



# Ocean MSI

## Software Quick Start Guide

Ver. 1.0

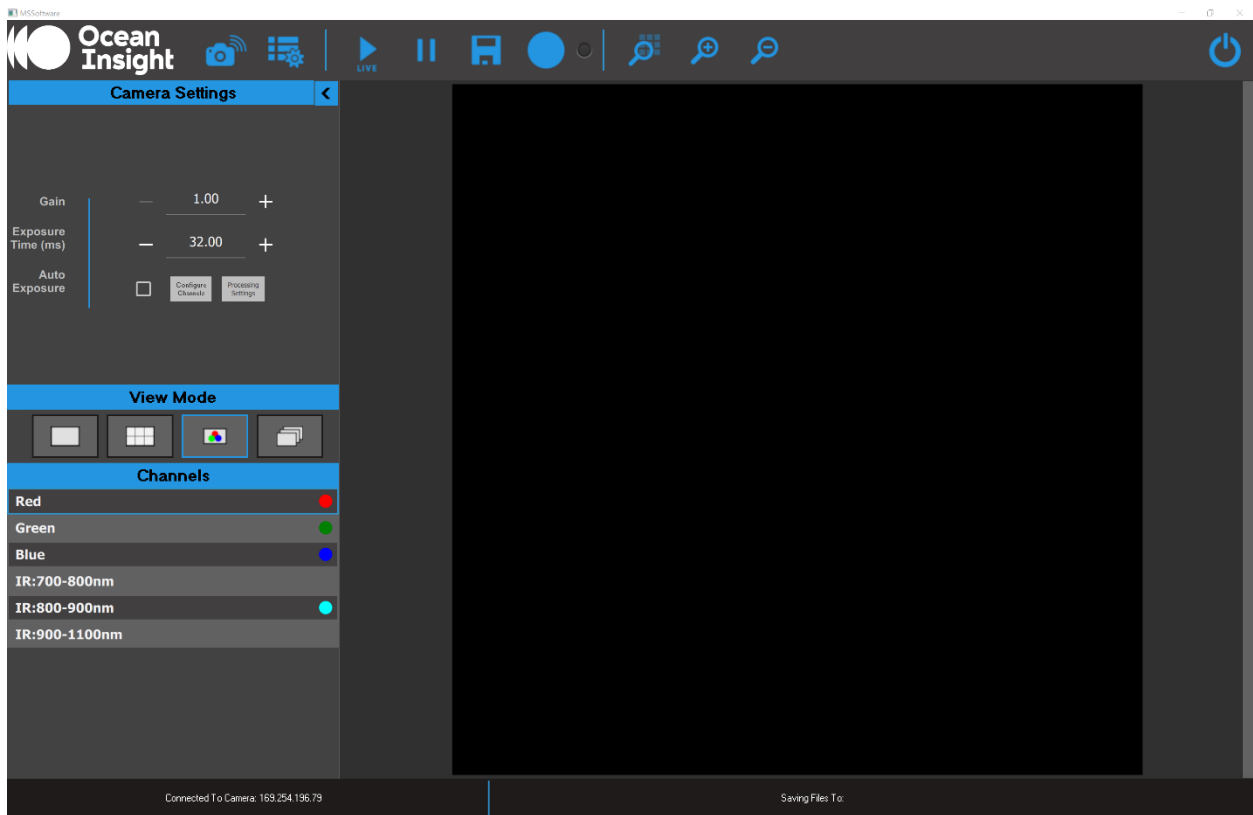
OceanMSI provides an easy way to view and capture images from an Ocean Insight Multispectral camera system in real time. This software allows the user to quickly monitor or isolate individual image channels, record image data, and set important camera controls all from the same convenient interface.

