

PhotoSpread

Quick User's Manual

PhotoSpread

Quick Introduction Guide

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1.1 Introduction

PhotoSpread assists in tagging photos with attribute/value pairs. The application also allows the constructions of photo sets, based on formulas over the tags. The program uses a spreadsheet metaphor. Note that the application is not intended to be a replacement for an image viewers.

You can:

- Load images from your file system into a PhotoSpread spreadsheet cell.
- Attach formulas to cells, analogous to Excel. The formulas express conditions over photo metadata. Qualifying photos appear in the respective cell.
- Tag images in one of two ways:
 - * In a Metadata Editor, one image at a time.
 - * By attaching a formula to a cell, and dragging photos into that cell.

We now run through some examples. Locate the photos that come with this tutorial to follow along, or just follow the screenshots.

1.2 Starting the application

You will need Java installed on your machine. Start the application with the accompanying .bat file.

1.3 The main application windows

The application consists of two primary windows: the Sheet window, and the Workspace window. Additional windows pop up as appropriate. Pressing F1 while a window is active shows a brief help screen. Cells in the Sheet can contain sets of photos, strings, or numbers. Each cell may have a formula associated with it. That formula, if present, determines what will become the cell's content.

To expand a column horizontally, drag at the dividing line between two column headers. To expand a row, grab the row in column zero, and drag down.

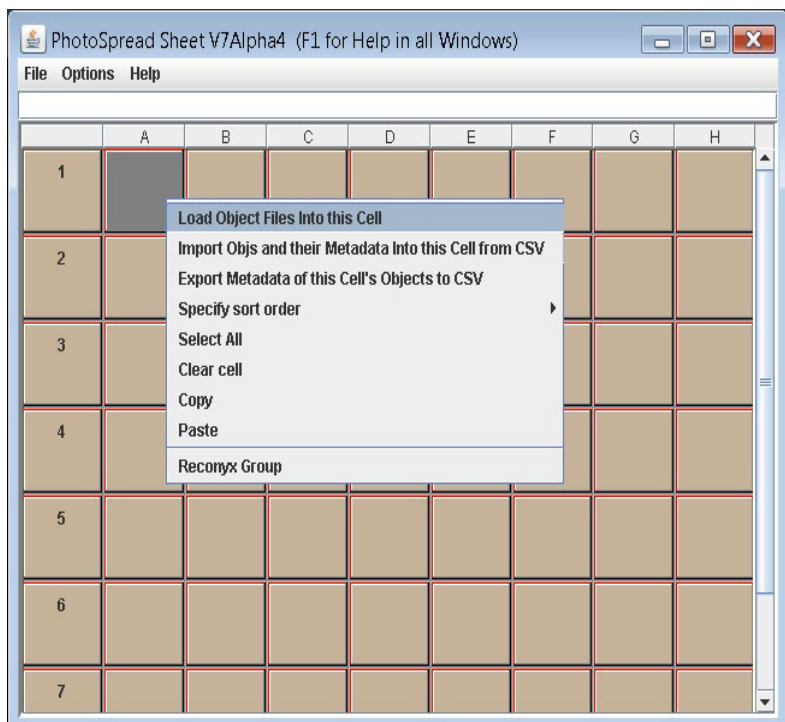
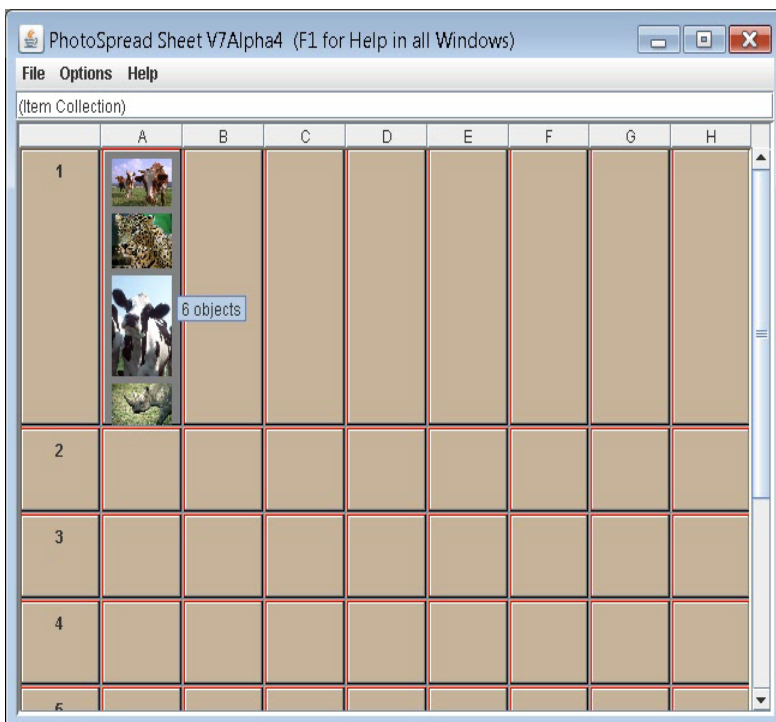
Ignore the Workspace window for now.

