15 Converting Image Formats

This chapter explains how to use the Batch Conversion dialog box to convert images from or to a large number of formats or image types that are supported by MicroStation Descartes.

Batch Conversion dialog box

To open the Batch Conversion dialog box, choose Batch Conversion from the File menu of Image Manager (or from the File menu of the "dcartes" workspace, if loaded).

With the Batch Conversion dialog box, you can convert one or more images at a time. Input images of the same batch can be of different formats or types, but all of them will be converted into the same format and type. To convert images into other formats or types, process other batches.
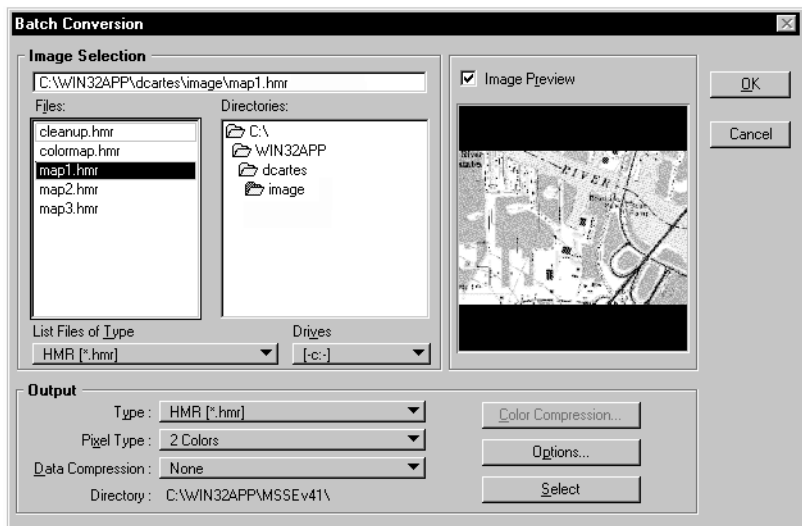
Batch Conversion dialog box

Image Selection

This group is used to choose a disk, a directory, the type of images to be listed, and to select one or more images to be converted.

Drives

Used to choose the disk where input images are stored.

Directories

Used to choose the path to access the input images.

List Files of Type

Use this option menu to see the list of all the image formats or types that are supported as input for batch conversion. Choose a format or a type and all corresponding images in the specified disk and directory will be listed in the Files list box.

Files

Use this list box to highlight one or more image names at a time.

To select an image name, click its name in the list box (this deselects all other names).

To select additional names, hold down the <Crtl> key and click the names of the images you want to select.

To select consecutive names, hold down the <Shift> key and click the names of two images. These names and all names in between will be selected.

To deselect images, hold down the <Crtl> key and click the names of the images you want to deselect in the list box.

Image Preview

When on, a preview of an image is displayed in the Preview box as soon as its name is selected in the Files list box. If more than one name is selected at a time (for example by holding the <Shift> or the <Crtl> keys) the last selected image is previewed. The previewed image is the one whose name displays in the box just above the Files list box.

Output

This group is used to specify how you want to convert the selected images, as well as where you want to write the output images.

Type

Used to specify the generic format for the output image (for example, HMR, TIFF, etc.). The list of available formats, is given in the Image File Formats Table (see "Image File Formats Table" on page 15-10).

Pixel Type

Used to specify the specific format, or color mode for the output images. The list of available types is adjusted to each format, as you can see in the Image File Formats Table (see "Image File Formats Table" on page 15-10).

Data Compression

Used to specify the type of compression to be used for the output image (for example, Deflate, PackBits, CCITT3). The list of available compression types is adjusted to each format, as you can see in the Image File Formats Table (see "Image File Formats Table" on page 15-10).

Directory (Select)

Used to specify the disk and the directory where to write the output images.

The filename of the output image will be the same as the input image, but the extension will be changed (for example, IMAGE1.TIF converted into IMAGE1.HMR).

✎ If the input image and the output image have the same extension, use different directories to avoid problems.

✎ If you have two input images with the same name but a different extension (for example IMAGE1.TIF and IMAGE1.COT), process different batches to avoid problems.

Options

When more parameters need to be specified, this button becomes available and opens a specific dialog box for this purpose. For example, if you choose a TIFF format for the output, you have the option to tile the image. The list of available options is given in the Image File Formats Table (see "Image File Formats Table" on page 15-10).

Color Compression

Used to open the Color Compression Setup dialog box (see "Color Compression Setup dialog box" on page 6-16). This button

is not accessible if either the input images or the output images are two-color.

Use the Color Compression Setup dialog box to specify the maximum number of colors or gray levels, and the color compression encoding key to be used.

OK

When you press OK, all images with their names highlighted in the File list box will be converted into the format or type you specified in the Output group.

The Batch Conversion Progress dialog box opens and reports the progress of the batch conversion. For each image, it tells whether conversion succeeded or failed.

