

# Application Note

## Photron™ Camera Notes

# VIC-3D 11

2026

## Photron Camera Notes

### Introduction

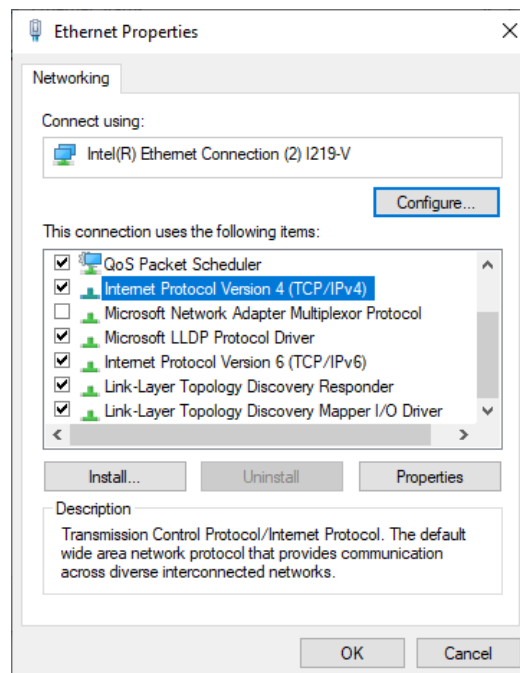
The newest generation of Photron high-speed cameras are supported via the VIC-Snap acquisition software. This software allows easy synchronization, acquisition, and storage of images for analysis in VIC-2D and VIC-3D. A few simple tips will help to ensure successful acquisition and saving.



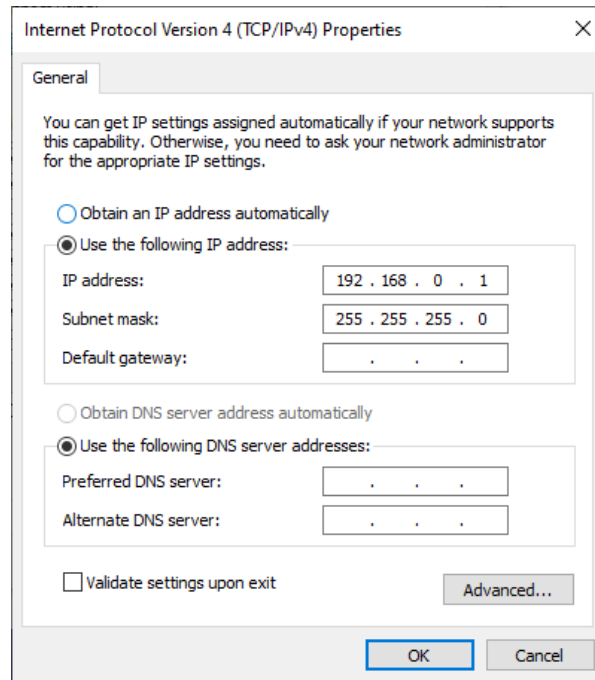
### PC Setup with Switch

To use these cameras, a gigabit (1000mbps) Ethernet adapter will provide the fastest image transfer and control. This may be either onboard the PC or installed as a PCI Express desktop expansion or ExpressCard laptop expansion.

The IP address of the host connection should be set to 192.168.0.x where x is a number that doesn't conflict with any camera IP's (192.168.0.1 usually works well). This can be accessed by using *Control Panel... Network Connections*, right-clicking on the relevant connection, and clicking *Properties*.



Select *Internet Protocol (TCP/IP)* (IP V4, in Windows 10), and click *Properties*.



Set the IP address as above, and click *OK* to complete.

## Camera Setup

When using multiple cameras, each camera must be set with a different identifier or IP. This will normally be preconfigured; otherwise, use the touchpad control or PFV software to set each camera with a unique identifier or IP. Typically, the first camera will remain at the factory default of 192.168.0.10, and the second will be set to 192.168.0.11.

For multiple cameras, use an Ethernet hub to connect the cameras to the PC.

### PC Setup with Dual Card

This section describes the procedure for setting up two Photron cameras with 10Gbe network connections with a dual 10Gbe network interface to the PC. This allows maximum transfer speed.

Each camera and network interface must be set up on a different subnet, but for initial setup each network interface must be configured to communicate with the camera at the factory-configured address of **192.168.0.1**.



