NAME: Raster Extractor Tool for ArcGIS

Install File: RasterExtractor.exe
Last modified: March 14, 2011

TOPICS: Raster Catalog Raster Dataset Mosaic Combine Clip

AUTHOR: Jeff Jenness

Wildlife Biologist, GIS Analyst
Jenness Enterprises
3020 N. Schevene Blvd.
Flagstaff, AZ 86004   USA
Email: jeffj@jennessent.com
Web Site: http://www.jennessent.com

Phone: 1-928-607-4638

Includes:

1) Tool to extract raster datasets from a raster catalog, with options to combine and clip those rasters to the current display extent.

2) Tool to quickly select all raster catalog datasets that intersect the selected features from any feature class.

Recommended Citation Format: For those who wish to cite this extension, the author recommends something similar to:

Jenness, J. 2010. Raster Extractor for ArcGIS. Jenness Enterprises. Available at: http://www.jennessent.com/arcgis/RasterExtractor.htm.

Table of Contents

Description:

The Raster Extractor tool allows you to extract any number of rasters from an existing raster catalog and load them as individual rasters in your map, thereby allowing you to analyze them in ways that the Raster Catalog does not allow. The tool also gives you the option to mosaic all the rasters into a single raster dataset, modify the cell size and trim the final raster to the visible extent.

For example, suppose you have a large raster catalog containing multiple elevation tiles and you wish to extract just those tiles that cover some region of interest. This example uses a global elevation dataset comprised of over 22,000 $1° \times 1°$ tiles from the ASTER Global Digital Elevation Model (see http://asterweb.jpl.nasa.gov/gdem.asp).
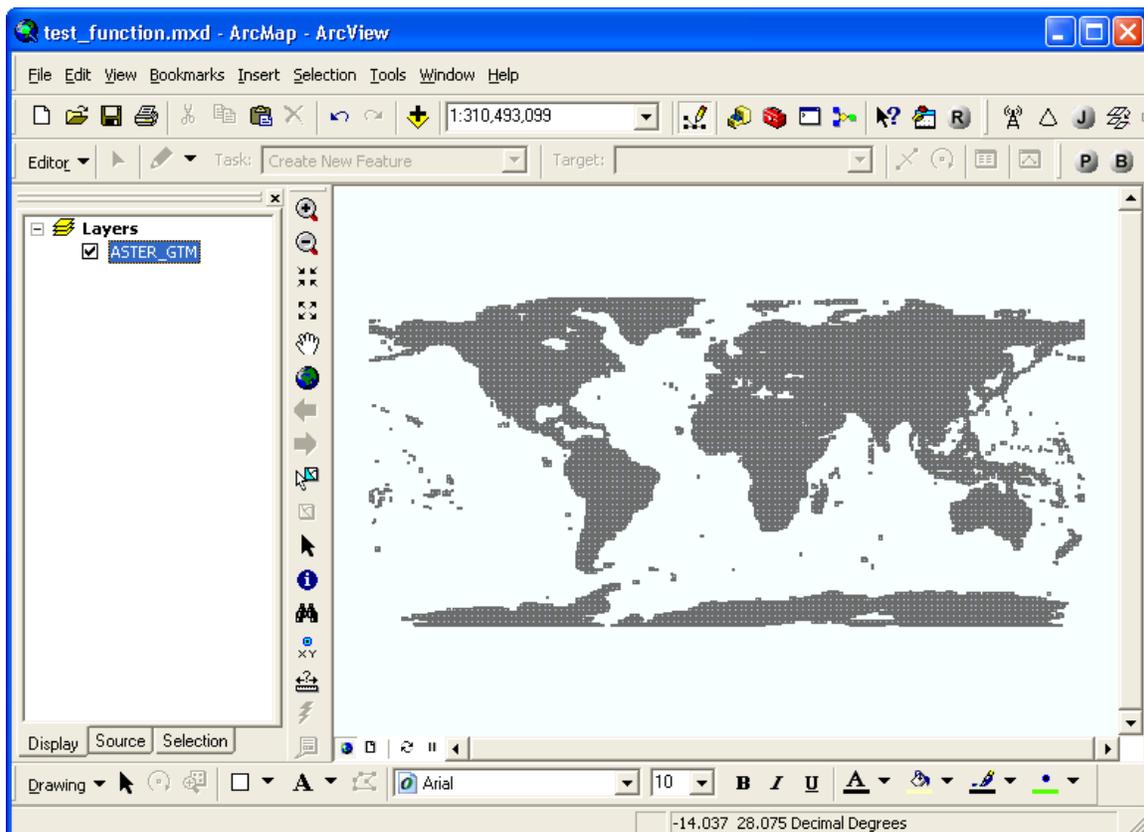
If we wanted to analyze the elevation in Sicily, Italy, we would simply zoom to the island in the map.
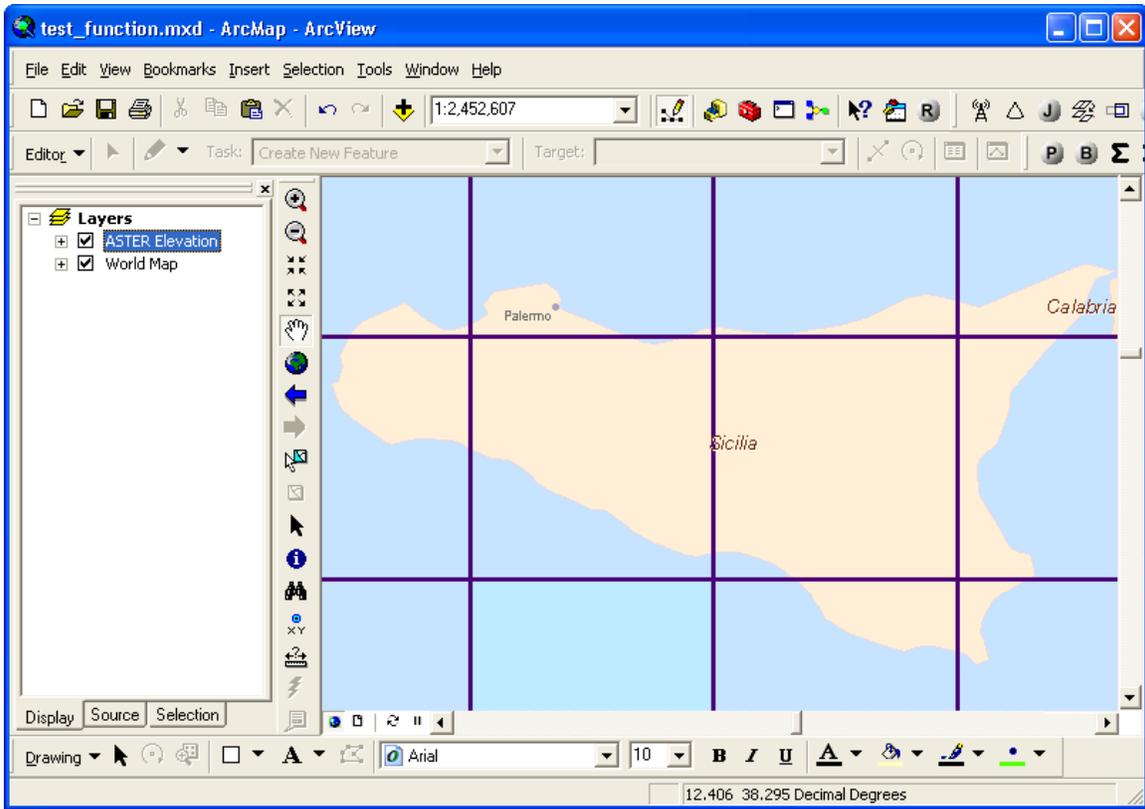
As seen in the illustration above, the island of Sicily covers portions of several elevation tiles. If we want to analyze elevation over the entire island, we could use this tool to extract the relevant tiles and optionally combine them into a single elevation dataset.
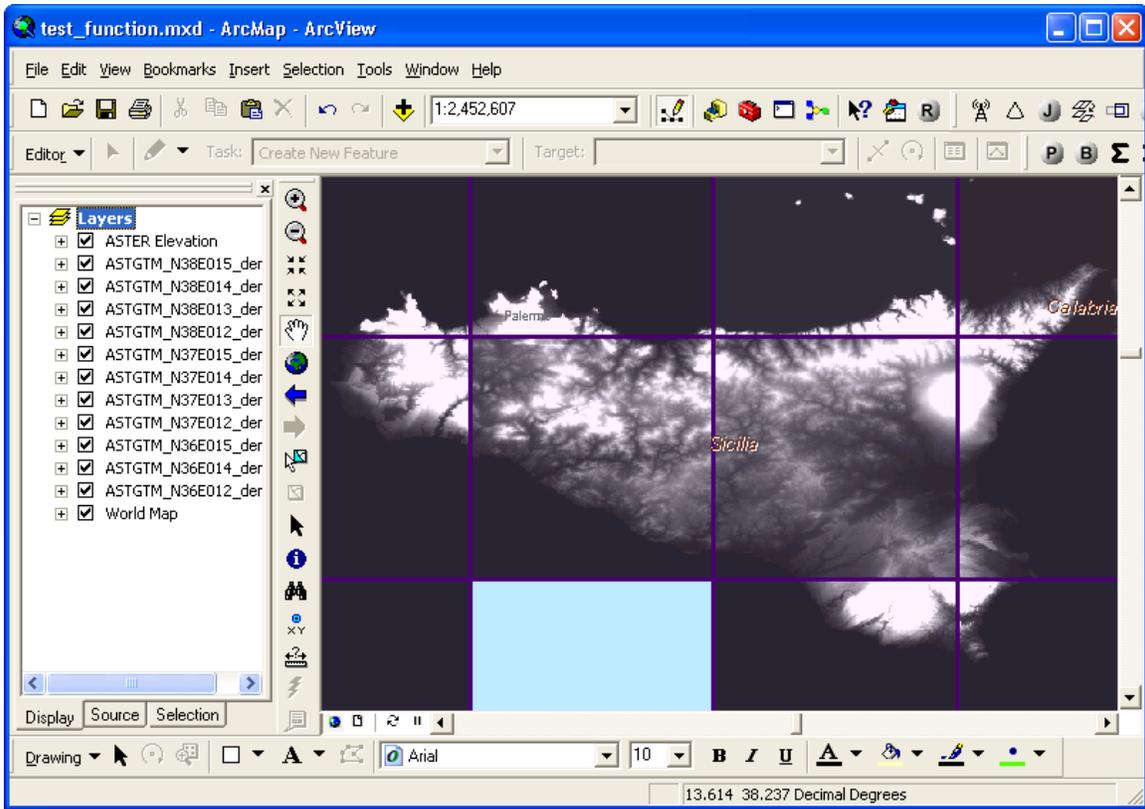
**Figure 1: Individual Elevation Tiles Extracted from Raster Catalog as Separate Datasets**
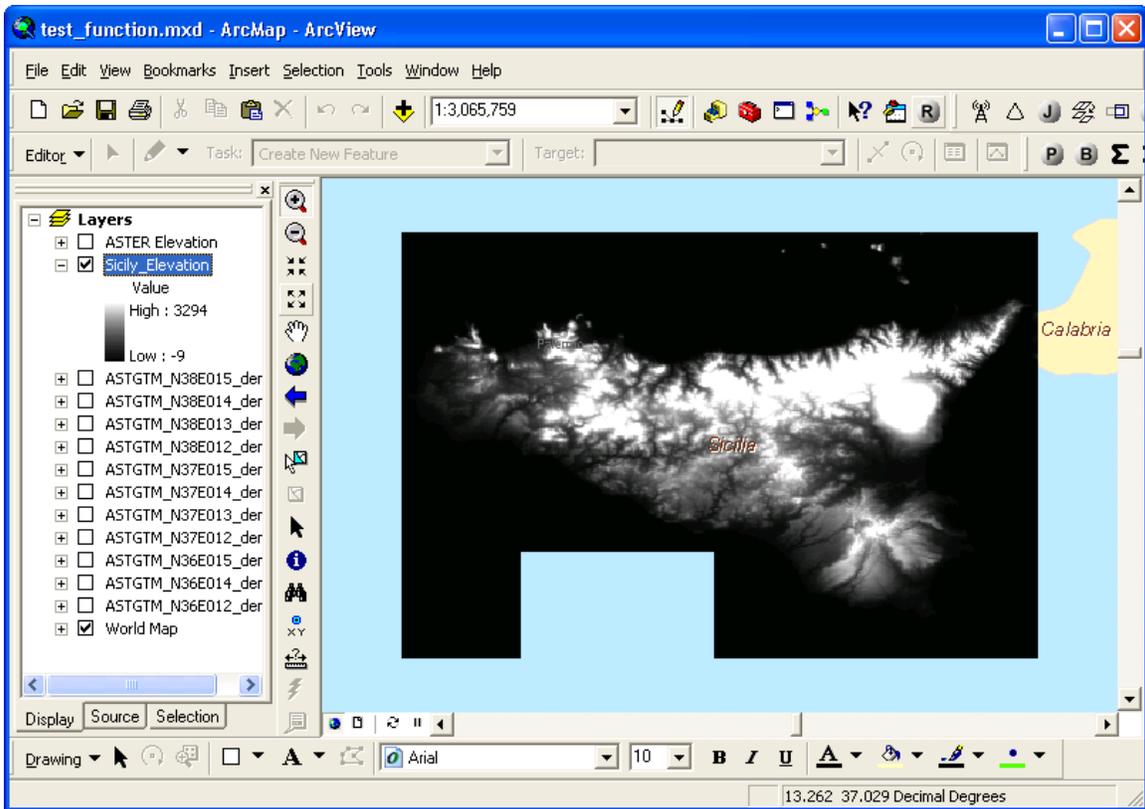
Figure 2: Elevation Tiles combined and clipped to map extent.
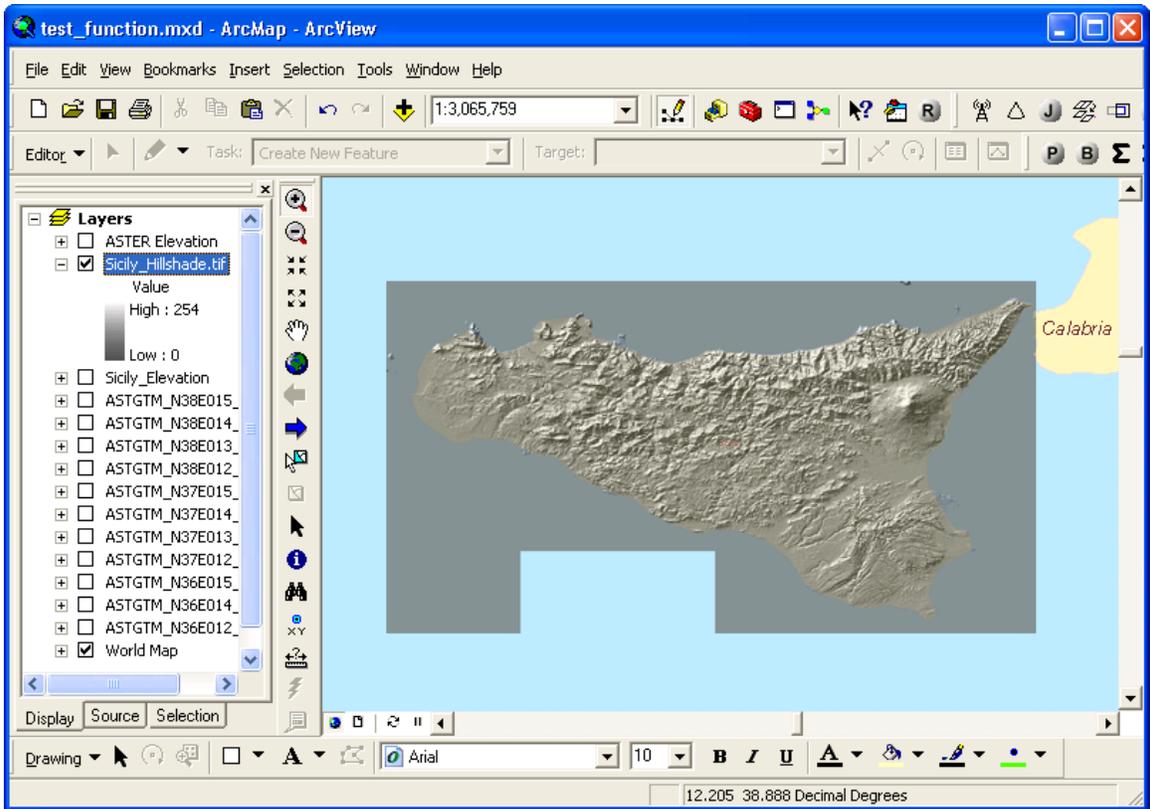
Figure 3: Elevation converted to Hillshade, just for illustration purposes. This tool does not include a Hillshade function.