OceanMSI currently works with the following camera models:

- 4-band PixelCam
- 6-band PixelCam

## Getting Started

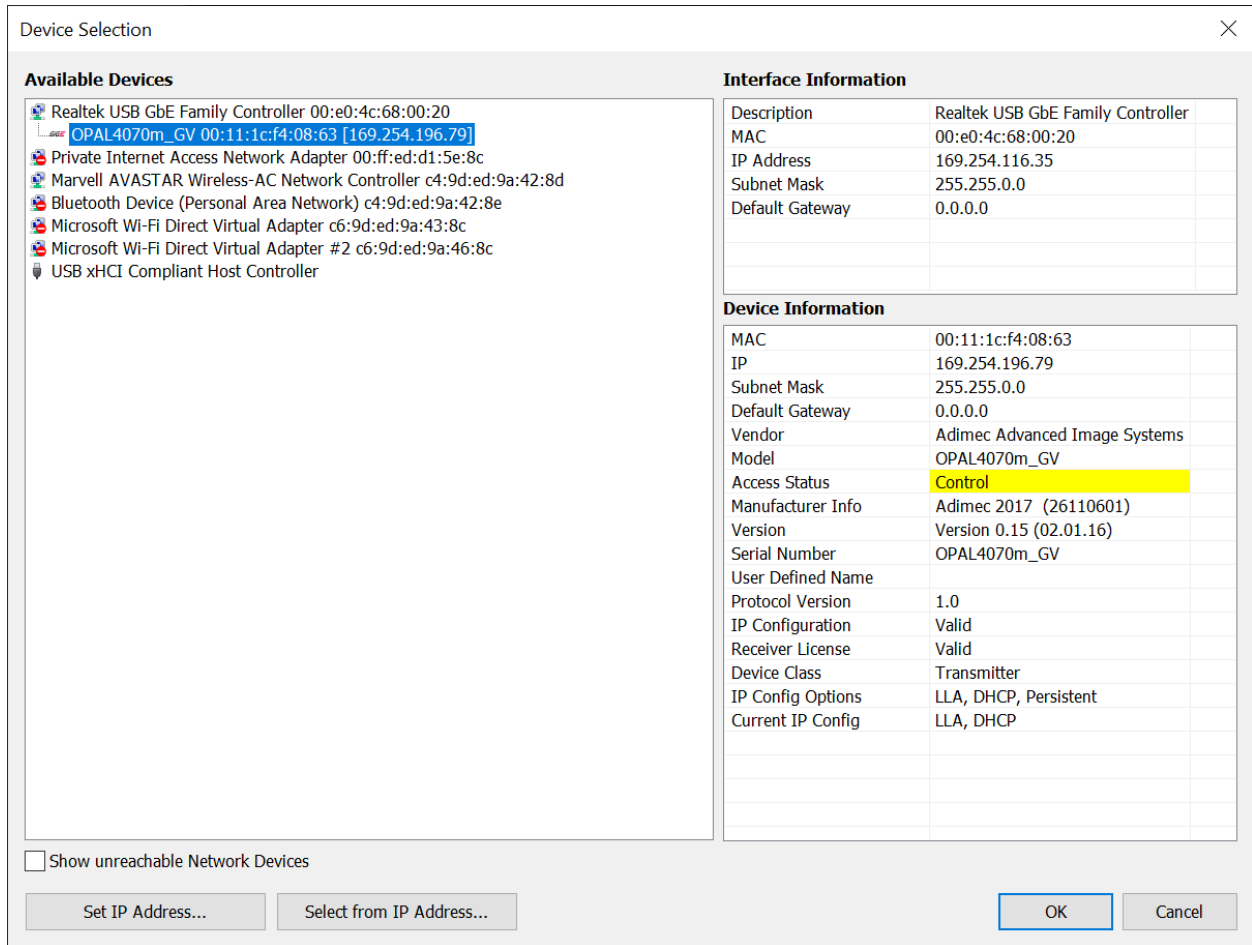
1. Starting OceanMSI for the first time will bring up the main menu.



