

*Pixopedia 2014 ver.0.0.1.*  
*Siniša Petrić, SigmaPi Design*  
*December 31, 2013*

*Contents*

*Preface*      2

*Quick start*      3

*Workspace Modes*      4

*Standard Mode*      5

*Menu Mode*      7

*Sticky Forms*      8

*What the heck are “sticky forms”?*      8

*Sticky forms behaviour modes*      8

*Settings*      9

*PaintBook*      10

*Tools Inventory*      11

*Brush*      11

*Brush tip parameters*      12

*Filters*      13

*Bumping*      13

*Fading*      14

*Jittering rules*      14

*Geometric shapes filling rules*      14

*Scratching*      15

*Brush tips and specific parameters*      15

<i>Color Scheme</i>	17
<i>Colors</i>	18
<i>Painting scheme</i>	19
<i>Load and save brushes</i>	20
<i>Text</i>	20
<i>Actions</i>	21
<i>Draw</i>	21
<i>Colors</i>	22
<i>Pixels Shifting</i>	22
<i>Fast IPL Filters</i>	22
<i>Simple 3x3 Filters</i>	22
<i>Ornaments</i>	22
<i>Operation modes</i>	22
<i>Standard Shapes</i>	22
<i>Special Shapes</i>	25
<i>Selections</i>	26
<i>Color Picker</i>	27
<i>Pan Image</i>	27
<i>Zoom Selection</i>	27
<i>Move and Resize Layers</i>	27
<i>Move and Rotate Layers</i>	28
<i>Image Modes</i>	28
<i>Standard mode</i>	28
<i>Layers mode</i>	28

## Preface

As you can notice from version number, this is an early development stage, so this document will be changed quite often, as well

as program itself. OK, first thing, first: Pixopedia is designed for Windows operating system, from Windows Xp and upward (Windows Vista/7/8). Can it work with Windows 95/98/Me/2000? Well, probably, however, you must download *gdiplus.dll* somewhere from internet, otherwise you'll not be able to start Pixopedia.


Currently, program is compiled with 32-bit compiler and possible port to 64-bit will be considered after all core functionalities are implemented (together with plug-in support).

This manual is written in Lyx using "tuft-handout" layout. If there is any volunteer that wants to write Pixopedia manual, please let me know, I will send him lyx source and images.

Writing manual by developer is not a good idea, because it slows down development process. Anyone around?

Also, you'll notice that English is not my mother tongue. So, before someone else writes Pixopedia manual, you're stucked with "Me write manual, you read, everybody happy".

## Quick start

1. Start Pixopedia.
2. Click  button. A new window will pop up.
3. Click **Accept** button. You've created a new white image that resides in the center of the screen.
4. Position the mouse over the image.
5. Click and hold *left mouse button*.
6. Move the mouse over image...you're drawing a stroke with current brush.
7. Release mouse button.
8. Press number 2 on your keyboard and repeat steps 4. through 7...you're drawing a stroke with different brush.
9. Press any number from 1 - 9 to change the brush.



*Default brush set, accessible by keyboard shortcuts (1-9).*

10. You can also change the brush "on the fly", i.e. press brush number while you're drawing to change current brush.

Q: What about screen resolution?

A: There is always minimum and recommended resolution. Minimum: 1280x1024 and higher

Recommended: 1920x1080 and higher

11. Press *right mouse* button. A pop up menu with standard shapes will appear. As you can see “Free hand” shape is selected. Select another shape and try again.

About 99% of Pixopedia actions are applied in the same way as described above. Start of some action (simple drawing in the case above) usually begins by pressing and holding *left mouse* button, continues with mouse movement across the image and finalizes the action by releasing the *left mouse* button. Clicking the right mouse button when mouse cursor is over the image, usually opens some popup menu with shape selection.


## Workspace Modes

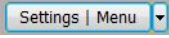
If you have tried steps described in previous section, you’re already familiarized with standard (default) Pixopedia workspace mode. Currently there are two workspace (display) modes:

*Standard* with buttons and four panes (default).

*Menu* mode (for advanced users).

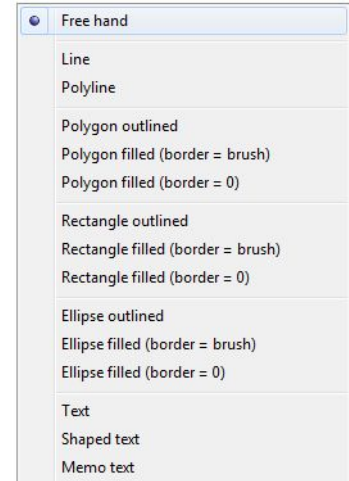
Of course, we will begin with standard mode, but if you want to check how menu mode works, follow these steps:

- Create a new or load some image from your disk. You can omit this step, but I put it here to be consistent with “Quick start” section.
- Click  button. A new window will pop up.
- On the top of settings window, you’ll notice a section entitled “Workspace modes”. Check “Menu mode” option.
- Click **Accept** button.

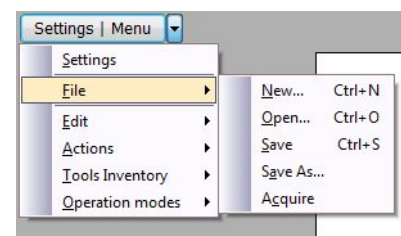
Now, you’re in menu mode. Left, right and top panes with all those nice buttons disappeared, only thing left in your working space is one button somewhere near the top left corner:  .

This is menu button, and all actions and tools accessible by pressing various buttons in *standard mode* are mapped to textual menu items. Click the drop-down arrow on menu button (rightmost part of the button) and you’ll get menu with sections and items and shortcuts and...well, you’re advanced user, you know what to do without a manual. Ok, back to standard mode:

- Click the central part of menu button.



