Loading **ArcSDE** Rasters
Using **ArcGIS 8.2**

By Qian Liu and Jason Willison, ESRI

Editor's note: *Tools built into the interface of ArcCatalog and ArcToolbox simplify and speed raster data loading into ArcSDE. This article describes how to use these tools. For an overview of raster management in ArcSDE, see the article "Raster Data Management with ArcSDE" at the beginning of this section. Rasters can also be loaded into ArcSDE using a command line utility. To learn more about this option, read "Load Rasters in ArcSDE Using sderaster," another article in this section.*

Out of the box, ArcGIS 8.2 provides two ways to load raster data into ArcSDE—the Raster to Geodatabase wizard and the Raster to Geodatabase tool. The wizard, geared toward new users, explains the process in a step-by-step manner. The tool is targeted to most users because all the parameters and options can be accessed via a single dialog box.

This ability to load a single raster or multiple rasters into an ArcSDE database is available from ArcCatalog and ArcToolbox in the ArcInfo and ArcEditor versions of ArcGIS. To access the Raster to Geodatabase tool or wizard from ArcToolbox, simply expand the Import to Geodatabase folder and choose select the desired tool. In ArcCatalog, right-click on the raster dataset and choose the Raster to Geodatabase tool or wizard from the context menu.

Both the tool and wizard support loading the same raster formats that ArcGIS does including user-built raster format plug-ins for GRID, IMG, TIFF, MrSID, JPEG, ESRI BIL-BIP-BSQ, GIF, PNG, ERDAS 7.5 LAN and GIS, BMP, ERMapper ERS, RAW, ESRI GridStack, CADRG, ADRG, DTED levels 1 and 2, NITF 2.0 and 2.1, CIB, and user-created raster format DLLs.

This article explains how to use the Raster to Geodatabase tool with the batch option to create a single seamless raster and a raster catalog. In the first instance, many spatially adjacent and/or overlapping rasters that share the same spatial reference will be mosaicked into an image that could be used as a background image for other GIS data or another application in which the data would remain static. The second option, creating a raster catalog, allows frequent updating of the data, storage of the original raster, and redistribution of each raster if desired. Although each raster is stored individually, the catalog is treated as one dataset.

Creating a Single Seamless Raster
Batch loading is a convenient way to create a seamless raster or a raster catalog in the database from a set of input raster files. The easiest way in ArcCatalog is by using the Raster to Geodatabase tool dialog for populating the required fields for batch loading. Placing
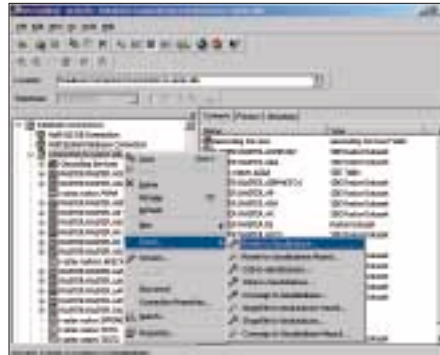

In ArcCatalog, right-click on the database connection and choose Import > Raster to Geodatabase from the context menu.

all the raster files in one file directory also simplifies this process, and these examples assume this has already been done.

Step 1: Launch the tool
In ArcCatalog, right-click on the database connection and choose Import > Raster to Geodatabase from the context menu. The Raster to Geodatabase tool dialog pops up with the output geodatabase field filled.
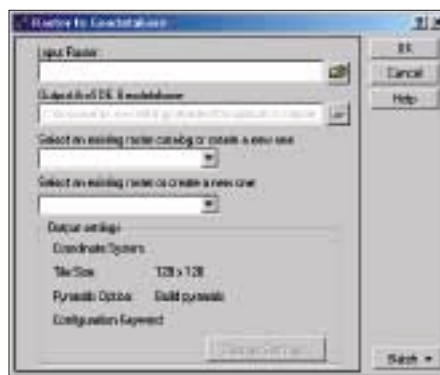
The Raster to Geodatabase tool dialog pops up with the output geodatabase field filled.

