





Table Generator Tool

Objective: *To understand how the Table Generator Tool is used to create Seasonal & Special Vehicle Designation tables.*

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If any seasonally designated route has a different set of dates, or if any route identified as special designation has a different mode of travel, then a Seasonal and Special Vehicle Designation table will be required, in which case, you will need to use the Table Generator Tool to create that table.



What is it?

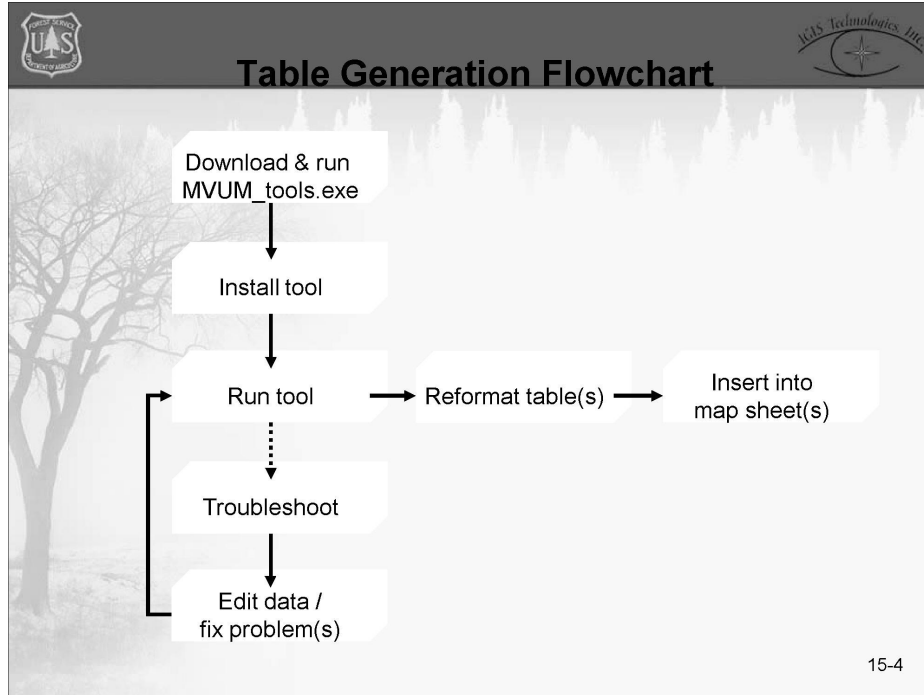
- What it is:
 - Geoprocessing tool run in ArcToolbox
- What it does:
 - Runs “intersect” tool on map extents and route features
 - Creates Excel spreadsheets of seasonal & special designations for all designated routes

Route Number	Legend	Special Vehicle Designation	Dates Allowed	Beginning Mile Post	Ending Mile Post
200	Roads open to highway legal vehicles only, with Seasonal Designation	Seasonal Designation	09/15-02/15	0.000	1.000
201	Roads open to highway legal vehicles only, with Seasonal Designation	Seasonal Designation	09/15-02/15	0.000	0.400
202	Roads open to highway legal vehicles only, with Seasonal Designation	Seasonal Designation	09/15-02/15	0.400	0.600
203A	Roads open to highway legal vehicles only, with Seasonal Designation	Seasonal Designation	09/15-02/15	0.600	1.000

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The Table Generator Tool is a geoprocessing tool that is run in ArcToolbox. It performs an “intersect” function on the MapExtents feature class and the roads or trails as specified. The results of this intersection are exported to a series of Excel spreadsheets that show the seasonal and special designations for all designated routes. One spreadsheet is created for each polygon within the MapExtents feature class. The cartographer then places this spreadsheet on the appropriate map sheet of the MVUM.

Table Generator Tool



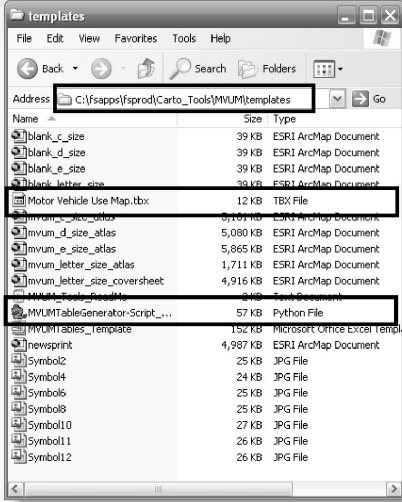
Here is a flowchart that lists all of the steps involved in using the Table Generator Tool. In the forthcoming slides you will see us address all of these steps.