The Save Log buttons allows you to save this report to disk.

If you want to interrupt the batch conversion while in progress, press <Esc>.

8bit RLE

Support of Intergraph COT color compressed files (sometimes referred as CRL).

CALS 1 File Support

Support for CAL1 Raster file format has been added.

GeoTIFF Support

The GeoTIFF interchange is an extension of the popular TIFF format to support a geodedically sound raster data georeferencing capability. The geographic content supported in the GeoTIFF tag structure includes fundamental information about the image, its cartographic projection datum, ellipsoid, ground pixel dimension and other geographic variables.[1]

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1. Source: Dr. Niles Ritter and Michael Ruth, "The GeoTIFF Data Interchange Standard For Raster Geographic Images", Presented at the Eleventh Thematic Conference and Workshops on Applied Geologic Remote Sensing, Las Vegas, Nevada, 27-29 February 1996.

GeoTIFF images contain two sets of data that provides complete geographic description. The first set is the Georeferencing information and describes the relationship between Raster space and Model space. The second is the Geocoding information that describes the relationship between Model space and World space.

Georeferencing and Geocoding Support

GeoTIFF files contain two distinct information type to properly display and position GeoTIFF raster file. These are named Georeferencing and Geocoding information and their respective support is described below.

Georeferencing Information Support

All Standard Georeferencing models are supported.

Geocoding information

Support and limitation is described below.

- Projected coordinate system

  Fully supported.

- User defined projected coordinate system

  The Unit of the coordinate system must be specified in the GeoTIFF file. If the unit is not specified, MicroStation Descartes will assume that the unit is the one defined in the DCARTES.INI file under the GEOTIFFDEFAULTUNIT keyword.

- Geographic coordinate system information

  Descartes does not support geographic coordinate system. Thus, GeoTIFF images defined with a geographics coordinate system will be placed using the georeference data and GeoTIFF default Unit Setting. This unit is saved in the DCARTES.INI file under the GEOTIFFDEFAULTUNIT keyword.

  Since geographic coordinate system is not supported, georeferencing and geocoding information is not updated at save time. Instead, MicroStation Descartes creates an HGR file to store the georeference information. The HGR file is then used to automatically position the image.
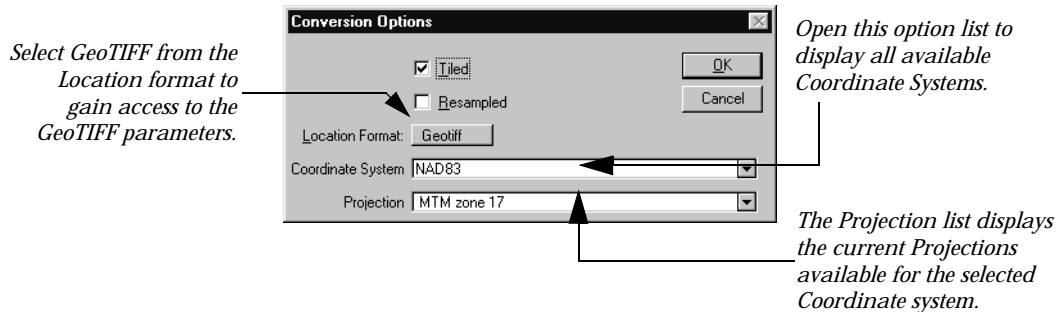
- User defined (and undefined) type of coordinate system

  GeoTIFF images with a user-defined coordinate system (or undefined coordinate system) are displayed using an equirectangular projection (Constant Pixel Size Scale). Unit specified in the GeoTIFF file will be used if available. If no

unit is specified, MicroStation Descartes will assume that the unit is the one defined in the DCARTES.INI file under the GEOTIFFDEFAULTUNIT keyword.

- Geocentric coordinate system
  Unsupported.

- Vertical coordinate system
  Unsupported.

GeoTIFF Conversion Options dialog box

This dialog box provides access to the GeoTIFF settings allowing you to save a TIFF raster file as a GeoTIFF.

Select GeoTIFF from the Location format to gain access to the GeoTIFF parameters.

Open this option list to display all available Coordinate Systems.

The Projection list displays the current Projections available for the selected Coordinate system.

GeoTIFF Conversion Options dialog box

Location Format

To gain access to GeoTIFF parameters, select GeoTIFF from the Location Format option list.

Coordinate System

Used to specify the coordinate system into which the GeoTIFF image is Geocoded.

✍ In a Save As operation, use Take From Input to PRESERVE the Geocoding information.

Projection

Used to select the projection for the selected Coordinate System. The list is always limited to the available Projections for the selected Coordinate System.