Step 2: Populate input raster
Locate and select all of the input rasters and drag them to the Input Raster field of the dialog box. This causes the batch section at the bottom of the dialog box to automatically be populated with the input rasters and output geodatabase.
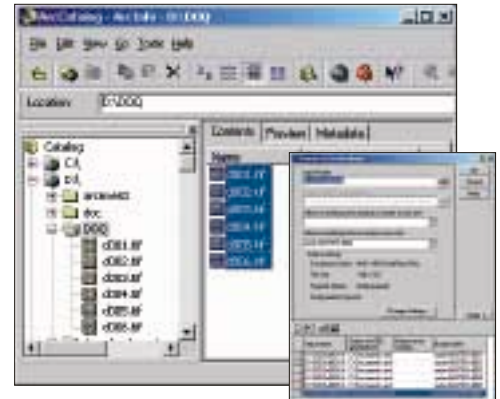

Locate and select all of the input rasters and drag them to the Input Raster field of the dialog box.

*Step 3: Select output raster name*
Select the Output raster column in the batch section and type in the desired output raster name.

*Step 4: Change pyramid and statistics settings*
By default, the tool builds pyramids and calculates statistics for each raster. However, because the mosaicking operation will delete intermediate pyramid layers and statistics for each raster dataset that is added, save processing time by changing the output settings
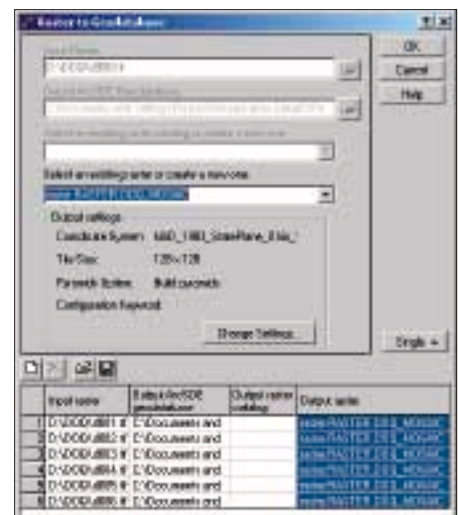
Select the Output raster column in the batch section and type in the desired output raster name.
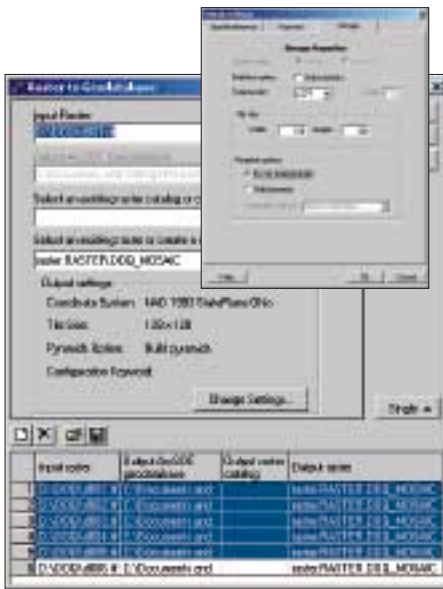
Create pyramids and statistics only for last raster loaded by selecting all the rows except the last one in the batch section, and clicking the Change Settings button to bring up the Output Settings dialog box. Uncheck the Build statistics option and select Do not build pyramids.
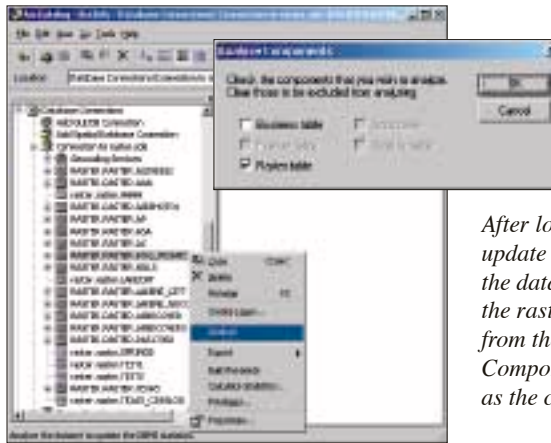
After loading finishes, analyze the tables to update DBMS-level statistics by refreshing the database connection, right-clicking on the raster just created, and selecting Analyze from the context menu. In the Analyze Components dialog box, check Raster table as the component to analyze and click OK.

