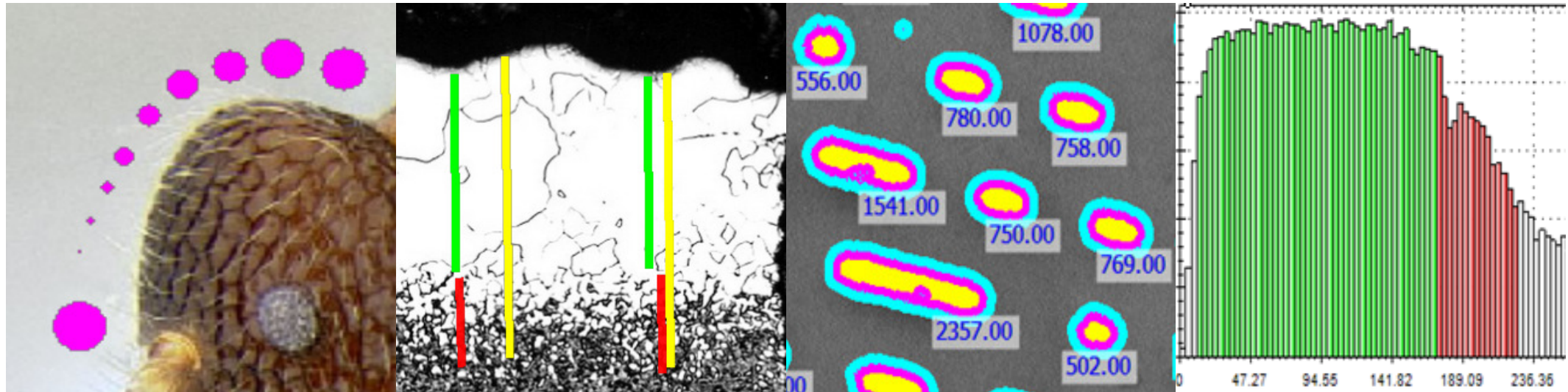


Living up to Life



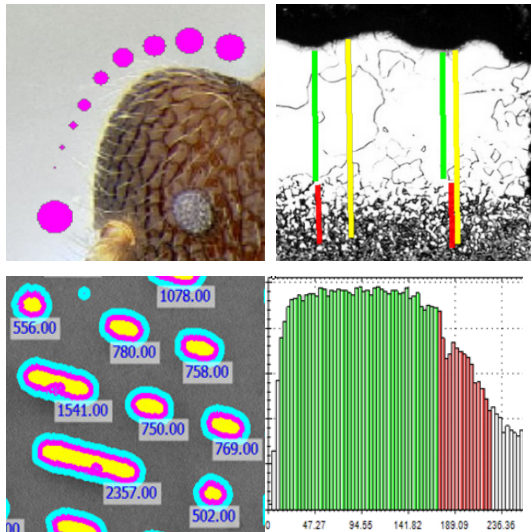
LAS V4.2 – New Macro Advantages

Living up to Life



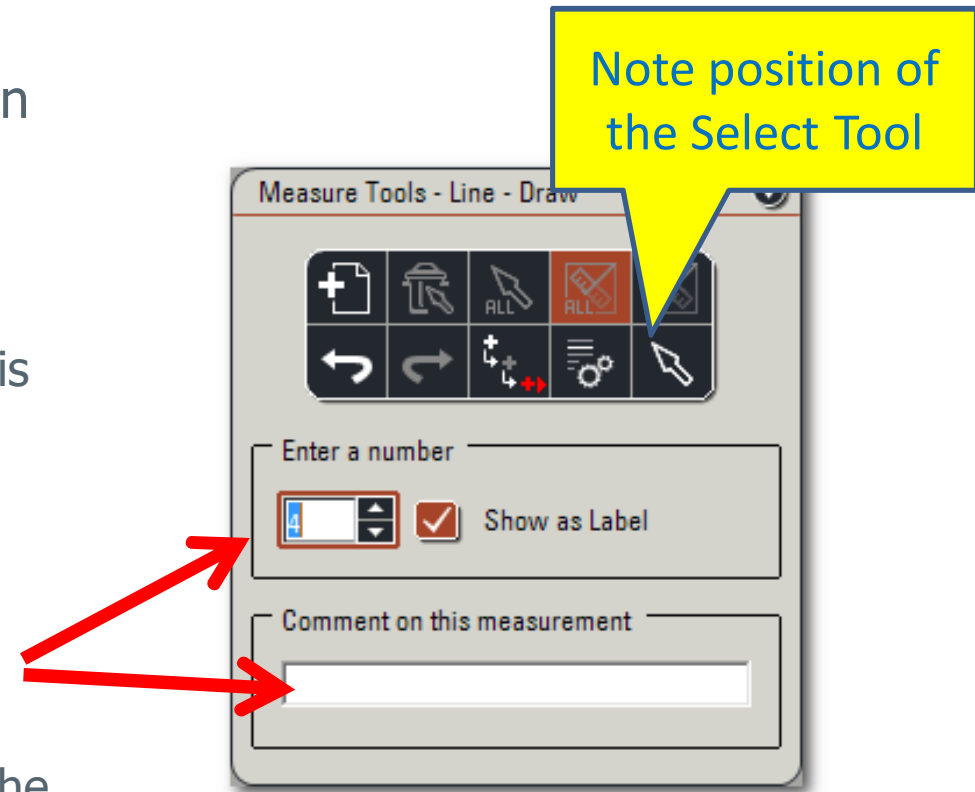
New Macro Advantages for LAS V4.2

- New Macro Applications (See other ppts)
 - Dendrite and Decarburisation
- New Macro Features
 - Enhancements to Interactive Measurements
 - Additional Camera control instructions
 - Scaling and import of 16-bit images
 - Simplified image selection for 'Create Report'
 - Update to Leica Cast Iron Expert



Pre-selected Interactive Measurement

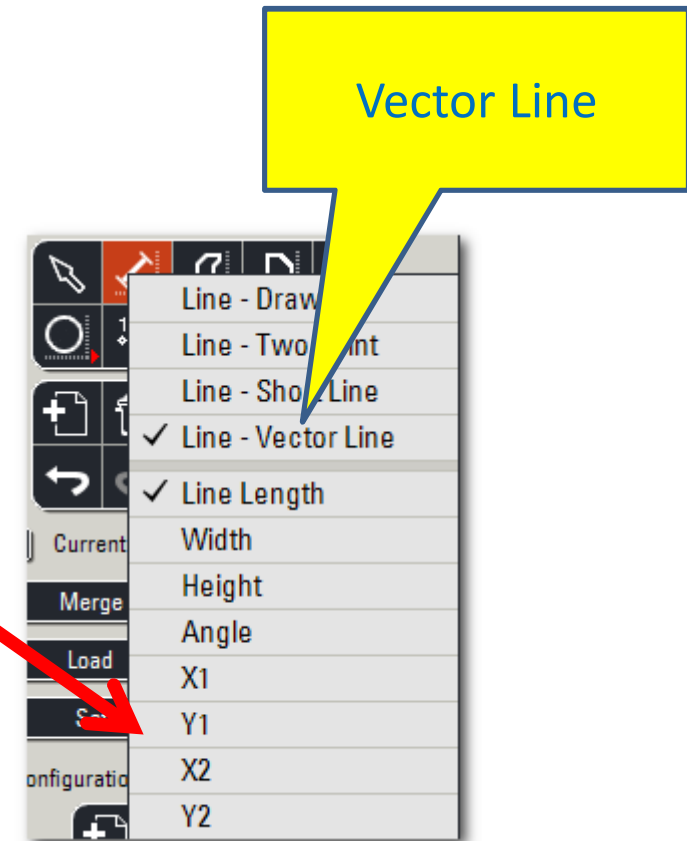
- A single measurement tool and tool type can be selected so that when paused, only one type of drawing is possible
 - Simplifies the UI and reduces confusion
 - Use the check-box 'Current Tool' to enable this
- For each pre-selected measurement made
 - an integer number and a short comment can be entered
- The labels shown can be controlled
 - Instructions to switch on and off the label
 - Choose the user entered integer number or the actual measurement.
- Panel is simplified
 - Toolbar and Buttons are hidden



NOTE: Interactive Measurements must be licensed for use with Macro. (When used with **licensed Experts**, a separate license is not required)

