

SWANSON TELESCOPE

Digital Video Capture Instructions



MdM
Spring 2011

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Forewords

The Swanson observatories uses freeware software called VirtualDub. VirtualDub is a video capture/processing utility for 32-bit and 64-bit Windows platforms (98/ME/NT4/2000/XP/Vista/7), licensed under the [GNU General Public License \(GPL\)](#). It lacks the editing power of a general-purpose editor such as Adobe Premiere, but is streamlined for fast linear operations over video. It has batch-processing capabilities for processing large numbers of files and can be extended with [third-party video filters](#). VirtualDub is mainly geared toward processing AVI files, although it can read (not write) MPEG-1 and also handle sets of BMP images.



*Virtual Dub is installed on the Laptop in the Swanson Control Room.
(Images Courtesy of VBAS)*

It is assumed that the user of these instructions is familiar with the Swanson Telescope and has received the Basic and Advanced training for operating the scope.

Starting VirtualDub

After starting the laptop and login allows for the operative system to finish the startup. Check again that the DVR and Analog Digital Video Converter (ADVC) have been turned on and the input selection on the ADVC is on Analog (See Picture 1).



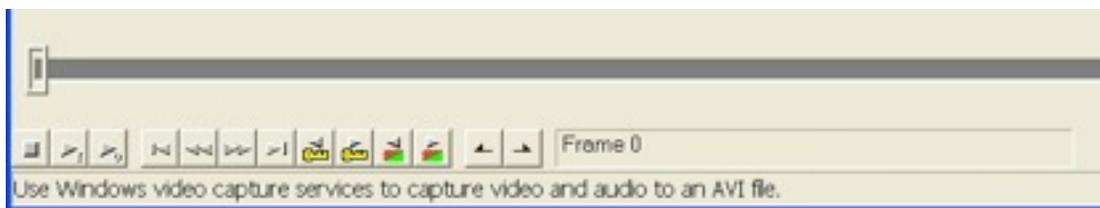
Picture 1: ADVC Blue Light shall be on Analog (right)

1. Locate the the VirtualDub Icon on the desktop (see Picture 2).

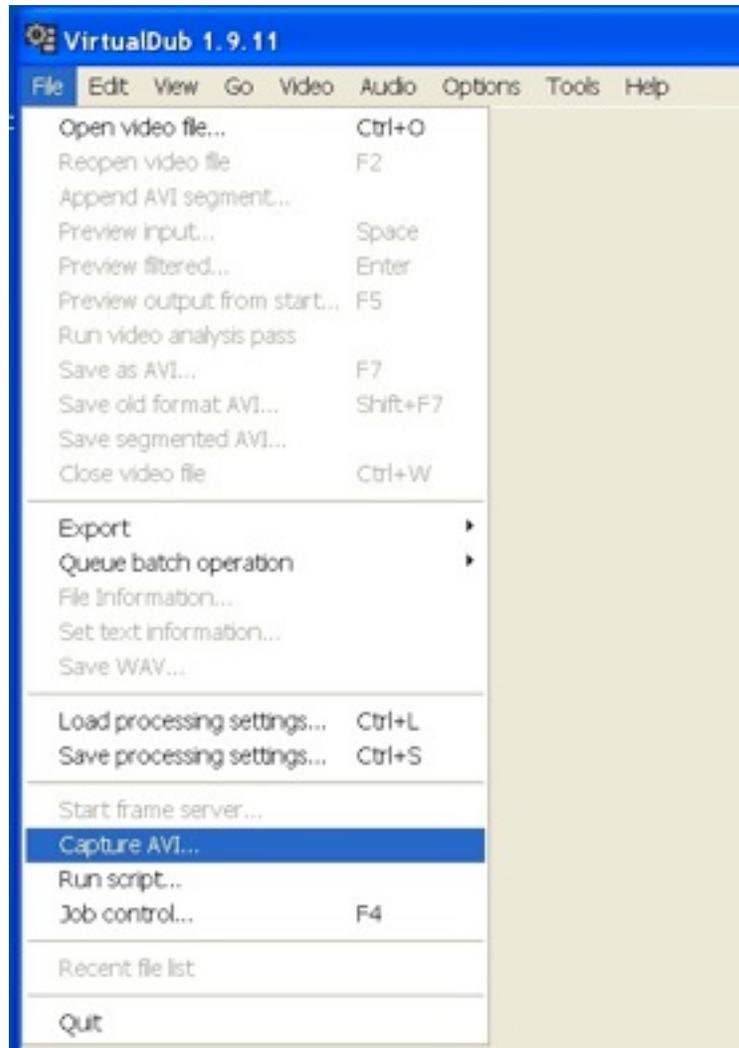


Picture 2: VirtualDub Icon on the desktop

2. Start Virtual Dub by double click the icon on the desktop. VirtualDub interface (menu contents and buttons) will start in the View/Editing mode, recognizable by the control buttons on the bottom left corner of the window (Picture 3). **The VirtualDub Interface changes depending of the mode of operations: View/Editing or VideoCapture. Be aware of which mode you are operating.**

