TASCAM

How to access the TASCAM HS-20 using VNC from Windows

The HS-20 and other TASCAM HS products contains a VNC server that allows you to connect to it over the network and interact with the LCD screen remotely, allowing full control of all features as though you were in front of the unit.

This application note describes how to set up and use free software on Windows to access this feature. This requires that the HS-20 be connected to your network. Please refer to the owner's manual to set this up first.

What is VNC?

VNC stands for "Virtual Network Computing", mostly used for computer desktop sharing or remote control of another computer, transmitting the keyboard and mouse movements, and receiving the graphic screen in the other direction, over a network.   The actual protocol on the network is called RFB, which is why you'll see both VNC and RFB mentioned in discussions on the web.

Why is it popular? – The original VNC was developed by a research lab in the UK, the protocol and source code were made available freely, leading to wide adoption, and a plethora of free tools on all operating systems – PC, Mac, Linux, iOS and Android.

Is it Secure? – Only at a minimum level. A user must know the password set on the HS-20 to connect, and only one connection can be active at a time, but anyone on the same internal network as the HS-20 and VNC user could sniff the data and see what you are seeing, but not inject any messages. The HS-20 is designed to be used in a network infrastructure that is trusted and already protected from outside interference.

On Windows, the following free applications are available (not a full list)
- RealVNC Free Edition
- TigerVNC
- TightVNC
- TurboVNC
- UltraVNC

Any of these can be used, because the HS-20 uses the basic RFB messages that all VNC viewer software is required to support.

For this Application note, we chose UltraVNC, for 2 reasons:

1. It allows the viewer to zoom (scale up) the screen to be easy to see and operate.
2. You can save a shortcut file with the direct connection information (IP address and password) for instant launching.

Since the HS-20 has a 320x240 dot LCD display, that ends up being a small window when viewed at 1:1 scale from a Windows computer. Being able to view at 2x or 3x the dot size makes remote operation much easier.
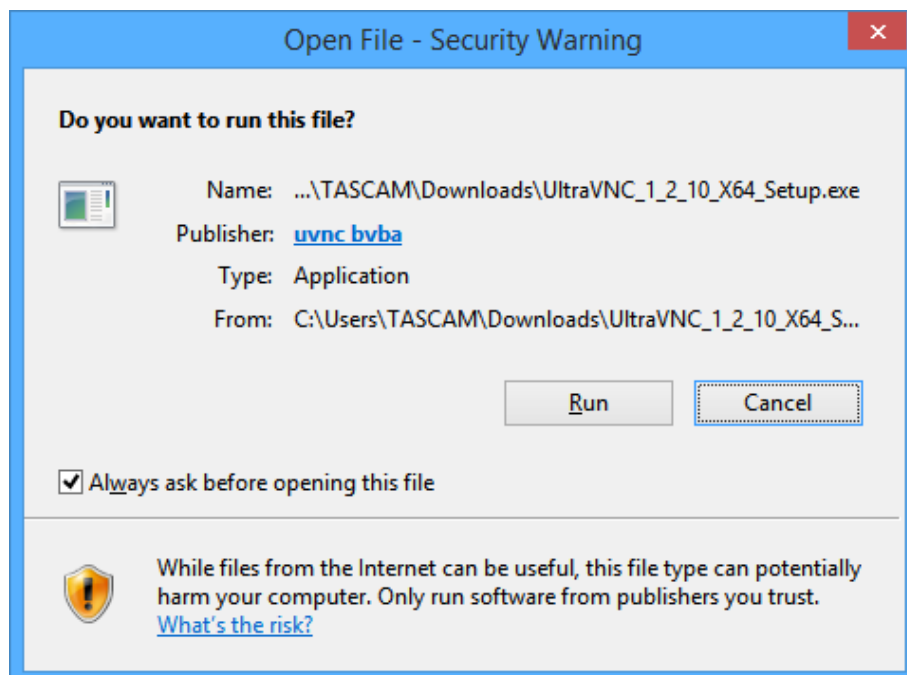
Installing UltraVNC

Download UltraVNC from this site: (note that www.ultravnc.com redirects to realvnc.com, what we are looking for is on uvnc.com)