### Preparation

Before beginning the configuration:

1) Install the latest PFV software from the provided thumb drive or this link:



<https://photron.com/pfv/>

2) The latest drivers for the network card should be installed for best performance. For Intel network cards, the driver can be found at this link:



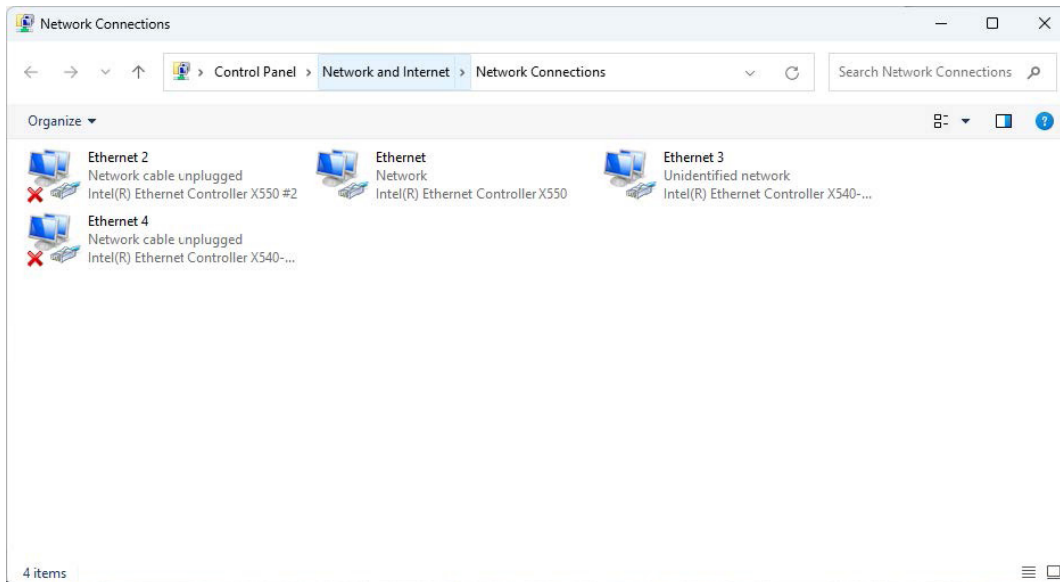
<https://www.intel.com/content/www/us/en/download/18293/intel-network-adapter-driver-for-windows-10.html>

### Procedure

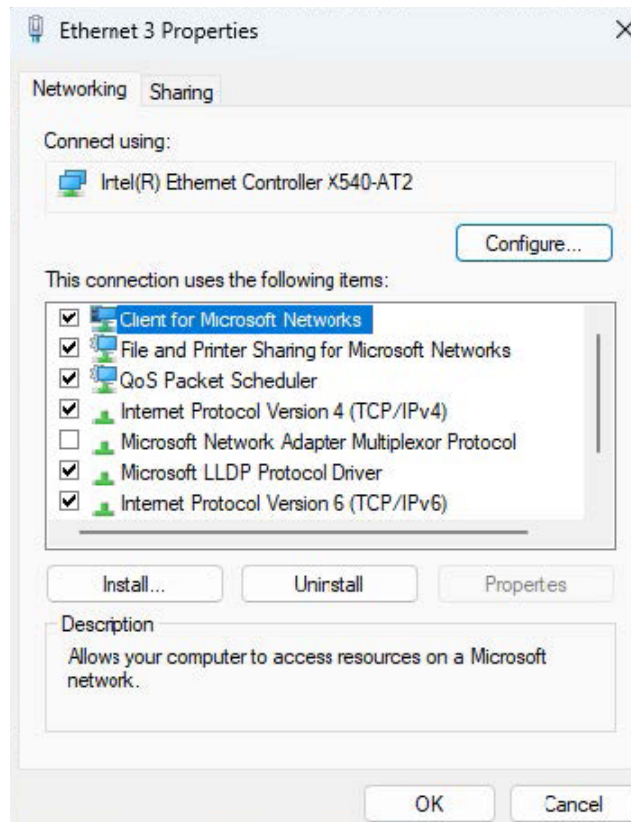
We need to set up the two cameras with different IPs and different subnets. In this example, we will set one up as **192.168.10.10**, and one as **192.168.20.10**. We will correspondingly set up one NIC (Network Interface Card) with an address of **192.168.10.1** and the other NIC up with an address of **192.168.20.1**.

The NIC must have a different IP than the camera but it must be on the same subnet (in this case, the first three numbers must be the same, and the last must be different). Note that the NIC and the camera must not have the same IP address.

