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Chapter 1. Project description

AlliGator: FLI Data Analysis

Chapter 2. Libraries

This section describes the libraries contained in the project.

2.1. AlliGator Accumulated Dataset.lvlib

Responsibility: Handles dataset summation tasks (sum or average).

Version: 1.0.0.0

2.1.1. Functions

Table 1. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Add Dataset to Accumulated Dataset	AlliGator IV DVR in Weight (1) error in (no error) Add Dayor Is Sun error out	Adds the Current Dataset to the Accumulated Dataset , if and only if the number of gates and channels are the same as those of the first dataset in the series.			
AlliGator Add Image to Accumulated	Image Name New Image Accumulated Image Sum (out) Dataset Index Error In Weight (1)	If not, the Current Dataset is skipped. Adds a single New Image (gate image) to the Accumulated Image Sum (for that gate).		S	
Image		If the current Dataset Index is 0 (first dataset in the Series), the Accumulated Image Sum is cleared first.			
AlliGator Clear Dataset Series Sum	Data Value Reference in Outs Value Reference out Message error in (no error) Error out	Clears the data structures associated with the Accumulated Dataset and resets the internal variable Is Displayed Image Accumulated to False.			
AlliGator Get Temp Accumulated File Name	Time-Series Folder temporary file name Averaged? filename without extension error in (no error) error out	Builds name of acccumulated or averaged dataset displayed in AlliGator's title bar.			
AlliGator Script Sum All Datasets in Folder	Alligator Queue Elements in AlliGator Data Series Type Weights (Default: None) Weights (Default: None)	Launches a series of steps loading each dataset in a series (including background correction) and adding them to a reset accumulated dataset. This script is followed by the usual series of steps after a new dataset is loaded (display, phasor plot update, phasor ratio or map overlay in image source and/or image ROI highlight in phasor plot).			

Reentrancy: \square \rightarrow Preallocated reentrancy $|\square$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.1.2. Library Constant VIs

NOTE No Constant VIs Found

2.2. AlliGator Action Engine.lvlib

Responsibility: Handles AlliGator Event Queue, dispatching events to different handlers according to their category.

Version: 1.0.0.0

2.2.1. Functions

Table 2. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Action Loop	AlliGator Refnums AlliGator Ctrl Refnums Error In	AlliGator action dispatcher. Each action array is handled as a package, each action in the array being sent to the appropriate category (Files, Image, Phasor Graph, etc.).			
AlliGator Add Action Array to Stack	Alligator Queue Element 1	One of the two options of the polymorphic AlliGator Add Action(s) to Stack VI. Appends (or prepends) an array of actions to the current ones being processed or about to be queued.			
AlliGator Add Single Action to Stack	Alligator Queue Element 1	One of the two options of the polymorphic AlliGator Add Action(s) to Stack VI. Appends (or prepends) a single action to the current ones being processed or about to be queued.			
AlliGator Calibration Actions	Script in Alligator Q Element 1 (Alligator Queue Element 1 (Alligator IV DVR AlliGator Q Event in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator phasor calibration-related actions.			
AlliGator Check for Abort	AlliGator Q Elements AlliGator Q Elements	Checks whether there is any Abort action in the input AlliGator Q Elements . If so, remove all other action items.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Compute P2 vs P1 Plots	Lifetime Graph in AlliGator IV DVR in User Selection Phasor Frequency error in (no error) AlliGator IV DVR out Pract Place Place Pract Place Pl	Compute a (P1, P2) scatter plot for all selected phasor plots in the Phasor Graph and send them to the Lifetime & Other Parameters Graph. P1 & P2 are parameters associated with each plasor plot or derived from the			
		phasor and/or phasor ratio references.			
AlliGator Current Event	AlliGator Q Event out Get(F)/Set Get(F)/Set	Get/Set current AlliGator action being processed.			
AlliGator Decay Actions	Script in Vin AlliGator Q Elements in Script off AlliGator Q Elements out AlliGator V DVR in AlliGator Q Elements out AlliGator Q Elements out AlliGator Q Elements out AlliGator Q Event in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator decay-related actions.			
AlliGator Decay Fit Parameter Map Actions	Script in Vin Script out AlliGator Q Elements in Script out AlliGator Q Elements in Script out AlliGator Q Elements in Script out AlliGator Q Elements out AlliGator Q Elements in Script out AlliGator Q Elements out AlliGator Q Elements out Fig. 10 Script out AlliGator Q Elements out Fig. 10 Script out AlliGator Q Elements out Fig. 11 Script out AlliGator Q Elements out Fig. 12 Script out AlliGator Q Elements out Fig. 12 Script out AlliGator Q Elements out AlliGator Q Elements out Fig. 12 Script out AlliGator Q Elements out AlliGator Ctrl Refnums	Processes AlliGator decay fit parameter map-related actions.			
AlliGator Event to Event Category	AlliGator Q EventEstrage Event Category	Extracts the category an AlliGator Q Event belongs to, in order to dispatch this event to the proper handler.			
AlliGator Event to String	Add Ellipsis (T) AlliGator Q Event Evest String	Converts AlliGator Q Event enum to the corresponding string.			
AlliGator Files Actions	Script in VI in AlliGator Q Elements in AlliGator IV DVR AlliGator Q Event in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator files-related actions.			
AlliGator Filter Event	Filtered Event Data Filter Event? Error In Error Out	Prevents adding an event to the main Action Queue if a similar event has been added less than Timeout ago, where Timeout is part of the Filtered Event Data .			
AlliGator FLI Dataset Actions	Script in VI in AlliGator Q Elements AlliGator IV DVR in AlliGator IV DVR in AlliGator IV DVR in LONG AlliGator IV DVR out AlliGator Q Event in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator FLI Dataset-related actions.			
AlliGator FLI Dataset Series Actions	Script in Vi in Script out Vi in AlliGator Q Elements AlliGator IV DVR in AlliGator IV DVR in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator FLI Dataset Series-related actions.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Generic Graph Actions	Script Vin Script out Vin AlliGator Q Elements out data value reference in Data Value Reference out AlliGator Q Event in Data Value Reference out error in (no error) AlliGator Ctrl Refnums	Processes AlliGator generic graph-related actions.			
AlliGator Get First Event	AlliGator Q Elements AlliGator Q Elements AlliGator Q Event Data	Returns the first event (action + data) in the AlliGator Q Elements input array in AlliGator Q Event and the remaining events in the AlliGator Q Elements output array. If there is a GUI:Abort element in the array, or if the abort flag is raised, returns a single GUI:Abort as AlliGator Q Event and an empty array as AlliGator Q Elements output array.			
AlliGator GUI Actions	AlliGator Q Elements in AlliGator IV DVR AlliGator Q Event in AlliGator Q Event in Companies (Notebook Message) Pata error in (no error) AlliGator Ctrl Refnums	Processes AlliGator GUI-related actions.			
AlliGator Image Actions	Script in VI in AlliGator Q Event in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator source image-related actions.			
AlliGator Initialize Images	AlliGator IV DVR Phasor Plot Display error in (no error) error out	Initializes AlliGator image structures.			
AlliGator Initialize Internal Variables	State Indicators Alligator version error in (no error) Message variables Message error out	Initializes AlliGator internal variables.			
AlliGator Intensity Actions	Script in VI in AlliGator Q Elements in AlliGator IV DVR in AlliGator Q Event in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator intensity time trace- related actions.			
AlliGator No Action Event	No Action	Returns a no-op event.			
AlliGator Package Notebook Messages	AlliGator Q Event in Message Message Formatting Message Formatting	Formats Notebook message by adding AlliGator Action header and style.			
AlliGator Phasor Graph Actions	Script in VI in AlliGator Q Elements in Data Value Reference in Data Value Reference in Data Value Reference out AlliGator Q Elements in Data Value Reference out AlliGator Q Elements out Data Value Reference out AlliGator C Event in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator phasor graph-related actions.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Phasor Plot Actions	Script in VI in Script out AlliGator Q Elements in Manual	Processes AlliGator phasor plot-related actions.			
AlliGator Phasor Ratio Actions	Script in Script out AlliGator Q Elements in AlliGator Q Elements out data value reference in Data Value Reference out AlliGator Q Event in Data error in (no error) AlliGator Ctrl Refnums	Processes AlliGator phasor ratio-related actions.			
AlliGator Queue Non Empty Events	AlliGator Q Actions Pror Out Error In	Removes consecutive duplicates of any kind of AlliGator action to leave a single copy of each in the array of enqueued AlliGator events. The same action can appear several time, as long as the different copies are separated by a different action.			
AlliGator Queue	create if not found? (F) AlliGator Q Error In Error Out	Returns the AlliGator Action queue.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.2.2. Library Constant VIs

NOTE No Constant VIs Found

2.3. AlliGator Dataset Information Window.lvlib

Responsibility: VIs handling Dataset Information displayed to the user.

Version: 1.0.0.0

2.3.1. Functions

Table 3. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Build Dataset Information String	Dataset Information String Dataset Information String String	Creates Dataset Information String based on internal variables and settings.			

Name	Connector pane	Description	S.	R.	I.
Alligator Dataset	Dataret Infa	Window displaying the dataset information extracted from internal			
Information Window		variables and settings.			

Scope: $\mathcal{O} \rightarrow \text{Protected} \mid \mathcal{O} \rightarrow \text{Community}$

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.3.2. Library Constant VIs

NOTE No Constant VIs Found

2.4. AlliGator Debug.lvlib

Responsibility: features under test and accessible via the **DEBUG** menu item (when exposed).

Version: 1.0.0.0

2.4.1. Functions

Table 4. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Feature Tests	Script Vi in data value reference Debug Action List Data Fror In Error Un AlliGator Ctrl Refnums	VI implementing the successive debugged features as individual cases.			
		One feature can be tested per session, and is hardwire-selected.			

Scope: σ \rightarrow Protected | σ \rightarrow Community

Reentrancy: □ → Preallocated reentrancy | □ → Shared reentrancy

Inlining: → Inlined

2.4.2. Library Constant VIs

NOTE No Constant VIs Found

2.5. AlliGator Decay Analysis.lvlib

Responsibility: VIs handling decay analysis (preprocessing, processing, Ifit, RF).

Version: 1.0.0.0

Table 5. Nested libraries

Name	Туре
AlliGator Decay Fit.lvlib	Library
AlliGator Decay Preprocessing.lvlib	Library
AlliGator Decay Processing.lvlib	Library
AlliGator IRF.lvlib	Library

2.5.1. Functions

This library has no functions set to non private scope.

2.5.2. Library Constant VIs

NOTE No Constant VIs Found

2.6. AlliGator Decay Fit.lvlib

Responsibility: VIs used to fit decays to 1-Exp or 2-Exp models.

Version: 1.0.0.0

2.6.1. Functions

Table 6. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator 1- Exp + IRF Fit v2	Pit Options Fit Options Fit Options From in (no error) parameter bounds Fit Output Delta Best Fit Parameters error out Guess Parameters Guess Parameters Options	Legacy code for 1-Exp decay fit.		S	
AlliGator 2- Exp + IRF Convolution Fit v2	Pecay Fitted Decay Residuals Fit Options Peta Best Fit Parameters parameter bounds Guess Parameters Guess Parameters Options	Legacy code for 2-Exp decay fit.		S	
AlliGator All ROIs Decay Fit Non- Interactive (Fast + Individual IRF) v2	AlliGator Internal Variable error in (no error) AlliGator Internal Variable Message error out	Performs multi-ROIs NLSF decay fits for the selected ROIs. Each ROI has its own associated IRF.			
AlliGator All ROIs Decay Fit Script	Decay Graph All ROIs Decay Fit Script All ROIs Decay Fit Script All ROIs Decay Fit Script Message Error In Error Out	Series of actions triggered by the All ROIs NLSF Analysis:Interactive (Slow) Analysis menu item.			