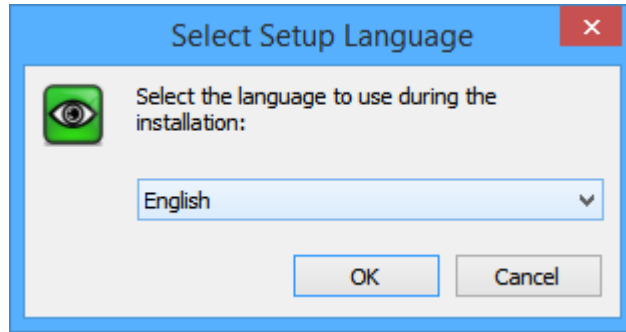http://uvnc.com/downloads/ultravnc/115-download-ultravnc-1210.html

- Choose either X86 (for 32 bit Windows) or X64 (for 64 bit Windows).
- Click on the download button to take you to another page.
- Click on the "I accept the above listed conditions" and click the download button again.
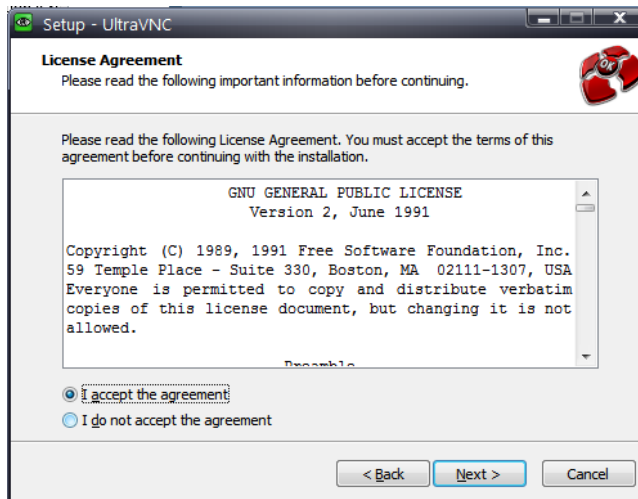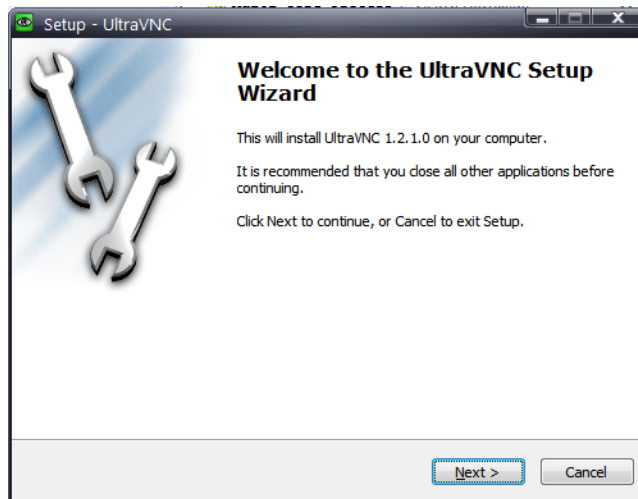- The file download should start, asking you where to save it.

Run the installer.

