CREATING A RE-ARRAY FILE

THE BASICS

So, you're looking to get stuck into re-arraying - awesome.

If you're unsure, re-arraying is the picking of colonies from a source plate and placing (or pinning) them onto a different target plate. These picking and pinning locations are defined by the user and completely customisable. You can use several different plate types and either traditional well locations or exact coordinates.

What this really means is, you can pick from anywhere to anywhere, in almost any plate type - how cool!

So, what do we need to get started?

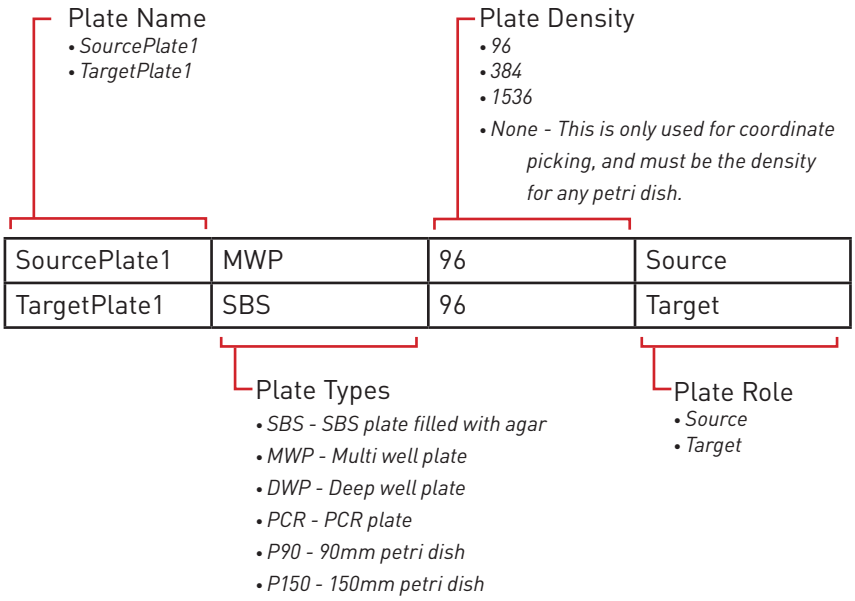
- A program that can export .tsv (or .csv) files; Excel and Google Sheets both work. (This is where we'll create the file)
- Which plates you want to pick from, and to. (The Source and Target)
- An idea of where we're pinning from, and to.

Got all this? Awesome.

A FULL BREAKDOWN

Step 1: Define The Plates

Let's start with a basic example. You have colonies in a 96 Multi Well Plate and you'd like to pin them to a 96 SBS Plate. To begin, we need to define the plates. In a blank spreadsheet, lay out the plate name, type, density and role as in the diagram below.



We have used arbitrary plate names above. If you place a '$' prior to the name the plate will be given a unique ID. This name is only used within the exported data logs, so you can use anything. For simplicity, consider using '$SourcePlate1' and '$TargetPlate1' for ease of file creation, and PIXL will assign unique names for the export logs.

PIXL will decide which plates should go where, typically the 'Source' plate will go to the source bay, and the first target plate will go into bay 1. This is necessary as some plates are required to be in specific bays, and user defined plate locations will limit the flexibility of re-arraying. PIXL will produce instructions on where to load plates, based on the Plate Name.

Note: if you're using '$TargetPlate1' or similar, the plate names will already be automatically generated and will not match the original input.

PLATE DIMENSIONS (OPTIONAL)

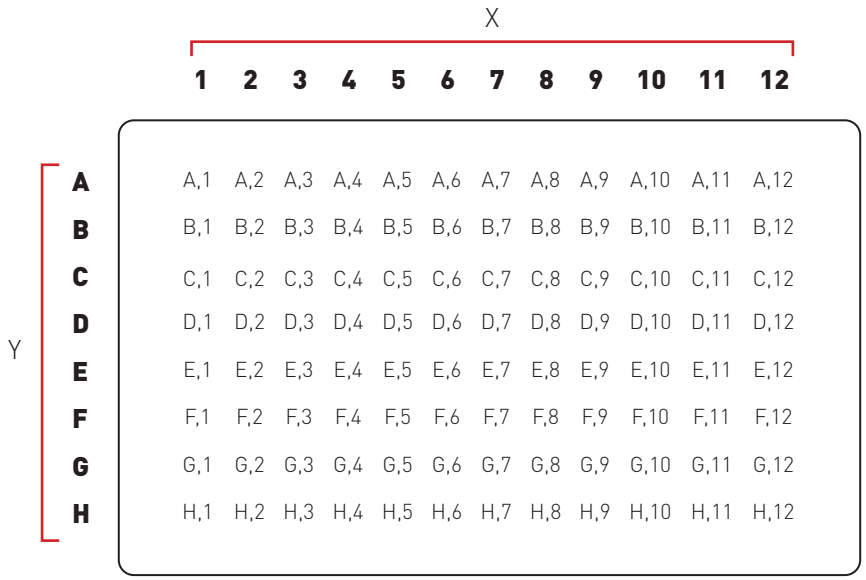
You can specify dimensions after the plate role, however this is not needed - PIXL will run based off the standard stored dimensions for each plate type. If you need to add custom dimensions you should contact us for further help.