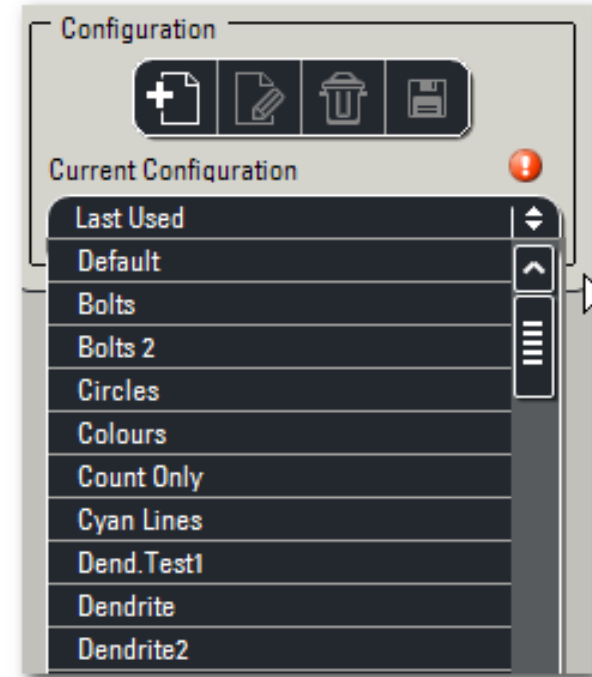
Use of Vector Line in Interactive Measurement

- A new type of line in LAS V4.2 is called Vector Line
 - This is a straight line that is operated by click and drag
 - Notice that it has as additional parameters over the other line types – X1, Y1 and X2,Y2
- This allows a macro to read these values from the IMResults array
- The macro can then manipulate these values for example to draw into Binary images
- Why not use Binary Edit to draw lines directly?
 - Because binary edit lines create an image, they cannot be adjusted once the image is created



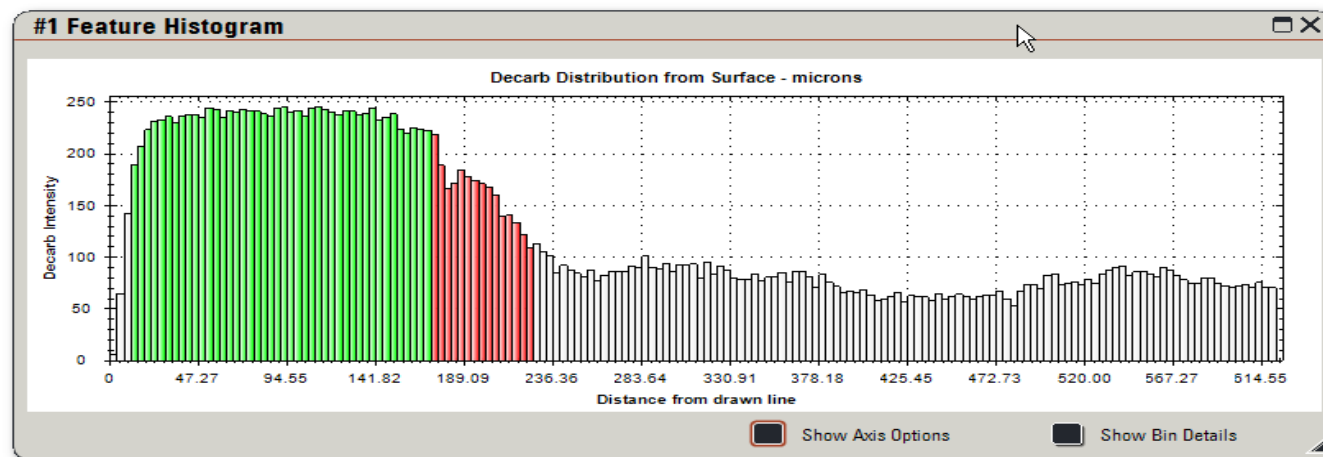
More control of Interactive Measurements

- New instruction for loading and saving the IM configuration file
 - Interactive Measurement Configuration (Name IM.CONFIG.NAME\$)
 - Configuration can be selected in Pause
 - Configuration name is read into variable
- Interactive Measurement statistics in variables
 - Total, Mean, Mode, Median, Maximum, Minimum, Standard Deviation, Standard Error, Confidence Interval Lower, Confidence Interval Upper, Total Count, Image Area
 - Similar to of measurement types
- The grid of measurements can be controlled
 - Previously was always popping up
 - Now only shown on request, macro decides