1.4 Load Photos into a cell

To load the test photos into cell A1:

- Select A1
- Right-click -> Load Object Files into this Cell
- Navigate to the photos and select them all (cnt-a)

Cell A1 will show the first few of the images.

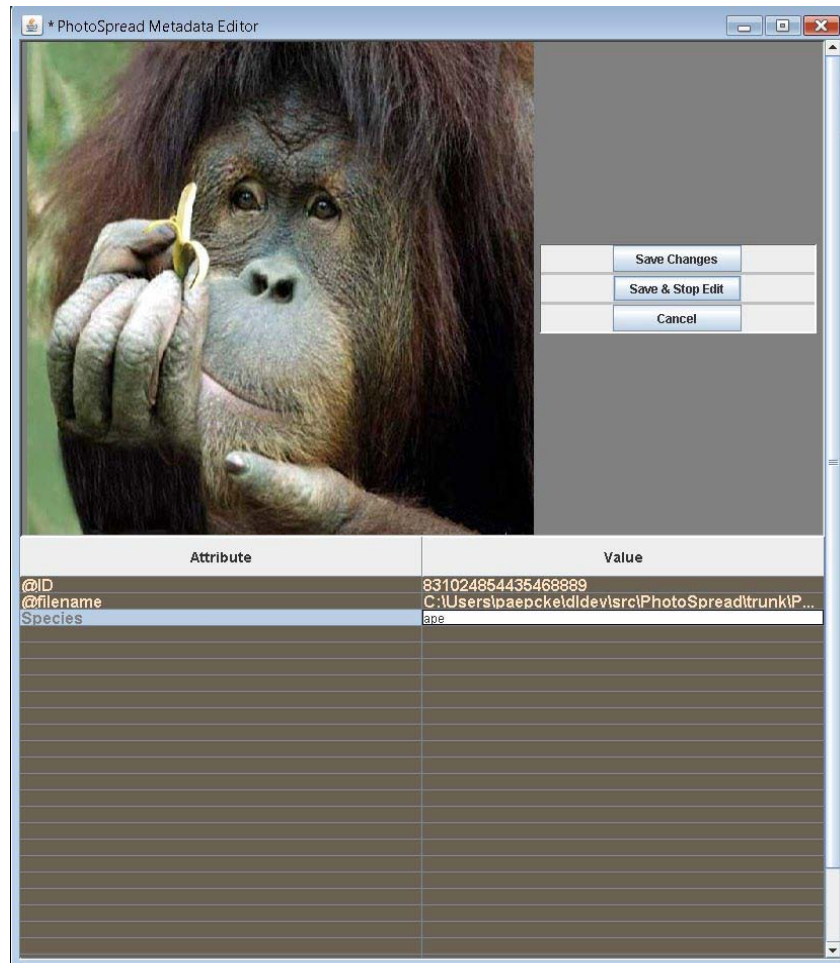


1.5 Dragging items between cells

Try dragging some of the photos to different cells. Trash the Rhinoceros image by dragging it to the hidden trashcan: the upper left most empty cell. You'll know when you found it. When done, drag all the photos back in to A1 for the next step.

