

BIOQUANT Release Notes Life Science 2012, v12.5.60

**Life Science
2012, v12.5.60**

The following release notes cover features in the BIOQUANT Life Science 2012 for Windows 7, v.12.5.60 software since BIOQUANT Life Science 2011, v. 11.2.60 for Windows 7.

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Release Date: May 1, 2012

NEW WINDOWS 7 64-BIT INSTALLATION

64-BIT WINDOWS INSTALLATION SUPPORT

- **BIOQUANT Life Science 2012 now supports installation under Windows 7, 64-bit. A different DVD is required for installation. If you would like the BIOQUANT Life Science 2012 DVD for Windows 7, 64-bit installation, contact us.**

TEMPLATE CHANGES

The following outlines changes to the Life Science Template Volume.

TEMPLATES CHANGES

- **Updated Array Assignments:**
 - The Measurement Type can now be assigned to the Selected array. Additional assignments for the Measurement Type have been made to relevant templates.
 - Other existing assignments have been audited and updated, if necessary.
 - Array assignments that might affect data values have not been made. For example, no assignment changes have been made to templates for Data Point Filter High, Data Point Filter Low, Smoothing, Measurement Filters, or Threshold ranges.
- **The mRNA Grain Analysis Template has been modified to include three Topo arrays instead of one Topo array. The Topo Arrays have been assigned to the relevant measurement arrays.**

TEMPLATES REMOVED

- **The Strut Analysis Template has been removed.**

GLOBAL CHANGES

TOPIC CONTENTS

Spacebar to End is No Longer Global (page 1-2)
Measurement filters Are No Longer Global (page 1-3)
Outline Filters Are No Longer Global (page 1-3)
Reset Parameters Changes (page 1-3)
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SPACEBAR TO END IS NO LONGER GLOBAL

Each tool in the software that uses Spacebar to End now has its own independent toggle to turn on/off Spacebar to End.

1. **Spacebar to End is no longer global. If you turn it on for one tool, it no longer automatically turns on for other tools. Spacebar to End is available on the following tools:**
 - ROI Tools region: IROI Cursor Type
 - ROI Tools region: Irregular Type
 - Editing region: Threshold Type
 - Measurement region: Area % Wand Type: Shape: Irregular
 - Measurement region: Auto Width
 - Measurement region: Manual Type
2. **On the Measure menu, Spacebar to End is no longer available as a menu item.**

3. On the Histogram box, Spacebar to End is no longer available when drawing Partial Field Histograms.
4. On the Background Correction box, Spacebar to End is no longer available when drawing using Build from Partial Field.
5. The Spacebar to End Hot Key (Ctrl-K) is no longer available.

MEASUREMENT FILTERS ARE NO LONGER GLOBAL

MEASUREMENT FILTER CHANGES

- **Measurement Filters are no longer global. Measurement Filters used to affect every Measurement region Type, even if it didn't make sense for that measurement type to use the filter. Now they work only with Object and Segment Assign Types.**
See "Object Type" on page 1-13.
See "Segment Assign Type" on page 1-19.
- **Measurement Filter Number 10 has been reserved for system use. It can no longer be modified or assigned to an array. When an array does not have a Measurement Filter comment, the system uses Filter 10, which is OFF.**
- **The Measurement Filter File>Save menu has been removed. The user can no longer save Measurement Filters to a global file that is remembered across BIOQUANT Sessions, Create New Dataset, Open Dataset, and Quick Data Set. To preserve Measurement Filters across these actions, on the Measurement Filter box, the user does a File>Save As to save a custom filter file. After opening BIOQUANT, creating a new data set, or opening a data set, the user would then use File>Load on the Measurement Filter box to retrieve the custom filter set.**

OUTLINE FILTERS ARE NO LONGER GLOBAL

- **Outline Filters used to affect every Measurement region Type, even if it didn't make sense for that measurement type to use the filter. Now they work only with Object and Segment Assign Types.**
See "Object Type" on page 1-13.
See "Segment Assign Type" on page 1-19.

RESET PARAMETERS CHANGES

The following changes have been made to Reset Parameters on the Options menu.

- **Reset Parameters no longer turns off Spacebar to End.**
- **Reset Parameters no longer turns off Measurement Filters.**
- **Reset Parameters now sets the default Outline Smoothing and Filters to the following:**
Smoothing: 0
Low Filter: 10
High Filter: 65535

STRUT ANALYSIS HAS BEEN REMOVED

The Strut Analysis feature has been removed. This feature was designed for bone morphometry and is now only in the BIOQUANT OSTEO software.

IMAGE REGION/ IMAGING ENHANCEMENTS

TOPIC CONTENTS

- Larger Image Support (page 1-4)
- New Save Image Options (page 1-4)
- Image Menu Item Enhancements (page 1-6)
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LARGER IMAGE SUPPORT

- **Open Single Image and Open Sequential Images now support opening TIFF, BMP, and JPG images up to nearly 1 GB. BIF images could always be opened at this size.**

NEW SAVE IMAGE OPTIONS

The Save Image button in the Imaging Region now has a drop arrow with options for saving the image in the Image window and options for saving the image in the Large Image Navigator.

TOPIC CONTENTS

- Three “Save Image Window” Options (page 1-4)
- Two “Save Navigator Image” Options (page 1-5)
- Calibration Notes For Saved Images (page 1-6)

THREE “SAVE IMAGE WINDOW” OPTIONS

There are three “Save Image Window” options. These options save the 1280 x 960 image in the Image window. They include: Save Image Window, Save Image Window Plus Graphics, and Save Image Window plus Thick Topo. Following are guidelines that all three Save Image Window options follow and a description of what each Save Image Window option does.