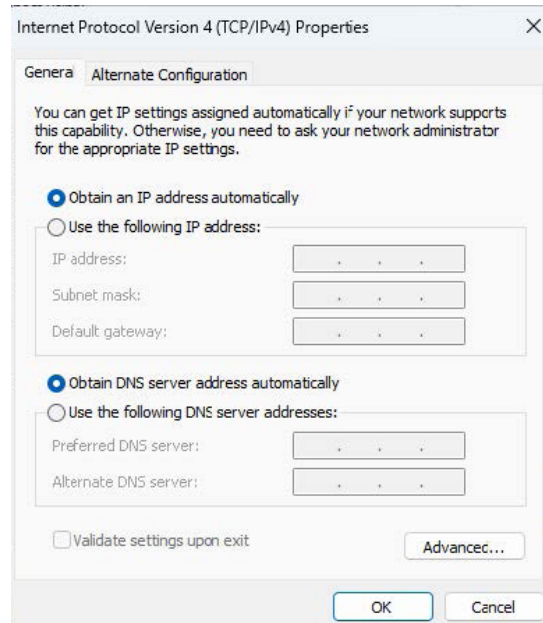
Start by connecting a camera to one Ethernet port and powering it on – the other camera should be powered off; this will make it more obvious which is connected. The NIC's address must now be set to 192.168.0.1 for the camera to be visible so we can proceed. The PC's network settings can be viewed by selecting *View Network Connections* from the Start menu.



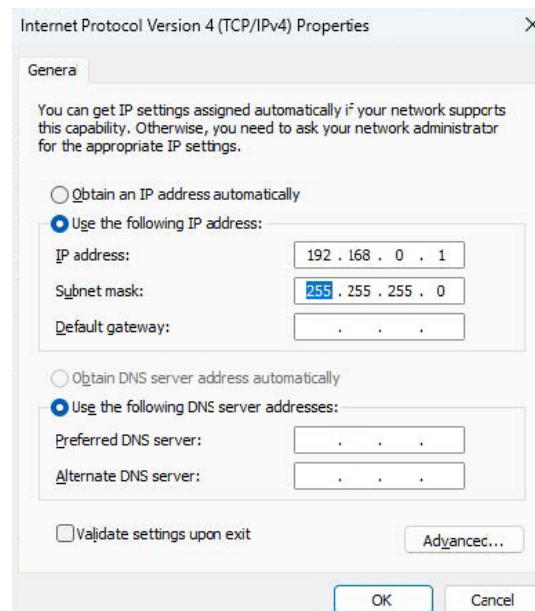
The NIC with the camera connected (here, Ethernet 3) shows "Unidentified network", and the other shows "network cable unplugged". Right-click on the connected network and select *Properties*.



Click on *Internet Protocol Version 4 (TCP/IPv4)* and click the *Properties* button.

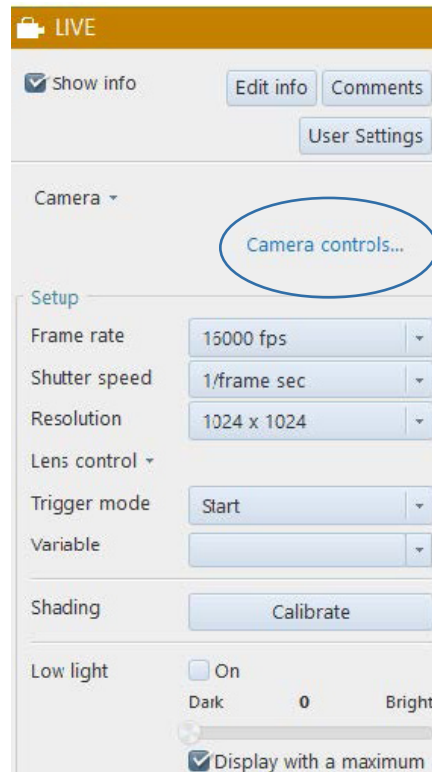


Set the **IP address** to 192.168.0.1 and the **Subnet mask** to 255.255.255.0 (this will be automatically filled).

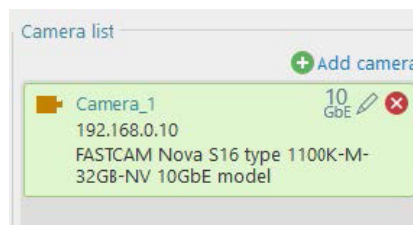


Click *OK* to complete, and *OK* again to close the configuration window.

Now, start PFV. You may see a notice about optimizing network settings - we will do this manually and you can ignore this message any time you see it during this stage. The camera should be displayed with a live image.