Standard shapes popup menu



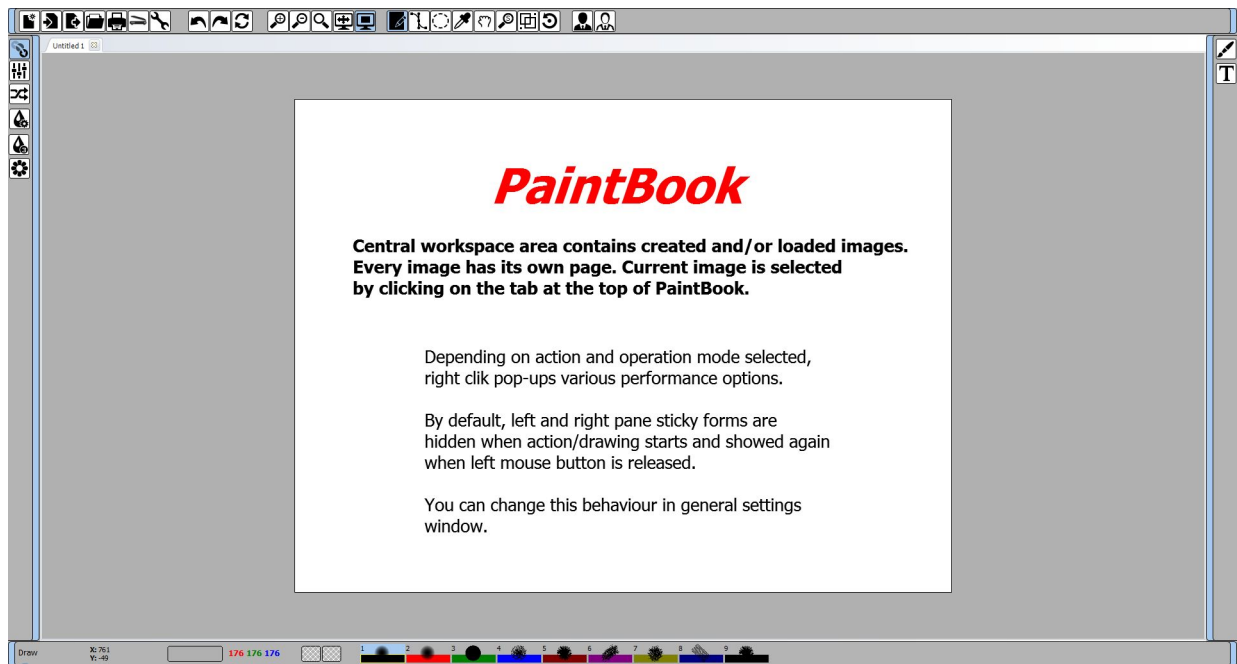
Drop-down menu in “Menu mode”

- Here comes settings window again. Check “Standard mode” option.
- Click **Accept** button.

You’re back home.

### *Standard Mode*

Standard workspace mode (display) consists of four panes (top, left, right and bottom) and object called PaintBook which occupies central screen area:



Top pane has this group of buttons:

- File buttons
  - New: create new image
  - Open: load image from disk
  - Save: save image to disk
  - Save As: save image to disk under different name
  - Print: sends current image to printer
  - Acquire: read and load image from TWAIN device (scanner)
  - Settings: general program settings (preferences)
- Edit buttons



*File buttons*

- Undo: undo last action on image/layer
- Redo: redo last action on image/layer
- Revert/reload: undo (rollback) all actions on image. If undo buffer is at the beginning, pressing this button will reload image from disk (if image is not created as new).

*Edit buttons*

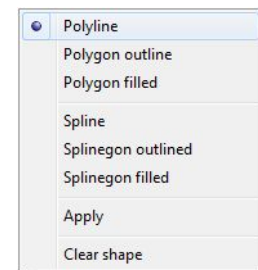
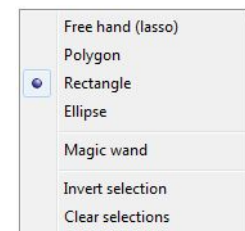
- View buttons

- Zoom in: zooms image in by 50%
- Zoom out: zooms image out by 50%.
- Zoom to fit: zooms image to fit the screen (PaintBook)
- Center image on/off: toggles image centering. By default, image is centered, pressing this button moves image to the left pane.

*View buttons*

- Operation mode buttons

- Standard shapes: chosen action is implemented through selected shape, immediately after mouse button is released
- Special shapes: chosen action is implemented through selected shape when desired (after adjusting shape), i.e. after selecting **Apply** option in pop up menu
- Selections: various shapes for image selection (marching ants). Selections may be used as clipping region, or for cropping, copying, pasting, resizing, rotating, etc..
- Color picker: used for picking colors from current image
- Pan image: pan image left, right, up and down (it can be done with scrollbars as well)
- Zoom selection: zoom rectangular region drawn on the image
- Move and resize layers: move and resize layers if **Image mode** is set to "layers mode".
- Move and rotate layers: move and rotate layers if **Image mode** is set to "layers mode".

*Operation mode buttons**Special shapes popup menu**Selection shapes popup menu*

- Region apply buttons:

- Apply action on image/layer/selection: apply chosen action on complete image/layer. If selection exists on image, only selected region is affected.
- Apply action through mask: same as above, but some external mask (if created) is used as a brush.

*Apply buttons*

Left pane is action container. Pressing one of the left pane buttons opens “sticky form” with selected action parameters. Left pane button group works in exclusive mode, i.e. you can have only one action active. In this version following actions are available:

- Draw: drawing with various shapes, colors and brushes in various drawing modes
- Colors: manipulating with image colors using various shapes and brushes
- Pixels shifting: combines image pixels with pixels from the same image but with specified offset, with various shifting modes
- Fast IPL filters: a bunch of fast IPL (Intel Processing Library) filters
- Simple 3x3 filters: a bunch of 3x3 filters
- Ornaments: drawing with multiple strokes and brushes with various symmetries



Action buttons

Right pane is tool inventory (container). Buttons on the right pane are not in exclusive mode, i.e. you can have more than one tool opened. Pressing one of the right pane buttons opens respected tool “sticky form”. Currently, following tools are available:

- Brush: tool for setting various brush parameters
- Text: setting simple text, shaped text and memo text parameters and options



Tool buttons

Bottom pane is combination of status panel and brush container. Beside mouse position and image color information, it contains a set of 9 brushes. Every brush can be customized and saved through Brush tool. Also, a complete set of nine brushes can be saved and loaded. You can have more brush sets saved on your disk, but only one set at the time can be loaded in the workspace.

### Menu Mode

Well, I don't have much to say about this mode. If you have read previous sections, you'll get the idea. *Menu mode* button is always visible and yes, it's actually put on transparent sticky form and sitcked somewhere in the left-top corner of the PaintBook. Accessing various actions, tools, operation modes, views, etc.. is performed using drop-down menu, or by keyboard shortcut key. **NOTE:** shortcut keys are available in *Standard mode* as well and will be described in separate section.