Installing the Extension:

For ArcGIS 9.x

First close ArcGIS if it is open. The tools do not install properly if ArcGIS is running during the installation.

Install the *Raster Extractor* extension by double-clicking on the file **RasterExtractor.exe** (available at http://www.jennessent.com/downloads/RasterExtractor.zip, or from a link on the page http://www.jennessent.com/arcgis/RasterExtractor.htm) and following the instructions. The installation routine will register the Raster Extractor DLL with all the required ArcMap components.

The default install folder for the extension is named "Raster_Extractor" and is located inside the folder "Program Files\Jennessent". This folder will also include some additional files and this manual.

For ArcGIS 10.0

Note: This function will only work if you have ArcGIS 10 installed.

1. **First close ArcGIS if it is open.** The tools do not install properly if ArcGIS is running during the installation.

2. Install the *Raster Extractor* extension onto your hard drive by double-clicking on the file **RasterExtractor_10.exe** (available at http://www.jennessent.com/downloads/RasterExtractor_10.zip, or from a link on the page http://www.jennessent.com/arcgis/RasterExtractor.htm) and following the instructions. This installation routine will install the Raster Extractor DLL and several ancillary files on your hard drive, but will **not** register the tools with ArcGIS.

3. Use Windows Explorer to open your installation folder. If you used the default values, then this folder will be located at "Program Files\Jennessent\Raster_Extractor\". This folder will also include some additional files and this manual.
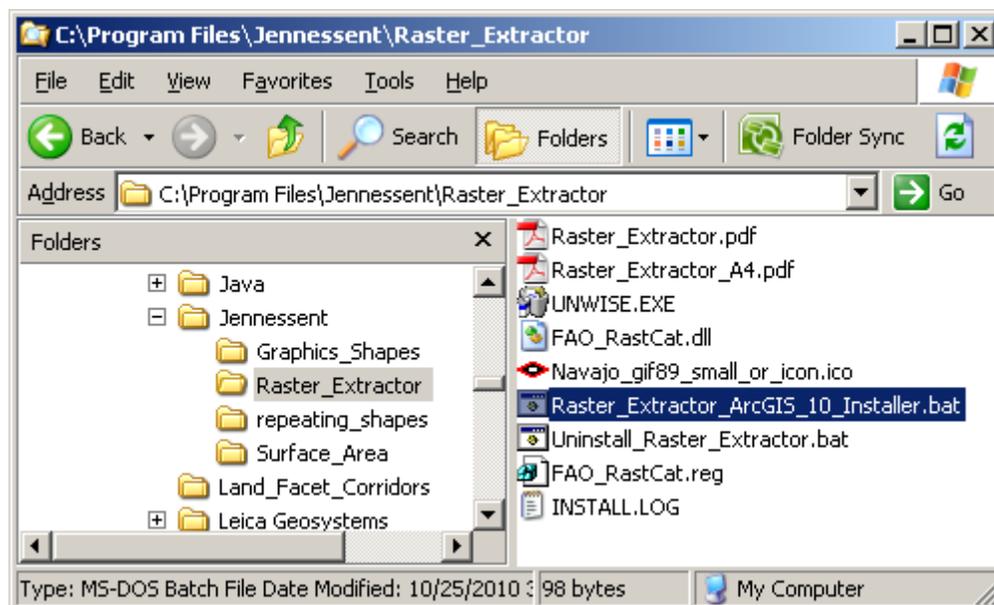
4. **For Windows XP:** Double-click the file "Raster_Extractor_ArcGIS_10_Installer.bat" to register all the tools with ArcGIS 10.0.

For Windows 7/Vista: Right-click the file "Raster_Extractor_ArcGIS_10_Installer.bat" and click "Run as Administrator" to register all the tools with ArcGIS 10.0.

If the registration is successful, then you should see a "Registration Succeeded" notice.

Note: For the concerned or curious, the batch file *Raster_Extractor_ArcGIS_10_Installer.bat* contains the following single line of text:

```
"%CommonProgramFiles%\ArcGIS\bin\ESRIRegAsm.exe" /p:Desktop "FAO_RastCat.dll"
/f:"FAO_RastCat.reg"
```

It directs the ESRI installer *ESRIRegAsm* to register the extension DLL *FAO_RastCat.dll* within ArcGIS, using GUID and Class ID values from the registry file *FAO_RastCat.reg* (also located in your installation directory). Both *Raster_Extractor_ArcGIS_10_Installer.bat* and *FAO_RastCat.reg* may be opened and viewed using standard text editors such as Notepad or WordPad.

5. **Alternative Method if you do not get the "Registration Succeeded" message:** If the method above does not work, the reason is probably due to the "%CommonProgramFiles" environmental variable pointing to the wrong location, and/or Windows Vista or Windows 7 Security settings. The fix is to use a batch file that includes the full pathnames to "ESRIRegAsm.exe" and to the extension DLL and REG files. You may edit the BAT file yourself, or you may use the tool **Make_Batch_Files.exe** (located in your installation folder) to create new registration and unregistration batch files that are properly formatted to your system.

   If using Windows XP: Simply double-click on the file **Make_Batch_Files.exe** to create the new batch files.

   If using Windows Vista or Windows 7: Right-click on the file **Make_Batch_Files.exe** and click "Run as Administrator" to create the new batch files.

Repeat Step 4 above to register the tool in ArcGIS 10, but this time use the new BAT file *Register_Raster_Extractor.bat.*

Uninstalling Raster Extractor

For ArcGIS 9.x.