GEoTIFF Image Location Editor dialog box

When the Active image is a GeoTIFF, the Image Location Editor dialog box displays an extra option that opens a window displaying the GeoTIFF Geocoding information.
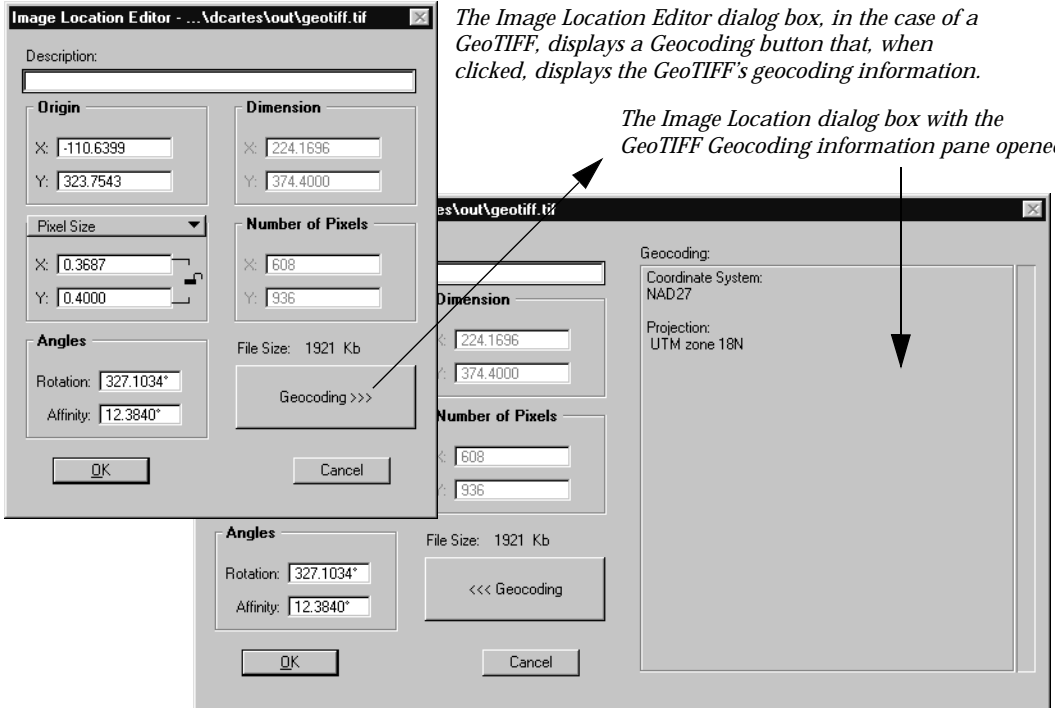
The Image Location Editor dialog box, in the case of a GeoTIFF, displays a Geocoding button that, when clicked, displays the GeoTIFF's geocoding information.

The Image Location dialog box with the GeoTIFF Geocoding information pane opened

Image Location Editor dialog box with GeoTIFF

GeoTIFF Related Key-ins

IMGMANAGER BATCHTIF SETGCS <string value from EPSG projPCS table>

IMGMANAGER BATCHTIF GETGCS <return string value from EPSG projPCS table>

IMGMANAGER SAVEASTIF SETGCS <string value from EPSG projPCS table>

IMGMANAGER SAVEASTIF GETGCS <return string value from EPSG projPCS table>

IMGMANAGER BATCHGTIF SETPROJECTION <string value from EPSG projPCS table>

IMG GEOTIFFDEFAULTUNIT GET [unitLabel]

IMG GEOTIFFDEFAULTUNIT SET <unitLabel>

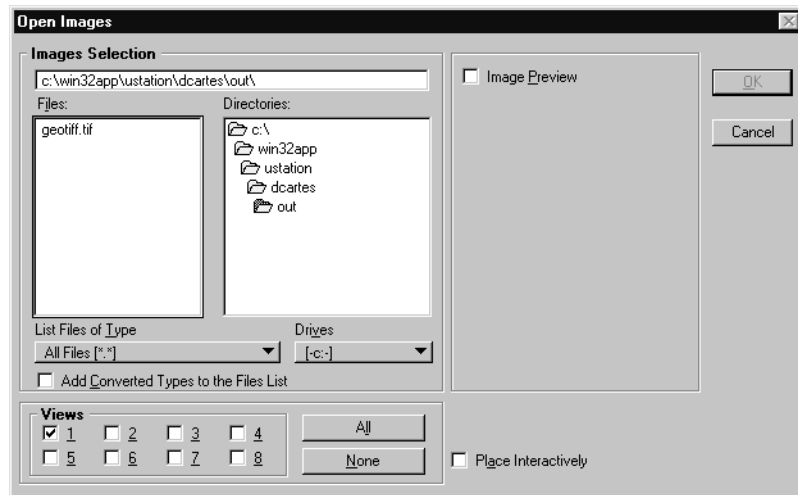IMGMANAGER BATCHTIF GETPROJECTION <return string value from EPSG projPCS table>

IMGMANAGER SAVEASTIF SETPROJECTION <string value from EPSG projPCS table>

IMGMANAGER SAVEASTIF GETPROJECTION <return string value from EPSG projPCS table>

Use the following procedure to open and display a GeoTIFF raster image.