Regarding on sticky forms in *Menu mode*: As there is no left and right panes with respective buttons, sticky forms are now sticked to the left or right Pixopedia screen edges. Behavior of sticky forms is the same as in Standard mode.

## *Sticky Forms*

*What the hack are "sticky forms"?*

Sticky forms are windows that are initially sticked (glued) to left or right pane border. Left pane sticky forms are grouped in exclusive mode, i.e. only one sticky form is active at the time, while right pane sticky forms are grouped in include mode, i.e. more than one sticky form can be active.

Sticky forms can be unsticked (unglued) from respective pane and moved anywhere on your monitor. This option comes handy when working with extended desktop spanned across two monitors, especially with right pane (tool inventory) sticky forms. You can unstick some forms and move them to

secondary monitor, leaving the workspace wide and clean.

Also, while performing some action while forms are visible and hiding is disabled (see settings section), although the form stays over the image, drawing is performed regardless of the form position, i.e. stroke is drawn under the form region. You can't see stroke, but it's drawn.

When hiding sticky forms option is enabled, all visible and glued sticky forms are temporarily hidden while drawing (action) process is running and restored back after drawing (action) process is finished.

## *Sticky forms behaviour modes*

Behaviour of sticky forms depends on few factors:

- Form owner: left or right pane
- Form status: sticked or unsticked
- Visibility setting: *Hide sticky forms on mouse down* option (checkbox) in **Settings** window.

When Pixopedia is started, all sticky forms are hidden and action is initially set to Draw (draw button is down). If you click Draw button, sticky form shows and is sticked to the left pane. Clicking again and form hides.



Click again Draw button, form is visible again. Now, click some other action, let's say Colors button...Draw form is hidden and Colors form shows up.

You can see the similar behaviour with right pane forms, but with one big difference, when you unstick the form and put it somewhere on th screen, pressing another tool button does not hide preciously opened tool form.

If you try the same thing with left pane forms, this will not hap-pened. Previous form will be hidden, no matter it's sticked or unsticked.

Uh, we have covered first two factors listed above, but what about the third factor?

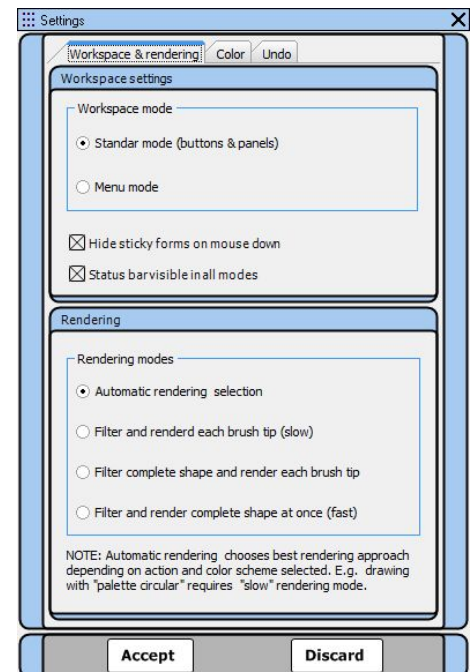
Let's say that *Hide sticky forms on mouse down* option (Settings window) is checked. All **visible** and **sticked** (glued) forms will be hidden when *left mouse* button is down and restored when *left mouse* button is released.All unsticked (unglued) forms will stay as is.

If *Hide sticky forms on mouse down* option is unchecked, visible forms, no metter of current status (sticked/unsticked) will stay visible while action is performed.

## Settings

Currently, general settings does not contain too much parameters, however it's quite important section to cover.When settings is invoked by clicking Settings button in Standard mode, or clicking on Settings item in Menu mode, a modal form pop ups in the center of Pixopedia screen. Settings available:

- Workspace settings
  - Workspace mode
    - \* Standard mode (buttons & panels): explained in previuos sections
    - \* Menu mode: explained in previous sections
  - Hide sticky forms on mouse down: explained in previous sections
  - Status bar visible in all modes: if checked, status bar (bottom pane) is always visible (no matter which mode is set), otherwise, if Menu mode is selected and this option is unchecked, bottom pane is hidden.
- Rendering settings



Settings form

- Automatic rendering mode: chooses the best rendering mode, depending on action and painting scheme selected.
- Filter and render each brush tip: filters and renders each brush tip separately. This is the slowest mode.
- Filter complete shape and render each brush tip: first filters complete shape and then renders each brush tip separately. Medium speed mode.
- Filter and render complete shape at once: filters and renders complete shape (stroke) at once. This is the fastest rendering mode.
- Color settings: these options affect all *color picker drop-down boxes* in all forms and panes.
  - Color picker drop-down style
    - \* List: a list of predefined colors with names.
    - \* Discrete: discrete color boxes
    - \* Color cube: hexagonal color selection
    - \* Spectrum: spectrum style
  - Test style: *color picker drop-down box* used to see and test previously selected style
- Undo buffer settings (not yet implemented)

Note: Some combinations of actions and color schemes require slow or medium rendering mode. This is important especially when drawing cation is selected in combination with palette Circular, palette FB and texture fixed painting scheme, as each brush tip must be rendered separately in order to get desired results.

## PaintBook

PaintBook is central area where all your drawing and other actions take place. For every image, created or loaded, PaintBook opens separate page with respective page tab. If image is loaded from disk, page tab caption contains image name, if image is created and not yet saved caption: "Untitled n" is shown, where n is number of newly created image. When you want to save new image a dialog will pop up asking you to supply new image name and image/file type.

Depending on action and operation mode selected, various pop-up windows are shown when right mouse button is clicked **inside** PaintBook area. Also, in order to use brush shortcut keys, your mouse cursor must be positioned somewhere inside **PaintBook** area.

In order to make some created/loaded image active, simply click on respecite page tab. Page tabs have it's own pop-up menu which is invoked by clicking right mouse button when the mouse cursor is over active page tab.

- Untab image: not yet implemented
- Standard mode: standard image mode
- Layers mode: layers image mode
- Show rulers: show or hide horizontal and vertica rulers

Image modes, currently standard and layers (more to come), will be covered in separate section. For start, stick with standard mode (default).

