



MetaXpress® 6 Software Guide

Viewing Analysis Measurements in Review Plate Data

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Chapter Purpose

The purpose of this chapter is to guide the user through viewing analysis measurements, displaying results in a heat map, and logging data directly to Excel or a Text file from the **Review Plate Data** dialog.

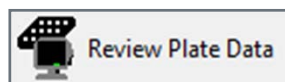
Refer to corresponding chapters for application chapters, Custom Module Editor, running analyses.



Viewing Analysis Results in Review Plate Data

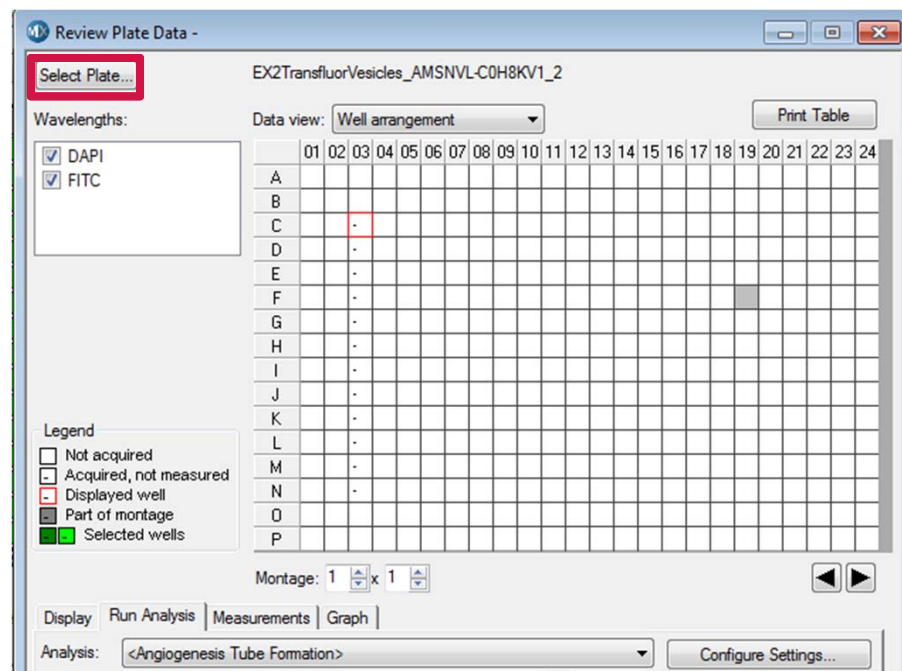
1. Open **Review Plate Data**

- In the main toolbar click on



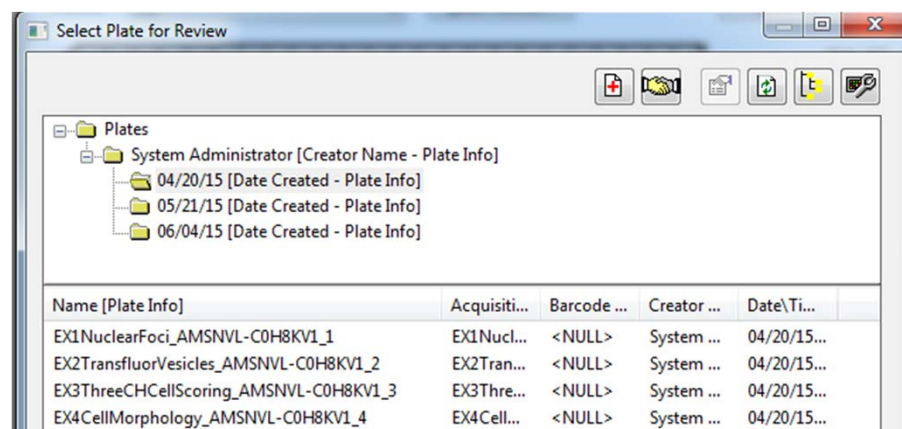
OR

- Under the **Screening** menu, select **Review Plate Data**



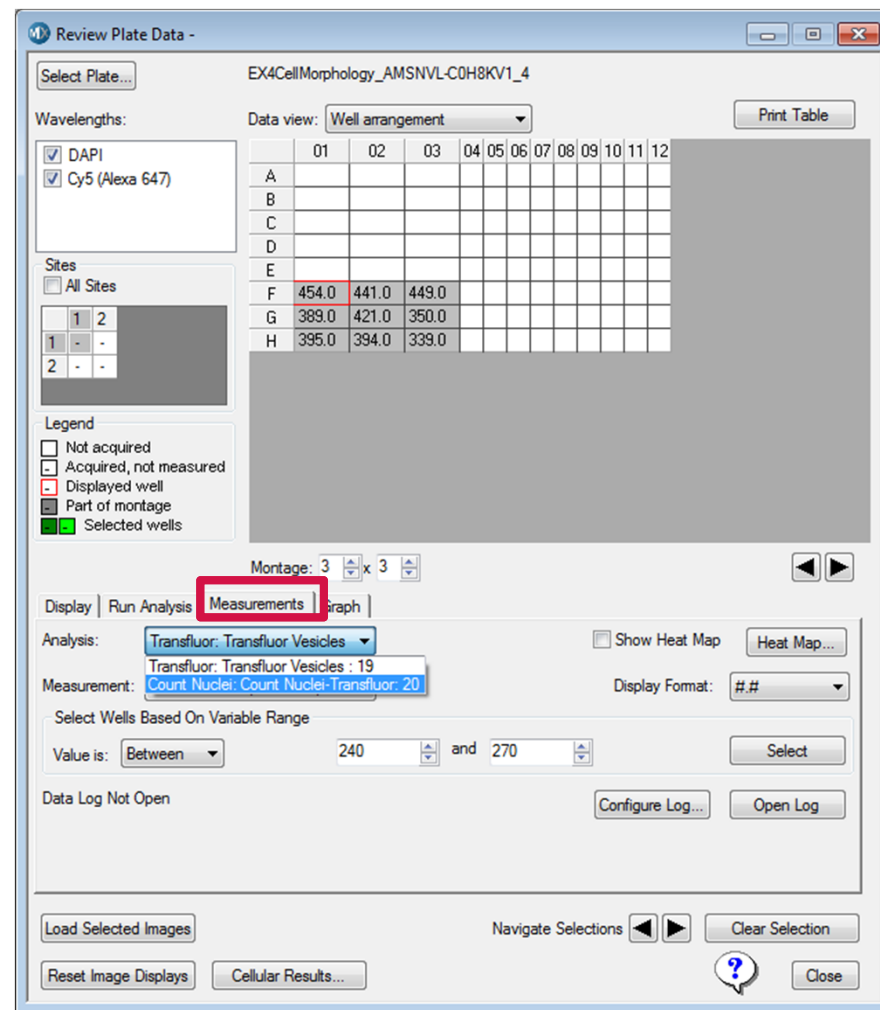
2. Click on the **Select Plate** button

3. Browse through the folders to open the plate of interest

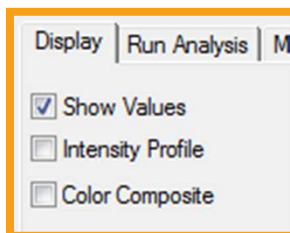


Viewing Analysis Results in Review Plate Data

4. Select the **Measurement** tab
5. Select the analysis to be viewed in the **Analysis** drop-down menu
6. Select a measurement of interest from the **Measurement** drop-down menu
 - Measurements preceded by “**Cell:**” are cell-by cell data. Values shown in the plate grid are the average of all cells found in the well. To view cell-by cell data for the selected site/well, click on the **Cellular Results...** button
7. Values in the plate view will automatically update with the selected measurement



If after running an analysis only dash marks appear in the plate grid, select the **Display** tab and enable **Show values**



Viewing Analysis Results in Review Plate Data

8. By default, data is displayed in **Well Arrangement** (plate format)
9. To change the view, change **Data View** to
 - **Time point vs Well**: matrix view of select measurements across all time points; columns are time points and rows are well ID.
 - **Z Step vs Well**: matrix view of select measurements across all Z steps; columns are Z steps and rows are well ID.
 - **Measurement vs Well**: matrix view of all measurements for a single plane; columns are measurements and rows are well ID.