➤ **To open and display a GeoTIFF image**

1. From the MicroStation File menu, select File > Open > Image. The Open Images dialog box opens.

Open Images dialog box

2. From the List of Files Type, select TIFF or "*.*."

3. From the Files pane, select the GeoTIFF file to open.

4. Turn ON or OFF the views into which you want the image to be displayed.

5. Click OK.

Use the following procedure to save an image as a GeoTIFF.
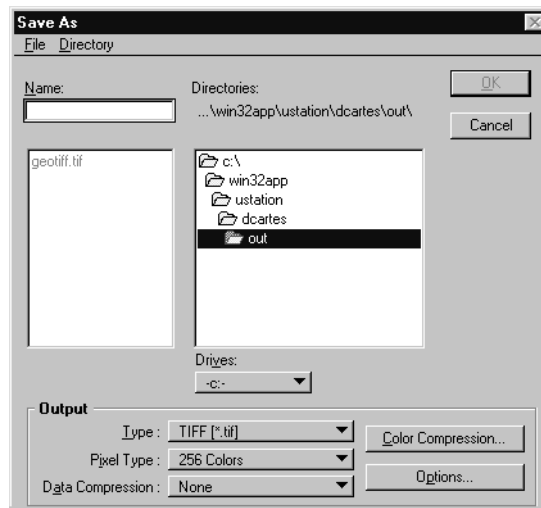
➤ **To save an image as a GeoTIFF**

1. Make the image Active.

2. From the Image Manager dialog box, double-click on the image's name.

   or

   Using the *Select Images/Active Image* tool, double-click on the image.

3. From the MicroStation File menu select Save As > Image.

   The Save As dialog box opens.

Save As dialog box

4. In the Name field, type the new name for the image.

5. From the Output group, configure as described below:

   Type: Tiff

   Pixel Type: Choose the appropriate Pixel Type for your image

   Data Compression: Choose the appropriate Compression for your image

6. Select Options.

   The Conversion Options dialog box opens.

Conversion Options dialog box for GeoTIFF settings
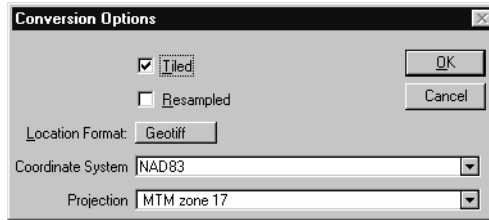
7. From the Location Format option list, select GeoTIFF.

   Set all other options as appropriate for your image file.

8. Click OK, then OK once more.

   Your image is saved as a GeoTIFF.

Image File Formats Table

The following table gives a comprehensive list of all file formats and file types that are supported in MicroStation Descartes. Pixel types, data compression types and other options are also listed for the formats that are supported as output for batch conversion.

File Format Name	File Extension	Pixel Type	Data Compression	Option
CALS	CAL		CCITT4	HGR WorldFile
HMR	HMR	2 Colors	None PackBits CCITT3 CCITT4	
HMR	HMR	256 Colors	None Deflate Packbits	
HMR	HMR	Gray Scale	None Deflate Packbits	
Img (24 bit)	A	24 Bit Color	Default	HGR WorldFile

Img File	P	256 Colors 16 Colors Gray Scale	Default	HGR WorldFile
Intergraph Bump Files (input only)	BUM			
Intergraph CIT	CIT	2 Colors	CCITT4	
Intergraph COT	COT	Gray Scale 256 Colors	None RLE	Tiled
Intergraph Raster Files (input only)	INT			
Intergraph RGB	RGB	24 Bit Color	Default	HGR WorldFile
Intergraph RLE	RLE	2 Colors	RLE	
Intergraph TG4	TG4	2 Colors	CCITT4	
JPEG	JPG	24 Bit Color Gray Scale	JPEG	HGR WorldFile
PCX	PCX	256 Colors 16Colors Gray Scale	Default	HGR WorldFile
RLC (input only)	RLC			
Sun Raster	RS	256 Colors Gray Scale	Default	HGR WorldFile
Targa	TGA	24 Bit Color	Default	HGR WorldFile
TIFF	TIF	256 Colors 24 Bit Color Gray Scale	None Deflate	Tiled HGR WorldFile GeoTIFF
TIFF	TIF	2 Colors	None PackBits CCITT3 CCITT4	Tiled HGR WorldFile GeoTIFF
Windows BMP	BMP	24 Bit Color 256 Colors 16 Colors Gray Scale	Default	HGR WorldFile