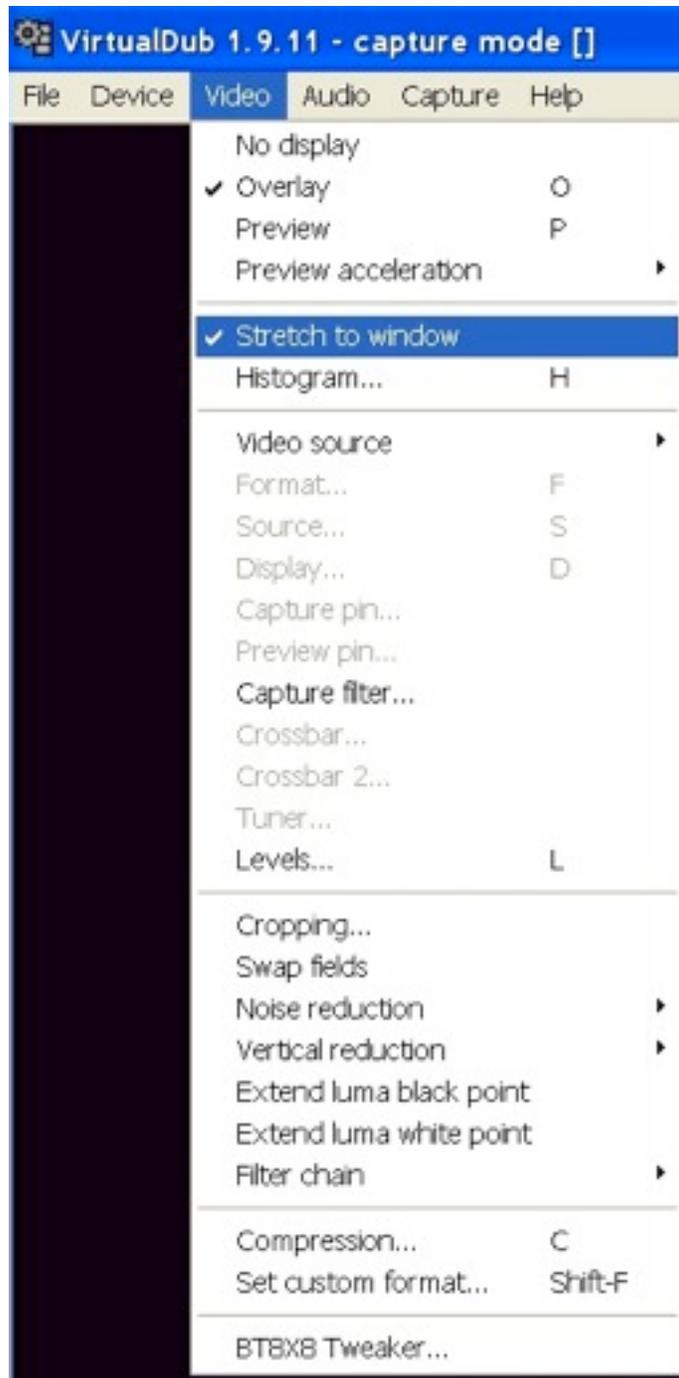


Picture 3: VirtualDub View/Edit Buttons



Picture 4: Switch to Capture Mode

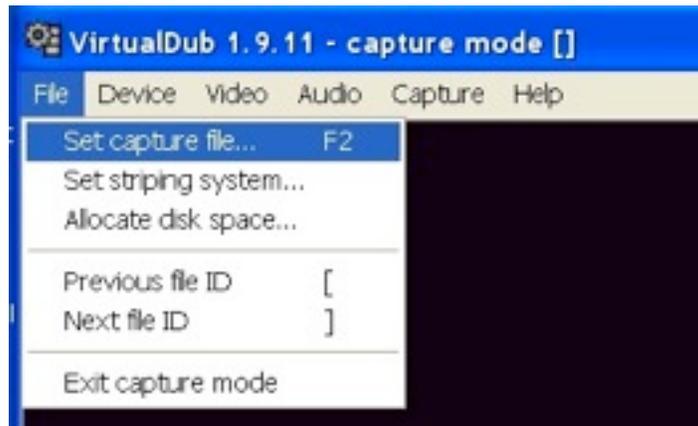
3. Open the File menu and select the “Capture AVI...” item (Picture 4). VirtualDub will switch to “capture mode” and the video input will be displayed on the screen.
4. While in capture mode, screen size, frame rate and filters can be adjusted to the proper setting. The most common setup are used as default. IN case you want access to these options, such as stretch the video from its native resolution to the whole window, open the Video menu and select “Stretch to window” item, as shown (Picture 5)



