

Virtual Computer Lab Documentation

by

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The Virtual Computer Lab is a methodology developed jointly by the National Library of Medicine and the University of Puerto Rico Medical Campus for emulating the environment of a computer lab when students are taught at a distance in real time using videoconferencing and other technology. Students located at a distant computer lab can see the instructor's desktop and the applications being demonstrated, while the instructor also can access any student desktop to provide individual assistance during hands on exercises much like would be done if the instructor was peering over the student's shoulder providing help in person. A more detailed explanation of the Virtual Computer Lab has been published in BMC Medical Education that can be accessed at:

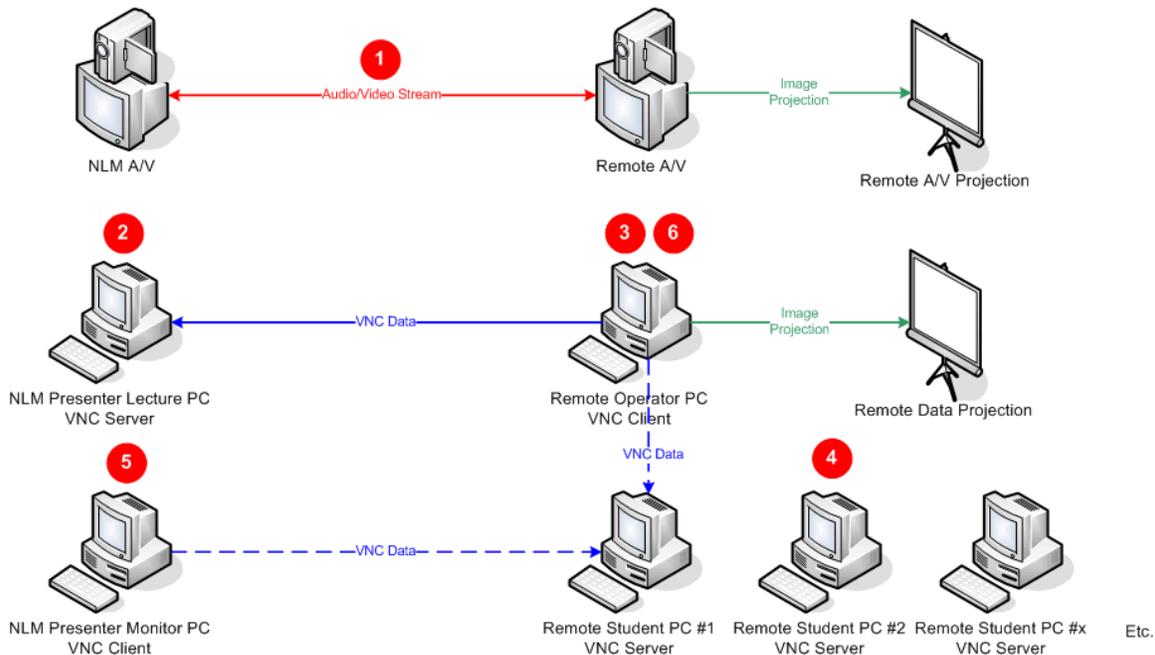
<http://www.biomedcentral.com/1472-6920/8/12>.

This instruction provides detailed procedures for setting up a Virtual Computer Lab specifically for biotechnology mini-courses offered at a distance that teach medical faculty, students, researcher, and practitioners how to search databases and use resources offered online by the National Center for Biotechnology Information at NLM. Consequently, it includes information about the general setup of the lab and specific information regarding screen display settings and both the UltraVNC desktop sharing program and the CN3D three dimensional molecular modeling program that run under Windows and that are specifically needed for the mini-courses. Links to download UltraVNC and CN3D software are included at the end of the documentation as well as a link to a video showing the interaction between instructor and students when the technology is actually used. This document also can be downloaded as a PDF file by clicking here.

