INTRODUCTION:

This document describes the operational characteristics of version 2 of the Digital Raster Graphic (DRG) collar clipping utility developed by the U.S. Geological Survey (USGS) in cooperation with the U.S. Bureau of Reclamation.

DISCLAIMER:

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BACKGROUND:

These programs were developed because many agencies wanted to display multiple DRGs together. Using DRGs in this way presents a problem because the collar area of the map overprints useful map detail on the adjoining quads when displayed together . A variety of solutions are available for this problem but each has some drawbacks.

> One method of preventing the collar from overprinting the adjoining quads is to simply use a colormap editing tool provided by the display software to make the white background of the DRG transparent. This works except for the printed text in the collar of the DRG. This text still overprints the adjoining quads.
>
> Another method of preventing the collar from overprinting the adjoining quads is to use a paint program (like Adobe's Photoshop) to "erase" all the textual information in the DRG collar. Then use the colormap editing tool provided by the display software to make the white background of the DRG transparent. This method works very well but is time consuming. It takes about 20 minutes of operator time to accomplish this task for each DRG.
>
> The solution explained in this document relies on two C programs and a few Arc Macro Language (AML) programs. The C programs are used mostly for reading and writing text files and the AMLs are used to control processes used in ARC and GRID. USING THESE PROGRAMS REQUIRES THAT YOU HAVE ACCESS TO ARC/INFO'S GRID MODULE.

PROCESS:

Raster images, such as DRGs are rectangular with respect to shape. Because DRGs are cast on a Universal Transverse Mercator (UTM) projection, the map area of the image (represented by the yellow area in figure 1), while rectangular, is at a slight angle to the scanned area..

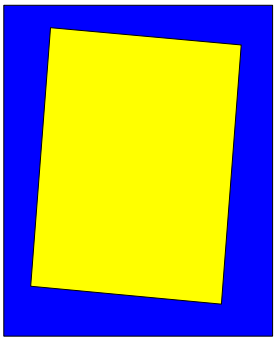


Figure 1

Software such as ARC/INFO allows the map portion of the image to be clipped out of the full image but because of the map angle of rotation, the software fills-in around the image with a null value to finish out the rectangular shape of the raster images. The rectangle is proportioned to fit the minimum and maximum X Y values of the clipped portion. Figure 2 shows a quad with the collar "clipped" off and the "no-data" area (shown in black) filled in by the software.

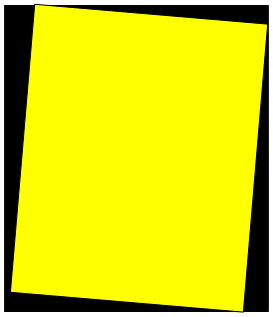


Figure 2

The problem of the "no-data" is resolved in this utility by creating a window that corresponds to the minimum and maximum extents of the quad. This window (shown in green in figure 3) is used as a mask for mosaicing in slivers of data from adjoining quads. The output of this utility is rectangular map images that can be displayed simultaneously without loosing valuable map detail. The clipped images retain their georeferencing information and would be appropriate as a background for other agency data.

The software does NOT mosaic together whole quadrangles. It only mosaics enough information from the adjoining quads to fill in the area that would have been designated as "no-data" by the software.

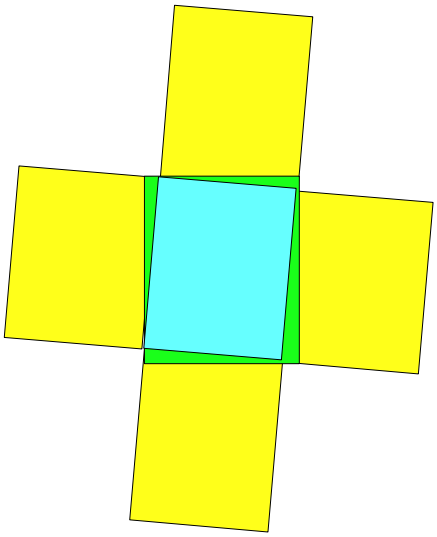


Figure 3

SINGLE QUAD MODE:

This mode expects the user to provide the following information:

INPATH: This may be a directory on a Hard Disk or CDROM (providing the CDROM is referenced in lowercase such as: **/cdrom** not **/CDROM**). ARC/INFO (in the UNIX environment) doesn't like uppercase filenames. Do NOT put a trailing slash in the path name. Example: **/cdrom/data** would be accepted whereas **/cdrom/data/** would not).