SAVE IMAGE WINDOW: GUIDELINES

- **The image in the Image window must be either a held image or an image opened from the hard drive, i.e. not a live image.**
- **The image saved is the 1280 x 960 image in the Image window. The “Save Image Window” options do not save the large image in the Large Image Navigator.**
- **The “Save Image Window” options can be used to save a BIFF as a BMP, TIF, JPG, or TGA.**
- **If you have the Imaging Toolkit plug-in, “Save Image Window” can be used to save a TIFF, JPG, TGA, or BMP as a BIF - just make sure the calibration is correct and a landmark has been set.**
- **If you have the Densitometry Toolkit plug-in and you have opened an IMG file, “Save Image Window” can be used to save the current Image window to a TIFF, JPG, TGA, BMP, or BIF. If saving a BIF, make sure the calibration is correct and a landmark has been set.**
- **A BIF image can not be saved as a BIF image with “Save Image Window.”**
- **If Pseudo Mode is ON, the “Save Image Window” options saves the pseudo color.**
- **After saving with one of the Save Image Window” options, the saved image is opened in the Image window. Before measuring this image, make sure the system is calibrated. See “Calibration Notes For Saved Images” on page 1-6.**

SAVE IMAGE WINDOW: DESCRIPTIONS

- **Saves Image Window**
Saves the image visible in the Image window. Does not save any graphics or redrawn topography.
- **Save Image Window plus Graphics**
Saves the image visible in the Image window plus any graphics or redrawn topography. What you see is what you get.
- **Save Image Window plus Thick Topo**
Saves the image visible in the Image window plus thickened redraw tracings.
Does not save any graphics, such as region of interests, stamps, threshold, preview tracings, etc, by default. (If you uncheck Topo>Assign System Redraw>Clear All + Redraw, then graphics and the thick redraw tracings will redraw.)

TWO “SAVE NAVIGATOR IMAGE” OPTIONS

There are two “Save Navigator Image” options. These options save the current image in the Large Image Navigator.

SAVE NAVIGATOR IMAGE: DESCRIPTIONS

- **Save Navigator Image**
The image to be saved must be open in the Large Image Navigator.
The image saved is the entire high resolution image in the Large Image Navigator.
The “Save Navigator Image” option can be used to save a BIFF as a BMP, TIF, JPG, or TGA.
If you have the Imaging Toolkit plug-in, “Save Navigator Image” can be used to save a TIFF, JPG, TGA, or BMP as a BIF - just make sure the calibration is correct and a landmark has been set.
If you have the Densitometry Toolkit plug-in, the IMG file can not be saved with “Save Navigator Image.”
A BIF image can not be saved as a BIF image with “Save Navigator Image.”
If you have the Densitometry Toolkit, IMG files can not be saved to another format using “Save Navigator Image.”
If Pseudo Mode is ON, the “Save Navigator Image” DOES NOT save the pseudo color.
After saving with one of the Save Image Window” options, the saved image is opened in the Image window.
Before measuring this image, make sure the system is calibrated. See “Calibration Notes For Saved Images” on page 1-6.
- **Save Navigator Image plus Current Topo**
Saves two files - a SVG file and referenced BMP file.
The SVG file contains the redraw topography data for the entire current Topo array.
The SVG header references a BMP file also saved, which is the large, high resolution image currently opened in the Large Image Navigator. The SVG file can be opened in a web browser for viewing, or an editor such as the free ware Inkscape program.
Make sure to move both the SVG and BMP file as a unit if copying to another computer.
After saving, the saved BMP image is now open in the Image window. Before measuring this image, make sure the system is calibrated. See “Calibration Notes For Saved Images” on page 1-6.
Does not save other graphics besides redraw tracings, such as threshold, stamps, regions of interest, etc. Does not save pseudo color.
If you have the Densitometry Toolkit, IMG files can not be saved to SVG using “Save Navigator Image plus Current Topo.”

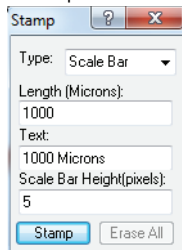
CALIBRATION NOTES FOR SAVED IMAGES

- Save Image now replaces the image in the Image window with the saved image.
- Remember - image files loaded from the hard drive or generated by using one of the Save Image options are not calibrated in BIOQUANT (unless they are BIF images). They can not use the microscope calibration. To measure you will need to save an image of a micrometer scale using the exactly the same methods and then calibrate. See the Life Science Manual for the Saved Image Calibration procedure.
- For example, if you have a BMP in the Image window and have calibrated BIOQUANT and chosen the correct magnification, and you save to the BIF format, the BIF image is now in the Image window and the system is internally calibrated for the BIF image.
- On the other hand, if you have a BIF image open and the system is internally calibrated for it, and you save to a BMP image, the BMP image is now in the Image window and the system is no longer calibrated for the BMP image. You would need to calibrate the system for the BMP image.
- Also, if you have a live image and you go held and the system is calibrated, then you save to a BMP image, the BMP image is now in the Image window and the system is no longer calibrated for the BMP image. You would need to calibrate for the BMP image. If you had saved to a BIF image, the BIF image would be in the Image window and the system would be calibrated.
- You can tell what type of image is open by looking at the file extension of the file name on the Image window title bar (TIF, BIF, BMP, JPG, TGA).

IMAGE MENU ITEM ENHANCEMENTS

1. **Stamp Tools: The Scale Bar height is now customizable.**

Stamp box



The Scale Bar Height has been set to 5 pixels.

2. **Issue Resolution: Histogram:** If you make a partial field histogram outside of the current Region of Interest (ROI), the system no longer crashes.
3. **Issue Resolution: Background Correction:** If you use Build from Partial Field and define a region outside of the current Region of Interest (ROI), the system no longer crashes.

OTHER IMAGE CHANGES

1. On the Options menu, the Save Tracings on Image menu item has been removed as it has been replaced with Save Image Window plus Graphics (see above).
2. On the Options menu, the Save Thick Tracings menu item has been removed as it has been replaced with Save Image Window plus Thick Tracings (see above).
3. On the File menu, the Save Image File and Open Image File options have been removed. These are now done on the Image region under the Image Filter Type option.
4. On the Pseudocolor box, the File>Save Pseudo Image menu has been removed as all the Save Image Window options will save pseudocolor on the Image if Pseudo Mode is checked.