Table Generator Tool



Installing the Tool

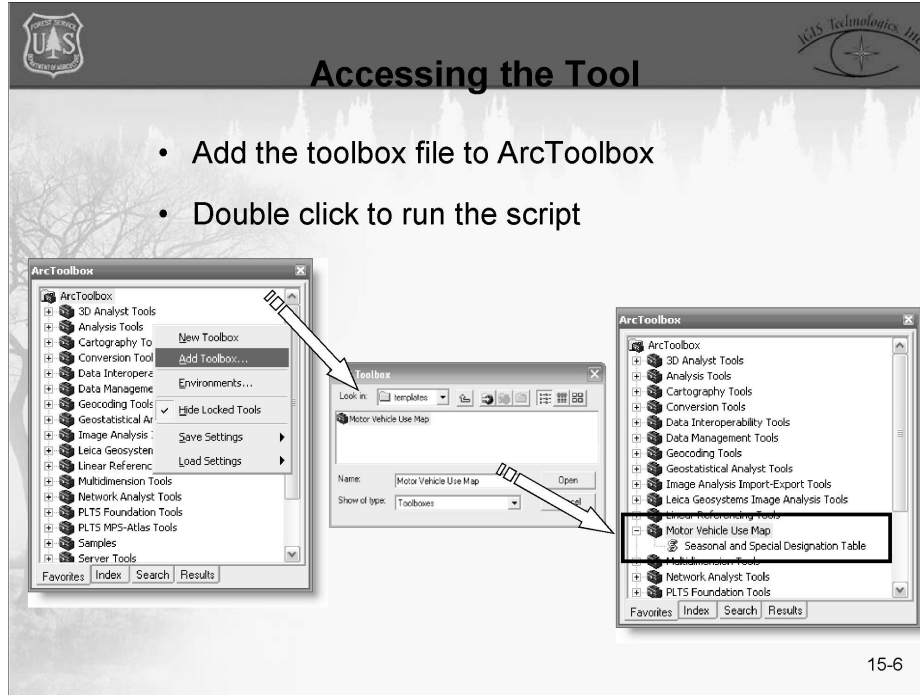
- Downloaded as part of MVUM_tools.exe
- Website:
<http://gis.gsc.wo.fs.fed.us/wo/mvum/step-3.php>
- Self-extracts to:
C:\fsapps\fsprod\Carto_Tools\MVUM\templates



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The Table Generator Tool is included in the MVUM_tools.exe. You can download this from Step 3 of the Forest Service's MVUM website: <http://gis.gsc.wo.fs.fed.us/wo/mvum/step-3.php>. Once you have run the executable, the tool self-extracts to c:\fsapps\fsprod\Carto_Tools\MVUM\templates, along with the Motor Vehicle Use Map toolbox. The executable will deposit an ArcToolbox file (tbx), a Python script (py), and some symbol files used for the route symbology (jpg) for display in the map.

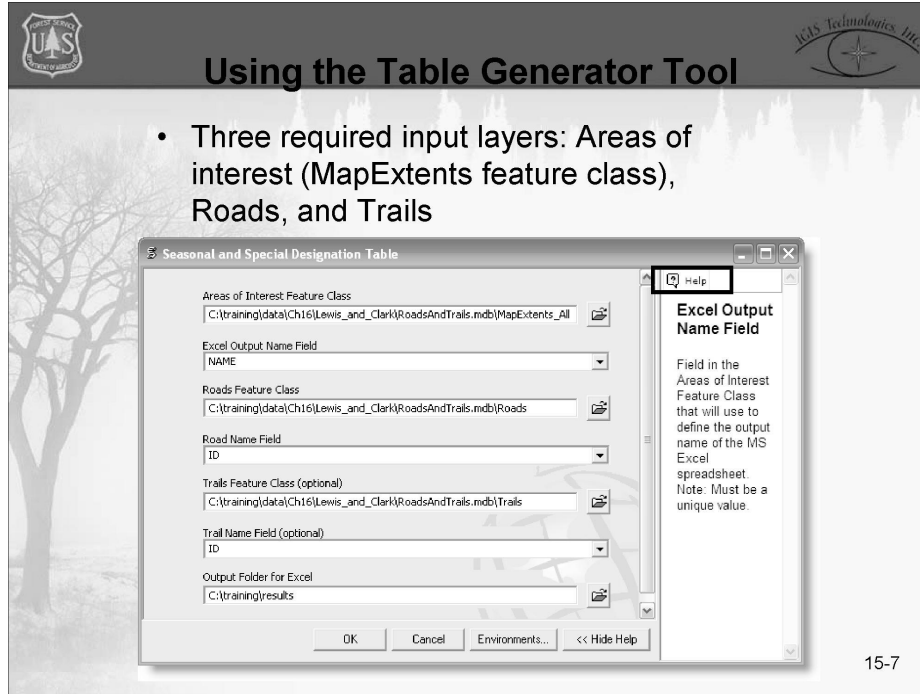
Table Generator Tool



To use the Table Generator Tool, you will need to input your MapExtents feature class (Area(s) of interest). You will also define your Roads and Trails feature classes. For the MapExtents feature class, you will be asked to specify the Excel Output Name Field. This is a drop-down list of the attributes in the MapExtents feature class. Pick NAME, or the corresponding attribute that specifies the name of the map sheets you are creating. The tool creates a spreadsheet with each of these names, so that it is easy to see which spreadsheet goes with which map sheet.

You will also need to input your roads and trails feature classes, even though trails is listed as optional. The Road Name Field and Trail Name Field are the fields that store your route markers. It could be either ID or Field_ID. Finally, the Output Folder for Excel is where you specify where the resulting spreadsheets will be written. When you're creating the MVUM for your forest, it will normally be c:\fsapps\fsprod\Carto_Tools\MVUM\output, but for this class, we are writing to the c:\training\results folder. Note that there is a good help file written for the tool.



Table Generator Tool



To use the Table Generator Tool, you will need to input your MapExtents feature class (Area(s) of interest). You will also define your Roads and Trails feature classes. For the MapExtents feature class, you will be asked to specify the Excel Output Name Field. This is a drop-down list of the attributes in the MapExtents feature class. Pick NAME, or the corresponding attribute that specifies the name of the map sheets you are creating. The tool creates a spreadsheet with each of these names, so that it is easy to see which spreadsheet goes with which map sheet.