2. To connect to a camera, press the **Select Camera** button in the toolbar to open the **Device Selection** dialog.



3. Selecting a networked camera in the **Available Devices** list will display information about this device in the Interface Information and Device Information panels on the right.
  - a. If the network configuration requires a static IP address to be set in the camera, this can be done with the **Set IP Address** button.



4. Once a camera has been successfully connected, the **IP address** will be saved in the camera configuration file. The application will attempt to automatically reconnect to the last connected camera on startup.

# Configuring the Camera

Your camera will ship with a USB containing the software files and a configuration file for your camera. The offsets discussed below will be preset in your configuration file and should not need to be adjusted to begin imaging.

The camera settings can be accessed by clicking the list and gear icon as outlined below.



## Setting the X and Y Filter Offsets

The X and Y offsets specify the location, in pixels, of the top-left corner of the first full filter array pattern. These values are sensor-specific and will be supplied in the [Configuration File](#).

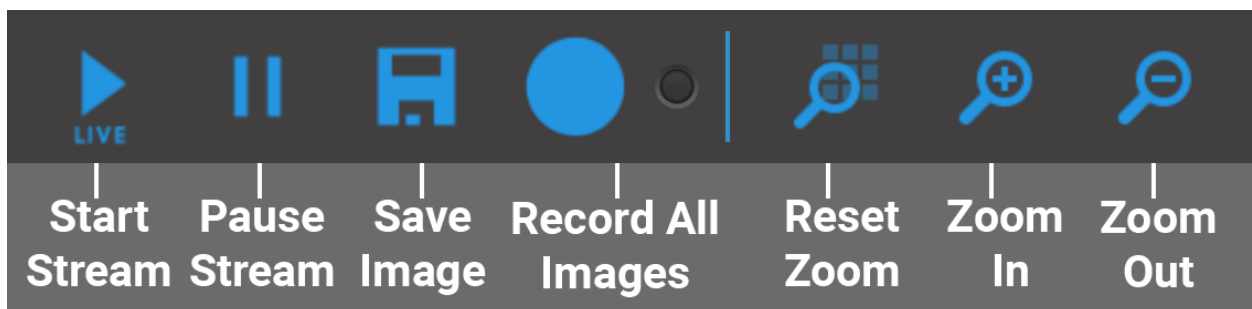
## Setting Camera Type

Choose the [Camera Type](#) from the dropdown that corresponds to the connected camera.

## Setting Output File Path

Enter a file path manually or use the [... button](#) to open a folder selection dialog. Choose the [folder location](#) where images will be saved. This applies to recordings and manually saved images. The file name is automatically generated by the system.

# Streaming



1. Once a camera is connected, pressing the [Start Stream](#) button will begin continuously streaming and displaying frames from the camera.
2. The [Pause Stream](#) button will pause the stream at the currently displayed image.

3. The **Zoom In** and **Zoom Out** buttons will change the zoom level of the displayed image. If the application is in the multi-channel display mode, all channels will maintain the same zoom level.
4. The **Reset Zoom** button will zoom the image to fit completely within the display window.

## Saving Images

OceanMSI has several options for saving images from the application. Pressing the Save Image button will show the following menu options.



### Save Raw as Tiff

Saves the full-sensor raw image as a .tiff file.

### Save All as Tiff

Saves all channels as individual .tiff files.