Picture 5: Video Capture Options

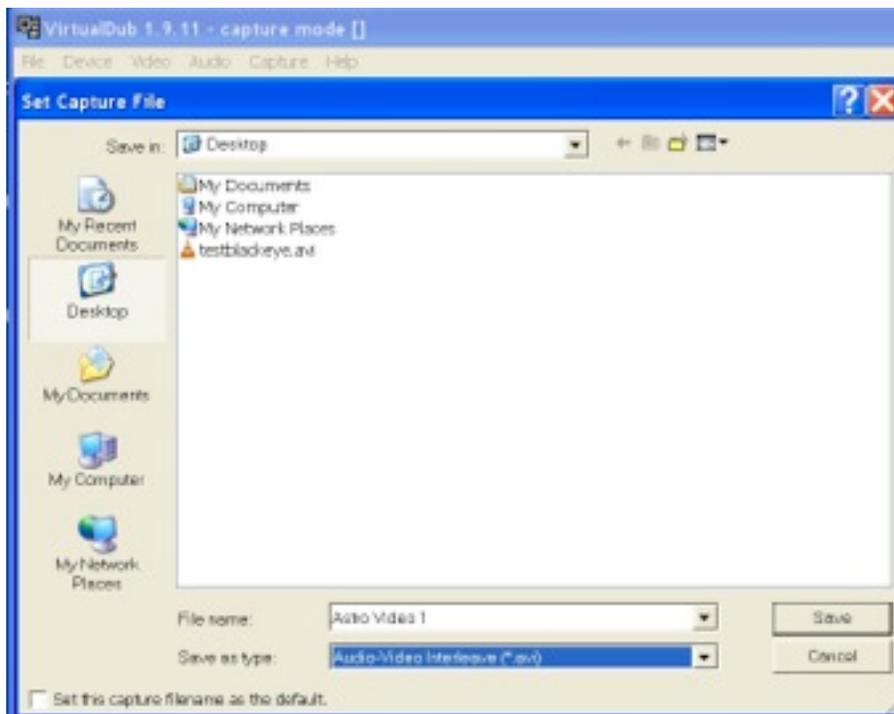
Set Up Video Recording

5. Open the File menu in capture mode and select the “Set capture file...” item or just press the F2 button (See Figure 6).



