
`https://chalmers.topdesk.net/tas/public/ssp/`