

# "You are not allowed to use Modelbuilder": When Instructors need to get smarter

This post was inspired by the thread in GeoNet ... <https://geonet.esri.com/thread/116880> entitled **I'm a student and I need a python script that i can use for ArcMap** where apparently Modelbuilder...the natural choice...was not permitted to generate a script for working in ArcMap.

I usually suggest that my students use Modelbuilder to build workflows, then they can modify the script for general use with the existing, or other, data sets. I personally don't use Modelbuilder, but I have used one of two methods to generate the needed workflow

## Method 1 Do it once...get the script...modify and reuse

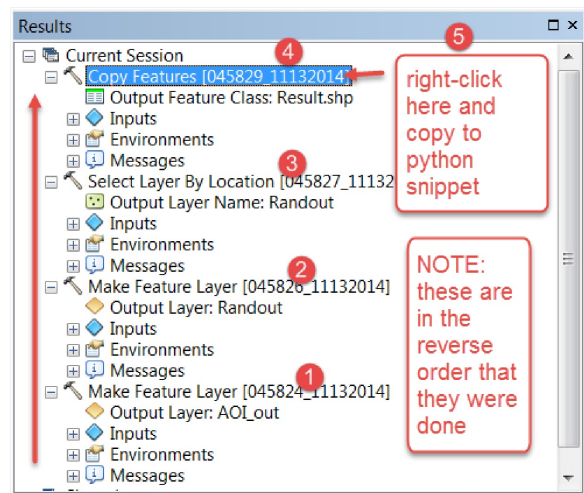
The following is a workflow that creates 2 feature layers, performs a select by location, then copies the results out to a new shapefile.

1 Start with a blank project. Have your data files assembled and open ArcToolbox and the Geoprocessing Results window.

2 In arctoolbox, go through the steps manually. After each step copy the results to a python snippet. The steps I performed are shown in the figure to the right.

You will note that the processes shown are in the reverse order that I performed them.

After each ArcToolbox tool was used, I right-clicked on the process (eg. Make Feature Layer) and copied the results to a separate text editor, or in my case a python script within your favourite Python IDE.



3 The results are:

```
1 '''
2 stub_01.py
3 '''
4 # Replace a layer/table view name with a path to a dataset (which can be a layer file) or create the layer/table view
5 # The following inputs are layers or table views: "AOI_mtm9"
6 arcpy.MakeFeatureLayer_management(in_features="C:/test/mapping/shapefiles/AOI_mtm9.shp", out_layer="AOI_out", where_clause="")
7 arcpy.MakeFeatureLayer_management(in_features="C:/test/mapping/shapefiles/RandomPnts.shp", out_layer="Randout", where_clause="")
8 # Replace a layer/table view name with a path to a dataset (which can be a layer file) or create the layer/table view
9 # The following inputs are layers or table views: "Randout", "AOI_out"
10 arcpy.SelectLayerByLocation_management(in_layer="Randout", overlap_type="INTERSECT", select_features="AOI_out", search_extent="ALL")
11 # Replace a layer/table view name with a path to a dataset (which can be a layer file) or create the layer/table view
12 # The following inputs are layers or table views: "Randout"
13 arcpy.CopyFeatures_management(in_features="Randout", out_feature_class="C:/test/mapping/shapefiles/Result.shp", confidence="NO_SELECTION")
14
15
16
```

copy the results to a text file or a separate python script

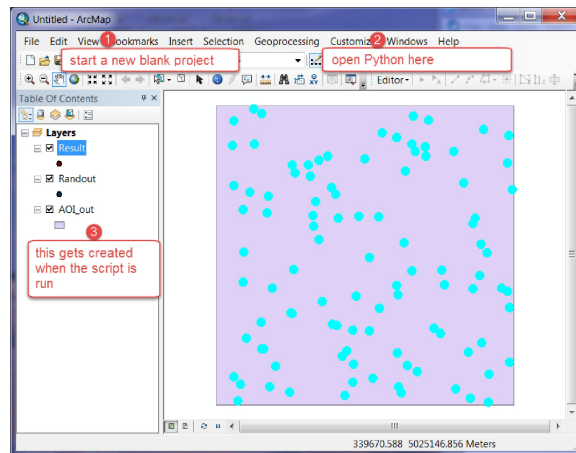
This is the script you run in ArcMap's python window...you would need to add a line .... import arcpy ... for scripts to run outside of arcmap

