Summary

What is Affinity Photo?

Affinity Photo brings a new beginning to image editing for professional photographers, photo retouchers and conceptual artists. With high-end image editing in mind, Photo has been designed with power, speed and performance from its inception, balanced with an intuitive workflow-oriented user interface.

About Affinity Photo

Here's an overview of what you can expect.

- Stunning performance with instant redraw
- Real-time pro-level dynamic tools
- Built from the ground up to live in the Cloud-connected App store world
- Different tool sets (Personas) for different design needs—Photo, Liquify, Develop (RAW), HDR and Export
- Develop Persona—a dedicated studio for camera RAW processing
- End-to-end CMYK, RGB, LAB, and grayscale pro color spaces
- Non-destructive Adjustment Layers and Live Filters
- Comprehensive blend mode set
- Retouching heaven with all the industry standard tools you'll ever need
- Liquify tools for retouch or crazy effects
- PSD import/export with fidelity
- Interworking with other Affinity products

and much more...

Why not review the product's key features in more detail?

Apple Photos application and Affinity Retouching

The Affinity Photo architecture and a powerful suite of retouch tools have been brought together to create a photo retouching solution integrated within Apple Photos as an extension.

The extension is a component of Affinity Photo itself so requires Affinity Photo to be installed.

Personas

Think of Personas as different ways of working within Affinity Photo. If you want to work purely with core photo editing tools you can edit in the default Photo Persona. However, Affinity Photo packs a punch with additional Personas that each offer either a specific design environment or analogous toolsets, features or functions.

Naturally, an Export Persona is always at hand to export your design.

Here's an overview of the set of Personas available to you:

-  **Photo Persona**: The default Persona for ***photo editing*** including crop, selection, brush, retouch, erase, warping and vector-based tools.
-  **Liquify Persona**: A stunning design environment for ***distortion of image areas***. Great for retouching and special warping effects.
-  **Develop Persona**: For in-app ***development of raw images***, giving you full control of image color and tone.
-  **Tone Mapping Persona**: An environment dedicated to tone mapping images. Although intended for 32-bit documents, you can also enter this persona from 8-bit or 16-bit documents and tone map non-HDR images.
-  **Export Persona**: You can ***output*** your image, layer, or slice to a range of image formats.
- **Panorama Persona**: Only accessible by creating a stitched panorama, provides a dedicated environment for fine tuning stitched images to create panoramic compositions.

You can switch between Personas with a single click, with the workspace tools and panels changing to that Persona's way of working.

Key features

Here's a overview of the key features of Affinity Photo:

Power, performance and compatibility:

- Optimized for:
    - Grand Central Dispatch (GCD)
    - OpenGL
    - Core Graphics
    - Direct3D
    - Metal hardware acceleration
    - 64-bit engine
- Create massive gigapixel-sized documents
- 16-bits per channel editing
- Sub-pixel accuracy
- For all Intel 64-bit Macs (Core 2 Duo onwards)
- For OS X 10.7 (and above) or macOS Sierra 10.12.0 (and above)
- 64-bit plug-in support
- Up to date Tablet support
- Multi-touch support
- Force Touch support (Magic Trackpad 2/MacBook/MacBookPro)
- Touch Bar support (MacBook Pro)
- End-to-end EXIF preservation

Raw development:

- Choice of Serif or Apple Core Image RAW engines
- Serif Raw Engine
- Remove automatic tone curve and apply your own
- Develop assistant for setting default tone and exposure control behavior
- Dedicated tones, lens, noise reduction and sharpening panels
- Support for the latest cameras

- Split view with syncing
- Solid and gradient overlays for restricting adjustments
- Show clipped highlights, shadows, and tones

Color:

- CMYK, Lab, Grayscale and RGB color modes
- Color panel (RGB, HSL, LAB, CMYK, Grayscale)
- Swatches panel (Apple, System, Web Safe colors, Crayons)
- Swatches panel
- Generate palette from image
- Global colors
- Color tints
- Color Picker Tool (color mode aware, pick from anywhere on screen, color averaging, layer selection)
- Color Replacement Brush
- Paint Mixer Brush
- Gradient tool (Linear, Elliptical, Radial, Conical, Bitmap)
- Professional color support
- Spot colors and overprint
- PANTONE® color support
- ICC color profiling
- Import Adobe ASE color palettes

Solid photo-editing tools:

- Sizing and transforming:
    - Resize images and canvas
    - Crop to original/custom ratios, absolute dimensions or print sizes
    - Straighten photos
    - Mesh Warp Tool
    - Non-destructive perspective filter
    - Liquify tools in dedicated Persona workspace

    - Pixel art resizing
- HDR
    - Merge bracketed exposures together to create 32-bit images
    - Unique Persona for Advanced Tone Mapping
    - Edit effortlessly in 32-bit unbounded color format
    - Maintain a true 32-bit lossless workflow and preview full tonal range
    - OpenEXR and Radiance import and export
- Panorama Persona for powerful auto-stitched panoramas
- Live projections (equirectangular and perspective)
- Stacking
    - For noise reduction
    - For exposure merging
    - For moving object removal
    - Auto-alignment
    - Non-destructive behavior
- Focus merging with source cloning
- Powerful layer management:
    - Drag-and-drop layers
    - Non-destructive adjustment layers with clipping previews
    - Non-destructive Live Filter layers with 'live' before/after split views
    - Apply adjustments, filters and blend modes at the stack, layer, group, selection or object level
    - Clipping within layers
    - Blend modes
    - Blend ranges (linear and non-linear) and blend gamma control
    - Lock child layer positions
    - High-quality layer effects
    - Layer masks (brush-based and gradient)

- Selection tools:
    - Shaped selections
    - Intelligent Selection Brush
    - Refine selections to capture fine detail
    - Store and save selections
    - Quick masks
- Image control:
    - Place images on dedicated layers
    - Resampling: Nearest Neighbor, Bilinear, Bicubic and Lanczos 3 pixel scaling
    - Media browser (to access Photos and Pictures folders)
- Painting:
    - High-quality brush galleries
    - Change brush size, hardness, and opacity on the fly
    - Undo Brush with 'paintback' to saved snapshot
    - Import/export brushes, including ABR file import
    - Custom brushes (including image-based brushes)
    - Assign tools to brushes selectively
    - Optimized for graphics tablets
    - Multi-controller support including pressure and velocity
    - Controller-specific brush dynamics
    - Customizable controller ramps
- Retouching tools:
    - Red-eye removal
    - Inpainting for object removal
    - Clone Brush/Healing Brush
    - Blemish Removal/Patching
- Retouching brushes:
    - Dodge, Burn and Sponge brushes
    - Blur, Sharpen, Median and Smudge brushes

- Macros and batch processing:
    - Record and save actions as macros
    - Edit individual recorded steps and their parameters
    - Customize macro settings post recording
    - Import, export, and maintain a macro library
    - Run batch jobs for bulk processing and conversion of images
    - Apply macros in batch jobs for a seamless custom workflow

Supporting vector design tools and concepts:

- Precise Pen tool
- Intuitive Move tool (moves, scales and transforms)
- Rotate from movable origin
- Customizable nudge distances
- Node tool for fine tuning vectors
- Customizable geometric shapes
- Full range of non-destructive Boolean geometry operations
- Duplicate and transform objects with precision
- Add noise to fills and strokes as a solid or graduated attribute
- Customizable stroke styles
- Styles presets
- Artistic and frame text
- Character and Paragraph panels
- Advanced typography including ligatures
    - Flowing text
    - Spellchecking
    - OpenType font features
- Convert shapes and text to fully editable curves
- Save and synchronize defaults

User interface:

- Persona task-orientated workspaces
- Customizable tabbed workspace
- High DPI (retina) support
- Multiple document views
- Windowed, Full Screen, and Separated modes
- Docked or floating panels
- Comprehensive keyboard shortcuts and modifiers
- Customizable keyboard shortcuts
- Customizable toolbars

Design Aids:

- Rotate canvas
- Incredible zoom range
- Intuitive panning
- Saveable zoom viewpoints
- Dynamic snapping guides
- Pixel-accurate alignment for web graphics and website mockups
- Managers for Brushes, Grids, Snapping and other operations
- Pixel, Retina, and Outline view modes with Split View support
- Automatic, fixed and projection grids
- Context toolbar and hintline
- Fluid document History <8192 steps
- Save history with document (multi-session)
- Snapshots
- Keyboard modifiers for on-the-fly tool changes
- Mixed-mode assistant for layer creation behavior according to the user's preferences

Interoperability:

- Affinity Photo files can be opened in other Affinity products and vice versa
- iCloud sync and merge

Import, Export and Printing

- High-quality Adobe® Photoshop® PSD import and export
- SVG import and export, including Inkscape extended SVG support
- Export layers, groups and pages to PNG, JPEG, TIFF, GIF, EPS, SVG and PDF
- Preserve layers in exported TIFF images
- Draw custom-sized slices at export time
- Use slice presets for popular image formats
- Multiple export setups, formats and resolutions per slice
- Output all slices at once, just one slice, or selected slices
- Export automatically to retina (@2x, @3x)
- Export automatically to high DPI
- Set export areas and file formats during or after photo editing
- Deliver UI design assets (iOS)
- Desktop printing with Layout, Paper Handling, Feed, and Duplexing control
- Web-ready PDFs (Acrobat) with presets
- Professional hi-res PDF/X printing (CMYK) with presets
- Spot colors and overprint control
- Bleed and printer marks

Switching Personas

When you switch to a different Persona, you get a different design environment designed for specific photo-editing needs—each Persona is equipped with its own tailored set of tools and panels for maximum efficiency and design focus. Personas ensure that everything you need to unleash your creativity is at your fingertips.

To switch to a different Persona:

- On the Persona toolbar, click the button for the Persona that you want to use.

- From the top **Affinity Photo** menu, choose a Persona you wish to switch to.

The **Panorama Persona** is only accessible by choosing the **New Panorama** feature on the **File** menu.

Open documents and images

You can open photos and raster images as well as a range of popular camera raw images in Affinity Photo, ready for editing and designing. You can open previously saved Affinity Photo documents, as well as vector images (SVGs) and projects from other, selected professional photo editing apps. For a comprehensive list of compatible import file formats, see Import and export file formats.

A key feature of the Affinity product range is the ability to seamlessly open any Affinity project file in any Affinity product, regardless of the original Affinity product it was created in. In doing so, you can enhance your work with another Affinity product's features with no concern over file compatibility on saving.

Affinity Photo documents are saved with the .afphoto file extension.

You can add additional photos and raster images to your project page as a new layer. For more information, see Place images.

To open a document or photo:

1. Do one of the following:
    - From the **File** menu, click **Open**.
    - Double-click anywhere in the empty view. (Only available in Normal mode when no other documents are open.)
2. Select the file you want and click **Open**.

To open a recently used document:

- From the **File** menu, click **Open Recent**, then select a file from the submenu.

To open an image as a new document (via Finder):

- Open Finder and drag the file to an off page area of your workspace.

Photos opened using the above methods will create a new document with one layer, named 'Background'. The document will adopt the image name as its file name.

On opening, a file's colour space is preserved by default, but you can convert it to the default working color space via **Affinity Photo>Preferences** (Color option) using the **Convert opened files..** option. The document's current color profile is displayed at the top-left of your workspace.

On opening, a file's color space is preserved by default, but you can convert it to the default working color space via **Edit>Preferences** (Color option) using the **Convert opened files..** option. The document's current color profile is displayed at the top-left of your workspace.

The 'Background' layer is locked by default. (This can be changed by updating your Preferences.) Layers which are locked show in the Layers panel with a lock symbol next to them. Selected locked layers appear with crosses around the bounding box.

Adobe Photoshop project files can also be opened in Affinity Photo as described above.

To open Adobe PDF files:

1. From the **File** menu, click **Open**.
2. From the PDF Options dialog, you can choose:
    - A specific or all pages to import.
    - Set the resolution for the PDF content.
    - If text is to remain more editable at the expense of accurate design reproduction.
    - If separate text lines can be treated as a single text frame to aid text flow.
    - To substitute a missing font with a similar replacement font.

For multi-page PDF files, each page is placed on its own layer. Switch on a hidden page's layer to view its content.

Opening a raw image

You can open raw images from your digital camera directly into Affinity Photo. In doing so, you'll be able to process the unprocessed image, deciding for yourself how your image is to be developed.

For a comprehensive list of supported raw image files that can be imported, see Import and export file formats.

Processing raw images is carried out exclusively within Affinity Photo's Develop Persona. Once you commit to how you want to your image to be developed, the image can then be worked on in other Personas.

To open a raw image:

1. From the **File** menu, click **Open**.
2. Select the raw file you want and click **Open**.

The raw image is loaded into Develop Persona for processing.

To open a recently used raw image:

- From the **File** menu, click **Open Recent**, then select a raw file from the submenu.

To open a raw image as a new document (via Finder):

- Open Finder and drag the file to an off page area of your workspace.

Create new documents

When you create your new document you specify a range of color settings plus page dimensions depending on the purpose of your document.

Available new document settings are as follows:

- **Type**—Select the aim and deliverable for your project (for quickly populating settings below). As well as print (press-ready CMYK), you can work to specific Photo print sizes, specific Web screen resolutions, and with the Devices option, design to iPad, iPhone, and Nexus document specifications.
- **Page Preset**—Offers sizes for UK/US print, photos, screen use, and mobile devices. A Custom option indicates if your page is using non-standard page dimensions.
- **Document Units**—Displays your rulers and object dimensions in pixels, points or using physical measurement units.
- **Color Format**—Sets the color mode to RGB or Gray (8 or 16 bit), CMYK (8 bit), or Lab (16 bit).
- **Color Profile**—Sets the color gamut for the previously chosen color format.
- **Transparent background**—Check to set your page background to be transparent.
- **Page Width/Height**—Change these values to make a custom page size. (An alternative to selecting a Page Preset size above.)
- **DPI**—Sets the resolution of your document. For example, for professional print quality, set your resolution to 300 dpi.
- **'Actual Size' Zoom**—Sets the device which is mimicked when presenting the document at 'Actual Size' (from the **View** menu). This option is only available when the document units are set to Pixel or Points. Select from the pop-up menu.
- **Portrait**—Uncheck to present your document in landscape orientation.
- **Include Margins**—Check to switch on page margins.
- **Left Margin, Right Margin, Top Margin, Bottom Margin**— Sets the printer margins, showing as non-printable blue lines. Click **Retrieve Margin from Printer** to use your default printer's settings.

When creating a new document, the Document Units define the exact size of your document on screen. For example, if you chose 'pixels', your document will display at its exact pixel size when exported and viewed on screen at 100%. Similarly, for physical Document Units (e.g., millimeters) you'll get the exact print size at 100%.

To change document units once a document has been created, use the settings on the context toolbar when the View Tool or Zoom Tool is selected.

You can also create a new document based on the contents of the clipboard.

Full transparency can be applied to the background of the document at any point by selecting **Transparent Background** from the **Document** menu.

To create a new document:

1. From the **File** menu, click **New**.
2. From the dialog, choose document settings.
3. Click **OK**.

Creating new documents from clipboard contents

You can create a new document based on the current contents on the clipboard. This 'paste as new document' feature allows you to start a new project from a copied section (layer or selection) of another project in Affinity Photo or other supported applications.

To create a new document based on clipboard contents:

- From the **File** menu, click **New From Clipboard**.

Embedding documents

Embedding documents allows you to place any Affinity (Designer, Photo, etc.), Photoshop, Illustrator, Freehand, SVG, EPS or PDF document into your current document without the need to open each file in turn.

Before and after documents from Affinity Photo and Affinity Designer embedded into current document.

Once you've added embedded documents onto your page, you can edit each document without leaving your current document.

To embed a document:

1. From the **File** menu, select **Place**.
2. In the pop-up dialog, navigate to and select a document, and click **Open**.
3. Do one of the following:

    - Click to place the document at a default size.
    - Drag on the page to set the size and position of the document.

Embedded documents are shown in the Layers panel using their original document name and the suffix '(Embedded document)'.

If your embedded document is a Designer file which has multiple artboards, you'll be provided with an **Artboard** option on the document's context toolbar so you can choose which artboard is displayed.

To edit an embedded document:

- Do one of the following:
    - Double-click the placed document.
    - From the context toolbar, select **Edit Document**.

Changes are saved within the main document without affecting the original.

The editability of the embedded document may be affected by how the original document was saved in its native application.

To replace a document:

1. Select the document.
2. From the context toolbar, select **Replace Document**.

Place images

You can add additional photos and raster images to your page as a new layer.

Photos and images placed in this way can be replaced using the options on the context toolbar.

The image's embedded color profile will always be converted to the document's current working space.

To place an image:

1. From the **File** menu, select **Place**.
2. In the pop-up dialog, navigate to and select a file, and click **Open**.
3. Do one of the following:
    - Click to place the image at its default, displayed size.
    - Drag on the page to set the size and position of the image.

To add an image to a layer (via Finder):

- Drag an image from Finder to your ***page***. The image will be added to the project as a new layer.

To replace an image:

1. Select an image.
2. From the context toolbar, select **Replace Image**.

Using stock photos

The Stock panel allows you to search various stock imagery websites to find images for your designs and then add them to the page.

When you add images from the Stock panel to your document, they are placed as watermarked versions. This allows you to use them in your design so you and your clients can visualize their use *before* you purchase them.

Before and after purchase of stock image.

When the design is complete, the features within Affinity Photo allow you to quickly locate the image online (so you can purchase it) and then help you replace the placeholder with a purchased version.

To search for stock images:

On the **Stock** panel:

1. Select a stock imagery website from the pop-up menu.
2. In the search box, type in your keyword(s) and then click the search icon or press the **Return** key.

Thumbnails of all images matching the search criteria will display in the panel.

You can clear search results using the close icon.

To add a placeholder of the stock image to the page:

- Drag the thumbnail of an image from the **Stock** panel onto the page.

To purchase and replace a stock image:

1. Select the watermarked placeholder image on the page.
2. On the context toolbar, select **Open Stock URL**. Your default web browser will launch displaying your selected image on the chosen stock imagery website.
3. Purchase the image and save the file to a convenient local location.
4. With the placeholder image still selected, on the context toolbar, click **Replace Image**.
5. Navigate to, and select, the purchased image and click **Open**.