Click the blue *Camera controls...* text. The camera details should appear at the top right.



Click the pencil icon to edit the camera settings.

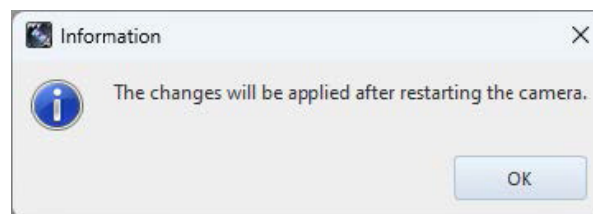


Dialog box titled "Edit Camera Info" with the following fields:

- Camera name: Camera\_1
- IP address: 192 . 168 . 10 . 10
- Subnet mask: 255 . 255 . 255 . 0
- Default gateway: 0 . 0 . 0 . 0
- Device name: FASTCAM Nova S16 type 1100K-M-32GB-NV 10GbE model
- Firmware ver.: 9.2.0

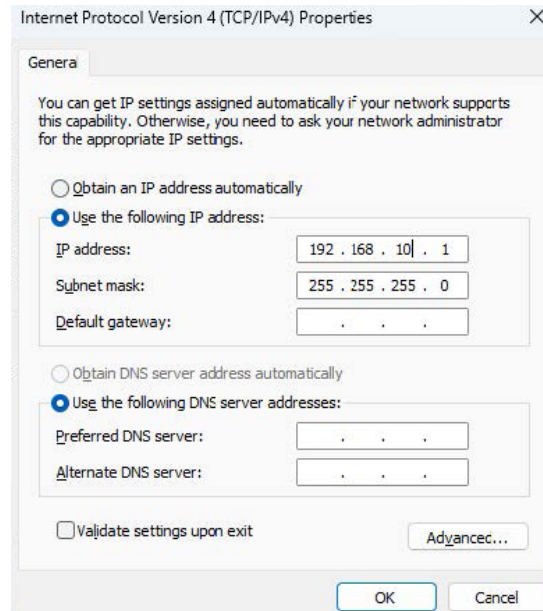
Buttons: OK, Cancel

Set the IP address to **192.168.10.10** and then click **OK**.



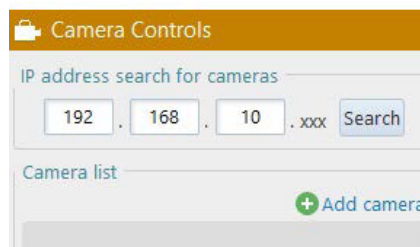
Because the camera is now on a different subnet (192.168.10.xxx), it will no longer be visible to the NIC; we must change the NIC IP address to meet the camera on the new subnet.

Return to the *View Network Connections* dialog, edit the properties of the NIC, and select TCP/IPv4. Enter **192.168.10.1** for the IP address.

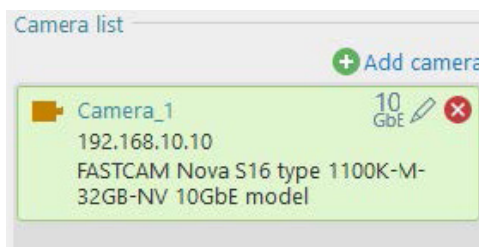


At this point, label the camera and the network port with a 10 or another identifying marker. This camera will need to be connected to this network port to be communicated with from now on.