1.6 Tag some images manually

We'll tag each image with its animal species. Enlarge row one by dragging down in the '1' cell of the left-most column until you see all six animals. Double-click on the ape. The Metadata Editor window will pop up. Two fields are filled in, the photo's unique PhotoSpread identifier, and the file it came from. These fields are read-only



Click on the first free left-hand side field, and type 'Species' (without the quotes). The term Species is the name of this first attribute. The case is significant. Hit the tab key to advance to the respective value field. Type 'ape'. By convention you might make attribute names upper-case, and the values lower case. But this is optional. At this point you cannot have numbers or special characters in the attribute names.

Hit the Save and Stop Edit button to close the window and save this entry. Repeat this exercise for all six animals, entering Species on the left of the Metadata Editor table, and 'cow' in both of the cow photos, and 'leopard', and 'bobcat' for the two cats.

1.7 A first formula

We can now select subsets of these photos into other cells. Select cell B1 by clicking on it. Click on the Formula Editor Strip between the Sheet table and the menu bar.

Type: =A1[Species=cow]<enter>

Don't forget the leading '=' sign. This formula references all photos whose 'Species' metadata tag has the value 'cow.' These photos will now populate B1.

See what happens when you change one of the cow photos' metadata. Double-click on, say, the brown-white cow photo, and change the Species value from 'cow' to 'guernsey.' The respective photo will disappear from B1.

To continue, change the value back to 'cow'.

1.8 The Workspace

Sheet cells are not great for showing lots of photos. That is what the Workspace window is for. This window popped up when you first started the application. Locate it now, and click on cell A1.

The Workspace is where photos are shown enlarged. Each cell owns its own Workspace. Selecting a cell fills the Workspace window with that cell's contents. Only a handful of a cell's photos shown in the Sheet window. The respective Workspace shows all photos. You will note that some photos will be squished a bit. Live with it for now.

The Workspace behavior can be manipulated by two sliders. The slider along the top edge determines how many columns of images are shown. The slider along the left side controls image size. Buttons at the bottom allow for navigation, and for zooming individual images. Use the buttons at the bottom to page through the images.

Try manipulating the sliders such that all six photos are visible. Hint: First reduce the photo size to 50%, then set the number of columns to 5. Clicking on a slider to the right side of its control knob (the bottom side for the vertical scrollbar) advances the value by one unit. Double-clicking on the upper-left resets the Workspace to show only one picture.

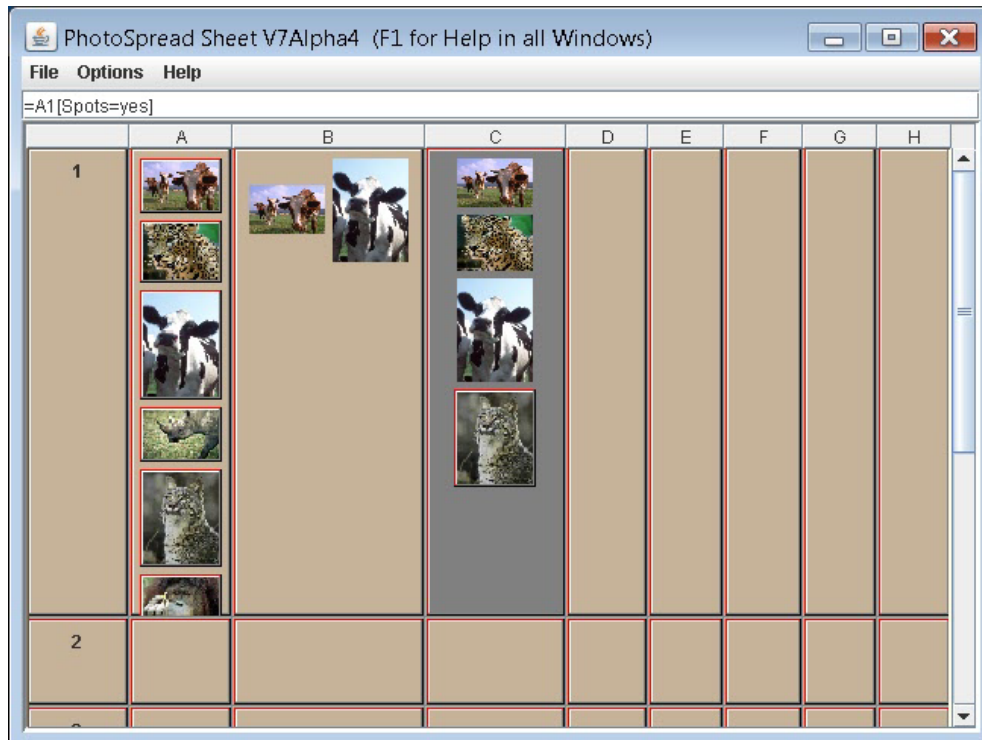
Select one photo, and click the Zoom button. A Zoomer window will pop up to show a larger view. Hitting cnt-= or cnt-minus, or using the scroll wheel, will change the image size. If you hold down the shift key while changing the size, you the Zoomer window will resize along with the image. You can type cnt-w to dismiss a Zoomer window.

