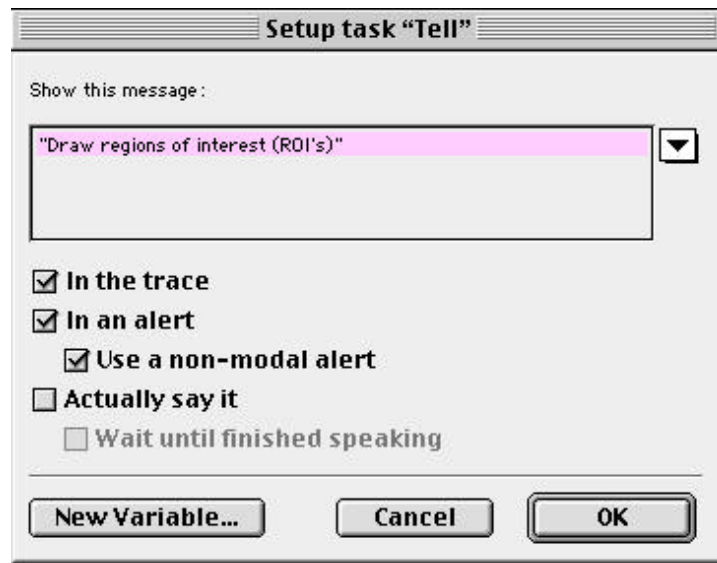


## Topic

This technical note describes the method for creating an automation which will extract measurements from a series of images and put the results into a graph.

## Discussion

The first important factor in a measure and plot automation is to draw the regions of interest that you want to measure and convert them to a binary layer.



Remember to use a non-modal tell task to prompt you to draw the regions of interest.



Use the task above to create a binary layer from the regions of interest that you have drawn.

We need a graph to put the measurements into - use the task below.

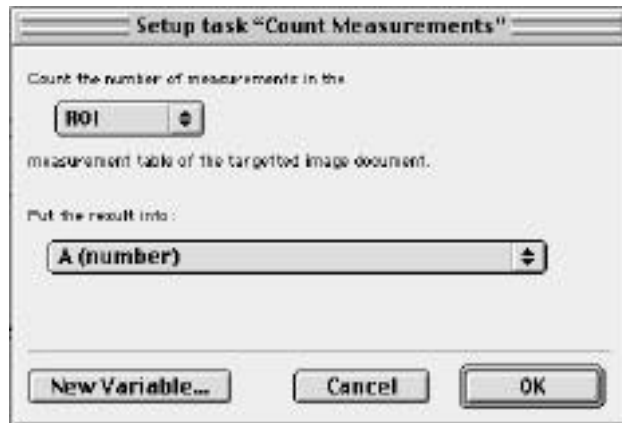
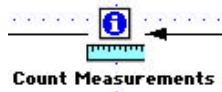


You might want to think about setting the axes for the graph so use the following task.



The number of traces that will appear on the graph will depend on how many regions of interest you have drawn.

First you need to count any measurements which already exist in the Measurements table, which you can find out by using a "Count Measurements" task.



We are only interested in the number of ROI measurements, so set-up the task as shown above. Notice that we have put the result into a number variable "A".

Now measure any layer in the image document with the binary mask that you have created.

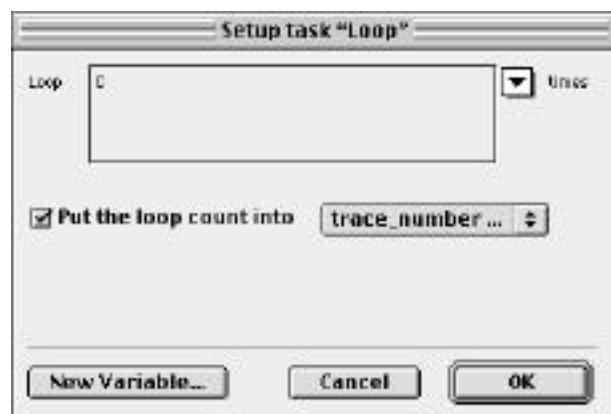
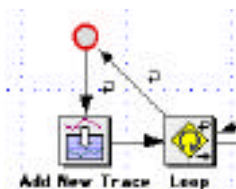


The next step is to re-count the number of measurements in the Measurements table using another "Count Measurements" task. Put the result for this task into a number variable "B".

