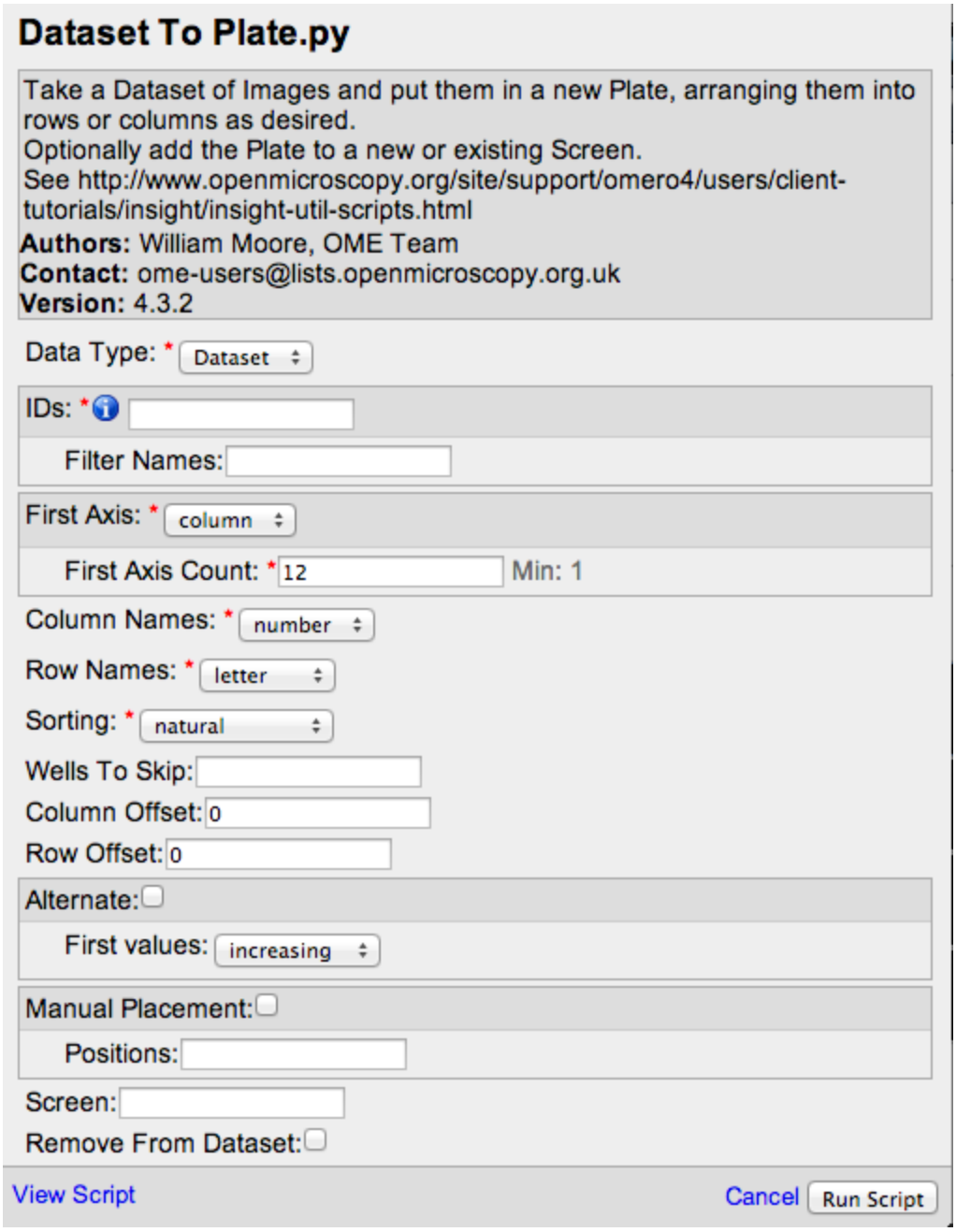
Dataset_to_plate.py script changes.

Changes added to the script allow for more flexible placement of wells on the plate when converting dataset to a plate.



List of changes:

- Row and column offset. If acquired data does not start at column 1 or row 1, images can be offset to start at arbitrary row or column.
- Well skipping. Allows to leave empty wells if data for a given well is not provided.
- Natural sorting. Option added to place images in correct wells for different naming conventions.

- Alternating indexing. Use when second axis index increases and decreases in alternating manner.
- Manual Positioning of images on the plate. If naming is not ordered.

When data available does not start at row 1 and/or column 1 user can input offset values to **Row Offset** and **Column Offset** edit boxes which will leave Offset number of rows and/or columns empty.