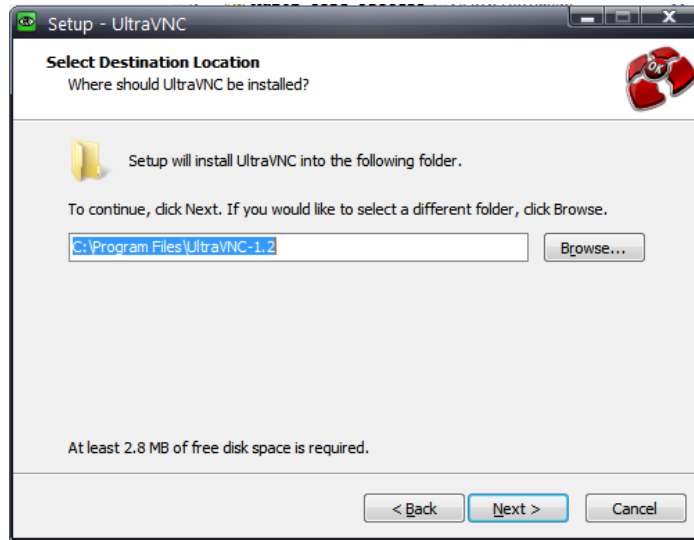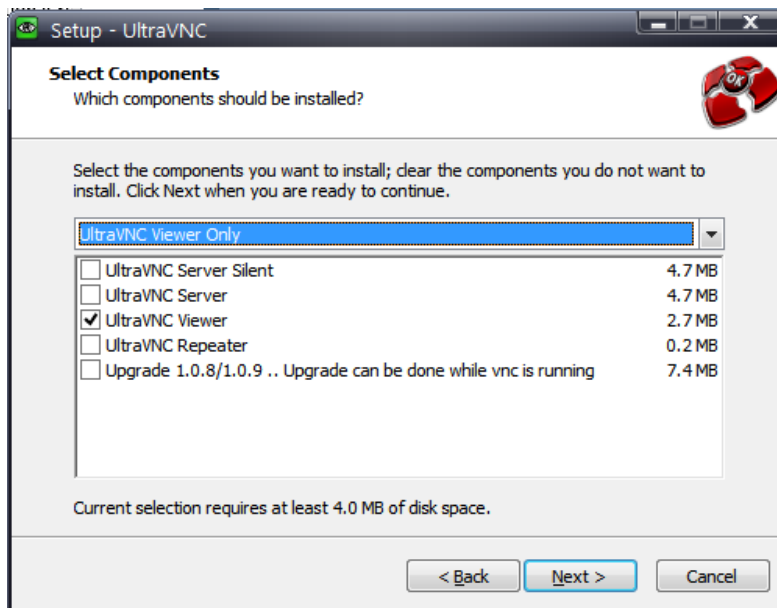Accepting the Security Warning (it should say publisher is "uvnc bvba")

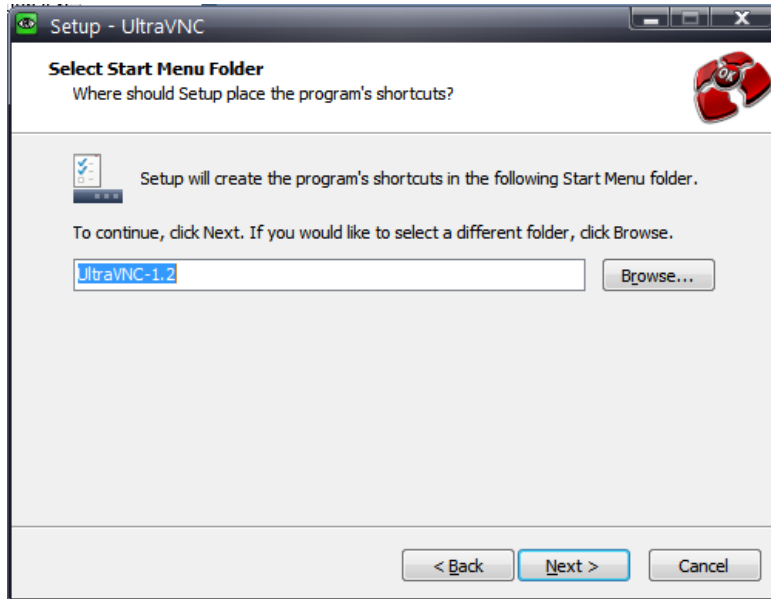Follow installation instructions, accept the GNU license.

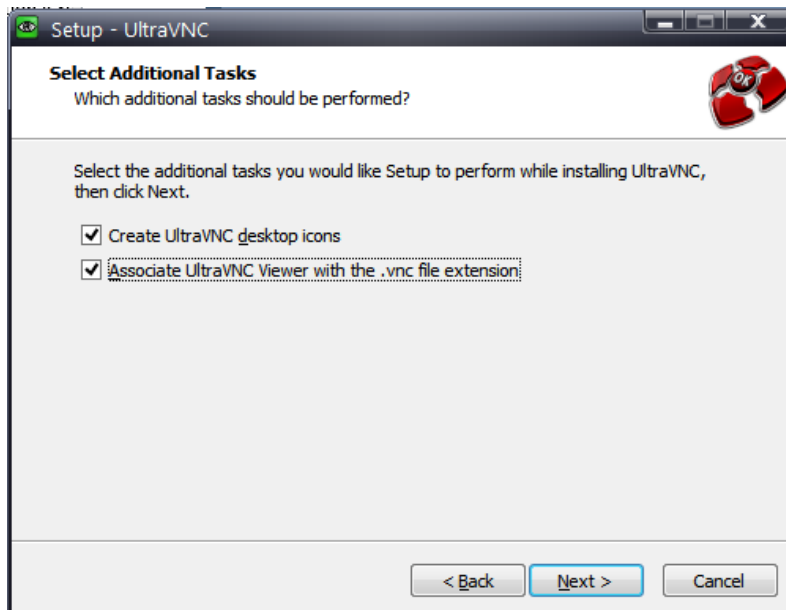It is OK to accept the default Destination Location.