Name	Connector pane	Description	S.	R.	I.
AlliGator All ROIs Decay Fit	AlliGator Internal Variable Lifetime Graph Wessage error in (no error) Hessage error out	Fits all ROI decays with the selected model, using a common IRF for all ROIs.			
AlliGator Best of All (weights) String	Weighted Fit <u>weighted Fit</u>	String to append to the fit output sent to the Notebook in the case of a "Best of All" option, to specify which fit was the best (weighted or unweighted).		S	
AlliGator Check Decay Reference	Time-Series Folder Reference Decay Plot Name AlliGator Internal Variable Error In Time-Series Folder Reference Decay Plot Name AlliGator Internal Variable Ferror In Message AlliGator Data Series Type	Obtains the relevant IRF (either common or local) for the subsequent task.			
AlliGator Check IRF	Current Decay Reference Decay SYNC Period Error In	Check whether the provided IRF is a valid plot. If not, builds a mock Dirac IRF as a replacement.		S	
AlliGator Clear Local IRFs	AlliGator IV DVR in Other error in (no error) AlliGator IV DVR out Other HEY Message error out	Clears the internal variable-sored local IRFs.			
AlliGator Clip Decay for Fit	Decay in Clipped Decay out Max Decay Percentile (1) Index Max Min Decay Percentile (0) Index Min Error In Fror Out #Points	Clips the decay according to the Min and Max Decay Percentile parameters provided.		S	
		If the decay range is [I_min, I_max] and the decay percentiles are (f_min, f_max) in [0, 1], we look for:			
		- starting from the location of the maximum (presumably the peak location) and moving forward, the point at which:			
		I_i < I_min + f_max*(I_max - I_min) = F_max			
		- starting from the last point and moving backwards, the point at which:			
		I_i > I_min + f_min*(I_max - I_min) = F_min			

Name	Connector pane	Description	S.	R.	I.
AlliGator Convert Decay Fit Parameter Constraints v2	Fit Parameter Constraints Fit Model Error In Fit Parameter Constraints Fit Model Error Out Fit Parameter Constraints Fit Model Fit Parameter Constraints Fit Model Fit Parameter Constraints Fit Parameter Constraints Fit Model Fit Parameter Constraints Fit Model Fit Parameter Constraints Fit Model Fit Model Fit Parameter Constraints Fit Model Fit	Returns constraints for all parameters of the model, even if the user only specified a few (or none at all). This VI assumes that the Fit Parameter Constraints involve tau, and returns values with the same assumption. Look for constrained parameters. If present, replace default constraints (-Inf, Inf) by new ones, except for the offset, which is set to the guessed value (or zero if			
		not provided).			
AlliGator Convert New to Legacy Fit Parameter Constraints	All Parameter Constraints Number Parameter Bounds	version conversion for Fit Parameter Constraints .		5	
AlliGator Create Fit Parameter Plots Script	XYGraph in Current ROI Name Roy Phur	Creates as many empty parameter plots as there are parameters.			
AlliGator Decay Fit Output String	Guess Parameters Options All Fit Parameters Plot clipped? (Clipped) Plot Range Plot Name Fit Output Fit Output Message Delta Best Fit Parameters Fit Options Error In Guess Parameters Fit Parameter CPU (s)	Creates decay fit output string.		S	
AlliGator Enforce Lifetime Positivity	Constraints in Constraints out Engree Parties	Constrains lifetime parameters to be positive (replacing them by zero otherwise).			
AlliGator Fit Decay	Decay Fit Options & Parameters Selected Plot Info - Flag Current Decay Name Delta Best Fit Parameters (R*2 Rederence Decay Fit Options & Paramet Dolta Best Fit Parameters () Fit Parameters () Fit Output Plot Names Output Plot Names	VI implementing single decay fit with either a single or double exponential model with IRF convolution (or in the absence of IRF, without convolution).		S	
AlliGator Fit IRF String	Use Local IRF IRF String IRF String Error Out	Create the Notebook string specifying what kind of IRF was used in the fit.		S	
AlliGator Fit IRF to Cubic Spline + Sine	Selected Plot Info Coult: Spline Fitted Plot Fitted Plot Fitted IRF Message Firor Out	Fits the provided plot by a sum of a sinus function and a cubic spline.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Fit Termination Criteria & Quality Metrics Output String	Analysis.lvlib:AlliGator Decay Fit.lvlib:AlliGator Fit Termination Criteria & Quality Metrics Output	Creates a string describing the fit termination criteria and quality metrics.		S	
AlliGator Get 1-Exp Guess Parameters	Decay Guess Parameters IRF Guess Parameters Names Guess Parameters Type	Determines Guess Parameters for a 1-Exp fit according to the user-specified choices: * Last valid fitted parameters:			
		If the number of available last valid fitted parameters is correct, uses those, otherwise use the estimated parameters.			
		* User-provided parameters:			
		If a parameter is provided by the user, uses it, otherwise uses the estimated parameter.			
		* User-provided (normalized) parameters:			
		If a normalized-parameter (amplitude or baseline) is provided by the user, uses it, otherwise uses the estimated parameter.			
		* Numerically estimated parameters:			
		Use the numerically estimated parameters.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Get 2-Exp Guess Parameters	Decay Guess Parameters 2-f-ay Guess Parameters Names Guess Parameters Names Guess Parameters Type	Determines Guess Parameters for a 2-Exp fit according to the user-specified choices: * Last valid fitted parameters:		5	
		If the number of available last valid fitted parameters is correct, uses those, otherwise use the estimated parameters.			
		* User-provided parameters:			
		If a parameter is provided by the user, uses it, otherwise uses the estimated parameter.			
		* User-provided (normalized) parameters:			
		If a normalized-parameter (amplitude or baseline) is provided by the user, uses it, otherwise uses the estimated parameter.			
		* Numerically estimated parameters:			
		Use the numerically estimated parameters.			
AlliGator Get Fit Options & Parameters	[AlliGator Decay Analysis.lvlib:AlliGator Decay Fit.lvlib:AlliGator Get Fit Options & Parameters.vi]	Gets Decay Fit Options & Parameters.		S	
AlliGator Get Fit Output Options	All Parameters? Decay Fit Output Options Error In Laser Period Error Out	Gets Fit Output Options.			
AlliGator Get Guess Offset	Fit Model Guess Offset Guesz Offset Last Fit Parameters?	Used to get an offset parameter when no constraint is provided:			
		- if "Use last valid fitted parameters", use it.			
		- otherwise, if a guess offset parameter is available, use it, else use zero.			
AlliGator Get IRF Values & Locations	[AlliGator Decay Analysis.lvlib:AlliGator Decay Fit.lvlib:AlliGator Get IRF Values & Locations.vi]	Gets the array of stored IRF Values as well as the IRF Locations .			
AlliGator Get Last Fitted Parameters	Guess Parameters Names Guess Parameters Names (dup) Last Fitted Parameters Last Fitted Parameters OK	Returns Last Fitted Parameters as well as Last Decay Max - Min .			

Name	Connector pane	Description	S.	R.	I.
AlliGator Get n-Exp Guess Parameters	Model Guess Parameters Decay Guess Parameters Options IRF Faram. Error Out	Get numerically estimated Guess Parameters for 1-Exp or 2-Exp models.		S	
AlliGator Get Tabulated Results Header (Decay Fit)	Tabulated Results Header From In Error Out	Creates the header line for the ASCII ouput of decay fit parameters.			
AlliGator Is Decay Valid	Plot Name Decay (dup) Pror In Error Out	Checks whether the input Decay is valid, i.e. is non-zero, does not contain NaN and has more than one element.		S	
AlliGator Is IRF Valid	Reference Decay Valid Plot?	Checks that the Reference Decay is a valid plot.			
AlliGator n- Exp + IRF Fit v4	VI Refnum Decay IRF Fit Options Fit Output WILE Fit Options error in (no error) Guess Parameters Options Guess Parameters Options Guess Parameters Options	Fits the provided decay to 1-Exp or 2-Exp model. This VI assumes that All Parameter Constraints involve tau (rather than the square root of lifetime) and returns values with the same assumption.		S	
AlliGator Update Decay Fit Results (Stats)	error in (no error)	Stores basic statistics (algorithm, Chi2/N, R2 and RMSE, where N is the number of evaluation points) for a successful fit. This is used when the "Use All" fit method option is selected, and allows picking the best result out of the 3 methods (LS, LAR, Bisquare)			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.6.2. Library Constant VIs

NOTE No Constant VIs Found

2.7. AlliGator Decay Preprocessing.lvlib

Responsibility: Handles decay pre-processing functions.

Version: 1.0.0.0

2.7.1. Functions

Table 7. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Create Head & Tail Bounding Cursors	Analysis.lvlib:AlliGator Decay Preprocessing.lvlib:AlliGato	Creates a Head (HE) and a Tail (TS) cursor in the Decay Graph to be used for the definition of the decay end (the "Head" part) and start (the "Tail" part) when performing decay extrapolation.			
AlliGator Extrapolate Decay	Selected Plot Info Replace Plot (T)? error in (no error) Extrapolated Decay Message Error Out	Extrapolates a truncated decay by trying to fit an exponential to the tail part and connect it to the head part .			
AlliGator Find & Plot Threshold Crossing Position	[AlliGator Decay Analysis.lvlib:AlliGator Decay Preprocessing.lvlib:AlliGato r Find & Plot Threshold Crossing Position.vi]	the provided thresholf (from below), returns that position and adds it to the last plot in the Lifetime & Other Parameters			
AlliGator Find & Plot Zero-Crossing Position v2	[AlliGator Decay Analysis.lvlib:AlliGator Decay Preprocessing.lvlib:AlliGato r Find & Plot Zero-Crossing Position v2.vi]	decay in the Decay Graph using the provided Shift and adds it to the last plot in the Lifetime & Other Parameters			
AlliGator Find Cross- Correlation Shift	polynomial order (3) Half Width (Points) Decay Graph Lifetime Graph Time Stamp Error In Reference Decay normalization (none)	Computes the shift of the last plot in the Decay Graph maximizing the cross-correlation of that plot and the Reference Decay and adds this value to the last plot in the Lifetime & Other Parameters Graph .			
AlliGator Get Background Subtraction Parameters	Background Subtraction Para Error In Heart? Error Out Get (F)/Set	Obtains or stores information about Background Subtraction Parameters from Settings.			
AlliGator Get- Set Decay Preprocessin g Options & Parameters	[AlliGator Decay Analysis.lvlib:AlliGator Decay Preprocessing.lvlib:AlliGato r Get-Set Decay Preprocessing Options & Parameters.vi]	Get/Set Decay Pre-processing Options & Parameters (Settings).			