IMAGING TOOLKIT / AUTOMATED IMAGING TOOLKIT / BIOQUANT SCAN ENHANCEMENTS

TOPIC CONTENTS

BIFF Enhancements (page 1-7)

Montage Enhancements (page 1-7)

BIOQUANT SCAN Enhancements/New Features (page 1-7)

BIFF ENHANCEMENTS

- Saving a BIFF with a MicroPublisher 5.0 no longer requires a special patch for accurate calibration.

MONTAGE ENHANCEMENTS

1. **Image Montage:** When there is no source image, the system now uses white instead of black as the fill color.
2. **Imaging Toolkit:** The Montage Manager has been replaced with the Create Montage box which uses a standard Microsoft Windows Save As format. Now montages are always saved in “High Quality” mode. “Raw Mode” has been removed.
3. **Imaging Toolkit:** The “Convert BIF Image” option on the Review tab has been removed as you can now save BIF images to other formats using the Save Image options.

BIOQUANT SCAN ENHANCEMENTS/NEW FEATURES

1. In the Aspect list, 4:3 is now one of the scan choices.
2. The default save location for montages is now the Project directory. Previously scans were saved in the individual well or slide folders.
3. The Scan features have been moved to their own menu. On the main toolbar, see Scan. From Scan choose “Scan Multiple Slides” or “Scan Well Plate.”

NEW FEATURE: BIOQUANT SCAN now has a Well Plate feature. See the BIOQUANT Life Science Manual for documentation.

Scan Well Plate Setup

Scan Well Plate Setup

Project Parameters

Plate Type: 96 (8x12)

Start Well: Y: A X: 1

End Well: Y: B X: 2

ROI X/Y Ratio: 4:3

Image Size: 1280x960

Images: 25

Auto Focus

Pre Focus Auto Exposure

Parameters per Well

X-Steps: 5

Y-Steps: 5

Images: 25

Covered Area: (3.4,2.6)mm

Parameters for Plate

Total Wells: 4

Well Position: A1-B2

Update

Auto Focus Setup

OK

Cancel

Help

Image Pattern for a Well

Well Pattern for the Plate

Start Well Index: A1

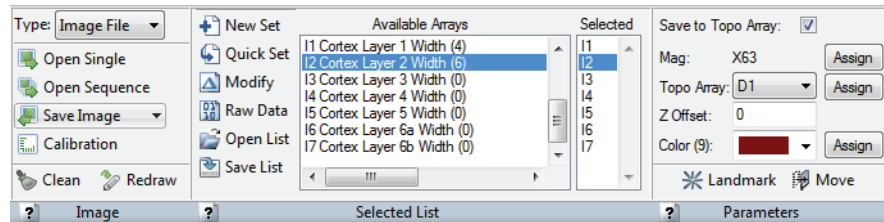
Set Start Well Center

SELECTED LIST REGION / ARRAYS MENU / EDIT MENU ENHANCEMENTS

1. The Ribbon has been rearranged.

On the Ribbon, the Selected List region has been moved to after the Image region and before the Parameters region.

Ribbon



Image, Selected List, and Parameters regions

2. In the Selected List region, the following changes have been made:

- A "New Set" button has been added that opens the Create New Data Set Wizard.
- A "Quick Set" button has been added that opens Quick Data Set.
- The buttons are now in this order:
 - New Set: opens Create New Data Set Wizard
 - Quick Set: opens Quick Data Set
 - Modify: opens Modify Data Set
 - Raw Data: Opens Raw Data
 - Open List: Opens Open Selected List
 - Save List: Opens Save Selected List

3. The Open Selected List default array has changed:

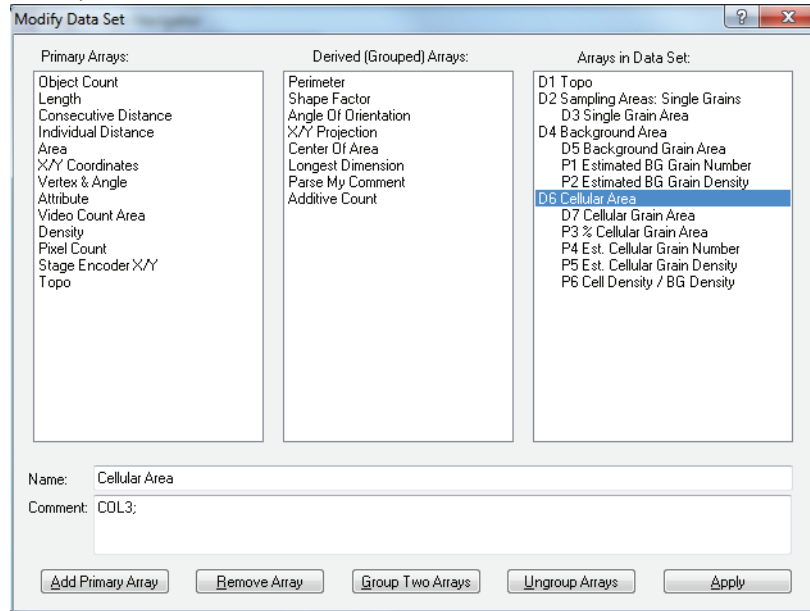
- When you open a Selected List, the system now defaults to the first array in the Selected list instead of the array that is in the same position of the last selected array.

4. The Selected List is now retained after going to Modify Data Set.

- When you go to Modify Data Set with a Selected List open, it will still be open when you exit Modify Data Set as long as you have not deleted one of the arrays selected.

5. The Modify Data Set box has the following changes:

Modify Data Set box



- The Modify Data Set box has been resized to show all Primary and Derived arrays without scrolling.