Data view: Well arrangement

	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F	439.0	419.0	442.0									
G	379.0	336.0	307.0									
H	308.0	287.0	358.0									

Data view: Measurement vs Well

	Total Nuclei (CountNuclei)	Total Area (CountNuclei)	Mean Area (CountNuclei)	Integrated Intensity (CountNuclei)
B12				
C01				
C02				
C03				
C04	17.0	241211.6	14188.9	17239339008.0
C05	18.0	241349.8	13408.3	17227675648.0
C06				

Data view: Time Point vs Well

	01	02	03	04	05	06
B12						
C01						
C02						
C03						
C04	17.0	17.0	17.0	17.0	17.0	17.0
C05	18.0	18.0	18.0	18.0	18.0	18.0
C06						



Viewing Analysis Results in Review Plate Data

10. To view data in plates that containing multiple sites:

- **Single site:** uncheck **All Sites** and select the site of interest by left-clicking in the **Sites** section; selected site will be highlighted in gray.
- **All sites:** Enable the box next to **All Sites**; data displayed in the plate grid will automatically update to an average of all sites.

The screenshot shows the 'Review Plate Data' interface. On the left, the 'Wavelengths' section has checkboxes for 'DAPI' and 'FITC', both of which are checked. Below this is the 'Sites' section, which is highlighted with a red box. It contains a checkbox for 'All Sites' (which is checked) and a grid of site selection buttons. The grid has two columns and two rows, with buttons labeled '1' and '2' in the first row, and '1' and '2' in the second row. Below the 'Sites' section is a 'Legend' with five items: 'Not acquired' (white square), 'Acquired, not measured' (gray square), 'Displayed well' (red square), 'Part of montage' (dark gray square), and 'Selected wells' (green square). To the right of the 'Sites' section is a 'Data view' dropdown menu set to 'Well arrangement'. Below the dropdown is a plate grid with columns labeled 01 through 12 and rows labeled A through H. The grid shows data for wells C04 and C05, both containing the value '1111.0'. At the bottom of the interface, there are controls for 'Montage' (1 x 2) and 'Time points' (1 of 6).

If **All Sites** are enabled, data in the plate grid is an average of all the sites. To view data as another mathematical operation (i.e. sum, median, etc.), you must export the data through **Plate Data Utilities**. Refer to corresponding chapters for more details.