At this step, we only want the UltraVNC viewer, so we select "UltraVNC Viewer Only" on the Components page.

Here we select both of the additional tasks, these make UltraVNC easier to use.
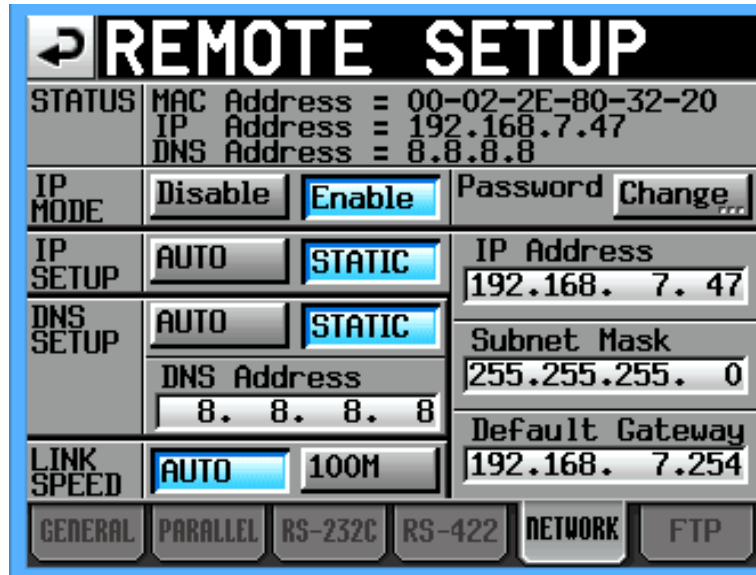

Continue on to the actual installation and let it run.

HS-20 Setup

Before launching the UltraVNC viewer that was just installed, we need some information from the HS-20:

On the front panel, press the MENU button, then touch REMOTE SETUP on the LCD screen (top right).
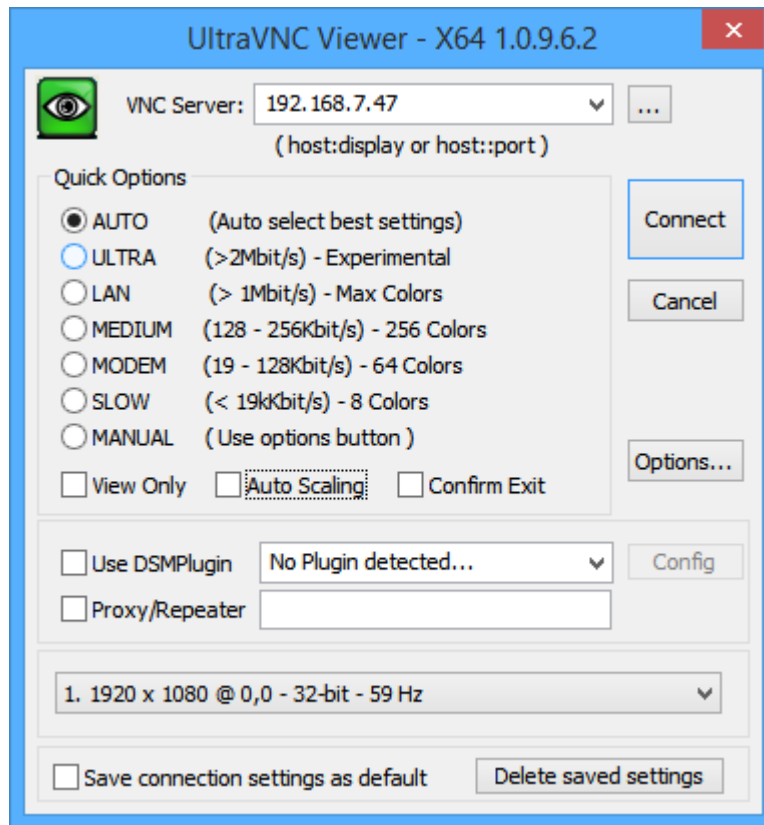

Note down the IP address from the top STATUS, and the Password (touch the Change button to see this).

