

## Introduction

This document presents instructions on how to mask defects using the Allied Vision **DefectMaskLoader** application. Note that this tool is for use with Microsoft Windows® only.

## Prerequisites

The following items are required:

- Allied Vision GigE camera with `DefectMaskEnable` feature  
Supported models: Mako G-030, G-131, G-192, G-503  
Note: Mako G-030 must run firmware version 01.54.11488 or later to use this feature



If your Allied Vision GigE camera has `DefectMask > DefectMaskColumnEnable` feature instead of `DefectMaskEnable`, refer to the Column Defect Masking application note.

<https://www.alliedvision.com/en/support/technical-papers-knowledge-base>

- GigE SampleViewer or Vimba Viewer installed on the computer to adjust the camera exposure and pixel format. For the purposes of this application note, we use GigE SampleViewer.



To download GigE SampleViewer, go to:

<https://www.alliedvision.com/en/support/software-downloads>

- DefectMaskLoader application to mask the defects.



To download the Defect Mask Loader application, go to:

<https://www.alliedvision.com/en/support/software-downloads>

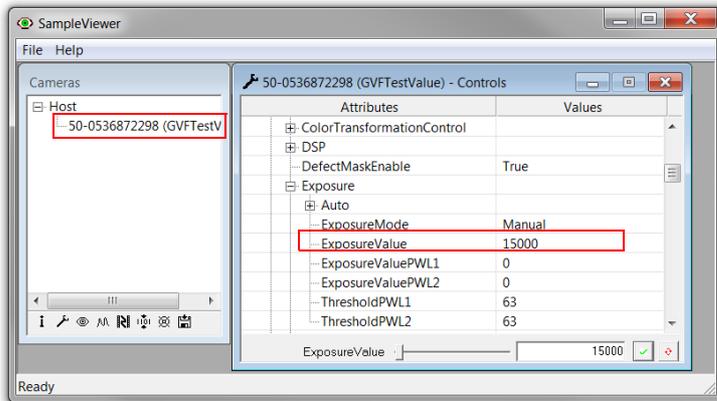
## Defining defects

Pixel defects are defined differently by different sensor manufacturers. To find out the pixel defect definition for your camera, please refer to the sensor data sheet or contact sensor manufacturer.

## Masking defects

1. Connect your Allied Vision GigE camera and start the GigE SampleViewer application. Wait until the camera is listed in the **Cameras** window. This may take a few seconds.

- Click on the camera serial number and open the **Controls** window by selecting the **Wrench** icon.



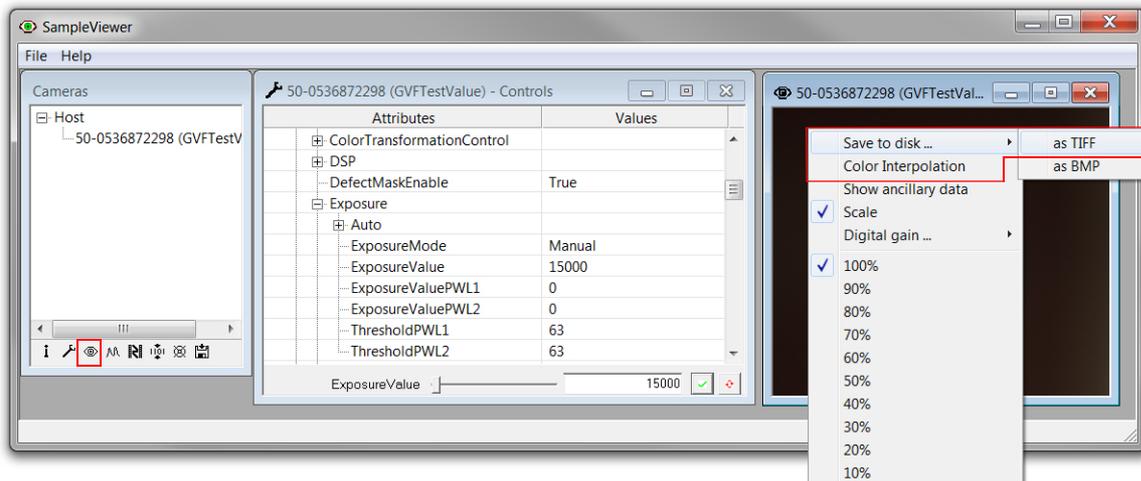
**Figure 1:** GigE SampleViewer - Controls window

- In the **Controls** window, increase ExposureValue to value suitable for your application or until defects are visible.



Increasing exposure time will increase the number of hot pixels; however, these may not be considered as defective pixels by sensor manufacturer. Check the sensor data sheet to see if there is constraint on exposure value in defect pixel definition.

- Click the **Eye** icon to initiate live camera view. Right-click on the image and uncheck **Color Interpolation** and save the image to disk as a TIFF file.



**Figure 2:** Saving the image in GigE SampleViewer

- Open the saved TIFF file in ImageJ. Locate the exact locations of pixel defects using the **Magnifying** tool and **Crosshair** tool.

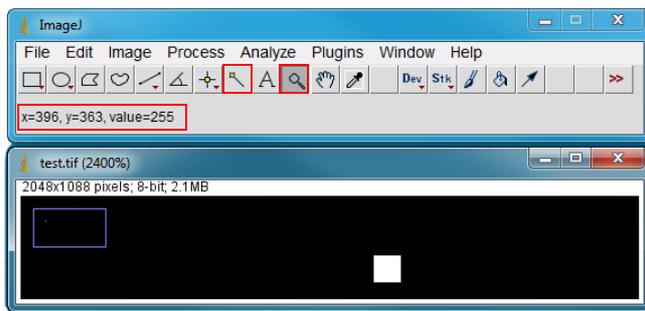


You can also select the defect pixels by using `Threshold` functionality in **Image/Adjust** menu in ImageJ.