Name	Connector pane	Description	S.	R.	I.
AlliGator Get- Set Decay Preprocessin g Parameters	Decay Preprocessing Paramet Error In Get (F)/Set Error Out	Get/Set Decay Pre-processing parameters.			
AlliGator Preprocess Decay v3	Decay (in) # Pixels Time-Gated Reference Decay Error Out Error In Decay Preprocessing Parameters	Applies the different selected pre- processing steps on the provided decay in the specified order.		S	
AlliGator Store Cursor- defined Head & Tail Fractions	Analysis.lvlib:AlliGator Decay Preprocessing.lvlib:AlliGato	Sets the head and tail fractions for decay extrapolation based on the corresponding cursor locations. If one cursor is missing, the current fraction is preserved.			
AlliGator Subtract Background from Decay Curve v3	ROI Intensity Array in # ROI Pixels (1) # Data Pixels # ROI Pixels #	Subtracts background from a decay based on selected options.		5	
AlliGator Update Background Subtraction Indicators	AlliGator Ref Decay Metadata Error In Error Out	Updates background subtraction indicators in the Decay Graph panel.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy \mid \blacksquare \rightarrow Shared reentrancy

Inlining: → Inlined

2.7.2. Library Constant VIs

NOTE No Constant VIs Found

2.8. AlliGator Decay Processing.lvlib

Responsibility: All functions related to decay processing (but not decay PRE-processing).

Version: 1.0.0.0

2.8.1. Functions

Table 8. Functions (non private scope only)

Name	Connector pane	Description	s.	R.	I.
AlliGator All ROIs Average Lifetimes	AlliGator Internal Variable Lifetime Graph Message error in (no error) error out	Computes an approximate average lifetime for all ROI decays, based on the integral under the curve and IRF information.			
AlliGator Compute Decay Average Lifetime	Average Lifetime Outputs Club Rr	Computes an estimate of the average lifetime of a decay using the formula <tau> = <tau> _F_T - <tau> _IRF_T where F_T is the decay and IRF_T is the IRF. This calculation involves estimating the</tau></tau></tau>			
		location of the rising time for both IRF and decay.			
		When the option "Use Local IRF" is selected and a Decay Location is provided, the corresponding local IRF (if it exists) is used.			
AlliGator Compute ROI Decay	Pixel Threshold High Pixel Threshold Low Images ROI Descriptor Decay Points ROI Center Valid Pixels error in (no error) Loop ID # Pixels	Extracts the ROI pixel intensities for the different gate images, rejecting pixels not satisfying the intensity-based or peak-intensity based criteria.		5	
		A different (faster) approach is used for single-pixel ROIs.			
AlliGator Computer IRF t_0 and Mean Lifetime	Reference Decay error in error out	Computes an estimate of the average lifetime of the IRF and the location of the rising time.			
AlliGator Decay Graph Get-Set Process Plot Target	Menu Menu Menu Gerical Plot(s) to Process Fror In Error Out (dup)	Get : Check which plot(s) to process, and add/remove checkmarks accordingly. In this case, the Menu reference is mandatory.			
J		Set: based on user selection, set which plot(s) to process. In this case, the Plot(s) to Processinput is mandatory (Single Plot, Selected Plots, All Plots), but not the Menu.			
AlliGator Extrapolate Multiple Plots	Selected Plots Last Extrapolated Decay Selected Plots Extrapolated Decay Message error in (no error) Single Plot?	Extrapolated the selected plots.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Get Decay Average Lifetime	Selected Plot Info <tau> IRF t_0_IRF error in (no error) Average Lifetine Error Out Message</tau>	Computes estimated average lifetime for the selected plot.			
AlliGator Get Decay Peak Constraints	Decay Peak Constraints error in (no error) Error Out	Get Decay Peak Constraints.			
AlliGator Get Decay Time Axis v2	Number of Gates t Array	Get decay time axis.			
AlliGator Get Pixel Count Constraints	Pixel Count Constraints Final Count (no error) error in (no error) error out	Get intensity constraints.			
AlliGator Get Process Plots Indices	Selected Plot Info Gas Gas Fixed	Get indices of plots to be processed.			
AlliGator Get ROI Decay UI	AlliGator IV DVR AlliGator Ctrl Refnums ROI Descriptor error in (no error) AlliGator IV DVR AlliGator IV DV	Computes the decay at the provided ROI and adds tje computed intensity (sum of all gates) and estimated background to two separate plots in the Intensity Time Trace Graph.			
AlliGator Get ROI Decay	AliGator Internal Variable ROI Descriptor Decay Add'I Data Error Out Message	Extract decay from provided ROI (see exception below) and apply pre-processing steps if applicable. Data and metadata are stored internally for further analysis. Option: instead of providing a ROI (which implies a Source Image dataset), a Decay can be provided, which will not be pre-processed but stored as is, with no additional metadata.			
AlliGator Get ROI Intensity Array v4	ROI Center ROI Descriptor ROI Descriptor ROI Descriptor ROI Descriptor ROI Descriptor ROI Descriptor ROI Center ROI Cente	Gets the intensity array for the provided ROI.			
AlliGator Get Selected Plots and Reference Decay	Selected Plot Info Reference Decay First First Valid Reference Decay? error in (no error) Reference Decay	Get selected plot indices and reference decay.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Get Tabulated Results Header (Average Lifetimes)	Tabulated Results Header Flavists Error In Tree for June 1997	Builds string to output results of average lifetime calculation.			
AlliGator New Decay Plot Name	Current Folder ""Occur" New Decay Name	Builds name for new decay plot.			
AlliGator Only Show Last Decay	Show Last Decay Only?	Returns option of showing only the last plot.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.8.2. Library Constant VIs

NOTE No Constant VIs Found

2.9. AlliGator IRF.lvlib

Responsibility: Handles IRF-related functions.

Version: 1.0.0.0

2.9.1. Functions

Table 9. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator All ROIs IRF Analysis	AlliGator Internal Variable AlliGator Internal Variable	Extracts the decays from all ROIs and stores them as IRFs for subsequent NLSF analysis.			
AlliGator Compute Optimal IRF v2	Selected Plot Info IRF-PSED Fixed Parameters IRF Optimization Control Error In Plot Name Optimization Control Fit Parameter Values Optimization Control Fit Results String Additional Data	Extract IRF from provided decay using deconvolution and finding the minimal metrics.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Create Cursors for Square Gated IRF Fit	Decay Graph Substitute	Creates 5 cursors (tr1, tr2, tf1, tf2 and ten) used to define the different transitions between domains in a square gate.			
AlliGator Extract IRF Instead of Decay	Extract IRF instead of Decay?	Get the value of the option "Get IRF instead of Decay".			
AlliGator Fit to Logistic Square Gated IRF	Selected Plot Info Eric Fitted IRF Fait Message SG INF Error Out	Fits the decay to a logistic square gate.			
AlliGator Fit to Model IRF	Selected Plot Info Fitted IRF Message Error Out	Fit the selected plot to a Gaussian convolved with a single-exponential decay.			
AlliGator Fit to Tilted Logistic Square Gated IRF	Selected Plot Info Fitted IRF Fitted IRF Message Error Out	Fits the selected decay to a tilted logistic square gate.			
AlliGator Get Optimal IRF from Decay v2	Selected Plot Info Gat Optimal Message Message Style Extracted IRF Message Message Style	Extract IRF from single-exponential decay by deconvolution and optimization of the time constant.			
AlliGator Get Reference Decay	Data Value Reference in Data Value Reference out Error In Error Out	Gets the internally stored reference decay.			
AlliGator Get Square Gated IRF Analysis Cursors	XYGraph in Cursor Positions Array Gat Sin In Cursor Names Array 5 Cursors available? Error Out	Gets locations and names of the 5 cursors needed to define the regions of a square gate fit.			
AlliGator Script All ROIs IRF Analysis	All ROIs Analysis Script All ROIs Analysis Script Message Error Out	Interactive script computing the decay for all ROIs and storing them as IRFs for subsequent NLSF analysis.			
AlliGator Sort Cursors for Square Gated IRF Fit	Cursor Position Array in Sorted Cursor Position Array Cursor Name Array in Sorted Cursor Name Array	Sorts 5 cursors by name (if they exist) corresponding to the 5 boundaries between regions in a square gate.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Square Gated IRF Fit Cursors String	Cursor Names Array Cursor Positions Array Error In	Creates string describing the boundaries between regions in a square gate.			
AlliGator Thresholded IRF	Selected Plot Info Thresholded IRF Message Error Out	Sets IRF values below threshold to 0.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy \mid \blacksquare \rightarrow Shared reentrancy

Inlining: → Inlined

2.9.2. Library Constant VIs

NOTE No Constant VIs Found

2.10. AlliGator Decay Fit Parameter Map.lvlib

Responsibility: VIs related to the Decay Fit Parameter Map

Version: 1.0.0.0

2.10.1. Functions

Table 10. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Build Decay Fit Parameter Map	AlliGator Internal Variable. Decay Fit Map Ctrl Refums Decay Fit Parameter Map Upd. Compute Decay Fit Parameter Valid Parameter?	Builds the selected fit parameter map image.			
AlliGator Color Decay Fit Parameter Map in Original Image	Decay Fit Parameter Map Col Image Color Scale Refnum AlliGator IV DVR in County Source Image Refnum Error In Source Image Refnum Error In Source Image Refnum Error Out	Overlays the Decay Fit Parameter Map on the Source Image.			
AlliGator Convert Decay Range Options	Percentile Conversion Decay Fit Options & Paramet Decay Fit Options & Paramet	Converts percentiles unit.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Decay Fit Parameter Map Context Menu Handler	Image Event Data BYP Hay BYP Hay Error Out	Decay Fit Parameter Map contextual menu handler.			
AlliGator Decay Parameter Range Mouse Move Event	AlliGator Actions in Decay Fit Parameter From In Parameter Error Out	Handles mouse move event in the Decay Fit Parameter Map display range control.			
AlliGator Decay Parameters Map Mouse Up Event	AlliGator Actions in AlliGator Actions out Image Control Refnum error in (no error) error out	Handles Mouse Up event in the Decay Fit Parameter Map image.			
AlliGator Export ROI(s) NLSF Parameters as ASCII File	AlliGator Ctrl Refnums AlliGator IV DVR in All ROIs error in (no error) AlliGator IV DVR out AlliGator IV DVR out AlliGator IV DVR out error out	Exports Decay Fit Parameter Map data to an ASCII file.			
AlliGator Get Decay Fit Parameter Map Data Wrapper	Data Value Reference in Valid Parameter Compute Decay fit Parameter Fit Parameter error in (no error) New Map Selected?	Returns selected fit parameter's map.			
AlliGator Get Decay Fit Parameter Map Data	Compute Decay Fit Parameter Multiple Decays Fit Parameter X Resolution Y Resolution Error Out Error Out	Fills in matrix with fit parameter wherever it has been computed, NaN otherwise.			
AlliGator Get Local Fit Results String	[Decay Fit Parameter Name] X Y Parameters Decay Sum	Builds Decay Fit Parmeters string.			
AlliGator Get Single ROI Message Start	Single-Pixel Fit? Message header Single ROI idx ROI idx error in (no error) error out	Builds single-ROI Decay Fit Parameters header string.			
AlliGator Load IRFs & Fit Data (Map) HDF5 File v0.3	[AlliGator Decay Fit Parameter Map.lvlib:AlliGator Load IRFs & Fit Data (Map) HDF5 File v0.3.vi]	Loads Decay Fit Parameter Map and associated metadata.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Load IRFs & Fit Data Map v1	[AlliGator Decay Fit Parameter Map.lvlib:AlliGator Load IRFs & Fit Data Map v1.vi]	Old version of Load Decay Fit Parameter Map.			
AlliGator New NLSF Parameter Map Resolution	Old NLSF Parameters Map X R New NLSF Parameters Map X R New NLSF Parameters Map X R New NLSF Parameters Map X R	Map resolution conversion. If Is Full Image Parameter Map is true, returns the input resolution parameters. If not, returns -1.			
AlliGator NLSF Parameters to Coordinates	[[Multiple Decays Fit Param Decay Locations	Extracts ROI coordinates from the Decay Fit Parameters array for all ROIs in the map.		S	>
AlliGator Plot Fit Parameter vs Intensity v2	Lifetime Graph refnum Data Value Reference in ROI idx (2147 483647; all ROIs) error in (no error) Fit Parameter	Creates scatter plot of selected parameter vs intensity for all ROIs and sends it to the Lifetime & Other Parameters Graph .			
AlliGator Post-Fit Parameter Map Update	Decay Fit Parameter Array of Actions Error In Error Out	Updates Decay Fit PArameter Map image and Profile Plot window.			
AlliGator Read IRFs & Fit Data HDF5 File Metadata	[AlliGator Decay Fit Parameter Map.lvlib:AlliGator Read IRFs & Fit Data HDF5 File Metadata.vi]	Reads Decay Fit Parameter Map metadata from HDF5 file.			
AlliGator Save All Decay Fit Parameter Maps to ASCII	Data Value Reference in Data Value Reference out error in (no error) error out	Saves the Decay Fir Parameter Map 2D array to an ASCII file.			
AlliGator Save Decay Fit Parameter Map to ASCII	Data Value Reference in Dialogy Prepared in Parameter Pit Parameter	Saves single Decay Fit Parameter Map data into an ASCII file.			
AlliGator Save IRFs & Fit Data (Map) HDF5 File v0.4	[AlliGator Decay Fit Parameter Map.lvlib:AlliGator Save IRFs & Fit Data (Map) HDF5 File v0.4.vi]	Saves Decay Fit Parameter Map and associated metadata to an HDF5 file.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Save-Load IRFs & Fit Data (Map)	[AlliGator Decay Fit Parameter Map.lvlib:AlliGator Save- Load IRFs & Fit Data (Map).vi]	Load/Save Decay Fit Parameter Map & Metadata from/to HDF5 file.			
AlliGator Send Decay Fit Parameter Map to Lifetime Graph	Lifetime Graph refnum Data Value Reference in ROI idx (2147483647; all ROIs) error in (no error) Fit Parameter	Send the selected Decay Fit Parameter Map data to a single plot in Lifetime & Other Parameters Graph .			
AlliGator Update Decay Fit Parameter Map Palette		Updates the color palette of the Decay Fit Parameter Map image.			

