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MD Tools

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This document applies to MD Tools, currently provided as a prototype and for testing only. The functionality has not been exhaustively tested and is not currently covered under ArcGIS Support. Please address questions or suggestions related to this workflow to the MDCS GitHub forum or to ImageManagementWorkflows@esri.com

MD Tools overview

MD Tools is a command line tool that simplifies some common management tasks when working with rasters in a mosaic dataset.

MDTools is compatible with ArcGIS Desktop 10.6.1+ and ArcGIS Pro 2.2+.

It provides the following capabilities:

- Embed raster proxies into a mosaic dataset
- Perform search and replace for embedded raster proxy strings
- Export file locations to a text file for rasters in a mosaic dataset in a given area of interest (AOI) and with a specific cell size

By default, it is installed in the \bin folder of ArcGIS Pro or ArcMap:

- C:\Program Files\ArcGIS\Pro\bin\mdtools.exe
- C:\Program Files (x86)\ArcGIS\Desktop10.6\bin\mdtools.exe

Example command line usage:

<path_to_mdtools.exe> --md=<path_to_mosaic_dataset> --embedrasterproxy

MD Tools will take the following inputs:

Input	Use	Valid values
md	(Required) Path to the mosaic dataset, including mosaic dataset name	File path
query	Restricts the tool to the queried records in the mosaic dataset	Where clause
embedrasterproxy	Flag used to tell the tool to perform the embed raster proxy operation	N/A
export_paths	Flag used to export raster paths to a text file	N/A
op	(Used with export_paths) The file location for the output text file	File path to txt file
aoi	(Used with export_paths) The extent to be queried for rasters	(xmin,ymin,xmax,ymax), in the same SRS as the mosaic
cellsize	(Used with export_paths) The cell size required for the raster to be included in export_paths	Cell size, in the same SRS as the mosaic
replace_paths	Flag used to replace all or part of the file location string for the embed raster proxy	N/A
old_path	(Used with replace_paths) The old part of the file path string that will be replaced	File path string
new_path	(Used with replace_paths) The new string to be used in place of old_path	File path string

Task descriptions

MD Tools can be used to accomplish three different tasks, described below.

Task 1: Embed raster proxies into a mosaic dataset

When using the **embedrasterproxy** option, the program will scan the mosaic dataset items for any external raster proxies. If it finds any, if will replace the raster item with the contents of the raster proxy. As a result, the mosaic dataset no longer will reference any local files on disk.

Note: A raster proxy is a small local file that links to much larger files stored in enterprise or cloud storage. It also includes key properties about the raster, and a location for raster tiles to be cached locally. Using raster proxies can improve performance when accessing simple rasters (like TIF or MRF files) stored in the cloud or on slower-access storage devices.

ArcGIS treats raster proxies as if they are conventional raster files. They can be viewed directly in ArcGIS Pro, or added to a mosaic dataset like any other raster.

However, raster proxies can also be embedded directly into a mosaic dataset. The mosaic dataset is then entirely self-contained, referencing data stored in remotely without requiring any additional files. This is especially useful when using mosaic datasets stored in enterprise geodatabases, such as PostgreSQL on Amazon RDS.

Usage

Options to use with this task: md, embedrasterproxy, query (optional)

Use case 1. I would like to embed all raster proxy files into the mosaic dataset:

<path_to_mdtools.exe> --md=<path_to_mosaic_dataset> --embedrasterproxy

Example: "C:\Program Files\ArcGIS\Pro\bin\mdtools.exe" --md=c:\Demo\0MD.gdb\test --embedrasterproxy

Use case 2. I would like to embed raster proxy files into the mosaic dataset only for certain raster items:

<path_to_mdtools.exe> --md=<path_to_mosaic_dataset> --embedrasterproxy --query=Category=2

Example 1: "C:\Program Files\ArcGIS\Pro\bin\mdtools.exe" --md=c:\Demo\0MD.gdb\test --embedrasterproxy --query=DataType_Format='Cloned'

Example 2: "C:\Program Files\ArcGIS\Pro\bin\mdtools.exe" --md=c:\Demo\0MD.gdb\test --embedrasterproxy --query= Category=2

Task 2: Perform search and replace

If your raster proxies are already embedded in a mosaic dataset, you may need to update the location of the raster file the proxies are pointing to (if you've moved the images to a new Amazon S3 storage bucket, for example).

When using this option, MD Tools will go through each item in the mosaic dataset, search for a specified string (the old path to the rasters) in any embedded raster proxies, and replace it with a new string (the updated path to the rasters).

Usage

Options to use with this task: md, replace_paths, oldpath, newpath, query (optional)

Use case 3. I would like to replace the embedded raster proxy path with an updated path.

<path_to_mdtools.exe> --md=<path_to_mosaic_dataset> --replace_paths --oldpath=<old_string> --newpath=<new_string>

Example: "C:\Program Files\ArcGIS\Pro\bin\mdtools.exe" --md=c:\Demo\0MD.gdb\test --replace_paths --oldpath="<Source clone=\"true\">/vsicurl/http://samplebucket.s3.amazonaws.com" --newpath="<Source>/vsis3/samplebucket" -- query=datatype_format='Convert'

Task 3: Export raster paths

For a given mosaic dataset, it can be useful to have a list of raster file locations for a given area of interest (AOI) and specified cell size.

When using this option, MD Tools will identify any raster in a mosaic dataset that would be included in the mosaic for a given AOI and cell size. The paths for those rasters will then be written out to a specified text file.

Usage

Options to use with this task: md, export_paths, op, aoi, cellsize, query (optional)

Note: Both AOI and cell size must be specified.

Use case 4. I want a list of the raster file locations in my mosaic dataset for a given extent and cell size.

<path_to_mdtools.exe> --md=<path_to_mosaicdataset> --export_paths --op=<path_of_text_file> --cellsize=<cell_size> -aoi=<xmax,ymax,xmin,ymin>

Example: "C:\Program Files\ArcGIS\Pro\bin\mdtools.exe" --md=c:\Demo\0MD.gdb\test --export_paths --op=c:\demo\sample.txt --cellsize=10 --aoi=2000,4000,6000,8000