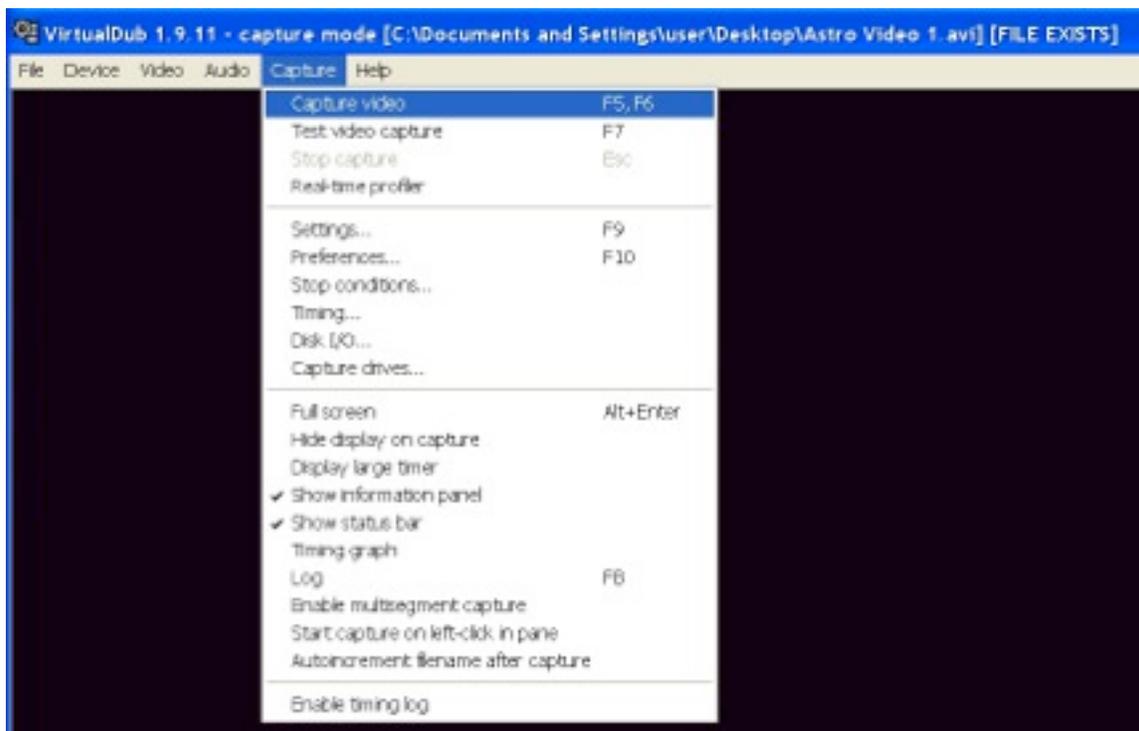
Picture 5: Set Video Recording File

6. VirtualDub will show the usual Windows Explorer screen. Input the proper file location and file name.



Picture 6: Set File Location and Name

7. Once selected the file name and location, it will be shown in the window bar (see Picture 7).



Picture 6: Set File Location and Name is displayed

8. To start capture the images, open the Capture menu and select the “Capture Video” item (F5, F6)
9. There are many other options available in the Capture menu. Among the most useful there are
1. “Full Screen” (Alt+Enter to move into Full Screen, CTRL+Esc to exit)
 2. Auto-increment Filename after capture
 3. Enable Timing Log
10. To Stop the capture of the video, open the Capture Menu and select Stop Capture item.

Please note that you cannot grab or capture single frames or images while capturing a video. To extract a single frame or a snap shoot of the video, you need to exit capture mode and enter View/Editing

Troubleshooting

Video feed do not show on computer monitor:

Check if the DVR and the ADVC are turned on

Check if the driver for the AVDC is working (Control Panel of Windows)

Check if the Analog video signal is available at the battle station or the Foyer monitors. If it is, Check that the DVR and the ADVC are turned on and the ADVC input is set to Analog.

Check if VirtualDub is in capture mode.

Advanced Users: Video Streaming

VLC Live Video Streaming Tutorial

Overview

VLC (Video LAN Client) is a multi-platform media player and streaming solution VBAS uses to stream content from the Swanson image server or live cam to the Planetarium. A streaming server is not needed and, according to the VLC Web site (www.videolan.org), this is not advised. The VLC player can be used as a server and a client to stream media content.



VLC is installed on the Laptop in the Swanson Control Room.

Before you start streaming via VLC, make sure VLC is added to the Firewall exception. To do so, on a PC, go Start menu > Control Panel > Windows Firewall > Click the Exceptions tab > Check if VLC is in the list. If not, Click Add Program, find it, and add it. Click OK.

This setup should be already in place and be the default. However it may happen that other users have decided to change the setting of the laptop or simply installed a windows security upgrade with unpredictable consequences. Just in case follow the previous steps and be sure nothing has changed.

The following steps will demonstrate how to set up and view a stream using the built-in streaming/transcoding wizard within VLC.

Streaming Live Video from Stella Cam: Connecting devices

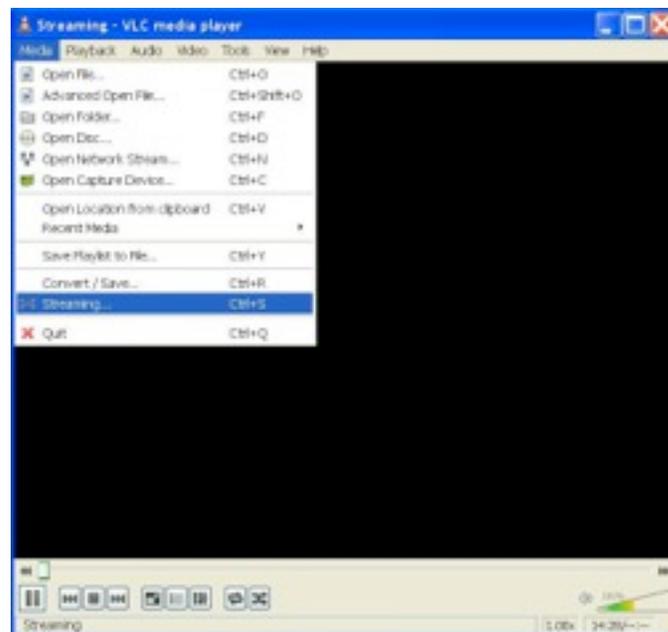
After starting the laptop and login allows for the operative system to finish the startup. Check again that the DVR and Analog Digital Video Converter (ADVC) have been turned on and the input selection on the ADVC is on Analog (See Picture 1) and that that video is showing on the Foyer television screen.