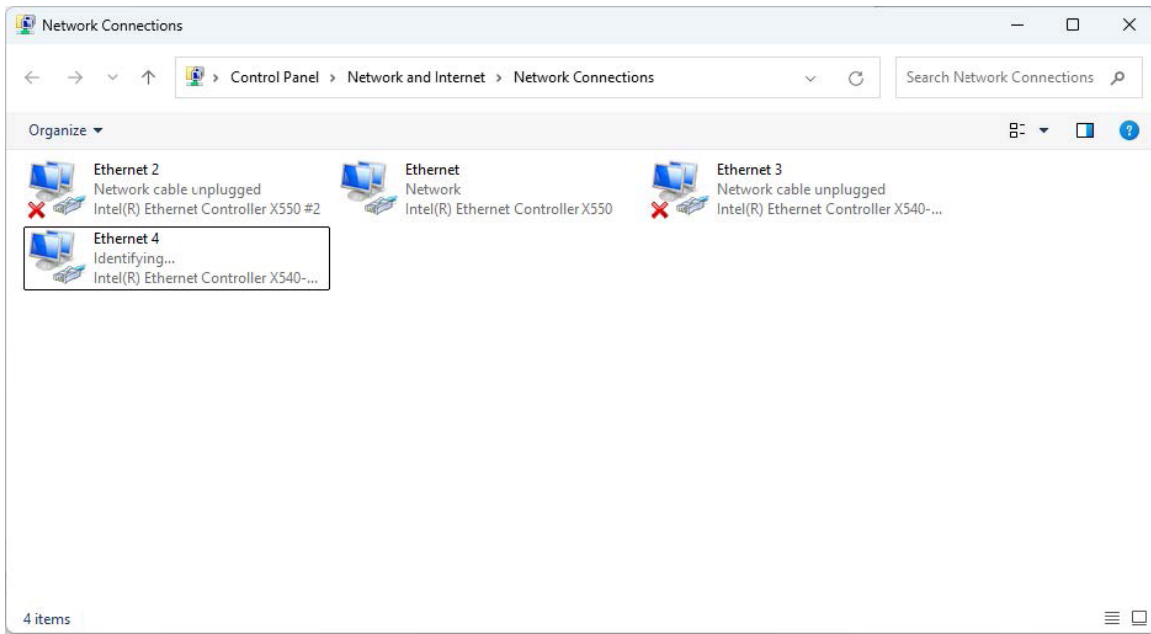
Power cycle the camera, and start PFV again to confirm communication. You will have to enter the correct subnet (.10.) in the IP search at the top right, and then click *Search*:



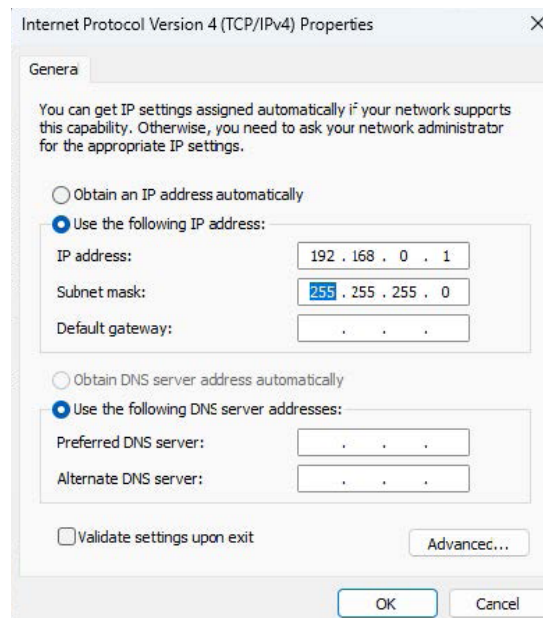
The camera should appear in the list.



At this point, close PFV and power off this camera to avoid confusion. Connect the second camera to the other Ethernet port, and locate this other port in *View Network Connections*.

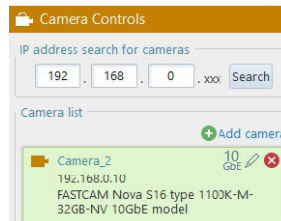


Here, the camera is connected to **Ethernet 4**. Set the IP for this NIC to **192.168.0.1**:

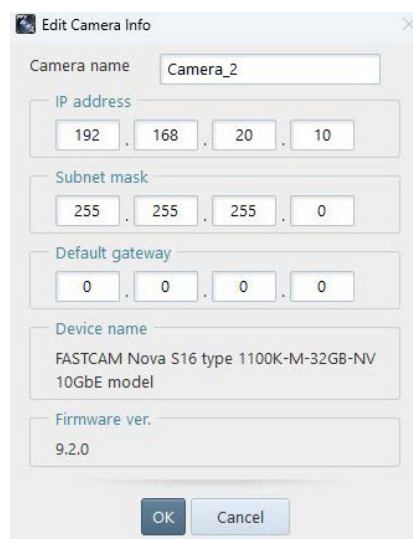


Click *OK* and then *Close*.