To view an image on its stock imagery website:

- On the **Stock** panel, double-click a thumbnail.

View

There are a variety of viewing options available which give you maximum flexibility when editing your images.

New View

There are times when it is useful to view a design at different zoom levels simultaneously. This can be achieved by opening your current project in a New View. The views can then be set to different zoom levels. Changes made to any view are replicated in the other.

To open the current project in a new view:

- From the **View** menu, select **New View**. The project opens in a new tab/window which includes a numerical reference in its title.

To switch between open projects and views:

Do one of the following:

- Click a project/view tab in Normal mode.
- Click a project/view tab.
- Click a project/view window header in Separated mode.
- From the **View** menu, select a project/view from the **Views** sub-menu.

Full Screen View

Regardless of which layout mode you choose to work in, you also have the option of full screen view. In this view, Affinity Photo is effectively maximized to its own desktop, giving you every available pixel to work with.

To display full screen:

Do one of the following:

- Click the Full Screen button at the top of your window (this is the top-left green button for OS X Yosemite users).
- From the **Window** menu, select **Toggle Full Screen**.

The Menu bar is not visible in full screen view. However, it remains accessible by moving the pointer to the upper edge of the screen.

Using the Separated Workspace mode, you can be working on several documents at a time, each having their own full screen desktop!

When in full screen view, you cannot switch between Normal and Separated mode. You must choose which mode you wish to work in before entering full screen view.

Zooming

Zooming into areas of your document is an essential part of the editing and design process. Several zooming options are possible.

🔍👋To zoom in or out of a document:

Do one of the following:

- Click the **Zoom Tool** (shortcut **Z**) and then:
    - Drag on the page—right to zoom in or left to zoom out.
    - Click on the page to zoom in a step.
    - -click on the page to zoom out a step.
    - -drag on the page to zoom into a rectangle area.
    - Select a zoom level from the context toolbar.
- Click the **View Tool** (shortcut **H**) and select a zoom level from the context toolbar.
- Select the **View** menu and then Zoom options.
- Use and your mouse scroll wheel (if available).
- Zoom in or out using the options in the **Navigator** panel.

Shortcuts:

- **Zoom In** using **+**.
- **Zoom Out** using **-**.
- **Zoom to Fit** using 0 or double-click the View Tool icon.
- Zoom to **100%** using 1 or double-click the Zoom Tool icon.
- **Actual Size** using 8.
- **Pixel Size** using 9.

For Trackpad users, see Gestures.

When creating a new document, the Document Units define the exact size of your document on screen. For example, if you chose 'pixels', one pixel in your document corresponds to one pixel on screen; your document will display at its exact pixel size at 100%. Similarly, for physical Document Units (e.g., millimeters) you'll get the exact print size on screen using the Actual Size option.

Pan/Scroll the Document view

When your document is zoomed-in, you can work on different areas of your design by using panning.

🖐To pan an image with the View tool:

1. From the **Tools panel** on the left, click the **View Tool**.
2. Drag the zoomed-in document in relation to its view.

Temporarily activate the **View Tool** by using Hot key panning by pressing . As soon as you release, the tool will switch back to the previously selected tool.

You can also pan the Document view using your mouse wheel, scroll bars, or the Navigator panel.

For Trackpad users, see Gestures.

Save

When you save your document all project information is preserved, allowing you to edit it at a later date. The project is saved as a single file with the extension **.afphoto**.

The first time you save your document, you'll be asked to give the project a name and save location. Following this, future saves will overwrite the previous version.

Optionally, you can save a current project as a new project. In this case, the new file will not overwrite the saved version.

A document's history can be saved along with the document, so earlier edits can be returned to even if the document is closed and reopened.

To save as a new project:

1. From the **File** menu, select **Save As**.
2. Adjust the dialog settings as required.
3. Click **Save**.

To save the current project:

- From the **File** menu, select **Save**.

If you have only made modifications that are supported by an image file type (for example, a JPG or PNG), then using the **Save** function will simply save over the top of the current file. If you have made modifications that are not supported, such as adding layers, then you can save the image as a project file (click **Save As**) or flatten and merge the changes to the existing file (click **Save**, then **Save Flattened** in the dialog).

To save history with a document:

1. From the **File** menu, select **Save History With Document**.
2. In the **Saving With History** dialog, click **Yes** to accept the conditions discussed in the dialog.
3. Save your document.

Saving your document's history with your document may significantly increase the size of your project file.

You can switch off the save history feature by repeating step 1 of the procedure above.

Affinity Photo autosaves your document at regular intervals. To change the autosave interval, go to **Affinity Photo>Preferences** (Performance).

Affinity Photo autosaves your document at regular intervals. To change the autosave interval, go to **Edit>Preferences** (Performance).

Developing a raw image using Develop Persona

Develop Persona is a dedicated environment used for processing raw images captured using a digital camera.

Working in Develop Persona

If a supported raw file format is opened in Affinity Photo, it will automatically display in Develop Persona. You can then process the image using the dedicated adjustments, panels and tools.

Develop Persona gives you access to the following:

- **Develop Assistant** to choose a RAW engine for RAW processing, 16-bit or 32-bit output, and to enable/disable automatic tonal and/or exposure adjustments on loading the RAW image.
- **Develop Assistant** to enable/disable automatic tonal and/or exposure adjustments on loading the RAW image.
- Tonal adjustments using the Basic and Tones panels.
- Sharpening and Noise adjustments using the Details Panel.
- Lens correction adjustments using the Lens Panel.
- Overlays for applying adjustments to specific brushed image regions.
- Crop tool for cropping your image.
- Blemish Removal tool for correcting image imperfections.
- Focus Panel.
- Scope Panel.

At any point while working with an image or any selected pixel layer, you can switch to Develop Persona to make use of its unique features.

Split view options

There are a variety of split view options available in Develop Persona which give you the opportunity of seeing how your processed image compares to the original raw data.

- **None**—presents the processed image in isolation on a single page.
- **Split**—presents the processed and original raw images simultaneously on the same page. A sliding divider can be repositioned to view the image 'Before' and 'After' processing.
- **Mirror**—presents the processed and original raw images simultaneously on separate pages. Panning and zooming affects both pages simultaneously so the same area is always displayed in both pages.

Rather than comparing the processed image with the original raw data, you can sync the views so 'Before' adopts the current applied adjustments. The 'After' view continues to update as more adjustments are made. See below for details.

Syncing

While applying adjustments, you can update the 'Before' and 'After' view to give you a more focused representation of the applied changes.

- **Sync Before**—updates the 'Before' view using the settings applied in the 'After' view.
- **Sync After**—removes all the settings applied in the 'After' view to return the image to the 'Before' view.
- **Swap**—switches the applied settings of the 'Before' and 'After' views.

Show Clipping

An incorrect level of exposure within an image can lead to pixels 'falling out' of the viewable intensity range. This results in the loss of detail in areas of shadow, highlights, or midtones and is known as clipping.

In Develop Persona, you have the ability to display **Clipped Shadows**, **Clipped Highlights** and/or **Clipped Tones** directly on the image. This can help you identify areas which need correcting as well as preventing overenthusiastic modifications which result in clipping.

 To work in Develop Persona:

1. Do one of the following:
    - Open a raw image. Develop Persona will analyze the data and pre-process it, ready for editing.*
    - Select a pixel layer and then, from the Persona toolbar, click **Develop Persona**.
2. Activate your preferred view mode.
3. Adjust the image using the various panel options and tools.
4. (Optional) Sync applied settings within the view and repeat the above step.
5. On the context toolbar, select **Develop**.

    The photo or layer will adopt all the settings as displayed in the 'None' or 'After' view. The 'Before' view is for comparison purposes only.

*To remove the pre-processing from a raw image, change the develop options available in the **Develop Assistant**.

When adjusting settings, you can double click each adjustment slider to reset it to its default value.

 To activate view modes:

On the Toolbar, do one of the following:

- Click **None** to display the processed image in isolation.
- Click **Split** to display both processed and raw image on the same page.
- Click **Mirror** to display processed and raw image side-by-side on separate pages.

 To synchronize applied settings in view modes:

On the Toolbar, do one of the following:

- Click **Sync Before** to update the 'Before' view to the most recent applied settings.
- Click **Sync After** to revert the settings applied in the 'After' view back to the settings shown in the 'Before' view.
- Click **Swap** to switch the applied settings between the views.

 To show clipping:

On the Toolbar, do one of the following:

- Click **Show Clipped Highlights** to display all 'blown' highlights as a high-contrast red color.
- Click **Show Clipped Shadows** to display all clipped shadow areas as a high-contrast blue color.
- Click **Show Clipped Tones** to display all clipped midtone areas as a high-contrast yellow color.

 To change initial develop settings:

On the Toolbar, do the following:

1. Click the **Develop Assistant** to open its settings dialog.
2. Choose from the following settings:
    - **RAW Engine**: Provides a choice of RAW processing engines for you to use—Affinity's own Serif Labs engine or Apple's Core Image RAW engine.
    - **RAW output format**: Choose between **RGB (16 bit)** or **RGB (32 bit HDR)** output when developing a raw image. Choosing **RGB (32 bit HDR)** allows you to maintain a full 32-bit float environment from initial raw development to export and take advantage of extra precision.
    - **Tone curve**: If the default 'Apply tone curve' option is active, your raw image is adjusted using a suggested tone curve. The 'Take no action' option makes no tonal correction; the image can be altered within the **Basic** panel later.

- **Alert when assistant takes an action**: When checked, a pop-up message appears on loading the RAW image to indicate that adjustments have been applied automatically.
- **Exposure bias**: Choose whether to apply exposure bias value if stored in the raw image's EXIF data. Like Histogram stretch, both 'default' and 'initial' give the same results but reports zeroed or actual values, respectively. The 'Take no action' option ignores the exposure bias value.
- **Map default region**: Sets the region that displays in the **Location** panel, if the raw image contains no GPS location data in its EXIF data.

If you choose not to apply initial develop settings, your images will not undergo any processing. They may look flat, dull in tone and lacking contrast, but you will have absolute control in how the image is processed. This approach is similar to "log" video footage that maintains maximum dynamic range before color grading.

Using overlays

The Overlay tools can be used in combination with the **Overlays** panel to allow you to apply standard adjustments to isolated areas of an image.

About overlays

Overlays are elements within Develop Persona which are placed on top of an image. Any adjustment applied to an overlay affects the image below.

However, overlays can have a varying level of visibility, which varies the impact its adjustments have on the underlying image. In this respect, Overlays in Develop Persona act in a similar way to masks in Photo Persona.

Areas of an overlay which are transparent ignore the overlay's adjustments, while opaque areas display the applied adjustments. Areas of semi-transparency (such as those created with the Overlay Gradient Tool) will display the adjustments by a varying degree.

The adjustments applied to an overlay are determined using the Overlays panel.

Types of overlay

There are two types of overlay: Brush and Gradient.

Brush overlays can only be edited using the **Overlay Paint** and **Overlay Erase** tools. Areas are added to an overlay using the Overlay Paint Tool. Areas are removed using the Overlay Erase Tool.

The **Overlay Gradient Tool** applies a gradient from transparent to opaque across Gradient overlays only.

Settings (Overlay Paint and Erase Tools only)

- **Size**—controls the size of the overlay brush in pixels.
- **Hardness**—how hard the edges of the brush are. The painted overlay appears softer and more feathered as the percentage decreases.
- **Edge Aware**—when checked, enables edge detection, which allows for easier overlay painting around edges without having to zoom in and reduce the brush size.

To create an overlay:

Do any of the following:

- On the **Overlays** panel, select **Add Brush Overlay** to create a transparent, pixel overlay.
- On the **Overlays** panel, select **Add Gradient Overlay** to create an opaque Gradient overlay.

- With no overlay selected, drag on the image with the **Overlay Paint Tool**. A Brush overlay is added automatically.
- With no overlay selected, drag on the image with the the **Overlay Gradient Tool**. A Gradient overlay is added automatically.

↻To apply adjustments to an overlay:

1. On the **Overlays** panel, select an **overlay**.
2. From the **Basic** panel, click an adjustment's checkbox to activate it.
3. Drag the adjustment slider to set the value.
4. Click Reset to set the adjustments slider(s) back to default.

🗑To remove an overlay:

On the **Overlays** panel:

1. Select an **overlay**.
2. Click **Delete Overlay**.

Basic Panel (Develop Persona only)

The **Basic** panel provides standard adjustments which can be applied to an image.

Available Adjustments:

- Exposure—adjusts the overall exposure of the image, changes black point and overall brightness.
- Enhance—adjusts contrast, clarity, saturation and vibrance.
- White Balance*—removes undesirable color casts from a photo by adjusting the 'temperature' of the light. The default value is the 'As shot' White balance setting from your camera.
- Shadows & Highlights—applies tonal adjustment to the darkest and/or lightest areas in a photo.
- Profiles—sets a system-installed ICC **Output Profile** for color managing the developed image.

Settings

- **Preset**—manages adjustment presets via a pop-up menu.
    - **Add Preset**—saves the current adjustment settings as a named preset for later use. The pop-up menu populates with the preset name on saving.

    - **Delete Preset**—deletes the preset currently checked in the Preset pop-up menu.
    - **Default**—reverts the current adjustment settings back to default settings.
- ✓Active/Inactive—when checked, the adjustment is applied to the image.
- ↻Reset—sets adjustment slider(s) back to default.

*The White Balance adjustment can be set automatically using the White Balance Tool.

Tones Panel

The **Tones** panel provides adjustments for correcting the tonal and color values of pixels in an image.

Available Adjustments:

- Curves—uses graph manipulation to precisely adjust the lightness and contrast of a photo.
- Black & White—converts a color photo to grayscale.
- Split Toning—tints and recolors highlights and shadows.

Settings

- **Preset**—manages adjustment presets via a pop-up menu.
    - **Add Preset**—saves the current adjustment settings as a named preset for later use. The pop-up menu populates with the preset name on saving.
    - **Delete Preset**—deletes the preset currently checked in the Preset pop-up menu.
    - **Default**—reverts the current adjustment settings back to default settings.
- ✓Active/Inactive—when checked, the adjustment is applied to the image.
- ↻Reset—sets adjustment slider(s) back to default.

Details Panel (Develop Persona only)

The **Details** panel provides adjustments to refine the edges of images and remove (or add) noise.

Available Adjustments:

- Detail Refinement—sharpen edges to add clarity to raw images. Can be used in conjunction with the Noise Reduction adjustment.
- Noise Reduction—reduce and remove random luminance and/or color pixels.
- Noise Addition—adds random pixels to an image to introduce and enhance noise.

Settings

- **Preset**—manages adjustment presets via a pop-up menu.
    - **Add Preset**—saves the current adjustment settings as a named preset for later use. The pop-up menu populates with the preset name on saving.
    - **Delete Preset**—deletes the preset currently checked in the Preset pop-up menu.
    - **Default**—reverts the current adjustment settings back to default settings.
- ✓Active/Inactive—when checked, the adjustment is applied to the image.
- ↻Reset—sets adjustment slider(s) back to default.

Lens Panel (Develop Persona only)

The **Lens** panel provides adjustments which can be used to correct lens distortions which can appear in images.

Available Adjustments:

- Lens Correction—fixes various types of lens distortion by straightening and aligning lines in an image.
- Chromatic Aberration Reduction—fixes chromatic aberration by realigning blue, green, and red planes.
- Defringe—corrects purple fringing (bichrominance) at the edges of high contrast areas.
- Remove Lens Vignette—corrects unwanted vignetting by adjusting the brightness at the edges of an image.
- Post Crop Vignette—As with Lens Vignette but adjusted after a crop has been applied to an image.

Settings

- **Preset**—manages adjustment presets via a pop-up menu.
    - **Add Preset**—saves the current adjustment settings as a named preset for later use. The pop-up menu populates with the preset name on saving.
    - **Delete Preset**—deletes the preset currently checked in the Preset pop-up menu.
    - **Default**—reverts the current adjustment settings back to default settings.
- ✓Active/Inactive—when checked, the adjustment is applied to the image.
- ↻Reset—sets adjustment slider(s) back to default.

Overlays Panel (Develop Persona only)

The **Overlays** panel (in combination with the Overlay tools) allows you to apply standard adjustments to isolated areas of a raw image.

About the Overlays panel

The Overlays panel allows you to add new blank overlays to your raw image as well as setting the adjustments which are applied to individual overlays.

Options

The following options are available in the panel:

- **Opacity**—Adjusts opacity of the selected overlay.
- **Add Brush Overlay**—adds a new overlay set which can be modified using the **Overlay Paint** and **Overlay Erase** tools.
- **Add Gradient Overlay**—adds a new overlay set which can be modified using the **Overlay Gradient Tool**.
- **Delete Overlay**—removes the currently selected overlay set.

Focus Panel (Develop Persona only)

The **Focus** panel reports the camera settings at the point at which the image was captured. Reported settings include Mode, Beam, CoC and Hyperfocal.

Settings

The following settings are available in the panel:

- **Show AF Regions**—when selected, areas of the image, which are within the auto focus region set by the camera, are highlighted.

Changing image size (scaling and resampling)

In Affinity Photo there are options to change a document's or image's pixel dimensions and/or print resolution.

You can change the 'size' of an image by ***scaling*** or ***resampling*** it. These can be undertaken independently or simultaneously.

Scaling

Scaling will embed a specific print resolution into an image's metadata to force it to print at a specific dpi (e.g. 300 dpi). The image's pixel dimensions remain unaffected.

Resampling

Resampling will do one of the following:

- increase the number of pixels in an image (i.e stretch it) to make its overall pixel dimensions bigger. This is known as upsampling. This will also increase the image's file size.
- decrease the number of pixels in an image (i.e compress it) to make its overall pixel dimensions smaller. This is known as downsampling. This will also decrease the image's file size.

When you resample an image, you have the option to:

- Maintain the image's aspect ratio or resize unconstrained.
- Select from a variety of interpolation methods (see note below).
- Simultaneously scale your image.

Resampling may be carried out to:

- Enlarge an image to specific dimensions in preparation for printing.
- Reduce an image for on-screen display and to optimize file size.

To scale an image:

1. From the **Document** menu, select **Resize Document**.
2. Ensure the **Resample** option is switched off.
3. Change the **DPI** to control the number of pixels (dots) which will be printed per inch when your document is printed. Set higher values (e.g., 300dpi) for professional printing.
4. Click **Resize**.