When not all of the images are present and some wells should be left empty user can input list of wells to skip to **Wells To Skip** edit box in following format:
Row:Column,Row:Column,Row:Column, ….

If images are named using natural naming convention: Image 1, Image 2, … , Image 10, … , natural sorting option should be selected from **Sorting** combo box as Alphabetical sorting will result in incorrect image order: Image 1, Image 10, …. , Image 2, … .

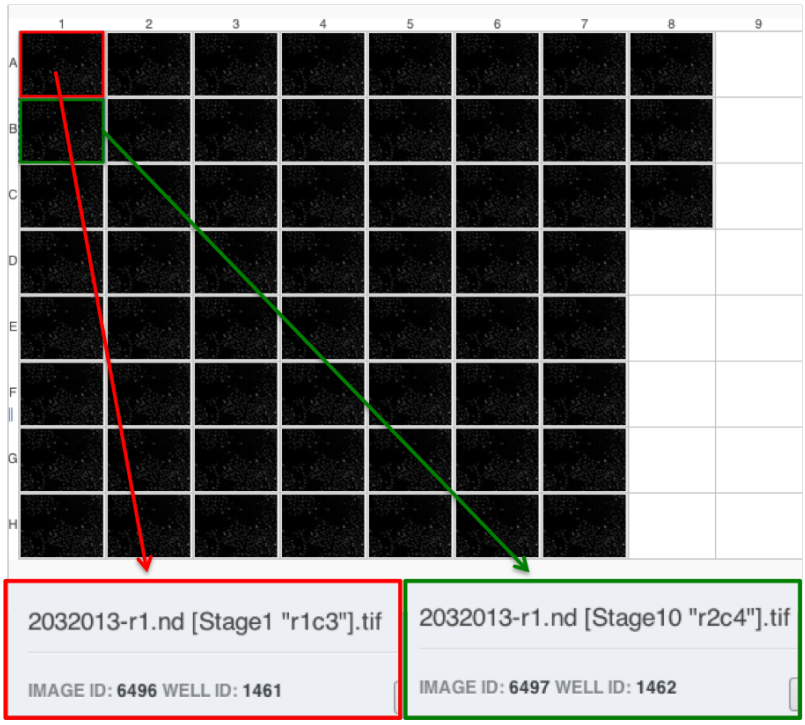
If images are ordered in alternating pattern (e.g first row/column index increases second row/column index decreases and so on) use **Alternate** option. **First values** specifies whether first row/column index is decreasing or increasing.

If image naming convention can not be sorted so that images can be properly lay out on the plate using above option it is possible to **Manually** place images on the plate. Ticking **Manual Placement** box and specifying list of positions in **Positions** edit box. Positions should be in following format: Row:Column,Row:Column,Row:Column, …. . Number of positions has to be equal to number of images in dataset. Care should be taken when choosing sorting option as this will affect the result.

Example Use.
Example dataset can be found at:
https://github.com/emilroz/ExampleData/tree/master/Dataset_to_Plate.py This data set was created to test new functionality.

1. Running script without new functionalities for this dataset results in wrong plate layout.
Settings (emulate previous version of the script):

- First Axis: Row (images are labeled row:column)
- Axis Count: 8 (highest row number)
- Sorting: alphanumeric
- Wells to skip:
- Column offset: 0
- Row offset: 0