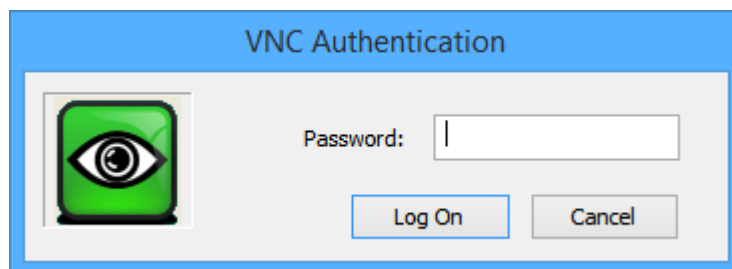## UltraVNC First Launch

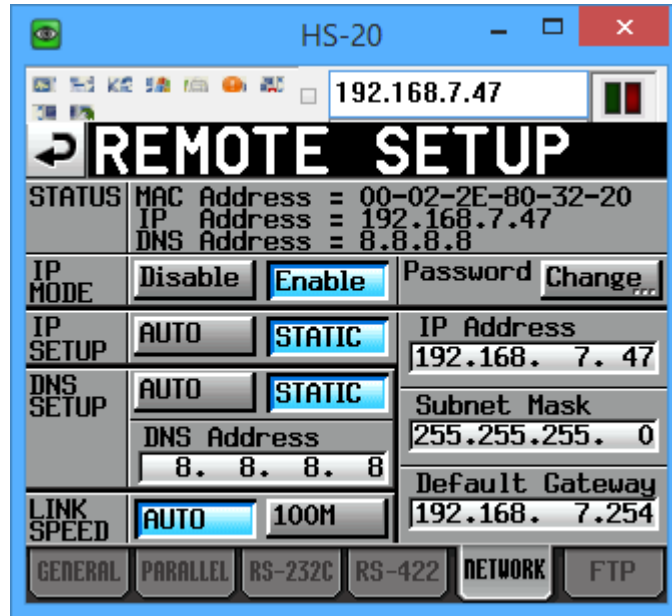Back on the Windows computer, launch UltraVNC from the icon it installed to the desktop.

Type in the HS-20's IP address to the VNC Server box at the top, select AUTO, then click the Connect button on the right.

It should connect and then ask for the password.

Once you enter the password and press enter (or click the Log On button), the HS-20's screen should be visible.

The last screen we were looking at was the Remote Setup screen, so that's what we see here.

Now we can start to navigate around.

Press the HOME button on the computer keyboard is the same as pressing the HOME button next to the HS-20's LCD screen. Ditto END = MENU, PAGE DOWN = PROJECT, and Esc = EXIT/CANCEL

The mouse cursor will become a small dot when it is in the screen area. Clicking the mouse Left button is the same as touching the physical screen. Clicking the mouse Left button and dragging is the same as touching and sliding your finger on the screen.

> Note: Since the Network settings screen is the first one we see, fight the urge to click on any of these settings, because it will likely end up disconnecting the HS-20 from the network, and hence interrupt your VNC session.

Turning the Mouse Wheel up and down is the same as turning the HS-20's DATA Dial.

