Kessler Wireless Instructions

November 22, 2009

Contents

1   Introduction

1.1   Scope

This document explains steps you need to go through to get a computer in Farpoint main ready to control an SBIG camera and the Meade 14 inch telescope in the Kessler building. This document does not describe how to use software such as "The Sky" or use any image software ("CCDOpts", "MaximDL") to fetch images from the camera. By following this document one should be able to put the computer in a state where it is as if the telescope and camera are connected directly to the computer even though that is not the case.

1.2   Overview

The diagram below is an overview of all the components in this system.
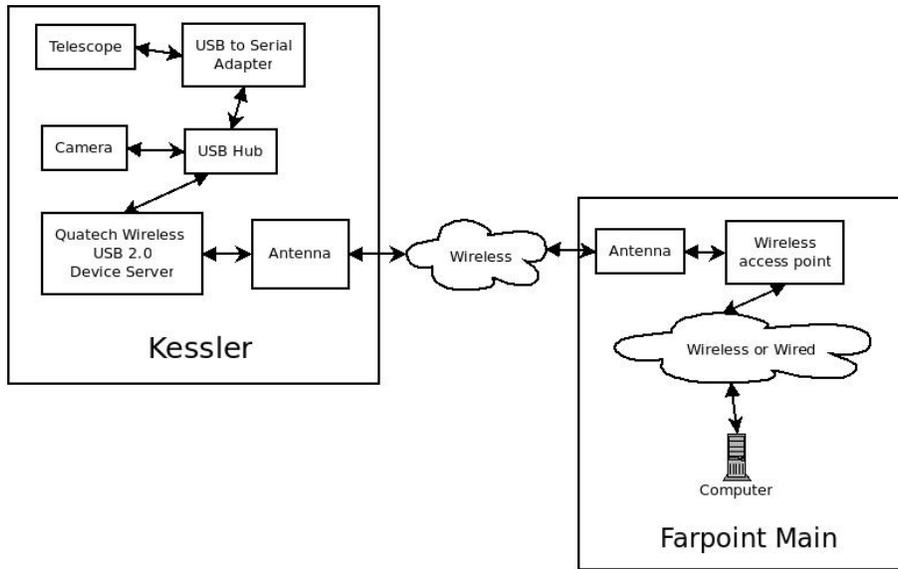
2 Hardware Setup

The first step is to get the USB Server box out of Farpoint main and hook it up in the Kessler building. When not in use this box should be stored in Farpoint main. Below is a picture of this box.

You should take the box and place it next to the west wall near the electrical

outlet.

The next step is to connect the antenna coax cables. Remove the black plastic cap from the end of the Kessler building connector. Do not lose the black cap, as it should be put on the connector when you put things away again. See picture below.

Below is a picture of the antenna connectors connected with the plastic cap on the ground below.

Next you will want to connect the serial adapter. Find the serial cable connected to the Meade 14 inch telescope and connect it to the blue USB2Serial adapter. The telescope's serial cable is being held, and the blue object is the USB2Serial adapter in the picture below.

Below shows the telescope's cable connected to the adapter. The other side of the USB2Serial adapter should already be connected to the black USB hub.

Connect the serial cable from the SBIG CCD Camera to the black USB hub. Below shows the camera's cable connected to the USB hub.

Connect the cable of the surge protector's power plug into the electrical socket. Note that the white wire you see in the top electrical outlet is the grounding wire for the antenna and should not be removed.

The power adapter for the USB server should be plugged into the surge protector and should not be removed. Also check that the switch on the surge protector is in the "On" position.


This concludes the hardware portion of the setup. You should see see Section 3 next.

3 Software Setup

This section give instruction on how to install and use software on a computer to operate the telescope and camera. If you are using a computer that already has the correct software installed go to subsection 3.2. Otherwise continue onto the next subsection on how to install the software.