1) Close ArcGIS if it is open.

2) Click the Start button.

3) Open your Control Panel.

4) Double-click "Add or Remove Programs".

5) Scroll down to find and select "Raster Extractor".

6) Click the "Remove" button and follow the directions.
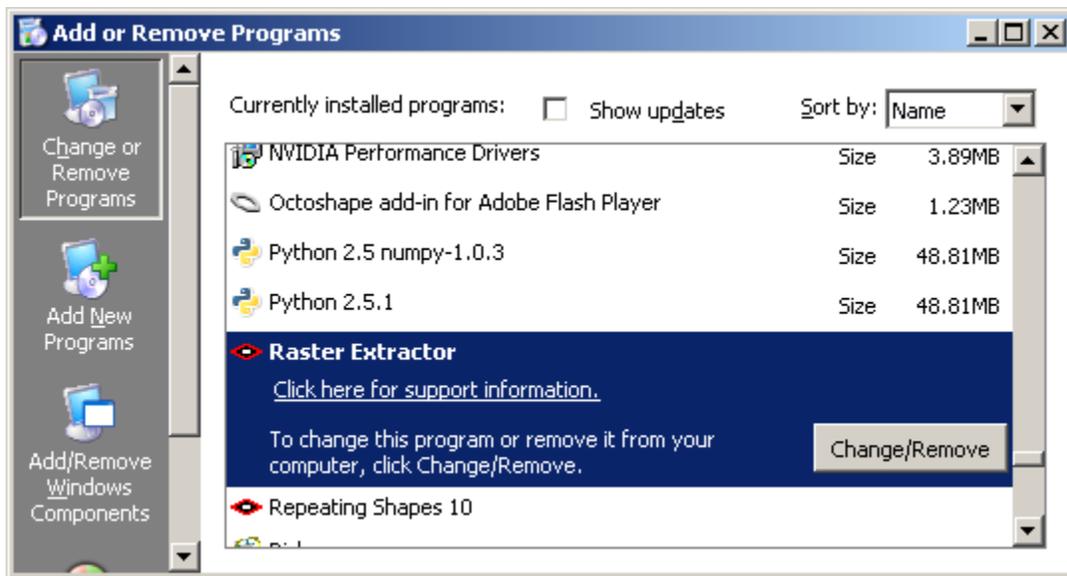
For ArcGIS 10.0

1) Close ArcGIS if it is open.

2) Use Windows Explorer to open your installation folder. If you used the default values, then this folder will be located at "Program Files\Jennessent\ Raster_Extractor\". This folder will also include some additional files and this manual.
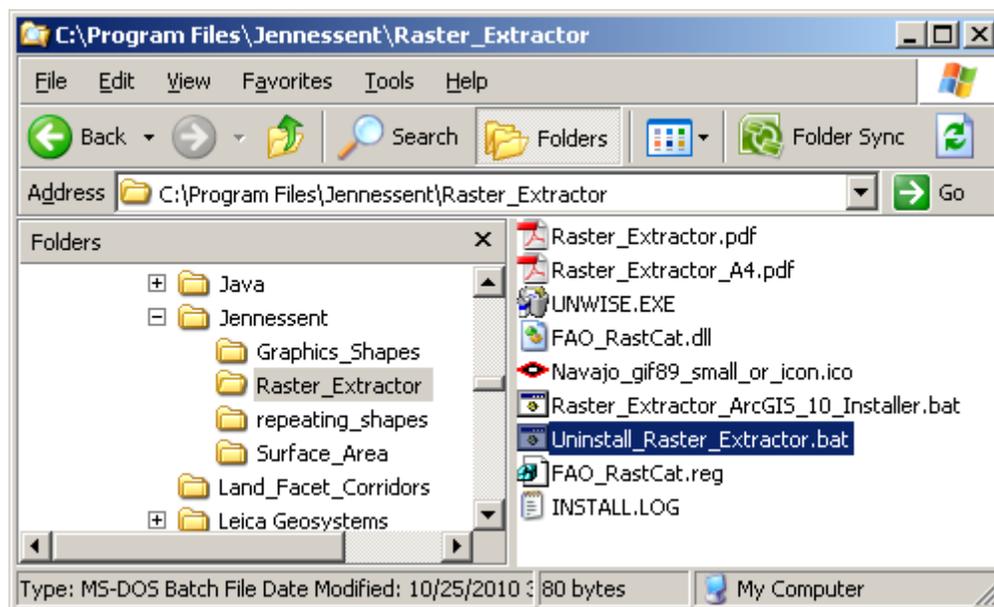
3) **For Windows XP:** Double-click the file *Uninstall_Raster_Extractor.bat* to unregister all the tools with ArcGIS 10.0.

   For Windows 7/Vista: Right-click the file *Uninstall_Raster_Extractor.bat*, then click "Run as Administrator" to unregister all the tools with ArcGIS 10.0.

   If the unregistration is successful, then you should see an "Unregistration Succeeded" notice.

ESRI Registration Utility

Unregistration succeeded.

OK

4) **Alternative Method if you do not get the "Unregistration Succeeded" message:** If the method above does not work, the reason is probably due to the "%CommonProgramFiles" environmental variable pointing to the wrong location, and/or Windows Vista or Windows 7 Security settings. The fix is to use a batch file that includes the full pathnames to "ESRIRegAsm.exe" and to the extension DLL and REG files. You may edit the BAT file yourself, or you may use the tool Make_Batch_Files.exe (located in your installation folder) to create new registration and unregistration batch files that are properly formatted to your system.

If using Windows XP: Simply double-click on the file Make_Batch_Files.exe to create the new batch files.

If using Windows Vista or Windows 7: Right-click on the file Make_Batch_Files.exe and click "Run as Administrator" to create the new batch files.

Make Installation Batch Files:

------< BATCH FILES SUCCESSFULLY CREATED >--------------------------------

The following batch files have been created to Register and Unregister Raster Extractor in ArcGIS 10:
  --> C:\Program Files (x86)\Jennessent\Raster_Extractor\Register_Raster_Extractor.bat
  --> C:\Program Files (x86)\Jennessent\Raster_Extractor\Unregister_Raster_Extractor.bat

If using Windows XP, you should be able to register and unregister the tools simply by double-clicking on the batch files listed above. If using Windows Vista or Windows 7, you must right-click on the batch file and select 'Run as Administrator'.

------< NOTES >---

ESRIRegAsm.exe located at:
  --> C:\Program Files (x86)\Common Files\ArcGIS\bin\ESRIRegAsm.exe

Found 1 *.reg files in C:\Program Files (x86)\Jennessent\Raster_Extractor\...
  --> C:\Program Files (x86)\Jennessent\Raster_Extractor\FAO_RastCat.reg

Found 1 *.dll files in C:\Program Files (x86)\Jennessent\Raster_Extractor\...
  --> C:\Program Files (x86)\Jennessent\Raster_Extractor\FAO_RastCat.dll

Copy to Clipboard   Close

Repeat Step 3 above to unregister the tools in ArcGIS 10, but this time use the new BAT file *Unregister_Raster_Extractor.bat*.

5) Click the Start button.

6) Open your Control Panel.

7) Double-click "Add or Remove Programs".

8) Scroll down to find and select "Raster Extractor 10".

9) Click the "Remove" button and follow the directions.
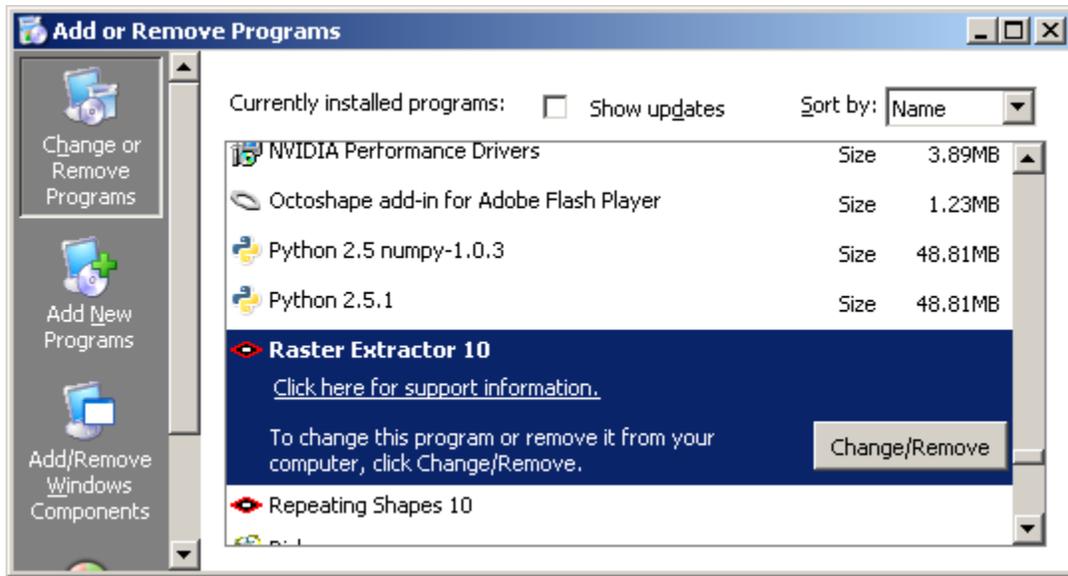
Note: For the concerned or curious, the batch file *Uninstall_Raster_Extractor.bat* contains the following single line of text:

```
"%CommonProgramFiles%\ArcGIS\bin\ESRIRegAsm.exe" /p:Desktop /u "FAO_RastCat.dll"
```

It directs the ESRI installer *ESRIRegAsm* to unregister the DLL *FAO_RastCat.dll* within ArcGIS. *Uninstall_Raster_Extractor.bat* may be opened and viewed using standard text editors such as Notepad or WordPad.

Troubleshooting

If Any of the Tools Crash

If a tool crashes, you should see a dialog that tells us what script crashed and where it crashed. I would appreciate it if you could copy the text in that dialog, or simply take screenshots of the dialog and email them to me at jeffj@jennessent.com. **Note:** Please make sure that the line numbers are visible in the screenshots! The line numbers are located on the far right side of the text. Use the scrollbar at the bottom of the dialog to make the line numbers visible.

"Object variable or With block variable not set" Error:

If you open ArcMap and immediately see the error dialog appear with one or more error messages stating that "Object variable or With block variable not set", then 90% of the time it is because ArcGIS was running when you installed the extension. The "Object" variable being referred to is the "Extension" object, and ArcGIS only sets that variable when it is initially turned on.

The solution is usually to simply close ArcGIS and restart it. If that does not work, then:

1) Close ArcGIS

2) Reinstall the extension

3) Turn ArcGIS back on.

RICHTX32.OCX Error:

If you see a line in the error dialog stating:

```
Component 'RICHTX32.OCX' or one of its dependencies not correctly registered: a file is
missing or invalid
```

This is almost always due to the fact that new installations of Windows 7 and Windows Vista do not include a file that the extension expects to find. This file, named "richtx32.ocx", is actually the "Rich Text Box" control that appears on some of the extension dialogs.