You will see no change in the image on the page as this procedure only affects the image's metadata.

To resample an image:

1. From the **Document** menu, select **Resize Document**.
2. Ensure the **Resample** option is switched on.
3. Enter your new document dimensions in the **Size** boxes—left box for width, right box for height.
    - To resize the width and height independently, click the lock icon (to unlock) between the **Size** boxes.
4. (Optional) Select a different measurement unit from the **Units** pop-up menu. Rulers will update to the new measurement unit.
5. Change the **DPI** to control the number of pixels (dots) which will be printed per inch when your document is printed. Set higher values (e.g., 300dpi) for professional printing.
6. Select a **Resample** method from the pop-up menu.
7. Click **Resize**.

Resampling methods

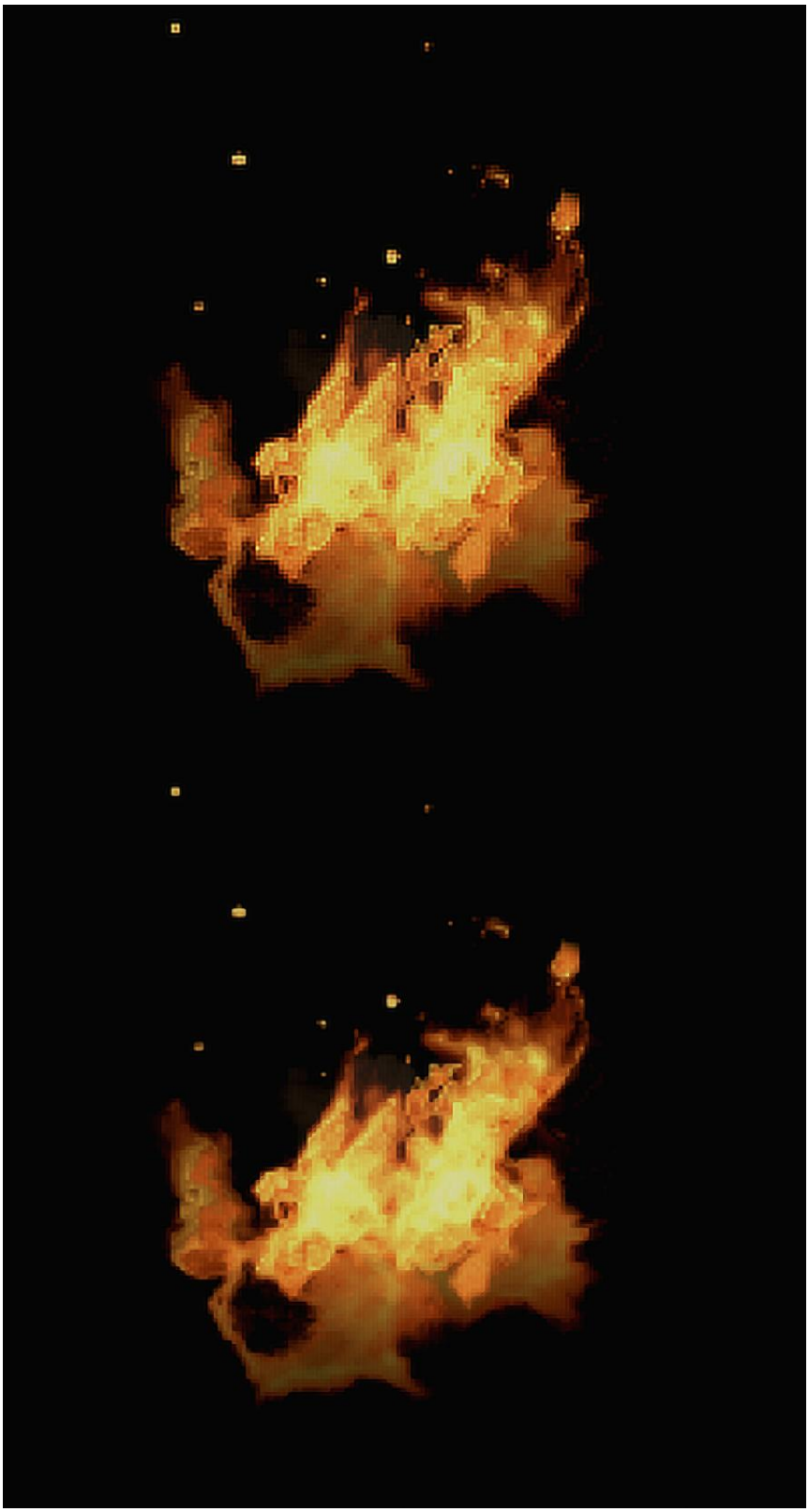
The following resample settings are available:

- **Nearest Neighbor**—simple resampling which has the fastest processing time. Use for hard-edge images.
- **Bilinear**—algorithmic resampling for use when shrinking images.
- **Bicubic**—algorithmic resampling for use when enlarging images. Resampling is smoother than Bilinear but has a slower processing time.
- **Lanczos 3**—complex algorithmic resampling which gives the best results but with the longest processing time. Available as 'separable' and 'non-separable'; the latter gives marginally better results, but is slightly slower than 'separable'.

Instead of adding absolute input values you can enter expressions instead. See Expressions for field input for details.

Pixel Art resizing

The **Resize Pixel Art Document** option, found on the **Document** menu, allows you to upsample your document using one of two renowned pixel art resampling algorithms: XBR and HQX.



Before: Image upsampled 4x using Bicubic filter. Observe the jaggy edges and ringing.
After: Image upsampled 4x using XBR filter. See how the edges are smoother and more refined.To resize using pixel art filters:

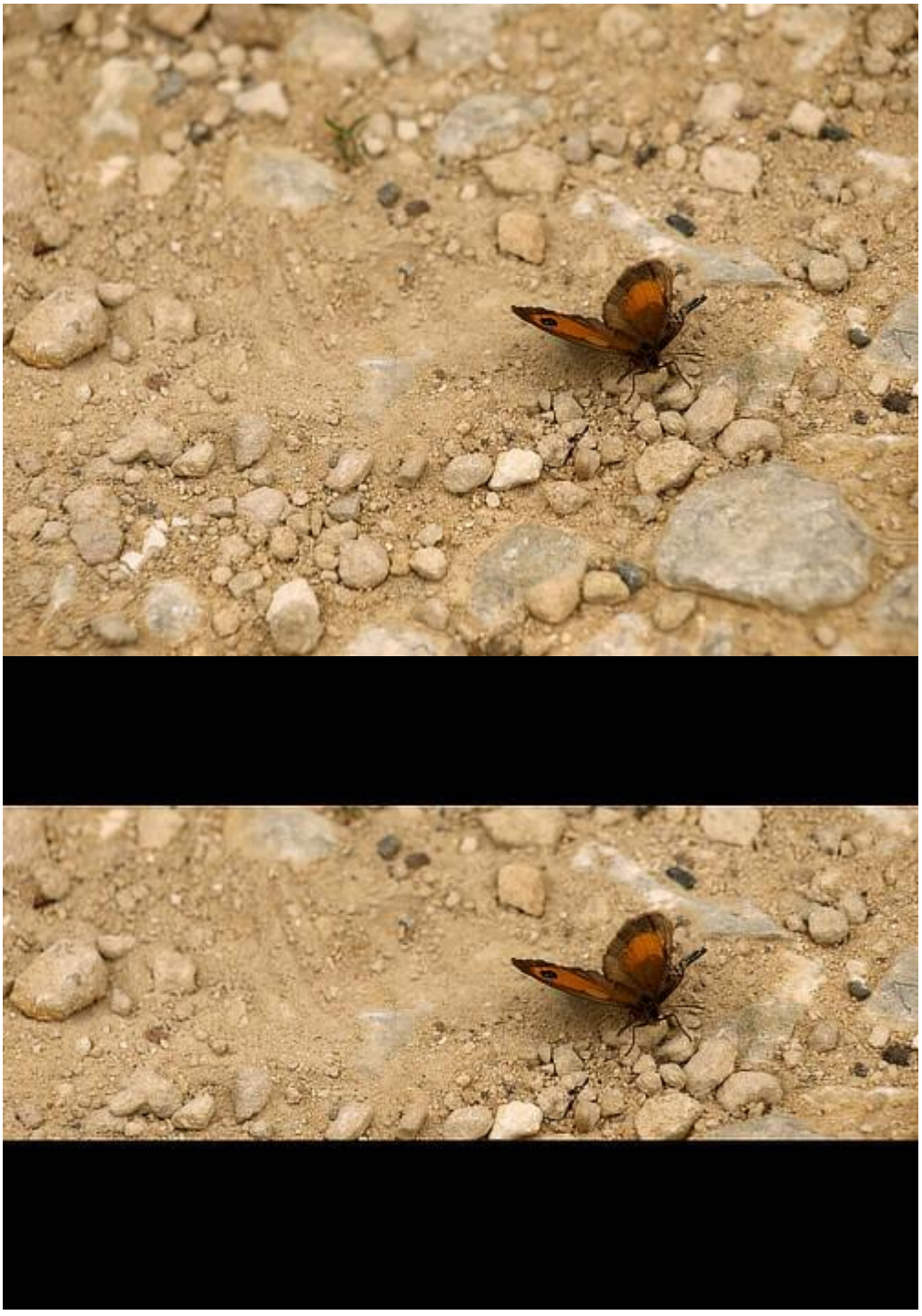
1. From the **Document** menu, select **Resize Pixel Art Document**.
2. Choose from either **HQX** or **XBR** as the resampling method, and pick a size multiplier from **2x**, **3x** or **4x**.

If you are seeking very smooth results, it is recommended to try **XBR** as the resampling method. **HQX** produces sharper results but exhibits more jaggedness around fine edges.

Changing canvas size

In Affinity Photo there are options to resize the canvas of opened images and newly created documents.

Changing the canvas size involves adding or taking away pixels from around the edge of your image, much like adding a border to a picture or cropping the image to a smaller size, respectively. Unaffected pixels are not stretched or squashed.



Resizing the image canvas

Unwanted canvas area can be removed (trimmed) from the document edge, and conversely, you can expand your canvas to fit layer content which extends over your document edge.

To change canvas size:

1. From the **Document** menu, select **Resize Canvas**.
2. Enter your new canvas dimensions in the **Size** boxes—left box for width, right box for height.
    - To resize the width and height independently, click the lock icon (to unlock) between the **Size** boxes.
3. (Optional) Select a different measurement unit from the **Units** pop-up menu. Rulers will update to the new measurement unit.
4. In the **Anchor** box, select alignment options to resize the the canvas 'under' the image from that anchor point.
5. Click **Resize**.

To remove unwanted canvas areas:

- From the **Document** menu, select **Clip Canvas**.

To expand the canvas to fit layer content:

- From the **Document** menu, select **Unclip Canvas**.

Cropping and straightening

Cropping removes unwanted areas of your image for either practical reasons or better composition. Straightening simply means correcting a crooked image.

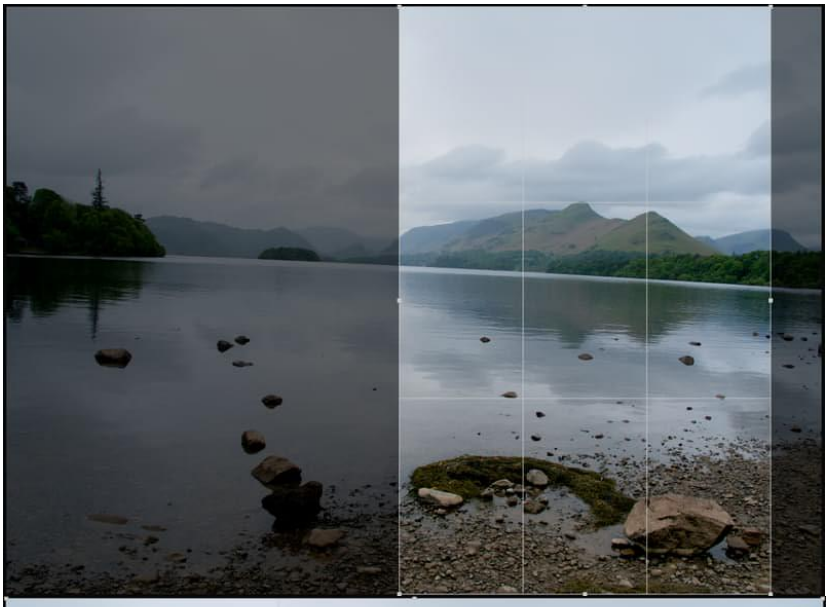
About cropping

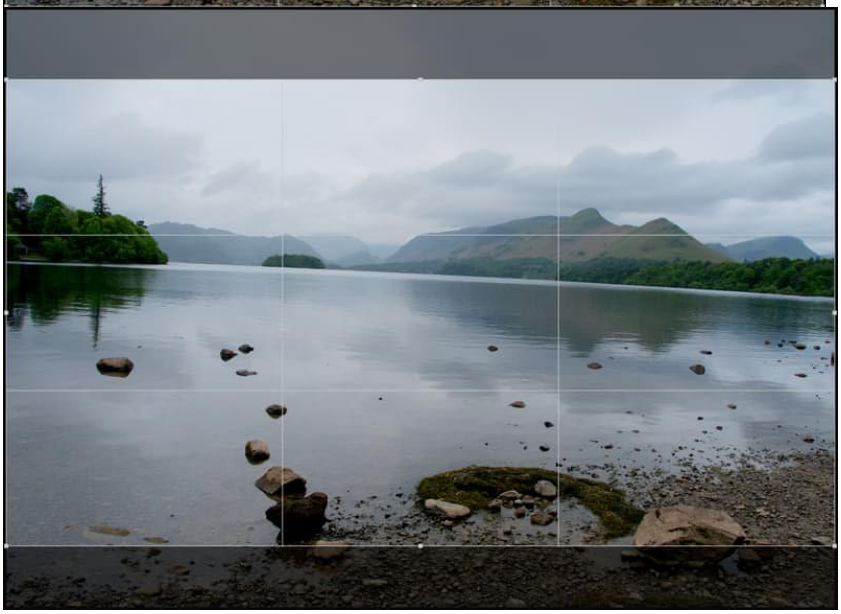
Use cropping for practical reasons or aesthetic reasons equally. For instance, an unwanted object or person can be excluded which might otherwise detract from your desired image. Aesthetically, you can balance image content in your composition so that it is more appealing to the eye.

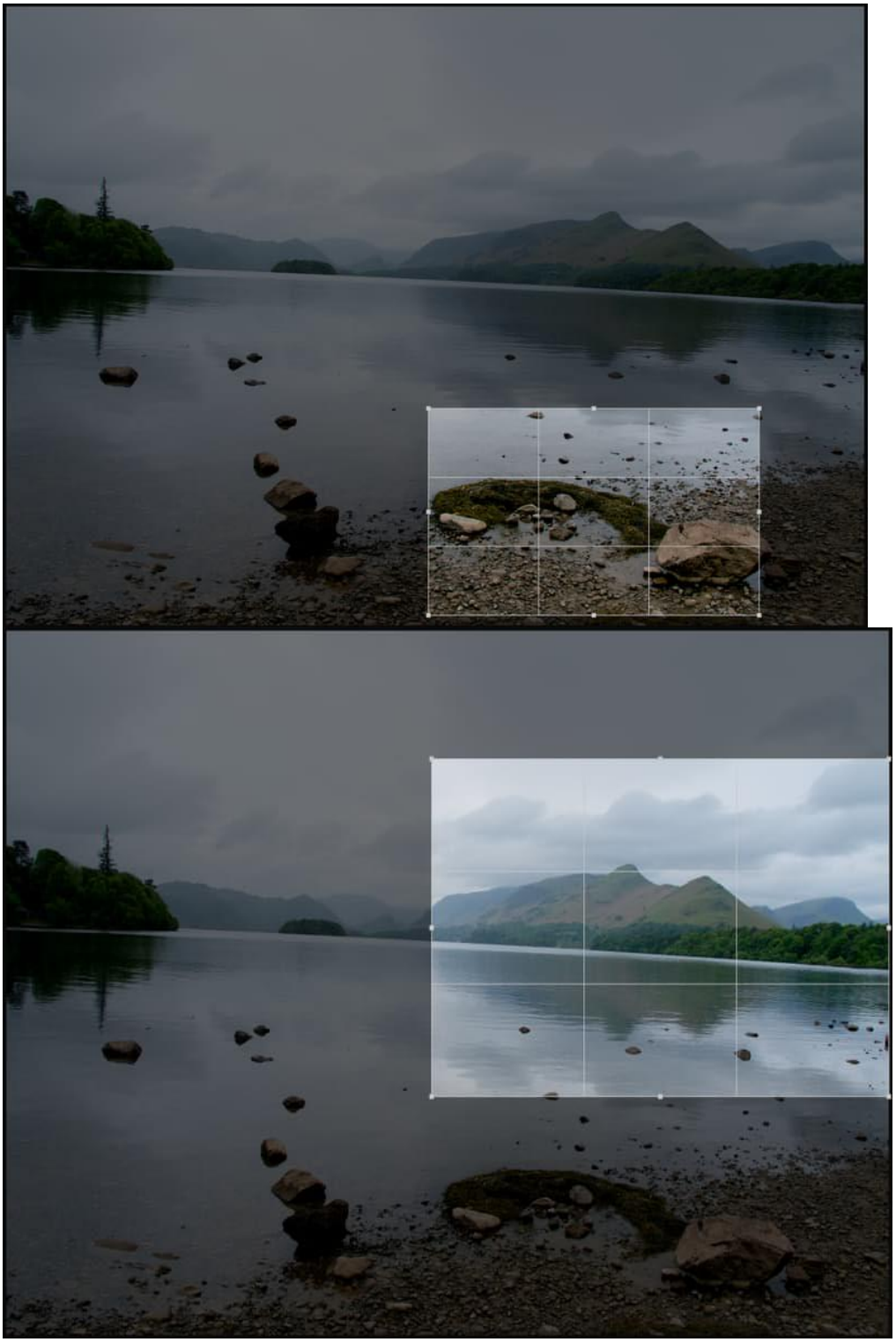
Affinity Photo lets you crop unconstrained or to original or custom aspect ratios. For print or web delivery, you can specify common print sizes (e.g., 6" x 4") or create pixel-accurate custom crop regions, respectively.