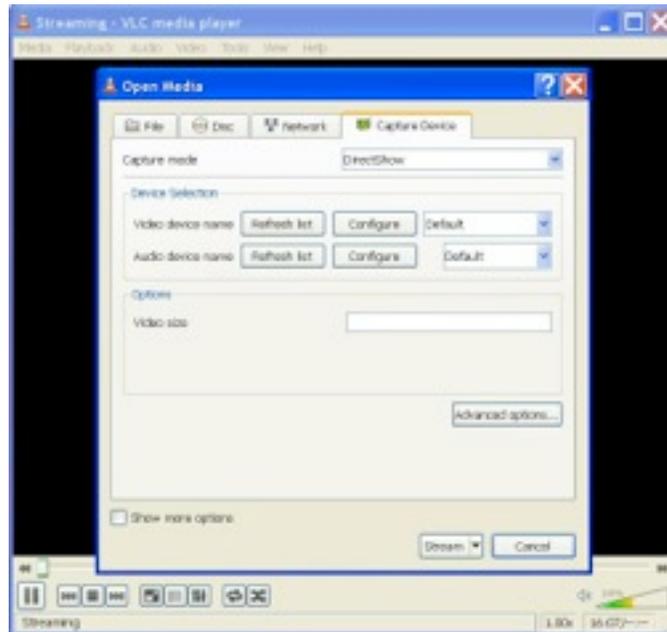
Picture 1: ADVC Blue Light shall be on Analog (right)

Setting up Streaming from the S21 Control Room

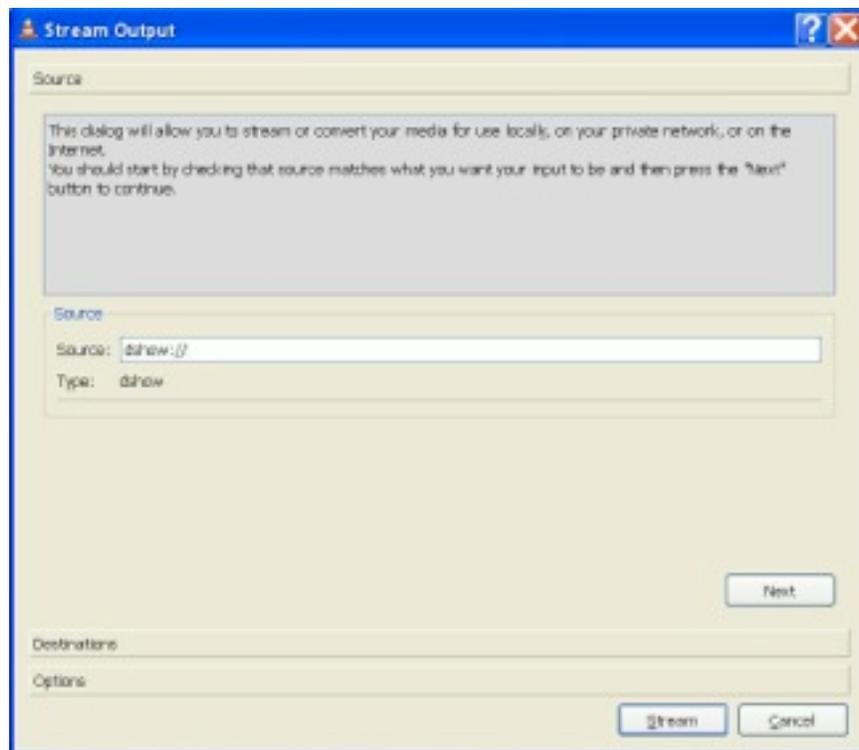
1. Locate the the VLC Media Player icon on the desktop (🚩 Orange and white cone) and lunch the program.
2. From the Media menu, choose Streaming or press the shortcut “Ctrl+S” as shown in the picture below