The solution is to manually install the missing file (richtx32.ocx) yourself. Here is how to do it:

1) Open Windows Explorer and locate the file *richtx32.ocx* in your extension installation file.

2) If you are running a **32-bit version of Windows**, then copy *richtx32.ocx* to the directory

   ```
   C:\Windows\System32\
   ```

   If you are running a **64-bit version of Windows**, then copy *richtx32.ocx* to the directory

   ```
   C:\Windows\SysWOW64\
   ```

3) Open an "Elevated Command Prompt" window. This is the standard Windows Command Prompt window, but with administrative privileges enabled. You need these privileges enabled in order to register the OCX with Windows. **Note:** The Elevated Command Prompt opens up in the "..\windows\system32" directory, not the "..\Users\[User Name]" directory. The window title will also begin with the word "Administrator:"
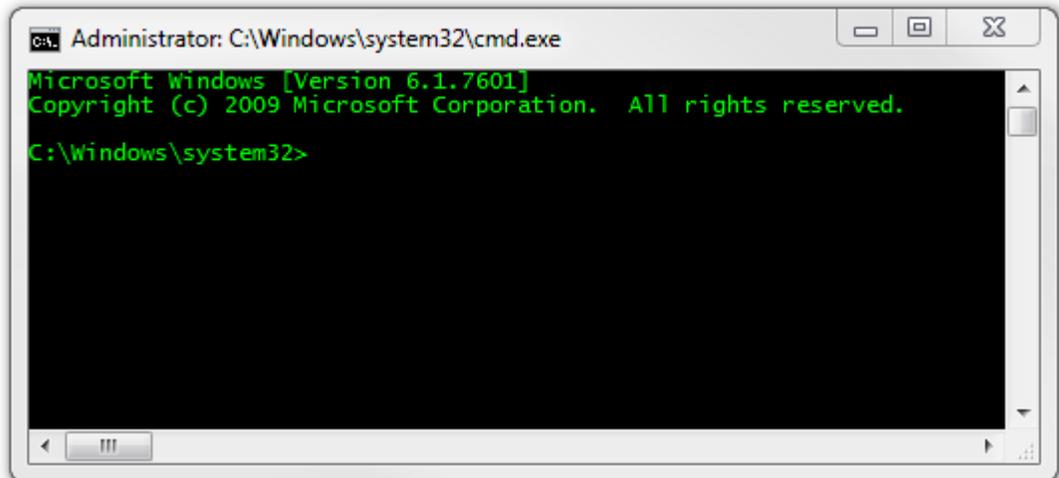
a. **Method 1:** Click the "Start" button, then "All Programs", then "Accessories" and then **right-click** on "Command Prompt" and select **Run as Administrator**.

b. **Method 2:** Click the "Start" button, and then click on the "Search Programs and Files" box. Type "cmd" and then click CONTROL+SHIFT+ENTER to open the Command window with Administrator privileges.
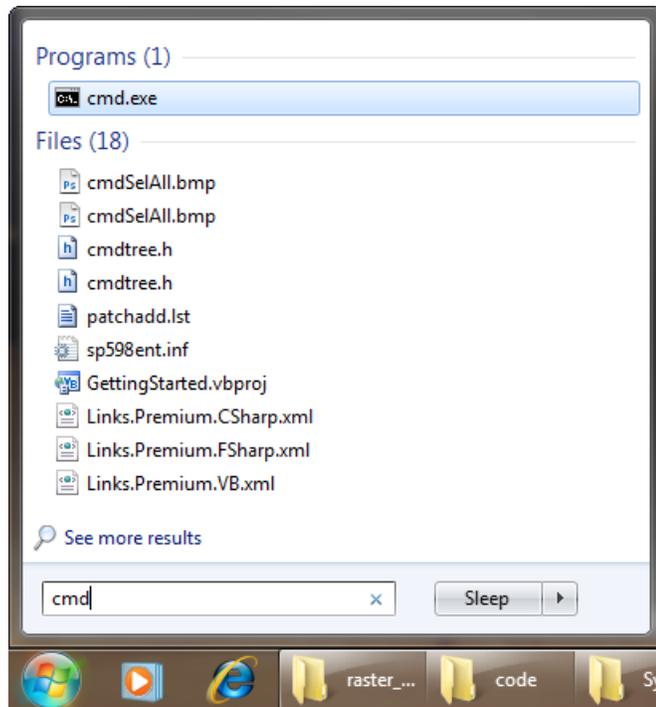
For more help on opening an Elevated Command Prompt, please refer to:

http://www.sevenforums.com/tutorials/783-elevated-command-prompt.html

http://www.winhelponline.com/articles/158/1/How-to-open-an-elevated-Command-Prompt-in-Windows-Vista.html

Or simply do a search for "Elevated Command Prompt".

4) Register the file *richtx32.ocx* using the Windows RegSvr function:

14

a. If using a **32-bit version of Windows**, type the line

```
regsvr32.exe c:\windows\system32\richtx32.ocx
```
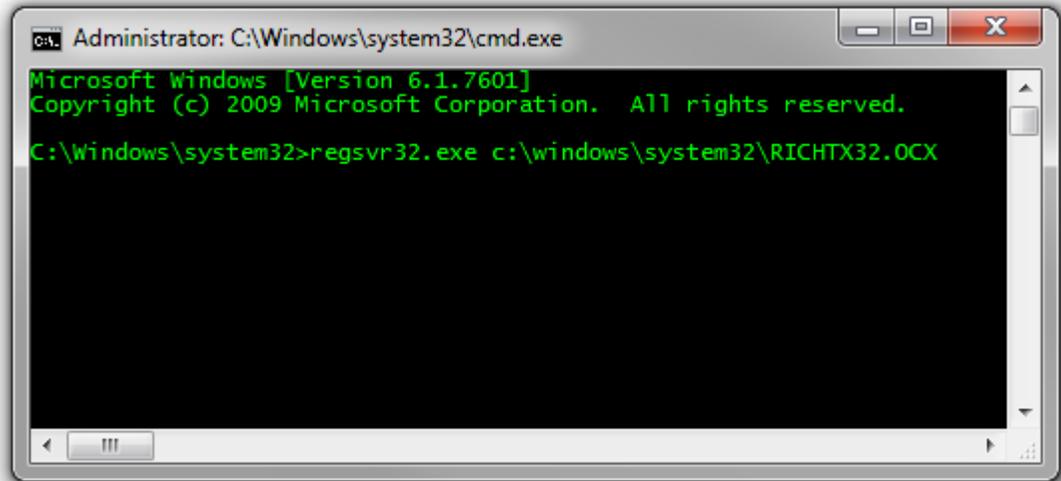

b. If using a **64-bit version of Windows**, type the line

```
regsvr32.exe %windir%\syswow64\richtx32.ocx
```
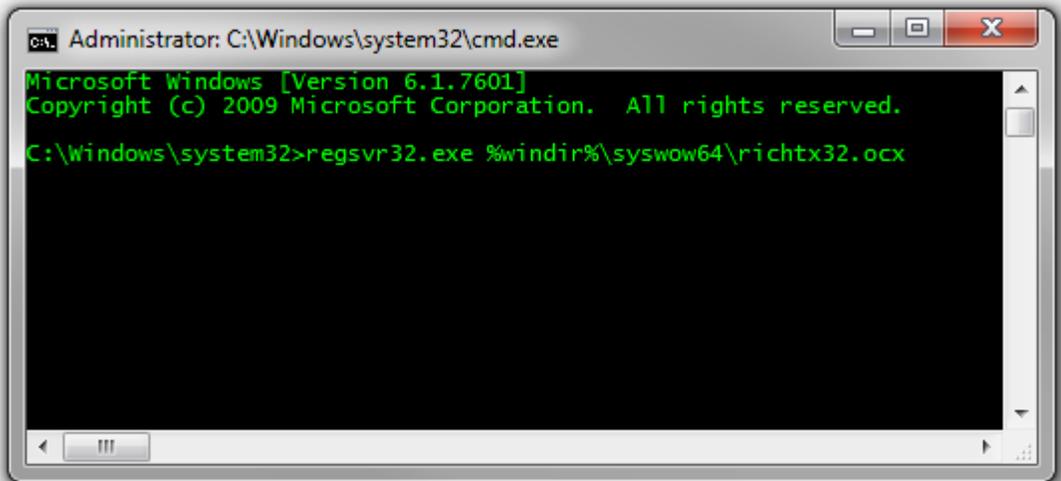

c. Click [ENTER] and you should see a message that the registration succeeded.
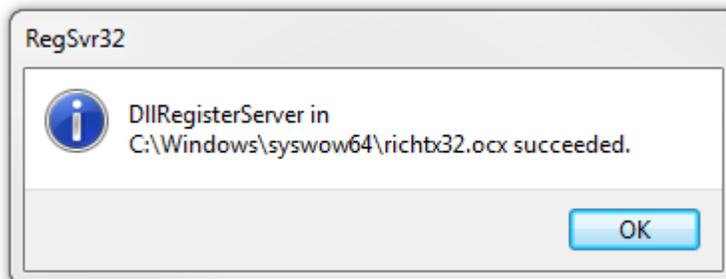
Using the Tools:

Raster Extractor Tool:

Adding the Tool to a Toolbar:
- Start ArcMap.

- Click the "Tools" menu, then "Customize".

- In the "Customize" dialog, select the "Commands" tab and then select the category "Jenness Enterprises".

- Drag the command named "Extract Rasters" somewhere on an existing toolbar.

- If you want this tool to always be available when you open ArcMap, then set the "Save in:" option to "Normal.mxt". If you want this tool to only be available in this particular project, then set the "Save in:" option to be the name of your current MXD file.
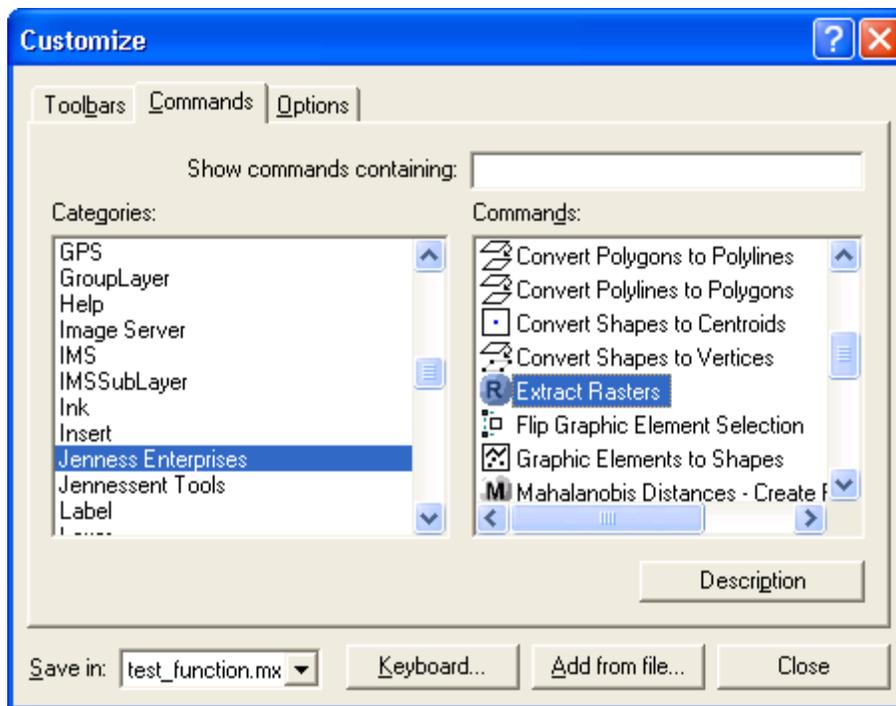
NOTE: To remove the tool, you will need to open the Customize dialog again. With the Customize dialog open, simply drag the tool off whatever toolbar it is sitting on. Then close the Customize dialog to save the change.

