



Photo GIS

Table of Contents

Foreword	2
Other NRG Software	2
1. Creating a Project	3
1.1 Add a Photo.....	3
1.2 Add an Alignment	3
1.3 Choose a Transformation.....	4
2 Photos	5
2.1 Adding Comments.....	5
3 Data Table	6
3.1 Adding / Removing Columns.....	6
3.2 Changing Data Types.....	7
4. Map Window	7
4.1 Map Position	7
4.2 Map Mode.....	7
5. Report	8
5.1 Templates.....	8

Foreword

Photo GIS is a desktop application that allows a user to display georeferenced photos on a map and add custom comments to further classify the photos.

Photo GIS serves as a tool to allow your project to achieve BIM compliance by providing the means to keep an up to date record of assets and their noteworthy attributes.

Printed: July 2018 in North Wales

Special thanks to:

Publisher

NRG Surveys Ltd

Authors

William Arrowsmith

Ed Stanyer

Nigel Green

Other NRG Software

NRG also develops a suite of Topographic and Ground Modelling software for Civil Engineering.

Details of the NRG software system can be found at <http://www.nrgsurveys.co.uk/>

The website contains a full download of the system and many supporting tools can be found within it that can be used in demo mode.

1. Creating a Project

It is recommended that users create a project when using Photo GIS. A Project can be created by clicking the “Create Collection” Icon found on the “File” tab. After entering a valid name a project file will be created.



A project file allows you to keep track of various attributes of your collection so that they may be reapplied when loading your project. Such attributes include; Alignment, Grid Transformation, A collection of all photos loaded and the current state of the data grid.

1.1 Add a Photo

To add a photo to a collection. Click the “Import Picture” button and select the photo to be loaded. Currently Photo GIS provides support for .jpg images.



Once a photo is selected you should see it populate the grid with the photo name and various other information. If the photo has valid geo location data, the photo will also be drawn onto the provided map.

Folders of photos can be added at once by clicking the “Import Folder” button and selecting a folder. Any .jpg photos found within the folder will be loaded into the collection.

1.2 Add an Alignment

Photo GIS provides the ability to view the location of photos in relation to a Geometric Alignment. This allows you to view the Chainage/Station and offset of any photo with a valid geo location without any additional calculation required.

To add an alignment to your project click the “Alignment” button found under the “View” Tab. Photo GIS is capable of loading alignments from .XML (Land XML Format) and .NST (NRG Format) files.



Once selected a visual representation of the alignment will be drawn on the map.

1.3 Choose a Transformation

Grid transformations allow Geodetic (Latitude, Longitude) coordinates to be converted to Cartesian (Easting, Northing) Coordinates. In order to ensure the Easting, Northing, Chainage/Station and Offset Coordinates displayed by Photo GIS are accurate and relevant it is important to ensure you are using the correct Transformation.

By default, Photo GIS will use the OSGB 36 Transformation, this can be changed by clicking the “Transformation” button found on the “View” menu.



You will then be presented with the Transformation Manager which allows you to select new grid transformations, viewing their area of use. The transformation manager allows you to create custom transformation with your own site scale and shift, if required. To do this select the base transformation you wish to use, then modify the parameters in the provided panel and click “Ok” to confirm the custom transformation.

Transformation Manager

nzgd

Code	Area Name	EPSG
NZGD2000	MountYork2000	2129
NZGD2000	ObservationPoint2000	2130
NZGD2000	NorthTaieri2000	2131
NZGD2000	Bluff2000	2132
NZGD2000	NewZealandTransverseMercator2000	2193
NZGD2000	ChathamIslandCircuit2000	3764
NZGD2000	AucklandIslandsTM2000	3788
NZGD2000

Selected Transformation:
Code: NZGD2000 Area Name: NewZealandTransverseMercator2000 EPSG: 2193

Transformation Parameters:

WGS84 | Local Grid | Helmert | Site Shift

Semi Major Axis a: 6378137
Semi-Minor Axis b: 6356752.3141
Scale Factor At Origin: 0.9996
Origin East: 1600000
Origin North: 10000000
Latitude Origin: 0.00000000
Longitude Origin: 173.00000000

Area of Use:

© 2018 Microsoft Corporation © 2018 HERE

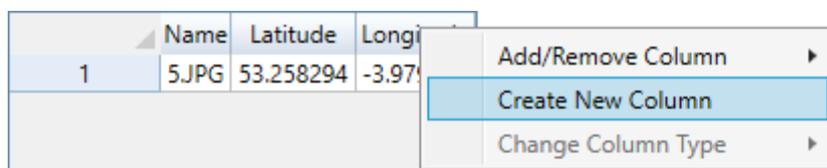
OK Cancel

2 Photos

The primary objective of Photo GIS is to make it simple and quick to add custom comments to further identify and describe your photos. To this end Photo GIS has added a variety of features to assist in adding, removing and viewing photo data. All comments added to a photo through photo GIS is stored on the image itself removing the need to copy additional files with each image.

2.1 Adding Comments

To add a comment to a photo right click on one of the table column headers and click the "Create New Column" button as shown below:



You will then be prompted to enter information regarding the new column as shown below:

Column Creation

Column:

Name:

Default Value:

Apply Default To:

All

Selected

Current

None

Data Type:

Text

Number

OK Cancel

Name: Represents the name of the new column.

Default Value: This is an optional value that if set will be provided as the value for all photos you wish to apply the new column to.