Scope: $\bullet \to \text{Protected} \mid \bullet \to \text{Community}$

Reentrancy:

→ Preallocated reentrancy |

→ Shared reentrancy

Inlining: → Inlined

2.10.2. Library Constant VIs

NOTE No Constant VIs Found

2.11. AlliGator Decay Statistics.lvlib

Responsibility: Handles the Decay Statistics Graph.

Version: 1.0.0.0

2.11.1. Functions

Table 11. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Compute Decay Statistics v2	Decay Statistics Bin Decay Statistics Graph Ref Image Array Current Data Error In Decays Max Values Decays Min Values Decays Min Values Decays Min Values Time (s)	Computes decay min & max histograms.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Recompute Decay Statistics Histograms	Decay Statistics Graph Decays Max Values Decays Min Values Decay Statistics Bin Error In	Rebins decay Min & Max histograms.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.11.2. Library Constant VIs

NOTE No Constant VIs Found

2.12. AlliGator Dual-Channel Datasets.lvlib

Responsibility: VIs handling dual-channel datasets

Version: 1.0.0.0

2.12.1. Functions

Table 12. Functions (non private scope only)

Name	Connector pane	Description	s.	R.	I.
AlliGator Channel Arithmetic Computation	AlliGator IV DVR in Channel Arithmetic Action P Error Out Channel Arithmetic Action P Channel Arithmetic Action P Error Out	If selected, computes the arithmetic combination of ING & G2 channel and stores it nito the Dataset 1 structure. If no arithmetic operation is selected, the G2 channel is in Dataset 1 structure, INT in Dataset 2 structure.			
AlliGator Compute (1- G2_INT)xMea n(INT) Images	G2 Images Sum(G2 Sum(G1 Sum(G	Computes (1 - G2/INT)* <int>.</int>			
AlliGator Compute G2_INTxMea n(INT) Images	G2 Images ************************************	Computes G2/INT * <int>.</int>			

Name	Connector pane	Description	s.	R.	I.
AlliGator Compute INT - G2 Images	G2 Images 1000000000000000000000000000000000000	Computes INT - G2.			
AlliGator Get Channel Names & Indices	[AlliGator Dual-Channel Datasets.lvlib:AlliGator Get Channel Names & Indices.vi]	Returns information on the dataset file's channel(s).			
AlliGator Get Selected, INT & G2 Channel Names	Datasets.lvlib:AlliGator Get	Formats dual-gate channel name and returns selected channel.			
AlliGator Get- Set Channel Selection	Available Channel Names Selected Channel Name Channel Arithmetic error in (no error) Set (T)/Get (F)	Groups access to 3 different types of Dataset Information: - available channel names - channel name - channel arithmetic			
AlliGator Is Selected Channel First Channel	Selected Channel Name Selected Channel Name First channel?	Identifies what type of channel is selected (First channel = TRUE: G2 or First channel = FALSE: INT). In the case of a single-channel dataset, the output is TRUE.			
AlliGator Select FLI Channel Type	Available Channel Names Available Channel Names Exercise Channel Name Channel Arithmetic Channel Arithmetic Channel Arithmetic Channel Arithmetic Channel Arithmetic Channel Marme (or single error out INT Channel Name (or empty) Selected Channel Massage	Used when loading a new dataset. If the selected channel name is compatible, use it, if not either open a dialog (dual-channel dataset) or use the default (single-channel dataset).			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: \rightarrow Inlined

2.12.2. Library Constant VIs

NOTE No Constant VIs Found

2.13. AlliGator Fit Method Benchmark.lvlib

Responsibility: VIs for the Fit Method Benchmark Tool.

Version: 1.0.0.0

2.13.1. Functions

Table 13. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator 2- Exp Decay Model	Period Fit Simulation Parameters Output Plot	Computes a 2-#xp decay with the provided parameters.			
AlliGator Baseline Simulation Check	New Baseline in # Bins Oheck Exercise # Counts	Computes an optimized baseline.			
AlliGator Compute Lifetime Simulation Histograms	Histogram Bin Size (f1) Histogram Bin Size (tau) tau 1 Array Statistics (tau 1) Array Statistics (tau 2) Array Statistics (a1) Error In Percentiles to Keep (1, 99) Percentiles to Keep (1, 99) Histograms Array Statistics (tau 1) Array Statistics (a1) Error Out Message Plot Names	Computes fitted parameter histograms and statistics.			
AlliGator Decay Sum	Output Plots #Photons # Photons	Computes the number of simulated photons in each decay (the other two plots are the fit and the residuals).			
AlliGator Fit Linear Combination s of Exponentials	Output Plots Output Plot Names Output Plot Names Plot Colors Pit Simulation Parameters Decay Simulation Parameters Decay Fit Options & Parameters Reference Decay Error In Show Decays, Fits & Residuals Output Plots Output Plot	Simulate a 1-Exp or 2-Exp decay and fits it with the selected model.			
AlliGator Fit Method Benchmark	Alligatus Fit Mothad Bonchmk	Fit Method Benchmark GUI.			
AlliGator Get tau1, tau2 & a1	[AlliGator Fit Method Benchmark.lvlib:AlliGator Get tau1]	Outputs tau1, tau2 and a1.			
AlliGator Load Experimental IRF	XYGraph in Plot Data out Prot Data in Experimental IRF Loaded? Experimental IRF Loaded? Experimental IRF Loaded? Experimental IRF Loaded?	Load experimental IRF from ASCII file.			
AlliGator Pad or Truncate Decay	# Requested Points Error In Decay Plot out Truncate Decay Error Out	Adds or removes decay points for it to match the laser period.			
AlliGator Pseudo Dirac IRF	Reference Decay in Period Provide Briton Decay Bin Size Error In	Computes a decay with a single non-zero bin.			
AlliGator Rescale 2-Exp Fraction	a 1 in r 1 out 2-Exp Parameters Roccole f1	Normalizes decay amplitudes for random timestamp generation.		S	

Name	Connector pane	Description	S.	R.	I.
AlliGator Save Simulation Outputs to ASCII	Fit Results Simulati Simulati Error In Error Out	Saves simulation results.			
AlliGator Too Many Histogram Bins Message	error in (no error)	Too many bins error dialog.			

Scope: $\bullet \leftarrow \bullet$ Protected $\mid \bullet \leftarrow \bullet$ Community

Reentrancy: □ → Preallocated reentrancy | □ → Shared reentrancy

Inlining: → Inlined

2.13.2. Library Constant VIs

NOTE No Constant VIs Found

2.14. AlliGator Globals, Variables & Constants.lvlib

Responsibility: Globals, refnums, constants, etc.

Version:

2.14.1. Functions

This library has no functions set to non private scope.

2.14.2. Library Constant VIs

NOTE No Constant VIs Found

2.15. AlliGator HDF5.lvlib

Responsibility: VIs handling HDF5 dataset files.

Version: 1.0.0.0

2.15.1. Functions

Table 14. Functions (non private scope only)

Name	Connector pane	Description	s.	R.	I.
AlliGator Check Gate Number in HDF5 File v2	Gate Names ref in FLI Parameters error in (no error) Gobert G	Checks that the gate images stored in the HDF5 file correspond to the description provided by the FLI Parameters .			
		If so updates # Gates in that structure and sets the corresponding output flags.			
AlliGator Check Gate Number in HDF5 File v3	Gate Names ref in FLI Parameters error in (no error) Missing Gates? Additional Gates?	Checks that the gate images stored in the HDF5 file correspond to the description provided by the FLI Parameters .			
		If so updates # Gates in that structure and sets the corresponding output flags.			
AlliGator Check HDF5 File Type	HDF5 File Path in HDF5 File Path out Shorts HOF5 File Path out Shorts HOF5 File Path out Path	Tries reading the HDF5 file's information for the 3 different supported dataset type, until success, and returns the identified dataset type.			
AlliGator Check HDF5 Image Size v2	FLI Parameters out Image ROI Information Image Binning Options	Determines the gate image dimension (X, Y) from the provided file information.			
AlliGator Check HDF5 Image Size	FLI Parameters out Image ROI Information Image Binning Options	Determines the gate image dimension (X, Y) from the provided file information.			
AlliGator Convert FLI Dataset Info to String	File Path FLI Parameters Metadata size error in (no error) FLI Parameters Data Description Data Description Error Out	Builds HDF5 Dataset Information string			
AlliGator Get DAQ & Metadata	-	Gets DAQ Parameters and Metadata string from internal data storage.			
AlliGator Get Pile-up Correction Parameter	Data Information Pile-up Correction (already Pile-up Correction out Pixel Well Capacity in error in (no error) Pixel Version Pixel Well Capacity out error out	Reads from the metadata whether or not pile-up correction was already applied, and if so, does not repeat it.			
AlliGator Is SS2 Dataset HDF5 File	File Path SS2? Is SS2 Dataset? Error In	Checks wether a HDF5 file is a SS2 dataset file (early version).			
AlliGator Load HDF5 FLI Dataset Information	File Path Error In FLI Data File Information Metadata Data Description error out elapsed (relative) seconds	Loads HDF5 FLI dataset information.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Load HDF5 FLI Dataset Prelude	File Path ut error in (no error) File Path out	Initial steps of loading a HDF5 FLI dataset file.			
AlliGator Load HDF5 FLI Header File Information v0.6	HDFS FLI File Loading Infor error in (no error) File Information String error out	Loads HDF5 FLI dataset file information (v0.6).			
AlliGator Load Single Gate Image from HDF5 v 0.6b	Gate Index File Info error in (no error) Action Data 1 error out	Loads single gate image (or dual-channel images) from HDF5 FLI dataset file (v0.6b).			
AlliGator Load Single HDF5 Gate Image v 0.2b	Gate Index File Info Part of the Part of t	Loads single gate image from HDF5 FLI dataset file (v0.2).			
AlliGator Load Single HDF5 Gate Image v 0.3b	Gate Index File Info error in (no error) Action Gate Index 0.3 0.3 Data 1 Data 2 error out	Loads single gate image (or dual-channel images) from HDF5 FLI dataset file (v0.3b).			
AlliGator Read HDF5 FLI Dataset Series Timestamps	File Paths occoording to the paths (dup) Patron in (no error)	Loads HDF5 FLI dataset gate images timestamps			
AlliGator Read HDF5 FLI Image Information	error in (no error) Image ROI Information learning Image Binning Options learning Image Information error out	Reads HDF5 FLI dataset image information.			
AlliGator Read HDF5 SSX Detector nformation	ref in SwissSPAD Detector Information error in (no error) error out	Reads HDF5 FLI dataset SSx detector information.			
AlliGator Select FLI Dataset Channel Name	Input Message Channel Names Error In Channel Arithmetic Cancelled? Error Out	Dialog window to select which SS3 channel to display.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Single SS3 Gate Slip Correction	Refnum in SS2 SS2 Last Strip Saturated?	Removes one of two sets of columns of a SS3 dataset to account for common FPGA data transfer issues.			
AlliGator SS3 Gates Slip Correction	Data Value Reference in State Value Reference out Message error in (no error) Message error out	Performs the column truncation for SS3 datasets needed to fix a common FPGA data transfer issue.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.15.2. Library Constant VIs