Using the Raster Extractor Tool:
- Make sure that your raster catalog is available in your map.

- Click the "Extract Rasters" button to open the main dialog:
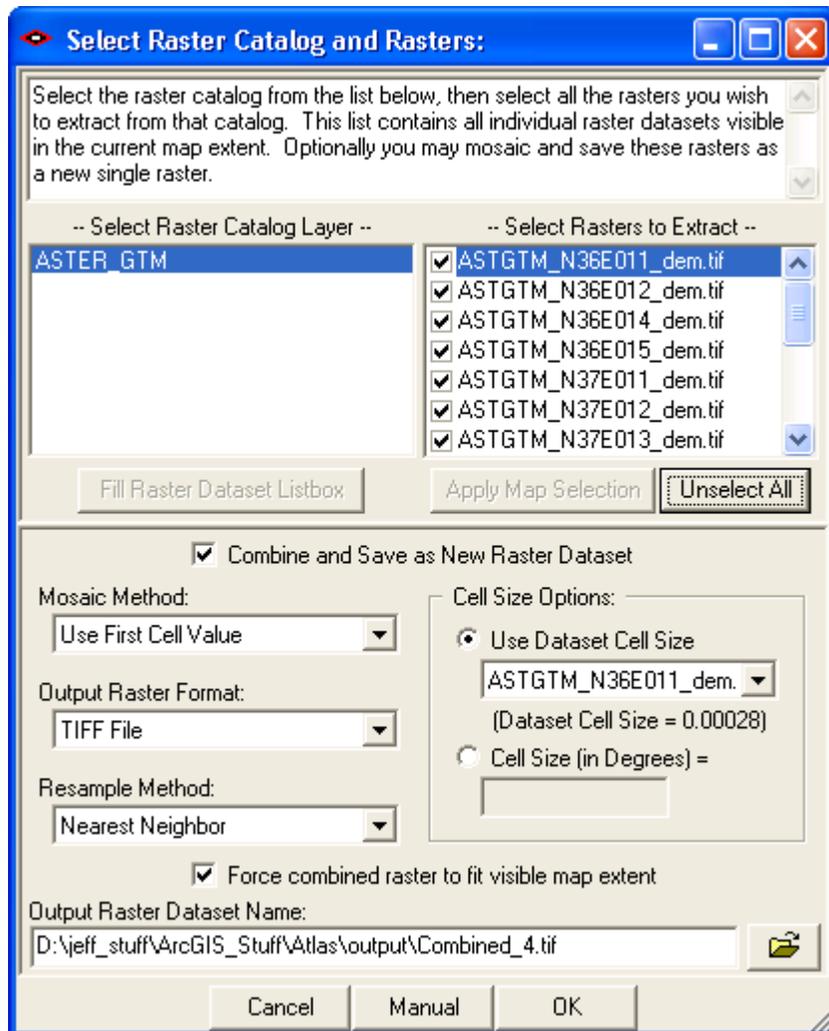
- The dialog should be fairly intuitive. The listbox on the left shows all the raster catalogs currently in your map. Select one of those raster catalogs and the listbox on the right will automatically fill with all the individual raster datasets that are visible in the current map display extent. Simply select all those raster datasets you wish to extract. If you wish to combine them into a single raster, choose the output options and specify whether you would like to clip it to the current extent. The output options are explained below.

NOTE: If your raster catalog has any raster datasets currently selected prior to running the tool, then you can use the "Apply Map Selection" button to automatically select just those selected raster datasets that are visible in the map display. This allows you to manually select the raster datasets you are interested in prior to running this tool, then to easily use that selection when you do run the tool.

NOTE: If you choose a raster catalog that has a large number of raster datasets visible in the map (n > 90), then the tool will not automatically fill the listbox. In this case the tool will warn you that there are a lot of datasets and therefore might take a lot of time to identify them all, and require you to click the "Fill Raster Dataset Listbox" button.

17

Warning - Large Number of Raster Datasets:

There are a large number of raster catalog datasets visible in the view (n = 22602, from the raster catalog 'ASTER_GTM').

Click the 'Fill Raster Dataset Listbox' to show all raster datasets in the view…

[OK]
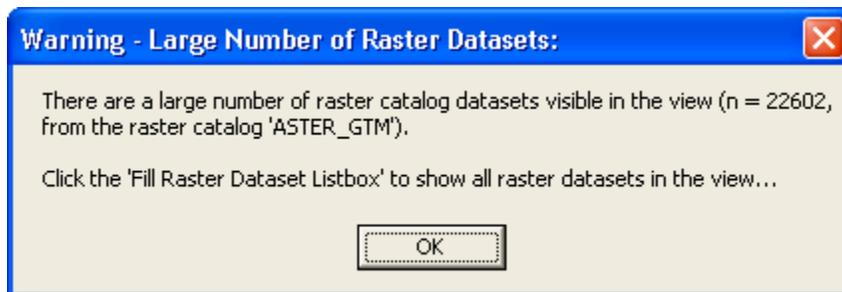
NOTE: Related to the note above, if your raster catalog contains a large number of raster datasets then the tool may take several seconds to open initially. If the selected raster datasets are large, then the tool may take several minutes to combine and clip them. And, if you try to combine very large datasets, then there is always the chance that you may overload your computer RAM and crash the tool.

▪ If you chose to combine and save the datasets, then the tool will show you a report upon completion, listing the parameters you selected. If you chose to only extract the datasets, without combining them, then the tool will not show this report.

Report

Function Complete:

Raster Catalog Layer: ASTER_GTM
Selected Raster Datasets
  1] ASTGTM_N36E011_dem.tif
  2] ASTGTM_N36E012_dem.tif
  3] ASTGTM_N36E014_dem.tif
  4] ASTGTM_N36E015_dem.tif
  5] ASTGTM_N37E011_dem.tif
  6] ASTGTM_N37E012_dem.tif
  7] ASTGTM_N37E013_dem.tif
  8] ASTGTM_N37E014_dem.tif
  9] ASTGTM_N37E015_dem.tif
  10] ASTGTM_N37E016_dem.tif
  11] ASTGTM_N38E012_dem.tif
  12] ASTGTM_N38E013_dem.tif
  13] ASTGTM_N38E014_dem.tif
  14] ASTGTM_N38E015_dem.tif
  15] ASTGTM_N38E016_dem.tif

--> Mosaic Operator Type: Use First Cell Value
--> Output Format: TIFF File
--> Resample Method: Nearest Neighbor
--> Output Cell Size: 0.000277777777778
--> Option to trim Mosaic to visible extent: TRUE
--> Filename: Combined_2.tif
--> Workspace = D:\jeff_stuff\ArcGIS_Stuff\Atlas\output\

Analysis Began: Tuesday, December 15, 2009; 8:54:19 AM
Analysis Complete: Tuesday, December 15, 2009; 8:58:14 AM
Time Elapsed: 3 minutes, 55 seconds…

[Print]   [Copy to Clipboard]   [Exit]

Optional Parameters:

These optional parameters only apply if you wish to combine and save the selected datasets as a new dataset. If you do not choose to combine and save the datasets, then the raster datasets will be loaded directly from the raster catalog.

MOSAIC METHODS: These choices affect the cell values of the output raster in cases where the original raster datasets overlap. If the rasters do not overlap, then the choice of mosaic method will not have any effect.

- *Use First Cell Value:* The cell values from the first raster dataset will be used. The rasters are loaded in the order they appear in the Raster Catalog attribute table.

- *Use Last Cell Value:* The cell values from the last raster dataset will be used. The rasters are loaded in the order they appear in the Raster Catalog attribute table.

- *Use Minimum Cell Value:* All overlapping cells are considered, and the lowest value is used.

- *Use Maximum Cell Value:* All overlapping cells are considered, and the highest value is used.

- *Use Mean Cell Value:* All overlapping cells are considered, and the average value is used.

- *Blend Overlapping Rasters:* This averages all overlapping cell values, but weights individual values according to the distance from the raster edge. Therefore the final raster tends to blend more smoothly between overlapping rasters.

OUTPUT FORMATS: These are a few of the more mainstream options ArcGIS offers. Please let the author know if you need additional output formats included (jeffj@jennessent.com).

- File Geodatabase Raster (only available if you have ArcGIS 9.2 or newer):
- ESRI GRID
- Imagine Image
- TIFF File
- JPEG File (Automatically saved at maximum compression quality)
- JPEG 2000 File (Automatically saved at maximum compression quality)

RESAMPLE METHODS: If you choose to create a mosaic raster with a different cell size from the original data, or if your input raster datasets have different cell sizes, then this tool will have to interpolate (i.e. resample) values for the new raster. NOTE: The new raster origin will always be defined from the western and southern edges of the combined extent of the input raster datasets. If you choose to clip the output raster to the visible extent, then the clipping rectangle will be adjusted horizontally and vertically so that it corresponds with this origin point. Therefore clipped raster cells will not be shifted from original raster cells, unless the different raster datasets are themselves shifted or have different cell sizes.