## Tools Inventory

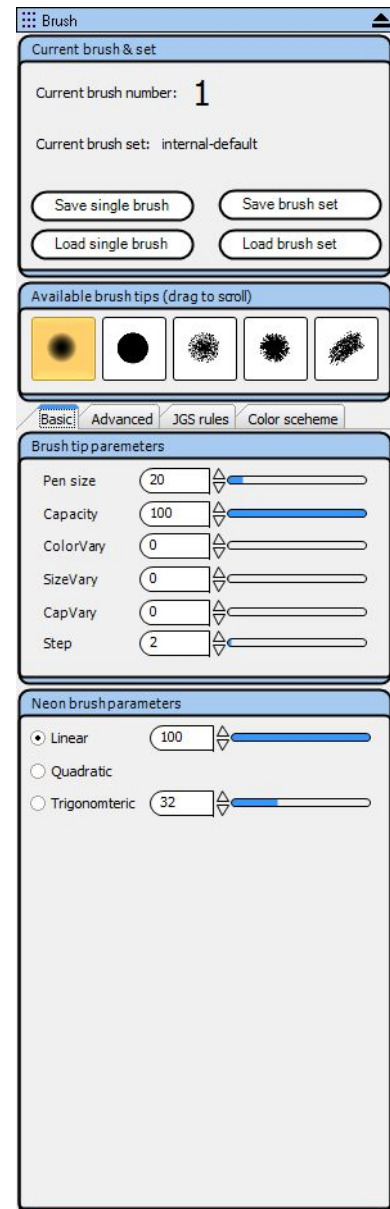
### Brush

Brush tool is sticky form that holds various brush parameters. Form is divided in three sections:

- Current brush & set: displays information about current brush number and name of currently loaded brush set. Also, it contains four buttons used to save and load individual brushes or complete brush set.
- Available brush tips: various brush tips. Drag to scroll, click to select.
- Page tab with brush options and parameters
  - Basic
    - \* Brush tip parameters: parameters common to all brush tips.
    - \* Brush-specific parameters: various brush tips have various brush-specific parameters.
  - Advanced
    - \* Filters
    - \* Bumping
    - \* Fading
  - JGS rules
    - \* Jittering rules

Q: How to know when mouse cursor is inside PaintBook?

A: Mouse cursor will change it's shape from arrow to something other (ussually a cross).



*Brush tool form*

- \* Geometric shapes filling rules
- \* Scratching
- Color scheme
  - \* Colors
  - \* Painting scheme

Start Pixopedia and press Brush button on the right pane, a sticky form will show up. You'll notice that default brush set is loaded into memory (9 brushes) and current brush is set to 1.

Now, click with the mouse on any of 9 brushes displayed at the bottom pane. You'll notice that brush number changes when you select another brush. Beside number, some parameter values will change as well, because every brush from predefined set has its own set of parameters.

The whole list of parameters that you see on Brush form are actually loaded from current brush. Any change of parameters value and brush tip will affect only selected brush. This update occurs in memory. If you restart Pixopedia, default brush set with initial brush parameters will be loaded again.

To save your changes permanently, you must save your brush (or complete brush set) and load it when desired.

Changing brush tip will bring a new bottom pane inside Basic tab, as different brush tips have different set of specific parameters. So, prior to describing specific parameters, we will first cover parameters common to all brush tips.

### *Brush tip parameters*

A part of Basic tab, holds crucial information of brush behaviour:

- Pen size: pen width, brush tip diameter [1, 200].
- Capacity: brush capacity [0, 100]%.
- ColorVary: maximal amount of variation of brush color [0, 128].
- SizeVary: maximal amount of size variation [0, 100]%.
- CapVary: maximal amount of capacity variation [0, 100]%.
- Step: distance between two successive brush tips inside a stroke [1, 100].

More or less, all parameters listed above are self explanatory and best way to get acquaintance with these parameters, is to modify them and see the drawing result. If further explanation needed, I will update the manual.

Q: What does it mean [1, 200]?

A: This is a range of some parameter/variable. First number in parentheses is minimum value, second one is maximum.

## Filters

A part of Advanced tab, holds parameters for 5 filters that can be applied to selected brush, actually brush mask. Now, what is the brush mask? Well, we came to a situation where we need to investigate what happens internally in Pixopedia when stroke is drawn.

Every brush stroke is first drawn onto 8-bit mask. After that, filtering (if checked) is applied onto mask region where brush stroke resided, and finally, stroke is colorized/rendered keeping track of mask bytes.

This holds for all filters, except chalk effect, which is applied in rendering process. Here is a list of supported filters:

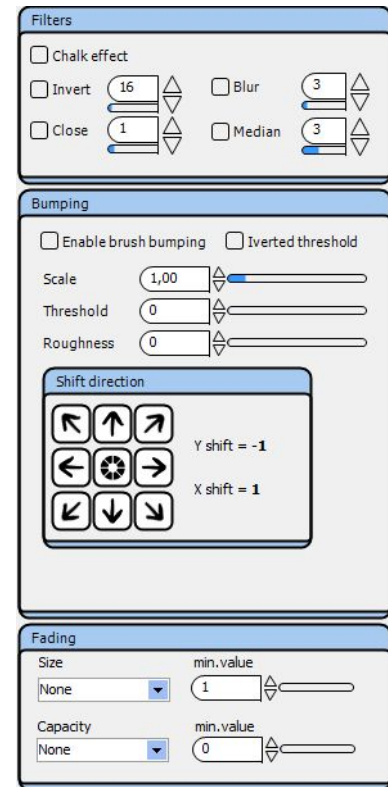
- Chalk effect: coin toss is performed. If coin shows head, pixel is drawn, otherwise not.
- Invert: brush mask is inverted and specified value is added.
- Close: close morphological filter is applied [1, 9].
- Blue: blur filter with square matrix is applied [3, 30]. Note that high value can significantly degrade performance.
- Median: median filter with square matrix is applied [3, 9].

Note: not every filter is suitable for every brush tip. Choosing a right filter for some brush tip relies on experimentation.

## Bumping

Again, part of Advanced tab, used to create bumped or quasi-3D strokes. Internal brush mask is used as a height field. Difference between currently scanned mask pixel and shifted mask pixel is used to calculate pixel intensity change:

- Enable brush bumping: when checked, brush bumping is performed for all standard and special shapes.
- Scale: bumping strength. Difference between masked pixels are multiplied with this value [1, 8].
- Threshold: value used to specify brush mask intensity threshold. If scanned mask pixel value is below this value, bumping is not performed.
- Roughness: randomly changes brush mask intensity, simulating the rough strokes [0, 255].
- Inverted threshold: tells Pixopedia to invert threshold. Actually  $new\_threshold = 255 - threshold$ .