NOTE No Constant VIs Found

2.16. AlliGator Intensity Corrections.lvlib

Responsibility: VIs handling intensity correction to the Sum of All Gates image.

Version: 1.0.0.0

2.16.1. Functions

Table 15. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Define & Save Intensity Corrections File	[AlliGator Intensity Corrections.lvlib:AlliGator Define & Save Intensity Corrections File.vi]	UI to enter intensity correction sepcifications.			
AlliGator Get Dataset Series Timestamp & Intensity Correction	Corrections.lvlib:AlliGator Get Dataset Series	Get dataset timestamp and intensity corrections (if available and requested) or use defaults instead.			
AlliGator Load Intensity Corrections	Intensity Correction File Intensity Corrections Error In Message Error Out	Loads saved dataset series intensity corrections.			

Name	Connector pane	Description	S.	R.	I.
AlliGator MCP Voltage to Gain	MCP Voltage Gain MCP Parameters Gain	effective ICCD gain G and MCP voltage V_MCP.			
		The function used is a stretched exponential with vertical and horizontal offsets.			
		Parameters need to be fitted independetly with a G(V_MCP) series.			

Reentrancy: \square \rightarrow Preallocated reentrancy $\mid \square$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.16.2. Library Constant VIs

NOTE No Constant VIs Found

2.17. AlliGator Internal Variables.lvlib

Responsibility: VIs to access individual (or group of) internal data or variables using a data by value reference (DVR).

Version: 1.0.0.0

2.17.1. Functions

Table 16. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator IV [Raw Phasor Plot]	AlliGator IV DVR in [Raw Phasor Plots] Raw Phasor Plots] error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Average Lifetime Map	AlliGator IV DVR in [[Average Lifetime]] error in (no error) Get (F)/ Set (T) AlliGator IV DVR out [[Average Lifetime]] Single Data Point Path error out Amplitude Weighted Average	No description found (add content in vi description)			
AlliGator IV Calibration Phasor Map	AlliGator IV DVR in Phasor Calibration Map 2 Phasor Calibration Map 2 Phasor Calibration Map error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Calibration Phasor Series	AlliGator IV DVR in Calibration Phasor Series error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			

Name	Connector pane	Description	S.	R.	I.
AlliGator IV Calibration Phasor	AlliGator IV DVR out Calibration Phasor error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Clear Phasor Data	Data Value Reference in Data Value Reference out	No description found (add content in vi description)			
AlliGator IV Current Dataset	AlliGator IV DVR out Current Dataset error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Current Folder	AlliGator IV DVR in Current Folder error in (no error) Get (F)/ Set (T) AlliGator IV DVR out Current Folder error out	No description found (add content in vi description)			
AlliGator IV Dataset Path	AlliGator IV DVR in Single Data Point Path Time-Series Path error in (no error) Get (F)/ Set (T) AlliGator IV DVR out Single Data Point Path Time-Series Path) error out Current Dataset	No description found (add content in vi description)			
AlliGator IV Dataset Series Folder & Type	[AlliGator Internal Variables.lvlib:AlliGator IV Dataset Series Folder & Type.vi]	No description found (add content in vi description)			
AlliGator IV Decay Shift Plot	AlliGator IV DVR in AlliGator IV DVR out Decay Shift Plot in Decay Shift Plot out error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Decays Max & Min	[AlliGator Internal Variables.lvlib:AlliGator IV Decays Max & Min.vi]	No description found (add content in vi description)			
AlliGator IV Gate Image Slide	AlliGator IV DVR out Gate Image Slide error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Intensity Corrections	AlliGator IV DVR in AlliGator IV DVR out [Intensity Correction] Intensity Correction Intensity Correction] Intensity Correction Intensity Cor	No description found (add content in vi description)			
AlliGator IV Last Calibrated Phasor SDV	AlliGator IV DVR in Last Calibrated Phasor SDV error in (no error) Get (f)/ Set (f)	No description found (add content in vi description)			
AlliGator IV Last Calibrated Phasor	AlliGator IV DVR in AlliGator IV DVR out Last Calibrated Phasor error in (no error) error out Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Mask Image	AlliGator IV DVR in Mask Image error in (no error) Get (F)/ Set (T) AlliGator IV DVR out Mask Image error out	No description found (add content in vi description)			

Name	Connector pane	Description	S.	R.	I.
AlliGator IV Phasor Map	AlliGator IV DVR in [[CSG Phasor]] [[CSG Phasor]] error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Phasor Plot	AlliGator IV DVR in Phasor Plot Phasor Plot Phasor Plot Phasor IV DVR out Phasor Plot Phasor Plot Phasor IV DVR out Phasor Plot Phasor IV DVR out Phasor Plot Phasor IV DVR out Phasor Plot Phasor Plot Phasor IV DVR out Phasor Plot Phasor Phasor Plot Phasor Phaso	No description found (add content in vi description)			
AlliGator IV Phasor Plots Locked to Reference n	AlliGator IV DVR in Phasor Plot(s) locked to R [Phasor Plo	No description found (add content in vi description)			
AlliGator IV Phasor Ratio Map	AlliGator IV DVR in [[Phasor Ratio]] error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Reference Decay	AlliGator IV DVR in Reference Decay Plot Name Reference Decay Plot Name Reference Decay Plot Name Reference Decay Plot Name Error Out Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV ROI Decay	AlliGator IV DVR in Decay in Decay out Decay out error in (no error) Get (F)/ Set (T) AlliGator IV DVR out Decay out Valid Decay? Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV ROI Mask	AlliGator IV DVR in ROI Mask Image error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Selected Gate Images	AlliGator IV DVR in Pigher and AlliGator IV DVR out Pigher and In Selected Gate Images Error In Error Out	No description found (add content in vi description)			
AlliGator IV Selected Max or Sum Image	AlliGator IV DVR out Sum (T)/ Max (F) Error In AlliGator IV DVR out Current Folder Error Out AlliGator IV DVR out Faire Selected Gate Image (Sum/Max)	No description found (add content in vi description)			
AlliGator IV Single Fit Parameters	AlliGator IV DVR in Island State of the DVR out [Single Decay Fit Parameter]	No description found (add content in vi description)			
AlliGator IV Start Time	AlliGator IV DVR out Start Time error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Time Series Timestamps & Current Dataset	[AlliGator Internal Variables.lvlib:AlliGator IV Time Series Timestamps & Current Dataset.vi]	No description found (add content in vi description)			
AlliGator IV Type of Displayed Image	AlliGator IV DVR in Displayed Image error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator IV Valid Decay	AlliGator IV DVR in Valid Decay Get (F) / Set (T)	No description found (add content in vi description)			

Name	Connector pane	Description	S.	R.	I.
AlliGator IV White Light Image	AlliGator IV DVR in White Light Image error in (no error) Get (F)/ Set (T)	No description found (add content in vi description)			
AlliGator Update IV Calibration Phasor	AlliGator IV DVR in Use Last Raw Phasor Phasor error in (no error)	No description found (add content in vi description)			

Reentrancy: □ → Preallocated reentrancy | □ → Shared reentrancy

Inlining: → Inlined

2.17.2. Library Constant VIs

NOTE No Constant VIs Found

2.18. AlliGator Lifetime.lvlib

Responsibility: VIs handling lifetime plots (Lifetime & Other Parameters Graph).

Version: 1.0.0.0

2.18.1. Functions

Table 17. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Add Average Lifetime to Plot	New Plot Name Plot ID (-1) Lifetime Graph refnum Abscissa Average Lifetime error in (no error) Average Lifetime error out	Adds a single lifetime data point to a plot.			
AlliGator Add Decay Shift to Plot	Decay Shift —	Adds timestamp and decay shift to internal variables when computing a new decay.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.18.2. Library Constant VIs

NOTE No Constant VIs Found

2.19. AlliGator Local Decay Window.lvlib

Responsibility: VIs used with the Local Decay Window.

Version: 1.0.0.0

2.19.1. Functions

Table 18. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Decay Window	Decay	Local Decay Window UI. This window displays the decay (and when available, IRF, fit and residuals) at the selected ROI.			
AlliGator Get Local Fit & Residuals	[AlliGator Local Decay Window.lvlib:AlliGator Get Local Fit & Residuals.vi]	Gets the fit and residuals for the selected ROI.			
AlliGator Send Local Decay Plots	AlliGator IV DVR in ROI Descriptor error in (no error)	Gets the data (decay, fit, IRF, residuals and fit parameters) at the selected ROI and sends it to the Local Decay Window for update.			
AlliGator Update Local Decay Graph	XY Graph Refnum Profile Window Data Error In	Updates the Local Decay Window graph.			

Scope: σ \rightarrow Protected | σ \rightarrow Community

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.19.2. Library Constant VIs

NOTE No Constant VIs Found

2.20. AlliGator Python Plugins.lvlib

Responsibility: VIs handling python plugins.

