

Introduction

This document presents information on how to use the new Multiple Region of Interest (Multiple ROI) feature set with Bonito PRO CoaXPress cameras and the Euresys Coaxlink Quad G3 frame grabber. Multiple ROI allows you to configure up to four non-overlapping regions of interest.



Defining Regions

In Multi-ROI mode, when different regions share rows, the left region must have a smaller region number. If the left region has a larger region number, it will not work. This is a sensor limitation.

Prerequisites

The following items are required:

- Allied Vision Bonito PRO camera
Supported models: Bonito PRO X-1250, X-2620
- Euresys Coaxlink Quad G3 frame grabber with viewer or SDK installed on the host PC.



Supported frame grabber

The Euresys Coaxlink Quad G3 frame grabber has been tested with Bonito PRO cameras and fully supports the Multiple ROI feature set.

- Update the frame grabber software and drivers to support one camera and four data streams.

Region of interest versus multiple regions of interest

With region of interest, you can configure a single region of interest. You can configure `Height`, `Width`, `OffsetX`, and `OffsetY` for this single region.

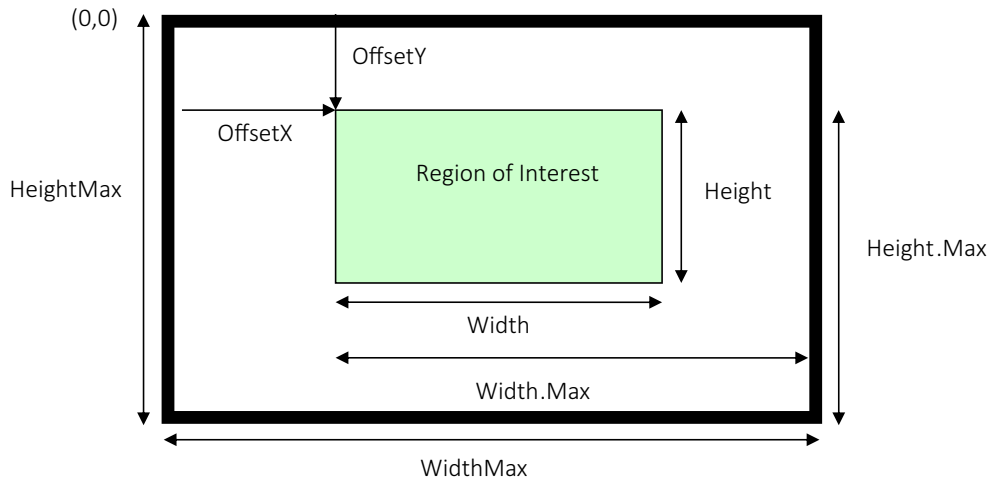


Figure 1: Single region interest

With multiple regions of interest, you can configure up to four non-overlapping regions of interest. For each region you can configure `Height`, `Width`, `OffsetX`, and `OffsetY` for each region of interest.

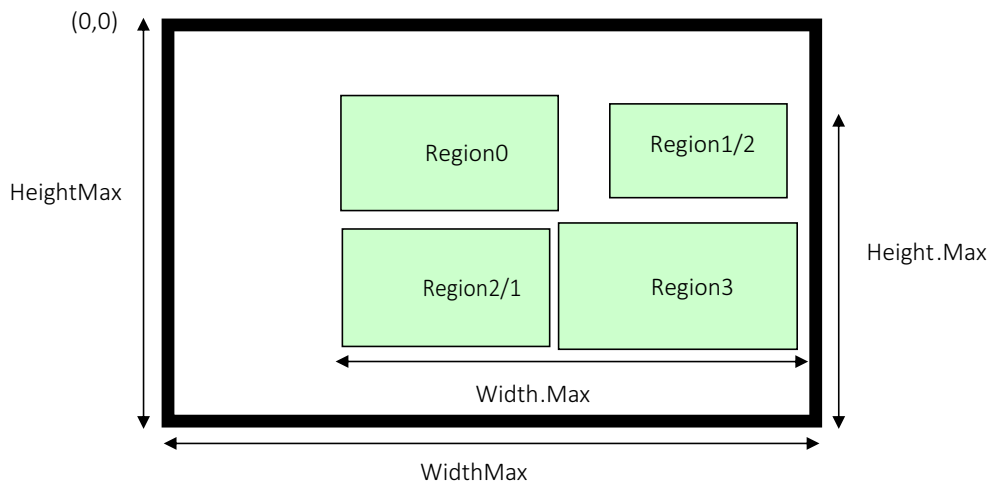


Figure 2: Four regions of interest



Defining regions

- Regions can share rows and columns
- Regions cannot overlap
- When Multi-ROI is enabled, binning and decimation are not available.
- Each region will be displayed in a different window

Multiple ROI features

The Multiple ROI feature implementation is fully compliant with GenICam SFNC Version 2.2.