- *Nearest Neighbor:* This method simply finds the original cell whose centerpoint is nearest to the centerpoint of the new cell, and assigns the original cell value to the new cell. This method is recommended especially for categorical data because the new raster will only have cell values that existed in the original rasters. This method is also recommended for cases where the new raster has cells with the exact sizes and locations as the original rasters.
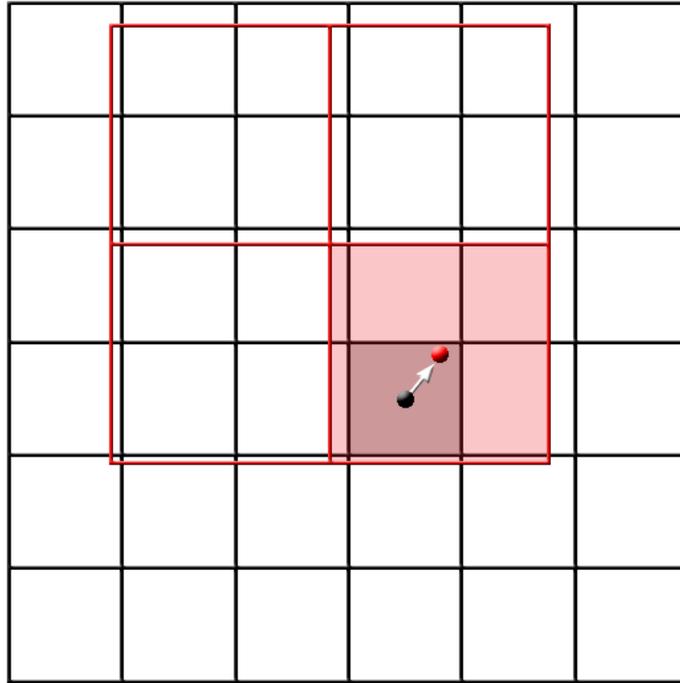
Figure 4: Nearest Neighbor method; original raster in black, new raster in red

- *Bilinear Interpolation:* As implemented in ArcGIS, the Bilinear Interpolation method find the 4 original raster cells whose centerpoints are nearest to the centerpoint of the new cell. The new cell value is calculated from the average of these 4 cell values, where each cell value is weighted according to the distance. This method is recommended for continuous datasets where the new cell sizes and positions are different than the original rasters because it blends and smoothes the values. **NOTE:** The illustration below shows the 4 closest cells as a square, but this is not necessarily always the case. If the new raster is rotated, then the 4 closest cells might not be in a square.

$$\text{New Cell Value} = \frac{\sum_{i=1}^{4} x_i \left| \overrightarrow{Pi} \right|}{\sum_{i=1}^{4} \left| \overrightarrow{Pi} \right|}$$

where:

$x_i = $ Cell value from original cell i

$\left| \overrightarrow{Pi} \right| = $ Distance between the centerpoints of original cell i and new cell P

$\sum = $ Summed over the 4 original cell centerpoints closest to the new cell P centerpoint
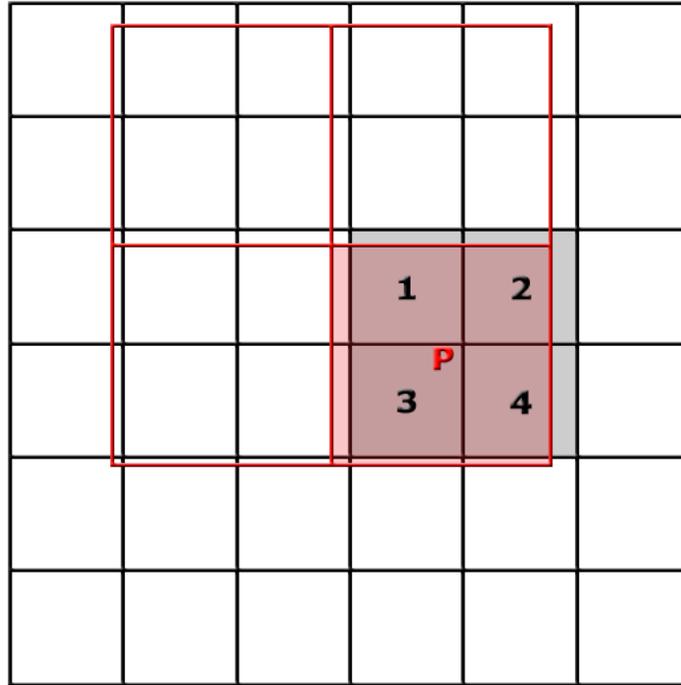
Figure 5: Bilinear Interpolation method; original raster in black, new raster in red

- *Cubic Convolution:* As implemented in ArcGIS, Cubic Convolution is similar to Bilinear Interpolation except that the new cell value is calculated from the distance-weighted average value of the nearest 16 cells, rather than the nearest 4 cells. **NOTE:** The illustration below shows the 16 closest cell centerpoints as a square, but this is not necessarily always the case. Quite often these 16 closest centerpoints will not form a square.

New Cell Value $= \dfrac{\sum\limits_{i=1}^{16} x_i \left|\overrightarrow{Pi}\right|}{\sum\limits_{i=1}^{16} \left|\overrightarrow{Pi}\right|}$

where:

$x_i =$ Cell value from original cell i

$\left|\overrightarrow{Pi}\right| =$ Distance between the centerpoints of original cell i and new cell P

$\sum =$ Summed over the 16 original cell centerpoints closest to the new cell P centerpoint
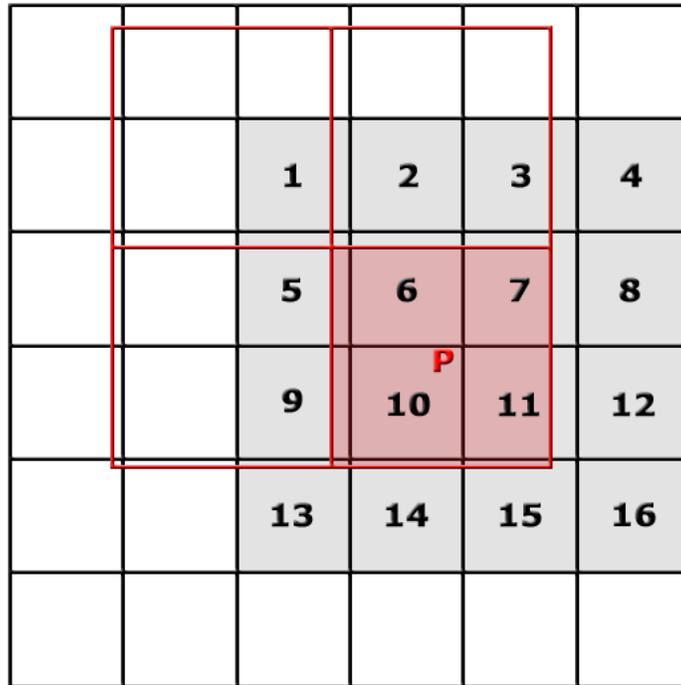
Figure 6: Cubic Convolution method; original raster in black, new raster in red

CELL SIZE OPTIONS: You may either use the cell size of one of the visible raster datasets or specify your own cell size. The cell size units will always be in the coordinate system of the original raster catalog.

OUTPUT RASTER DATASET NAME: Specify the name and location to save the new raster. You do not need to include an file extension (i.e. ".jpg" or ".tif"). The tool will automatically add the extension based on the output format you choose. If you do add an extension, then the tool will ignore it and add the correct one based on the selected output format.

QuickSelect Tool:

With extremely large raster catalogs such as the 208GB ASTER Elevation dataset, ArcGIS seems to have trouble selecting tiles based on intersecting features from other feature classes. For example, the author of this tool was never able to successfully select all ASTER elevation tiles that intersected the boundary of a selected country, when using the standard ArcGIS "Select by Location" function. ArcGIS would simply show the message "Selecting Features" and then do nothing further.

The Raster Extractor tool is designed to allow you to easily apply a pre-selected set of raster datasets, but this is only useful is you are able to actually select the datasets. Therefore this extension includes an additional tool to help select the raster catalog datasets prior to running the Raster Extractor tool.

NOTE: If you do not have any problems pre-selecting the raster catalog datasets prior to running the Raster Extractor tool, then there is no need to run this QuickSelect tool.

Adding the Tool to a Toolbar:

- Start ArcMap.

- Click the "Tools" menu, then "Customize".

- In the "Customize" dialog, select the "Commands" tab and then select the category "Jenness Enterprises".

- Drag the command named "QuickSelect" somewhere on an existing toolbar.

- If you want this tool to always be available when you open ArcMap, then set the "Save in:" option to "Normal.mxt". If you want this tool to only be available in this particular project, then set the "Save in:" option to be the name of your current MXD file.
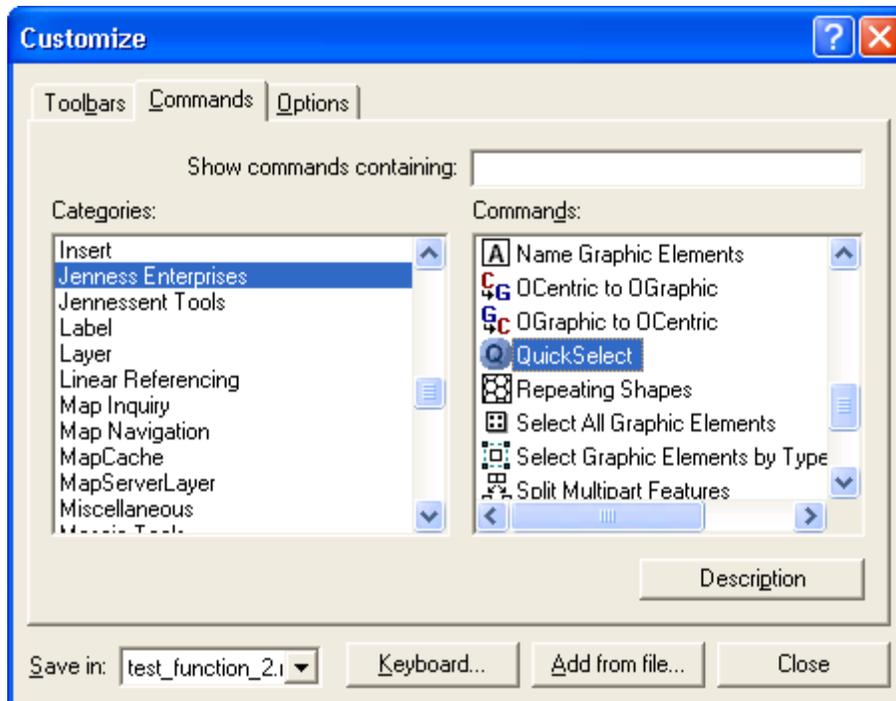
NOTE: To remove the tool, you will need to open the Customize dialog again. With the Customize dialog open, simply drag the tool off whatever toolbar it is sitting on. Then close the Customize dialog to save the change.

Using the QuickSelect Tool:

- Make sure that your raster catalog and an appropriate feature layer are available in your map.

- Prior to running this tool, select the features that intersect the raster catalog datasets that you are interested in. For example, if you wish to extract all raster catalog datasets that intersect a particular country, then you would first select that country polygon. Use the standard ArcGIS functions to select these features.

- Click the "QuickSelect" button **Q** to open the tool:

- The upper drop-down list contains all raster catalogs in your active map display, and the lower drop-down list contains all feature classes with at least one feature selected. Simply select the raster catalog in the upper list, and the appropriate feature class in the lower list, and click 'OK'. The tool will quickly select all raster datasets that intersect the selected features.

- Note that this tool is very basic. It only selects raster datasets from raster catalogs, and it only uses the INTERSECT spatial relationship. Please contact the author at jeffj@jennessent.com if this is insufficient for your needs.