If snapping is active, the crop area can snap to page edges and guides when being resized or moved.

Original / Portrait / Rotational / 16x9 Ratio / Absolute Pixel / 6x4" Print Crop







The Crop Tool affects the entire canvas, which is typically the native dimensions of an opened image. When a crop is applied, the regions outside the drawn crop area will be hidden. However, cropping is non-destructive, which means you can uncrop your image at a later date.

Crop modes

When cropping, you may wish to work unconstrained or to specific ratios or absolute dimensions. These are some of the options available:

- **Unconstrained**—The crop area can be sized freely.
- **Original Ratio**—Retains your image's original aspect ratio.
- **Custom Ratio**—Uses the adjacent input boxes to set the ratio—width in the left box, height in the right box. Can be saved as a preset.
- **Absolute Dimensions**—Use the adjacent input boxes to set absolute dimensions for the crop area. Set your **Units** if needed. Can be saved as a preset.
- Presets—A combination of commonly used, and custom saved, presets are presented for ease of use.

Straighten mode

When activated, dragging on the page will orient the photo to align it with the drawn line. We recommend using a reference within your photo such as the horizon or the edge of a building.

Compositional overlays

If you're cropping to remove unwanted subject matter in your image, compositional overlays can be ignored. However, if you're looking for better composition, one of several overlays can be used.

- **Thirds Grid**—Shown by default, the Rule of Thirds grid's intersection lines can be positioned over an object of interest in your image.
- **Golden Spiral**—Size and position the grid so the inner origin of the spiral is centered over the subject of interest; this balances the composition naturally. Also known as Fibonacci Spiral or divine proportions.
- **Diagonals**—Position two objects of interest under the diagonal line intersections to balance the objects against each other.

You can quickly toggle between these overlays by pressing **O**.

To crop an image:

1. From the **Tools** panel on the left, select the **Crop Tool**.
2. From the context toolbar, select a crop mode from the **Mode** pop-up menu.
3. Adjust the context toolbar settings.
4. Drag a corner or edge handle on the grid to reposition the grid to suit.

5. From the context toolbar, click **Apply**.

To uncrop the cropped image:

- From the **Document** menu, click **Unclip Canvas**.

 To straighten an image:

1. From the **Tools** panel on the left, select the **Crop Tool**.
2. From the context toolbar, select **Straighten**.
3. Drag on the image to define the new alignment.
4. From the context toolbar, click **Apply**.

To save crop settings as a preset:

1. Adjust the context toolbar settings.
2. From the context toolbar, click the **Mode** pop-up menu and select **Add Preset**.
3. Type a name for the crop preset, then click **OK**.

The new preset will appear at the bottom of the **Mode** pop-up menu.

To delete a crop preset:

1. From the context toolbar, click the **Mode** pop-up menu and select the preset you wish to delete.
2. Click the **Mode** pop-up menu again and select **Delete Preset**.

Transforming

Layer content can be flipped, rotated, positioned and sized accurately.

Flipping an image horizontallyTo flip or rotate layer contents:

1. Select one or more layers.
2. From the **Arrange** menu, select a flip or rotate option.

You can also rotate layer content directly on the page by dragging its rotation handle or by using the **Transform** panel.

To position layer contents accurately:

1. Select one or more layers.
2. On the **Transform** panel, change **X** and/or **Y** values.

To nudge layer content:

1. Select layer content.
2. Do one of the following:
    - For nudging by a single unit of measurement: Press an arrow key.
    - For 10x the single unit of measurement: Press an arrow key with the pressed.

You can change nudge distances via **Affinity Photo>Preferences>Tools**.

You can change nudge distances via **Edit>Preferences>Tools**.

To size layer content accurately:

1. Select one or layers.
2. On the **Transform** panel, change **W** and/or **H** values.

Mesh warping

Mesh warping lets you distort specific areas of your image without affecting other areas. It can be used for dramatic warping effects or for more subtle focused retouching of facial features.

Warping an image

About mesh warping

The Mesh Warp tool provides a flexible mesh grid which can warp your image by repositioning the grid's lines, nodes, and patches; underlying pixels are transformed under the line, node or patch. The extent of warping you want to carry out is governed by the complexity of the grid.

You'll initially start with a mesh grid without lines, but adding your own lines and nodes lets you warp with ease. Position lines adjacent to areas in your image that you want to apply warping to.

 To create a mesh:

1. From the **Tools panel** on the left, click the **Mesh Warp Tool**.
2. Double-click on the edge of the mesh grid—the top edge gives a vertical line; a side edge gives a horizontal line.
3. Repeat for as many lines as you need.

If you want to start again, click **Reset** on the context toolbar.

To add nodes to the grid:

- Double-click anywhere within the grid.

To select multiple nodes in the grid:

Do one of the following:

- Press the and click each node in turn.
- Drag across multiple nodes to create a marquee selection.

To apply warping:

1. (Optional) On the context toolbar, use the **Mode** option to manipulate just the grid ('Source') or both grid and image simultaneously ('Destination').
2. Drag a node, a node's corner handle, line or patch. Patch warping is achieved by clicking in an area contained by mesh lines and dragging the circle—this warps the entire area.
3. Select **Apply** or press .

The mesh is really just an assembly of bendable curves. When you alter these curves, distorting the grid, the underlying image deforms accordingly.

Perspective

Perspective gives your image a three-dimensional appearance by applying a warp along one or more planes. By reshaping a supporting perspective grid you can transform your image.

Using the Perspective Tool to alter the appearance of a building/structure. To apply perspective:

1. From the **Tools panel** on the left, click the **Mesh Warp** flyout, then the **Perspective Tool**.
2. (Optional) For two opposing, but independent, perspective planes, select 'Dual Plane' on the **Planes** pop-up menu.
3. (Optional) Use the **Mode** option to set the mode in which the grid will operate. 'Destination' shows the image with perspective applied. 'Source' lets you size, position and shape the grid without affecting the image; you can then apply perspective to the image by jumping back to the 'Destination' option and dragging handles.
4. Drag a corner handle on the grid. Use the to snap a grid handle to vertical or horizontal.

With **Snapping** enabled, the grid handles will snap to any page edge.

About layers

Layers allow you to edit and design using a non-destructive methodology. This gives you maximum flexibility for your photographic projects.

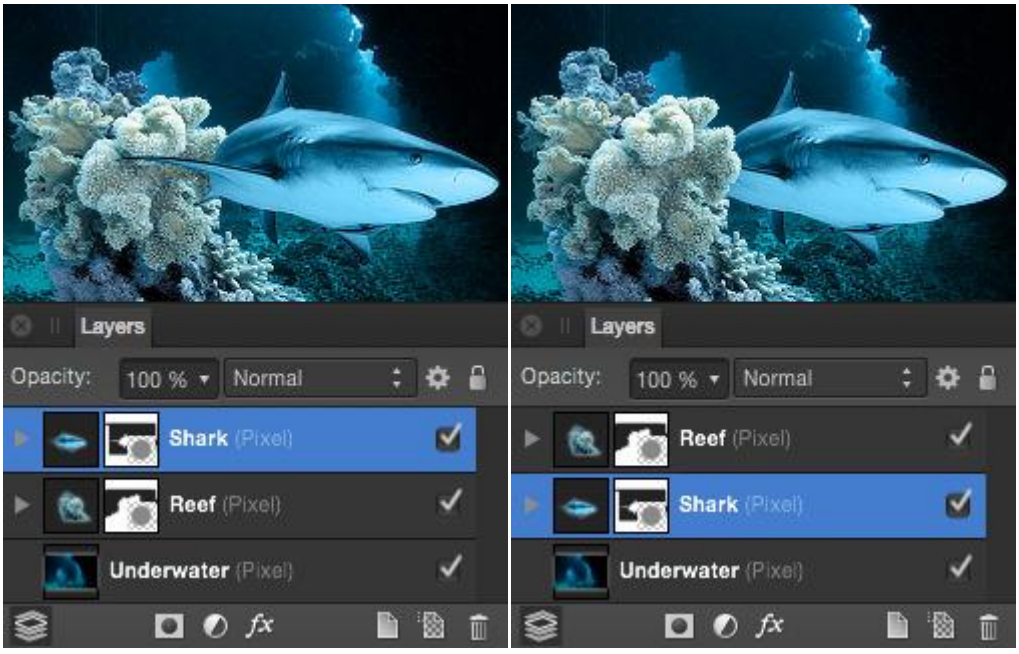
What are layers?

You can think of layers as being like sheets of paper that are stacked one on top of the other. Transparent areas of a layer reveal the layer below, while opaque parts of a layer obscure the layers below.

All layer management is carried out from the Layers panel.

Here are some important points regarding layers:

- Once editing and designing has begun, all documents will have at least one layer.
- The order of your layers is important. A layer at the *top* of the panel is at the *front* of your document and vice versa.
- Any selected layer(s) are highlighted, so that you can always see what layer you are working on.
- Any layer can be hidden, to exclude its content from displaying in your project.



The effect of layer order on a document.

Types of layer

There are several types of layers that can be created:

- Pixel layer—containing raster images where pixel-based editing takes place.
- Mask layer—special layer that allows you to define what content is hidden to reveal layers beneath.
- Adjustment layer—special layer that can be used to correct or enhance the layers beneath.
- Fill layer—special layer that contains an adjustable solid or gradient color.
- Snapshot layer—special layer that contains a predefined project snapshot as a single, flattened pixel layer.
- Vector layer—vector content, such as curves, shapes, text and placed images, occupy their own unique layer.

Vector layers are automatically created whenever you:

- Draw lines and shapes using the Pen Tool
- Use any geometric shapes
- Add Artistic or Frame text
- Use the **Place** command to add an additional image to your project.

Create layers

Empty layers can be created in the Layers panel or from the Layer menu. Layers are created above the currently selected layer. Once created, layers can be renamed for easy identification.

You can also copy and paste selections, layer groups and entire layers using Edit>Copy and Edit>Paste. If you copy a layer group, all layers within the group will be duplicated.

This operation can also be performed between documents. In Separated mode only, you can also drag layers between documents from window to window.

 To create a new layer: Do one of the following:

- From the **Layers** panel, click **Add Layer**.
- From the **Layer** menu, select **New Layer**.
- With no layers selected, paint on your page with the **Paint Brush Tool**.

  By default, the Assistant will create a new layer to accommodate your paint strokes.

To change a layer name: Click the layer's label and type a new name.

Layer opacity

A layer's opacity determines how see through a layer is and how much of the layer beneath is obscured or revealed. At 1% opacity, the layer is almost transparent, whereas at 100% the layer is completely opaque.

Before and after opacity reduced.

Numerical keys can be used to quickly set the opacity of selected layers.

Different levels of opacity can also be applied to brush strokes, filter effects and the fills of vector content.

To change the opacity of a layer:

1. From the **Layers** panel, select one or more layers.
2. Use the **Opacity** control to set an opacity value.

To quickly select an opacity value, drag left or right over the panel's **Opacity** label.

To use opacity quick keys:

1. Select a single layer or multiple layers.
2. Press a numerical key, or two numerical keys in quick succession, to set the opacity. For example:
    - Press **4** for 40% opacity.
    - Press **0** for 100% opacity.
    - Press **4** and **5** for 45% opacity.
    - Press **0** and **7** for 7% opacity.

Layer blending

A layer's blend mode determines how the layer's pixels or contents blend with the pixels on the layer beneath.

Blend mode types

Affinity Photo supports an impressive selection of different blend modes. The most commonly used blend modes are as follows:

- **Normal**—The default blend mode. The top pixels display over underlying pixels according to the level of top layer opacity.
- **Multiply**—The blending result is a combination of the top and bottom color at each pixel position, always producing a darker value.
- **Screen**—The opposite of Multiply, where the blending result is a combination of the inverse of the top and bottom color at each pixel position, always producing a lighter value.
- **Overlay**—Applies either Multiply or Screen blend mode, depending on the bottom color at each pixel position. If the bottom layer pixels are <50% gray, it multiplies; if >50% it screens.
- **Color Burn**—Darkens the bottom color pixels relative to the values of the top color pixels.

Other available blend modes include Darken, Darker Color, Lighten, Lighter Color, Color Dodge, Add, Soft Light, Hard Light, Vivid Light, Pin Light, Linear Light, Hard Mix, Difference, Exclusion, Subtract, Hue, Saturation, Luminosity, Color, Average, Negation, Reflect, Glow, Contrast Negate, Erase and Passthrough.

Any layer can have a blend mode assigned. The default blend mode is 'Normal'—no special compositing is applied. For a layer group, the default is 'Passthrough' (i.e. the group itself has no special blend properties of its own).

The same blend modes can be utilized on layer effects and brushes.

To change the blend mode of a layer:

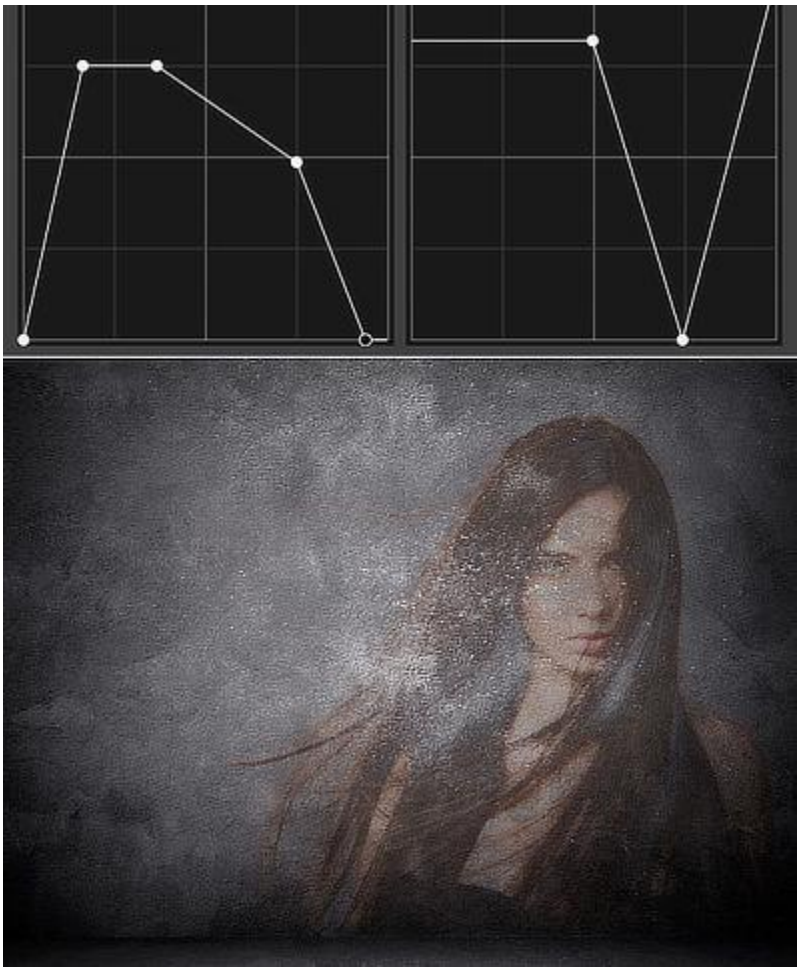
1. On the **Layers** panel, select a layer.
2. Choose a blend mode from the pop-up menu on the panel.

Layer blend ranges

Blend ranges specify the range of colors on a current layer which are blended with the underlying layer(s).

About blend ranges

Blend ranges allow you to specify how tonal values of a layer blend with the layer(s) below. You can set the range of the tonal values affected and can set the range to have any level of opacity (from opaque to transparent).



Before and after blend range applied.

The blend range of the selected layer and the underlaying layer(s) is controlled in the **Blend Ranges** dialog.

You can change the blend range for individual color channels within the dialog.

About blend gamma and antialiasing (RGB documents only)

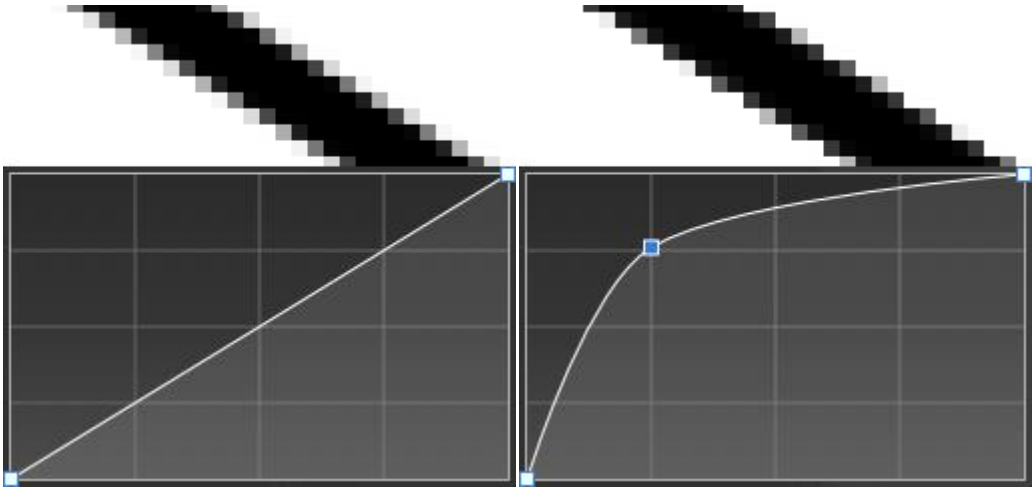
The Blend Ranges dialog allows you to adjust the blend gamma of the selected layer. This gives you the option of designing using a linear-RGB color space (1.0), regular sRGB-blending (2.2) or any gamma value up to 3.0. In other words, it gives you full control over how the tones of semi-transparent or antialiased edged objects interact with colors underneath.

Blue rectangle using regular sRGB-blending (2.2 gamma; before) and linear-RGB (1.0 gamma; after).

By default, text layers are set to a gamma of 1.45 and all other types of layer to 2.2 (regular sRGB-blending). These default settings can be changed in Preferences (Tools options).

Antialiasing is the reduction of the jagged appearance of lines on a pixel grid. Antialiasing is achieved by the addition of semi-transparent pixels along the line to smooth the transition from the line's edge to background objects. This area of transition is sometimes referred to as the ***antialiasing ramp*** or ***antialiasing coverage***.