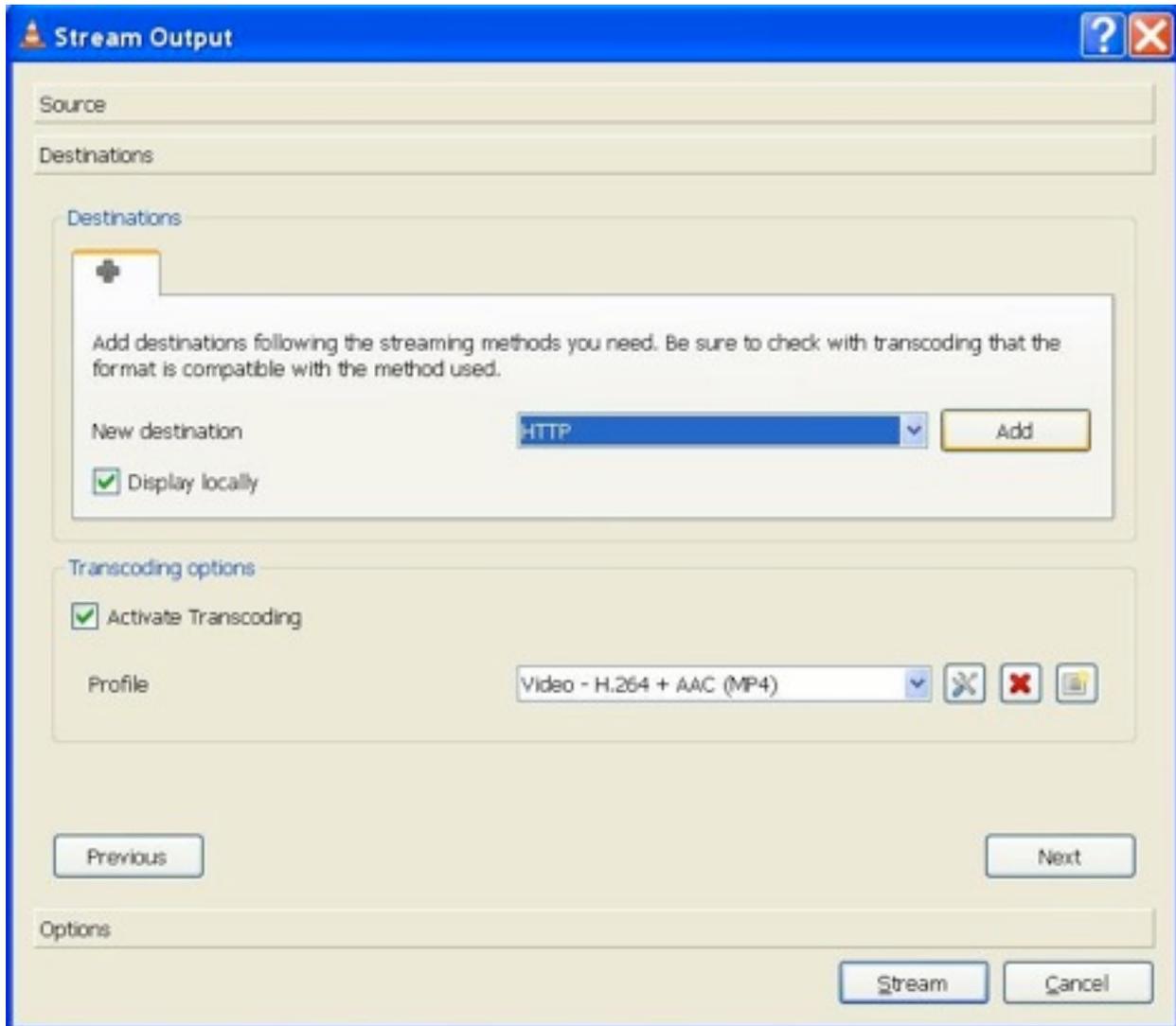
3. In the Open Media window, select “Capture Device” tab. The “Capture Mode” should be set to “DirectShow” as in picture below . Press the button “Stream” at the bottom right.