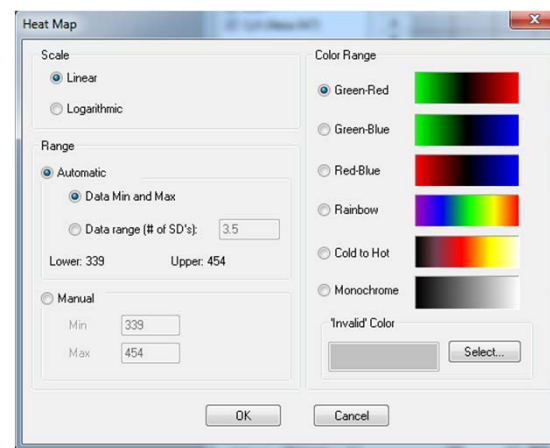
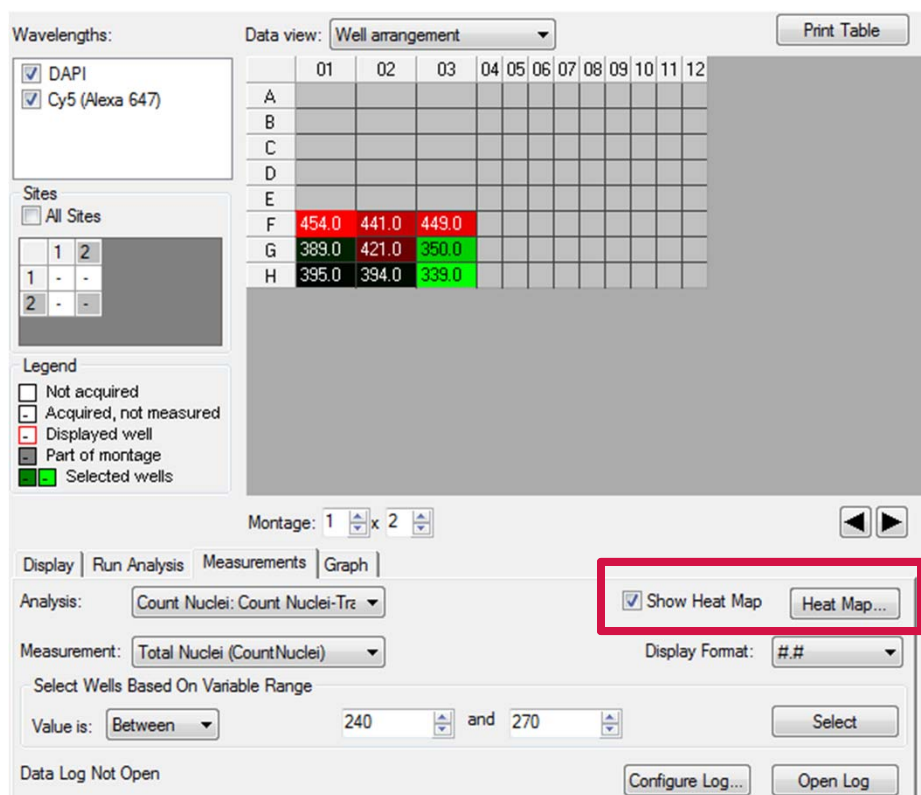


Configuring Visual Tools – Heat Map

Heat maps are a visual way of assessing patterns in the data

- Enable **Show Heat Map** in order to display a color map based on the values
- Configure the heat map by clicking on the **Heat Map** button
- Default heat map schema is Green-Red with low values displayed in green and high values displayed in red

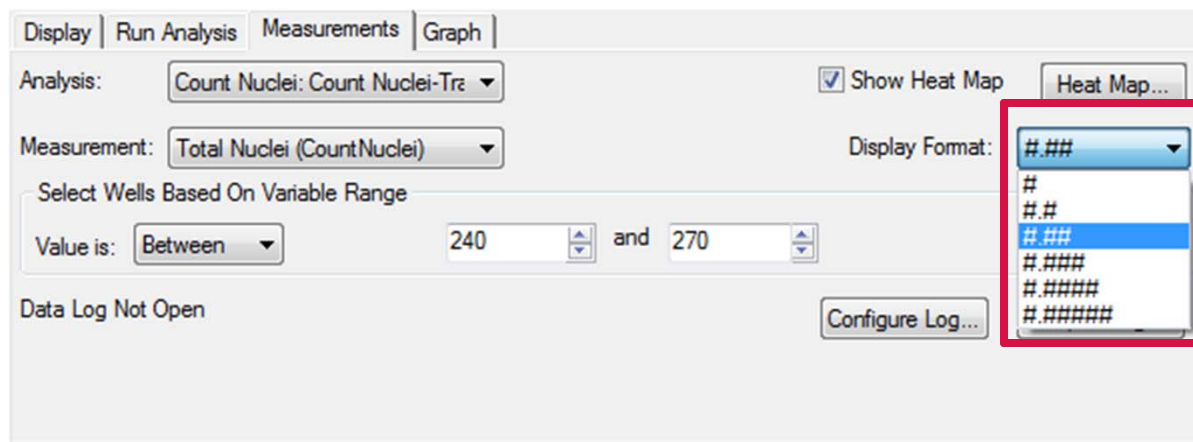
NOTE This option is not available when the Data view has been changed to Measurement vs. Well



Configuring Visual Tools – Significant Digits

The number of significant digits displayed in the plate grid can be configured from the **Display Format** drop-down menu. This can be useful when viewing measurements where integer values (i.e. nuclear count) are more appropriate.