Histogram Index

- In a macro that uses many histograms, previously each one would need to be defined by number
- Now a symbolic histogram can be selected by a numeric variable
- Applies to the instructions
 - Histogram, Display Histogram, Clear Histogram
 - For Feature, Field, Profile, Interactive types
- Note – existing macros need careful upgrading to use this
- Note – it is only the histogram number that is controlled, not the parameters that are used



New Excel Instructions

- Read Excel sheets names
 - Used when manipulating an existing template or workbook
 - The number of sheets and the names of the sheets can be read
 - This allows instructions to work on the spreadsheet without needing to define previously the names
- Excel cell background colour can be symbolic
 - Allows instructions to emphasize the cell contents
 - Use the colour picker to get the colour values

#Num	Complete	Partial	Total
1	197.273	98.182	220.909
2	180.909	90.909	256.364
3	191.818	81.818	270.909
4	202.727	98.182	287.273
5	187.273	89.091	296.364
6	199.091	120.909	309.091
7	195.455	93.636	305.455
8		84.545	
9		90.000	

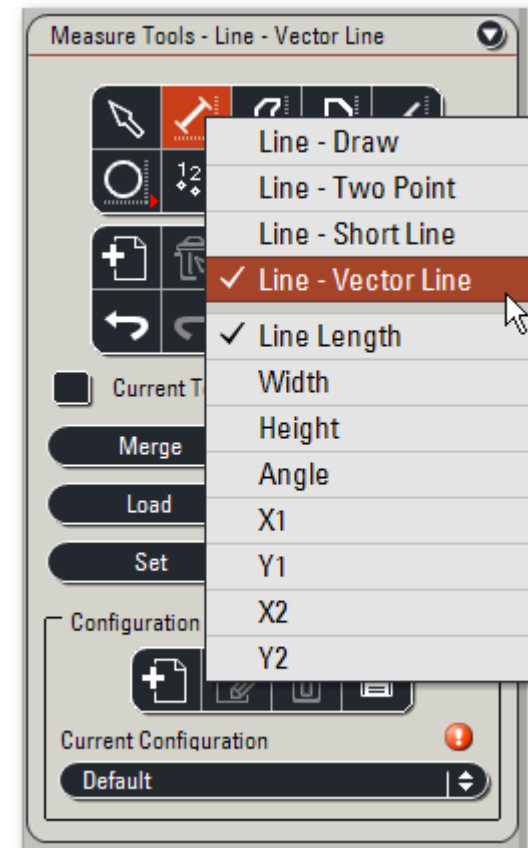
Binary edit single point

- A single left-click using the Vector Line will draw a single point
- The point size that is drawn is specified by the Line Width
- The X,Y co-ordinates of the last-point are available as variables when continuing from the Binary Edit pause



Interactive Measurement Vector

- The new parameter called Vector line is added to Interactive Measurements so multiple lines can be drawn
 - This provides the X,Y co-ordinates in pixels of the ends of the line
- These co-ordinates can be read and used in a macro, for example:
 - To draw corresponding binary lines for feature measurement
 - To draw a Binary Grid that is used to define measurement regions
- Combines the advantages of an interactive measurement line such as property specification (width, colour, label) and editing with automatic feature measurements



Additional Camera Instructions

- Instruction to set colour balance in camera panel
- Instructions that specify sharpening and flipping
 - Can be applied to Live
- Instruction to set camera shading
 - Can be applied to Live