In the Blend Ranges dialog, you can adjust the antialiasing ramp (coverage) of the selected layer.



Antialiased line with linear coverage map (before) and custom coverage map (after). Viewed at 800% zoom.

Settings

The following settings are available in the Blend Ranges dialog:

- **Gamma**—controls the layer's blend gamma.
- **Coverage Map**—controls the layer's antialiasing ramp.
- Channels—controls which channel is affected when adjusting the blend range. Select from the pop-up menu.

The following settings can be adjusted for both the **Source Layer Ranges** and the **Underlying Composition Ranges** in the Blend Ranges dialog:

- Graph—controls the affected range of pixels and the opacity of pixels within the specified range.
- **In**—sets the horizontal position of the selected node. Type directly in the text box or drag the pop-up slider to set the value.
- **Out**—sets the vertical position of the selected node. Type directly in the text box or drag the pop-up slider to set the value.
- **Linear**—when selected (default), the graduation between two nodes is linear (i.e. nodes on the graph are connected using straight lines). If this option is off, nodes are connected using smooth curves.
- **Reset**—returns the graph to the default position (a straight line between two nodes positioned at the top of the grid).
- When adjusting the graphs in the dialog it is worth noting the following:
- The graphs represent tonal values from darkest on the left to lightest on the right.
- Pixels on the selected layer become less visible as nodes on the **Source Layer Ranges** graph are moved downwards.
- Pixels on the underlaying layer(s) become more visible as nodes on the **Underlying Composition Ranges** graph are moved downwards.

⚙To change blend ranges:

1. On the **Layers** panel, select a layer and then click **Blend Ranges**.
2. Adjust the settings in the dialog.
3. Close the dialog.

To adjust a graph directly:

Do any of the following:

- Drag a node horizontally to affect more or less pixels.
- Drag a node vertically to affect the visibility of pixels at the tonal value selected.
- Click on the curve to add additional nodes.
- Click to select a node and then press the to remove it.

To modify the antialiasing ramp:

1. Click the **Coverage Map** thumbnail.
2. From the displayed chart, select a node on the profile's line and drag it vertically or horizontally to a new position.
3. Repeat for other nodes as needed.

For more complex profiles, click on the profile line to add a node which can be positioned as for any generated node.

To remove antialiasing, set a straight, horizontal profile line at the top of the chart.

To reset antialiasing ramp to linear:

1. Click the **Coverage Map** thumbnail.
2. From the displayed chart's pop-up dialog, click **Reset**.

To save a coverage map profile:

- Under the chart, click **Save Profile**. The profile shows under the chart.

To apply a custom coverage map profile:

1. Click the **Coverage Map** thumbnail.
2. Select a custom profile thumbnail from below the chart. The chart will update, showing the chosen profile.

Using adjustment layers

Adjustment layers allow you to make non-destructive corrections and enhancements to your photo project (or individual layers).

Before and after a Recolor adjustment layer was applied.

About adjustment layers

The **Adjustment** and **Layers** panels provide a range of adjustments you can apply to your photo or design. Once selected, an adjustment layer is added to the **Layers** panel.

There may be times that you only want to apply an adjustment layer to either a single layer or a group of layers. This is easily achieved by clipping.

Adjustment layers also have mask layer properties. Areas of an adjustment layer can be revealed or hidden in the same way as with a mask layer.

If you have a pixel selection in place when you add an adjustment layer, the area selected is automatically masked.

To apply an adjustment from the Layers panel:

1. On the **Layers** panel, select a layer.
2. Click **Adjustments** and select an adjustment from the pop-up menu.
3. If a dialog appears for the adjustment, follow the steps below:
    i. Adjust the settings in the dialog.
    ii. Close the dialog to apply.

The adjustment is added directly above the selected layer.

To modify, merge or delete an adjustment layer:

1. On the **Layers** panel, double-click the adjustment layer that you want to modify.
2. Adjust the settings in the dialog.
3. Close the dialog to apply the changes, **Merge** to apply the changes and merge the adjustment with the layer beneath, or **Delete** to remove entirely.

To move an adjustment layer:

Do one of the following:

- Drag the adjustment to the top of the **Layers** panel so it affects all layers below it.
- Drag the adjustment above or below layers to affect more or fewer layers in the project.
- Drag the adjustment onto a layer or group to apply the adjustment to that layer or group only.

To mask an adjustment layer:

1. On the **Layers** panel, select the Adjustment layer.
2. Do any of the following:
    - To 'erase' from the mask, paint with the **Erase Brush Tool**.
    - To 'restore' the mask, select the **Paint Brush Tool** and paint.
    - To apply a gradient mask, select the **Gradient** tool from the **Tools** panel and drag across the layer. Adjust the gradient colors from the context toolbar.

Using Live Filters

Live Filters allow you to apply filter effects such as blurring, sharpening, noise and distortion non-destructively, meaning you can modify or remove the effects without having to use the **History** panel to undo other operations on your work.

About live filters

Live filters provide a way of applying creative effects to your images whilst retaining the ability to modify the effect settings or remove the effect altogether. The filter is added to the active layer, similar to applying Adjustment Layers.

If you have a pixel selection in place when you add a live filter, the area is automatically masked.

⏳To create a new live filter:

Do one of the following:

- From the **Layers** panel, click **Live Filters** and select a filter from the list.
- From the **Layer** menu, select **New Live Filter Layer**.

To modify, merge or delete a live filter:

1. On the **Layers** panel, double-click the live filter that you want to modify.
2. Adjust the settings in the dialog; the changes will be applied in real time.
3. Close the dialog to apply the changes, **Merge** to apply the changes and merge the adjustment with the layer beneath, or **Delete** to remove the filter layer entirely.

To move a live filter:

Do one of the following:

- Drag the live filter to the top of the **Layers** panel so it affects all layers below it.
- Drag the live filter above or below layers to affect more or fewer layers in the project.
- Drag the live filter onto a layer or group to apply the filter to that layer or group only.

🖌️🖌️To mask a live filter:

1. On the **Layers** panel, select the live filter.
2. Do any of the following:
    - To 'erase' from the mask, paint with the **Erase Brush Tool**.
    - To 'restore' the mask, select the **Paint Brush Tool** and paint.
    - To apply a gradient mask, select the **Gradient** tool from the **Tools** panel and drag across the layer. Adjust the gradient colors from the context toolbar.

Blur filters.

Gaussian Blur

The Gaussian Blur filter is used to reduce image noise or detail by creating a pleasing, smooth blur using a weighted average. It's especially useful for reducing moiré (interference) patterns.

Gaussian blur added to the water.

About the Gaussian Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls how much dissimilar pixels are blurred. Type directly in the text box or drag the slider to set the value.
- **Preserve Alpha**—when checked, object edges are not subject to blurring.

Box Blur

The Box Blur filter blurs an image based on the average color of neighboring pixels. At high radius levels, this results in an obvious 'box' effect. At lower radius levels, it results in an effect similar to Gaussian Blur.

About the Box Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

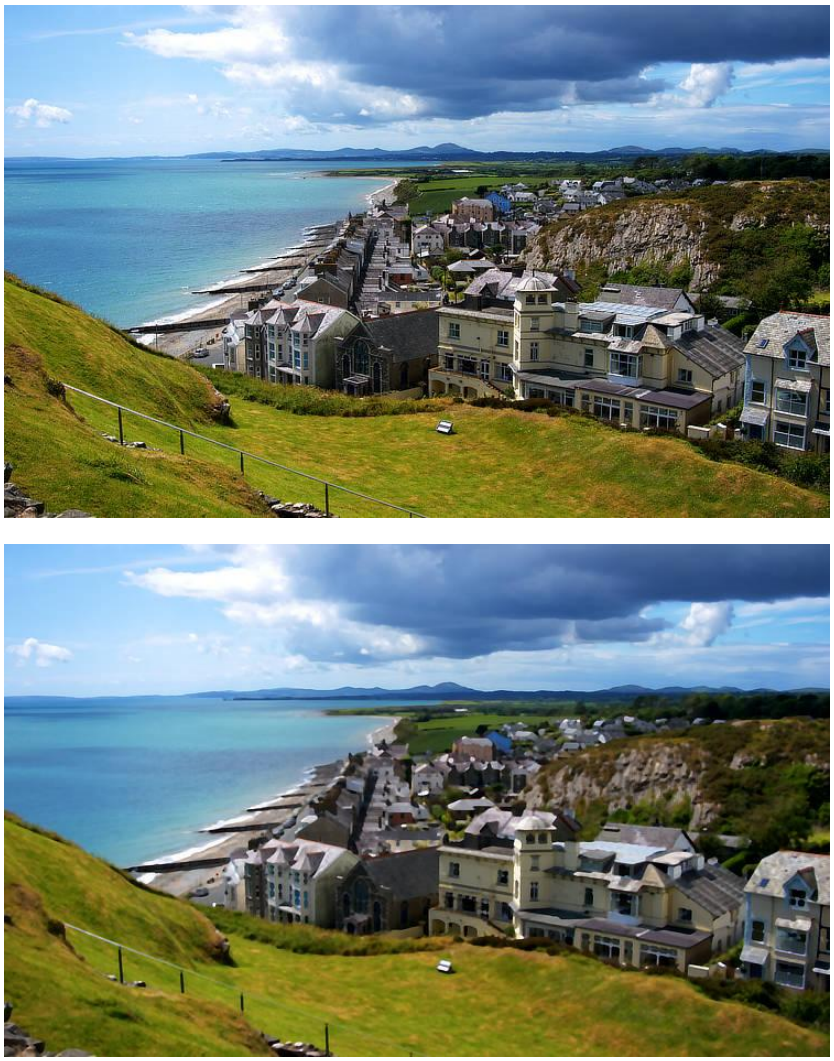
Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls intensity of the filter. Type directly in the text box or drag the slider to set the value.

Median Blur

The Median Blur filter broadens color regions in the image. At low settings it's useful for removing noise, especially as it retains edges better than Gaussian Blur. At much higher intensities it introduces flat areas of color.



Median Blur on a photograph.

About the Median Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls intensity of the filter. At high levels it creates large, flat areas of color. Type directly in the text box or drag the slider to set the value.

Bilateral Blur

The Bilateral Blur filter blurs an image while retaining areas of high contrast. As these contrast changes most commonly occur at edges, it makes the filter very useful both for noise reduction and for creating interesting stylistic effects.

About the Bilateral Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the size of the area sampled for the blur. Type directly in the text box or drag the slider to set the value.
- **Tolerance**—controls whether pixels are included within the blur based on the difference between tonal values of neighboring pixels. At larger tolerance values, pixels with greater tonal differences will be included within the blur. Type directly in the text box or drag the slider to set the value.

Motion Blur

The Motion Blur filter blurs in a specified direction to give the impression of movement. This gives an effect similar to panning with a camera at slower shutter speeds.

Motion Blur can add the impression of speed or movement to images.

About the Motion Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the amount of 'zoom'. Type directly in the text box or drag the slider to set the value.
- **Rotation**—controls the angle at which the blur is applied. Drag the dial to set the value.

Lens Blur

The Lens Blur filter mimics the blur applied to a photo when a wide aperture is used to achieve a narrow depth of field. It can be used to improve the composition of a photo by applying a shallow depth of field to blur unwanted background. Unlike the Gaussian Blur filter, the Lens Blur filter recreates the the bokeh effects generated with a real camera lens.

About the Lens Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the number of pixels affected. Type directly in the text box or drag the slider to set the value.
- **Number of Blades**—sets the number of virtual aperture blades which controls the shape of the 'iris' and the shape of the specular highlights. Type directly in the text box or drag the slider to set the value.
- **Blade Curvature**—sets how round the iris shape becomes. Type directly in the text box or drag the slider to set the value.

The shape of the iris affects the shape of the specular highlights (bokeh). The most noticeable bokeh shapes are created using a low blade curvature and fewer aperture blades. To mimic the effects of your own lenses, be sure to match the number of aperture blades.

Depth Of Field Blur filter

The Depth Of Field Blur filter applies a blur gradient that can be used to simulate extreme depth of field and miniaturization effects, such as tilt shift.

Using the Tilt-Shift mode to produce a miniature model effect.

About the Depth of Field Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Modes

- **Elliptical**—useful for photos with a single subject, as it creates an graduated elliptical blur vignette.
- **Tilt Shift**—often used to simulate a scene created by models.

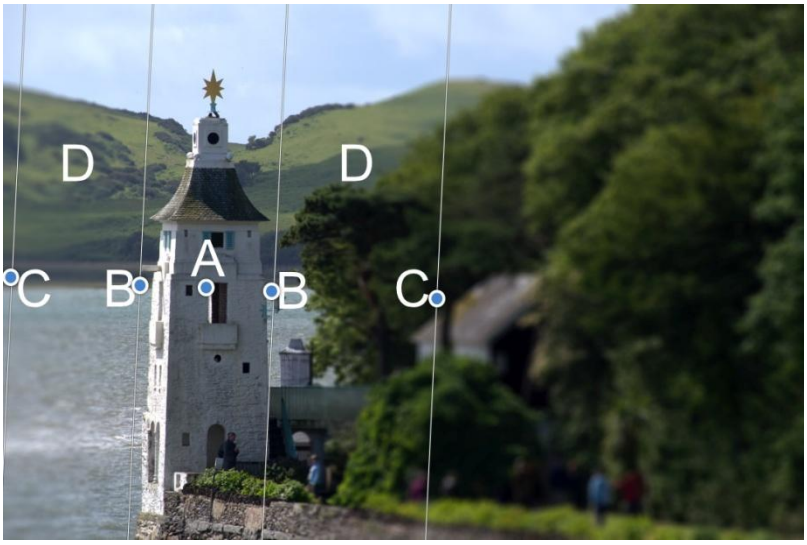
Settings

The following settings can be adjusted in the filter dialog:

- **Mode**—choose from the pop-up menu to define the type of blur generated.
- **Radius**—controls intensity of the blur. Type directly in the text box or drag the slider to set the value.
- **Vibrance**—controls the color intensity of less saturated colors (a high value increases the 'model-like' effect).
- **Clarity**—increases the local contrast and gives the appearance of increasing the sharpness of the image.

Modifying the applied blur gradient

The gradient stops determine the position and extent of the transition between the areas in sharp focus and those that are blurred.



(A) Focus origin, (B) Inner lines, (C) Outer lines, (D) Transition areas.

The focus origin (A) defines the central point at which the image is kept completely in focus. Reposition the focus origin by dragging on the stop.

The inner lines (B) define the width of the area in focus. For the Tilt Shift mode these can be set independently by dragging each of the stops in turn, or, symmetrically by dragging one of the stops while holding the . The Elliptical mode always matches the shape of the inner lines to the outer lines so that only the width can be specified.

The outer lines (C) define the end of the blur transition. For the Tilt Shift mode, these can be set independently by dragging each of the stops in turn, or, symmetrically by dragging one of the stops while holding the . The Elliptical mode always sets the stops in pairs.

The transition areas (D) between the inner and outer lines are where the blurring gradually increases. The wider the lines, the more gradual the transition. The area on the outside of the lines has the filter applied at the full amount set by the **Radius** slider.

The angle of the filter can be changed by dragging the stops at an angle. Once the desired angle is achieved, holding the will temporarily lock the angle to allow for further adjustment of the width of the adjustment.

When using the tilt shift effect to "miniaturize" a scene, you will get the best effect if you choose your images carefully. Models are generally viewed from above, so the tilt shift effect will work best on images taken with an elevated viewpoint and a wide angle of view. Buildings, roads, traffic and railways make excellent subjects.

Field Blur filter

The Field Blur filter lets you control blurring at specific areas of your image.

About the Field Blur filter

Against a uniformly blurred image, one or more selection handles can be added, positioned and edited to control the extent of blurring at that handle position, i.e.the focus origin. Multiple areas of focus can therefore be created.

Handles are independent of each other and can be repositioned and edited individually.

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Global Radius**—controls the intensity of the blur across the whole image. Type directly in the text box or drag the slider to set the value.
- **Selected Handle Level**—controls the amount of blurring at the selected handle. Decreasing the value brings the image under the handle increasingly into focus.
- **Selected Handle Power**—controls the extent of the transition out from the area under the handle between sharp focus and blurring.

To add additional selection handles:

- Click on the page.

A selected handle shows as a double ring, as opposed to a single ring (deselected).

Diffuse Glow

Diffuse Glow broadens highlights in the active layer or selection by brightening gradually outward from existing highlights, producing a soft halo effect. This creates a romantic, almost dreamy effect, similar to that of photographing an image through a soft diffusion filter.

Using diffuse glow to add intensity and softness to the highlights of an image.

About the Diffuse Glow filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls how much the pixels surrounding the highlights are affected. Type directly in the text box or drag the slider to set the value.
- **Intensity**—controls the strength of the highlights. Type directly in the text box or drag the slider to set the value.
- **Threshold**—determines the range of lightness values affected. As the tolerance decreases, the effect spreads to areas that were darker to begin with. Type directly in the text box or drag the slider to set the value.
- **Opacity**—alters the transparency of the effect. Type directly in the text box or drag the slider to set the value.

Sharpen filters.

Clarity

The Clarity filter enhances the local contrast in an image. Its greatest influence is in the mid-tonal range. This results in a sharpening effect.

Using the Clarity filter to accentuate the outline and details of the image's subject.

About the Clarity filter

In Photo Persona, this filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

In Develop Persona, this filter is available on the **Basic** panel (Enhance).

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls intensity of the filter. Type directly in the text box or drag the slider to set the value.

Setting the value via a text box is not available in Develop Persona.

Unsharp Mask

In spite of its misleading name, the Unsharp Mask filter is a flexible and powerful way to increase apparent sharpness in an image.

Unsharp Mask can be used to add punch to an image, or to help sharpen soft images.

About the Unsharp Mask filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the number of pixels affected around the existing light pixels. A smaller radius enhances smaller scale detail. Type directly in the text box or drag the slider to set the value.
- **Factor**—controls how much contrast is added. Type directly in the text box or drag the slider to set the value.
- **Threshold**—controls how much contrast there needs to be between colors before the sharpening effect 'kicks in'. Use higher values for grainy images or skin tones.

The Unsharp Mask filter affects the whole image (or selection). For fine control, it can be useful to apply it to a separate duplicate layer(s), and then either use a mask to allow sharpening of only specific areas, or use blends modes set to lighten/darken and change the opacity of these layers to get the effect that you want.