OUTPATH: This may be an existing directory on a Hard Disk. (Make sure you have write permissions to this directory).

FILE NAMES: The single quad mode expects the user to supply the map names of the quad to be clipped and for the files used to provide join information. Any combination of UPPER CASE/lower case is accepted for the file names in this version of the utility (the aml will convert the file names to lower case). The state must be referenced by the 2 letter state abbreviation.. Example: **Rolla MO.** If no join files are supplied, the software will clip the collar of the quad and exit. Any number of valid join files may be used.

SCALE: Click on the appropriate button to select the scale of the data being clipped.

REPROJECT: The user may choose to project the DRG data to any UTM,StatePlane, Albers, or Geographic projection. This isn't recommended because of processing time required, but the option is there if needed. If the choice is made to reproject the data, additional menus will popup to prompt for the necessary projection information.

Note: The single quad mode expects the DRG files to be stored on disk using the map reference code (mrc) naming conventions used in the distribution of DRGs. The programs will not work if the files have been renamed. Also, be aware that in the DRG naming convention, the first character in the name is an alpha character. Example: **o41077h7.tif** NOT **041077h7.tif**

BATCH MODE:

This mode expects the user to provide the following information:

INPATH: This may be a directory on a Hard Disk or CDROM (providing the CDROM is referenced in lowercase such as: /cdrom...NOT..../CDROM). This is because ARC/INFO (in the UNIX environment) doesn't like upper case filenames.

OUTPATH: This may be an existing directory on a Hard Disk. (Make sure you have write permissions to this directory)

JOINPATH: This may be an existing directory on a Hard Disk or a CDROM. This directory is used to find join files that aren't located in the Inpath. An instance where this would be used is if you are clipping a whole one degree block of DRGs on a CDROM. Some of the Join files would be found in other one degree blocks. These would have to be loaded into a directory on a Hard Disk or accessed from a 2nd CDROM.

SCALE: Click on the appropriate button to select the scale of the data being clipped.

REPROJECT: The user may choose to project the DRG data to any UTM,StatePlane, Albers, or Geographic projection. This isn't recommended because of processing time required but the option is there if needed. If the choice is made to reproject the data, additional menus will popup to prompt for the necessary projection information.

Note: The batch mode expects the DRG files to be stored on disk using the map reference code (mrc) naming convention is used in the distribution of DRGs. The programs will not work if the files have been renamed. Also, be aware that in the DRG naming convention, the first character in the name is an alpha character. Example: **o41077h7.tif** NOT **041077h7.tif**

REQUIRED FILES:

C programs and source:

namedef_s. This program is used by the single quad mode of the collar clipping utility. This program converts the quad names provided by the user into MRC naming convention used for DRGs. The program creates a quadnames file that is used by DRGCLIP to identify which files it is clipping. The program also creates an ARC GENERATE file for each of the DRGs used. These files (with .tic extension) are used to create the clip covers for the DRGs.

namedef_s.c. C source code.

namedef_b: This program is used by the batch mode of the collar clipping utility. This program takes input from DRGCLIP in the form of a quadname and scale. It identifies which maps join the quad, and creates a .tic file for each and a quadnames file that DRGCLIP uses for processing.

namedef_b.c C source code.

Arc Macro Language (AML) files:

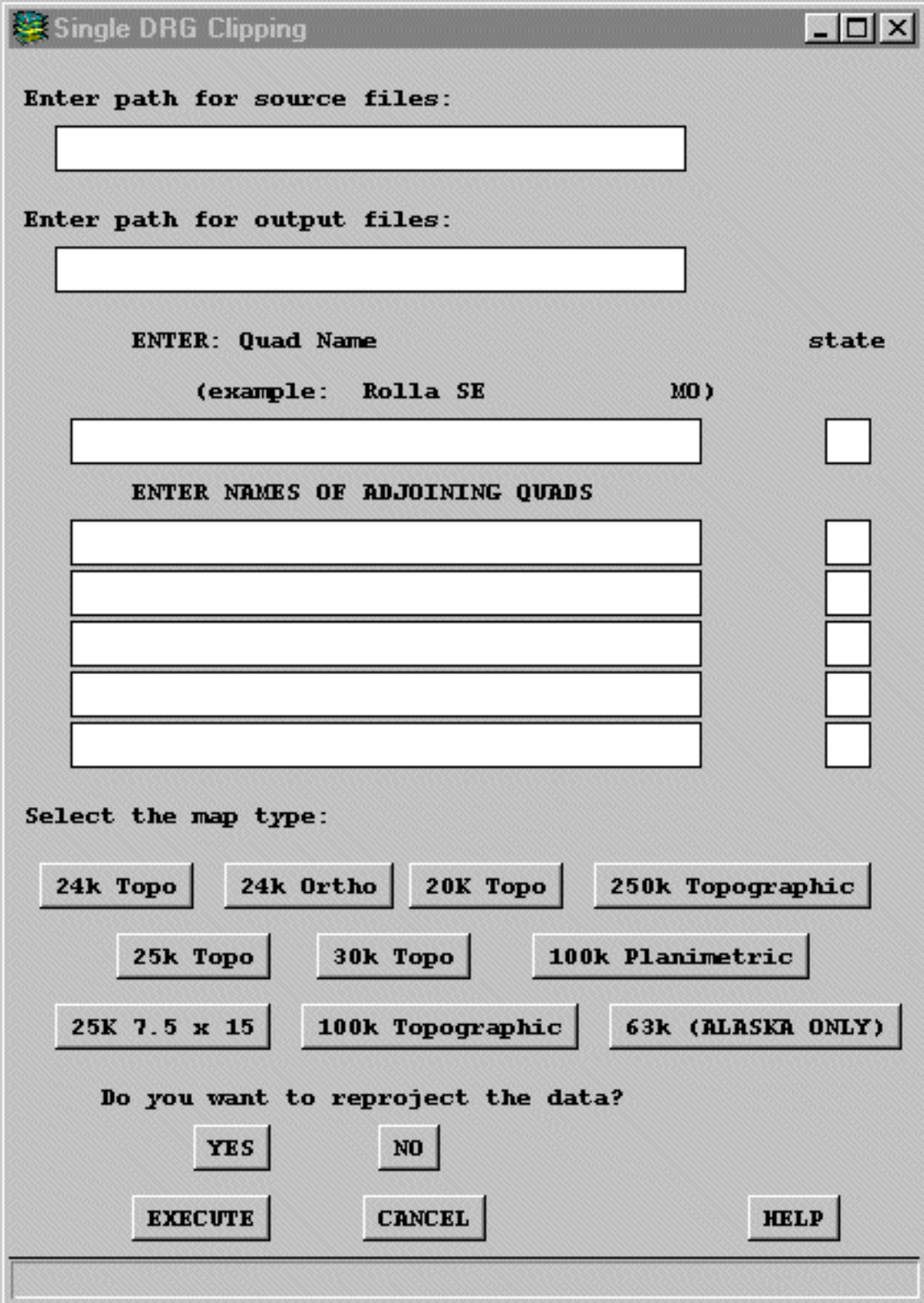
drgclip.aml: This is the main program in the utility
helpbatch.aml: Help file for the batch menu
helpsingle.aml: Help file for the single quad menu
helpstart.aml: Help file for the start menu
stp_params.aml: Help file for the stateplane projection parameters menu