6. The following system updates are now performed after certain actions:

- After the user does Edit>Delete All Data, the system now does the following:
 - Performs a System Redraw.
 - Performs an Update on the Overview window.
 - Performs an Update on Calculations.
- After the user does Edit>Undo, the system now does the following:
 - Performs a System Redraw.
 - Performs an Update on the Overview window.
 - Performs an Update on Calculations.

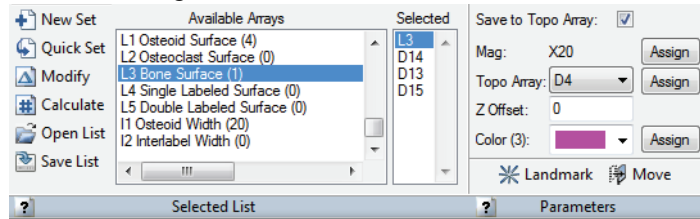
PARAMETERS REGION / TOPO MENU / OVERVIEW WINDOW ENHANCEMENTS

1. The Save Topo ON/OFF state is now remembered.

The ON/OFF state of Save Topo is now remembered across BIOQUANT sessions, after using Create New Dataset, after using Quick Dataset, and after using Open Dataset.

2. The Topo Array list now has Assign functionality.

Parameters region



The Topo Array drop list now has an Assign button. In this illustration the D4 Topo Array would be assigned to the L3 Bone Surface array.

There is now an Assign button next to the Topo Array drop list that allows the user to assign the current Topo array to the current Selected array in the Selected list. Whenever the array is selected, the assigned Topo array appear in the Topo Array drop list.

TO ASSIGN

- In the Selected List region, in the Selected list, click to highlight the array to which the Topo array is to be assigned.
- In the Parameters region, in the Topo Array drop list, choose the Topo Array to be assigned.
- In the Parameters region, next to the Topo Array drop list, click the Assign button.
- On the Warning message, click Yes to assign the Topo Array to the current Selected array.

Now whenever that array is selected in the Selected List, the assigned Topo array will appear in the Topo Array drop list.

Power User Note: The following comment has been added to the Selected array:

TOPD#; where # is the array index number of the Topo Array, i.e. in the illustration above “4” or “TOPD4;”

3. The Overview window is now automatically updated when an Object Count is measured with the Object Measurement Type.

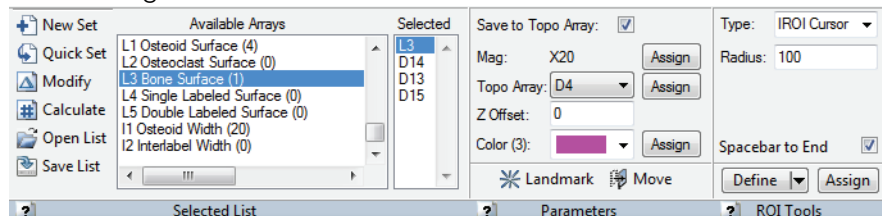
4. The following Overview window settings are now remembered across BIOQUANT Sessions:

- Options>Draw Point Mark
- Options>Black Background
- Options>"You Are Here" Box
- Options>Auto Size/Position Reset

ROI TOOLS REGION ENHANCEMENTS

The ROI Type now has Assign functionality.

ROI Tools region



The ROI Tools region now has an Assign button. In this illustration the iROI Cursor Type would be assigned to the L3 Bone Surface array.

The ROI Type can now be assigned to the current Selected array by clicking the Assign button in the ROI Tools region. Whenever the array is selected in the Selected list, the assigned ROI Type is retrieved.

TO ASSIGN

- a. In the Selected List region, in the Selected list, click to highlight the array to which the ROI Type is to be assigned.
- b. In the ROI Tools region, in the Type drop list, choose the ROI Type to be assigned.
- c. In the ROI Tools region, click the Assign button.
- d. On the Warning message, click Yes to assign the ROI Type to the current Selected array.
Now whenever that array is selected in the Selected List, the assigned ROI Type will appear in the ROI Tools Type drop list.
Power User Note: The following comment has been added to the Selected array:
ROI#; where # is the following:
 - 0 = Full Screen
 - 1 = Rectangle
 - 2 = Irregular
 - 3 = Ellipse
 - 4 = Circle
 - 5 = Topo
 - 6 = iROI Cursor
 - 7 = TV ROI

THRESHOLD REGION ENHANCEMENTS

- **Changing the Threshold Transparency no longer resets threshold editing.**
On the Threshold region, if you change the Transparency, the system no longer resets any threshold editing that has been done.

EDITING REGION ENHANCEMENTS

- **Draw Threshold and Erase Threshold: Tapping the Z key zooms the image**
In the Editing (Threshold) region, if you are using Draw or Erase Threshold, and the cursor is in the Image window, you can tap the Z key to zoom the image. Tapping Z cycles through 2x zoom, 4x zoom, and back to normal zoom. Draw Threshold and Erase Threshold work while the image is zoomed.
- **Issue Resolution: Clicking Erode no longer clears the Threshold Backup Buffer.**
In the Editing (Threshold) region, if you have copied or cut threshold to the Threshold Backup Buffer, when you erode the threshold, it no longer clears the Threshold Backup Buffer. After eroding, if you use Paste or Mask to retrieve the threshold in the Threshold Backup Buffer, it works.

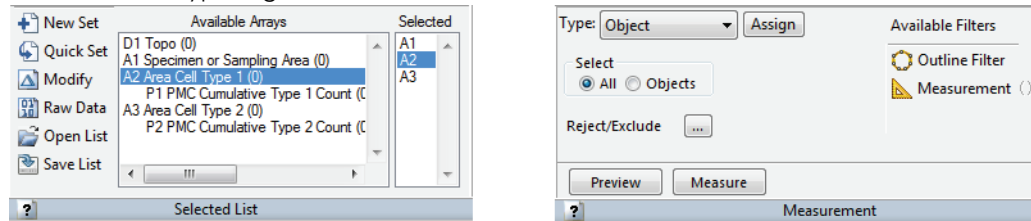
MEASUREMENT REGION / MEASURE MENU ENHANCEMENTS**TOPIC CONTENTS**

Assign Functionality: Measurement Type (page 1-12)
 Batch Measurement (page 1-12)
 Strut Analysis Removed (page 1-12)
 Measurement Resign for More Intuitive Interface (page 1-13)

ASSIGN FUNCTIONALITY: MEASUREMENT TYPE

- The Measurement Type can now be assigned to the current Selected Array.