Version: 1.0.0.0

2.20.1. Functions

Table 19. Functions (non private scope only)

Name	Connector pane	Description	s.	R.	I.
AlliGator Add Python Functions to Menu	Menu in Object Context Menu? Parent Menu Tag error in (no error)	Adds python function found in script to corresponding menu in AlliGator.			
AlliGator Add Python Functions to Object Menu	Object Refnum Object Refnum dup Menu in Menu out error in (no error) error out	Adds python function to object menu.			
AlliGator Export Plugin Parameters to Clipboard	AlliGator IV DVR Parameter Names only Error In	Sends a string containing all parameters, internal variables and data accessible to python plugins.			
AlliGator Find Object Python Function Information	Object Refnum Menu Item Tag error in (no error) Python Function Info Menu Item Tag (dup) Found? Found? error out	Gets object's python function's information			
AlliGator Find Python Function Information	Function Menu Item Tag - error out error in (no error) - Found?	Gets python function's information.			
AlliGator Format Path String for Python	Python Plugin Dialog Output Error In Error Out	Formats path for python function consumption.			
AlliGator Get Message & Parameters from JSON Output		Interprets JSON string output and formats it to be sent to the Notebook.			
AlliGator Get Python Function Parameter Values Dialog	Parameters Out Parameters In Error In Error Out	Dialog to allow user to enter python function parameters.			
AlliGator Get Python Session ID	Python Plugins Folder Path Error In Python Session Valid Python Session Fror Out Message	Gets the current (or creates a new) python session ID.			
AlliGator JSON Output Warning	JSON Element Name Function Name error in (no error) error out	Formats error message with python function information.			

Name	Connector pane	Description	S.	R.	I.
AlliGator JSON String to Settings Parameter	AlliGator Settings List Ele Variant (JSON) error in (no error) error out	Decodes JSON python ouput string.			
AlliGator Parameter Type to Default Value String	Parameter Type Default Parameter String	Returns default value of input parameter type.			
AlliGator Plugin Target to Submenu	Function Target Type Menu Tag Function Target Type Subtlement S	Convert Plugin Target to Menu Tag for insertion of the menu item. For plugins associated with objects such as Source Image or Decay Graph, the insertion takes place at the bottom of contextual menu and thus an empty string is provided. For plugins associated with data not exposed to the user (such as the Gate Series), the plugin menui is added to the main menu, and thus the tag of the submenu in which it will be inserted needs to be provided.			
AlliGator Python Plugin Function Doc String	String in Source Doc String Error In String Out	Extracts doc string from python function.			
AlliGator Python Plugin is Function a Plugin	String in String out First Is AlliGator Python Plugin? Error Out	Checks for the presence of the # IsAlliGatorPythonPlugin # tag in the python function.			
AlliGator Python Plugin Plot Data Type	Function Name error in (no error) Type of Plot Data error out	Looks at the python function name to figure out whether it acts on "All Plots" or "Selected Plots".			
AlliGator Python Plugin Valid Input Datatype	Input Datatype Valid Datatype?	Checks whether the input datatype is valid.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Python Plugin Valid Output Datatype	Output Datatype Valid Datatype?	Checks whether the output datatype is valid.			
AlliGator Python Plugin Valid Output Destination	Output Destination Valid Destination?	Checks whether the output destination is valid.			
AlliGator Send Python Function Doc String to Notebook	Target Message Proof Out	Sends python function doc string to Notebook.			
AlliGator Run XY Graph Python Function	data value reference in Data Value Reference out Mouse Click Event Data Python Function Info error in (no error) AlliGator Ctrl Refnums	Calls a XY Graph-associated python function.			
AlliGator XY Graph Python Function Handler Core	data value reference in Morau Data Value Reference out XY Graph Event Message error in (no error) Error out AlliGator Ctrl Refnums	Calls XY Graph-associated python function.			
AlliGator Add Missing Parameter Map Parameters	Parameter Names [Decay Fit Parameter Name] out Parameter_Hattened_Map in Parameter_Fattened_Map out Error in First Parameter_Fattened_Map out Error Out	Complements python function output parameter map by adding "NaN" instead of the missing parameters. The map needs to be complete to be displayable in AlliGator, even though the python function might only ouput a few parameters.			
AlliGator FLI Dataset Python Function Handler Core	Item Tag Data Value Reference in Current Data error in (no error) Resage error out	Calls FLI Dataset python function.			
AlliGator Parameter Names to Parameters List	Parameter Names [Decay Fit Parameter Name] The complete Map Complete Map	Converts parameter names to an array of enums.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Pythin Plugin Get FLI Dataset	Data Value Reference out AlliGator Parameter Names N Current Data error in (no error) Parameter Names N FLI Dataset_Data error out	Gets FLI Dataset and related information to pass to a python plugin.			
AlliGator Python Plugin Get FLI Dataset Data	AlliGator DIV DVR in Error In SGL Gate Images Error Out Image Mask (U16)	Gets FLI Dataset Images and Reference Decay for python plugin call.			
AlliGator Run FLI Dataset Python Function	Data Value Reference in Python Function Info Function Info Function Output Destination Current Data Provided Function (no error) Function (no error) Function Output Destination Current Data Value Reference out Function Output Destination Output Des	Runs FLI Dataset python plugin function.			
AlliGator Pythin Plugin Get Reference Decay	Data Value Reference out AlliGator Parameter Names in Reference out AlliGator Parameter Names out error in (no error) Found?	If AlliGator Parameter Names in contains 'Reference Decay', returns the Reference Decay cluster and removes 'Reference Decay' from AlliGator Parameter Names out. Sets the Found? flag to TRUE. Otherwise, do nothing and returns the default cluster and set the Found? flag to FALSE			
AlliGator Add Plugins to Main Menu	Menu in Menu out error in (no error) error out	Adds python functions to the corresponding AlliGator submenus. If a submenu is empty, deactivates it.			
AlliGator Check Invalid Python Plugin Input Parameter Types	Invalid Parameter Types Source error in (no error) error out	Formats error with invalid input parameter message.			
AlliGator Check Invalid Python Plugin Output Destination	Valid Destination? error in (no error) error out	Outputs warning message with invalid destination.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Check Invalid Python Plugin Output Value Type	Source Valid Output Value Type? error in (no error) error out	Outputs warning with invalid output value type			
AlliGator Check Missing Python Plugin Doc String	Source error in (no error)	Outputs warning with missing doc string message.			
AlliGator Check Missing Python Plugin Function Name	Function Name Found Source error in (no error) error out	Outputs warning with missing function name.			
AlliGator Check Missing Python Plugin Input Section	Source error in (no error) error out	Outputs warning with missing input section.			
AlliGator Check Missing Python Plugin Output Section	Source Output Section Found error in (no error) error in (no error)	Outputs warning with missing output section.			
AlliGator Check Valid Python Plugin Target	Target Found? Source error in (no error) Target Fine Target error out	Outputs warning with missing python plugin target.			
AlliGator Clear Unknown Python Error	error in (no error) error out	Clears unknown python function error (i.e. code != 1672).			
AlliGator Close Python Session	Error In Message	Closes python session with message.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Decode Python Plugin Output Section	Source Function Outputs error in (no error)	Looks for Python Plugin Header and Footer and returns: - String before Header - Output Type - Output Destination String before Header: isf the section is not found (no header or no footer), the input string is passed unchanged. If the section is found, the part that			
AlliGator Get	Function Display Name Function Parameters Function Parameters JSON St error in (no error)	preceded that section is returned, Gets requested parameter names from the			
Python Plugin Function Parameters String		python function description, opens up a dialog window to allow the user to enter the required parameters, and builds a JSON string to pass those parameters (names and values) to the python function.			
AlliGator Get Python Plugin Functions List	Python Plugins Folder Path Array of Python Functions Include Example Plugins Error In	Extracts list of python plugin functions from the Python Plugin folder.			
AlliGator Get Python Script Function List	File Path Array of Python Functions Info Parent Menu Locations error in (no error) Parent Menu Locations error out	Extracts list of python plugin functions and their information from python script.			
AlliGator Get Python Functions List in Scripts	All Files in Dir Array of Python Functions error in (no error) error out	Gets python functions list in scripts array.			
AlliGator Parse Python Function Input Parameters	Source Function Input Parameters Error In	Looks for Python Plugin Input Paramater Section Header and Footer and returns the parameter names, types and descriptions If the section is found, the part that follows that section is returned.			
AlliGator Python Plugin Function Offsets	String in String in (dup) Error In Function Offsets Error Out	Finds function definition section Offsets . Returns the script part preceding the first function as Script Header .			

Name	Connector pane	Description	S.	R.	I.
AlliGator Python Plugin Get Function Name	String in String out Source Is preceded by Separator Fror In Error Out	Returns function name and whether the function should be preceded by a separator in the menu.			
AlliGator Python Plugin Target Information	Script Header Function Target Windows error in (no error) Function Target Types Parent Menu Locations error out	Extracts information on the python plugin target(s).			
AlliGator Reset Python Session	Python Session Include Example Plugins Valid Python Session error in (no error) Wessage	Resets python session.			
AlliGator Unzip Python Plugins	Application Directory Python Plugins Folder Error In Error Out	Unzips python plugin archive provided with AlliGator installation.			
AlliGator Image Python Function Handler Core	Image Event Data Value Reference in error in (no error) Message error out	Runs image-related python plugin function.			
AlliGator Run Source Image Python Function	Data Value Reference out Python Function Info Source Image error in (no error) Pata Value Reference out Message error out	Runs image-related python function.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: \overrightarrow{a} \rightarrow Inlined

2.20.2. Library Constant VIs

NOTE No Constant VIs Found

2.21. AlliGator ROIs.lvlib

Responsibility: VIs handling ROI actions.