Connection

1. Videoconferencing over IP (H.323 or Access Grid) is used for audio and video transmission.
2. The instructor's desktop runs an UltraVNC server enabling it to be accessed by
3. an UltraVNC viewer on a remote workstation which is projected at the distant site for students to see.
4. Each student workstation runs similar UltraVNC servers
5. allowing the instructor to use a second computer with an UltraVNC viewer to access their desktops and provide assistance when problems are encountered.
6. If desirable, the operator at the remote projected workstation can simultaneously redirect its viewer to same student computer so it can be projected for all students to see the assistance that the instructor provides.

AUDIO / VIDEO & DATA



UltraVNC

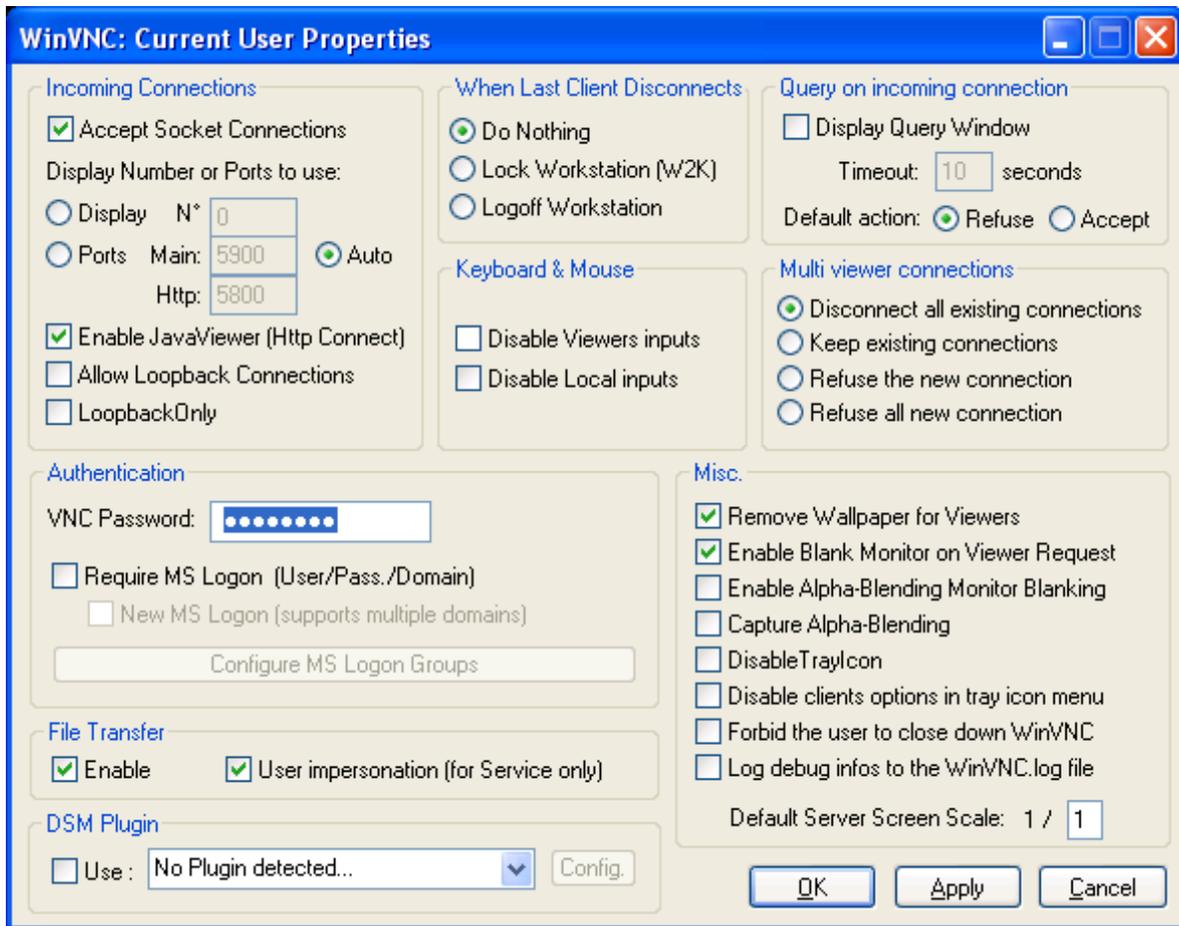
To download UltraVNC, goto <http://www.uvnc.com/download/>. Use the downloaded executable file to install both UltraVNC server and viewer. Accept all the default parameters except "install UltraVNC as a service".