Measurement Type region



The Measurement Type now has an Assign button. In this illustration, the Object Type would be assigned to the A2 Area Cell Type 1 array.

The Measurement Type can now be assigned to the current Selected array by clicking the Assign button next to the Type drop list. Whenever the array is selected in the Selected list, the assigned Measurement Type is retrieved.

TO ASSIGN

- In the Selected List region, in the Selected list, click to highlight the array to which the Measurement Type is to be assigned.
- In the Measurement region, in the Type drop list, choose the Measurement Type to be assigned.
- In the Measurement region, click the Assign button.
- On the Warning message, click Yes to assign the Measurement Type to the current Selected array. Now whenever that array is selected in the Selected List, the assigned Measurement Type will appear in the Type drop list in the Measurement region.

Power User Note: The following comment has been added to the Selected array:

MEA#; where # is the following:

- 0 = Object
- 1 = Field
- 2 = Trace
- 3 = Area % Wand
- 4 = Auto Width
- 5 = Density Wand
- 6 = Manual
- 7 = Segment Assign

BATCH MEASUREMENT

- The “No Objects are Selected” error message is now suppressed if there are no objects selected during a batch measurement routine.

STRUT ANALYSIS REMOVED

- The Strut Analysis feature on the Measure menu has been removed. The Strut Analysis Template in the Life Science Template Volume has also been removed.

This feature was designed for use with bone morphometry and is still available in BIOQUANT OSTEO.

MEASUREMENT RESIGN FOR MORE INTUITIVE INTERFACE

The Measurement region for each Type has been redesigned for a more intuitive interface.

TOPIC CONTENTS

Object Type (page 1-13)

Field Type (page 1-15)

Trace Type (page 1-15)

Area % Wand Type (page 1-16)

Auto Width Type (page 1-17)

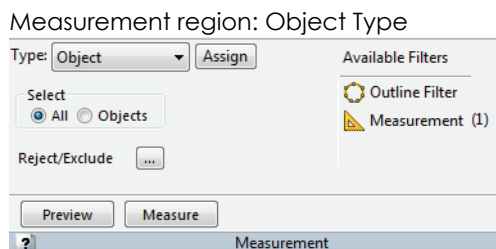
Density Wand Type (page 1-18)

Manual Type (page 1-18)

Segment Assign Type (page 1-19)

OBJECT TYPE

The Measurement region Object Type is used to automatically select and measure discrete objects of interest, based on criteria pre-set by the user. Object is the default measurement type for volume, area, and count measurement where the objects to be measured have been automatically or manually thresholded.

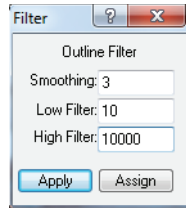


- **The “Select” region:**
 - All - when Preview or Measure is clicked, all of the thresholded objects within the filter ranges are preview outlined or measured.
 - Object - when Preview or Measure is clicked, the cursor enters the Image window. The user clicks on specific objects to preview or measure. Right click to exit the Image window.
 - Select region: Object
 - Ignores the Outline filter settings. You are able to preview and measure thresholded objects outside of the Outline filter range.
 - Uses the Measurement filter setting. The system will not preview outline or measure objects you click on if they are outside the active Measurement Filter setting.
 - All and Object can be used in conjunction with each other. For example, choose Objects in the Select region and then click the Preview button. The cursor enters the Image window. Click on thresholded objects to preview outline. Right click to exit the Image window. Then choose All in the Select region and click the Measure button to measure all the preview outlined objects.
- **The “Available Filters” area lists filters that can be used with the Object Measurement Type.**
- **The Preview and Measure buttons have been moved to the bottom of the Measurement region. They function as in previous versions.**

Outline Filter Notes:

- The Quick Filter has been renamed Outline Filter.
- Clicking Outline Filter under Available Filters opens the Filter box for the Outline Filter.

Filter: Outline Filter

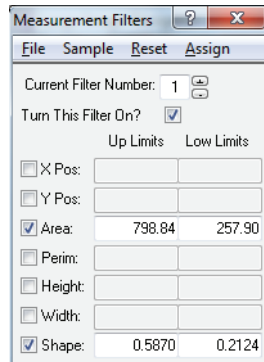


- On the Outline Filter box, the Outline filter can still be assigned to the current Selected array. To assign, set the Smoothing, Low Filter, and High Filter on the Filter box. In the Selected List region, click to highlight the desired array in the Selected list. On the Filter box, click the Assign button. On the Warning box, click Yes. Now whenever the array is selected, the Outline filter will be retrieved.

Measurement Filter notes:

- The Measurement Filter has a visual indication of the current filter number its ON/OFF state. The current filter number is the number in parentheses. If the current filter is ON, the number is in regular format. If the current filter is OFF, the number is greyed out.
- The Measurement Filter only works when a filter set has been created and Measurement Filters have been turned on.
- Clicking Measurement Filters under Available Filters opens the Measurement Filters box.

Measurement Filters



- On the Measurement Filters box, the Current Filter Number can still be assigned to the current Selected array. However, assigning the filter to the array will only set Current Filter Number when the array is Selected. It will not turn the filter ON or load a filter set. To use Measurement Filters, you will need to load the Filter set and turn ON the filters to be used before selecting the array with measurement filter assignments.