**NOTE* This option only changes how the data is displayed and does not affect raw data*



Configuring Visual Tools – Filtering Values

Use the section under **Select Wells Based on Variable Range** to highlight wells (green) that fit user defined criteria for the displayed measurement.

- Disable **Show Heat Map**
- Select an operand from the **Value is** drop down menu
- Enter desired filter criteria
- Click on the **Select** button
- Values that meet the criteria will be highlighted in green in the plate grid
- Changing the displayed measurement does not change the highlighted wells
- To update the selection click on the **Select** button
- To clear the selection click on the **Clear Selection** button

Wavelengths: ☒ DAPI ☒ Cy5 (Alexa 647)

Sites: ☐ All Sites

Legend: ☐ Not acquired ☐ Acquired, not mea ☐ Displayed well ☐ Part of montage ☒ Selected wells

Data view: Well arrangement

	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F	454.00	441.00	449.00									
G	389.00	421.00	350.00									
H	395.00	394.00	339.00									

This example selects the wells (in green) in which Total Nuclei count > 400.

Analysis: Count Nuclei: Count Nuclei-Tr

Measurement: Total Nuclei (CountNuclei)

Select Wells Based On Variable Range

Value is: > 400

Clear Selection

NOTE This option only selects wells in the plate map and does not affect exporting of data



Logging Data to an Excel Spreadsheet

Data can be logged to an Excel spreadsheet in the exact format displayed in the **Data View**

- Change **Data view** to **Well arrangement** to log one measurement in plate format
- Change **Data view** to **Measurement vs Well** to log all data in column format

Review Plate Data - Transflur Agonist C_PRICKERT-UCLT1_18

Select Plate...

Wavelengths: ☒ DRAQ5 ☒ FITC

Data view: Well arrangement

	01	02	03	04
A	330503.49	256560.11	359982.12	74675.98
B	95582.36	111480.19	319911.11	78227.67
C	100168.68	182437.85	319358.20	100953.20

Print Table



	A	B	C	D	E	F
1	Barcode	N/A				
2	Plate Name	Transflur Agonist C				
3	Plate ID	11				
4	Description	12 well demo plate				
5	Acquisition User	System Administrator				
6	Z Step	1				
7	Measurement	Cell: Pit Integrated Intensity (Transflur)				
8		1	2	3	4	
9	A	330503.5	256560.1	359982.1	74675.98	
10	B	95582.36	111480.2	319911.1	78227.67	
11	C	100168.7	182437.9	319358.2	100953.2	
12						
13						

Review Plate Data - EX4CellMorphology_AMSNVL-C0H8KV1_4

Select Plate...

Wavelengths: ☒ DAPI ☒ Cy5 (Alexa 647)

Sites: ☐ All Sites

Data view: Measurement vs Well

	Total Nuclei (CountNuclei)	Total Area (CountNuclei)	Mean Area (CountNuclei)	Integrated Intensity (CountNuclei)	Average Intensity (CountNuclei)	CO2 Pressure Status (CountNuclei)	Temperature (CountNuclei)
F01	454.00	65351.45	143.95	2245607936.00	14517.95	Low Pressure	37.00
F02	441.00	61565.43	139.60	1766322944.00	12121.60	Low Pressure	36.90
F03	449.00	64789.95	144.30	1943333888.00	12672.62	Low Pressure	37.00
F04							