Step 2: Define The Pinning Locations

Now we've completely defined our plates, the second step is to define the pinning locations, this can be done in two ways:

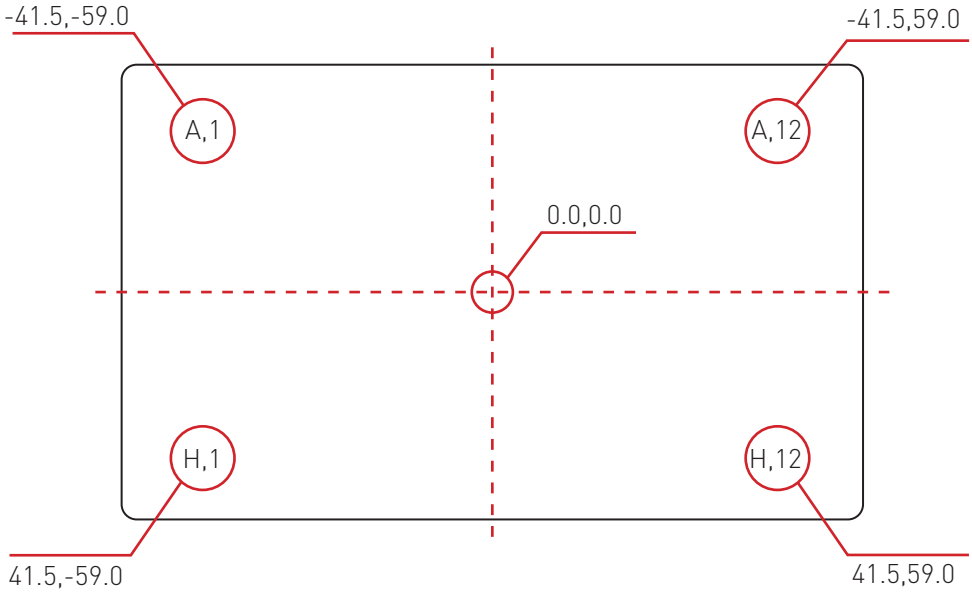
Method 1. Using grid (well) references, e.g. A1, B3, H7 etc.

For this method it's important to note that the locations are written Y,X as is normal on a 96 well plate, and not a standard graph. The letters of the Y location can also be replaced with numbers, e.g. 1,1 / 2,3 / 8,7, etc.



Method 2. Using Cartesian co-ordinates, e.g. -34.0,22.5 etc.

This is a more complex, but precise method of telling PIXL exactly where to pick. When using cartesian co-ordinates the centre of the plate is 0.0,0.0 as shown below. You'll need to generate coordinates for your colonies, which you can get from PIXL outputs, or potentially other plate analysis software. You can also see the aproximate location coordinates of the four corner wells on a 96 well plate.



When using coordinates, you must have the plate density set to 'None' and in each coordinate you must use a decimal point; '0.0,0.0' is valid, however '0,0' is not and PIXL will interpret this as a plate location as seen in Method 1. This will lead to an error in the file.

PETRI DISHES
A density of 'None' is also required if using a Petri dish, which will require coordinate locations for all picks.

WRITING A PINNING COMMAND

We're now ready to combine everything above into a command, continuing from the earlier example (where we set our source plate as a 96 MWP, and our target as an SBS agar plate with a density 96). We're going to pin from well A1 to the first 4 positions A1-A4.