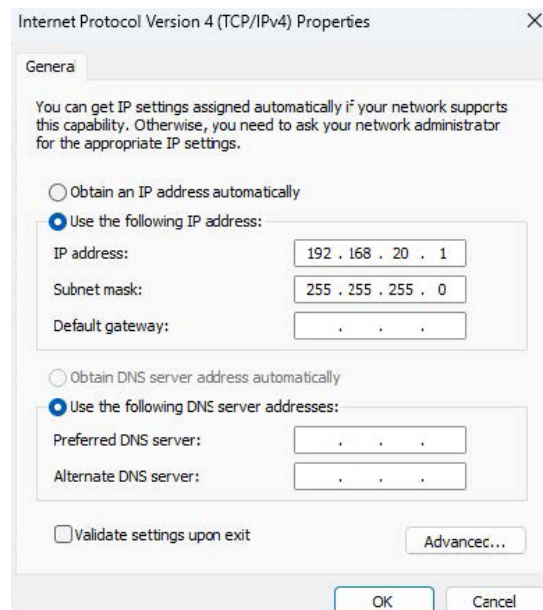
Start PFV. Set the IP search back to **192.168.0.xxx** so the new camera can be seen:



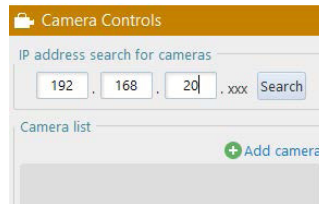
Click the pencil, and set this camera to **192.168.20.10**.



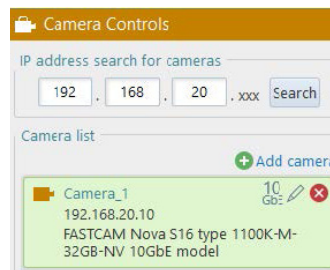
Click *OK* and *OK*, and close PFV. Return to **View Network Connections**, and set this second NIC to **192.168.20.1**:



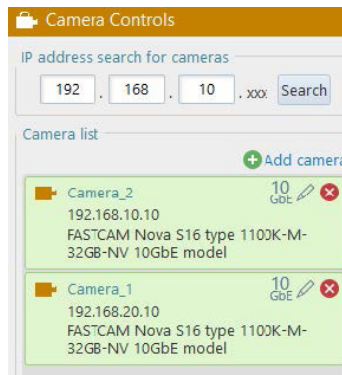
At this point you can label both the active port and the active camera to indicate that these are the .20 subnet. Power cycle the camera, wait a bit, and restart PFV. Search for cameras on the **192.168.20.xxx** subnet:



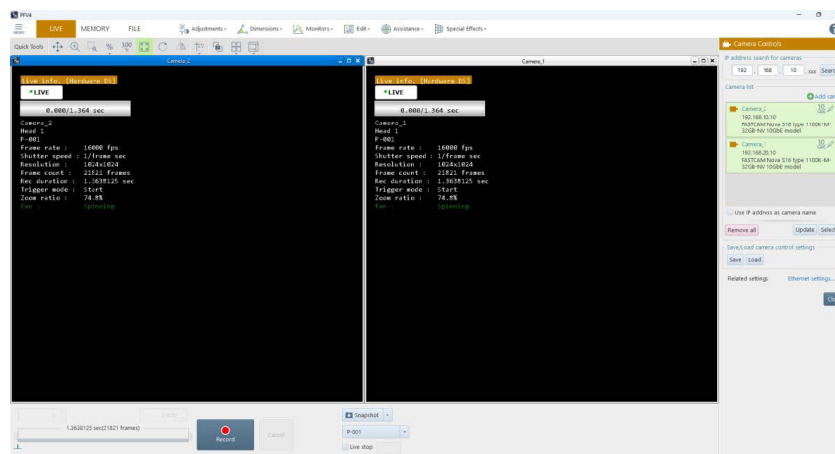
The .20 camera should be listed.



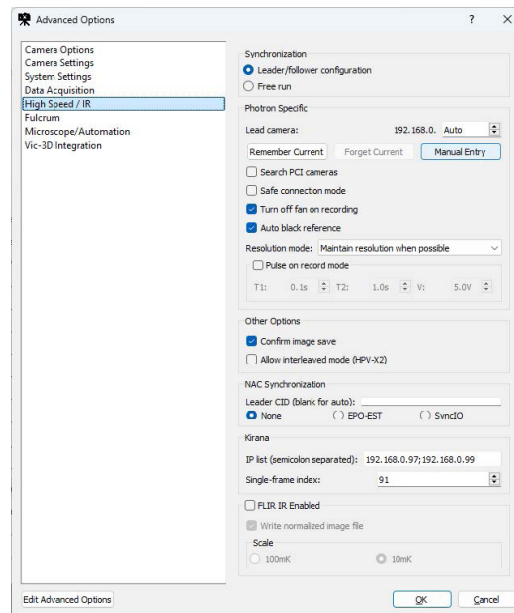
At this point you can power on the first camera; wait a moment for it to boot; set the subnet search to .10, and find the first camera also:



You should now see both camera windows in PFV:

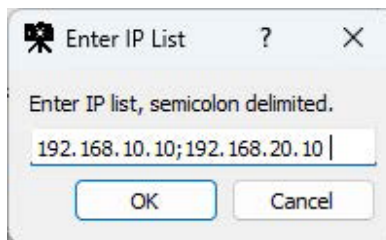


Finally, we need to tell VIC-Snap to look for these two cameras. Close PFV; open VIC-Snap and select *Photron* from the camera selection, if displayed. Click *File... Advanced Options*, and then select *High-Speed/IR*.