Print Table



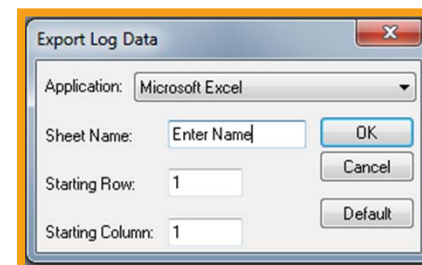
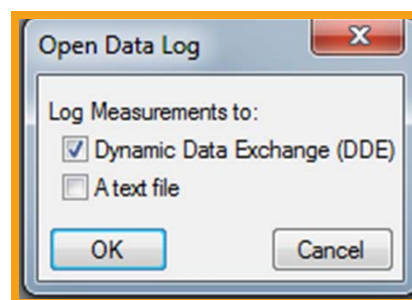
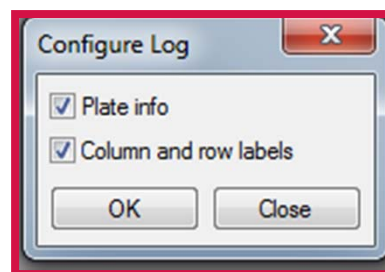
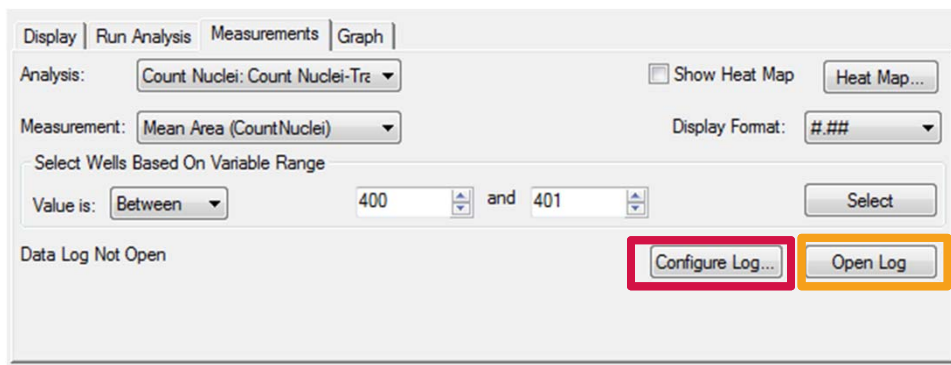
	A	B	C	D	E	F	G
1	Barcode	N/A					
2	Plate Name	Transflur Agonist C					
3	Plate ID	11					
4	Description	12 well demo plate					
5	Acquisition User	System Administrator					
6	Z Step	1					
7	Measurement	Cell: Pit Aver Cell: Vesicle Cell: Vesicle Cell: Vesicle Cell: Vesicle Cell: Nuclei					
8	A01	23640.27862	5.496063	20.534861	611135	26324.61	370.6515
9	A02	23395.24921	6.696246	39.466719	1220901	28682.28	257.3491
10	A03	18016.8308	21.85	40.51443	893184.4	21071.52	293.7666
11	A04	15901.73315	2.539326	7.970472	172801.8	14842.51	294.8816
12	B01	17298.99085	2.865385	9.617447	222003.9	16389.94	295.4239
13	B02	18029.63934	3.055363	8.696693	200332.9	16618.96	296.4171
14	B03	18231.77556	20.640845	47.340034	1111073	22728.89	287.891
15	B04	16999.33155	2.286713	7.974923	177164.3	15091.11	280.5003
16	C01	16758.32707	3.004098	10.086585	232870.6	17047.85	290.9846
17	C02	17062.65451	5.283871	9.966804	231913.8	20645.57	328.129
18	C03	18807.94118	18.111475	42.636616	1018476	23044.03	291.6146
19	C04	17511.07823	3.261017	9.915845	228234.1	17919.31	275.0486
20							



Logging Data to an Excel Spreadsheet

To log data to an Excel spreadsheet:

- Click on the **Configure Log** button to configure headers (i.e. Plate info, Column and row labels)
- Click on the **Open Log** button and enable **Dynamic Data Exchange (DDE)**
- In the **Export Log Data** dialog
 - Select Microsoft Excel from the **Application** drop-down menu
 - (Optional) Enter a name for the Excel sheet
 - (Optional) Enter Starting Row / Starting Column
 - Click **OK**
 - This step only opens and links to the Excel spreadsheet. It does not actually export values to the sheet.



Logging Data to an Excel Spreadsheet

While the Excel spreadsheet is open and connected to MetaXpress

- Click on the **Log Data** button to export the data displayed in the **Data View** to Excel
- To log another measurement (except in **Measurement vs Well** view), select the appropriate **Measurement** from the drop-down menu
- Each time you click on the **Log Data** button, the new values will appear below the previously exported data in the Excel spreadsheet and will not over-write existing data as long as a connection is maintained with MetaXpress

Display | Run Analysis | **Measurements** | Graph

Analysis: Count Nuclei: Count Nuclei-Trz ☐ Show Heat Map Heat Map...

