

Create a Catalog of Aerial Photographs

Many of us use aerial photography in our maps on a regular basis. For Digital Orthophoto Quarter Quadrangle (DOQQ) photography, this involves finding the area of interest, determining the quadrangle(s) that cover the area, and adding the appropriate aerial photos to the map. Using a “raster catalog” (e.g., catalog of aerial photos) in ArcMap makes this process much simpler and reduces the amount of time needed to make a map with aerial photos.

What’s it for

Once the raster catalog is created, it can be added to a map like any other layer (shapefile or aerial photo). Then, when viewing an area covered by one or more aerial photos, the images will appear on the map. When you pan to a different location, ArcMap will display the appropriate maps automatically. There is no need to check an index file and obtain the appropriate photos for the area of interest!

What it does

When a Raster Catalog is created, ArcGIS indexes all aerial photos in the specified folder and records the extent information for each photo (i.e., what patch of ground does it cover). When the catalog is added to a map, the catalog will display the appropriate photo(s) according to what part of the map is visible. Because aerial photo files are large (~6 MB per color photo), ArcMap will not display the images when the view spans more than 9 aerial photos.

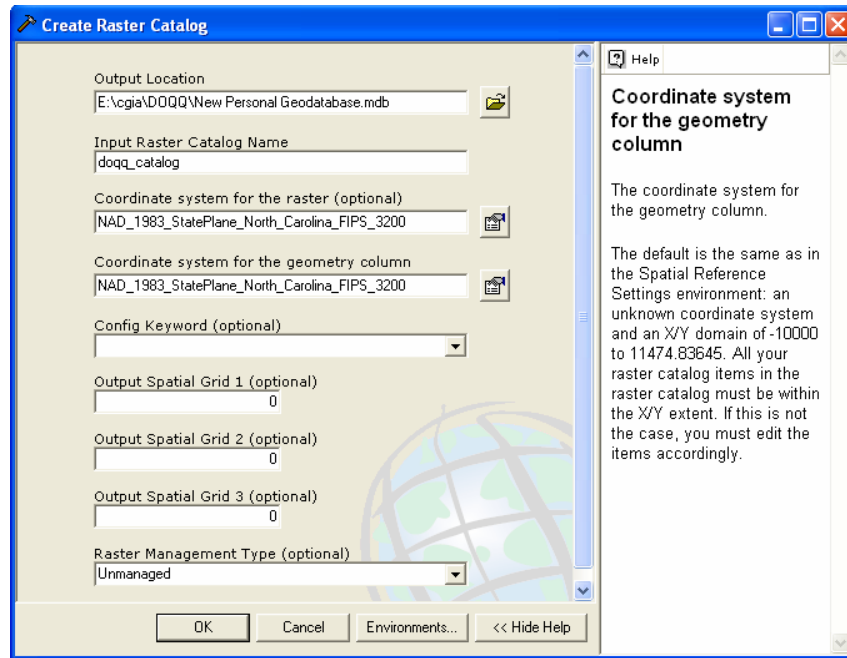
Step-by-step

Create a Raster Catalog

This process will create a catalog of aerial photos (or any other georeferenced raster files) for use in ArcMap. A Raster Catalog is stored in a geodatabase.

1. Open ArcCatalog.
2. Navigate to the folder containing the photos to be cataloged.
3. Create a blank geodatabase in the folder containing the photos. Right-click in the left window of ArcCatalog and choose New/Personal Geodatabase from the menu. A new file will appear in the folder (titled “New Personal Geodatabase.mdb”). You can rename this file by right-clicking on it, choosing “Rename” and typing in a new name for the file.
4. Right-click the personal geodatabase you just created, point to New, and click Raster Catalog. A new window will appear (Figure 1).

Figure 1.




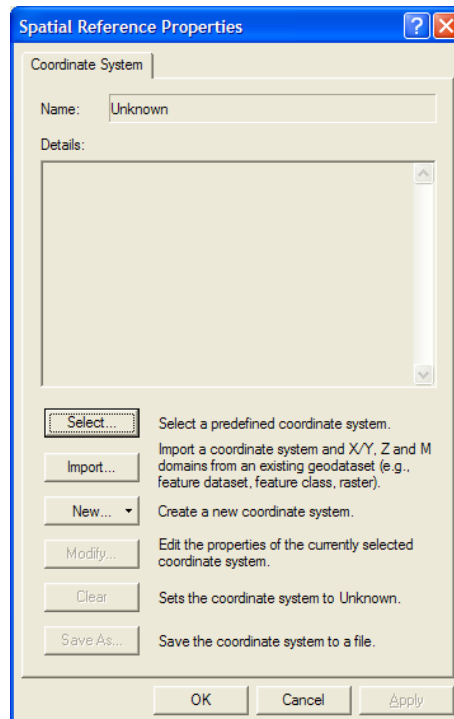
5. Output Location: Make sure that the output geodatabase is correct here.
6. Input Raster Catalog Name: Fill in the name for the Raster Catalog. Make it something descriptive so that when you add it to a map, you will know what it is.
7. Coordinate System for the raster (optional): Click on the properties button  to the right of this box to choose the spatial reference for the rasters. A new window will appear (Figure 2). For all WRC photography (1993 black and white aerial photography, 1998 color infrared photography, and game land aerial photography), this will be in NC State Plane Meters.
 - a. In the new window, click on the Select button. A folder list will appear.
 - b. Navigate to Projected Coordinate Systems\State Plane\NAD 1983
 - c. Highlight the file “NAD_1983_StatePlane_North_Carolina_FIPS_3200” in this folder and click on the Add button. This will bring you back to the “Create Raster Catalog” window.