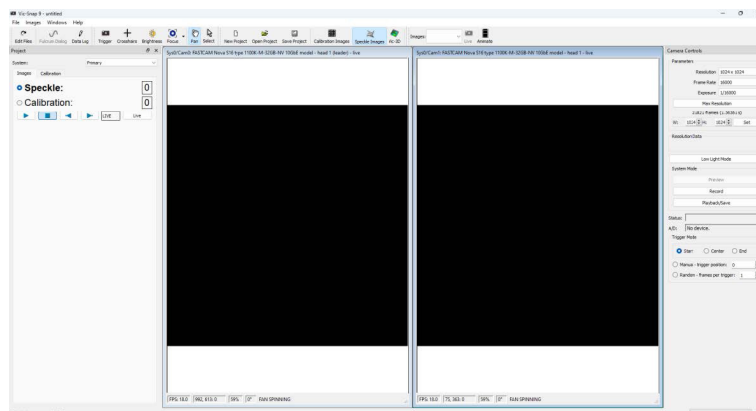


Click the *Manual Entry* button and enter the two IP address with semicolons, or copy and paste:

**192.168.10.10;192.168.20.10**



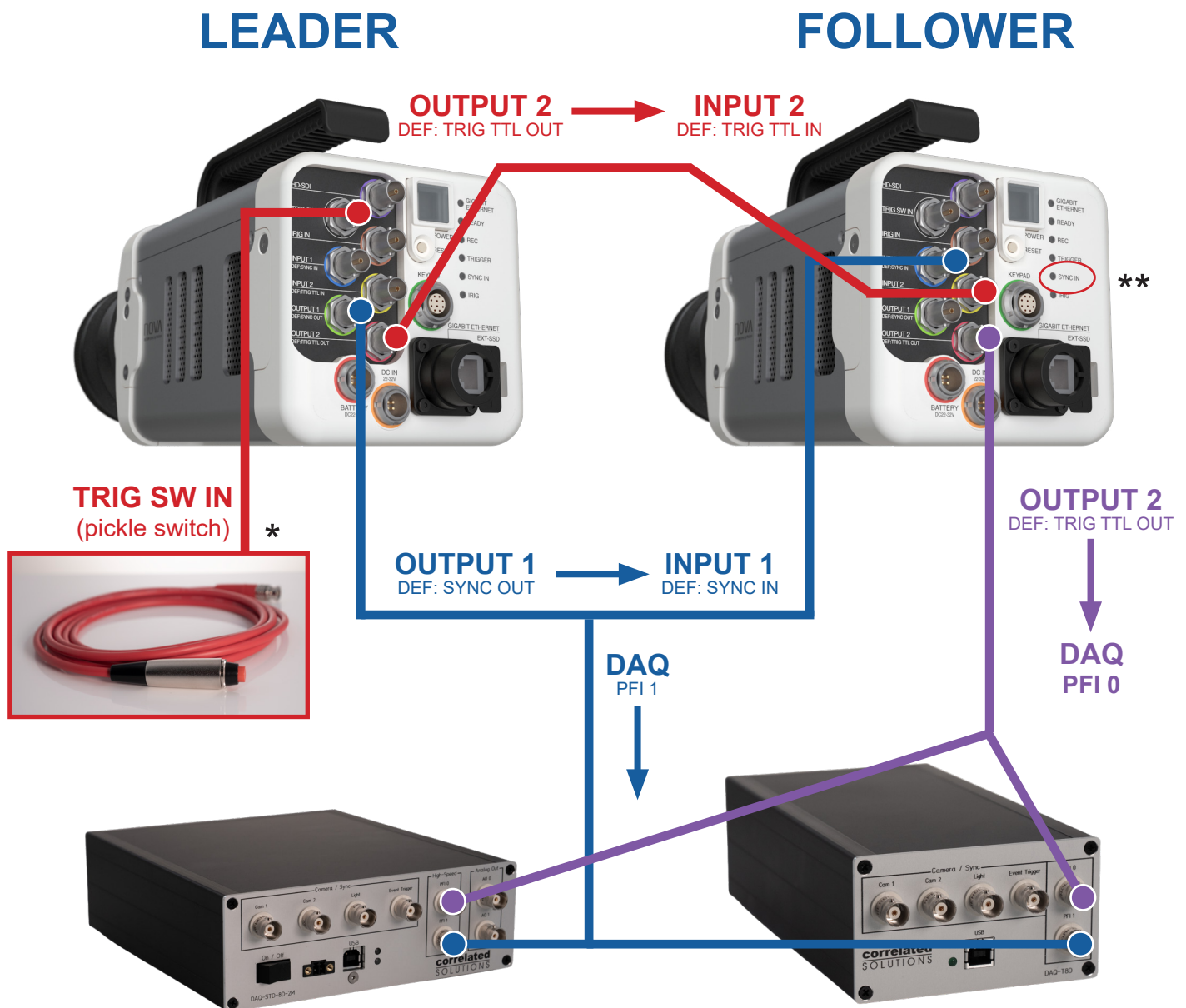
Click *OK*, close *Advanced Options*, and restart *VIC-Snap*. Now, you are ready to finish the setup.