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Note that there is a good help file written for the tool.



Tool Prerequisite



- Check that Python2.4 pywin32-207 is installed
 - Start → Control Panel → Add or Remove Programs
- Install:
 - From the ArcGIS 9.2 install DVD: D:/Desktop/PythonWin
 - Double-click on pywin32-207.win32-py2.4.exe
 - **Don't** uninstall Python 2.1!
- Or you'll get this error:

```
Error in script SeasonalSpecialDesignationTable.  
Error in executing: cmd.exe /C C:\apps\isprod\CARTO_~1  
\MVUM\TEMPLA-1\EVURTA-1.FY "C:\TOIST_Down\Project  
management\USFS_MVUM\data\Chapter16\RoadsAndTrails.mdb  
\MapExtent" "NAME" "C:\TOIST_Down\Project management\USFS  
MVUM\data\Chapter16\RoadsAndTrails.mdb\Roads" "ID" "C:  
\TOIST_Down\Project management\USFS_MVUM\data\Chapter16  
\RoadsAndTrails.mdb\Trails" "ID" "C:\TOIST_Down\Project  
management\USFS_MVUM\Exercise\16\Table_Generator"  
(PAO.TableDef) Item not found in this Collection.  
  
Failed to execute (SeasonalSpecialDesignationTable_1).  
End Time: Fri Sep 05 15:51:28 2008 (Elapsed Time: 3.00  
seconds)
```

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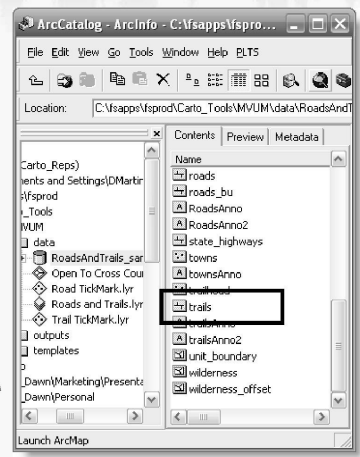
There are a couple of things to be aware of when running the Table Generator Tool. The first is that you need to have Python2.4 pywin32-207 installed on your workstation. You can check to see if it's already installed by clicking Start → Control Panel → Add or Remove Programs and seeing if it's listed.

Shown here is a screenshot of the error you get when you try to run the tool without it installed. Notice that it doesn't say anything about the incorrect Python version, so it's not very useful feedback. Any error that you get will look pretty much like this. The clue is that Excel didn't even come up before the tool quit. While Python2.4 pywin32-207 is found on the ArcGIS 9.2 install DVD, it is not automatically installed. Simply copy Python's Windows installer file onto your computer and install the program to the default location. Note that you do NOT want to uninstall Python 2.1. If you do, you will get an identical error message from ArcToolbox. This issue is being addressed in the newest Production Guide currently in development.





Troubleshooting Problems

- The tool won't run! Now what?!
- Known bug:
 - Must specify trails feature class, even if it is empty



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Another thing to be aware of is that there is a known bug with the tool, in that there must be a trails feature class within the RoadsAndTrails geodatabase. Even though the dialog box indicates that it's optional, the tool won't run without specifying the trails feature class. If your forest doesn't have any trails, simply copy the roads feature class and delete all of the features.



Troubleshooting Problems



- Values entered incorrectly: Areas of interest (MapExtents feature class)
 - Must have NAME entered for each MapExtent polygon
 - Must have unique NAME

OBJECTID *	SHAPE *	Name	SHAPE_Length	SHAPE_Area
1	Polygon	Map1	302738.200573	47737399689.2375
2	Polygon	Map1a	50654.647900	155254542.309522
4	Polygon	<Null>	235897.148032	3284453982.41106

OBJECTID *	SHAPE *	Name	SHAPE_Length	SHAPE_Area
1	Polygon	Map1	902738.200579	47737399689.2375
2	Polygon	Map1a	50654.647908	155254542.309522
4	Polygon	Map1a	235897.148032	3284453982.41196

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The Table Generator Tool will also not run if you have polygons in the MapExtents feature class with no name or a duplicate name.



Troubleshooting Problems

- Correct naming convention for attribute fields
 - Avoid downloading data from ATM as .dbf
 - Avoid shapefiles

Error!

Attributes of mu_trail.shp

TRAIL_SEG	TRAIL_NAME	
East-Blue01	East-Blue	815
East-Blue02	East-Blue	815
East-Blue03	East-Blue	815
East-Blue04	East-Blue	815
East-Green04	East-Green	814
East-Green05	East-Green	814
East-Green05	East-Green	814
East-Green06	East-Green	814
East-Green08	East-Green	814

Record: 14 Show: All



Attributes of trails feature class

ID	TRAIL	BMP	EMP
5036.006871	MUT EAST ORANGE	0	2.0
5038010488	MUT WEST ORANGE	0	2.0
5034.006871	MUT EAST GREEN	0	18.71998
5039.006871	MUT WEST GREEN	0	7.0
5035.006871	MUT EAST BLUE	0	3.0
5037.006871	MUT EAST RED	0	3.0
5033.006871	MUT EAST YELLOW	0	14.0
5038.006871	MUT WEST RED	0	11.0
5040.006871	MUT WEST BLUE	0	21.87998