To assign, choose the Current Filter Number, turn the Filter set ON, and turn on and set the relevant measurement filters on the Measurement Filters box. In the Selected List region, click to highlight the desired array in the Selected list. On the Measurement Filters box, click the Assign menu. On the Warning box, click Yes. Now whenever the array is selected, the Current Filter Number will be retrieved. Remember to save the Filter set by using File>Save As on the Measurement Filter box so that you can retrieve it for future datasets based on this template. In the future, remember to retrieve the Filter set and turn on the relevant filter numbers before using the data set.

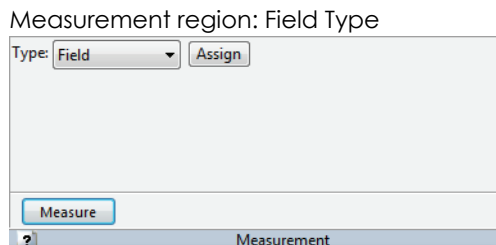
- If an array with no measurement filter assignment is Selected and you open the Measurement Filters box, the Current Filter Number will be 10. This filter is reserved for system use. Scroll up to Filter 1 to make a filter assignment for the Selected array.

Filter 10 is reserved for system use. It is used when the Selected array does not have a filter assignment. This prevents arrays with no Measurement Filter assignment from using the previously Selected array's Measurement Filter.

- For a complete Object Type Procedure see the Object Type Chapter in Section 9 Measurement Region of the Life Science Manual.

FIELD TYPE

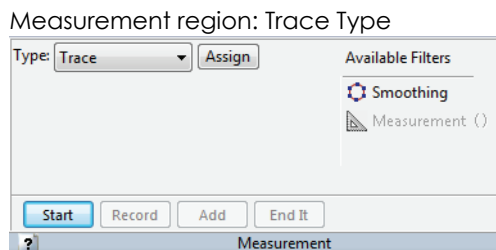
The Measurement region Field Type returns a single measurement value for all thresholded objects in the current region of interest. Field works with the VC Area, Pixel Count, and Density arrays. Field Type is commonly used when percentages or ratios need to be determined. Field Type is often used for grain analysis or determining fiber density.



- The Measure button has been moved to the bottom of the Measurement region. It functions as in previous versions.
- For a complete Field Type Procedure see the Field Chapter in Section 9 Measurement Region of the Life Science Manual.

TRACE TYPE

Trace Type is used to extend an automatic Area or Length measurement beyond a single field of view. It is used with an Area or Length array.

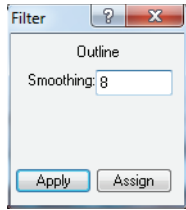


- The available filters are now listed in the Measurement region under "Available Filters." For the Trace Type, this is Smoothing.
- The Start/Continue, Record, Add, and End It buttons have been moved to the bottom of the Measurement region. They function as in previous versions.

Smoothing Notes:

- Clicking Smoothing under Available Filters opens the Filter box for the Outline Filter.

Filter: Outline Filter



- For the Trace Measurement Type, Smoothing is the only parameter that can be set. Smoothing indicates the number of pixels to place between data points when creating the outline around the thresholded object. A Smoothing of at least 7 is recommended for Trace mode.
- On the Outline Filter box, the Smoothing can still be assigned to the current Selected array. To assign, set the Smoothing on the Filter box. In the Selected List region, click to highlight the desired array in the Selected list. On the Filter box, click the Assign button. On the Warning box, click Yes. Now whenever the array is selected, the Smoothing will be retrieved.

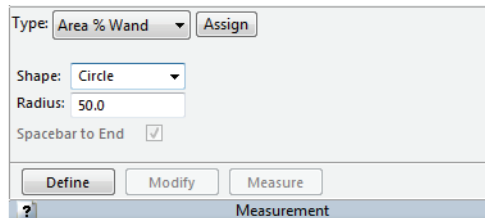
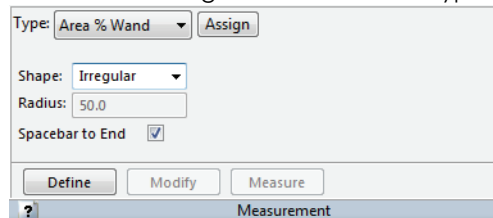
For a complete Trace Procedure see the Trace Type Chapter in Section 9 Measurement Region of the Life Science Manual.

AREA % WAND TYPE

The Area % Wand Measurement Type is used to collect the percentage thresholded area within multiple irregular shapes or circles of known radius. It is often used with grain counting applications.

The Area Percentage Wand allows multiple location circles or irregular regions of interest to be placed in the field of view, then corresponding total area and thresholded area for each location are measured.

Measurement region: Area % Wand Type



Left: Irregular Shape; Right: Circle Shape

The Area % Wand uses one of the following Life Science Template Volume templates:

- Area % Wand Simple Template
- mRNA Grain Analysis Template

The Shape drop list contains the Irregular and Circle options.

Use Irregular to hand draw the regions at multiple locations for measurement.

If Spacebar to End is ON, click consecutive points when drawing. When finished, tap the space bar to end the tracing.

If Spacebar to End is OFF, keep the left mouse button down while drawing. When you release the mouse button the tracing will automatically close.

NOTE: Spacebar to End is no longer global. If you turn it ON with Area % Wand, it will not turn on in other locations.

Use Circle to click circles at multiple locations for measurement.

Use the Radius field to define the circle wand's radius.

When the cursor is in the Image window, use the up and down arrows, or the scroll wheel on the mouse to refine the radius shape.

- **The Define, Modify, and Measure buttons are located across the bottom of the Measurement region.**
 - Use Define to place the initial shapes. Nothing has been measured at this point.
 - NEW in this version: If using the Circle Shape: Use Modify to add more circles. Clicking on an existing circle will remove it. Nothing has been measured at this point.
 - Use Measure to record the measurement to the array.
- **For a complete Area % Wand Procedure see the Area % Wand Type & mRNA Grain Analysis Chapter in Section 9 Measurement Region of the Life Science Manual.**

AUTO WIDTH TYPE

The Measurement region Auto Width Type provides unbiased, direct width measurements between two or more hand drawn lines. With it the user first clicks along the first surface to trace it. Then the user clicks along the second surface to trace it. The direct and unbiased Widths are generated automatically. If consecutive layers is turned ON, the user can then continue to trace layers and generate widths.