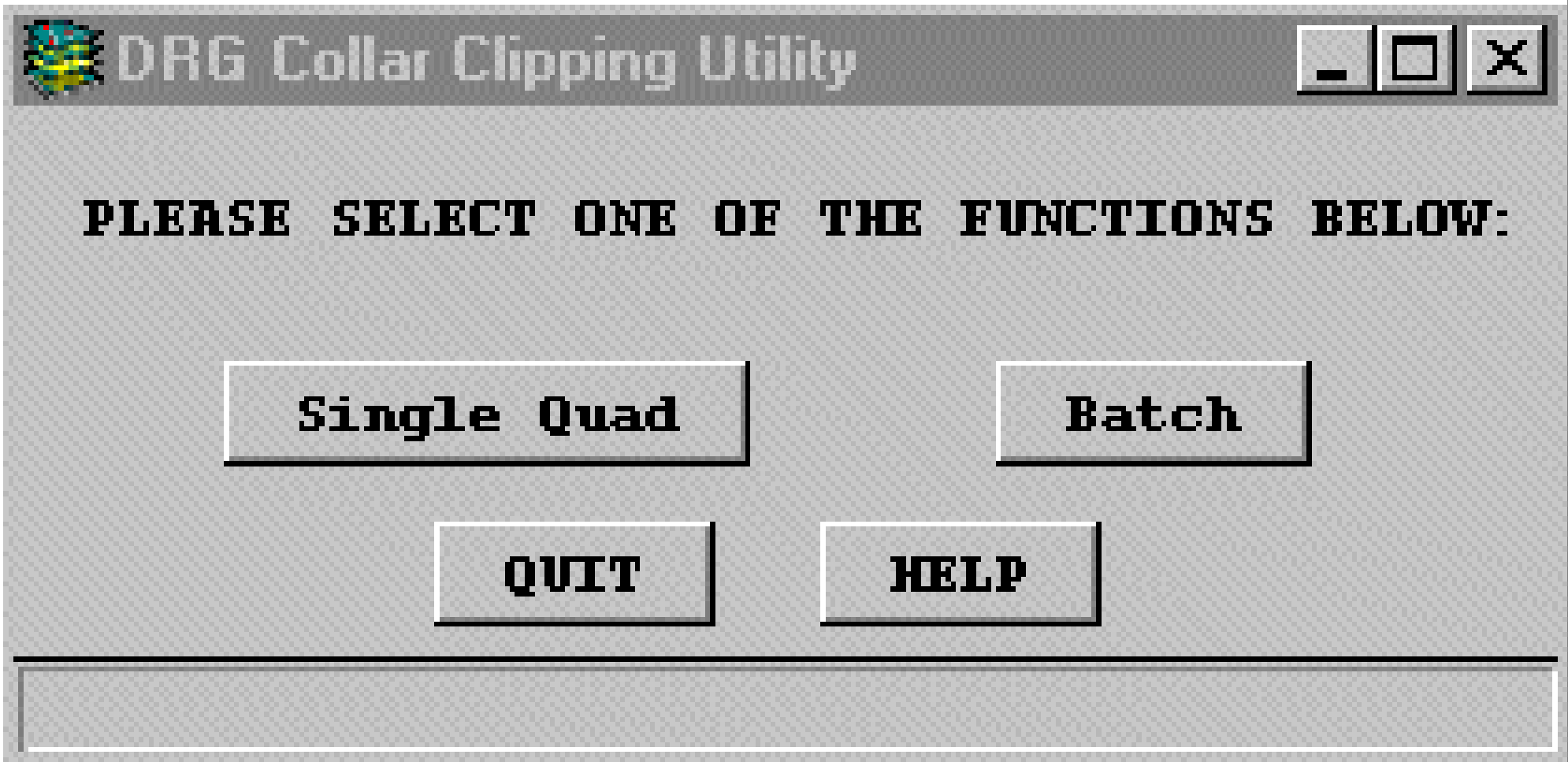
ARC/INFO menu files:

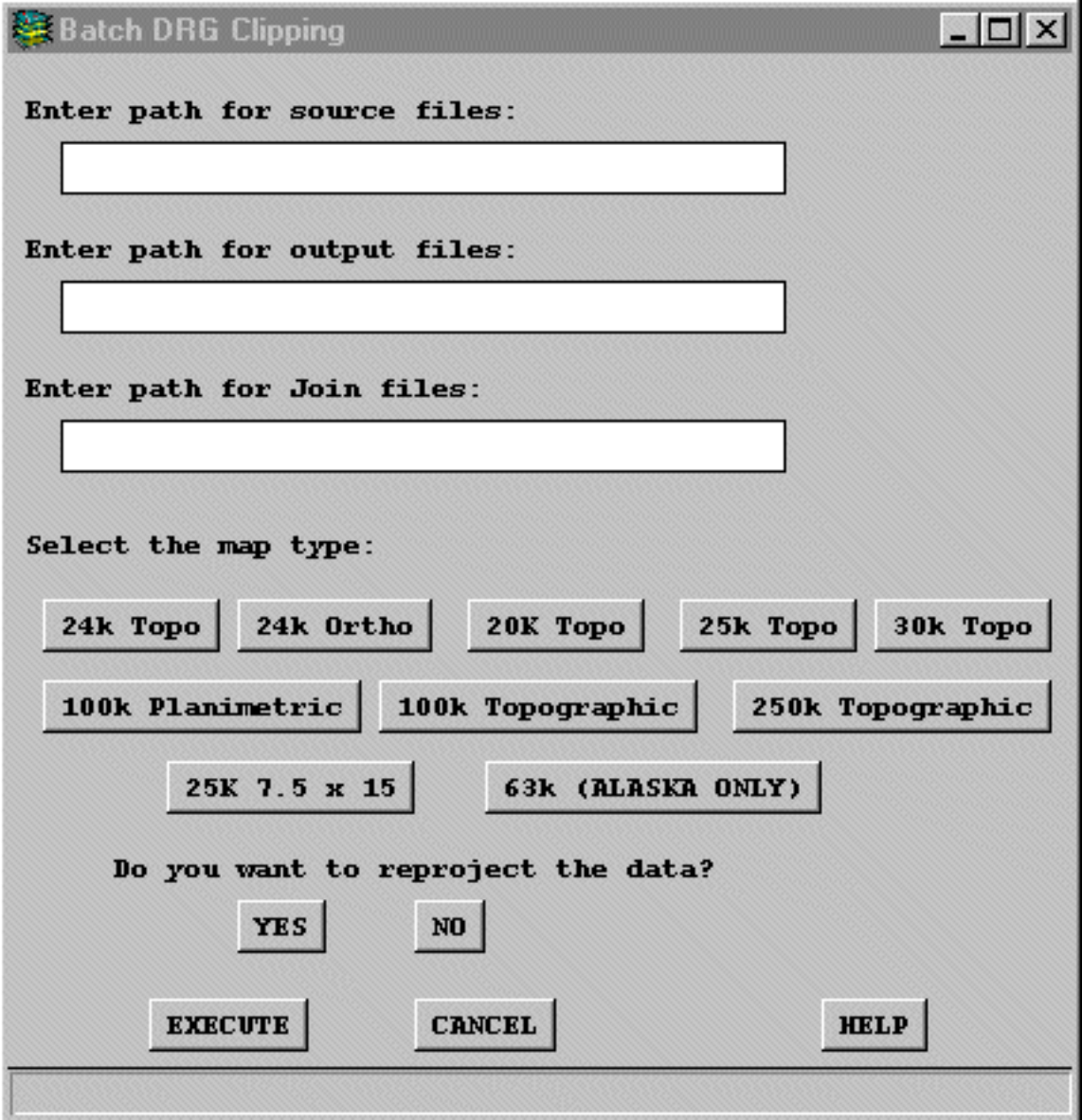
albers.menu, cancelp.menu, reproject.menu, start.menu, utm.menu, batch.menu, geo.menu, single.menu,stp.menu

List files: DRGCLIP only requires the list of the quads you are using. For example: If you'll never use a 63360 quad, then delete the .lst file for that scale (etc).

20000.lst: List of all the USGS 20K quads.
24000.lst: List of all the USGS 24K quads.
25000.lst: List of all the USGS 25K quads.
63360.lst: List of all the USGS 63K quads.
100000.lst: List of all the USGS 100K quads.
250000.lst: List of all the USGS 250K quads.


Single DRG Clipping
Enter path for source files:
Enter path for output files:
ENTER: Quad Name
state
(example: Rolla SE MO)
ENTER NAMES OF ADJOINING QUADS
Select the map type:
24k Topo
24k Ortho
20K Topo
250k Topographic
25k Topo
30k Topo
100k Planimetric
25K 7.5 x 15
100k Topographic
63k (ALASKA ONLY)
Do you want to reproject the data?
YES
NO
EXECUTE
CANCEL
HELP


DRG Collar Clipping Utility
PLEASE SELECT ONE OF THE FUNCTIONS BELOW:
Single Quad
Batch
QUIT
HELP


Batch DRG Clipping
Enter path for source files:
Enter path for output files:
Enter path for Join files:
Select the map type:
24k Topo
24k Ortho
20K Topo
25k Topo
30k Topo
100k Planimetric
100k Topographic
250k Topographic
25K 7.5 x 15
63k (ALASKA ONLY)
Do you want to reproject the data?
YES
NO
EXECUTE
CANCEL
HELP