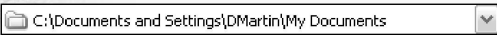
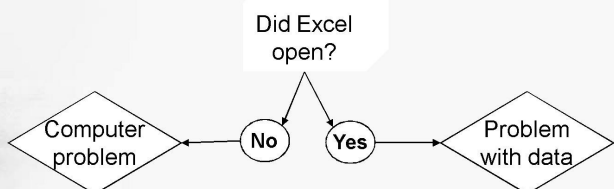
Record: 1 Show: All

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You should also be aware that the tool expects to see a certain naming convention used for attribute fields. This may not be a problem on the GIS end as you may have all of your fields named correctly. But if you bring over a field from Infra that is named differently, as a result of being saved as a .dbf, the tool will not run. This was recently an issue in which the ATM data fields were changed for maintenance purposes. Be aware that you may need to rename your attribute fields accordingly. This could also be an issue in which you bring over a shapefile into the RoadsAndTrails geodatabase, and the field names are truncated. Therefore, it is strongly recommended that you not run the tool on shapefiles.



Tips & Tricks



- You can run the tool on geodatabases having file pathname with spaces

- Re-run tool: automatically overwrites files
- Identifying tool malfunction:


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Here are a few tips and tricks to working with the Table Generator Tool. You can run the tool on geodatabases with file pathnames that have spaces. As you may recall, this is an issue with many command line ArcInfo tools. Also, if you find you need to re-run the tool and have already created spreadsheets in your designated output folder, these files will automatically be overwritten without prompting.

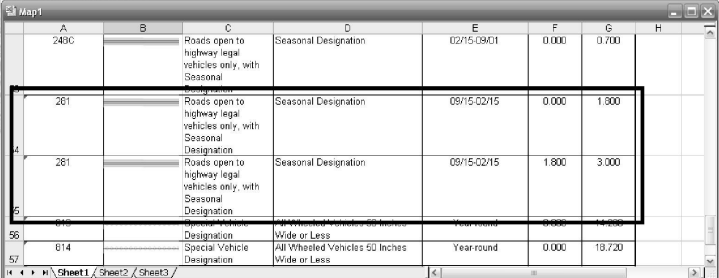
During the process, Excel will be busy opening and closing tables. In fact, you may think that the tool is finished running, when in fact, it is just pausing between tables. This tends to be a very buggy section, so be sure not to click within Excel. When you think that the tool is finished, click on ArcCatalog to see if you got a “Completed” message.

Here is a tip for troubleshooting: If Excel comes up, then the problem is most likely data related. If you pay attention to when the tool terminated, you can narrow down where the problem is occurring. For example, if it terminated while on the second spreadsheet the problem is most likely with that polygon in your MapExtents feature class, or within the roads or trails for that area. If you’re having trouble finding the problem area, and the MapExtents polygon is rather large, you may want to subdivide that polygon into smaller polygons to have a smaller area to search. Only do this after you have ruled out the larger problems, such as naming issues with the MapExtents polygon and the Roads and Trails attribute fields. If Excel doesn’t even come up, it’s more likely a computer problem. You might want to look into your Python version.



Tips & Tricks

- Combine rows with same seasonal and special designation for whole road





A	B	C	D	E	F	G	H
243C		Roads open to highway legal vehicles only, with Seasonal	Seasonal Designation	02/15-09/01	0.000	0.700	
281		Roads open to highway legal vehicles only, with Seasonal	Seasonal Designation	09/15-02/15	0.000	1.800	
281		Roads open to highway legal vehicles only, with Seasonal	Seasonal Designation	09/15-02/15	1.800	3.000	
56		Designation	Wide or Less	Year round	0.000	14.200	
614		Special Vehicle Designation	All Wheeled Vehicles 50 Inches Wide or Less	Year round	0.000	19.720	

- Inserting table in ArcMap
 - In Excel: Edit → Copy Picture
 - In ArcMap: Choose correct map sheet and Paste
 - Or export to .pdf and format in Adobe Illustrator

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You may also want to consider combining rows that have the same seasonal and special designation for the whole road. For example, we see here that the two entries for road ID 281 are the same. This is very common and can result in a redundant table that takes up a lot of space in your map sheet and can potentially confuse map users. Currently, you have to do this through manual editing in Excel. But developers are looking into how to incorporate this functionality into the tool. When you combine rows, make sure the resultant BMP and EMP values are correct. For example, here the EMP value of 1.8 in record 281 would need to be changed to 3.0 to reflect the two combined segments.


Also, you may find that you run into problems when you insert your table into ArcMap. Generally, you will do Edit > Copy Picture to place your Excel spreadsheet into the map. Then you will choose the correct map sheet in ArcMap and paste the table. Then you can resize or adjust the table, if needed. However, sometimes the results are not always visually pleasing. In this case, you may want to consider exporting the table to .pdf and formatting it in Adobe Illustrator.



Exercise:



Installing and using the Table Generator Tool

- Goal: to successfully install and use the Table Generator Tool to create a Seasonal and Special Vehicle Designation Table





1. Install tool
2. Run tool
3. Work with Excel spreadsheets

15-14



Summary

-  The Table Generator Tool is only used when you need to create a Seasonal & Special Vehicle Designation table.
-  The Table Generator Tool has a few bugs, but they can be overcome with some basic troubleshooting.

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Exercise 15: Installing and using the Table Generator Tool



Exercise goal: Students will learn how to install and use the Table Generator Tool.