Camera features reference

For a complete description of individual features, see the *Bonito PRO Features Reference*. See the Allied Vision technical documentation webpage.

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

MultipleROIEnable

Standard	Custom
Feature type	Boolean
Access	Read/Write
Visibility	Beginner
Possible values	<i>True, False</i>
Default	<i>False</i>
Category	<code>/ImageFormatControl</code>

Select to enable or disable multiple regions of interest. Once enabled, you can configure up to four regions of interest. Use the `RegionSelector` feature to select the region you want to configure. You can configure image `Width`, `Height`, `OffsetX`, and `OffsetY`. Use the `RegionMode` feature to enable the usage of the region. Repeat for each region of interest.

CondensedRegionStatus

Standard	Custom
Feature type	String
Access	Read
Visibility	Expert
Possible values	<i>D, V, E, O</i>
Category	<code>/ImageFormatControl</code>

Status of all regions.

Value	Description
<i>D</i>	Disabled
<i>V</i>	Valid
<i>P</i>	Position error
<i>O</i>	Overlap error

RegionSelector

Standard	GenICam SFNC Version 2.2
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	<i>Region0, Region1, Region2, Region3</i>
Default	<i>Region0</i>
Category	<i>/ImageFormatControl</i>

Selects the ROI to control. The `RegionSelector` feature allows devices that are able to extract multiple regions out of an image, to configure the features of those individual regions independently.

As multiple ROIs are supported by the device, the `RegionSelector` can be added to various features such as `Height`, `Width`, `OffsetX`, and `OffsetY` to specify the behavior of the selected region.

Value	Description
<i>Region0</i>	Selected feature controls region 0.
<i>Region1</i>	Selected feature controls region 1.
<i>Region2</i>	Selected feature controls region 2.
<i>Region3</i>	Selected feature controls region 3.

RegionMode

Standard	GenICam SFNC Version 2.2
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	<i>Off, On</i>
Default	<i>On</i>
Category	<i>/ImageFormatControl</i>

Controls if the selected region of interest is active and streaming.

Value	Description
<i>Off</i>	Disable the usage of the region.
<i>On</i>	Enable the usage of the region.

RegionDestination

Standard	GenICam SFNC Version 2.2
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	<i>Stream0, Stream1, Stream2, Stream3</i>
Default	<i>Stream0</i>
Category	<i>/ImageFormatControl</i>

Controls the destination of the selected region.

Value	Description
<i>Stream0</i>	The destination of the region is data stream 0.
<i>Stream1</i>	The destination of the region is data stream 1.
<i>Stream2</i>	The destination of the region is data stream 2.
<i>Stream3</i>	The destination of the region is data stream 3.

RegionIDValue

Standard	Custom
Feature type	Integer
Access	Read
Visibility	Expert
Possible values	<i>0, 1, 2, 3</i>
Default	<i>0</i>
Category	<i>/ImageFormatControl</i>

Returns a unique identifier value that corresponds to the selected region. This value is typically used by the transport layer to specify the region from which the transmitted data comes from.

Example configuration

1. Set the `MultiROIEnable` feature to `True` to enable Multiple Region of Interest.
2. To configure the first region, select `Region0` in `RegionSelector`.
3. Select `Width` and configure the width of `Region0`. The minimum supported width is 64 pixels.
4. Select `Height` and configure the height of `Region0`. The minimum supported height is 64 pixels.
5. Select `OffsetX` and configure the starting column of `Region0` (relative to the first column of the sensor). `OffsetX` must be configured in multiples of 64.
6. Select `OffsetY` and configure the starting row of `Region0` (relative to the first row of the sensor). `OffsetY` must be configured in multiples of 16.
7. Enable the region by changing `RegionMode` from `Off` to `On`.
8. Check the region status using the `CondensedRegionStatus` feature to ensure that the region is valid.

9. To configure the second region, select *Region1* in RegionSelector.
10. Repeat steps 3 to 8 for *Region1*.
11. To configure the third region, select *Region2* in RegionSelector.
12. Repeat steps 3 to 8 for *Region2*.
13. To configure the fourth region, select *Region3* in RegionSelector.
14. Repeat steps 3 to 8 for *Region3*.

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