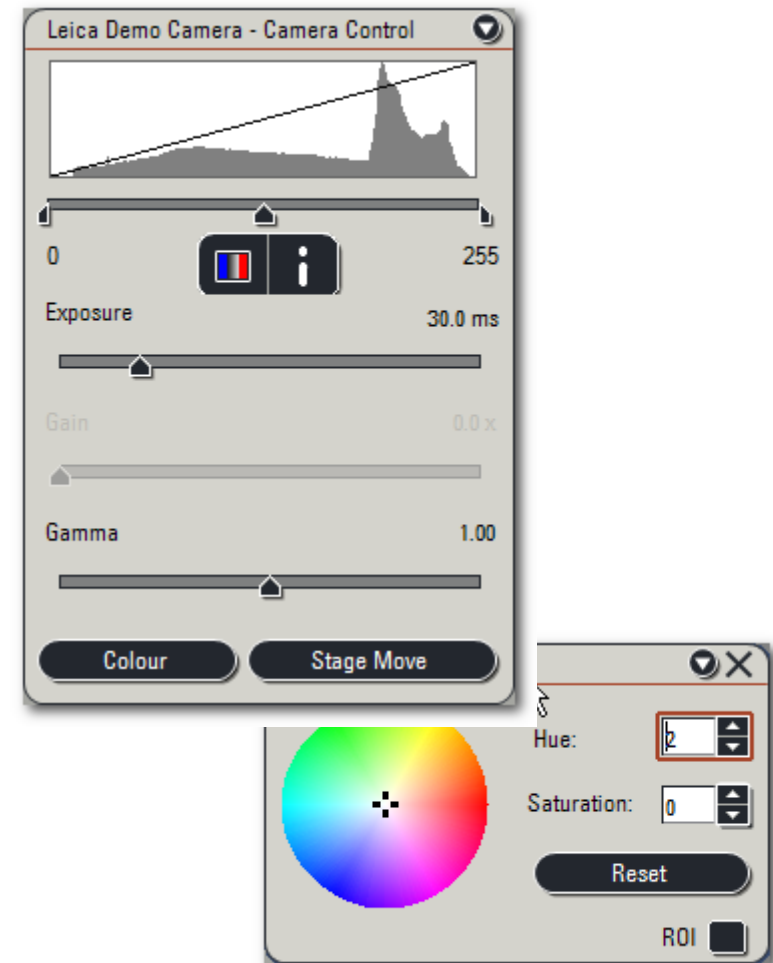
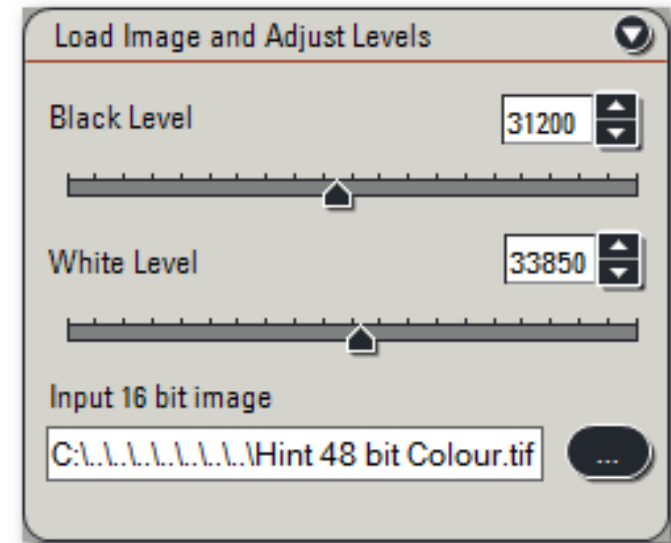