3.1 Software Installation

The Quatech wireless USB Server software and the USB2Serial drivers need to be installed to operate the telescope and camera correctly. The install media should be inside the plastic case holding the USB server. Please remember to place the CDs back in the case when you are done using them. Please put the lid back on after you take the CDs out of the box.
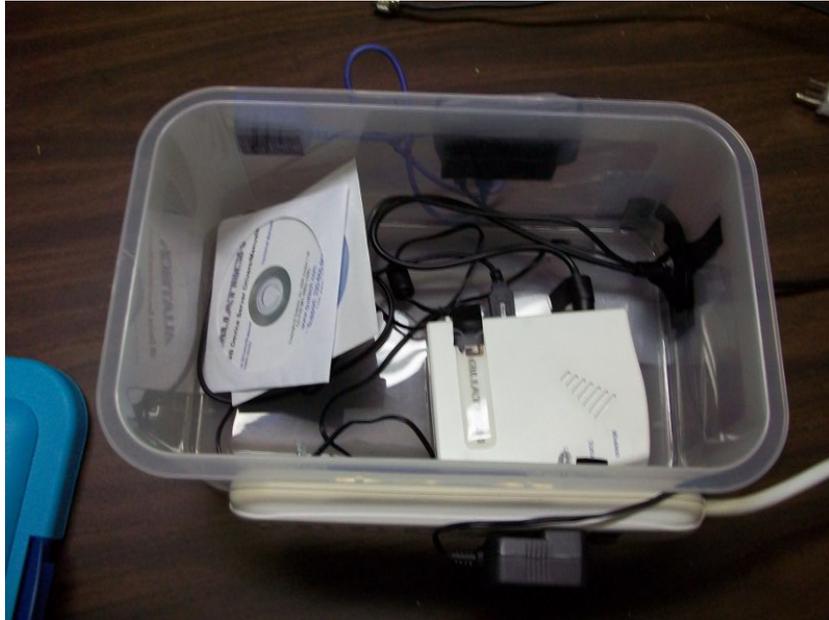

Below is a picture of the Quatech USB Server install CD on the left and the USB2Serial install driver CD on the right.