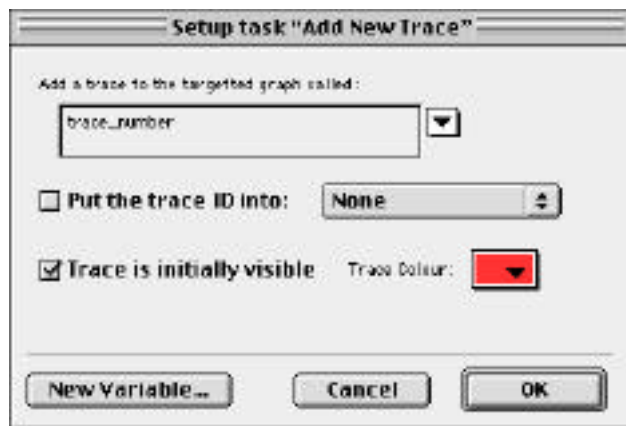
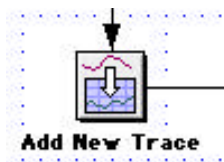
Now you can calculate the number of traces (C) you need in your graph, because the number of regions of interest you have measured will be the difference between B and A  
 $(B-A=C)$

Next it is time to use one of the three essential loops of the measure and plot automation.

Use a similar set-up to the one below.

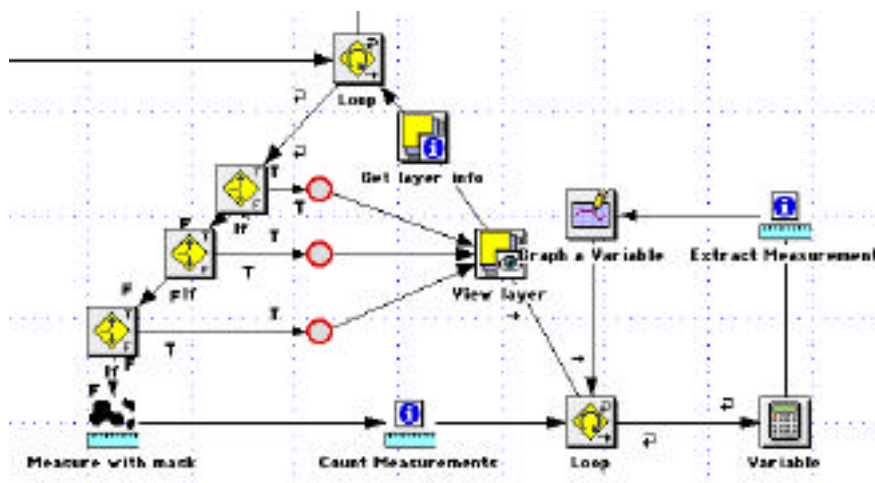


Use the loop count to define the trace name.



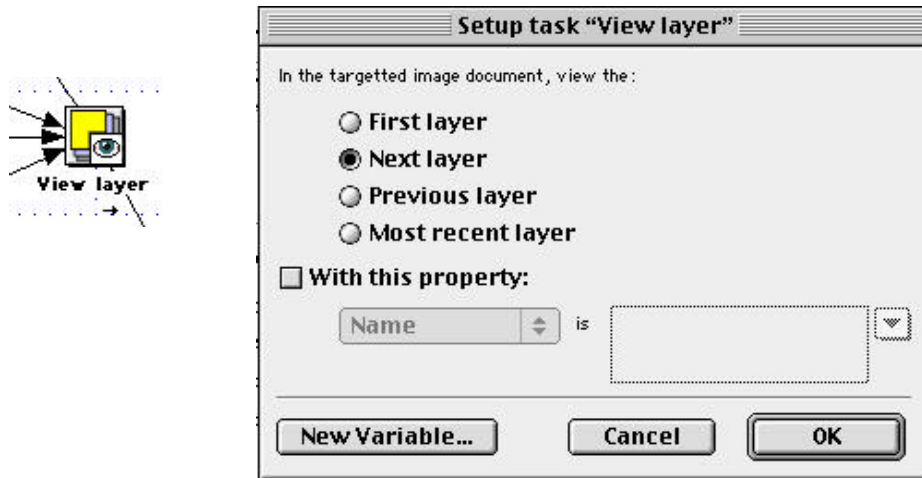
So we now have the binary mask and the graph document waiting to receive the measurements.