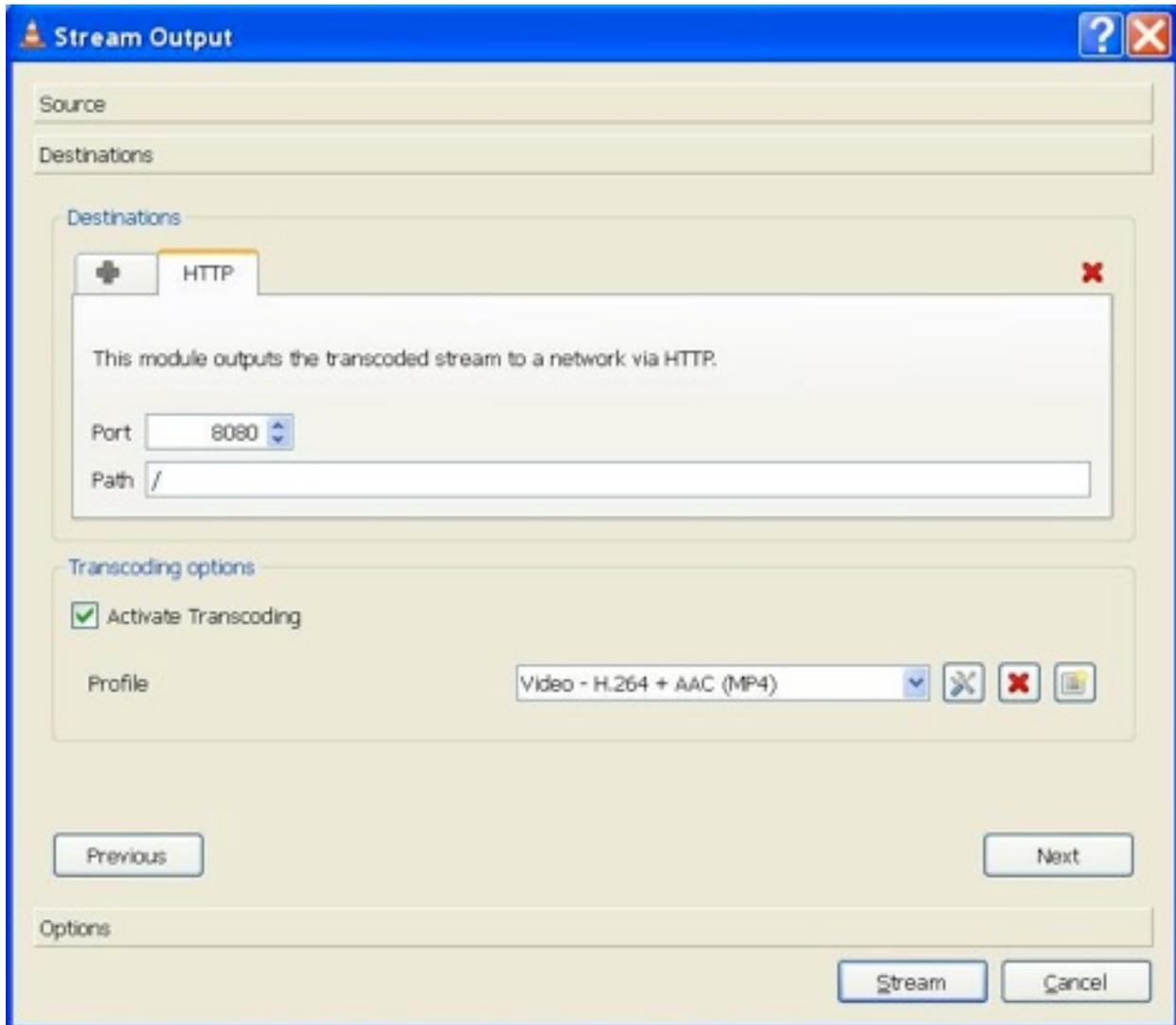
4. The Stream dialog box will appear. The first step is to select the Source. By default, this is “dshow://”, i.e., the ADVC, as shown in picture below. Press “Next”



5. Next Step is to select the Destination of the streaming. **First**, check the box “Display locally”; this will allow to see the images also on the laptop in the S2I control room. **Second**, in the drop box “New destination” select “HTTP”. **Third**, at this point all should look like the picture below an you need to press the button “Add”.



- By Pressing the button “Add” you have added a destination to the streaming data, in this case another computer on the net. You can also add a file to record your session by selecting “File”. Remember that AVI file can quickly eat up giga-bites of HD space.

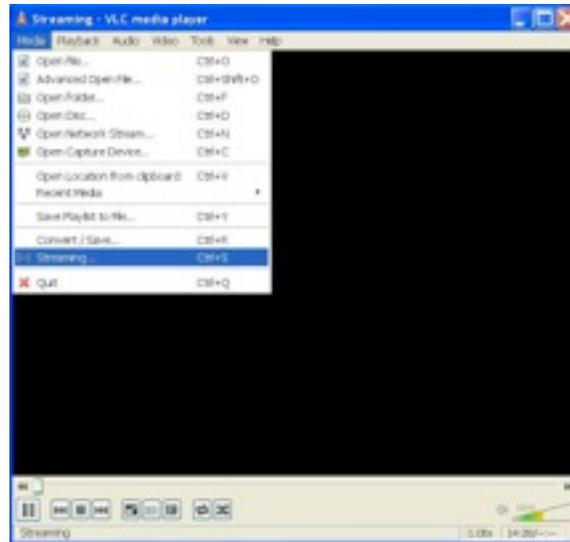


- Leave the HTTP module as it is, with Port number= “8080” and Path = “/” as For transcoding, check the “Activate Transcoding” box; this step is crucial, or the streaming could be jittery or stopped because the signal is not transcoded.. The picture above shows as Profile=“Video - H.264 +AAC (MP4)” . Even if this is a working options, sometimes the planetarium laptop has an hard time to process this type of data due to limited processor capabilities. A safer profile would be to use “**WMV+WMA**”. Click “Stream” button on the bottom right. You are streaming now.