3.1.1   USB Server Software Install

This section goes through the steps to install the USB Server Software on a computer. First take the Quatech install CD and place it in the CD/DVD drive. The following dialog box should come up. Click on "Application Installation".
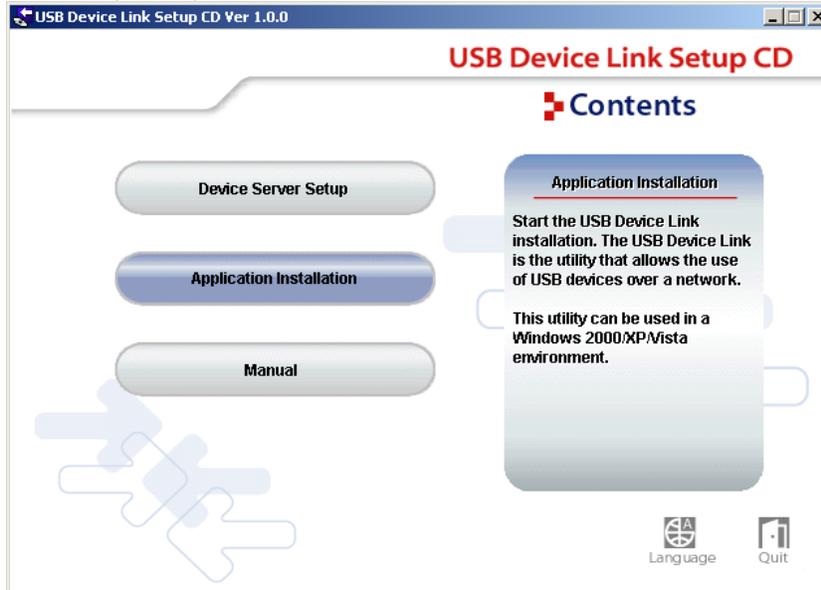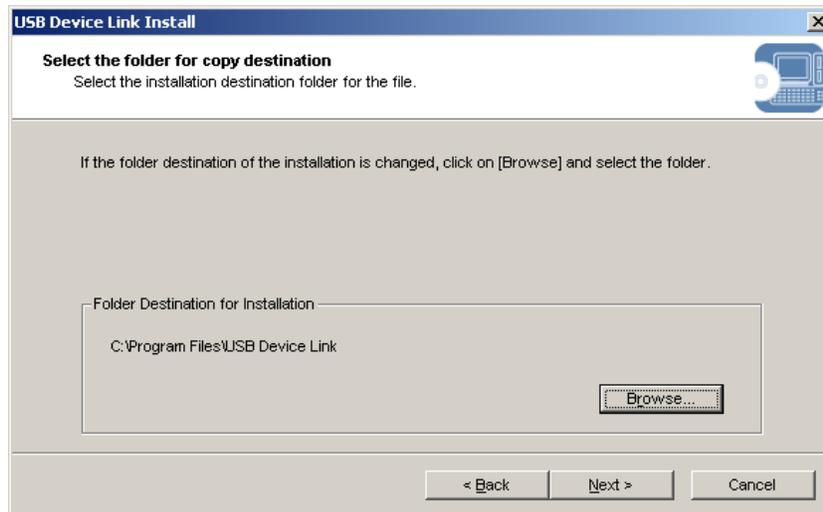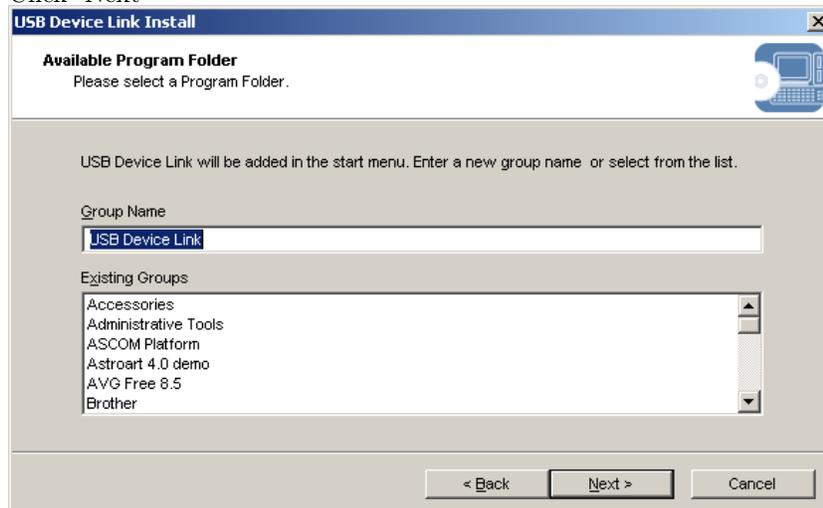

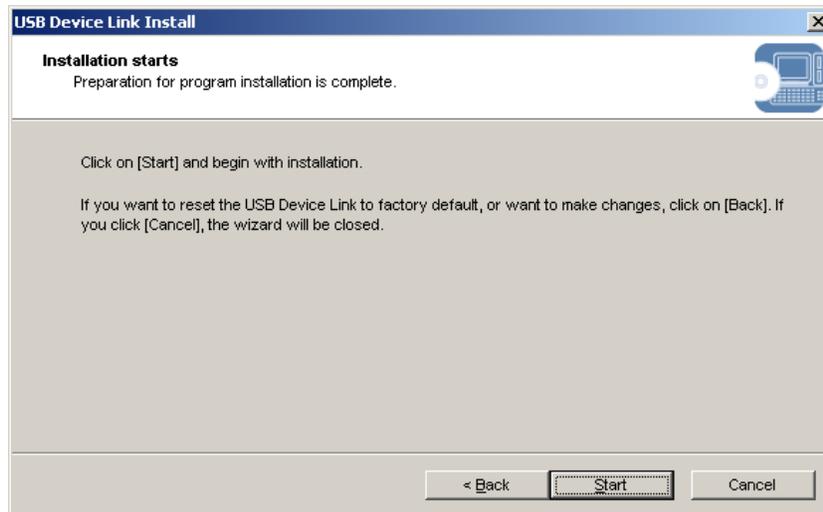Click "Next"

Click "Yes".