Clicking the Mouse Wheel is the same as pushing the HS-20's DATA Dial.
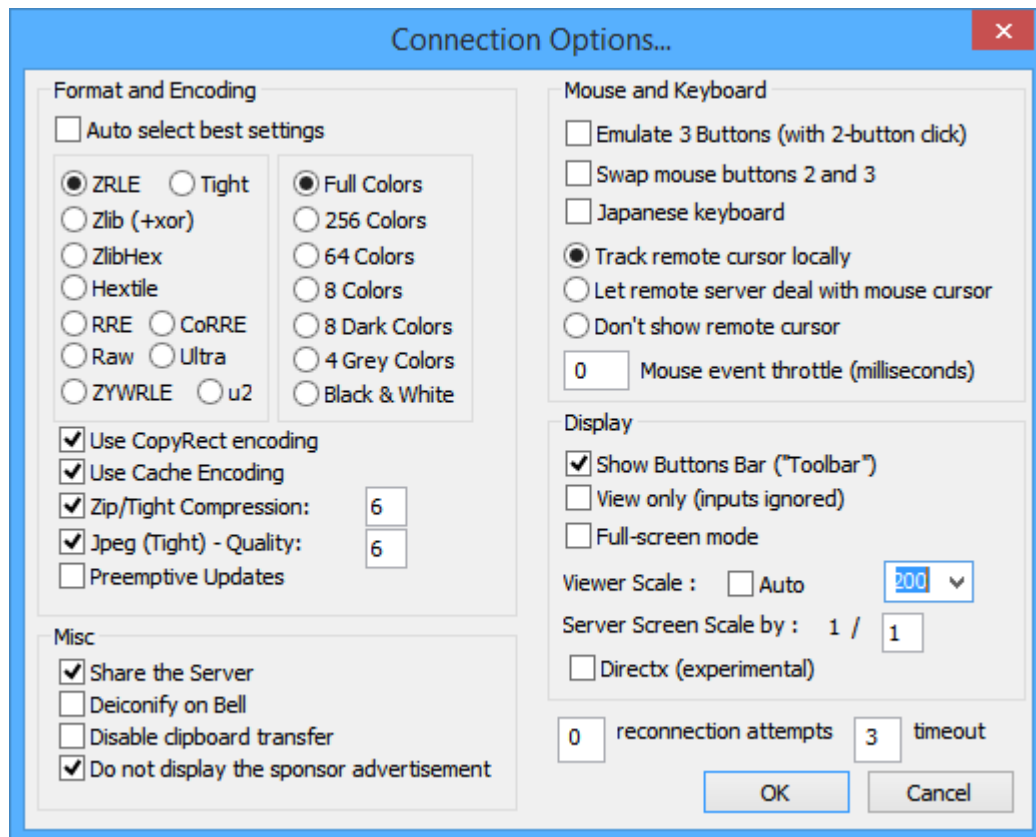
The reset of the keyboard is mapped identically to if a keyboard was plugged into the HS-20's USB port on the front panel. Most importantly, the Function keys are mapped to the common transport controls. F1 is |<<, F2 is >>|, F4 is Stop, F5 is PLAY, etc. See User manual pages 109-110 for a complete list.

Zooming In

As previously mentioned, one of the advantages of using UltraVNC is zooming in (Scaling).

If "Auto Scaling" is selected, then the HS-20's VNC viewer window will try to fill your entire screen. This is probably bigger than you need, but it is good if you want to see the HS-20's screen from across the control room.   Instead, make sure Auto Scaling is not selected, select MANUAL in the UltraVNC connection dialog and first click the Options button, bringing up the following options dialog.
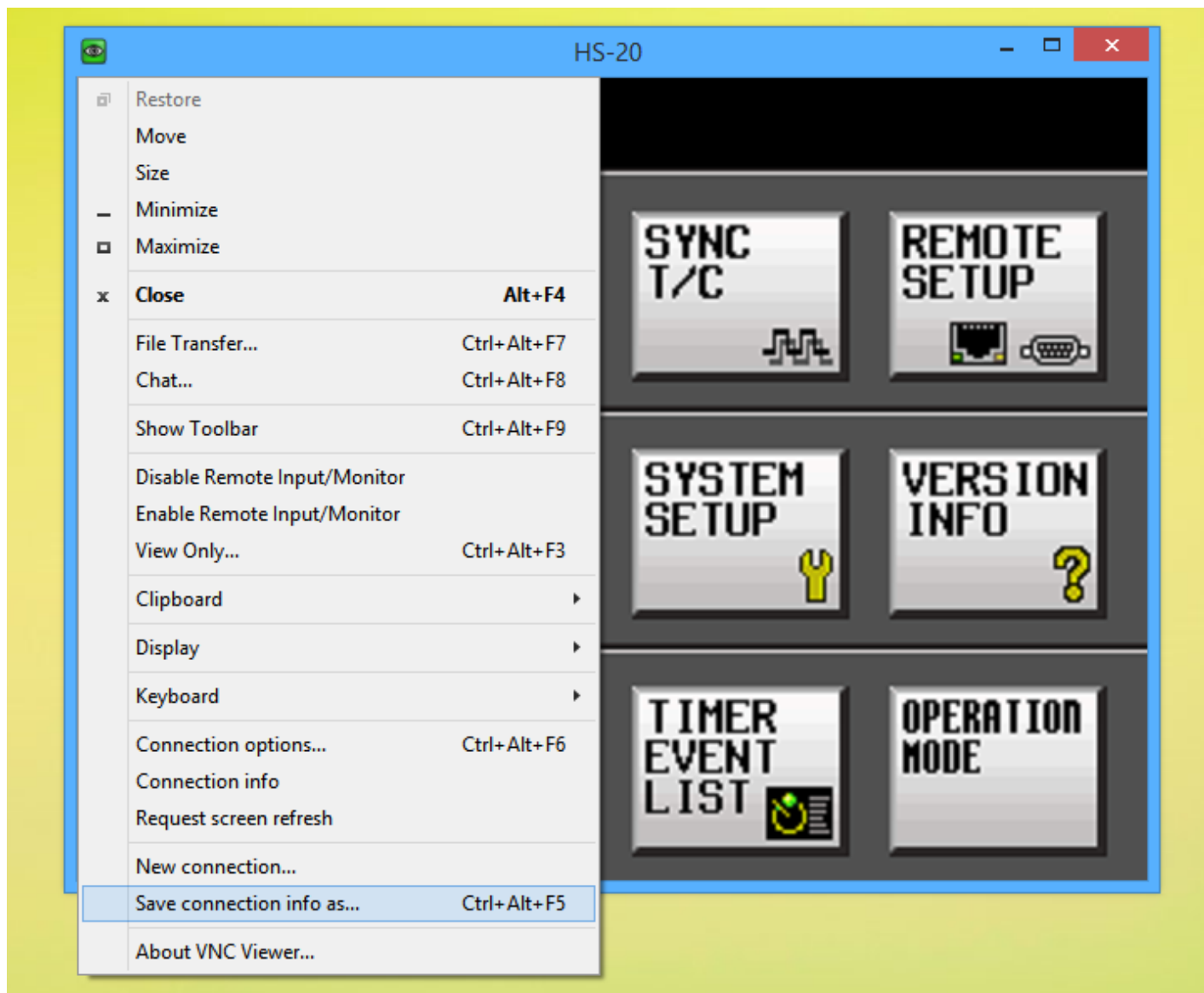