Create a Combined Elevation Raster of Mauritania, An Example:

Suppose you had a raster catalog containing elevation tiles covering the entire world, and you wished to extract all those tiles that intersected with the country of Mauritania and combine them into a single elevation raster for analysis. This example uses the 208GB ASTER Elevation raster catalog and an ESRI country datasets named "Country Areas (generalized)".
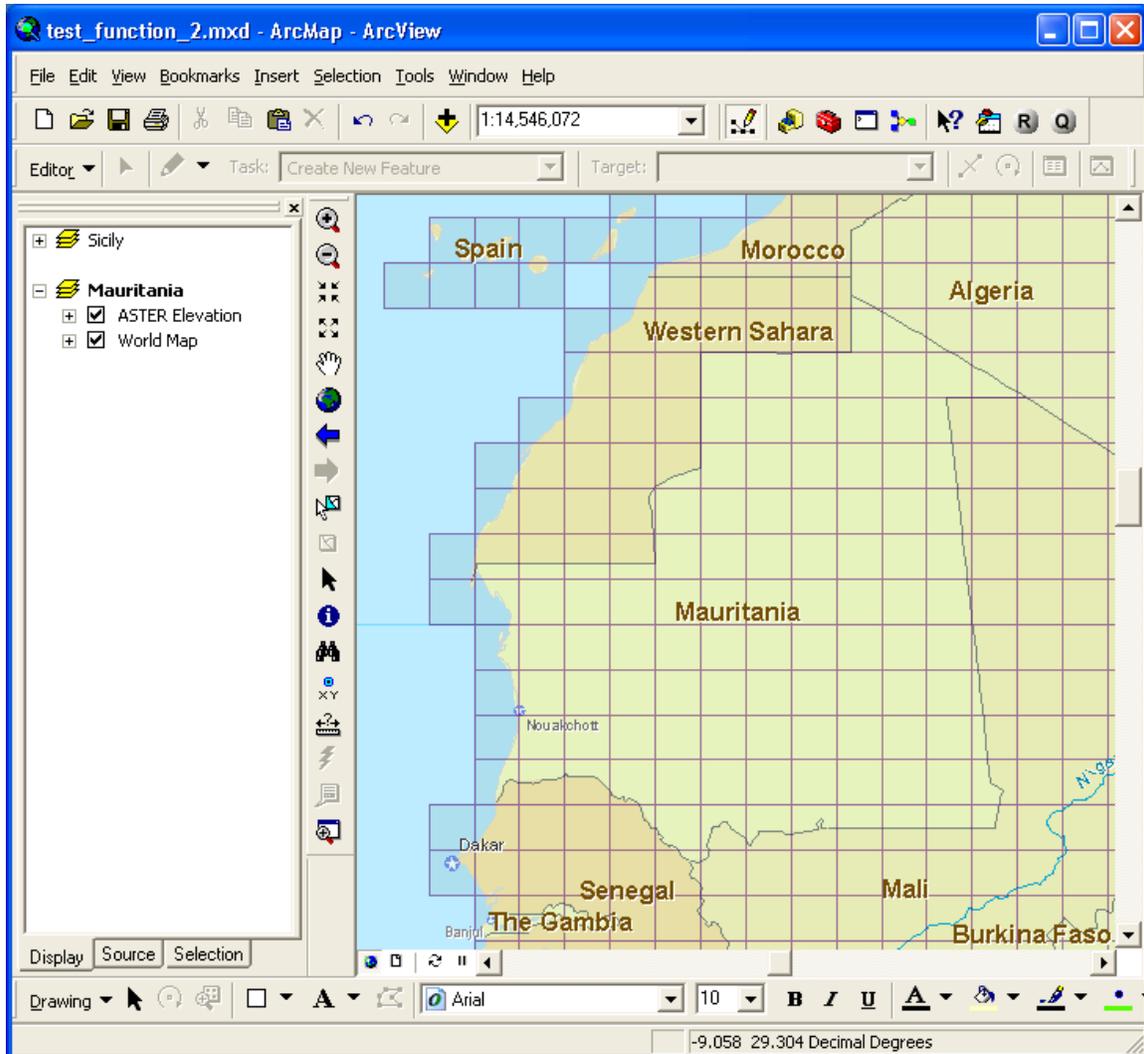
If we opened the Raster Extractor tool right now, it would show us a list of all the elevation tiles currently visible in the display. However, we are only interested in the elevation within Mauritania, and it would be difficult to determine which are the correct tiles just by looking at the tile names in the list. Therefore we want to pre-select those tiles before we use the Raster Extractor tool.

First manually select the Mauritania polygon:
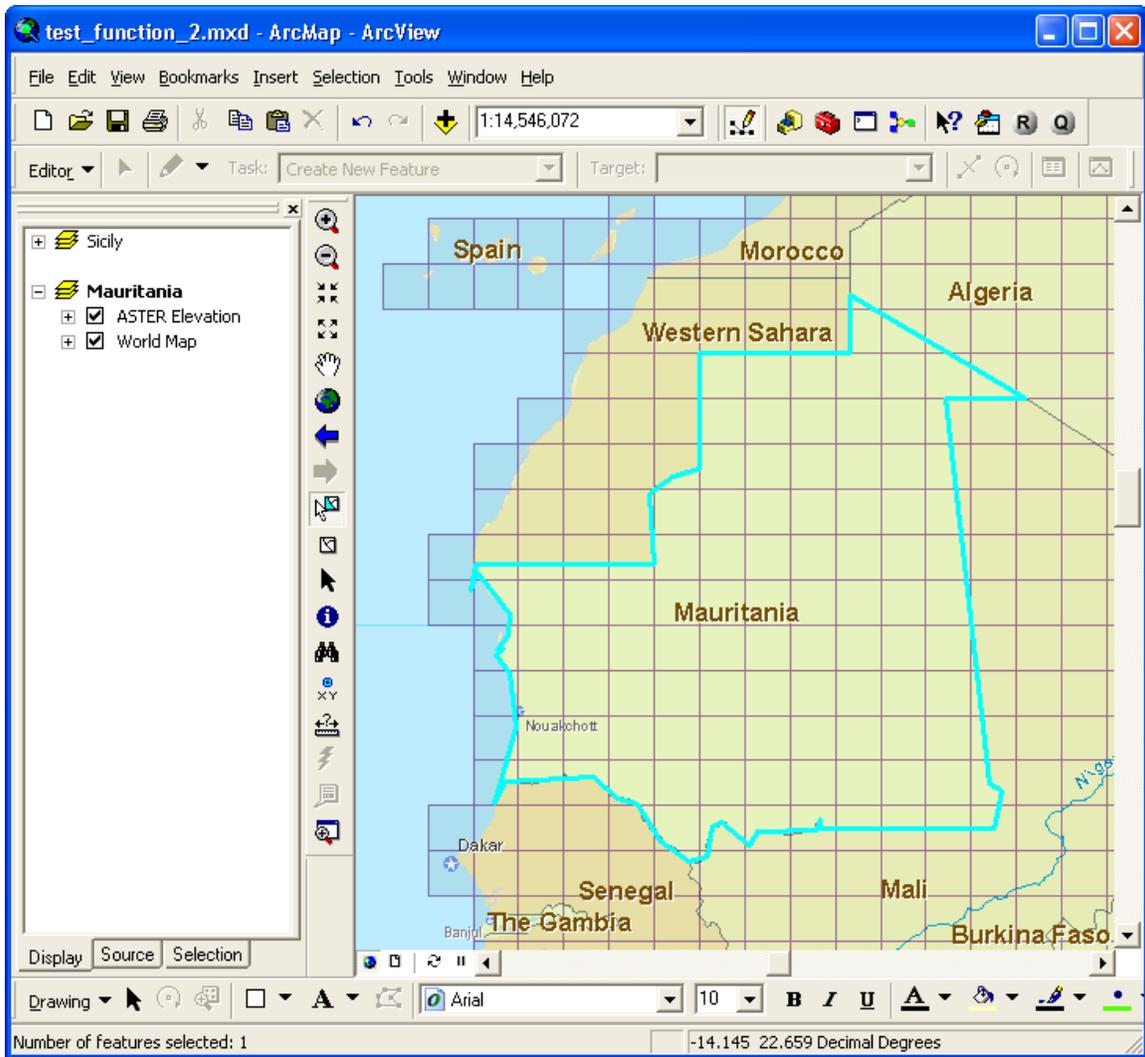
Next, select all those ASTER Elevation tiles that intersect the selected Mauritania polygon. Normally we would use the standard ArcGIS "Select by Location" function to do this, but ArcGIS appears to have a problem selecting from very large raster catalogs. The author was never able to get the "Select by Location" tool to work on the ASTER Elevation raster catalog.

Therefore, use the alternative QuickSelect tool to make the selection. Click the button to open the QuickSelect tool, then select the raster catalog "ASTER Elevation" and the feature class "Country Areas (generalized)".

Click 'OK' to make the selection.
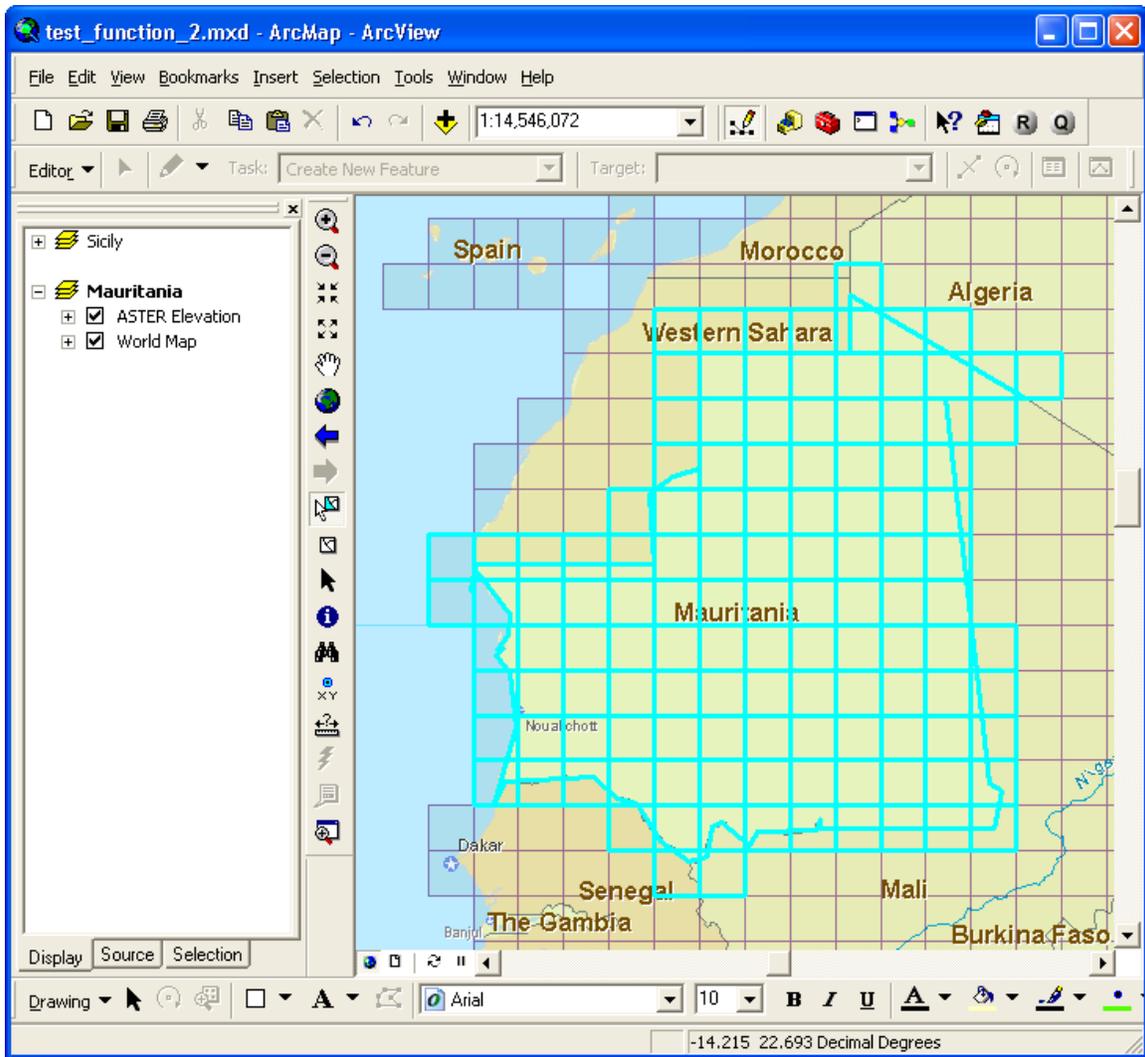
Now that the correct elevation tiles have been pre-selected, click the [R] button to open the Raster Extractor tool. **NOTE:** Large raster catalogs can be slow to work with, so the Raster Catalog will warn you if you have a large number of raster datasets currently available in the display. You will see a message similar to the one below if you have more than 90 raster datasets visible.
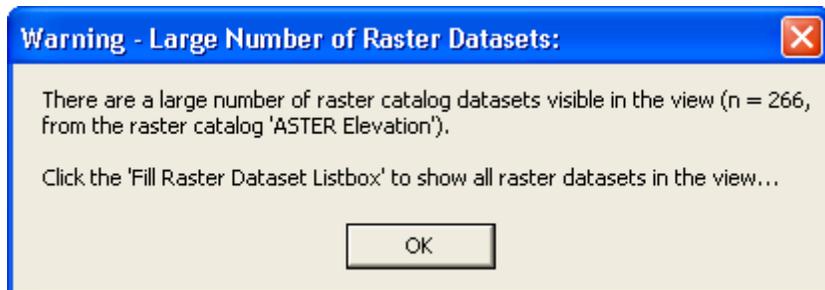
Click 'OK' to proceed to the Raster Extractor tool.