- 4 Save your script (e.g. stub\_01.py in this example), close ArcMap, re-open a blank project and open the Python window in the Geoprocessing menu. Right-click within the window, select **Load** and navigate to where you saved your script. Follow the steps in the image below:

```
>>> '''
... stub_01.py
... '''
... # Replace a layer/table view name with a path to a dataset (which can be a layer file) or create
the layer/table view within the script
... # The following inputs are layers or table views: "AOI_mtm9"
... arcpy.MakeFeatureLayer_management(in_features="C:/!
test/mapping/shapefiles/AOI_mtm9.shp",out_layer="AOI_out",where_clause="#",workspace="#",field_info
fo="FID FID VISIBLE NONE;Shape Shape VISIBLE NONE;Id Id VISIBLE NONE")
... arcpy.MakeFeatureLayer_management(in_features="C:/!
test/mapping/shapefiles/RandomPnts.shp",out_layer="Randout",where_clause="#",workspace="#",field_in
fo="FID FID VISIBLE NONE;Shape Shape VISIBLE NONE;Id Id VISIBLE NONE;X X VISIBLE NONE;Y Y VISIBLE
NONE")
... # Replace a layer/table view name with a path to a dataset (which can be a layer file) or create
the layer/table view within the script
... # The following inputs are layers or table views: "Randout", "AOI_out"
... arcpy.SelectLayerByLocation_management
(in_layer="Randout",overlap_type="INTERSECT",select_features="AOI_out",search_distance="#",selectio
n_type="NEW_SELECTION")
... # Replace a layer/table view name with a path to a dataset (which can be a layer file) or create
the layer/table view within the script
... # The following inputs are layers or table views: "Randout"
... arcpy.CopyFeatures_management(in_features="Randout",out_feature_class="C:/!
test/mapping/shapefiles/Result.shp",config_keyword="#",spatial_grid_1="0",spatial_grid_2
="0",spatial_grid_3="0")
...
...
>>>
```

Executing: MakeFeatureLayer C:/!test/mapping/shapefiles/AOI\_mtm9.shp AOI\_out # # "FID  
FID VISIBLE NONE;Shape Shape VISIBLE NONE;Id Id VISIBLE NONE"  
Start Time: Thu Nov 13 04:58:24 2014  
Succeeded at Thu Nov 13 04:58:24 2014 (Elapsed Time: 0.02 seconds)  
Executing: MakeFeatureLayer C:/!test/mapping/shapefiles/RandomPnts.shp Randout # # "FID  
FID VISIBLE NONE;Shape Shape VISIBLE NONE;Id Id VISIBLE NONE;X X VISIBLE NONE;Y Y  
VISIBLE NONE"  
Start Time: Thu Nov 13 04:58:26 2014  
Succeeded at Thu Nov 13 04:58:26 2014 (Elapsed Time: 0.03 seconds)  
Executing: SelectLayerByLocation Randout INTERSECT AOI\_out # NEW\_SELECTION  
Start Time: Thu Nov 13 04:58:27 2014  
Succeeded at Thu Nov 13 04:58:27 2014 (Elapsed Time: 0.09 seconds)  
Executing: CopyFeatures Randout C:/!test/mapping/shapefiles/Result.shp # 0 0 0  
Start Time: Thu Nov 13 04:58:29 2014  
Succeeded at Thu Nov 13 04:58:29 2014 (Elapsed Time: 0.43 seconds)

"Automagically" you will end up with this.



And who said all instructors were cleverer than their students! (Or all instructors haven't thought through their requirements thoroughly :))