### Synchronizing Cameras

Two hardware connections must be made.

- Connect the “General Out 1” from the selected *Leader* camera to the “Sync In” of the *Follower* camera(s). Any camera may become the Leader.
- Connect the selected trigger source to the “Trigger SW In” (for make/break triggers such as pickle switches) or “Trigger TTL In” (for TTL triggers) of *all* cameras.



\* Please note: cable colors may not match images or diagrams. \*\* The SYNC IN LED of the follower camera should blink when the trigger is sent to the leader camera via the pickle switch.

### Acquiring Calibration Images

To acquire calibration images, select the “Random” trigger mode from the Trigger Mode options; Set the number of frames to 1 in the spin box next to Random trigger mode. Then, click the trigger switch once for each calibration image. When complete, proceed according to **Saving Images** below.

### Acquiring Test Images

To acquire test images, confirm that the cameras are synchronized. Once the cameras are synchronized, select “Record” from the System Mode options. Once the camera status reads as armed, use the relevant trigger mode (Start, Center, End, or Manual) to capture the images during the event.

For some tests, you will need to reduce resolution to achieve the frame rate necessary. DIC can be performed (with reduced spatial resolution and strain accuracy) at resolutions as low as 128x128.

### Saving Images

To save images, select **Playback/Save** from the System Mode controls. Using the Playback feature located at the bottom of the Camera Controls, select the images to be saved from the image bar.

Selecting **Write to disk** will assign the image files the correct file naming and save them to the folder designated in the project options dialogue.

### Other Considerations

- By default, the shutter speed will be set to the inverse of the frame rate – i.e., for a frame rate of 1000fps, the shutter speed will be set to  $1/1000=1\text{ms}$ . Where significant motion happens from one frame to the next, this shutter speed setting will result in motion blur. For a typical test, the shutter speed will be a small fraction of the frame rate.
- For critical tests that use strobe lighting, it may be helpful to perform a ‘dry run’ to check lighting levels through the duration of the test. The selected lighting should result in neither overdrive at the peaks nor overly dim images away from the peak.
- Sometimes, a test must be run at reduced resolution (i.e., 256x64) to achieve the necessary frame rate. In this case, it is not necessary to calibrate at the reduced resolution. Acquire images at the full resolution, and calibrate in VIC-3D. Then, add the reduced-resolution speckle images. Click *Calibration... Adjust for cropping* in VIC-3D, and (for Photron cameras) accept the default values. This adjustment must be performed only once.

### Troubleshooting

- **No cameras appear in the software:** check that the cameras are connected, that the cameras and hub are powered, and that the firewall is disabled. Confirm that the IP of the computer is set correctly.
- **Only one camera (of two) appears:** check that the two cameras are set with unique IP addresses.
- **DIC results are erratic or do not appear:** confirm that the camera 0/1 numbering remained consistent between the calibration and the actual test.
- **Both PFV and VIC-Snap should set firewall exceptions for themselves**, but for troubleshooting it may be necessary to check that each application is allowed on the current network type for the cameras (Public or Private) or that the firewall is temporarily turned off.

### Support

If you have any questions about this document or any other questions, comments, or concerns about our software, please contact us at [support@correlatedsolutions.com](mailto:support@correlatedsolutions.com), or visit our website at [support.correlatedsolutions.com](http://support.correlatedsolutions.com).