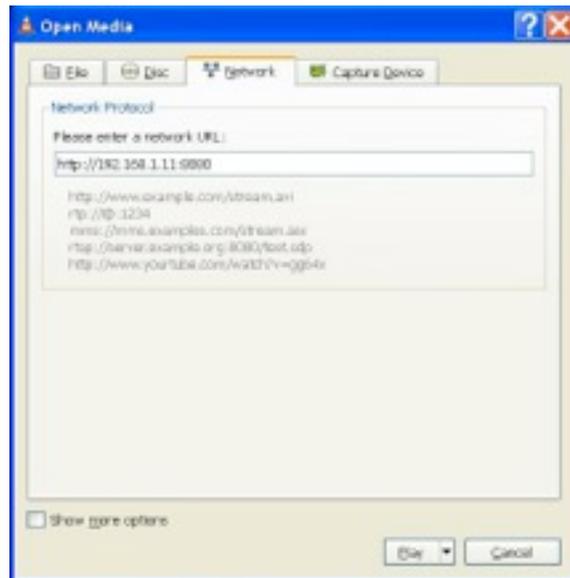
Viewing Stream viewing from the Planetarium

To view a VLC streaming video, the user must have a VLC Media Player  already installed on the computer in the planetarium. This should be the default but...

1. Launch the VLC Media Player .
2. From the Media menu select “Open Network Stream” or “Ctrl+N”.



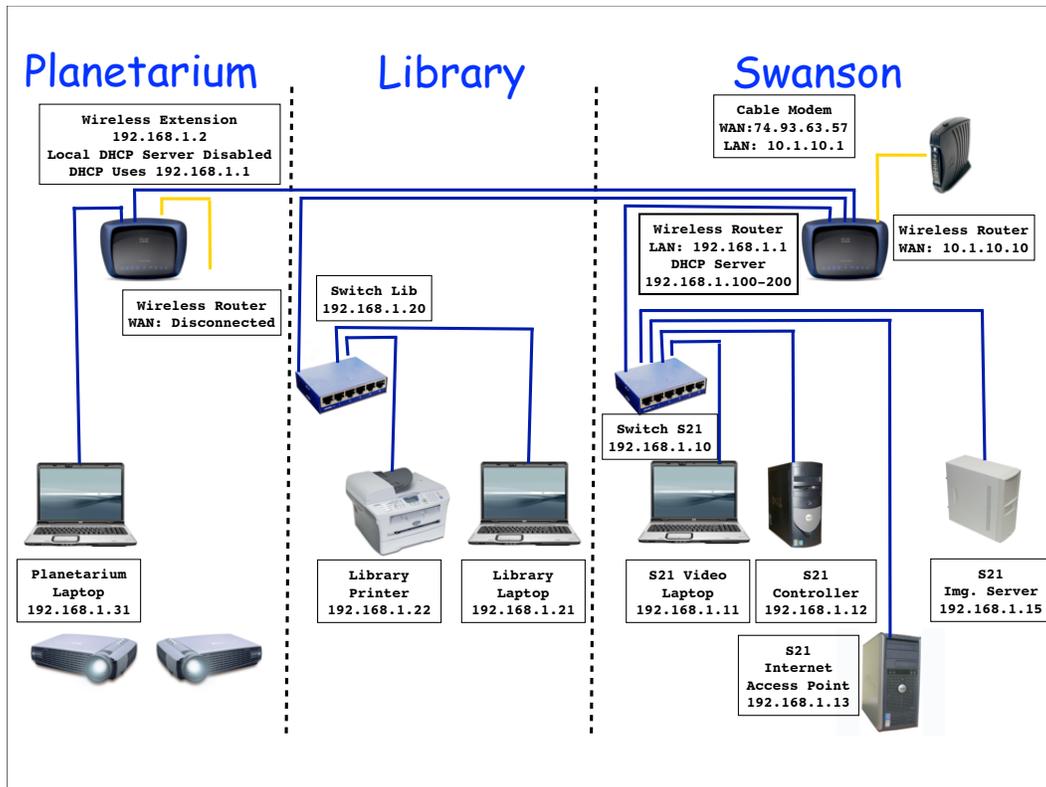
3. In the Network tab, you are requested to “Please enter a network URL:”; type in this: “<http://192.168.1.11:8080>”. Please notice that the editor will suggest you previous entries and you may simply select the right one. Click “Play” and after few seconds you should see the streamed images.



Tricks and Tips

Before you start streaming via VLC, make sure that the connections between the planetarium and the S21 Control Room are working. To do so, from the planetarium laptop, ping the S21 Laptop at 192.168.1.11 or from the S21 Laptop, ping the planetarium at 192.168.1.31.

Below is a reference map of all the ip addresses



Make sure VLC is added to the Firewall exception on both computers or the firewall is turned off altogether (This is the default configuration until somebody or a MS Windows update changes it...)



Once the video is streaming, to go in “Full Screen Mode” press the button located in the bottom of the viewing window. To exit “Full Screen Mode” simply press the “Esc” key on the keyboard.

If the video shows on the laptop but it does not display on the dome via the two projectors, go in VLC Preference, go to Video Preferences and unselect the “Video Overlay” option.