1.9 Tagging with Formulas

Tagging each image with the Metadata Editor can get tedious. A faster way is to attach a formula to an empty cell, and to drag photos from the Workspace into that cell. The metadata of each dragged photo will conform to satisfy the formula. This is called 'forcing' the dragged item.

Select cell C1 and attach the formula: =A1[Spots=yes]

You will see C1 contain 'Empty Set.' You may wish to widen C1 a bit by dragging to the right between the column headers C and D. Now, in the Workspace window, select the cow photos, the bobcat, and the leopard (control-click on each), and drag the selected images to cell C1. The cell will populate with these images. Double-click on some of them to verify in the Metadata Editor that the Spot metadata was indeed entered automatically.



2.0 More Complex Formulas

In cell D1, attach the formula:

```
=A1[Spots=yes & Species=cow]
```

To make things more interesting, use any method you like to add Age metadata to three of the animals:

- The ape: Age : 10
- The bobcat: Age : 5
- The leopard: Age : 7
- The brown cows: Age : 2

In E1 enter the formula:

```
=C1[Age > 4]
```

We expect to see spotted animals older than 4. The brown cows are properly missing from E1; they are too young. The 5-year-old bobcat and leopard are there. The ape is absent, because it is not spotted. But the lack-white cows show up! That's wrong. Double-click on the cows in E1 and notice in the Metadata Editor that the cows don't have an Age entry at all.

PhotoSpread assigns the special value 'null' to metadata attributes that have never been set. And null matches everything. To get what we want, correct the E1 formula like this:

```
=C1[Age != null & Age > 4]
```

2.1 Functions

Right now, PhotoSpread includes the following functions:

```
union()
min()
max()
avg()
count()
```

In A2, add the formula:

```
=avg(E1.Age)
```

to get the average age of the bobcat and leopard. The dot notation selects the value of the named metadata. In this case, the Age of each photo in E1 is extracted (5 and 7), and the average is computed.

You can combine conditions (square brackets) and selection (dots), like this:

```
=A1[Age >= 5 | Spots != yes & Age != null].Age
```

This retrieves the ages of the ape (10), the leopard (7), and the bobcat (5). Nested parentheses are not supported at this point, nor are functions embedded in conditions.

Saving your Work

Can save in two ways. The entire sheet, with its formulas and other current state is saved via:

File-->Save Sheet.

The resulting .xml file can later be re-loaded with File-->Load Sheet.

For transfers to Excel, the metadata (not the images) in individual cells can be saved to a comma-separated value (csv) file:

Right-click on the background of a cell, and select the appropriate entry. Loading a previously saved csv file happens analogously.

2.2 Advanced Features

- Tagging with key bindings to replace dragging to a formula by a keystroke.
- Various keyboard shortcuts.
- Cell sorting