The next phase of the automation can be seen below.



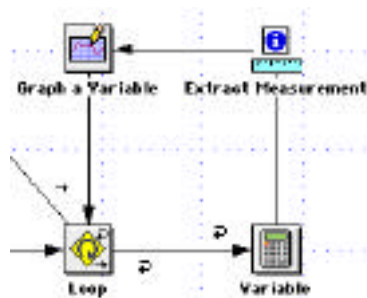
You will notice that we have three “If” tasks in the loop. These merely act as filters to ignore the layers that you don’t want to measure within the layered file (namely “Original image”, “Video Preview” and “Mask”)

Essentially the automation measures the image then moves to the next one. To do this you need to set up the view layer task as follows.



So now the main loop is measuring the layers, but how do you get the measurements into the graph making sure that the right measurement into the right trace?

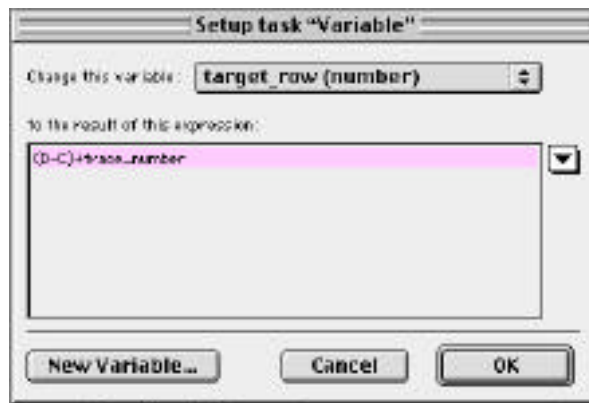
Just after the automation has measured with the mask there is another “Count Measurements” task, lets put the result of this task into a number variable “D”.



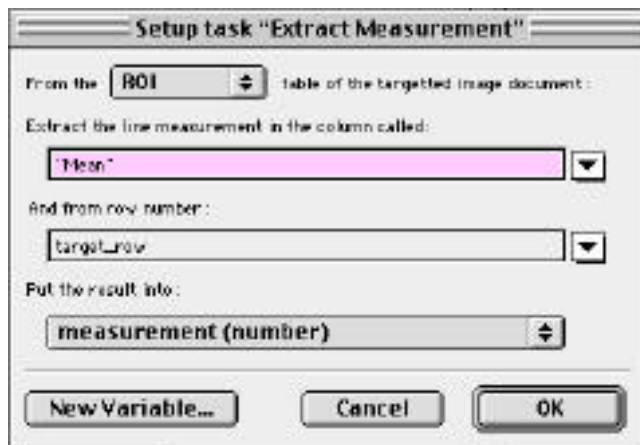
The loop task is a carbon copy of the one we used previously.

By re-using the Loop task variable, the task will loop the same number of times as there are traces/objects in the binary layer.

Now to target the measurement row.



This is put into a separate variable to illustrate clearly how you target the correct row.  
D-C will give you the number of measurements before the last measurement operation was executed.  
Adding on the loop count (trace\_number) will increment giving the correct row number to target per trace number.  
The measurement is extracted with the task below.



The measurement is then plotted, in this case we have chosen to plot it against the layer number.

The "count" value is the loop count from the main loop.

**Setup task "Graph a Variable"**

Plot the following X, Y value on the targetted chart. The trace will be drawn from the previous plotted point to this one.

**Use the trace called:**  ▼

**or with the ID:**  ▼

Y val:  ▼

X val:  ▼