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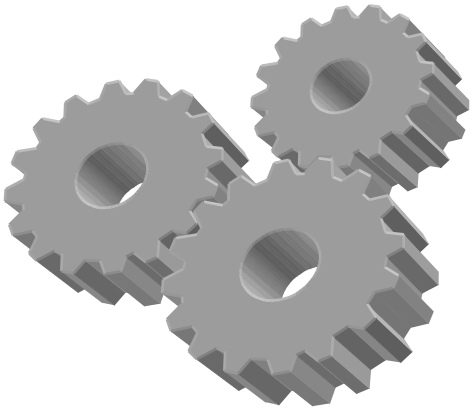

# User Tip

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|---|---|
| **Title** | Viewing Ortho-rectified Images |
| **Product** | CAiCE |
| **Version** | 10 |
| **Date** | March 16, 2004 |
| **Author** | Lorne G. C. Brown |

**Overview**

This User Tip demonstrates how to View and Drape Ortho-rectified images in CAiCE.

## Introduction

This User Tip demonstrates how to View and Drape Ortho-rectified images in CAiCE.

## Ortho-rectified Images (Photos)

A conventional perspective aerial photograph contains image distortions caused by the perspective (which may include the tilt of the camera) and terrain relief (topography). It does not have a uniform scale. You cannot measure distances accurately on an aerial photograph like you can on a map. An aerial photo is not a map.

In an **ortho-rectified image** the effects of tilt and relief are removed from the aerial photograph by a mathematical process called rectification. An ortho-rectified image is a uniform-scale image. Since an ortho-rectified image has a uniform scale, it is possible to measure directly on it like other maps. An ortho-rectified image may serve as a base map onto which other map information may be overlaid.

The geo-referencing (units and coordinates) of an ortho-rectified image are not used, but CAiCE will place the image close to the correct location if the procedures in this document are followed.

The Map (**.map**) file is the only way CAiCE can know if an image is supposed to map to some coordinates or not.

## Map files

The **Mapped Image** command (**View > Images and Transparency > Mapped Image**) is able to correctly position an image if the coordinates of the four corners of the image have been defined. Corner coordinates must be defined in an ASCII file with the same location and root name as the image file, and using the filename extension **.map**. For example, if you select the image file **99999.jpg**, the map file, **99999.map**, is searched for in the same directory.

The **.map** file is usually created using **Tools > Imaging > Map Image to World Coordinates** command. The **.map** file is a standard ASCII file and can be created by other means.
NOTE: major image formats (.JPG, .TIF, and others) are supported with this command.

Whenever you view an image that does not have a **.map** file associated with it (**.map** file is the file that contains the fixed coordinates to lock in your image to actual points in your PT4 database), CAiCE will display the image to the current graphics extent.

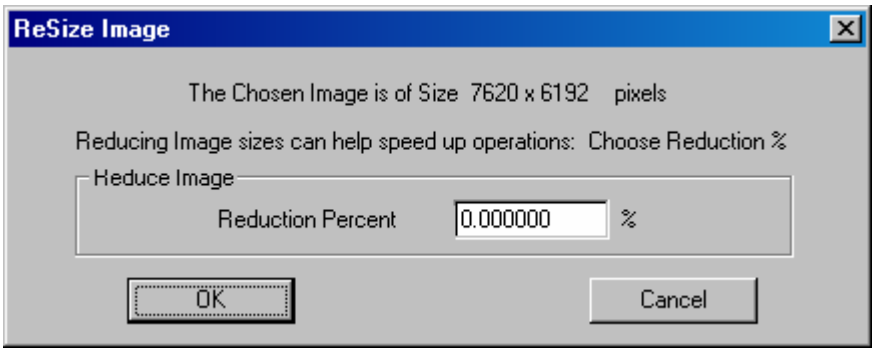
## Procedure for viewing an Image without .map file

Normally a new image will not have a corresponding **.map** file. The **.map** file will be created during the process of positioning, or shifting, the image to correspond with the data in the PT4 database.

1. View Points and Survey Chains.
2. **Fit to graphics extent**.
3. Zoom in one click, or key **F3**.

   NOTE: Steps 2 & 3 only set up the graphics so the image will be viewed closer to where it should be. If these two steps are not followed, it is still possible to create a **.map** file which can orient (**Translate**, **Rotate** and **Scale**) the image to the correct location.