Click "Next"

Click "Next"

Click "Start"
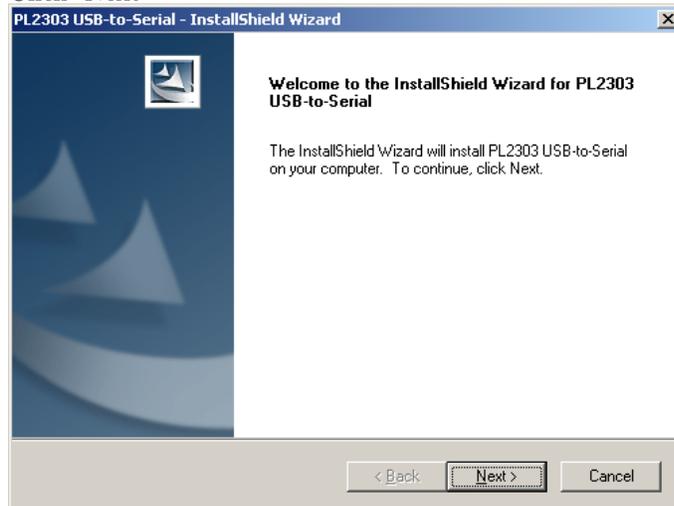
Click "Finish"

That concluded the installation of the USB Server Software. You may remove the install CD from your drive.
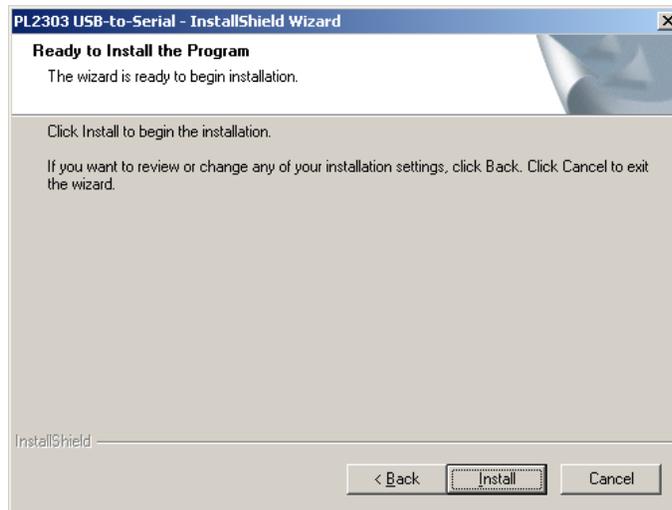
3.1.2   USB2Serial Software Install

Place the USB2Serial driver CD into your drive. When the dialog comes up click on "Install Driver".
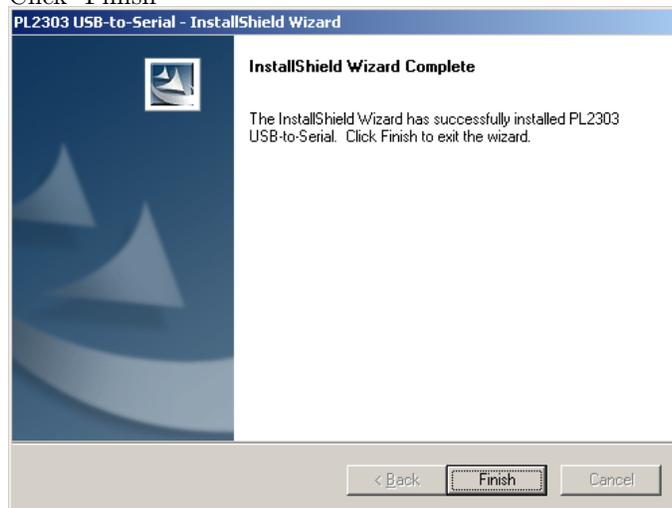
Click "Next"

Click "Install"

PL2303 USB-to-Serial - InstallShield Wizard

Ready to Install the Program
The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

InstallShield

< Back   Install   Cancel

Click "Finish"

PL2303 USB-to-Serial - InstallShield Wizard

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed PL2303 USB-to-Serial. Click Finish to exit the wizard.

< Back   Finish   Cancel

That concluded the installation of the USB2Serial drivers. You may remove the install CD from your drive.