The Table Generator Tool is used to create the Special and Seasonal Designation Table(s) for the MVUM. It takes the MapExtents feature class that you created and runs an “intersect” with the roads and trails feature classes. It creates separate Excel spreadsheets for each polygon in your MapExtents feature class and contains all of the seasonal and special designation information for all designated routes. After you rearrange your spreadsheet(s) in Excel to be more visually pleasing, you place each one in the appropriate map sheet.

Upon completion of the exercise, you will be able to...

- ✓ Know how to install the Table Generator Tool and open it within ArcToolbox
- ✓ Know how to run the Table Generator Tool
- ✓ Work with the output Excel spreadsheets

STEP	DESCRIPTION	PAGE
1	Install the Table Generator Tool	15 – 18
2	Run the Table Generator Tool	15 – 21
3	Work with the Excel spreadsheets	15 – 23
4	Insert spreadsheets into map sheets	15 – 28

Step 1: Install the Table Generator Tool

The first step to installing the Table Generator Tool is to check to see if you already have Python2.4 pywin32-207 installed.

- a. Click **Start → Control Panel → Add or Remove Programs**. In the Add or Remove Programs window, scroll down to see if you have Python2.4 pywin32-207 installed. If not, follow these steps:
 - i. Using the ArcGIS 9.2 install DVD, navigate to Desktop/PythonWin.
 - ii. Double-click on pywin32-207.win32-py2.4.exe.

Do not uninstall Python 2.1.

In the last exercise, you downloaded the MVUM Templates .exe file and ran it. This self extracting file created templates in the c:/fsapps/fsprod/Carto_Tools/MVUM/templates folder. Now you will download the MVUM Tools.exe file and run it. This file contains the Table Generator Tool.

- b. In an internet browser, go to: <http://gis.gsc.wo.fs.fed.us/wo/mvum/step-3.php> and click on the most recent version of the **MVUM Tools.exe** file.
- c. When asked if you would like to save this file, click **Save File**.
- d. When the file has finished downloading, double-click on the file. When asked if you want to run this software, click **Run**.
- e. It will automatically unzip to C:/fsapps/fsprod/Carto_Tools. Click **Unzip**.

Note that if you have a previous version of the tools, it will ask if you want to over-write some files. Click Yes for all of them.

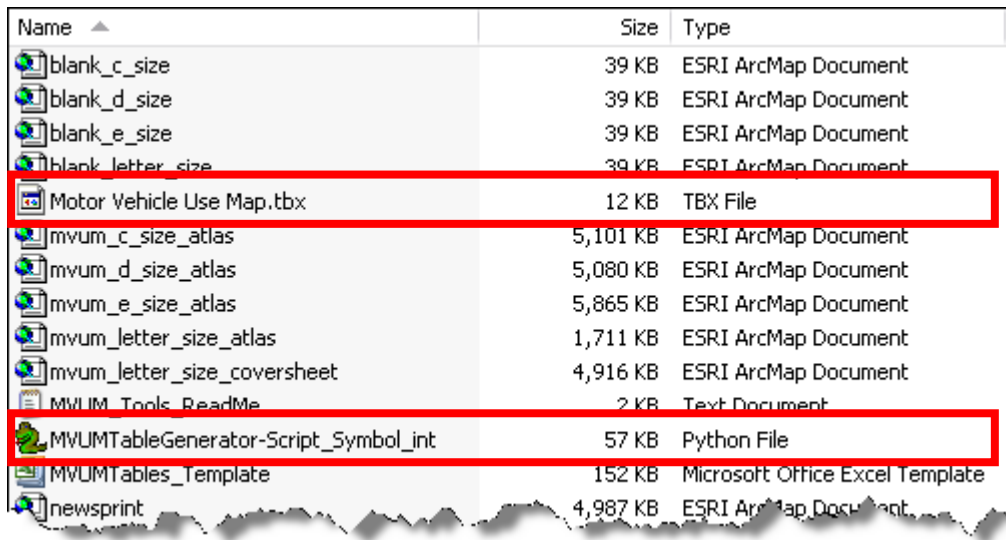
- f. After the file has unzipped, **close** the extractor program.

Now you will examine the files that you just unzipped.

Table Generator Tool

g. Open **Windows Explorer**.

h. Navigate to **c:/fsapps/fsprod/Carto_Tools/MVUM/templates**.



Name	Size	Type
blank_c_size	39 KB	ESRI ArcMap Document
blank_d_size	39 KB	ESRI ArcMap Document
blank_e_size	39 KB	ESRI ArcMap Document
blank_letter_size	39 KB	ESRI ArcMap Document
Motor Vehicle Use Map.tbx	12 KB	TBX File
mvum_c_size_atlas	5,101 KB	ESRI ArcMap Document
mvum_d_size_atlas	5,080 KB	ESRI ArcMap Document
mvum_e_size_atlas	5,865 KB	ESRI ArcMap Document
mvum_letter_size_atlas	1,711 KB	ESRI ArcMap Document
mvum_letter_size_coversheet	4,916 KB	ESRI ArcMap Document
MVUM_Tools_ReadMe	2 KB	Text Document
MVUMTableGenerator-Script_Symbol_int.py	57 KB	Python File
MVUMTables_Template	152 KB	Microsoft Office Excel Template
newsprint	4,987 KB	ESRI ArcMap Document