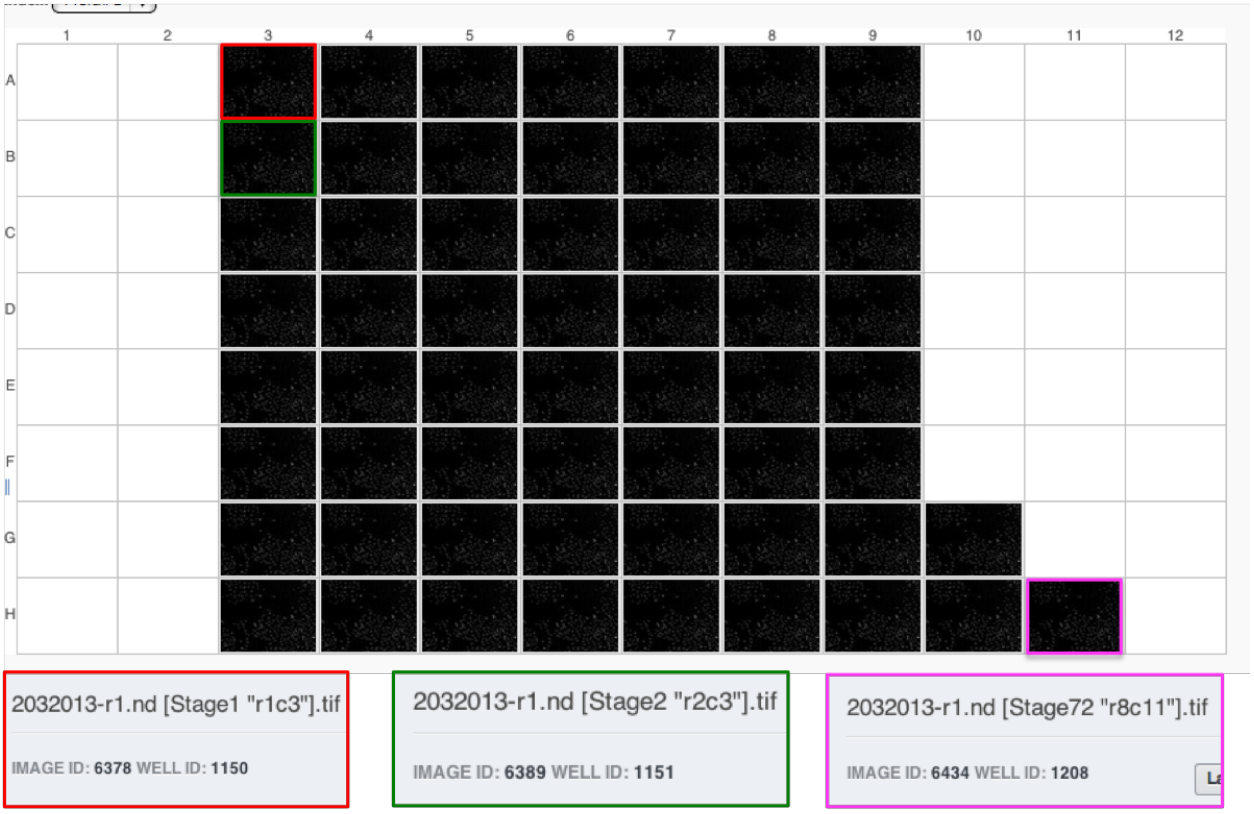


Alphabetical sorting used in Dataset_to_plate.py will result in wrong placment of images (listed on the left) on the plate (see below - images placed on plate along rows).

2. Running script with correct settings.
Data:
https://github.com/emilroz/ExampleData/tree/master/Dataset_to_Plate.py/Images

Settings:

- First Axis: Row (images are labeled row:column)
- Axis Count: 8 (highest row number)
- Sorting: natural (this will properly sort images 1,2,3,4,5,6,7,8,9,10,….)
- Wells to skip: (format rowA:columnA,rowB:colB, …)
  1:10,2:10,3:10,4:10,5:10,6:10,1:11,2:11,3:11,4:11,5:11,6:11,7:11
- Column offset: 2 (data starts at column 3)
- Row offset: 0



3. Alternating Index. When for row 1 column index runs from 3 to 9, for row 2 column index runs from 9 to 3, for row 3 column index runs from 3 to 9 and so on.
Data:
https://github.com/emilroz/ExampleData/tree/master/Dataset_to_Plate.py/Images2_alternate
Settings (emulate previous version of the script):

- First Axis: Column (images are labeled row:column)
- Axis Count: 9 (highest row number)
- Sorting: natural
- Wells to skip:
- Column offset: 2
- Row offset: 0
- Alternate: True
- First values: increasing

4. Manual Placement. Image position has to be specified manually in as list in format: row:column,row:column, … Care must be taken when to choose appropriate sorting function. Script will not run if number of positions is not equal to number of images in dataset.
Data:
https://github.com/emilroz/ExampleData/tree/master/Dataset_to_Plate.py/Images3_no_order

Settings:

- Sorting: natural
- Manual Placement: True
- Positions:
  1:3,1:4,1:5,1:6,1:7,1:8,1:9,2:9,2:8,2:7,2:6,2:5,2:4,2:3,3:3,3:4,3:5,3:6,3:7,3:8,3:9,4:9,4:8,4:7,4:6,4:5,4:4,4:3,5:3,5:4,5:5,5:6,5:7,5:8,5:9,6:9,6:8,6:7,6:6,6:5,6:4,6:3,7:3,7:4,7:5,7:6,7:7,7:8,7:9,8:9,8:8,8:7,8:6,8:5,8:4,8:3,5:10,6:10,7:10,8:10,6:11