Source Plate			Target Plate			
SourcePlate1	A	1	TargetPlate1	A	1	*
SourcePlate1	A	1	TargetPlate1	A	2	
SourcePlate1	A	1	TargetPlate1	A	3	
SourcePlate1	A	1	TargetPlate1	A	4	
Plate Name	Y	X	Plate Name	Y	X	

*Line Break

LINE BREAKS

Finally, a line break will define when the PickupLine is cleaved. This is the point where a line finishes and the next one starts. This allows you to control the exact function before cleaving, offering multiple picks. In the example above The PickUpLine is cleaved after the target plate is pinned at location A,1.

Step 3: Combining the file & Export

We've now defined our plate types and desired picking locations, let's combine these into the final file. Your spreadsheet should look like the example below.

SourcePlate1	MWP	96	Source		
TargetPlate1	SBS	96	Target		
SourcePlate1	A	1	TargetPlate1	A	1
SourcePlate1	A	1	TargetPlate1	A	2
SourcePlate1	A	1	TargetPlate1	A	3
SourcePlate1	A	1	TargetPlate1	A	4

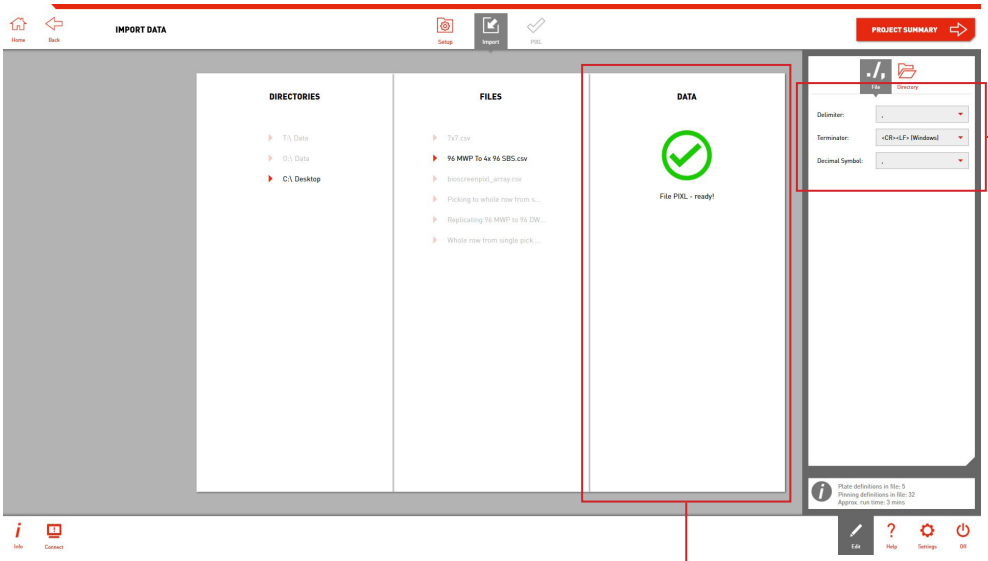
Export this as tab-separated values (.tsv) or comma-separated values (.csv), a .tsv file will look like this:

```
SourcePlate1    MWP    96    Source
TargetPlate1    SBS    96    Target
SourcePlate1    A      1     TargetPlate1    A    1
SourcePlate1    A      1     TargetPlate1    A    2
SourcePlate1    A      1     TargetPlate1    A    3
SourcePlate1    A      1     TargetPlate1    A    4
```

Step 4: Loading onto PIXL

Now the file is finished and exported as either a CSV or TSV file, save that to a USB stick and upload this onto PIXL. Run the Re-array program and select your file - PIXL will quickly scan the file to make sure there are no errors, it will either show a green tick or a red cross and explain where the errors are. Depending on the file type you've used, you may need to alter the settings, click on 'Edit' and 'File', make sure the drop down boxes are correct for your file delimiter, terminator and decimal.
Check out the picture below to see where this is!

Note: A Re-Array Template is exported for all random colony picking projects.
This can be found in the PIXL tracking directory:
C:\Users**(user name)**\AppData\Roaming\Singer Instrument Company Limited\PIXL\Tracking
Simply open the required project folder for the rearray template.



The Delimiter, Terminator and Decimal can be adjusted here.

Any errors in the file will appear here.

Put in the plates, and... done; PIXL Master 2.0!

Please contact us if you're having any issues or need help. For more examples of PIXL re-array files, check out our Technical Support site: http://bit.ly/pixlrearray