You will see the Motor Vehicle Use Map.tbx, which is a toolbox for holding the Table Generator Tool. The tool's name is MVUMTableGenerator-Script_Symbol_int.py. If you see the script file symbolized with a python icon (green snake), then skip to step P. If not, you may want to change your Microsoft Explorer folder options to more clearly illustrate python scripts:

i. In Windows Explorer, click **Tools → Folder Options**.

j. In the Folder Options window, click on the **File Types** tab.

k. Scroll down and click on **PY**. Under "Details for 'PY' extension" click on **Advanced**.

l. In the Edit File Type window, click **Change Icon...**

m. In the Change Icon window, click **Browse...**

n. Browse to **C:/Python21** (or where you have Python 2.1 installed on your machine). In order to see the file types, right click and choose **View → Details**. Click on the **py** icon. Click **Open**.

o. Click **OK** 3 times in the open windows.

Table Generator Tool

You should now see the Python file displayed with a friendly green snake. 

Now you will open ArcCatalog and install the Table Generator Tool.


p. Open **ArcCatalog**. 

q. Open **ArcToolbox**. 

r. In ArcToolbox, right-click in the white space and click **Add Toolbox**.

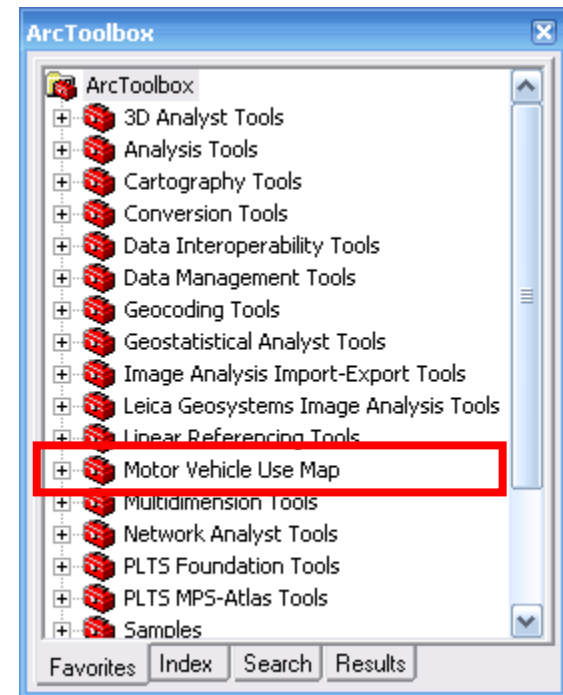
s. In the Add Toolbox window, browse to **c:/fsapps/fsprod/Carto_Tools/MVUM/templates**. Click on **Motor Vehicle Use Map**, and click **Open**.

The toolbox now appears in ArcToolbox. It will remain there until you delete it.

 **NOTE:** If you want to use the Motor Vehicle Use Map toolbox in ArcToolbox in ArcMap, you will need to add it using the same steps.


t. Click the **plus sign** next to the Motor Vehicle Use Map toolbox to expand it.

You will see the Seasonal and Special Designation Table tool listed.



Step 2: Run the Table Generator Tool

Now that you have installed the tool, you are ready to run it.

 **NOTE:** In order to run the tool, the Trails feature class has to be present, even if it is empty. If your forest does not have any trails, go to ArcCatalog and copy the Roads feature class, rename it Trails, and then delete all of the features.

- a. In ArcCatalog, navigate to **C:/fsapps/fsprod/Carto_Tools/MVUM/data**. Double-click on the **RoadsAndTrails geodatabase** to see all of the feature classes.
- b. In ArcToolbox, double-click on the **Seasonal and Special Designation Table** tool to open it.

You will now populate these boxes. Here is what each box requires:

Areas of Interest Feature Class

Browse to the **MapExtents** feature class. The area of interest feature class (no cover or shapefiles) is required. These are the polygons for your map extents, which you created in the last exercise. You need at least one.

Excel Output Name Field

Select the **Name** field. The Excel Output Name Field is the field in the area of interest holding the name of that extent. This is how the individual spreadsheets will be named.

Roads Feature Class

Browse to the **roads** feature class in your RoadsAndTrails.mdb

Road Name Field

Select either the **ID** or **Field_ID** field depending on how your route markers are stored to populate the route marker. You may optionally choose the name field.

Trails Feature Class

Browse to the **trails** feature class in your RoadsAndTrails.mdb.

Trail Name Field

Select either the **ID** or **Field_ID** field depending on how your route markers are stored to populate the route marker. You may optionally choose the name field.

Output Workspace for Excel

Output folder for excel can be the outputs directory under MVUM. **C:/fsapps/fsprod/Carto_Tools/MVUM/outputs**.

Table Generator Tool

- c. For Areas of Interest Feature Class, drag the **MapExtents** feature class into the window.
- d. For the Excel Output Name Field, choose **NAME**.
- e. For the Roads Feature Class, drag the **roads** feature class into the window.
- f. For Road Name Field, keep the default of **ID**.
- g. For the Trails Feature Class, drag the **trails** feature class into the window.