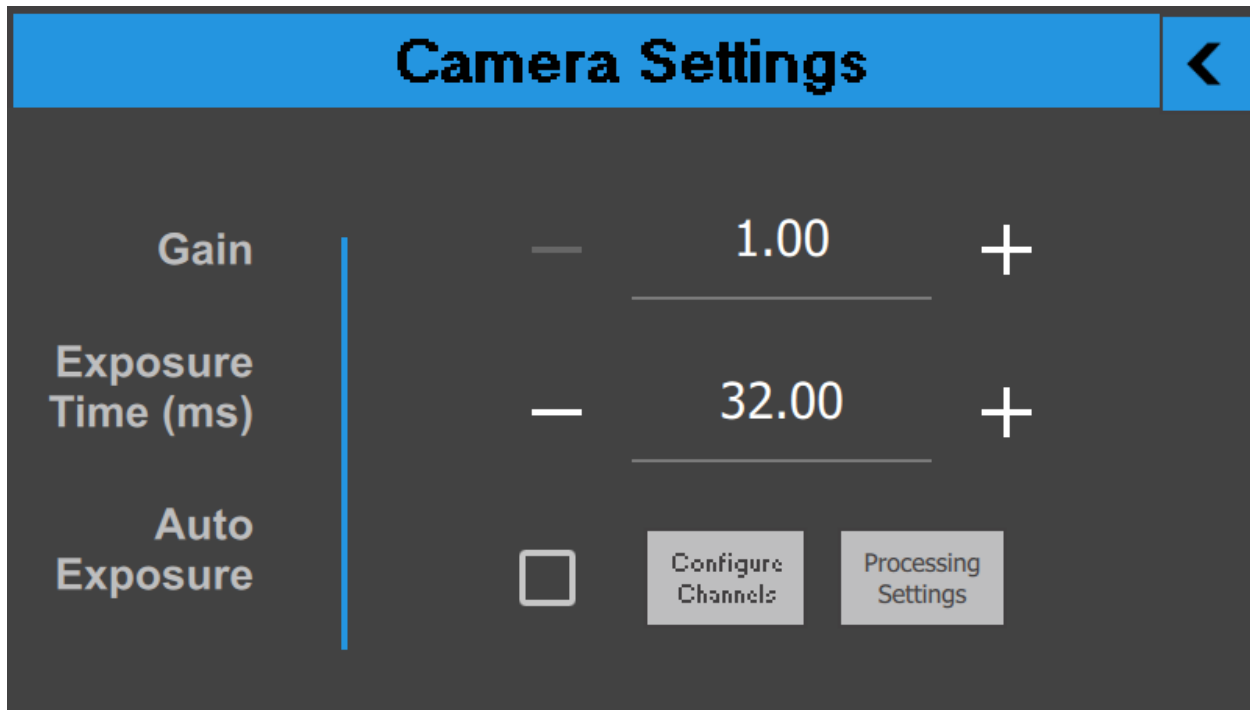
### Save as JPEG

Saves the RGB composite image of the current frame as a .jpg file.

### Record All Images

The **Record All Images** button will toggle recording of all received images. When this mode is active, the red recording indicator to the right of the record button will be illuminated. In this mode, all channels will be saved in a multi-channel .tiff file for each received image. Press the button again to stop recording images.

# Camera and Display Settings



## Gain Control

To set the camera **Gain**, enter the desired gain in the text area directly, or use the **+** and **-** buttons to increment or decrement the gain by 1. This value will be limited by the minimum and maximum values allowable by the connected camera.

## Exposure Control

To set the **Exposure Time** in milliseconds, enter the desired time in the text area directly, or use the **+** and **-** buttons to increment or decrement the exposure time by 1. This value will be limited by the minimum and maximum values allowable by the connected camera.

## Auto-Exposure Control

Selecting the checkbox next to the **Auto Exposure** option will enable auto exposure in the camera.

# View Mode

The **View Mode** selector controls which images are displayed on the screen. It can display a single channel, all channels at once, an RGB composite image with optional channel overlay, or a side-by-side view of the RGB composite with an NIR composite.

## Single Channel View Mode

In **Single Channel** view mode, a grayscale image of a single color-channel will be displayed. The channel being displayed can be selected by clicking on the desired channel in the **Channels** list.

## All Channel View Mode

In **All Channel** view mode, a grid of single-channel images will appear, displaying all color channels at once. The channels will be labeled with their channel name in the top left corner of their grid section. In this mode, any changes to zoom or panning will affect all images simultaneously.

## RGB Composite with Overlay View Mode

In **RGB Composite** mode, a color composite image will be displayed. This composite image will be generated by assigning a single channel to each of the red, green, and blue channels of the output image. The channels used to create this composite image can be configured using the **Set Channel Configurations** menu, accessible with the **Configure Channels** button in the **Camera Settings** window.