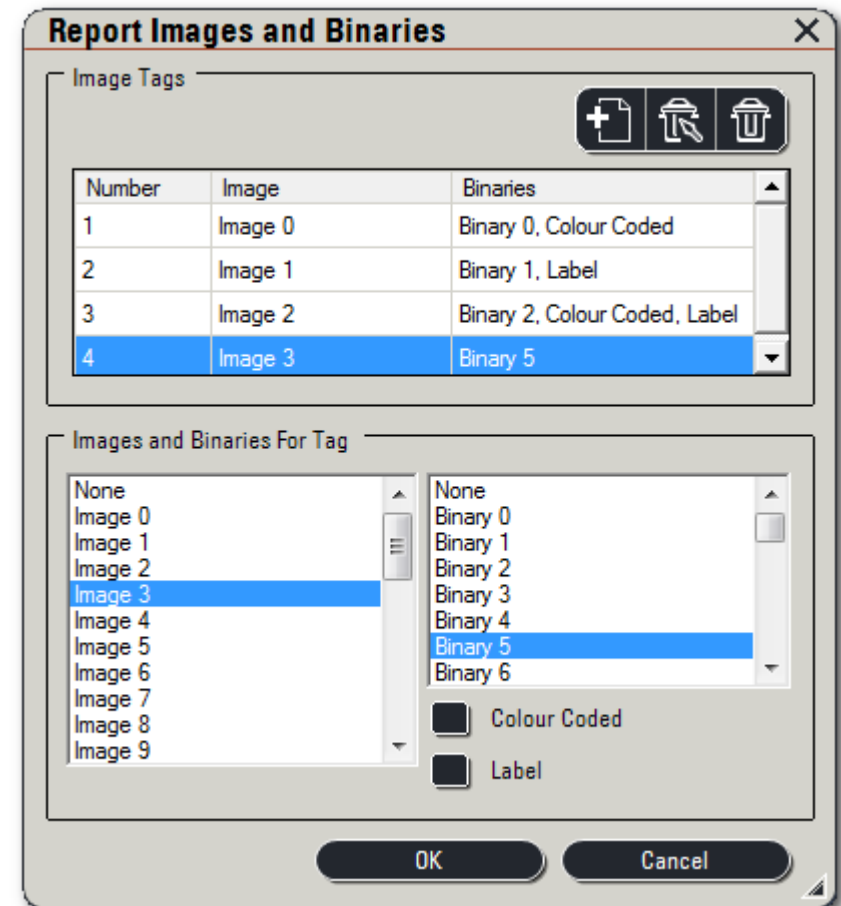
Image scaling

- Converts 16-bit to 8-bit image
- It is applied when images are imported from file.
- Pause mode:
 - the upper and lower levels can be adjusted and the image file selected
- Run mode:
 - the levels are applied and the result image loaded to the specified image slot
- Levels can also be applied to an 8-bit image
- Use mainly for mono images, but also applies same levels to colour images



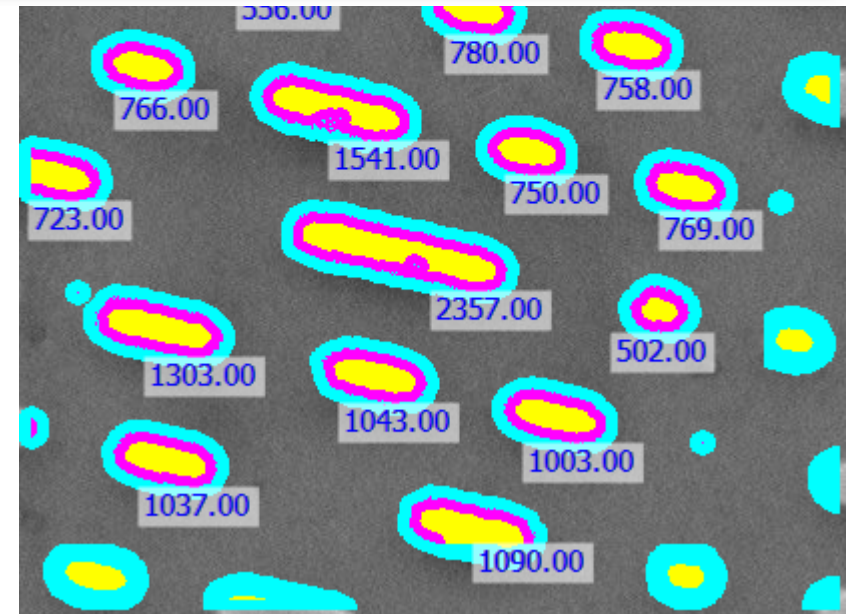
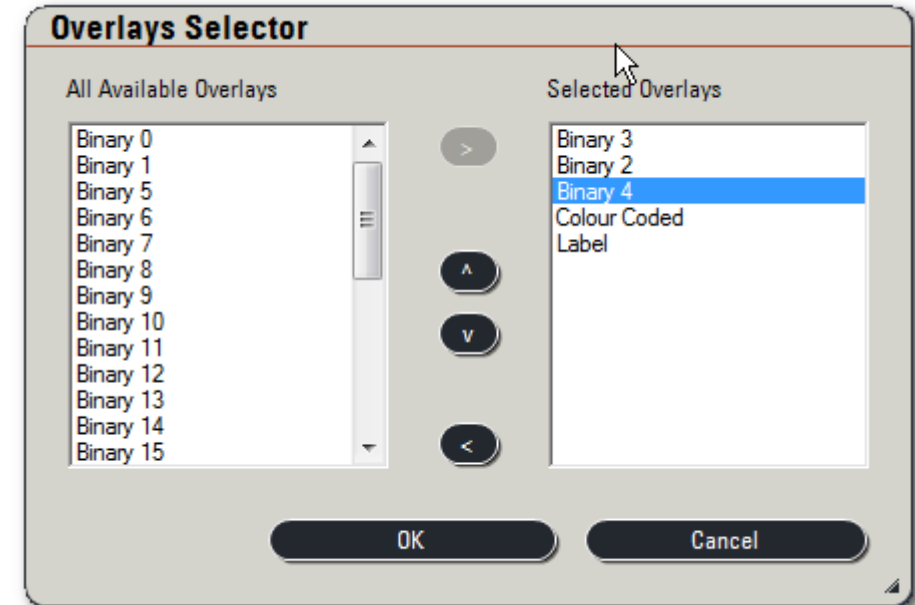
Use of images with 'Create Report'