Seasonal and Special Designation Table

Areas of Interest Feature Class
C:\fsapps\fsprod\Carto_Tools\MVUM\data\RoadsAndTrails.mdb\MapExtents

Excel Output Name Field
Name

Roads Feature Class
C:\fsapps\fsprod\Carto_Tools\MVUM\data\RoadsAndTrails.mdb\roads

Road Name Field
ID

Trails Feature Class (optional)
C:\fsapps\fsprod\Carto_Tools\MVUM\data\RoadsAndTrails.mdb\trails

Trail Name Field (optional)
ID

Output Folder for Excel
C:\fsapps\fsprod\Carto_Tools\MVUM\outputs

OK Cancel Environments... << Hide Help

Help

Output Folder for Excel

Workspace where the Output MS Excel spreadsheet will be saved. Note: Must be under a folder (e.g. C:\temp)

- h. For the Trail Name Field, keep the default of **ID**.
- i. For the Output Folder for Excel, click the **Browse** button and navigate to **C:/fsapps/fsprod/Carto_Tools/MVUM**. Click on **outputs**, and click **Add**.
- j. Click **OK** to run the tool. Then slowly back away from the computer (see warning).



Warning! Do NOT click in the Excel window until you see that the processing has completed. In fact, it is best not to do any clicking at all. Go stretch your legs while this tool runs. It may look like the tool is finished, because it pauses after creating each table. Do not be fooled. To see if the tool is finished, click on the ArcCatalog icon. When you see the “Completed” message, the tool ran successfully.

Table Generator Tool

If you have a large number of polygons in your forest's MapExtents feature class, and/or a large number of roads and trails, you may need to wait for several minutes for this tool to run. In this example, the tool should run for about 4 minutes.

- k. Once the tool has completed, **close** the process window. You may keep ArcCatalog open.

Step 3: Work with the Excel spreadsheets

In this step you will examine the Excel spreadsheets that were created by running the Table Generator Tool.

- a. In Windows Explorer, go to **C:/fsapps/fsprod/Carto_Tools/MVUM/outputs**.

Question:

- 1. How many spreadsheets did the tool create?

Question:

- 2. List the name of each spreadsheet.

- b. In Excel, browse through each of the spreadsheets.

Notice that there are four blank spreadsheets, with the names Map 1a, Map 2a, etc. These are from the four small rectangles that you drew as placeholders for the Seasonal & Special Designation Tables, so it makes sense that they do not have any records in the tables because there were no features that intersected these empty polygons. They are not needed.

Table Generator Tool

c. Delete Maps 1a - 4a.

Question:

3. Which spreadsheet has the most number of features? Which has the least? How many features do each it have? (Hint: Remember the top rows are column titles.)

Now you will learn how to reformat the spreadsheets, so that they will better fit on the map sheets. The reformatted spreadsheet size will largely depend on the space available in your map sheets. Generally, you will not want more than about 15 or 20 rows in a column. In the graphic below the original spreadsheet has one long column and is reformatted to be shorter and wider to possibly fit on the front of the map in a landscape layout orientation.

The image shows two versions of a spreadsheet titled "Seasonal and Special Vehicle Designations". The left version is a single column with 10 rows. The right version is a wider table with 10 columns and 10 rows. A red arrow points from the left version to the right version, with labels "One long column" and "Two shorter columns".

Route Number	Legend	Special Vehicle Designation	Dates Allowed	Beginning Mile Post	Ending Mile Post
10014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	05-20-04-15	2.220	9.220
10014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	9.220	11.110
10014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	16.170	20.004
10018	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	0.000	5.331
10018	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	4.212	9.279
10018	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	1.279	11.541

Route Number	Legend	Special Vehicle Designation	Dates Allowed	Beginning Mile Post	Ending Mile Post	Route Number	Legend	Special Vehicle Designation	Dates Allowed	Beginning Mile Post	Ending Mile Post
10014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	05-20-04-15	2.220	9.220	10014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	9.220	11.110
10014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	16.170	20.004	10018	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	0.000	5.331
10018	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	4.212	9.279	10018	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	11-01-04-15, 05-20-12-31	1.279	11.541

d. Open the **Map 2** spreadsheet.

Table Generator Tool

You will notice that many Route Numbers appear multiple times in the tables. When columns C, D, and E are all the same; these rows can be combined. This makes it easier for the user to interpret the designation. If you combine the rows, make sure the BMP and EMP values reflect this combination. In the example below, Route Number 50014 has four rows in the table. The last three have the same Dates Allowed values (in addition to the same Legend and Special Vehicle Designation), so they may be combined. After copying the last EMP value into the top row, the bottom three rows may be deleted.

- e. Go through the rows in Map 2, combining the rows that you can.

Hint: Route Numbers like 50018 require a bit more thought. At first glance, it looks like all three rows can be combined. But look closely: they do not have continuous BMP and EMP values. Only the last two are continuous and can therefore be combined. The segment between the first and second rows does not have a seasonal or special vehicle designation. Watch out for these types of routes!

Route Number	Legend	Special Vehicle Designation	Dates Allowed	Beginning Mile Post	Ending Mile Post
50014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	05/20-04/15	2.220	9.220
50014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	01/01-04/15, 05/20-12/31	9.220	11.110
50014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	01/01-04/15, 05/20-12/31	11.110	16.170
50014	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	01/01-04/15, 05/20-12/31	16.170	20.804
50018	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	01/01-04/15, 05/20-12/31	6.212	9.278
50018	Roads open to all Vehicles, with Seasonal Designation	Seasonal Designation	01/01-04/15, 05/20-12/31	9.278	11.949

Question:

4. How many special designation records do you now have for Map 2?

You will rearrange these into two columns, all with the same formatting of cell width and height. In the next steps you will copy the data into different Excel sheets and reformat them.