so that only the final raster added to the mosaic builds pyramids and calculates statistics. Make this adjustment by selecting all the rows except the last one in the batch section, and click the Change Settings button to bring up the Output Settings dialog box. Under the Storage tab in this dialog box, uncheck Compute Statistics and select the Do not build pyramids option. Click OK to close the Output Settings dialog box.

Step 5: Run the batch loading process
Back in the Raster to Geodatabase dialog box, click OK to batch load the selected raster data into ArcSDE.

Step 6: Update DBMS-level statistics
After the loading process finishes, analyze the tables to update DBMS-level statistics for optimization. Do this by refreshing the database connection, right-clicking on the seamless raster just created, and selecting Analyze from the context menu. In the Analyze Components dialog box, check Raster table as the component to analyze and click OK.

The process just described generates a single seamless raster that is suitable for use as a basemap or other application that is read only or read mostly. For raster data that will be updated, creating a raster catalog is a better choice. This can also be accomplished using the Raster to Geodatabase tool or wizard.

Creating a Raster Catalog
Steps 1 and *2* for launching the Raster to Geodatabase tool and populating the Input Raster field of the Raster to Geodatabase dialog box are the same ones as described in the previous section.

Step 3: Select output raster catalog name
Once the batch section at the bottom of the dialog box contains the desired input rasters, select the Output raster catalog column in the

batch section and type the output raster catalog name.

Step 4: Review settings
In a raster catalog, each raster is an individual entity. Pyramids and statistics must be generated for each individually and are unaffected by pyramid or statistic operations performed on other members of the catalog. Consequently, there is no need to change the default settings for the statistics and pyramid options. To change the individual raster names in the catalog, select each row and type the raster name for each individual raster on the Output raster name column.

Step 5: Run the batch loading process
In the Raster to Geodatabase dialog box, click OK to perform the batch loading into ArcSDE.

Step 6: Update DBMS-level statistics
To analyze a raster catalog table, use sdetable command available in ArcSDE. The syntax for this command is
```
sdetable -o update_dbms_stats
-t doq_catalog -K r -m …
```

Conclusion
Currently, ArcGIS runs only in a Windows environment so the Raster to Geodatabase tool and wizard are available only on this platform. These tools work well in situations that do not require inclusion of associated colormap information with rasters or inputting of data with multiple spatial reference systems. A command line utility, sderaster, addresses more
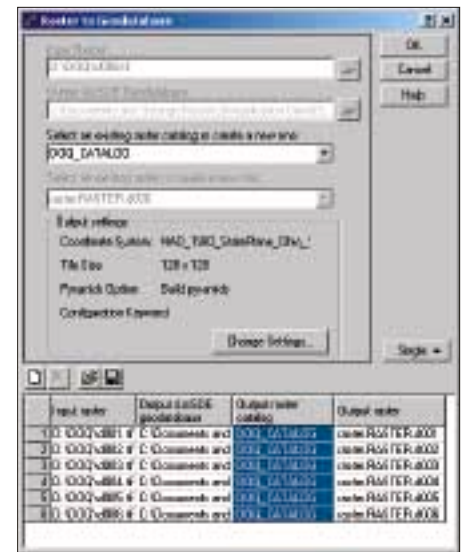
To create a raster catalog in batch mode, follow the first two steps used for mosaicking raster. Once the batch section at the bottom of the dialog box contains the desired input rasters, select the Output raster catalog column in the batch section and type the output raster catalog name.

complex raster loading requirements and can be used in a UNIX environment. The article "Raster Data Management with ArcSDE" contains a chart that compares the ArcGIS tools with sderaster. See the accompanying article, "Load Rasters in ArcSDE Using sderaster," for information on using this command line utility. ▪