Version: 1.0.0.0

2.21.1. Functions

Table 20. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Create Complement ary ROI	Image Label Image ROI Error In	Computes complementary ROI and adds it to the ROI list.			
AlliGator Create Individual Pixel ROIs from ROI	Y Resolution X Resolution X Resolution End of the state o	Converts a closed ROI into a series of single-pixel ROIs.			
AlliGator Find ROI Name	ROI Descriptor Image Control ROI Description Found? Found? Found? Found F	Looks for the stored ROI having thes same definition as the input ROI and returns its name if found.			
AlliGator Get Current ROI Name	Current ROI Name	Returns the current ROI name.			
AlliGator Get ROI Components	Stored ROIs Descriptors Non-in-in-in-in-in-in-in-in-in-in-in-in-in	separates stored ROIs information into arrays of: - ROI Descriptors - ROI Names - Overlay Colors			
AlliGator Get ROI Names	Stored ROIs in ROINam ROIName	Returns list of ROI names.			
AlliGator Load ROI v3	Source Image Refnum Dialog (T) Destination Image (Source I Error In File Path # ROIs Loaded Message Updated ROIs Current ROI Error Out Phasor Plot Image Time (s)	When invoked from a context menu, used Dialog for file selection: the Dialog flag should be set to True (default) and the Destination Image string is ignored. When invoked from a drag & drop event, the Dialog flag should be set to False and the Destination Image (Source Image or Phasor Plot Image) should be provided.			
AlliGator Preview ROI File	File Path #ROIs Loaded Destination Image Rois Plot Image Error In From Out	Returns information on ROIs stored in the file.			
AlliGator ROI Analysis Script	Image ROI Decay Graph OR Phasor Graph Error In	Actions needed to extract the decay corresponding to the current ROI or input ROI and compute its phasor.			
AlliGator Save ROI(s)	Current Dataset Name Image Label All ROIs? ROI Descriptor Error In	Saves one or more ROIs.			
AlliGator Save Multiple ROIs v3	ROI Description Destination Folder (Default Default File Name Error In	Save multiple ROIs.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Save ROI v3	ROI Description Single Error In Error Out	Saves single ROI.			
AlliGator Set New ROI Name	Stored ROIs in ROI Name in ROI Name out Default Name ("")	Sets new ROI name (verifies that the input name is not already used).			
AlliGator Update ROI After Mouse Release	Profile Tool? (F) ROI Descriptor Not Zoom or Pan? (T) Shift Key? (F) Error In Phasor Image? (F)	Builds list of actions handling ROI update following a mouse release event.			
AlliGator Get Phasor Plot ROI Event Refnum	Phasor Plot ROI Event Refnum	Returns the Phasor Plot Image ROI Event refnum.			
AlliGator Get Phasor Plot ROIs, Names & Current ROI	[AlliGator ROIs.lvlib:AlliGator Get Phasor Plot ROIs]	Returns all ROIs and their names as well as the index of the current ROI.			
AlliGator Phasor Plot Image Edit ROI Name	ROI Name in ROI Name out	Changes current Phasor Plot image ROI name.			
AlliGator Phasor Plot Image ROI Storage [MULT] v3	[AlliGator ROIs.lvlib:AlliGator Phasor Plot Image ROI Storage [MULT] v3.vi]	Handles multiple Phasor Plot image ROIs storage.			
AlliGator Phasor Plot Image ROI Storage [SGL] v3	Plot Image ROI Storage	Handles single Phasor Plot image ROI storage.			
AlliGator Phasor Plot ROI Manager	Alligator Pharor Plat ROI Manager	Phasor Plot image ROI list display UI.			
AlliGator Quit Phasor Plot Image ROI Manager	Error In Phwer Error Out	Handles Phasor Plot image ROI Manager quit event.			
AlliGator Select Phasor Plot ROI	ROI Selection Data Error In Error Out	Handles Phasor Plot image ROI selection.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Compute & Plot All ROIs Characteristi	[AlliGator ROIs.lvlib:AlliGator Compute & Plot All ROIs Characteristics.vi]	Computes all Source Image ROI characteristics and sends them as plots to the Lifetime & Other Parameters Graph.			
AlliGator Create Source Image Contour ROI	ROI Mask Image ROI Error In Image Label	Create new Source Image ROI consisting of the contour of the input ROI.			
AlliGator Create Source Image ROI Grid	ROI Message Create ROI Grid Error In	Creates a series of Source Image ROIs layed out on a grid.			
AlliGator Add Multiple Source Image ROIs	ROI Mask Image Path ROIs Error In	Adds multiple Source Image ROIs to ROI storage.			
AlliGator Get All Image ROIs	All Image ROL ROL	Returns all Source Image ROI names.			
AlliGator Get Source Image ROI Event Refnum	Source Image ROI Event Refnum	Returns the Source Image ROI Event refnum.			
AlliGator Get Source Image ROIs, Names & Current ROI		Returns list of store Source Image ROIs, their names and the index of the current ROI.			
AlliGator is Full-Frame ROI	ROI Descriptor in ROI Descriptor (dup) Full-Frame ROI? Full-Frame ROI? error out	Checks whether the Source Image ROI is a full-frame ROI.		S	>
AlliGator Mask Image to ROIs	Data Value Reference in Mask Image Name (Default: n Message error in	Define ROIs as sets of Mask Image pixels with identical integer values. If the Mask Image Name parameter is left unconnected (or is an empty string), the file name of the loaded Mask Image is used as a prefix to all ROI names.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Quit Source Image ROI Manager	Error In Error Out	Handles Source Image ROI manager quit event.			
AlliGator Reject Source Image ROIs based on Characteristi cs	Source Image Refnum ROI Mask Refnum ROI or ROI Characteristics String error in (no error) ROI characteristics String error out	Computes ROI characteristics and compare them to the conditions defined by the user in a dialog box. Keeps only the ROIs that meet those conditions.			
AlliGator ROIs to Mask Image	Data Value Reference in Data Value Reference out All ROIs? Hessage error in error out	Uses existing ROIs to build a mask image summarizing their information. Define ROIs as sets of Mask Image pixels with identical integer values.			
AlliGator Select Source Image ROI	ROI Selection Data Error In # ROIs ROI Descriptor ROI Name Overlay Color Error Out Current ROI	Selects Source Image ROI(s).			
AlliGator Set Source Image ROI ID	New ROI ID Error In Allieston Set Image ROI ID Error Out	Change the selected Source Image ROI ID.			
AlliGator Source Image Edit ROI Name	ROI Name in ROI Name out old ROI Name in accepted?	Changes current Source Image ROI name.			
AlliGator Source Image ROI Manager	Alligator Source Im. ROI Manager	Source Image ROI list display UI.			
AlliGator Source Image ROI Storage [MULT] v3	[AlliGator ROIs.lvlib:AlliGator Source Image ROI Storage [MULT] v3.vi]	Handles multiple Source Image ROIs storage.			
AlliGator Source Image ROI Storage [SGL] v3	[AlliGator ROIs.lvlib:AlliGator Source Image ROI Storage [SGL] v3.vi]	Handles single Source Image ROI storage.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy \mid \blacksquare \rightarrow Shared reentrancy

Inlining: → Inlined

2.21.2. Library Constant VIs

NOTE No Constant VIs Found

2.22. AlliGator Scripts.lvlib

Responsibility: AlliGator actions performing a series of sequential tasks.

Version: 1.0.0.0

2.22.1. Functions

Table 21. Functions (non private scope only)

Name	Connector pane	Description	s.	R.	I.
AlliGator Calibrated Phasor Map Series Dialog	error in (no error) Calibration Map/Gate Step List Destination Folder File Name (# Steps will be Save Phasor Map error out OK	Dialog window to enter the information eeded to run the Calibrated Phasor Map Series script.			
AlliGator Calibrated Phasor Maps Series Script	Phasor Graph refnum Alligator Queue Elements in Alligator Queue Elements out Calibration Mag/Cate Step List of Destination Folder File Name (# Steps will be Save Phasor Plot Error In	Loops through a series of FLI Dataset files, loads them with the specified gate step, and performs an All ROIs Phasor Analysis, using the resulting phasor plot as Phasor Calibration Map. This map is then save and optionally, the phasor plot as well.			
AlliGator Clear Internal Variables before Script	AlliGator Internal Variable [Time-Series Path] Error In Error Out	Clears internal data structure before a script.			
AlliGator Get Series Analysis Type	Menu Tag Series Analysis Type Series Analysis Type Analysis Series Analysis Type	Decodes menu tag to determine whether an action is limited to the Current ROI or All ROIs .			
AlliGator Get Series Dataset Type	AlliGator Dataset Series Type Series Series Series	Converts Dataset Series type to FLI Dataset type enum.			
AlliGator Get Series Subfolders Information	Files in the Root Folder dup directory path pattern Sorted Subfolder Names error in (no error) ### Files Same # Files?	Returns a breadown of the folder's content for subsequent script actions.			
AlliGator Get- Set Data Information	Data Information in error in (no error) Get (F)/Set (T) Data Information out error out	Gets/Sets Dataset Information stored in the Settings Storage.vi			

Name	Connector pane	Description	s.	R.	I.
AlliGator Get- Set Loading & Pre- Processing Options	Scripts.lvlib:AlliGator Get-	Gets/Sets Data Information , Source Image Settings and Decay Preprocessing from/in the Settings Storage.vi.			
AlliGator Get- Set Source Image Settings	Source Image Settings in Source Image Settings out in (no error)	Gets/Sets Source Image options.			
AlliGator IV Script Destination File Path	Destination File Path	Gets the Script Destination File Path internal variable.			
AlliGator Load ROIs, Select one ROI (& Convert to Pixel ROIs) Script	[AlliGator Scripts.lvlib:AlliGator Load ROIs]	Script loading the selected ROI from a multi-ROIs file, This requires a number of subsequent steps that are queued by this script.			
AlliGator Load, Merge & to Pixel ROIs Script	[AlliGator Scripts.lvlib:AlliGator Load]	Loads a (multi-) ROI(s) file and merges all the ROIs (including the existing ones), before converting it to a list of single-pixel ROIs.			
AlliGator Logistic Square Gated IRF Characteristi cs Map	AlliGator Internal Variable Cursor Names Array error in (no error) AlliGator Internal Variable Message error out	Computes the decays of all ROIs and fits them with a logistic square gate model. Saves the results in an ASCII file.			
AlliGator Logistic Square Gated IRF Fit Result File String	ROI Descriptor Fit Output Delta Best Fit Parameters error in (no error) Header String Result String	Builds string containing the output of a logistic square gate fit.		5	
AlliGator NLSF & Phasor Multi- ROI Analysis Dialog	[AlliGator Scripts.lvlib:AlliGator NLSF & Phasor Multi-ROI Analysis Dialog.vi]	Dialog window to set up a multi-ROIs single-pixel NLSF analysis of a FLI dataset.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Phasor Calibration Map Series Dialog	error in (no error) File Name (# Steps will be Destination Folder Gate Step Series Phasor Calibration Dataset OK error out	Dialog to enter the parameters necessary for the calculation of a Series of Phasor Calibration Maps differing by the gate step used when loading the FLI dataset.			
AlliGator Phasor Calibration Maps (# Gates Series) Script	[AlliGator Scripts.lvlib:AlliGator Phasor Calibration Maps (Gates Series) Script.vi]	Series of Phasor Calibration Map differing by the gate step used when loading the FLI dataset script.			
AlliGator Playback Time-Gated Data Series v2	Save Phasor Plot with Overlay Save Image with Overlay Alligator Queue Elements out Series Faths Displayed Image Time Slider Refraum Error In Alligator Data Series Type Playback (17/Loop (T)	Launches the playback of a FLI dataset series.			
AlliGator Save Single Phasor Plot Script	Phasor Graph Refnum Destination Folder path Plot Name Error In	Script used to save the last Phasor Plot in the Phasor Graph with the specified name and folder.			
AlliGator Script Current ROI Time-Gated Data Series NLSF Analysis v1	Alligator Queue Elements out Path Time-Series Paths AlliGator Ctrl Refnume Error In AlliGator Data Series Type	Script performing NLSF analysis of the current ROI for the series of FLI dataset in the provided folder.			
AlliGator Script Current ROI Time-Gated Data Series Phasor Analysis v2	Alligator Queue Elements in Path Tame-Series Paths AlliGator Ctrl Refnums Error In Error Out AlliGator Data Series Type	Script computing a phasor plot consisting of the current ROI's phasor in the FLI dataset series.			
AlliGator Script Export ROI Fit Parameters as ASCII	XYGraph in # ROIs Loaded Results Folder Message Dataset Name Fror In Error Out Decay Fit Parameter to Save Bins Array	Script saving the Decay Fit Parameter Map parameters selected by the user to individual ASCII files (one file per parameter per ROI). This script works for a single ROI or all ROIs.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Script Multi- ROI Single- Pixel NLSF Analysis	Dataset Loading & Pre-proces IRE Loading & Pre-processin Litetime Graph Refinum Phasor Graph refinum Phasor Graph refinum Alligator Queue Elements in RF File Dataset File Dataset File Decay Fit Parameter to Save Error In Results Folder Bins Array	Scripts performing NLSF analysis of all pixels in all ROIs, using individual IRFs if provided.			
AlliGator Script Multi- ROI Single- Pixel Phasor Analysis	Dataset Loading & Pre-processin. IRF loading & Pre-processin. Lifetime Graph Refnum Phasor Graph refnum Alligator Queue Elements in RF File Dataset File Firor In Results Folder Phasor Parameters Scatter Plot	Scripts performing phasor analysis of all pixels in all ROIs, using individual IRFs if provided.			
AlliGator Script Open Mask Image	Image Path Action List out Error In	Script used to open a Mask Image and identify the corresponding ROIs.			
AlliGator Script Open White Light Image	Image Path White Im Error Out	Script used to open a White Light Image .			
AlliGator Script Sequential ROIs Time- Gated Data Series NLSF Analysis	Alligator Queue Elements in Path Path Time-Series Paths AlliGator Ctrl Refnums Error In AlliGator Data Series Type	Script performing NLSF analysis of a different ROI for each dataset in a series. This is used for instance if the ROI list is representing the successive locations of an object being tracked across the dataset series.			
AlliGator Script Sequential ROIs Time- Gated Data Series Phasor Analysis	Alligator Queue Elements out Path 15th 15th 15th 15th 15th 15th 15th 15	Script performing phasor analysis of a different ROI for each dataset in a series. This is used for instance if the ROI list is representing the successive locations of an object being tracked across the dataset series.			
AlliGator Square Gated IRF Characteristi cs Map	AlliGator Internal Variable error in (no error) error out	Performs a crude square gate analysis of all ROI decays and saves the gate parameters in an ASCII file.			
AlliGator Tilted Square Gated IRF Characteristi cs Map	AlliGator Internal Variable Cursor Postinos Array Cursor Names Array error in (no error)	Performs a tilted logistic square gate NLSF analysis of all ROI decays and saves the gate parameters in an ASCII file.			