Select Raster Catalog and Rasters:

Select the raster catalog from the list below, then select all the rasters you wish to extract from that catalog. This list contains all individual raster datasets visible in the current map extent. Optionally you may mosaic and save these rasters as a new single raster.

-- Select Raster Catalog Layer --

ASTER Elevation

-- Select Rasters to Extract --

[Fill Raster Dataset Listbox]   [Apply Map Selection]   [Select All]

☑ Combine and Save as New Raster Dataset

Mosaic Method:
Use First Cell Value

Output Raster Format:
TIFF File

Resample Method:
Nearest Neighbor

Cell Size Options:
⦿ Use Dataset Cell Size

Dataset Cell Size =
○ Cell Size (in Degrees) =

☑ Force combined raster to fit visible map extent

Output Raster Dataset Name:
D:\jeff_stuff\ArcGIS_Stuff\Atlas\output\Combined_4.tif

[Cancel]   [Manual]   [OK]

Because of the large number of visible raster datasets (n=266), the tool did not automatically fill the "Select Rasters to Extract" listbox. Therefore we click the "Fill Raster Dataset Listbox". **NOTE:** This example took 4 minutes just to fill the listbox, using a 208GB raster catalog with over 22,000 raster datasets.
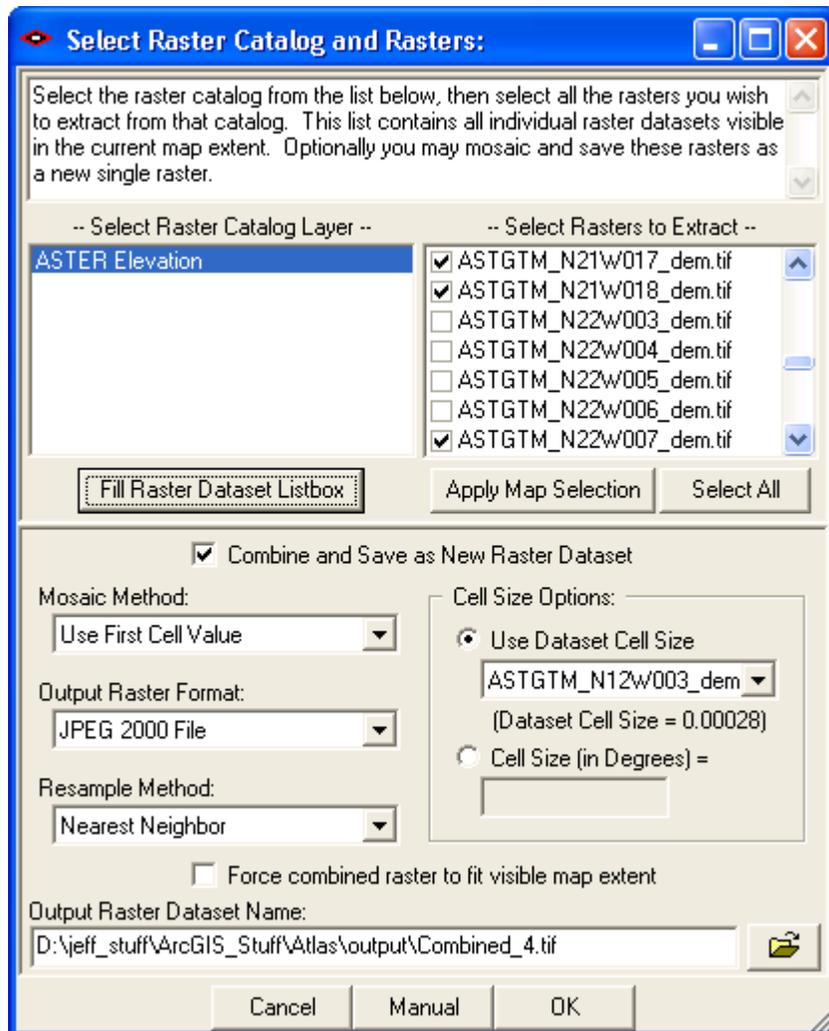
We need to select the individual raster datasets to extract by checking them off in the listbox on the right. Note that, because some datasets were selected in the raster catalog before we ran this tool, these datasets are automatically selected in the list. Therefore all the appropriate raster datasets are automatically selected.

We want to combine all the rasters into a single raster. In this example, we will save the new raster as a JPEG 2000 raster and use the same cell size as the original data. We will use the Nearest Neighbor resampling method in order to maintain all the original elevation values. Because none of the elevation datasets overlap, the "Mosaic Method" is irrelevant. Finally, we choose not to force the combined raster to fit the visible map extent. Click 'OK' to run the tool and create the Mauritania elevation raster:
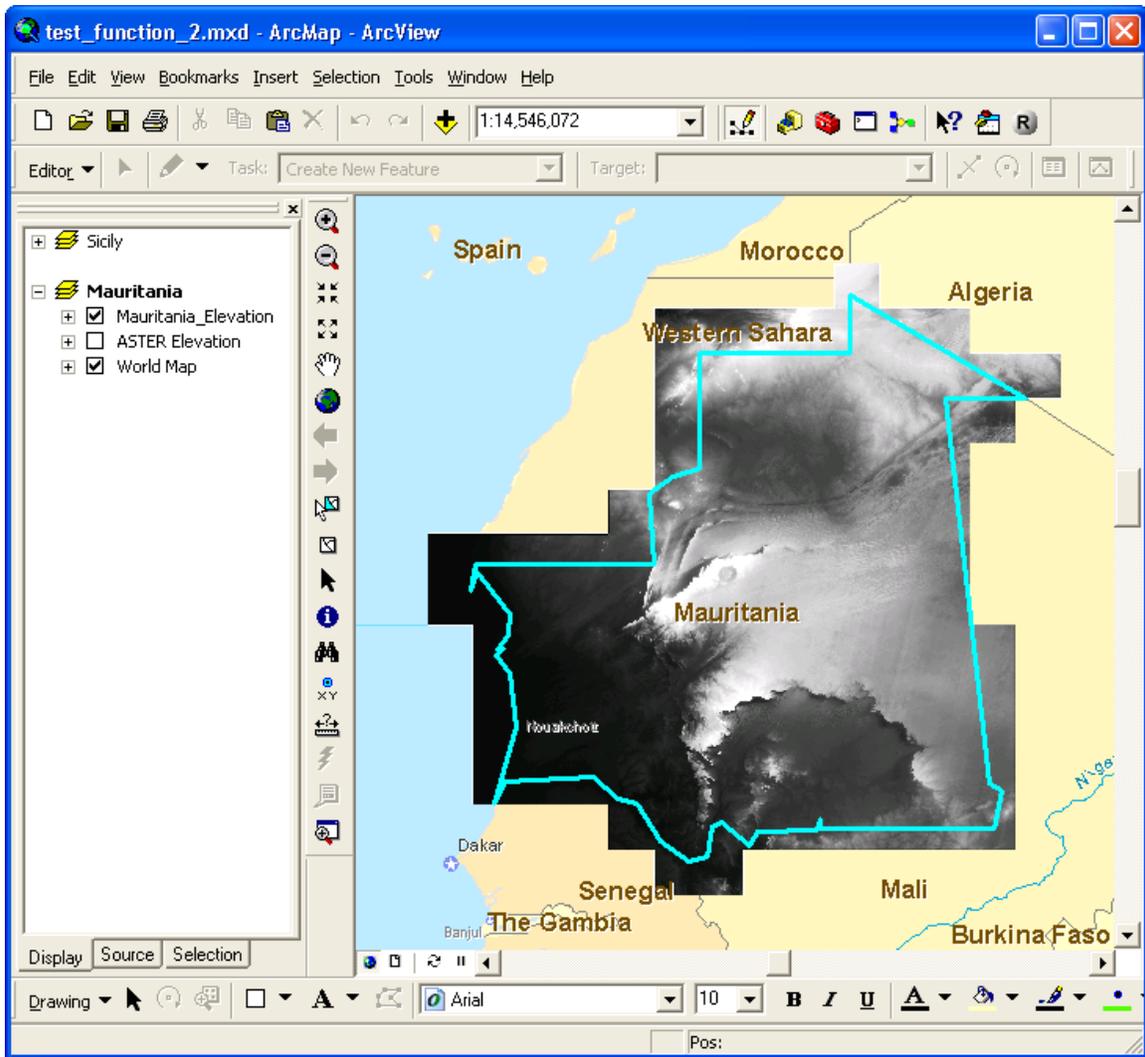
NOTE: Be aware that rasters can be very large and this tool may take a long time to run! This example took 43 minutes to combine 123 elevation tiles, producing a singe elevation raster containing over 2.5 billion cells.

Updates

Visit http://www.jennessent.com/arcgis/RasterExtractor.htm for latest revision of extension.

January 1, 2010: Version 1.0.107: Initial Release

January 15, 2010: Version 1.0.109: Fixed "Division by Zero" error.

October 25, 2010: Version 1.0.112: Added installation function for ArcGIS 10.0.

November 16, 2010: Version 1.0.115: Rewrote functions that are incompatible with ArcGIS 10.

November 17, 2010: Version 1.0.116: Fixed a bug related to raster catalogs in personal geodatabases, which would trigger a "Type Mismatch" error at line 252 of the function "ExtractRasterDatasets."

March 14, 2011: Added additional ArcGIS 10 registration instructions to manual to handle Windows 7/Vista and Windows 32-bit/64-bit issues.