High Pass

The High Pass filter retains details where sharp color transitions occur, generally at the edges, and suppresses the rest of the image.

High Pass filter applied with an Overlay blend mode for sharpening.

About the High Pass filter

When a High Pass filter is applied at a high radius value to a duplicate layer and combined with a contrast blend mode (such as overlay, soft light or hard light), it can be used as a useful sharpening technique.

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

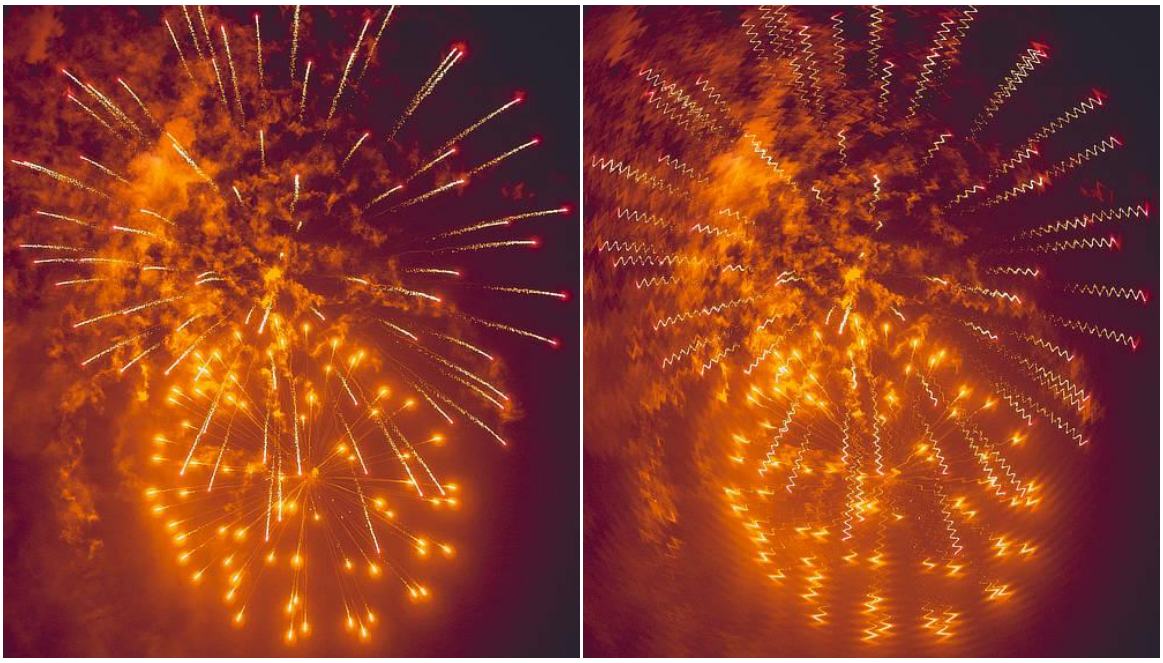
The following settings can be adjusted in the filter dialog:

- **Radius**—controls how many pixels are kept and how many are suppressed. (At higher radius values, only edge pixels are kept.)
- **Monochrome**—when selected, the final effect only contains grayscale values.

Distort filters.

Ripple

The Ripple filter adds a watery, undulating pattern, like ripples on the surface of a pond.



The Ripple filter used to achieve a unique effect.

About the Ripple filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

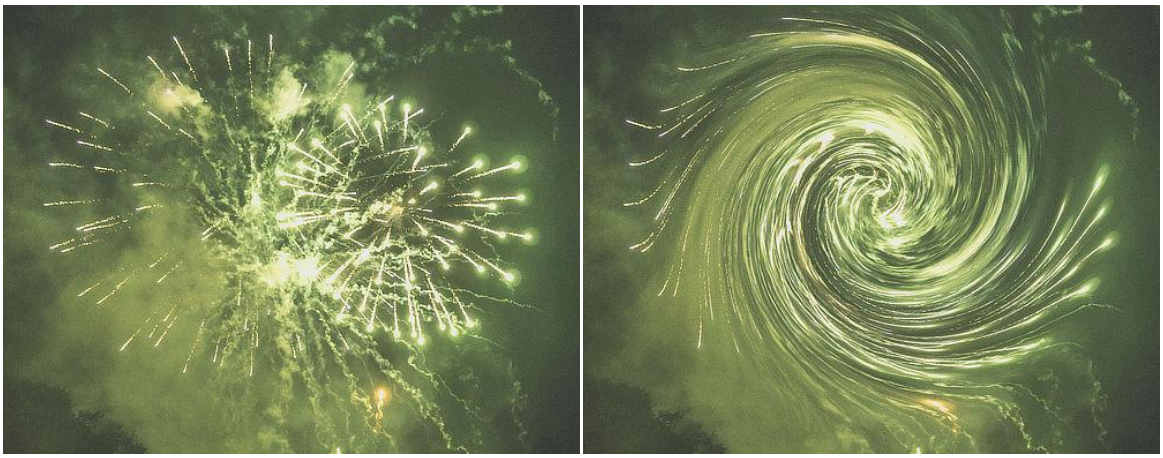
Settings

The following settings can be adjusted in the filter dialog:

- **Intensity**—controls the extent of the effect. Type directly in the text box or drag the slider to set the value.

Twirl

The Twirl filter applies a clockwise or counter-clockwise distortion effect to images.



The Twirl filter applied to a fireworks photograph.

About the Twirl filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Angle**—sets the type and value of the distortion. Negative values give a counter-clockwise effect, positive values give a clockwise effect. Type directly in the text box or drag the slider to set the value.
- **Radius**—changes the number of pixels affected. Type directly in the text box or drag the slider to set the value.

Spherical

The Spherical filter gives objects the appearance of being wrapped around a spherical shape, distorting the image and stretching it to fit the curve.

Sharks have good days too!

About the Spherical filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

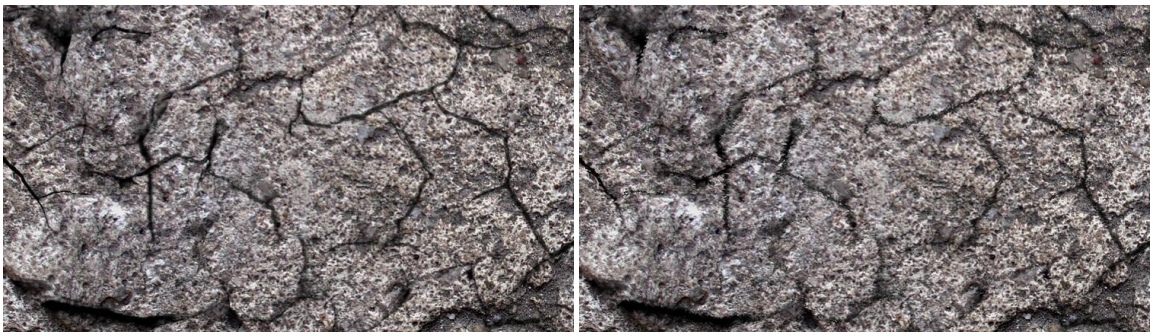
Settings

The following settings can be adjusted in the filter dialog:

- **Intensity**—sets the type and value of the distortion. Negative values give a concave effect, positive values give a convex effect. Type directly in the text box or drag the slider to set the value.
- **Radius**—controls the size of the effect. Type directly in the text box or drag the slider to set the value.

Displace

The Displace filter applies distortion according to a pattern defined by a displacement map. The lightness values of pixels within the displacement map determine the degree to which the distortion occurs.



Using a texture as a displacement map to blend objects together.

About the Displace filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Strength**—sets the intensity of pixel displacement. Negative values shift pixels upwards, positive values shift pixels downwards. Type directly in the text box or drag the slider to set the value.
- **Scale To Fit**—when selected (default), the displacement map stretches or shrinks to fit the document size. If this option is off, the displacement map retains its native dimensions.
- **Load Map From File**—sets the displacement map used in the filter. In the pop-up dialog, navigate to and select a file, and click **Open**.
- **Load Map From Layers Beneath**—determines the displacement map using layers beneath the selected layer.

Pinch/Punch

The Pinch/Punch filter can be used either in small amounts to correct or enhance portraits, or in extreme amounts to create bizarre effects.

Pinch creates a concave spherical distortion (squeezes an area) and Punch creates convex spherical distortion (bulges an area).

About the Pinch/Punch filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Pinch/Punch**—sets the type and value of the distortion. Negative values give a pinch effect, positive values give a punch effect. Type directly in the text box or drag the slider to set the value.
- **Radius**—controls intensity of the filter. Type directly in the text box or drag the slider to set the value.

Lens Distortion

The Lens Distortion filter provides a way of correcting distortion caused by the curvature of a camera lens. It's especially useful for correcting barrel distortion (where straight edges are bowed outwards), or for correcting pincushion distortion (where straight edges are bowed inwards).

About the Lens Distortion filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Distortion**—controls how much the filter is applied. Type directly in the text box or drag the slider to set the value. Drag to the left (negative value) to remove barrel distortion, drag to the right (positive value) to remove pincushion distortion.

Most lenses only need values between +5 and -3 to correct distortion. It's also useful to turn grids on so that you can see when the lines are straight.

Perspective

The Perspective filter can be used to either correct converging perspective lines caused by lens distortion, or to apply perspective for a creative effect.

Lens distortion can often cause the perspective of a photo to be out, creating the appearance that lines are not vertical or horizontal when they should be.

Using the Perspective Tool to alter the appearance of a building/structure.

About the Perspective filter

The Perspective filter can be adjusted in single or dual plane mode, if applied via the **Filters** menu (**Distort** category). If using the non-destructive, live filter, only single plane mode is available.

The live filter can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Planes**—the initial grid layout options. Select from the pop-up menu.
- **Mode**—the preview options. Select from the pop-up menu.
    - **Source**—the image remains static as the perspective box is positioned. When the perspective filter is applied, the image is stretched and cropped to the original canvas size.
    - **Destination**—the image is directly linked to the perspective box and transforms with the box as the anchor points are dragged.
- **Show grid**—when selected (default), a grid is displayed between anchor points and lines. If this option is off, only anchor points and lines display.
- **Autoclip**—(Available in Dual Plane mode) Specifies whether or not to alter the image beyond the boundaries of the perspective grid points. If disabled, the image will look continuous; if enabled, the image will have visible seams where the perspective tool has been applied that can then be retouched.
- **Before/After**—if this option is off (default), your page displays your image with the current perspective applied. When selected, your page displays the adjusted and original images simultaneously with a sliding divider which can be repositioned and shows 'Before' and 'After'.

Noise filters.

Denoise

The Denoise filter is a powerful form of noise reduction. At higher settings, it also creates a really pleasing, posterizing effect.

About the Denoise filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

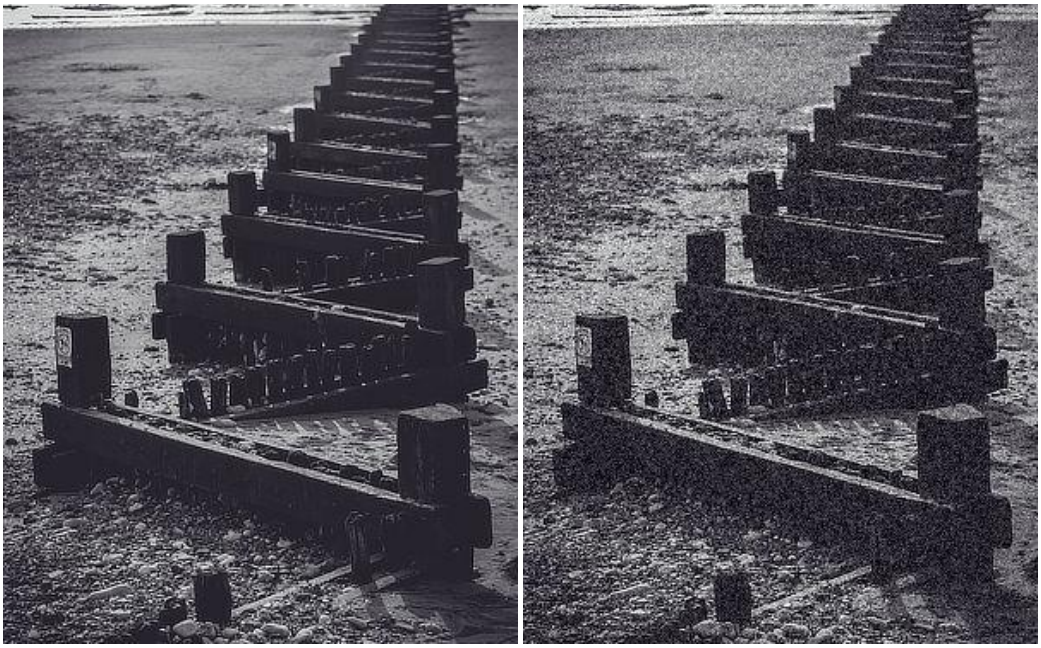
The following settings can be adjusted in the filter dialog:

- **Luminance Denoise**—controls the intensity of noise removal from the luminance channel. Type directly in the text box or drag the slider to set the value.
- **Color Denoise**—controls the intensity of noise removal from the chrominance channel. Type directly in the text box or drag the slider to set the value.
- **Detail**—controls the final quality of the reduction. Higher values will give a better quality finish but the application of the filter will take longer. Type directly in the text box or drag the slider to set the value.
- **Contribution**—determines the opacity of corrected pixels. '100%' makes corrected pixels fully opaque; 50% makes pixels 50% transparent.

This process is very complex and therefore may take some time to apply.

Add Noise

All digital images have a certain level of noise (random pixel distribution) which helps to create atmosphere, texture, and depth. After image manipulation, such as resizing, cloning, applying gradients, etc., this texture noise is often lost and the image can take on a very flat appearance. The Add Noise filter adds random pixels to the image, introducing a level of noise to help return the textures in the image. This also helps to seamlessly blend effects.



About the Add Noise filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Intensity**—controls the level of noise generated. Type directly in the text box or drag the slider to set the value.
- **Monochromatic**—When checked, only tones in the image are affected.
- Noise distribution type:
    - **Uniform**—produces completely random noise distribution. It is often best used in color images.
    - **Gaussian**—produces a wider range of light and dark pixels as it uses a special curve to generate the noise. It's often the best choice for grayscale images.

Diffuse

The Diffuse filter adds noise to the edges in the image (or selection).

About the Diffuse filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Intensity**—controls the level of noise generated. Type directly in the text box or drag the slider to set the value.

Color filters.

Vignette

The Vignette filter can be used to either add vignetting to an image, or remove it from the image.

About the Vignette filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Exposure**—sets the type and value of the effect. Negative values darken the effect, positive values lighten the effect. Type directly in the text box or drag the slider to set the value.
- **Hardness**—controls how much feather/blur is applied to the transition. Type directly in the text box or drag the slider to set the value.
- **Scale**—controls the size of the vignette. Type directly in the text box or drag the slider to set the value.
- **Shape**—determines whether the vignette is circular or elliptical.

Defringe

Purple fringing, or bichrominance as it's more correctly termed, is a form of chromatic aberration caused by the over-excitation of the pixels on the sensor in the camera. The effect can occur anywhere within an image but it's most common at the edges of high contrast areas, especially when a dark element is strongly backlit, such as branches silhouetted against a blue sky. The Defringe filter selectively adjusts these areas to remove the color fringing.

Using the Defringe filter to remove purple fringing from the window edges.

About the Defringe filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

On selecting the Defringe filter, it will default to settings which remove the purple fringing, as this is the most common type. This can be manually adjusted as necessary in the dialog, or by sampling the fringe color on the page to remove it.

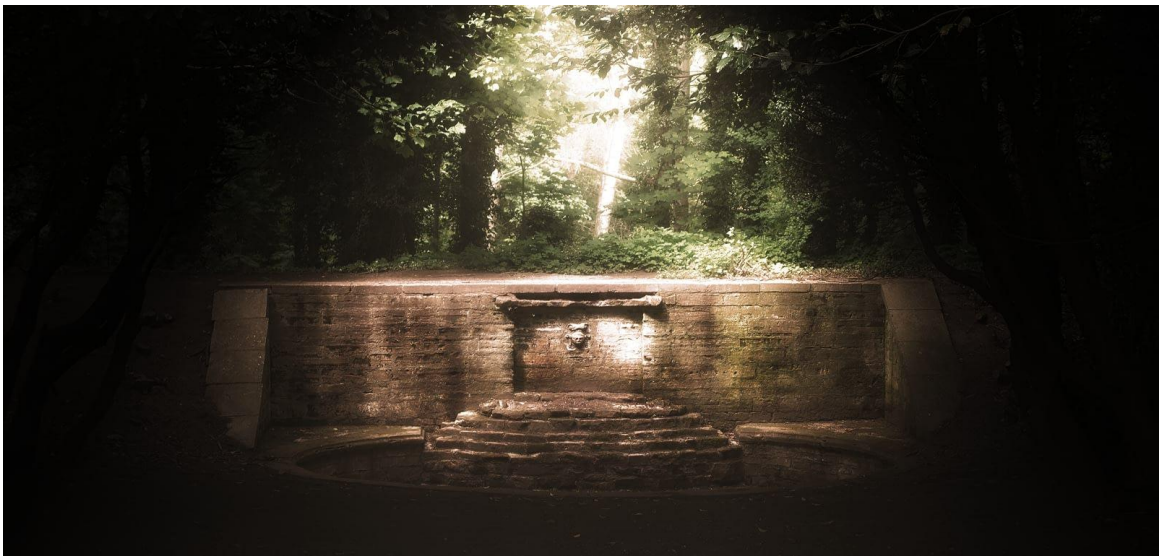
Settings

The following settings can be adjusted in the filter dialog:

- **Fringe Color**—defines the color of the fringe to be desaturated. Drag the slider or click on the image to define the hue.
- **Also Remove Complementary Hue**—also removes fringing matching the chosen hue's complementary color (e.g., choosing purple would also remove yellow fringing).
- **Tolerance**—defines how close the fringe color must be to the defined color before it is affected. Type directly in the text box or drag the slider to set the value.
- **Radius**—defines the radius of the pixels affected around the fringed areas. Type directly in the text box or drag the slider to set the value.
- **Edge Brightness Threshold**—defines the amount of contrast needed between the fringed areas before affecting the pixels. Type directly in the text box or drag the slider to set the value.