- Create report images specification is simplified
 - New dialog and instruction to select images
 - Rather than using variables with values
- From the dialog select:
 - Colour or mono image
 - One binary overlay
 - Colour code
 - Labels
- The overlays always occur in the order shown



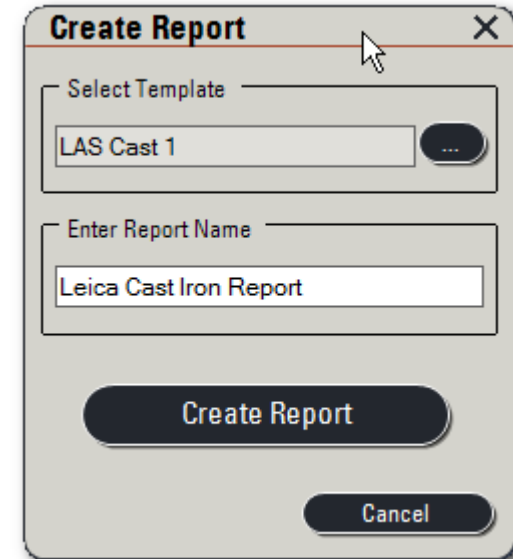
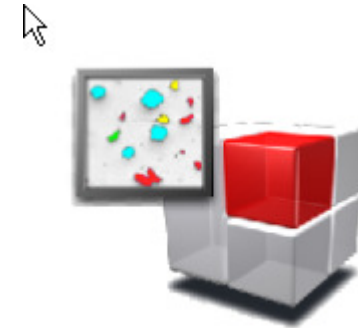
Merge multiple binaries

- Create Report allows only 1 binary
- For multiple binary overlays use the Excel Send Images instruction
- This is more versatile than the Create Report instruction
 - Can specify multiple binary overlays
 - Colour code and Labels can also be added
 - Priority order can be specified
- Example macro is
 - ExcelSendImages_Slots_symbolic.L5R
- In the image shown here, 3 binaries are shown with varying amendment plus the measurement label

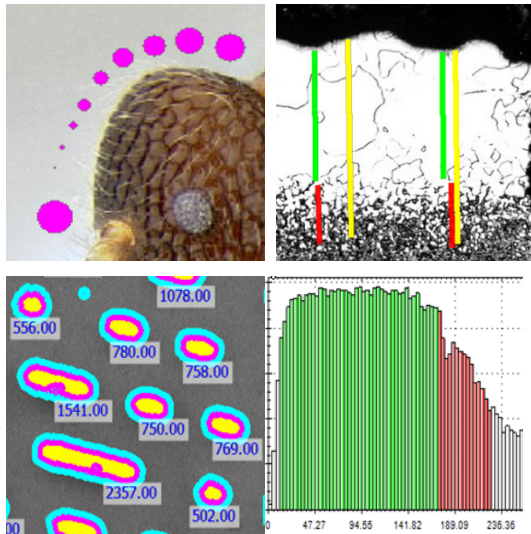


Cast Iron Expert Enhancements

- Check on calibration and conversion to microns
- Length + fibre length parameters added to test measurement
- Auto-detect checkbox also in Settings Dialog
- Configurations load / save now common to all apps.
- Selectable Excel templates now common to all apps.
- All filter & processing settings into Excel report



Leica Application Suite



**New Macro
Advantages
Thank You**