To download ImageJ go to:

<http://rsbweb.nih.gov/ij/download.html>



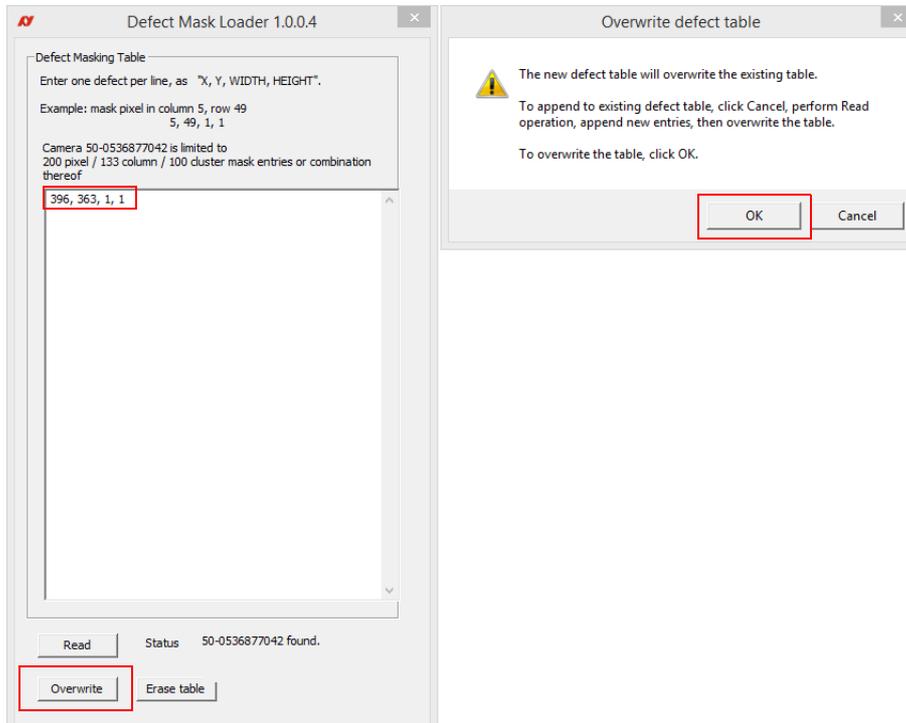
**Figure 3:** Locating defects in ImageJ

- With GigE SampleViewer closed, run DefectMaskLoader.exe. Enter your defect(s) one per line and click **Overwrite**.

To append to an existing defect table:

- Click **Read**
- Add new entries

- Click **Overwrite**.



**Figure 4:** Masking defects using the DefectMaskLoader application

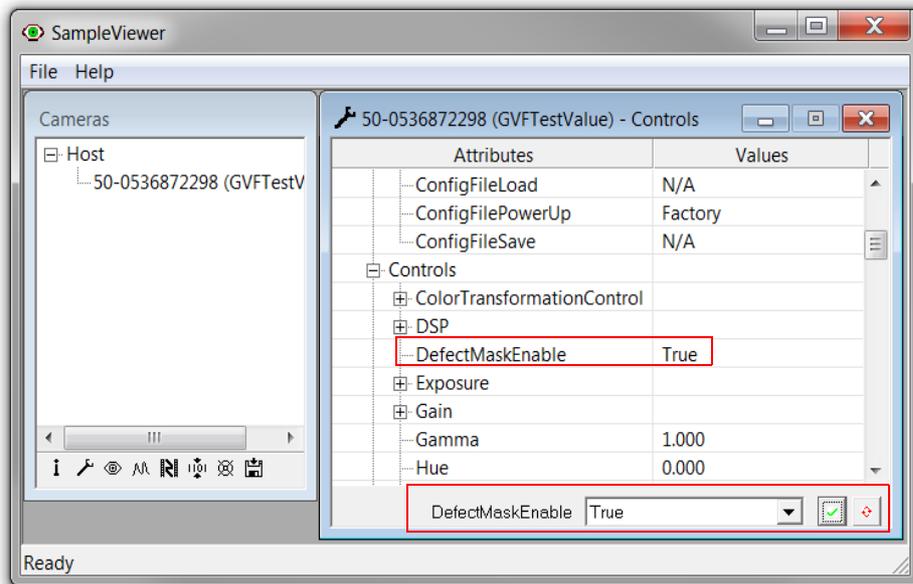


DefectMaskLoader allows the input of pixel, row, and column masks. However, camera firmware may limit the type of defect that can be masked. For more information on defect masking your camera model supports refer to your camera technical manual.

If writing a column/row defect to a camera that does not support it, an error message will be given and the entry will not be written to the defect table.

Cluster defect masking is currently not supported.

7. You can enable/disable defect masking in GigE SampleViewer, under Controls > DefectMaskEnable = *True/False*. By default DefectMaskEnable is *True*.



**Figure 5:** Enabling/disabling defect masking

## Additional References

Technical manuals and GigE feature reference

<https://www.alliedvision.com/en/support/technical-documentation>

For technical support, please contact [support@alliedvision.com](mailto:support@alliedvision.com).

For comments or suggestions regarding this document, please contact [info@alliedvision.com](mailto:info@alliedvision.com).

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