Lighting effects

The Lighting feature simulates lighting from one or more light sources.



About lighting

Lighting effects simulate ambient, point, directional, and spot lighting in your design. You can supplement the single light source with additional light sources for more advanced lighting control; different light source types can be used in combination, each being independently configured and positioned using on-screen handles.

Affinity Photo also lets you create lighting effects from 3D bump maps made from texture inherent in any image.

Source types

Different source types give dramatically different results. The types are best imagined with a few examples.

- ***Spot***: Casts a elliptical beam of light focusing on a specific subject of interest, like a torch.
- ***Point***: Casts omnidirectional light, like a light bulb.
- ***Directional***. Casts light directionally from infinity, e.g. from the sun.

Lighting effects can be applied as a non-destructive, live filter, which can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the dialog:

- **Diffuse**—sets the level of diffused 'scattered' light reflected from the surface. Higher values reflect more light.
- **Specular**—sets the level of light reflected from the surface that reflects in a single outgoing direction (rather than being diffused), to form a highlight (hotspot).
- **Shininess**—controls the spread of the specular reflection above. Set the value lower for larger and more widespread highlights; higher for smaller, sharper highlights.
- **Specular color**—sets the color for specular reflection.
- **Ambient**—Sets the level of uniform 'background' lighting.
- **Ambient light color**—Sets a color for ambient light.
- **Light**—Click to select a point light source. You can **Add**, **Copy** or **Remove** additional light sources.
- **Type**—selects the light source type (see above).
- **Color**—selects the light source color.
- **Distance**—selects the light source distance from the page.
- **Texture**—Creates texture from the image itself.

For 3D Bump Maps:

- **Load bump map**—click to load an image that you want to convert to a 3D bump map. Use **Clear bump map** to remove any applied map.
- Uncheck **Scale Horizontal To Fit** to retain the imported images native width. When checked, the image is stretched/shrunk to the main image.

- Uncheck **Scale Vertical To Fit** to retain native height.
- **Opacity**—alters the transparency of the texture. Type directly in the text box or drag the slider to set the value.

To apply a spot light:

1. From the **Filters** menu, select **Lighting**.
2. From the **Type** pop-up menu, select 'Spot'.
3. Drag the on-screen handle at the apex of the 'fan' shape to adjust the distance and direction of the light.
4. (Optional) Drag the Elevation handle situated along the center line to set the height of the spot light above the page.
5. (Optional) Drag the outer and inner handles at the end of the fan to set the outer and inner cone, respectively.

To apply a point light:

1. From the **Filters** menu, select **Lighting**.
2. From the **Type** pop-up menu, select 'Point'.
3. Reposition the default point light by dragging the center handle over a subject of interest.
4. Drag the circle's edge inwards or outwards to set the light's distance from the page.

To apply a directional light:

1. From the **Filters** menu, select **Lighting**.
2. From the **Type** pop-up menu, select 'Directional'.
3. On the Lighting panel, drag the cross-hair within the **Direction** dial.

To load a 3D bump map:

1. On the Lighting panel, click **Load bump map**, navigate to, then select your image.
2. Click **OK**.
3. Adjust **Texture** to set the amount of texture displayed.

Shadows / Highlights

The Shadows / Highlights filter allows for stronger manipulation of the shadow and highlight tonal regions in an image. It can be used to reduce contrast, boost shadow detail and recover highlight detail.

About the Shadows / Highlights filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Shadows Strength**—control how much shadow detail is boosted.
- **Shadows Range**—specify the tonal range to boost. Moving the slider to the right will boost a greater range of shadow tones.
- **Shadows Radius**—controls the range of neighboring pixels that are analyzed when boosting shadow detail. Moving the slider to the right produces a stronger contrast, similar to the Clarity filter. Move the slider to the left for a flatter result.
- **Highlights Strength**—control how much highlight detail is recovered.
- **Highlights Range**—sets the tonal threshold for recovering highlight detail. Move the slider to the right to recover a greater range of highlights.
- **Highlights Radius**—controls the range of neighboring pixels that are analyzed when recovering highlight detail. Moving the slider to the right produces a stronger contrast, moving the slider to the left produces a smoother result but may make posterization more visible.

Fill layers

Fill layers contain an adjustable solid or gradient color. They can be used for photo editing and corrective or creative purposes.

Fill Layer (radial gradient) based on model's lipstick color.

When using fill layers it is common to apply a specific opacity and/or blend mode to the layer to achieve highly customizable photo effects.

A fill layer will automatically resize to fill the page if the canvas size is modified.

To create a new fill layer:

- From the **Layer** menu, select **New Fill Layer**.

  A new layer is added above the current layer (or at the top of the Layers panel if no layer is selected) with a solid color applied.

You can use the Color panel or Swatches panel to update the solid color. Color picking from another layer is also popular for harmonizing colors. For details see Selecting colors.

To apply a gradient to a fill layer:

1. Select the **Gradient** tool from the Tools panel.
2. From the context toolbar, select a fill type from the **Type** pop-up menu.
3. Drag the cursor across the content.

   Hold down the to constrain the angle of the gradient path to 45°.

Once applied, you can modify the gradient and its colors to suit your specific needs. For details see Gradient editing.

Snapshot layers

A snapshot layer is created from a predefined project snapshot and is added to your project as a single, flattened pixel layer.

To create a snapshot layer:

- From the **Layer** menu, select a snapshot from the **New Layer From Snapshot** sub-menu.

  The snapshot layer is added above the current layer (or at the top of the Layers panel if no layer is selected).

Layer masking

A layer mask is used to reveal a portion of a layer while the rest of the layer remains hidden. This means that you can use a mask layer to 'delete' areas of a layer that you don't want.

In Affinity Photo, two types of masking are possible:

- ***Pixel masking***: performs a similar task to the erase tools with one important difference; a pixel mask can be modified, or even discarded, at any point in time.
- ***Vector masking***: this involves using vector content as a mask over another layer that crops to the vector content's outline.

Masking can be applied at any level in the Layers panel—as an independent mask layer or applied to a specific layer or to a layer group. This is governed by the mask layer's positioning in the layer stack.

The non-destructive power of masking

Masks are applied as a separate layer, allowing them to be freely edited and moved. Mask layers affect any layer below them within the Layers panel. They can also be clipped to individual layers so that only that layer is affected. Alternatively, mask layers can be added to layer groups so they only affect that group.

Adjustment layers and Live Filter layers also have mask layer properties. Areas of an adjustment layer can be revealed or hidden in the same way as with a mask layer.

 To create a mask layer:

Do one of the following:

- From the **Layers** panel, click **Mask Layer**.

  The added mask will hide areas outside a selection (if a selection is in place) or display the entire layer (if no selection is in place).

- From the **Layer** menu, select **New Empty Mask Layer**.

  The added mask will hide the entire layer regardless of any selection in place.

- From the **Layers** panel, -click a layer and select **Mask to Below**.

  The selected layer becomes a mask for the layer below it.

By default, a created mask layer is clipped to the selected layer or added at the top of the Layers panel if no layer is selected. It can be moved within the Layers panel to affect greater or lesser areas.

You can create a mask from a selection which has been 'painted' on your image using Quick Mask mode. See Edit selection as layer using Quick Mask mode for more information.

You can use the Pen Tool to draw a closed shape that can be made into a mask. From the tool's context toolbar, click **Mask**.

To create a luminosity mask:

1. On the **Layers** panel, click on the layer's thumbnail with the and s pressed.
2. From the **Layers** panel, click **Mask Layer**.

To edit a pixel mask:

1. On the **Layers** panel, select the mask thumbnail representing the mask layer.
2. Do one of the following:
    - To 'erase' from the mask, paint on the page using the **Erase Brush Tool**.
    - To 'restore' the mask, paint on the page using the **Paint Brush Tool**. A white fill completely restores, while greyscale fills partially restore the mask by varying amounts.
    - To apply a gradient mask, select the **Gradient** tool from the **Tools** panel and drag across the layer. Adjust the gradient colors from the context toolbar.

The Erase Brush Tool always erases using 100% black (ignoring the current fill swatch).

To refine a pixel mask:

1. On the **Layers** panel, select the mask's thumbnail.
2. From the **Layer** menu, select **Refine Mask**.

To invert a pixel mask:

1. On the **Layers** panel, select the mask's thumbnail.
2. Do one of the following:
    - From the **Layer** menu, select **Invert**.
    - On the **Channels** panel, -click the mask's alpha channel entry and select **Invert**.
    - Press +I.

To change pixel mask properties:

- As you erase or paint on the mask, adjust Width, Opacity, Flow and Hardness from the brush's context toolbar.

To view/edit a pixel mask in isolation:

- -click on the mask thumbnail.

To return to normal view, click the thumbnail or press the .

To hide/show a pixel mask:

- Uncheck/check the check box on the mask layer.

To add a vector mask:

1. Add vector content, e.g., draw a line or shape or add text.
2. On the **Layers** panel, drag the created vector content's layer directly onto the *thumbnail* of another 'target' layer. The thumbnail of the target layer changes to indicate that a mask (and crop) has been applied.

🖌️To add a pixel mask to vector content:

1. On the **Layers** panel, select a layer with vector content.
2. Paint on the page using the **Erase Brush Tool**.

   By default, the Assistant will add a layer mask to the selected layer to accommodate your paint strokes. Once the mask is in place, you can 'restore' the mask using the **Paint Brush Tool**.

To delete a mask:

1. On the **Layers** panel, select the mask's thumbnail.
2. Press the .

Layer operations.

Viewing

Show or hide layers to include/exclude layers (and layer content) in your document and any output. Alternatively, you can view and edit a single layer (including layer masks, adjustment layers and fill layers) in isolation.

Before and after layer hidden.✓ To hide or show a layer:

- On the **Layers** panel, click **Show/Hide Layer**.

✓To hide or show multiple layers simultaneously:

In the **Layers** panel:

1. Select multiple layers using -click or -click.
2. Click **Show/Hide Layer** on one of the selected layers.

To isolate a layer for focused editing:

- In the **Layers** panel, -click a layer.

  Select any other layer in the Layers panel to resume standard editing view.

Selecting

Before you can move or modify layers, you must first select them. Furthermore, you can select and edit a single layer (including layer masks, adjustment layers and fill layers) in isolation.

To select a layer:

Do one of the following:

- With the **Move Tool** selected, click layer content on the page.
- On the **Layers** panel, click a layer.

To select multiple layers:

Do one of the following:

- With the **Move Tool** selected, click the layers' contents on the page while pressing the .
- With the **Move Tool** selected, drag to draw a marquee around the layer contents.
- On the **Layers** panel, -click each layer.
- On the **Layers** panel, -click two layers to select them and all layers between.

To select a specific child layer:

1. On the **Layers** panel, expand the parent layer or layer group to show its contents by clicking the layer's arrow.
2. Click to select the child layer.

To deselect layers:

- With the **Move Tool** selected, click on any empty area of the canvas or anywhere else in the Document view.

To isolate a layer for focused editing:

- In the **Layers** panel, -click a layer.

  Select any other layer in the Layers panel to resume standard editing view.

Modifier keys

When using the Move Tool, the following modifier keys can be used to aid layer selection:

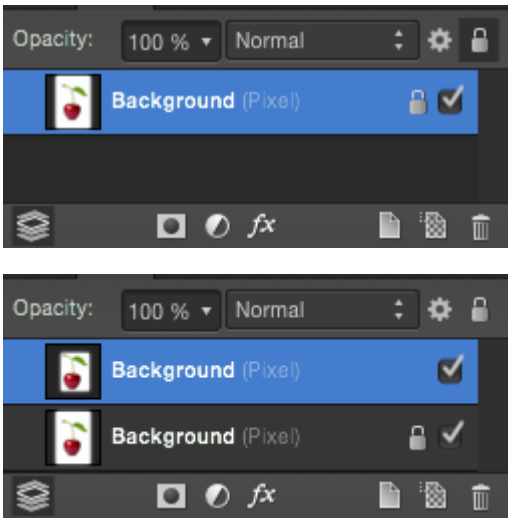
- The selects multiple layers by clicking their layer contents in turn.
- The selects layer content on a layer located behind the currently selected layer.

You can **Lock/Unlock** layers from the **Layers** panel or **Layer** menu.

Locate a layer in the Layers panel, by -clicking and selecting **Find in Layers Panel**.

Duplicating

Affinity Photo lets you make duplicate layers to increase workflow or to temporarily create a 'backup' layer. A power duplicate feature also allows you to duplicate and repeatedly transform layer contents.



Layers panel before and after layer duplication.To duplicate:

Do one of the following:

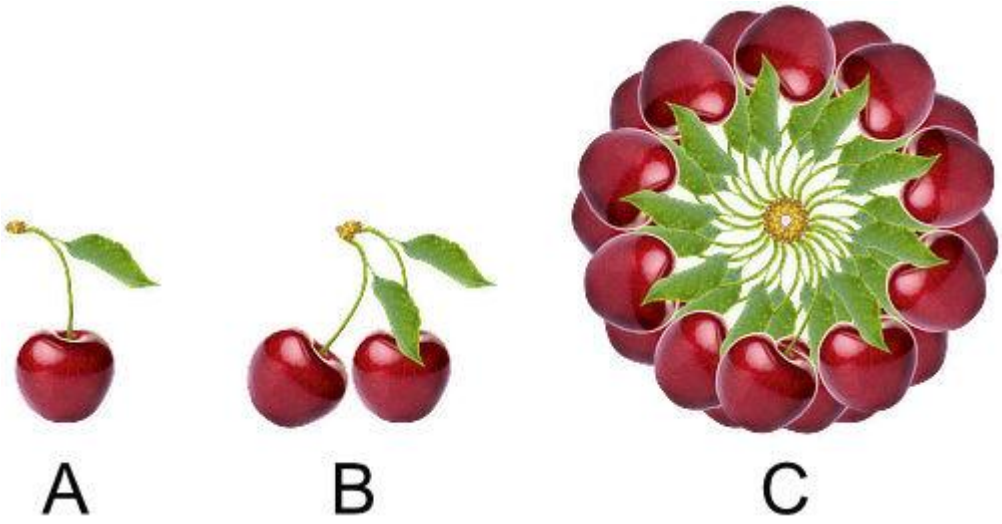
- On the **Layers** panel, -click a layer or group and select **Duplicate**.
- On the page, -drag a selection.

A duplicated layer is placed immediately above the original layer.

You can also duplicate a selected layer using the same command from the **Layer** menu.

Power duplicate

If you duplicate a layer(s) and then transform the duplicated contents, you can immediately duplicate the transformed content. The transform is applied accumulatively to subsequent duplicates.



(A) original content, (B) original content duplicated and rotated, (C) transformed duplicate duplicated numerous times.To 'power duplicate':

1. Select a layer(s).
2. From the **Layer** menu, select **Duplicate**.
3. Transform the duplicated layer content.
4. From the **Layer** menu, select **Duplicate**. A duplicate is created and the transform is automatically applied to the duplicate.
5. Repeat step 4 to create more duplicates with the transform accumulatively applied.

Aligning

Layer content can be aligned on the page accurately using the Arrange commands.

Before and after alignment applied.

Settings

Settings can be adjusted from the **Arrange** pop-up panel on the Toolbar:

- **Align to**—the pop-up menu sets the alignment criteria for the operation. For example, you can align in relation to Selection Bounds, page Spread or page Margin. If margins are not set, alignment is to the page edge instead.

The Arrange pop-up panel also offers options for distributing objects.

For aligning layer content across multiple layers, settings can also be adjusted from the context toolbar, but always in relation to selection bounds:

- **Align Horizontal**—aligns selected layers' contents using the **Left** edges, **Center** points, or **Right** edges of the layer content.
- **Align Vertical**—aligns selected layers' contents using the **Top** edges, Center points (**Middle**), or **Bottom** edges of the objects.

Make use of more Align options by customizing the Toolbar (**View>Customize Toolbar**).

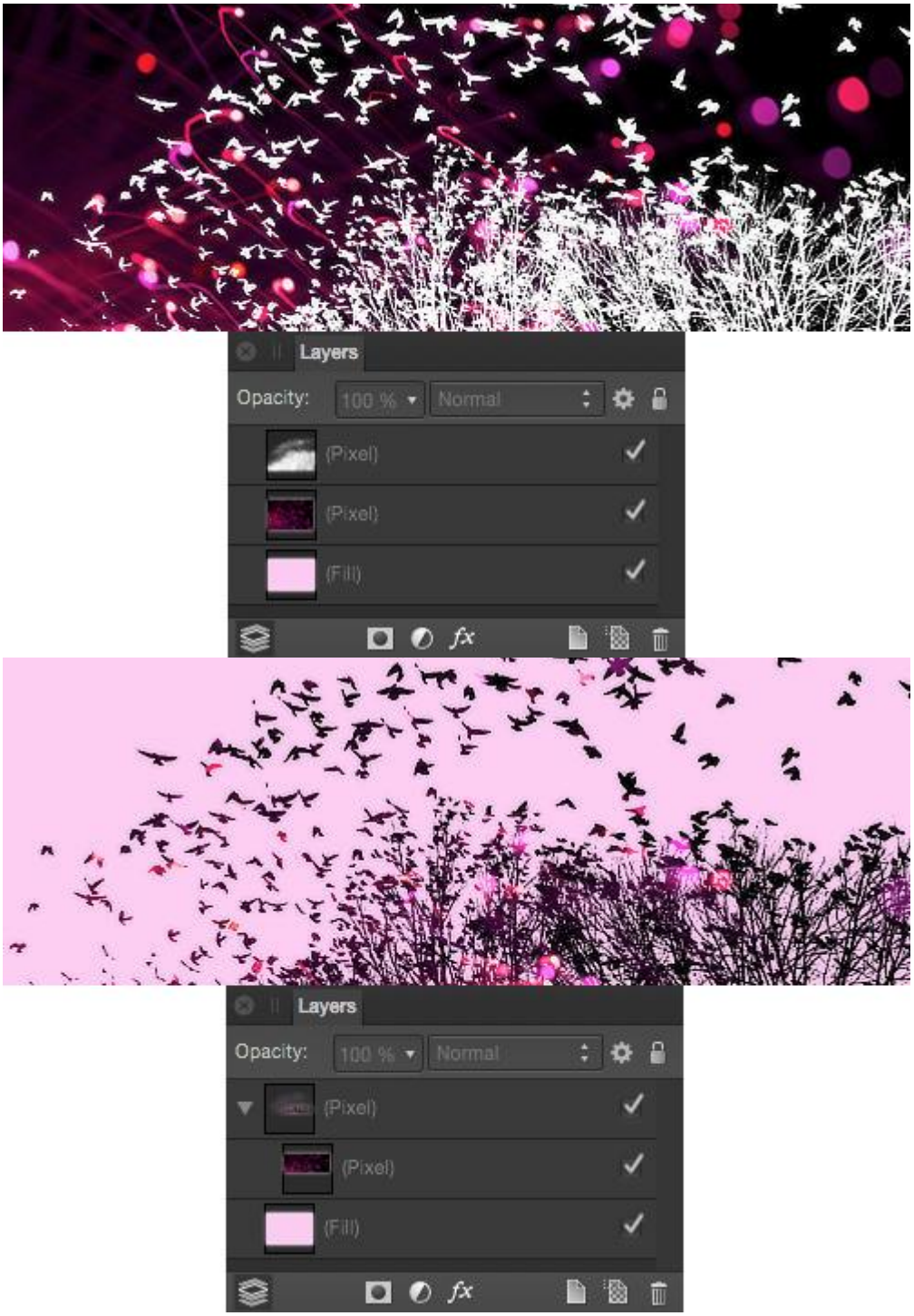
To align layer content:

1. Select your layer(s).
2. Do one of the following:
    - On the Toolbar, click **Arrange**, set your options from the pop-up panel, and then click **Done**.
    - From the **Arrange** menu, select an alignment option.