Measurement: Mean Area (Count Nuclei) Display Format: ###

Select Wells Based On Variable Range

Value is: Between 400 and 401 Select

Data Log: DDE App Configure Log... **Log Data**

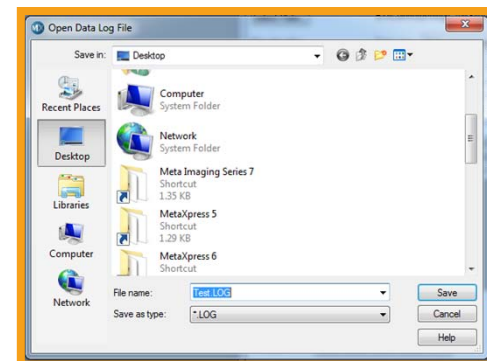
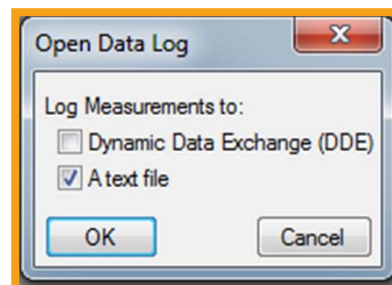
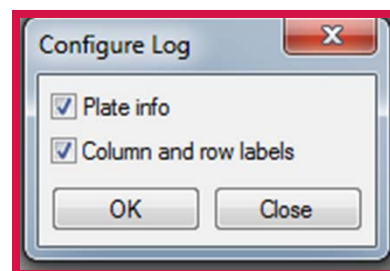
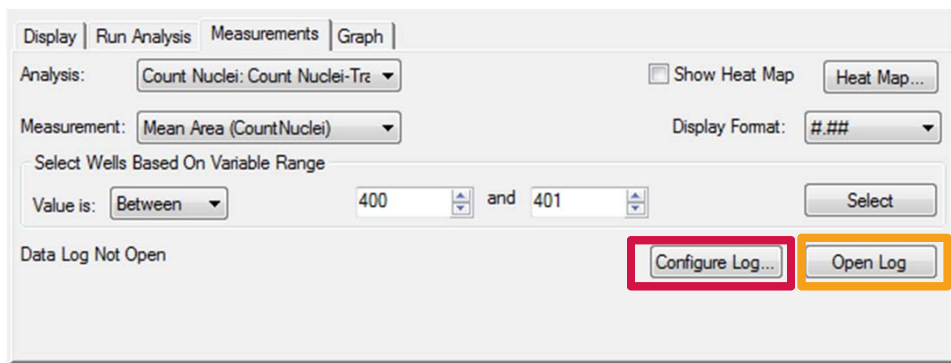


Logging Data to an Text File (.log)