Advanced tab

- Shift direction: position of shifted mask pixel, a one that is subtracted from scanned mask pixel. It actually simulates light direction. You can imagine that light from this direction falls over stroke.

Note: if stroke is drawn with solid brush, bumping will not occur, because there is no intensity variation in mask pixels. If solid brush is blurred (see filters), bumping will occur, because now we have intensity falloff at the stroke edges.

### *Fading*

Part of Advanced tab. Not implemented in current version (will be implemented soon).

### *Jittering rules*

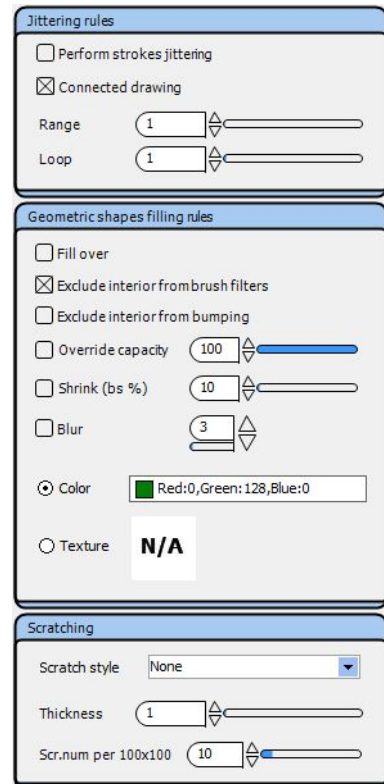
Part of JGS rules tab. Performs brush tip jittering, i.e. brush tips are randomly drawn outside of stroke path.

- Perform strokes jittering: when checked, jittering is enabled on all standard and special shapes.
- Connected drawing: when checked, keeps track of surrounding brush tip pixels intensity. If new brush tip scanned mask pixel is higher than surrounding, mask pixel is drawn, otherwise not. Seems a little complicated, but the best way is to try and see the difference.
- Range: maximum distance from stroke's center.
- Loop: number of jittering iterations on a single stroke.
- Neon brush
- Solid brush

### *Geometric shapes filling rules*

Now, the things get complicated. Also a part of JGS rules tab, tells Pixopedia how to handle area inside the closed curve: polygons, splinegons, rectangles and ellipses. There are a bunch of parameters, so here we go:

- Fill over: if checked, interior (area inside the closed object) is drawn after surrounding stroke, else, interior is drawn first, and surrounding stroke after.
- Exclude interior from brush filters: if checked, enabled brush filters will not be applied on the interior.



*JGS rules tab*

- Exclude interior from bumping: if checked, brush bumping will not be applied on the interior.
- Override capacity: if checked, interior capacity is set according to specified value, otherwise, brush capacity is used for interior [0, 100]%.  
100]%).
- Shrink (bs%): if checked, interior is shrunk by brush size percentage specified [1, 500]%.  
percentage specified [1, 500]%).
- Blur: blurs interior, similar as brush blurring [3, 55].  
[3, 55].
- Color: if checked, interior is drawn with color set in *color picker drop-down box*.
- Texture: if checked, interior is draw with texture specified in *texture box*.

Note: interior can be drawn with color, or with texture. If you want to have interior clear, use outlined shapes. Loading texture will be covered in **Color Scheme** subsection.

### *Scratching*

And finally scratching, part of the same JGS rules tab. As its name says, performs brush mask scratching in random maner:

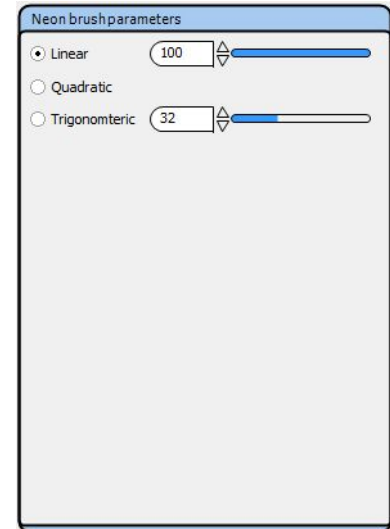
- Scratch style: type of scratching
  - None: no scratching is performed.
  - Machine gun: a number of random shots are fired into brush mask.
  - Squares mesh: similar as above, but random squares are seeded over the brush mask.
  - Short lines mesh: brush mask is scratched by bunch of short lines.
  - Long lines mesh: long lines over complete brush mask area.
- Thickness: scrath object thickness
- Scr.num per 100x100: number of scratches for 100x100 pixel area.

### *Brush tips and specific parameters*

Back to beginng. Click on Basic tab and take a look at *Available brush tips* panel. You'll notice a strip with images of various brush tips. When some tip is selected, a new panel will appear ont he bottom of Basic tab.

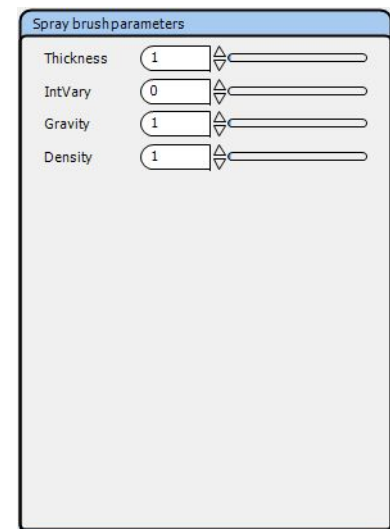
That panel keeps information of selected brush (tip) specific parameters. Every brush tip has a name which will appear as a caption of a panel.

- Neon brush: first brush tip in the brush tips set (strip). Now, look at Neon brush parameters, i.e. specific parameters for this kind of brush. You'll notice three options for neon brush drawing. Every option tells Pixopedia how the brush intensity falloff is performed.
  - Linear: linear intensity decay/falloff from the center of the tip towards the border. Higher the value, narrower the line with maximum intensity. Pick up a big size neon brush (size=60-100) and play a little with linear falloff value to get a picture [1, 100].
  - Quadratic: quadratic decay/falloff is performed. This option does not have additional value slider. Intensity falloff tracks simple quadratic curve.
  - Trigonometric: this is a tricky one to adjust. Performs trigonometric (periodic) falloff from the tip's center towards the edges. Additional value specifies trigonometric function frequency [1, 100].
- Solid brush: currently there are no specific parameters for this kind of brush, but it will be...oh yes it will.
- Spray brush: a lot of small dots are sprayed on the image. Well, dots can be bigger, depending on specific parameters:
  - Thickness: dots diameter [1, 100].
  - IntVary: maximum amount of dots intensity variations. Not to be confused with global CapVary [0, 255].
  - Gravity: strength of central line gravitation. What an explanation. Higher the value, dots are sprayed closer to stroke's center [1, 100].
  - Density: this one is obvious, isn't it? Higher the value, more dots are sprayed [1, 100].
- Star brush: a lot of lines drawn from tip's center towards the edges:
  - Thickness: lines width [1, 100].
  - IntVary: again, maximum amount of lines intensity variation [0, 255].
  - Density: lines density [1, 100].
  - Automatic density: not implemented...soon, soon



*Neon brush*

Hint: when using neon brush with trigonometric option set higher step value.