Table Generator Tool

- f. First copy the existing data onto Sheets 2 and 3 (tabs at the bottom). To maintain formatting; click on the **upper-most left-hand box** to highlight the data, **right-click**, and choose **Copy**.

- g. Click on **Sheet2** and hit the **Paste** icon.



Now you will make sure that a record is accounted for on only one sheet.

- h. On Sheet1, delete rows **17 – 28**.

- i. On Sheet2, delete rows **4 – 16**.



Warning! When determining which rows to delete for your own forest, be careful of the math. Remember that this is a legal document, and there could be consequences for accidentally deleting an extra row forcing that road or trail to disappear from the Seasonal and Special Vehicle Designation Table on the MVUM.

Now you are ready to place the data from Sheet2 into Sheet1.

- j. Click on **Sheet2**. Select the data by highlighting the **columns** (not the rows or clicking on the uppermost left-hand box, like you did previously).

This will allow you to maintain the formatting of the columns and rows.

- k. **Right-click** and choose **Copy**.

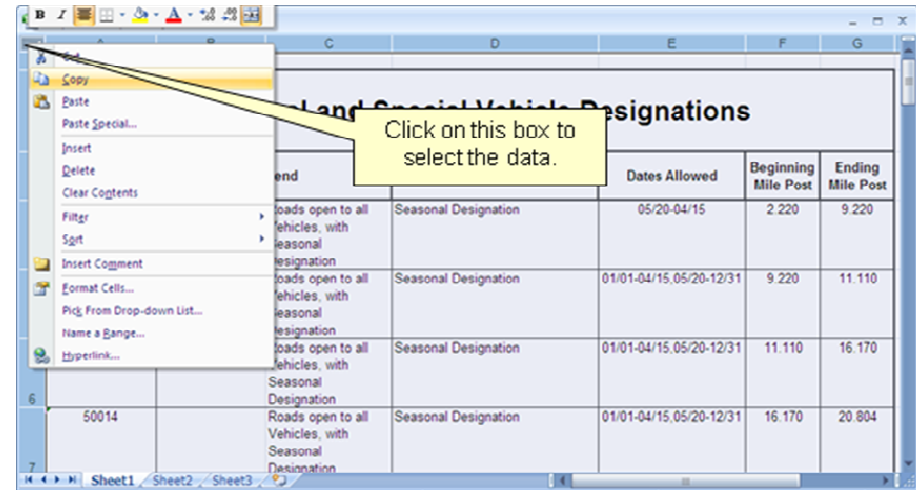


Table Generator Tool

1. Click on **Sheet1**. **Right-click** on the empty **column I** title and choose **Paste**. (You may want to make column H a bit narrower than the other columns.)

Now you will merge the two Seasonal and Special Vehicle Designation Title cells, into one cell.

- m. **Highlight** all three cells, as well as the two blank cells in between.
- n. Right-click and choose **Format Cells**. Click on the **Alignment** tab.
- o. Under Text control, click on the boxes for **Wrap text** and **Merge cells**, so that both have **checks** in them (a filled in green checkbox is not a check). Click **OK**.
- p. When a warning pops up, click **OK**.

Vehicle	Designation	Dates	...	Vehicle	Designation	Dates	...
5000A	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000A	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000B	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000B	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000C	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000C	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000D	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000D	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000E	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000E	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000F	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000F	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000G	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000G	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000H	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000H	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000I	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000I	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000J	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000J	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000K	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000K	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000L	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000L	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000M	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000M	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000N	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000N	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000O	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000O	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000P	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000P	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000Q	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000Q	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000R	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000R	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000S	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000S	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000T	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000T	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000U	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000U	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000V	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000V	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000W	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000W	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000X	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000X	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000Y	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000Y	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...
5000Z	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...	5000Z	Reside open to all Vehicles, with Successful Designation	05/01-04/15	...

Your spreadsheet should look like the image on the right.

- q. **Save** the file in your outputs directory as **Map 2a**.
- r. Now repeat steps d through q for Map 3, formatting your table into two columns. **Save** the formatted table as **Map3a**.

Table Generator Tool

- s. Map 1 is short, so it does not need to be reformatted. Combine the rows that can be combined, and **save** as **Map 1a**.

Notice that the Map 4 spreadsheet is empty as the tool found no special designations that intersected this polygon.

Step 4: Insert spreadsheets into map sheets

In this final step you will insert the Excel spreadsheets that you just reformatted into the ArcMap document you created in the last exercise.

- a. From **C:/fsapps/fsprod/Carto_Tools/MVUM/outputs**, open **map_series.mxd**.
- b. In Excel, highlight the cells for Map 1a.
- c. Hold the shift key and click **Edit → Copy Picture**.
- d. In the Copy Picture window, select **As shown when printed**. Click **OK**.
- e. In ArcMap, click on the **MPS Atlas tab** and right-click on the **Map 1a** map sheet under Seasonal & Special Designation Tables. Choose **Set Current Map Sheet**.

It should be blank.

- f. In the Display window, right-click and choose **Paste**.
- g. Repeat steps b – f for the spreadsheets for **Map 2a** and **Map 3a**.
- h. Close and **save** your ArcMap document.

In this exercise you learned how to install and run the Table Generator Tool. You also learned how to format the output Excel spreadsheets into a format that is more visually pleasing.

End Exercise.