WARNING: Do not install VNC as a service poses a security risk, since the computer's desktop will be accessible to outsiders any time the computer is turned on. It is better to start VNC manually prior to each course session and to terminate it afterward. In addition, it is recommended that VNC be installed with password protection. This password can be given to NLM to access the student computers. If additional firewall protection is required, NLM can provide the IP address of the computer that the instructor will use to access the student machines and network administrators can be notified to only allow access of that IP address onto your network. Finally, the UltraVNC software can be removed and the firewall reset after the course.

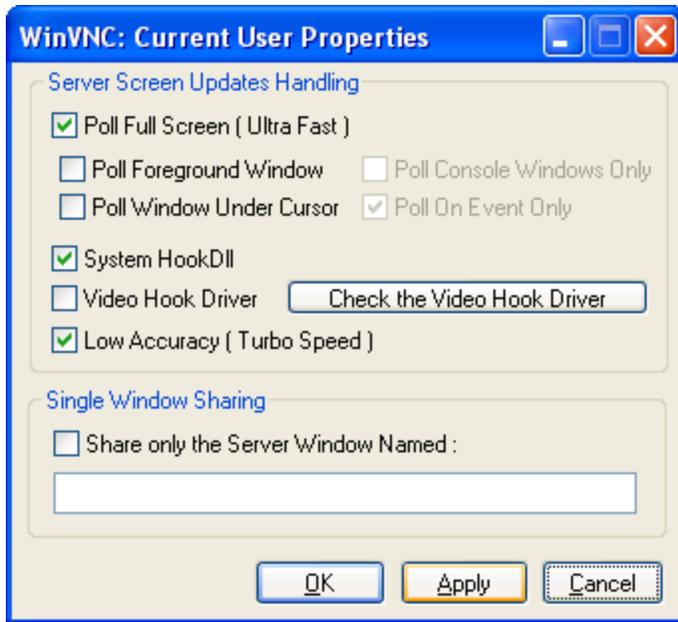
To install the UltraVNC server and viewer, double-click on UltraVNC executable to launch installer program and choose all the default options on the installation screens, except Vista add-ons if running XP. The last installation screen has no default settings. Select place UltraVNC icons on the desktop on this screen and finish installing the full program. After installation, UltraVNC server and viewer icons will appear on the desktop.

Double click UltraVNC server icon to activate it on the student machines. Once activated the server icon will appear in the system tray. Right-click on the server icon in the

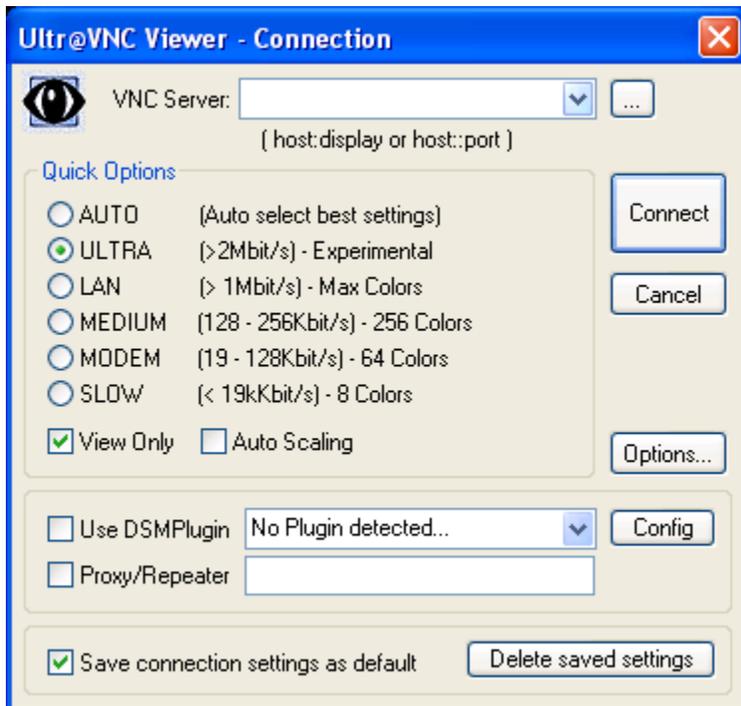
system tray, select “Admin Properties” to access to the administrator properties window. Set the desired password, select all the configuration settings as shown in the following screenshot, click apply, and close the window.