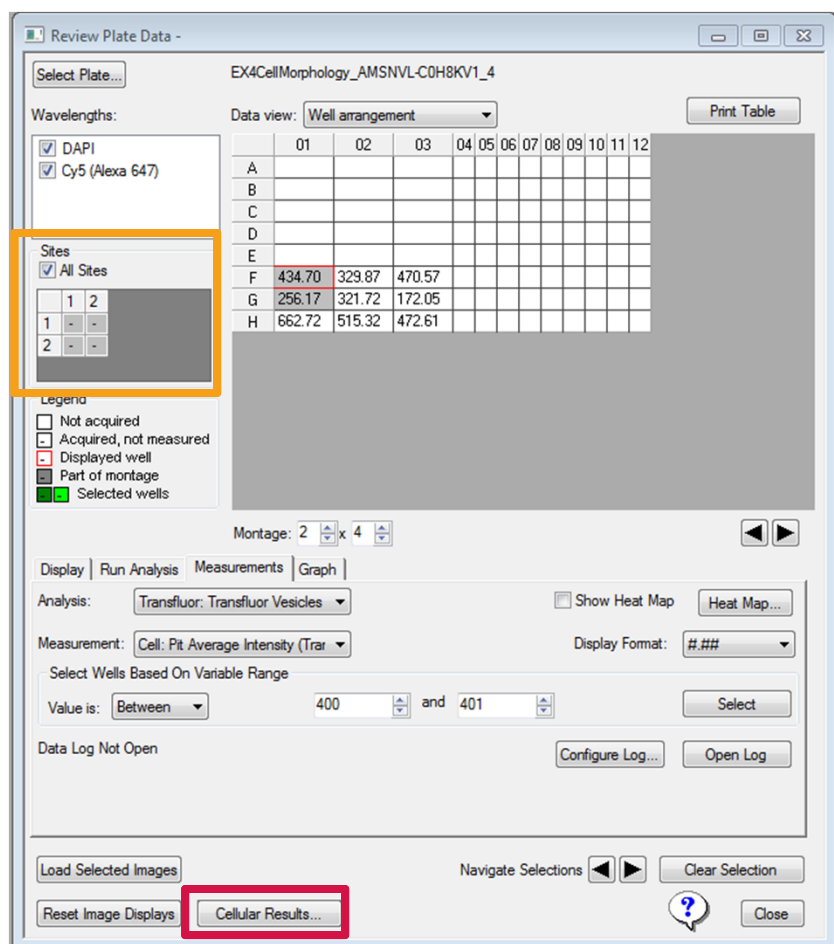
Data can also be logged to a text file (.log). This method is suggested if logging many data points as Excel has a row limit or if logging cell-by-cell data

- Click on the **Configure Log** button to configure headers (i.e. Plate info, Column and row labels)
- Click on the **Open Log** button and enable **A text file** and click **OK**
- A Windows navigation pane will open
 - Navigate to the desired location / folder
 - Enter a name for the text file
 - Click on the **Save** button. This step only creates the text file.
 - Log data as described in the Excel spreadsheet section

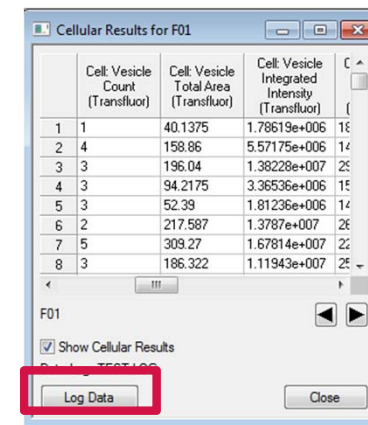
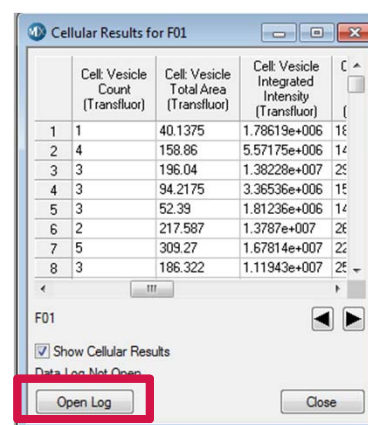
NOTE The .log file must remain closed while logging data. If you open the file through Windows, data will not be logged. To stop logging data, in the menus click on **Measure, Log, Close Data Log**



Logging Cell-by-Cell Data



For data sets that have multiple sites, data can be logged one site at a time or for all sites.



To log Cell-by-cell data (measurements that are preceded by “Cell:”

- Click on the **Cellular results** button to open the **Cellular Results** dialog
- Left-click on a desired well in the thumbnail image montage
- *NOTE* DO NOT click in the plate grid as this will only change the wells displayed in the thumbnail montage
- Click on the **Open Log** button
- Follow the instructions as outlined the previous sections for logging data to an Excel or text (.log) file



Support Resources

- F1 / HELP within MetaXpress® Software
- Support and Knowledge Base: <http://mdc.custhelp.com/>
- User Forum: <http://metamorph.moleculardevices.com/forum/>
- Request Support: <http://mdc.custhelp.com/app/ask>
- Technical Support can also be reached by telephone:
 - 1 (800) 635-5577
 - Select options for Tech Support → Cellular Imaging Products → ImageXpress Instruments





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