*Spray brush*

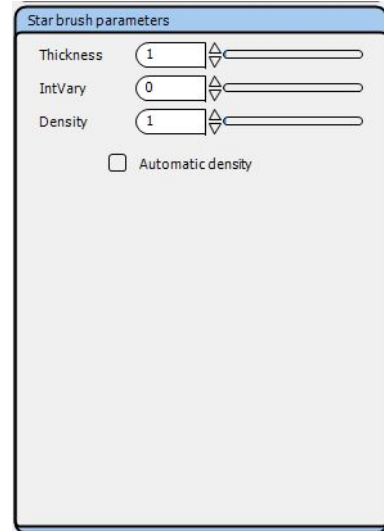


- Hair brush: While spray brush draws dots in random order for every stroke step, dots in hair brush are created on every mouse down event. Position of dots inside the brush tip is fixed through the stroke. Try Spray brush vs. Hair brush to see the difference.
  - Thickness: dots diameter [1, 100].
  - IntVary: same as in previous brush [0, 255].
  - Density: dots density [1, 100].
  - Automatic density: not implemented...patient my son, patient..
- Parallel brush: now, how to explain this one. Dots are drawn in equidistant fashion, i.e. distance between dots is always the same. Similar to hair brush, dots are created on mouse down event, and their position inside the brush tip is fixed.
  - Thickness: dots diameter [1, 100].
  - IntVary: same as always [0, 255].
  - Spacing: wow, a different one. Distance from one dot's center to another. This is the distance I'm talking about.
  - Angle: angle of a virtual line passing through the dots.
- Mesh brush: similar to star brush, but this time, lines are not drawn from tip's center, but from random positions.
  - Thickness: lines diameter [1, 100].
  - IntVary: same as in previous brush [0, 255].
  - Density: lines density [1, 100].
  - Automatic density: here it comes again.

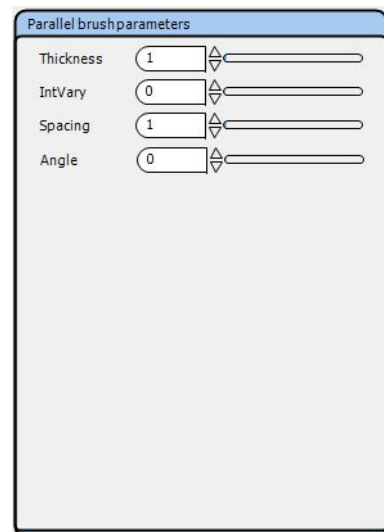
### Color Scheme

Very important part of Brush tool, a last page tab, but only in order of appearance. When some drawing action is active (Draw, Ornaments, etc..), parameters specified in this section controls color output of your brush. There are two panels in this section:

- Colors: colors selection
- Painting scheme: how the colors will be applied/combined in stroke rendering process



*Star brush*



*Parallel brush*

## Colors

Here, you can specify your brush colors (and not only colors):

- Primary color: primary brush color, one that's used more often
- Secondary color: color that can be used as alternative to primary color, or (more often) used in combination with primary color
- Texture: a seamless color image that will be used as brush
- Background tile: a seamless grayscale image used to simulate various material (paper, fabric, etc..) you're drawing on.
- Image: not yet implemented, used for information ofn image selected as clone brush.
- Palette: various palletes, i.e. 256 colors packed in palette entry. Every color from one palette corresponds to brush pixel mask value[0, 255].

Selecting primary and secondary color is trivial, click the box and pick the color. Selecting texture and background tile is little bit unusual:

- Start Pixopedia
- Open Brsuh tool form
- Click Color scheme tab. You'll notice that Texture box is empty. Actually it's a white box with letters "N/A", which means "not available".
- Now, **double** click on Texture box. Brush form is resized to accept a new form...texture selection form. Textures from default directory are shown. Of course, you can change directory and load another texture collection, but , for now, let's stick to default textures.
- Drag to scrool, browse textures loaded and, by left mouse click, select desired texture.
- After desired texture is selected, press and hold left mouse key and drag selected texture to "texture box", just above that "N/A" caption. Release the mouse key...here you are, texture is ready for use.
- Yo don't need to brows textures any more? **Double** click again, tetxure form will disappear.
- To clear texture, right click on texture box and select clear option.

In the same way, you can select desired Background tile. Texture form and Background tile form are mutually exclusive, calling one form will close another, and vice versa.

You'll notice that, there is another option in pop-up menu Open/Close. It's the same thing as double click (open or close texture/background tile form).

### *Painting scheme*

And finally, how your colors will be rendered. A list of options regarding color usage:

- Primary color: obvious, use primary color only
- Secondary color: use secondary color only
- AlphaMix primary and secondary color: colors will be blended according to brush intensity (scanned pixel mask intensity) and capacity will be adjusted according to pixel's intensity. Uh, sounds terrible. Just select this mode and use some nice primary and secondary colors with neon brush to see what happens.
- SolidMix primary and secondary color: similar to above scheme, but final color capacity is set to its maximum.
- Alpha palette: adjust palette entry capacity according to brush intensity (scanned pixel mask).
- Solid palette: as above, intensity is used to select palette entry, but entry color capacity is set to its maximum.
- Texture aligned: draw with selected texture in aligned mode. In aligned mode, brush tip center moves through texture and if crosses its border it takes pixel values from the other side of texture and drawing appears seamless.
- Texture fixed: brush tip center is positioned always in the middle of selected texture. Drawing does not appear seamless. This option has sense only when "free hand" drawing is performed, otherwise aligned texturing is performed.
- Image aligned: not yet implemented.
- Image fixed: not yet implemented.
- Step palette circular: not yet implemented.
- Step palette forward-backward: not yet implemented.