Name	Connector pane	Description	S.	R.	I.
AlliGator	LITOT III Playback				
Toggle (Loop)		end of the series) to looped playback or			
Playback		vice versa.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy \mid \blacksquare \rightarrow Shared reentrancy

Inlining: \rightarrow Inlined

2.22.2. Library Constant VIs

NOTE No Constant VIs Found

2.23. AlliGator Settings.lvlib

Responsibility: VIs handling user-defined parameters.

Version: 1.0.0.0

2.23.1. Functions

Table 22. Functions (non private scope only)

Name	Connector pane	Description	s.	R.	I.
AlliGator Check Fit Options	Use Data Information Period MLE Options Visible? Modified Option error in (no error)	Handles user-initiated parameter changes in the Fit Options panel.			
AlliGator Compute Natural Frequency	Alligator Laser Period Natural Frequency Error Out	Computes the "natural" phasor frequency as a functions of various settings parameters.			
AlliGator Export Settings Parameter JSON String to Clipboard	Error In Error Out	Reads the control's value and creates a JSON string describing it and copies it into th clipboard.			
AlliGator Gate Separation (ns)	Gate Separation (ns) error in (no error) Separation error out	Returns the Gate Separation settings parameter.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Get Available Fitting Parameters	Parameter Names Missing Parameter Names Faller Fal	Returns list of parameters not in the Parameter Names list.			
AlliGator Get Control Label & Settings Element	_	Returns the label string of the Settings control whose CtlRef refnum is provided, as well as the corresponding AlliGator Settings List enumerated value.			
AlliGator Get Control Notebook String	Control Label Value Prince Provided Prince Provided Prince	Formats the input Value of the control whose Control Label is provided into a string. A special case is needed when units are involved, otherwise the default case should be able to handle all other cases.			
AlliGator Get Phasor Ratio Interpolated Color Scale	Reference 1 Color Reference 2 Color Reference 2 Color Error In	Builds a Interpolated Color Scale Definition based on the colors associated with both references.			
AlliGator Hot Pixel Removal Options String	Image Display Options Heat Place Place	Builds a string defining the hot pixel removal options.			
AlliGator Init Settings v2	Settings Panel (Empty: All) Parameters to set to Default error in error out	Resets selected Settings parameters to their default values.			
AlliGator Laser Period	T Laser Period	Settings Data Information:Laser Period value.			
AlliGator Nanotime Gate Separation	® Nanotime Gate Separation	Settings Data Information:Nanotime Gate Separation value.			
AlliGator Number of Gates	⑤—— # Gates	Settings Data Information:# Gates value.			
AlliGator Phasor Frequency	F Phasor Frequency	Settings Data Information:Phasor Frequency value.			
AlliGator Refresh All Settings	VI Refnum in Verbose (T) Error In	Reads all Settings values and refresh the corresponding controls and indicators with those values.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Refresh Single Setting	Verbose (T) VI Ref in Control Label Data Error Out	Refresh the control with Control Label with the provided Data . Optionally sends this label and value to the			
		Notebook.			
AlliGator Remove Duplicated Fit Parameter Constraints	Old Constraints New Constraints in Error In Error In	Removes any potential duplicate entries in the array of fit parameter constraints.			
AlliGator Reorder Decay Pre- processing Operations	Ring in Alliqueter Reporter Perror In Proof Out	Dialog window allowing the user to reorder decay pre-processing steps.			
AlliGator Save-Load Parameter Map Color Palette List	Refnum in Refnum out Load(F)/Save Promote error in (no error) error out	Loads/Save the list of palettes used for the Decay Fit Parameter Map in the AlliGator Settings ini file.			
AlliGator Save-Load Phasor Plot Color Palette List	Refnum in Refnum out Load(F)/Save Page error out error in (no error)	Loads/Save the list of palettes used for the Phasor Plot in the AlliGator Settings ini file.			
AlliGator Save-Load Settings	AlliGator Refnum in File Path out Error In Load(F)/Save (T)	Use this file to Save or Load AlliGator's settings to an ini file. If the File Path input is left unconnected, the defaut ini file is used (overriding the current ini file).			
		To save settings in a user-specified location, either provide a valid path, or connect a "Not a Path" constant to the input. A File Dialog window will then open to allow the user to choose a path.			
AlliGator Save-Load Source Image Color Palette List	Refnum in Several Refnum out Load(F)/Save error in (no error)	Loads/Save the list of palettes used for the Source Image in the AlliGator Settings ini file.			

Name	Connector pane	Description	s.	R.	I.
AlliGator Save-Load Source Image Overlay Color Palette List	Refnum in Refnum out Load(F)/Save Refnum out Profit Refnum out Pro	Loads/Save the list of palettes used to overlay a phasor-based map on the Source Image in the AlliGator Settings ini file.			
AlliGator Set Phasor Ratio Display Range	Phasor Ratio Display Range Renal Display Phasor	Constrains the sliders of the Phasor Ratio (or other parameter) Range to the displayed slide's min and max values.			
AlliGator Settings Array	AlliGator Settings Array	Returns the complete list of settings parameters (values of the enumerated constant).			
AlliGator Settings Control Label to Element	Control Label Substitute	Convert Control label to Settings Parameter List enum.			
AlliGator Settings Element to Control Label		Returns the last string after the rightmost semicolon in the parameter's name., which corresponds to the control's label.			
AlliGator Settings Event Refnum	AlliGator Settings Event Re Error In Lerror Out	Sends user event to the Settings window.			
AlliGator Settings Names	Settings Name Array Para Settings Name Array Namer Settings Name Array (lower	Returns the list of settings parameter names stored internally.			
AlliGator Settings Storage	Variant Data in Error In Get(F)/Set Variant Data out Error Out	Get/Set Settings parameter values using variant attributes.			
AlliGator Settings to String v2	Settings to Export (All) error in (no error) Message error out	Returns a string listing all or only the selected settings.			
AlliGator Settings Window	Sottings	GUI providing access to settings parameters for all aspect of AlliGator's functions.			
AlliGator Special Controls Update	VI Refnum AlliGator Settings List Ele error in (no error) VI Refnum (dup) Special VI Name Message Error Out	Handles update of some Settings controls & indicators as a result of settings changes.			
AlliGator SYNC Period	€ SYNC Period	Returns the SYNC Period stored in Settings.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Update Channel File Settings	Available Channel Names Selected Channel Name Channel Arithmetic Error In	Updates the values of the Channel Name and Channel Arithmetic controls, as well as of the hidden Available Channel Names indicator.			
AlliGator Update Settings & Control	[AlliGator Settings.lvlib:AlliGator Update Settings & Control.vi]	Updates the Control whose reference or label is passed. The Settings window is updated as well (or if the Settings Window is the sender, AlliGator is).			
AlliGator Update Settings Available Channel Names	Gate Name Refnum Usdate U	Updates the Channel Name control in the Settings window.			
AlliGator Update Settings Dataset Channel	AlliGator Queue Selected Channel Initialization? error in (no error)	Updates Source Image according to the Selected Channel .			
AlliGator Update Settings Decay Shift Parameters Visibility	Shift Parameters Refnum error in Shift Parameters Refnum error out	Updates the visibility of controls related to shift pre-processing operations.			
AlliGator Update Settings Fit Options Laser Period	Fit Options Refnum Use Data Information Laser error in (no error) Fit Options Refnum	Updates the Fit Options cluster's Laser Period obtained from the Data Information tab ot the Settings if the User Data Information Period option is selected.			
AlliGator Update Settings Fit Options	Fit Options Refnum Use Data Information Laser error in (no error) error out	If the Laser Period parameter of the Fit Options is modified, and it is different from the value associated with the dataset, toggles the Use Data Information Laser Period checkbox off.			
AlliGator Update Settings Guess Parameter Arrays	Modified Control Guess Parameter Array Guess Parameter Names Old Value Error In	Handles user modifications of the Guess Parameter Names and/or Guess Parameter Values in the Settings window. Ensures that both arrays have the same size.			

Name	Connector pane	Description	S.	R.	I.
AlliGator Update Settings IRF Analysis Method Control	error in (no error) Message error out	Update decay shifting parameters in the Settings window.			
AlliGator Update Settings Python Options & Valid Flag	[AlliGator Settings.lvlib:AlliGator Update Settings Python Options & Valid Flag.vi]	Updates Python Plugins options and Valid Session flag in the Settings window.			
AlliGator Update Settings Python Options	error in (no error) error out	Updates Python Plugins options in the Settings window.			
AlliGator Update Settings SEPL Parameters	Gate Parameters Refnum # Gates Gate Separation Error In Gate Duration	Updates SEPL parameters in the Settings window.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy $\mid \blacksquare$ \rightarrow Shared reentrancy

Inlining: → Inlined

2.23.2. Library Constant VIs

NOTE No Constant VIs Found

2.24. AlliGator Shot Noise Influence on Average Lifetime.lvlib

Responsibility: VIs used for the Shot Noise Influence on Average Lifetime Analysis Tool.

Version: 1.0.0.0

2.24.1. Functions

Table 23. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
AlliGator Compute Shot Noise Average Lifetime Simulation Histograms	Histogram Bin Size Average Lifetimes (Pure Poi Average Lifetimes (AlliGator) Lifetime Histo Percentiles Array Statistic (AlliGator) Lifetime Histo Percentiles Average Lifetime SDVs (Alli Error Out Histogram Bin Size (SDV) SDV Histo Percentiles	Computes histograms and summary statistics for the computed lifetimes.			
AlliGator Shot Noise Influence on Average Lifetime	Statistics	Main window of the Shot Noise Influence on Average Lifetime tool.			
AlliGator Simulate Average Lifetime of Linear Combination	Simulation Parameters Phasor Phasor Parameters Phasor Parameters Phasor Phas	Performs the simulations used in the Shot Noise Influence on Average Lifetime tool.			

Reentrancy: \blacksquare \rightarrow Preallocated reentrancy \mid \blacksquare \rightarrow Shared reentrancy

Inlining: → Inlined

2.24.2. Library Constant VIs

NOTE No Constant VIs Found

Chapter 3. Legal Information

3.1. Document creation

This document has been generated using the following tools.

3.1.1. Antidoc

Project website: Antidoc

Maintainer website: Wovalab

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3.1.2. Asciidoc for LabVIEWTM

Project website: Asciidoc toolkit

Maintainer website: Wovalab

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3.2. Product used in the project

Antidoc hasn't been able to detect third party products in the project. This is the author's responsibility to list any of the missing product used.