Measurement region: Auto Width Type

- **The Auto Width Type uses the following Life Science Template Volume templates:**
 - Auto Width Simple Template
For determining the width between two lines only.
 - Auto Width Cortex Layers Template
For determining the width between consecutive lines.
- **Spacebar to End is no longer global. When you turn it ON on the Auto Width Type, it does not automatically turn on in other locations, such as the Manual Measurement Type.**
- **The Consecutive Layers check box has been moved from the Settings box to the Measurement region.**
- **The Save All Widths/Save Average Width display is a visual indication to the user.**
If Consecutive Layers is checked, Save All Widths is the only option.
If Consecutive Layers is not checked, you can save the average width instead of all widths by clicking the Setting button, then on the Settings box check the Save Average Width box.
- **The Draw 1, Draw 2, Settings, and Measure buttons have been moved to the bottom of the Measurement region. They function as in previous versions.**
- **For a complete Auto Width Type Procedure see the Auto Width Type Chapter in Section 9 Measurement Region of the Life Science Manual.**

DENSITY WAND TYPE

Density Wand Type is used to measure average densities within user defined circular or rectangular regions of interest of known micron dimensions. It can be used with the Average Density or Integrated Optical Density array.

Measurement region: Density Wand Type

- The Shape drop list provides options for Rectangle or Circle.
- If the Shape is Circle, then the Radius field is available. If the Shape is Rectangle, then Width and Height fields are available.
- The Define, Modify, and Measure buttons have been moved to the bottom of the Measurement region. They function as in previous versions.
- For a complete Density Wand Type Procedure see the Density Wand Type Chapter in Section 9 Measurement Region of the Life Science Manual.

MANUAL TYPE

The Measurement region Manual Type is used to make hand-drawn measurement tracings in the Image window. Manual works with the following arrays: Area, Video Count Area (VC Area), Density, Consecutive Distance, Individual Distance, Length, Object Count, Pixel Count, Vertex & Angle, X/Y Coordinates.

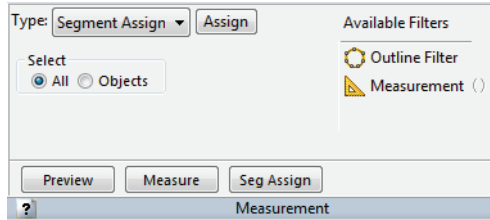
Measurement region: Manual Type

- Spacebar to End is no longer global. When you turn it ON on the Manual Measurement Type, it does not automatically turn on in other locations, such as the dLS Measurement Type.
- The Measure button has been moved to the bottom of the Measurement region. It functions as in previous versions.
- For a complete Manual Type Procedure see the Manual Type Chapter in Section 9 Measurement Region of the Life Science Manual.

SEGMENT ASSIGN TYPE

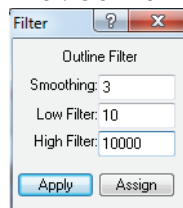
The Measurement region Segment Assign type is used for a special Segment Assignment protocol. Segments of an Length, Area, or VC Area tracing may be parcelled out to separate Length arrays. This eliminates the need to re-trace parts of the object to determine the lengths of special surfaces.

Measurement region: Segment Assign Type



- **The “Select” region:**
 - All - when Preview or Measure is clicked, all of the thresholded objects within the filter ranges are preview outlined or measured.
 - Object - when Preview or Measure is clicked, the cursor enters the Image window. The user clicks on specific objects to preview or measure. Right click to exit the Image window.
 - Select region: Object
 - Ignores the Outline filter settings. You are able to preview and measure thresholded objects outside of the Outline filter range.
 - Uses the Measurement filter setting. The system will not preview outline or measure objects you click on if they are outside the active Measurement Filter setting.
 - All and Object can be used in conjunction with each other. For example, choose Objects in the Select region and then click the Preview button. The cursor enters the Image window. Click on thresholded objects to preview outline. Right click to exit the Image window. Then choose All in the Select region and click the Measure button to measure all the preview outlined objects.
- **The “Available Filters” area lists filters that can be used with the Object Measurement Type.**
- **Outline Filter Notes:**
 - The Quick Filter has been renamed Outline Filter.
 - Clicking Outline Filter under Available Filters opens the Filter box for the Outline Filter.

Filter: Outline Filter

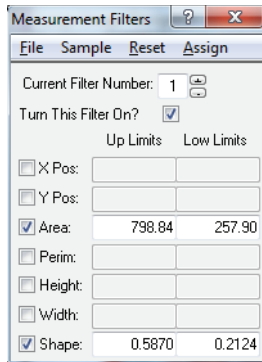


- On the Outline Filter box, the Outline filter can still be assigned to the current Selected array. To assign, set the Smoothing, Low Filter, and High Filter on the Filter box. In the Selected List region, click to highlight the desired array in the Selected list. On the Filter box, click the Assign button. On the Warning box, click Yes. Now whenever the array is selected, the Outline filter will be retrieved.

- **Measurement Filter notes:**

- The Measurement Filter has a visual indication of the current filter number its ON/OFF state. The current filter number is the number in parentheses. If the current filter is ON, the number is in regular format. If the current filter is OFF, the number is greyed out.
- The Measurement Filter only works when a filter set has been created and Measurement Filters have been turned on.
- Clicking Measurement Filters under Available Filters opens the Measurement Filters box.

Measurement Filters



- On the Measurement Filters box, the Current Filter Number can still be assigned to the current Selected array. However, assigning the filter to the array will only set Current Filter Number when the array is Selected. It will not turn the filter ON or load a filter set. To use Measurement Filters, you will need to load the Filter set and turn ON the filters to be used before selecting the array with measurement filter assignments.