With the settings shown here, the HS-20 display will be 2x the original size, which is a nice size for interacting.   "Viewer Scale : AUTO is off, the pull down is set to 200.
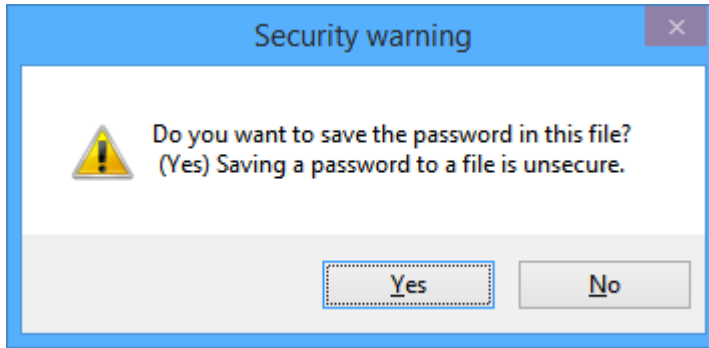
When you have clicked OK here, you can click "Save Connection Settings as Default" on the first connection dialog so that all of these settings are remembered for you for each time you run the UltraVNC program.

Other useful settings include "Show Buttons Bar (Toolbar)", this can be disabled to hide the menu items which are rarely used, and setting the Format and Encoding to "256 colors" instead of" Full Colors" to use less network bandwidth at the expense of a less accurate coloring rendition.

Finally, we come to the other useful feature of UltraVNC. Once you have successfully connected, click the green VNC icon in the top left of the window to see the following menu.

Select "Save connection info as…", and choose somewhere to save a ".vnc" file, e.g. "My-HS-20.vnc", on the Desktop. Once you have entered a filename, a Security Warning will appear:

In this case, selecting YES will add the password you used to connect to your HS-20 into the VNC file. Although it says "insecure", the password is not saved in plain text, but someone with access to your computer can find the actual password by using other available tools. If the computer is on the same trusted internal network as the HS-20, this should not be a problem.

Once this is done, a green VNC icon is created on the desktop, which when double clicked, will connect directly to your HS-20, at the specified size and position on your desktop, and will not require entering the password. NOTE: If you didn't select "Associate with UltraVNC viewer with .vnc files" during installation, double-clicking this file will not work.