Apply Default: Allows you to select which photos to apply the column to.

Data Type: Allows you to set whether the data should be text or a number, this determines what values you can enter into a column and how they are sorted.

3 Data Table

The data table is where all the information regarding each photo is shown. This is a key component of Photo GIS and allows you to select which data should be displayed and in which order.

3.1 Adding / Removing Columns

Adding and removing columns from the Data table allow you to decide which information of each photo you wish to view. To add or remove a column, right click on a column header and hover over the “Add/Remove Columns” button as shown below:

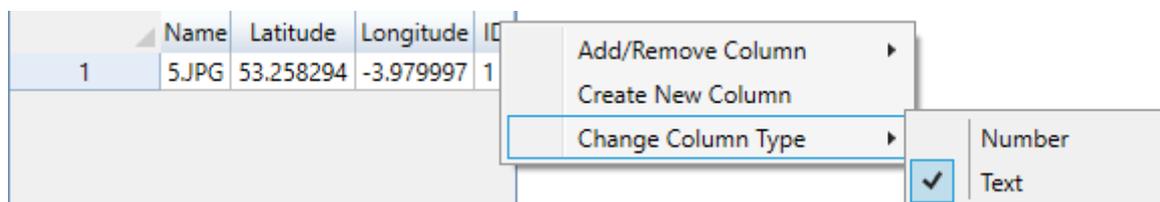
	Name	Latitude	Longitude	
1	5.JPG	53.258294	-3.97999	<ul style="list-style-type: none"> Add/Remove Column ▶ Create New Column Change Column Type ▶

This will pop-out a menu like the one shown below. From here columns can be toggled on an off as required. Columns shown with Blue text are calculated values and won't be stored on the photo itself.

<input type="checkbox"/>	Date Taken
<input type="checkbox"/>	Date Created
<input type="checkbox"/>	Date Modified
<input type="checkbox"/>	Size
<input type="checkbox"/>	Resolution
<input checked="" type="checkbox"/>	Latitude
<input checked="" type="checkbox"/>	Longitude
<input type="checkbox"/>	Altitude
<input type="checkbox"/>	Accuracy
<input type="checkbox"/>	Comment
<input type="checkbox"/>	Direction
<input type="checkbox"/>	Distance
<input type="checkbox"/>	Inclination
<input type="checkbox"/>	Easting
<input type="checkbox"/>	Northing
<input type="checkbox"/>	Chainage
<input type="checkbox"/>	Offset
<input type="checkbox"/>	Subject Latitude
<input type="checkbox"/>	Subject Longitude
<input type="checkbox"/>	Subject Altitude
<input type="checkbox"/>	Subject Easting
<input type="checkbox"/>	Subject Northing
<input type="checkbox"/>	Subject Chainage
<input type="checkbox"/>	Subject Offset

3.2 Changing Data Types

The data type of a column can be changed by right clicking a column header and hovering over the “change data Type” button. From there the data type can be changed from text to number. This change can only be made on custom comment columns.



4. Map Window

The Map window provides an implementation of Bing Maps that allows the user to view their photos location in the world. In addition to this the Map window allows several more features including displaying the estimated subject location should a subject distance and bearing be provided. Clicking an image on the Map

4.1 Map Position

The position of the Map window can be changed by clicking the dropdown menu called “Map Position” as shown below:



Currently there are 4 different Map positions; Left, Right, Full screen and No Map.

4.2 Map Mode

Map win GIS Currently Supports 3 Modes; Satellite, Road and None. The mode can be toggled by clicking the “Map Mode” button and selecting the required mode

5. Report

Photo GIS provides the ability to create reports for each photo through Microsoft Word (Word must be installed on the computer for this to work).

Create Word Reports

Reports For:

Current

Selected

All

Range (e.g 1-3, 5-6)

File Settings:

Template File
C:\Users\Public\Documents\NRG Surveys\PI

Output Directory
C:\Users\Public\Documents\NRG Surveys\PI

Report Format:
.docx

Report Name:

Prefix:

Photo Name

None

Suffix:

Photo Name

Auto

None

5.1 Templates

In order to create a report a template must be selected. We have provided an example template with the application for reference. This template can be found at “C:\Users\Public\Documents\NRG Surveys\Photo GIS\Templates”. For ease of use it is recommended that templates be placed in this folder. Alternatively a default template folder may be set in the options.

In order to create a template the document must adhere to the following rules:

- To place an image on the document a text box containing the [Photo] tag must be created
- To place a location map on the document a text box containing the [Location Plan] tag must be created

- Adding a scale to the location plan must be done as follows: [Location Plan Scale@12500] where 12500 is the desired scale.
- Comments or parameters must be displayed within “<” and “>” in order to be replaced by the photo variable. For example <Name> will be replaced by the photo name.

A full list of the available comments is:

<Date Taken>

<Date Created>

<Date Modified>

<Size>

<Resolution>

<Latitude>

<Longitude>

<Altitude>

<Accuracy>

<Comment>

<Direction>

<Distance>

<Inclination>

<Easting>

<Northing>

<Chainage>

<Station>

<Offset>

<Subject Latitude>

<Subject Longitude>

<Subject Altitude>

<Subject Easting>

<Subject Northing>

<Subject Chainage>

<Subject Station>

<Subject Offset>

<Project>

<Transformation> -- Grid Transformation name

<String> -- Alignment String name

In addition, any custom comments added to a photo can be added to a template using the same format.