**Camera:**

In the Camera viewer, you can navigate with the mouse, keyboard, and scroll wheel.

- **Left click** on an object (Crop, Lens, or ROI) – changes the currently selected object in Viewer menu (see below) and allows you to move the object with your mouse until you let go.

- **Control + Left click** – changes the current selected object to Image and allows you to move the Image.

- **Right click** – brings up the open camera menu (see below).

- **Scroll wheel** – changes the zoom factor of the image.

- **Left click (double)** – centers image and resets image zoom to 1.
Opening the camera:

Right clicking on the camera image brings up the open/close camera options. If a Hamamatsu camera is connected to the computer, the “Open camera” option will be enabled. If you click “Open camera” it will open your camera. You also have the option to run a simulated camera using “Open sim camera.” If you want to close an open camera, you can click “Close camera.”

Image Acquisition:

A. Run Camera continuously
B. Take one frame
C. Acquire n frames (not implemented yet).
D. Stop Acquisition
E. Cam3D – Turn on/off LiveView in World3D
F. Exposure Time
G. Binning
H. Cropping On/Off
   a. In order to turn on or off the cropping, image acquisition must be restarted. (Press Stop and then Run)
I. Trigger Modes.
   These are the trigger modes supported by the Hamamatsu Flash4.0 V2 camera. For details, consult Hamamatsu documentation.
   a. Internal – Camera runs freely with self timing.
   b. Edge – Exposure begins at the timing at which external triggers are switched. A specified time is used for the exposure time.
   c. Level – The level of the external trigger is set to a certain period of exposure time.
   d. Software – The camera starts capturing when the trigger comes from the host software.
   e. TDI – Each external trigger shifts the image on the sensor vertically one line at a time while reading out one line of image data.
   f. TDI Internal – Same as TDI trigger mode except this mode does not require an external trigger. Camera runs with self timing.
   g. Start – The camera waits for an external trigger to change trigger mode to internal trigger mode and output an image.
h. Synch readout – The trigger starts the read out of the current exposure and starts a new exposure. The exposure time is the period between two triggers.

**View Panel:**

<table>
<thead>
<tr>
<th>Viewer</th>
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<tbody>
<tr>
<td>Image</td>
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A. Top buttons change the selected object. Check boxes turn on/off displaying of these objects.
   a. Image
   b. Crop
   c. Lens
   d. ROI
B. Left – X axis position of the selected object.
C. Top – Y axis position of the selected object.
D. Width of the selected object.
E. Height of the selected object.
F. ROI – The index of the selected ROI, which can be resized using the L,T,W,H parameter boxes.
   a. Even if ROIs are not displayed, you can change their parameters here.
G. Count – The number of ROIs that are displayed and enabled. Maximum of 100. All ROIs are always saved, regardless of how many are enabled.
H. Arrows – Move the position of the selected object. The center dot centers the selected object.
I. Plus / Minus buttons – Change the zoom of the image or Lens, if Lens is the selected object.
J. Zoom – Changes the zoom of the image or Lens, if Lens is the selected object.
K. Pixel – If unchecked, zoom = 1 fills the image window. If checked, zoom = 1 makes 1 pixel of the sensor take 1 pixel on the screen.
Look Up Table LUT:

Same LUT as in the Main Panel, although this LUT only affects the display of the camera, not the images in the W3D.