To assign, choose the Current Filter Number, turn the Filter set ON, and turn on and set the relevant measurement filters on the Measurement Filters box. In the Selected List region, click to highlight the desired array in the Selected list. On the Measurement Filters box, click the Assign menu. On the Warning box, click Yes. Now whenever the array is selected, the Current Filter Number will be retrieved. Remember to save the Filter set by using File>Save As on the Measurement Filter box so that you can retrieve it for future datasets based on this template. In the future, remember to retrieve the Filter set and turn on the relevant filter numbers before using the data set.

- If an array with no measurement filter assignment is Selected and you open the Measurement Filters box, the Current Filter Number will be 10. This filter is reserved for system use. Scroll up to Filter 1 to make a filter assignment for the Selected array.

Filter 10 is reserved for system use. It is used when the Selected array does not have a filter assignment. This prevents arrays with no Measurement Filter assignment from using the previously Selected array's Measurement Filter.

- **The Preview, Measure, and Seg Assign buttons have been moved to the bottom of the Measurement region. They function as in previous versions.**

After the specimen or object has been previewed and measured, the Seg Assign button can be used to distribute segments of the tracing to separate Length arrays.

- **For a complete Segment Assign Type Procedure see the Segment Assign Type Chapter in Section 9 Measurement Region of the Life Science Manual.**

STEREOLOGY TOOLKIT ENHANCEMENTS

- **Load Stereology Defaults no longer turns on Extend to Live if a BIFF image is open.**

DENSITOMETRY TOOLKIT CHANGES

- The Density>Save Image Window option has been removed. The portion of the IMG file in the Image Window can now be saved with any of the Save Image Window options in the Save Image drop list (Image region (Image File Type)).

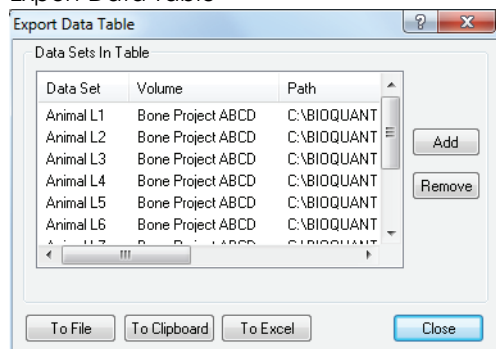
DATA MANAGER ENHANCEMENTS

1. Find Box

The Find box has been removed as it was too slow.

2. Export Data Table replaces Concatenate Data Sets.

Export Data Table

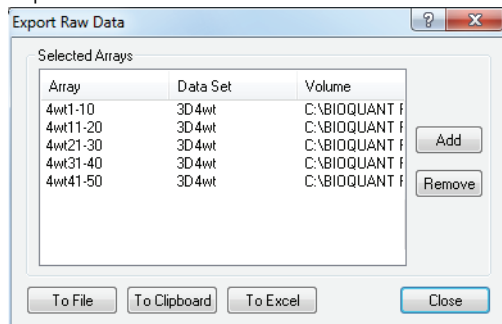


- Concatenate Data Sets has been renamed to Export Data Table.
- The Export Calculations Arrays Only and Export First Values Only check boxes have been removed. These options now default to ON.

3. Enhanced Export has been separated out into two dialog boxes: Export Raw Data and Export Topo Arrays

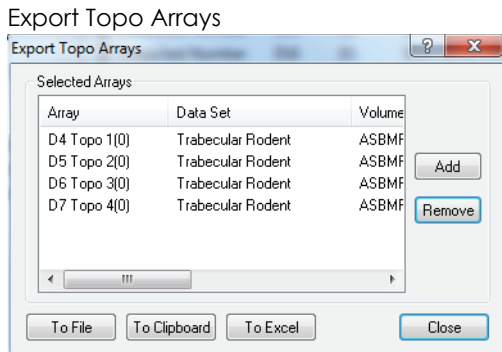
- Export Raw Data is used to export multiple data arrays, data sets, or data volumes. Export Raw Data does not export Topo arrays. Export Raw Data can export to a file, to the clipboard, and now also to Excel.

Export Raw Data



Export Raw Data now has a "To Excel" button.

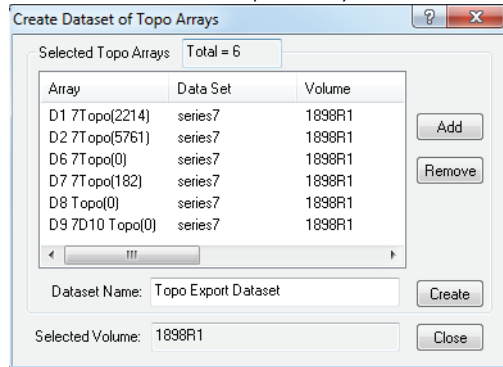
- Export Topo Arrays is used to export Topo arrays from multiple data sets or data volume. It does not export other array types. Export Raw Topo Arrays can export to a file, to the clipboard, and now also to Excel.



Export Topo Arrays now has a "To Excel" button.

4. **The Create Dataset of Topo Arrays box replaces the Topo Array Exporter box.**

Create Dataset of Topo Arrays box

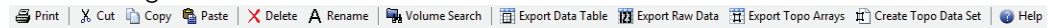


This box will combine topo arrays from multiple data sets into a single, new data set.

5. **The Data Manager tool bar has changed:**

- The name of the button has been added next to its image.
- The following buttons have been added to the toolbar: Export Data Table, Export Raw Data, Export Topo Data, and Create Dataset of Topo Arrays.

Data Manager tool bar



6. **The Calculation Report Wizard has been removed (Tools>Calculitions Report). The feature was designed for use with Bone Morphometry templates and can be found in BIOQUANT OSTEO.**

TOPOGRAPHER CHANGES

- **The Atlas Modeler now has a new BETA feature. The File>Save As box can now save to the PLY file format. This feature is in preliminary design and is not complete. Users are welcome to play around with it and provide us feedback for future development.**