Figure 2.




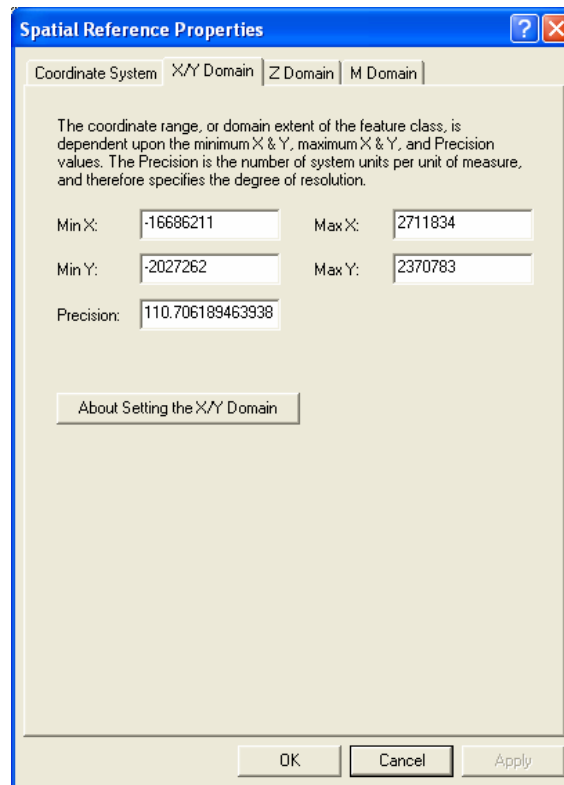
8. Coordinate system for the geometry column: In this location we must input the spatial reference AND the extent of the data (i.e., what patch of ground do these photos cover). Click on the properties button  to the right of the box and a new window will appear.
 - a. In the Coordinate System tab, choose NC State Plane meters as you did in steps 7a-7c.
 - b. Click on the “X/Y Domain” tab (Figure 3).
 - c. Fill in the values below (this extent covers the entire state of North Carolina in State Plane meters).
 - i. Min X: 0
 - ii. Max X: 1,100,000
 - iii. MinY: -100,000
 - iv. MaxY: 450,000
 - d. Click on the OK button to return to the “Create Raster Catalog” window.

Figure 3.



9. Raster Management Type (optional): Change this to “Unmanaged”.
10. All other fields can be left blank. Once you have completed filling out this form, click on the OK button.


Load Catalog

After the catalog has been created, you must now load the information about the photos it will reference. This process can take a LONG time when cataloging a large set of files (e.g., all color infrared aerial photos for the entire state). I suggest you start this process before leaving work in the evening, and letting it run overnight. Once the catalog is created however, you can use it in as many map documents as you wish. You will not have to repeat this process more than once for each set of aerial photos.

1. Click on the geodatabase you just created in ArcCatalog. You will see your raster catalog in the right pane of ArcCatalog.
2. Right-click on the raster catalog and choose Load, then Load Data. The “Raster to Geodatabase (multiple)” window will appear.
3. Click on the Folder Button to the right of the “Input Rasters” box. A new window with a folder tree will appear.
4. Navigate to the folder containing the raster files (aerial photos) you wish to add to the catalog and highlight all the folders you wish to add (you can highlight the entire list by clicking on the first in the list, scrolling to the bottom and holding down the shift key while clicking on the last in the list).
5. Click the Add button. This will add the files to the list of rasters to be loaded into the catalog.
6. Click the OK button to add the listed rasters to the catalog. **WARNING:** This process may take a long time to complete (>1-2 hours), depending on the number of aerial photos to be cataloged.

Add Catalog to Map

This describes how to add the Raster Catalog Created above to a map document. Once the catalog is added, you can treat it just like you would any other layer in your map.

1. Open ArcMap (you can open an existing map or a blank one.)
2. Click on the Add Layer button .
3. Navigate to the geodatabase where the catalog file is located.
4. Highlight the catalog file in the geodatabase and click on the Add button.

Other Information

You can change how the photos in a catalog are displayed on the map. By default ArcMap will not display the images when more than 9 are visible. When this happens, a grid will appear, with the name of the photo displayed in the middle of each block. You can change when to display the grid instead of the photos (i.e., when more than 2 aerial photos are visible) and what to display if the extent is beyond this threshold in the properties window of the layer. To change these settings, double-click the catalog layer in the table of contents to display the properties window, and then click on the “Display” tab.

Questions?

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