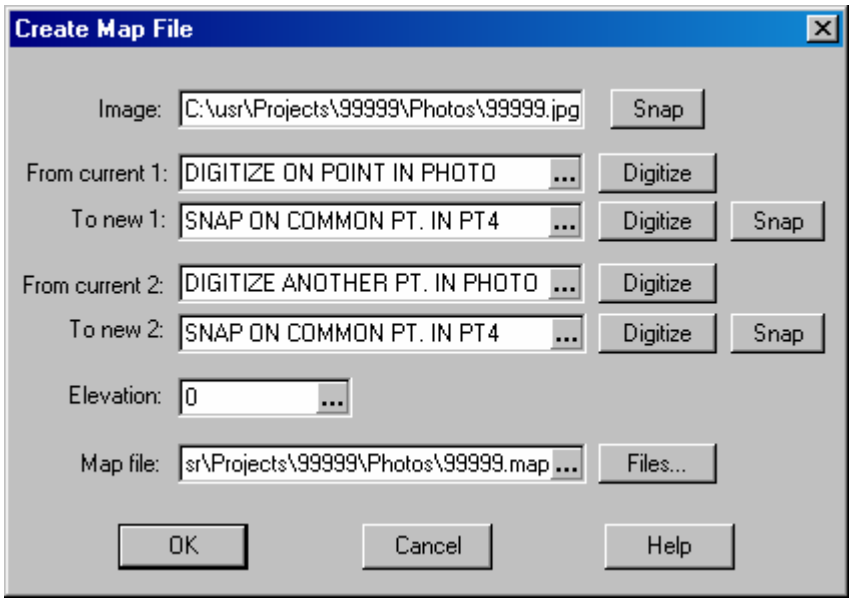
4. **View > Images and Transparency > Mapped Image**.
5. Select **.jpg** file.
6. **Open**.
7. Leave Reduction Percent at zero.




8. **OK**.
9. **View > View Controls > Display Shaded Surfaces**.

**Procedure to create .map file**

1. To move, or fit, image to topo (PT4 data) go to **Tools > Imaging > Map Image to World Coordinates**. This process can **Translate**, **Rotate** and **Scale** an image to fit the topo (PT4 data). This dialog box will allow the user to create an ascii file with a **.map** extension that the **.jpg** (image) will reference to orient itself to the desired coordinates. The **.map** file must be in the same location and have the same root name as the image file, and using the filename extension **.map**. For example, if you select the image file **99999.jpg**, the map file, **99999.map**, is searched for in the same directory. This process will Translate, Rotate and Scale an image to fit the topo (PT4 data).




2. **Image: Snap** anywhere on the image and **Accept**.

3. Populate the **From** and **To** fields with good points (that are not too close together), preferably towards, and from, the outside area of the image.

4. **Elevation:** The elevation at which the image will be placed, possibly hiding certain elements if so chosen.
   NOTE: The easiest way to change the elevation of an existing **.map** file is to open and edit the elevations in the **.map** file.

5. **Map file:** Must have the same root name as the image file, with a **.map** extension, and reside in the same directory.

6. **OK**

7. **View > Images and Transparency > Mapped Image**.

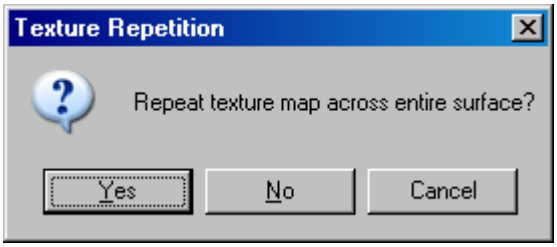
8. Select **.jpg** file.

9. **Open**.
10. Leave Reduction Percent at zero.
11. **OK**.
12. **View > View Controls > Display Shaded Surfaces**.

**Procedure for viewing an Image with .map file**

1. **View > Images and Transparency > Mapped Image**.
2. Select **.jpg** file.
3. **Open**.
4. Leave Reduction Percent at zero.
5. **OK**.
6. **View > View Controls > Display Shaded Surfaces**.

**Draping an Image with .map file**

1. **View > DTM  Surface**.
2. **Tools > Snap > Snap Element** anywhere on the DTM Surface.
3. **View > Images and Transparency > Drape Image onto Selected Surface**.
4. Select **.jpg** file.
5. **Open**.
6. Leave Reduction Percent at zero.
7. **OK**.
8. 

**No**. (Yes will repeat the image in areas of the surface where there is no corresponding image or no intended image in those areas.)

9. **View > View Controls > Display Shaded Surfaces**.

10. Surface and Image may be viewed in **3D** if desired.

11. The display of a draped image is cleared by selecting:

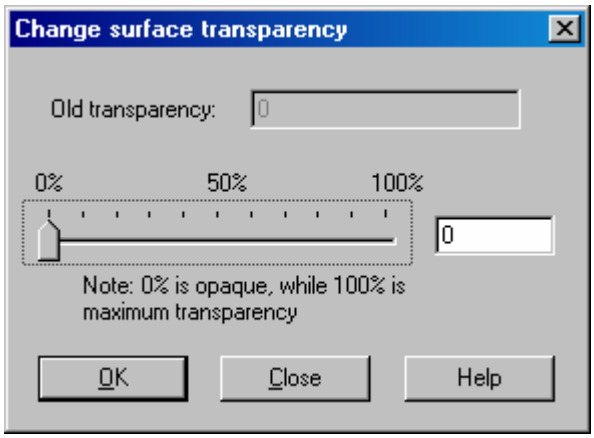
    a. **Tools > Snap > Snap Element** anywhere on the DTM Surface.

    b. **View > Images and Transparency >Clear Draped Image**.

## To Modify Transparency of Surface

1. **Tools > Snap > Snap Element** anywhere on the DTM Surface.

2. **View > Images and Transparency >Modify Surface Transparency**.




3. **OK**.