*Load and save brushes*

Top of brush form...and now something completely different...not yet implemented. Sorry, your changes, fancy brush and colors will not be saved. Write down parameters on the paper and wait for new version. Saving and loading parameters is first thing to do.

*Text*

Text tool is sticky form that controls “textual drawings”. Three panels (groups) are used to specify desired text parameters:

- Font: this panel is common to all text shapes. Here, you specify font name, size, style (decoradion), font size and decide if text is rendered in antialias mode or not.
- Single line text: this group of parameters refer to “normal” and shaped text drawing (see Standard shapes pop-up menu):
  - Text field: when you stat Pixopedia,this field contains text “Sample text”. Here you put text that will be rendered in drawing process.
  - Initial angle: initial text angle - you can change it later in drawing process.
  - Flip text: flips text in order to cover angles from 180 to 270 degrees.
  - Text border pen size: if checked a border of specified thickness will be drawn arround single line text.
  - Autocalculate character rotation: this and sucessive options are used for shaped text drawing. This option specifes if the charactesr in shaped text follow curvature angle. If unchecked, charactes will have fixed angle according to values specified.
  - Clockwise text alginement: clockwise or anticlockwise...the choice is yours.
  - Shape types:
    - \* Arc: text follows arc bounded in the box which size dependes on inital text width and font size.
    - \* Ellipse: draw text arround the ellipse.
    - \* Cosine: draw text following cosine function.
    - \* Vertical: draw text vertically.
- Memo text: use to draw multilne text. Mememo text can not be rotated:

- Show memo border: if checked, a thin border is drawn surrounding memo text.
- Text alignment: alignment inside memo box (left, center, right).
- Memo field: Here you put your multiline text.

## Actions

Actions and respective sticky forms comes in mutual exclusive mode. Only one action at the time can be active. Most actions can use standard/special shapes, however, some actions has it's own specific operating modes (like warping).

### *Draw*

Draw sticky form is most commonly used action and is used for drawing various shapes with various brushes. Draw action form consists of two panels:

- Draw mode: specify arithmetic mode, i.e. how brush colors (pixels) interact with image background.
- Drawing options: this part is common to most drawing modes (with exception to erase mode) and tells Pixopedia how to scale output pixel.

Most frequently used modes are: Normal and Erase, and for beginner, these modes are quite enough. For now, we'll cover only these two modes. Other modes will be covered in next manual version.

Simple draw mode, draws selected shape/brush onto created/loaded image. Prior to rendering, scaling is performed. Beginners may skip scaling (three vertical slider in the bottom panel) as they instruct Pixopedia to scale output pixel in other way than "normal".

Normal way is, to scale output pixel in the range [0, 255] for each RGB channel (red, green and blue). Scale changing affects drastically on output color, so it must be used with precaution.

Erase mode is used to erase pixels from image. This comes handy with transparent images, but can be also applied on non-transparent images. Erasing is actually normal drawing with some special color. This mode shows special "Erase options" panel at the bottom of form (replaces common Draw options panel with scale sliders):

- Erase all colors: all image pixels covered with selected shape are replaced with "erase color". If image is transparent respective alpha channel bytes are zeroed.

- Erase matching color: only pixels matching specific colors (with some tolerance) are replaced with “erase color”.

Erase color is initial color of newly create image, or dominant image color (if image is loaded). Dominant color is calculated by demand and initially is set to white (RGB=255, 255, 255). Calculating dominant image color is not yet implemented.

Other drawing modes will be covered in some of new manual versions. For now, you can simply experiment with other drawing modes.

### *Colors*

To be explained in next manual version.

### *Pixels Shifting*

To be explained in next manual version.

### *Fast IPL Filters*

To be explained in next manual version.

### *Simple 3x3 Filters*

To be explained in next manual version.

### *Ornaments*

To be explained in next manual version.

## Operation modes

Preciously mentioned, here we'll cover this topic in details.

### *Standard Shapes*

Start Pixopedia and create new image. Initially, action is set to Draw, current brush is brush#1 and Standard shape button is down. Now, position the mouse cursor over the image and do the right mouse click. Standard shape pop up menu will appear:

- Free hand: free hand drawing. Just press left mouse button, hold it down, and move your mouse over image. Stroke is drawn. Click undo button and draw again, change your brush, play a bit. As you can see, in “free hand” mode strokes are drawn immediately, without delay.
- Line: this shape, and following shapes are quite different from free hand, as they first draw “marker object” and the real stroke is rendered after mouse button is released. Press the left mouse key and while holding it, stretch the line across the image. Release the mouse button to perform stroke rendering. If you’re not satisfied with initial line position, again, while holding left mouse button down, press and hold **Shift** key on your keyboard to move complete line marker across the image.
- Polyline: polyline marker is drawn. Again, press and hold **Shift** key to move polyline across the image. Release mouse button to perform stroke rendering.
- Polygon outlined: similar to polyline, with exception that, when mouse key is released, beginning point and end point are connected. Interior is clear. Again **Shift** key is used for polygon repositioning.
- Polygon filled (border = brush): similar to previous shape, but this time, interior is filled according to rules specified in JGS rules. **Shift** key still works.
- Polygon filled (border = 0). this one draw only interior of polygon, border is not rendered.
- Rectangle outlined: on mouse down event, one corner of rectangle is fixed and with mouse movement you simply stretch the rectangle. Rectangle based shapes has additional options. Beside **Shift** key, used to reposition the rectangle we have few additional options:
  - **Shift** key - rectangle repositioning
  - **Alt** key - draw square instead of rectangle
  - **Ctrl** key - rotate rectangle (square) around the fixed corner
  - **Ctrl + Alt** key - reposition mouse only, without moving the rectangle
- Rectangle filled (border = brush): as previous one, with interior filling, according to JGS rules. Additional keys accepted.
- Rectangle filled (border = 0): you know the routine, additional key accepted.