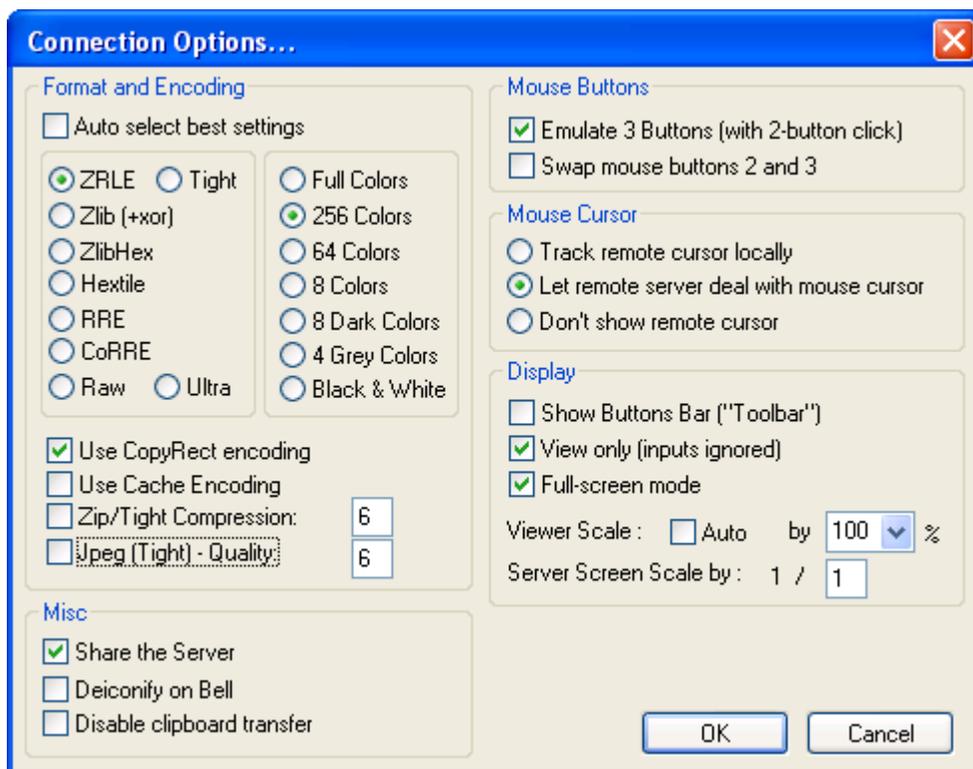
Right-click on the server icon from the system tray again. Select “Properties” to have access another property window. Select all the settings shown in the following screenshot, click apply, and close the window.



For computers running UltraVNC client, double-click on UltraVNC viewer icon to launch it. The connection window will appear. Select all the settings shown in the following screen shot.



Click on “Options...” button. Select all the settings in the following accordingly. Click “OK” to return to the connection window.



Key in the desired VNC server IP, click “Connect” button to establish the VNC connection. When connecting to the NLM UltraVNC server, you will be prompted to enter a password which you will be provided.

Similarly, the instructor will need the password for accessing the UltraVNC server on the student machines. Once the server settings are completed, provide NLM the password and allow us to connect with each of the student machines in order to make connection scripts for quick student machine accesses.

Links

For downloading cn3D, goto <http://www.ncbi.nlm.nih.gov/Structure/CN3D/cn3d.shtml>.

For a demo video link, goto

<http://collab.nlm.nih.gov/webcastsandvideos/ncbiminicourse/ncbiminicourse.html>.