3.2 Connecting to USB Devices

This section shows how to connect to the USB devices so they appear to your computer as being directly plugged into the computer when in reality they are sending data wirelessly to the wireless access point.

First start up the USB Device Link program. Start->Programs->USB Device Link->USB Device Link.
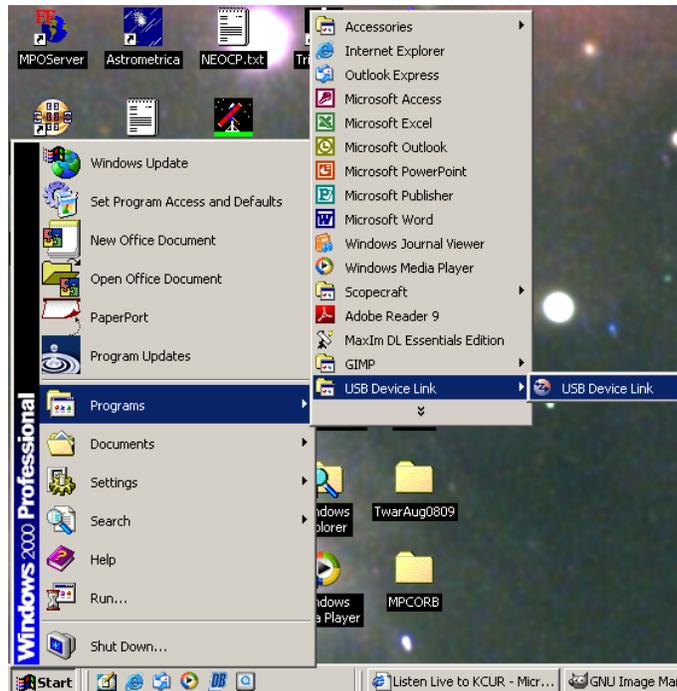
A box similar to this will come up. If you see nothing in the Device server list make sure the power is on and the devices are hooked up to the box in the Kessler. If this step has not been done see Section 2.

If everything is connected and powered you should see something similar to below in the Device server list. Expand the list by clicking on the + box in the list.

Below shows the devices connected to the USB server. The first one labeled "Prolific Technology Inc. USB-Serial Controller D" is the USB2Serial adapter. The second labeled "VID [0x0D97] PID[0x0001]" is the SBIG CCD Camera.

We need to connect to the devices so the computer you are using thinks the USB devices are connected directly to it. Click on the USB2Serial adapter entry and click the "Connect" button.

You should have seen the operating system load the driver for the device, and the icon next to the Label name should change color. Your computer now thinks the USB2Serial adapter is connected directly to the computer.

Now we will connect to the SBIG CCD camera. Click on it then click the "Connect" button.

You should see something like shown below, but after a moment the title should change to "SBIG USB-Cam Engine" and the icon next to it will be green again. You need to click on it again and click "Connect". Yes, you need to connect to the SBIG CCD Camera twice. Your computer might need an SBIG CCD camera driver, if so you'll need to install that, installation of the SBIG CCD camera driver is outside the scope of this document.

If everything went well you should see two blue icons in the Device server list (As shown below). You are now set up and ready to go. You can connect to the telescope and camera and control them from this computer. You can now minimize the Device Link software. If you are wondering what COM port to use to control the telescope please read the next section. When you are done for the night please see Section 4 to see how to disconnect from the USB devices.
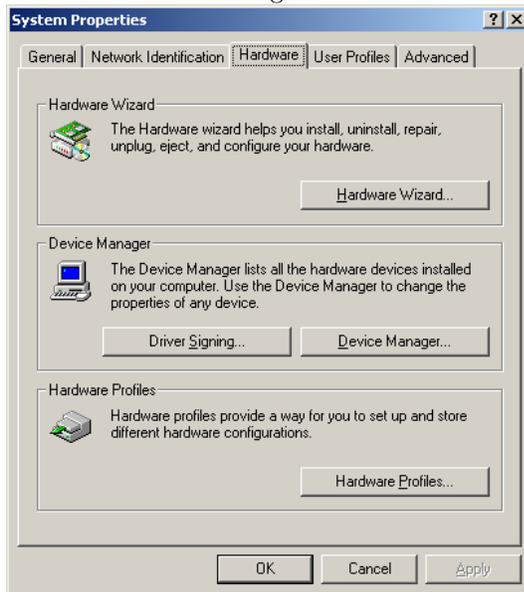
3.3   Checking USB2Serial Com port