- Ellipse outlined: draw an ellipse across the image. one side of ellipse is fixed and by mouse movement you simple stretch an ellipse in various directions. Additional drawing options:
  - **Shift** key - ellipse repositioning
  - **Alt** key - draw circle instead of rectangle
  - **Ctrl** key - sorry, no rotation yet
  - **Ctrl + Alt** key - reposition mouse only, without moving the ellipse
- Text: draw single line of text specified in Text tool. Text tool/form options will be discussed in separate topic. Additional mouse options are different from previous one, because text is already written, so repositioning/moving of text is perform by simple mouse movement (no additional keys pressed):
  - **Shift** key - resize text, i.e. changes the font height together with text bounding box. While holding **Shift** key down, move your mouse right or left to increase, or decrease font height respectively.
  - **Ctrl** key - rotate text around bottom-left corner. Move your mouse up or down.
  - **Ctrl + Alt** key - reposition mouse only without moving the text.
- Shaped text: draw single line text following the shape specified in Text tool. Additional mouse options:
  - **Shift** key - resize font height. Note: text is resized without resizing bounding box. A little wired, but you'll get used to it.
  - **Alt** key - resize bounding box in any direction. Because shape curvature depends on bounding box size, you'll notice how text follows shape changes.
  - **Ctrl** key - change the phase. Text will rotate around the shape.
  - **Ctrl + Alt** key - reposition mouse only, without moving the text
- Memo text: multiline text specified in Text tool. Additional options:
  - **Shift** key - resize font height and bounding box as well
  - **Ctrl + Alt** key - reposition mouse only, without moving the memo



## *Special Shapes*

Is Pixopedia started? OK, now press Special shapes button. Position your mouse over the image and press right mouse button. Special shapes pop-up menu is shown. Select any of the shapes and begin your drawing.

Stop! Not as with standard shape. Drawing special shape is quite different then standard shapes. Follow these steps...please:

- For beginning, select polyline...yes, the first one in pop-up menu.
- Click the left mouse button and release it. Yes, you don't have to hold it down...actually you must not.
- You see a yellow square under your mouse cursor? That's the first marker.
- Now move your mouse...don't press any mouse key. You'll notice a red line that begins at yellow rectangle center and follows your mouse cursor. If so...you are going well.
- Click on left mouse button again and move the mouse...click again and move..how to stop this thing?
- Move again somewhere on the image and double-click left mouse button. Now your free, nothing follows your mouse cursor any more.
- Move your mouse cursor over any yellow square, mouse cursor changes it shape to *hand point*..here comes pressing and holding mouse routine again.
- While you're over yellow marker, press and hold left mouse key. Move the yellow marker somewhere on the image. You are reshaping your polyline. Nothing is drawn yet.
- Press right mouse button and click on **Apply** item, a familiar stroke is rendered following your shape. However, your shape is still alive. You can reshape it again by moving yellow markers around. You can again render the stroke by selecting **Apply** and so on.
- When you no longer need the shape, press the right mouse button and select **Clear shape** item. Shape is cleared and you can draw another one.

Note: there are no additional mouse options and currently following special shapes are available:

- Polyline: draws polyline reshapable by marker squares

- Polygone: draws polygon (closed polyline). Reshaping is done in the same way as with previous one.
- Spline: draws Catmull-Rom spline (curve). Reshape it anyway you like it.
- Splinegon . what a stupid name: it's actually closed Catmull-Rom spline.

More shapes to come in next versions.

### *Selections*

Selection shapes are used to sign a part of image form various purposes:

- Clipping: if specified so in "Selection & Clipping rules" (not yet implementes), drawing (action) is clipped to selection shape, i.e.drawing is visible only inside the shape. By default, selection clipping is enabled.
- Apply image: pefroming action on complete image is restrected to selection boundaries as well.
- Moving, cropping, etc: not yet implemented.

Several selecting options are available:

- Free hand (lasso): create a free handed polygon. Simply press and hold left mouse button, move around and release mouse button, polygonal selection is created.
- Polygon: create polygon selection. This type of selection has similar "mouse rules" as special selection, except that you can not reshape selection.
- Rectangle: create rectangle selection. Hold **Alt** key to create squre selection. Rectangle can be reshaped using grips.
- Ellipse: create elliptical selection. Hold **Alt** key to create circle.
- Magic wand: select area of equal image colors (to some tolerance). Toleranc and magci wand modes are specified in "Selection & Clipping rules" tool (not yet implemented).
- Invert selection: if some selectin exists, invoking this command will invret selection.
- Clear selectio: delete all selection(s).

Additional selecting options:

- By default, one selection replaces the other. But, if you press and hold **Shift** key, successive selections are added to previous ones.
- All selections can be moved when mouse cursor is inside the selection (mouse cursor will change the shape to move arrows).

### *Color Picker*

Color picker mode is used to pick color from image. An eye dropper mouse cursor is shown. Simply move and position your mouse to desired position to pick color from pixel under the mouse cursor. Depending on mouse button clicked and its state, color is saved to specific color container:

- Left click: when left mouse button is clicked, “left color” is replaced with selected pixel color. This color is saved in small box on the bottom pane (next to current color RGB label).
- Right click: when right mouse button is clicked, “Right color” is replaced with selected pixel color. This color is saved in small box on the bottom pane (next to “left color” box).
- **Ctrl** key + left click: this command replaces current brush primary color with image pixel color.
- **Ctrl** key + right click: this command replaces current brush secondary color with image pixel color.

Left and right color will be used in next Pixopedia version.

### *Pan Image*

You saw this thing already in some other programs. Used to pan image inside PaintBook page. You can use scrollbars as well.

### *Zoom Selection*

After creating rectangular area on active image and releasing mouse button, area is zoomed to fit to screen.

### *Move and Resize Layers*

This operation mode is active when “image mode” is set to layers. Selected layer can be moved and resized. Note, however, that primary layer, i.e. background (original image) is always fixed and cannot be moved or resized in layers mode.

Layer is resized in the same way as rectangular selection. Note, however, this is only view, layer itself (corresponding bitmap/image) is not resized. To perform real resize, you must fix resized/rotate layers (read more in layers section).

### *Move and Rotate Layers*

This operation mode, as previous one is active only when “image mode” is set to layers. Selected layer can be moved and rotated. When rotation is performed, drawing in standard mode is not possible. Like in previous mode, only layer’s view is rotated, not the layer itself (corresponding bitmap/image). To proceed to further drawing or other actions, you must manually call layer fixing (more in Layers section).

## **Image Modes**

Image modes can be changed with right mouse click on active image, i.e. PaintBook’s active page tab. Currently two image modes are implemented (more to come).

### *Standard mode*

Default image mode, shows single image in its respective page.

### *Layers mode*

Shows active image layers. You can add, load and remove layers in this mode. You can perform any action on selected layer and beside that, you can move, resize or rotate layers as well.

This topic will be fully covered in next manual version. For now, explore it by yourself.