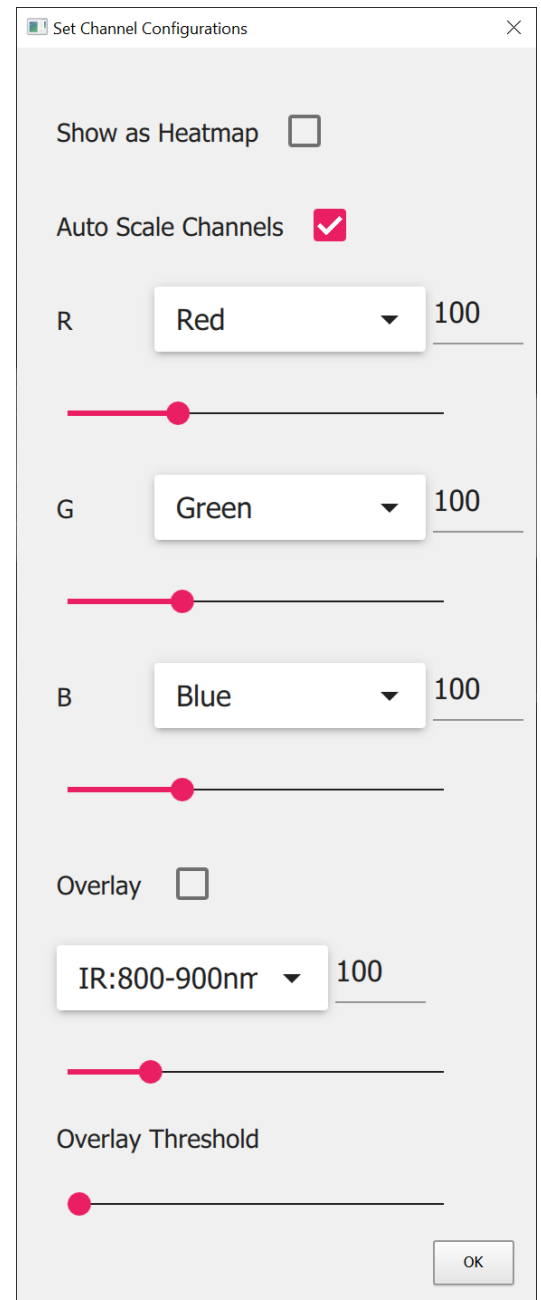
In this window, the dropdowns beside the R, G, and B labels control which camera color channel is mapped to which composite image color channel. The slider below represents a digital gain for each channel, in percent.

In addition to these three composite channels, a Cyan overlay can be applied to easily view content of an additional channel relative to the composite image. When the Overlay is enabled, only content in excess of the Overlay threshold will be displayed on the image.

The current RGB configuration can be easily seen with the Red, Green, and Blue color dots in the Channel list. The overlay channel is shown with a Cyan color dot.

## RGB Composite and NIR View Mode

In **RGB Composite + NIR** mode, the RGB composite image will be shown side-by-side with a composite formed with the first three NIR channels in the channel list.



# Channel List

| Channels      |   |
|---------------|---|
| Red           | ● |
| Green         | ● |
| Blue          | ● |
| IR:700-800nm  |   |
| IR:800-900nm  | ● |
| IR:900-1100nm |   |

The **Channel List** displays the names of all color bands present in the selected camera. Selecting a channel in **Single Channel** view mode will display that channel. The Red, Green, Blue and Cyan color markers represent the currently selected channels to be used for the RGB Composite and Overlay, as explained above.



# Unlock the Unknown

Ocean Insight exists to end guessing. We equip humanity with technology and data to make precisely informed decisions providing transformational clarity for human advancement in health, safety, and the environment.

## Questions?

Chat with us at [oceaninsight.com](https://oceaninsight.com).

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