To see what COM port the operating system assigned to the USB2Server device
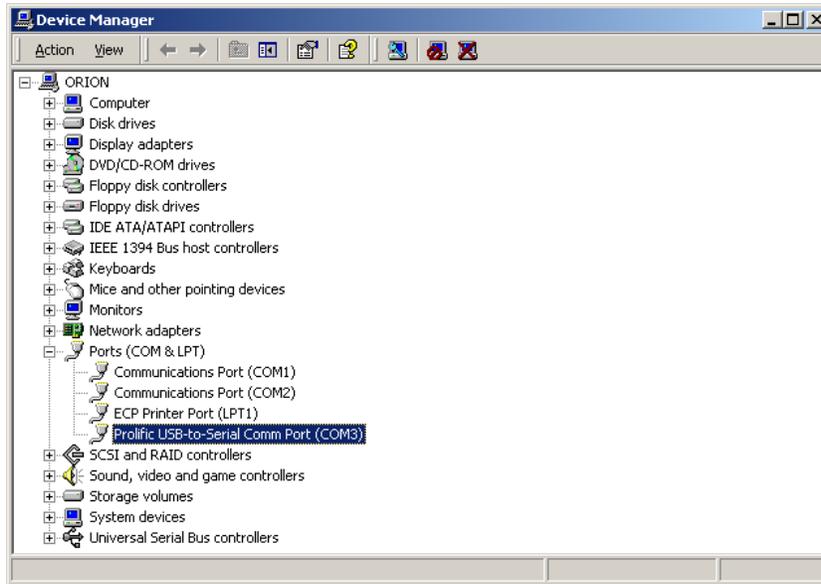go to the device manager of the computer. Start->Settings->Control Panel.

Open up "System"

Click on "Device Manager"

Expand "Ports (COM & LPT)". Notice the Prolific USB-to-Serial Comm Port is on COM3. When using The Sky you can set it to connect to the telescope using COM3 as the serial port.
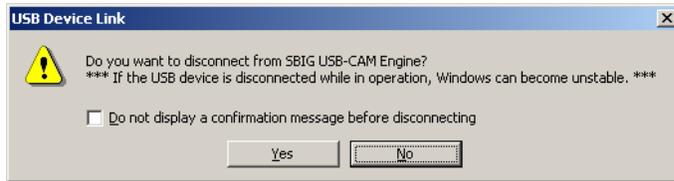
4   Software Shutdown

After shutting down the camera and closing the applications using the COM port and camera, bring up the USB Device Link Dialog by clicking on the icon in your system tray. It is the gray circle icon in the image below.

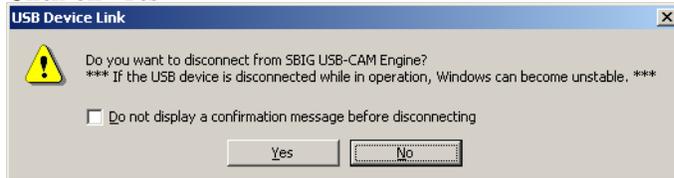Select the USB-Serial Controller entry in the server list. Click on the "Disconnect Button"

Click on "Yes"

Select the SBIG CCD Camera entry click on the "Disconnect" button.

Click on "Yes"

If properly disconnect the entry in the server list should have green box with an arrow icons next to it. You may now shutdown your computer. See Section 5 on instruction to put away the USB server hardware.

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5 Hardware Shutdown

Putting away the hardware is easy, it is just the reverse of setting it up. Please follow these steps.

1. Turn the switch on the surge protector of the box to the "Off" position

2. Unplug the box's surge protector.

3. Unplug the SBIG CCD Camera's USB Cable.

4. Unplug the telescope serial cable from the adapter.

5. Disconnect the antenna connector.

6. Put back on the black cap onto the Kessler building antenna connector.

7. Put the box back in Farpoint main.