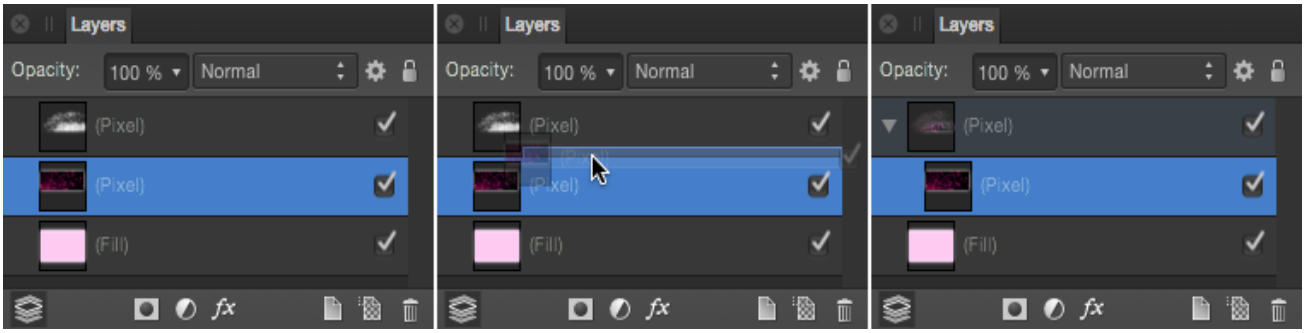
Layer clipping

Clipping involves positioning one layer inside another, creating a parent - child layer relationship. The path of the parent layer becomes the new boundaries for the child layer. Any areas of the child layer which lie outside the parent layer's path are masked (hidden).

Clipping can also be used to confine an adjustment, filter or mask to a single layer or layer group.



Before and after the middle pixel layer has been clipped to the top pixel layer.



Layers panel showing clipping procedure.

About clipping

When scaling a parent layer, child (clipped) layer scale to maintain the correct aspect ratio. Scaling a clipped layer has no effect on the parent layer. A clipped layer can be edited independently from its parent, e.g. adjusting opacity, and/or blend mode.

Any layer can act as a parent or child in clipping relationships. Therefore both pixel and vector layer content can be either clipped or clipping.

Layers can be clipped on creation by activating **Insert inside the selection** targeting. For more information, see the Targeting topic.

To clip layers:

- On the **Layers** panel, drag the layer to be clipped on top of the layer which is to perform the clipping.

The clipped layer is nested within the clipping layer in the Layers panel, becoming a child of the clipping layer.

To select clipped layers:

1. On the **Layers** panel, expand the clipping layer's contents (if needed) by clicking the layer's arrow.
2. Click to select the clipped layer.

The clipped layer can now be edited as needed.

To remove clipping (unclip):

- On the **Layers** panel, drag the clipped layer from inside the parent layer.

Paste Inside

This feature allows you to paste on or more layers inside another layer. The layer to be pasted could be copied from another document.

The model image layer was pasted inside a transparent pixel layer of brush strokes; a light blue gradient fill layer was used under other layers.To copy and paste inside:

1. Select one or more layers from the current or other loaded document.
2. From the **Edit** menu, select **Cut**.*
3. Select the layer which will act as the parent layer.

4. From the **Edit** menu, select **Paste Inside**.

The pasted layer is shown within the path of the parent layer, producing layer clipping.

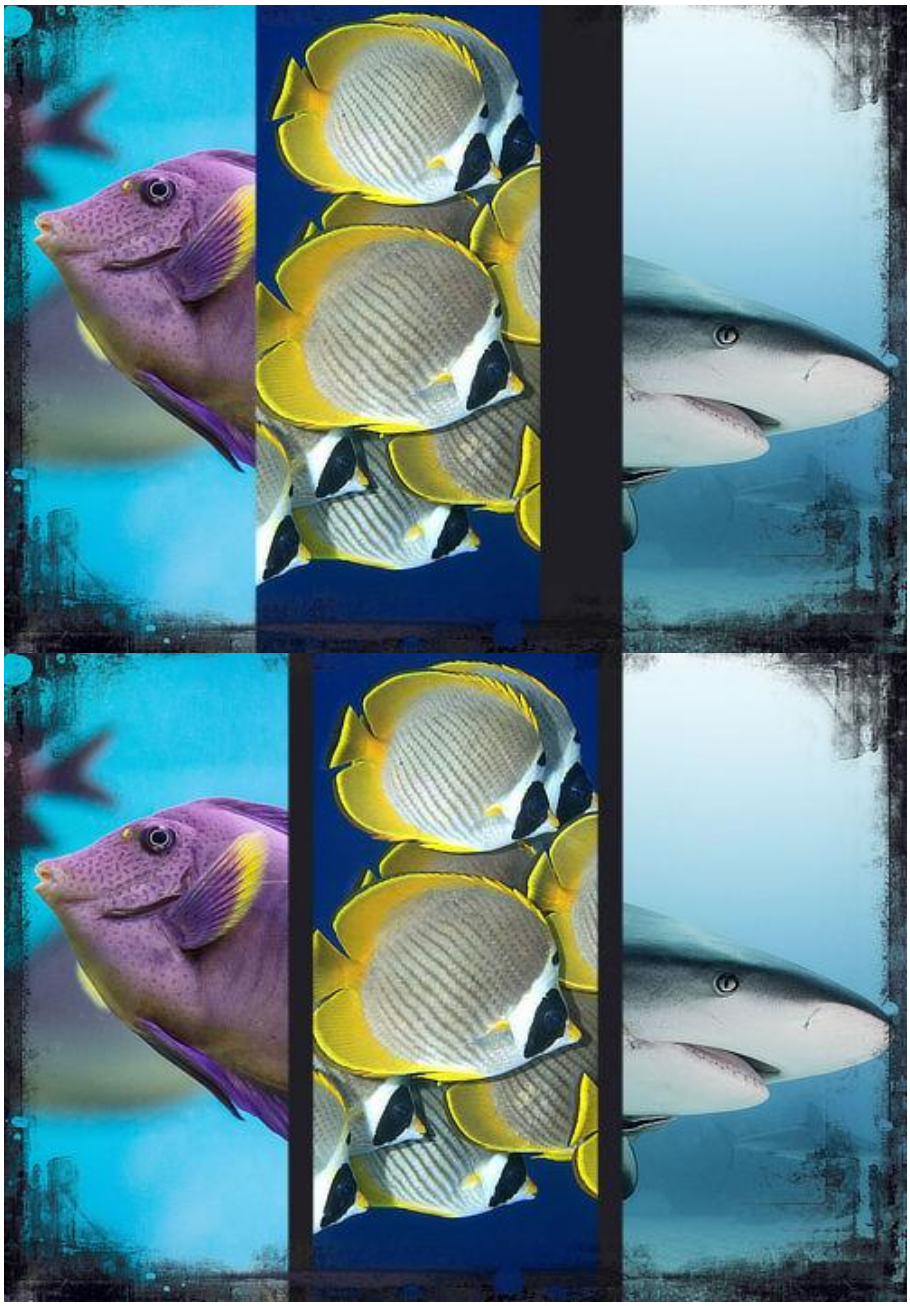
*Alternatively, you can copy (rather than cut) the layer. From the **Edit** menu, select **Copy**.

Distributing

Layer content across multiple layers can be distributed or spaced evenly on the page using the Arrange commands.

Distribution and spacing

Distribution involves setting an even distance between layer content across multiple layers.



Before and after auto-distribution.

Spacing ensures there is an equal distance between the edges of layer content.

Before and after spacing.

Settings

Settings can be adjusted from the **Arrange** pop-up panel on the Toolbar. Distribution is always carried out within the selection bounds:

- **Space Horizontally**—evenly distributes selected layers' contents horizontally.

- **Space Vertically**—evenly distributes the selected layers' contents vertically.
- **Auto Distribute**—when selected (default), the selected layers' contents are distributed evenly within the selection bounds. If this option is off, a specified distance between selected layers' contents can be set adjacent to the Auto Distribute option.

Make use of more distribute options by customizing the Toolbar (**View>Customize Toolbar**).

To distribute layers' contents:

1. Select your layers.
2. On the Toolbar, click **Arrange**, set your options from the pop-up panel, and then click **Done**.

Grouping

Layers can be grouped together for easier management and for restricting adjustments or masks to particular layers within your project. Layer groups can be nested together within a 'parent' layer group.

Grouped layers remain together so they can be easily selected, moved and copied. Furthermore, once a layer group is established, adjustments and masks can be applied to the group and will affect all the layers within the group but not those outside the group.

Groups, and nested groups, can be broken apart at any time into their separate layers.

Layer groups display as a nested Group layer on the **Layers** panel.

 To create a group:

1. Select multiple layers. (In the **Layers** panel, -click each layer.)
2. Do one of the following:
    - On the **Layers** panel, click **Group Layers**.
    - From the **Arrange** menu, select **Group**.

To ungroup layer content:

1. On the **Layers** panel, select the layer group.
2. From the **Arrange** menu, select **Ungroup**.

To release a layer from a layer group:

Do one of the following:

- Drag the layer out of the group to another layer position.
- -click the layer, and from the menu, choose **Release**.

 To select a specific layer within a layer group:

1. On the **Layers** panel, expand the layer group to show its contents by clicking the layer's arrow.
2. Click to select a layer within the group.

Merging and flattening

Merging layers combines multiple layers together. Pixel, vector, mask, adjustment or image layers can be merged into a new merged layer or into the first available pixel layer beneath it in the layer stack.

The entire document can also be flattened to produce a single-layer document.

Once layers have been merged, they become a single layer and their previous contents are no longer separately editable. There are several ways of merging layers.

✓To merge all visible layers:

In the **Layers** panel:

1. Click **Show/Hide Layer** to set the visibility of layers in the project.
2. -click a layer and select **Merge Visible**.

A new layer is added one step above the selected layer. This layer is a merged copy of all visible layers.

To merge selected layers:

1. On the **Layers** panel, select multiple layers using -click or -click.
2. From the **Layer** menu, select **Merge Selected**.

The selected layers merge down into the lowest layer in the selection.

To merge a layer with a pixel layer below:

- On the **Layers** panel, -click a layer and select **Merge Down**.

The selected layer merges with the first available pixel layer beneath it.

Any non-pixel layer existing between the layers to be merged will not be included in the merge.

✓To create a copy of all visible layers merged:

1. On the **Layers** panel, click **Show/Hide Layer** to set the visibility of layers in the project.
2. From the **Edit** menu, select **Copy Merged**.

A flattened version of the visible layers is added to the Clipboard.

To flatten all layers:

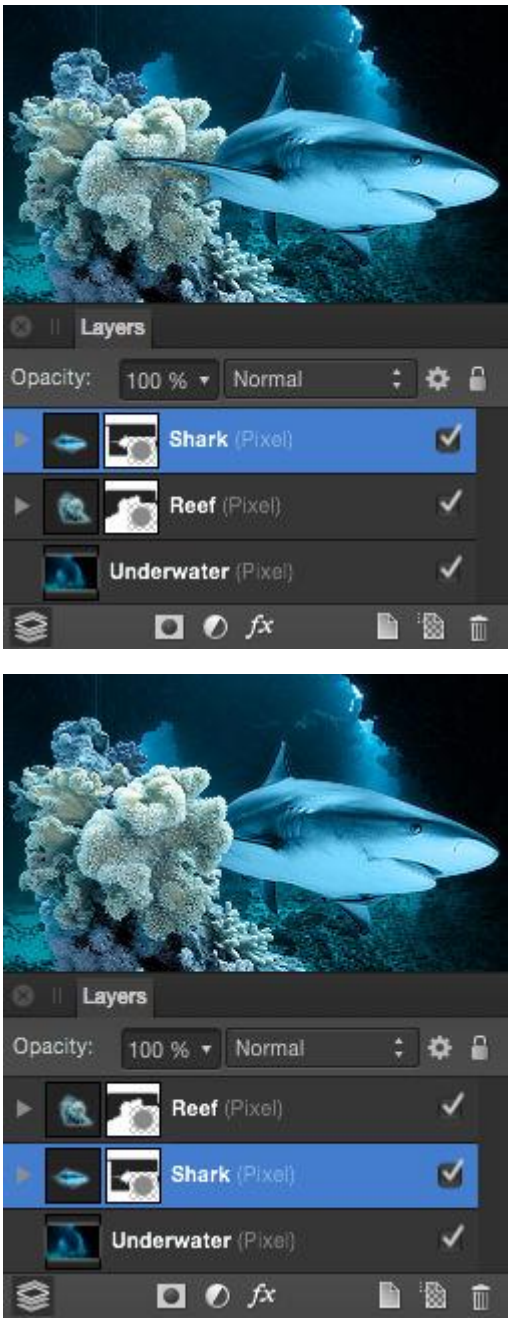
- From the **Document** menu, select **Flatten**.

The document will then contain a single flattened layer.

Ordering

Once created, any layer in the layer stack can be reordered.

This stacking order will dictate which layer content will show in front of other layer content; the higher the layer in the layer stack the more that layer will be brought to the front of the image.



The effect of layer order on a document. To change a layer's position:

Do one of the following:

1. From the **Layers** panel, drag a layer entry up/down the layer stack. When you see a blue line between two layers, drop the layer to place.

2. With layer(s) selected, choose one of the following from the toolbar:
    - **Move to Back**—repositions the selected layer(s) at the bottom of the layer stack.
    - **Back One**—moves the selected layer(s) down one position in the layer stack.
    - **Forward One**—moves the selected layer(s) up one position in the layer stack.
    - **Move to Front**—repositions the selected layer(s) at the top of the layer stack.

The above options are also available from the **Arrange** menu.

Targeting

Targeting controls where new layers are placed in the layer stack on creation.

By default, layers are positioned:

- Directly above the currently selected layer.
- At the top of the layer stack, if there is no layer selected.

This default targeting behavior can be modified so a new layer can be created below the current layer, at the top of the layer stack (regardless of selection), or nested inside a layer.

 To change targeting behavior:

From the Toolbar, choose one of the following:

- **Insert behind the selection**
- **Insert at the top of the layer**
- **Insert inside the selection**

To revert to default targeting ensure the active button is switched off.

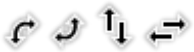
Alternatively, you can access the default behavior, as well as the other targeting options, from the **Arrange** menu.

Rotating and shearing

Layer content can be rotated and sheared directly on the page using the **Move Tool**.

Before and after rotate and shear applied.

Positioning the cursor around the bounding box of your layer content will allow you to rotate or shear the layer content. Feedback is provided by the following cursors.



Rotation is also possible about a custom rotation center placed on your page.

To rotate layer content:

1. With the **Move Tool**, select layer content on a chosen layer.
2. Do one of the following:

    - Drag the selected layer content's rotation handle.
    - Position the cursor close to a corner handle and drag on the page.

You can rotate layer content with more precision using the **Transform** panel.

To move the rotation center:

1. Select layer content.
2. Select the **Move Tool**, then click **Show Rotation Center** on the context toolbar. The center shows centrally within the selected layer content.
3. Drag the rotation center to a new position in the selected layer content or anywhere on the page.

Once you've moved the center, you can rotate your layer content about it as described above.

For vector shapes, lines and text, you can snap the rotation center to the bounding box, center, key points, or the geometry of other objects (or even the same object).

To reset the rotation center:

- Double-click the rotation center.

To shear layer content:

1. With the **Move Tool**, select layer content on a chosen layer.
2. Position the cursor close to a side handle and drag on the page.

You can shear objects with more precision using the **Transform** panel.

Modifier keys

When using the Move Tool, the following modifier keys can be used to aid rotating and shearing:

- The constrains rotation to 15° increments.
- The shears the opposite edge in the opposite direction by the same value.
- When rotating from an object or selection's corner handle, the temporarily repositions the rotation origin to the opposite corner.
- When rotating from an object or selection's corner handle, holding the right mouse button temporarily repositions the rotation origin to the opposite corner.

Locking

Locking is useful when you need to prevent a layer from being moved or transformed unintentionally.

To lock a layer:

1. On the **Layers** panel, select the layer to be locked.
2. Do one of the following:
    - Select **Lock/Unlock**.
    - From the **Layer** menu, select **Lock**.

Select **Lock/Unlock** again, or use the **Layer** menu's **Unlock** item, to allow the layer to be editable.

Layers which are locked show in the Layers panel with a lock symbol next to them. Selected locked layers appear with crosses around the bounding box.

Opened images, or images developed from Develop Persona, appear as a locked background layer by default.

Rasterizing

Shape, Line, and Text layers can be rasterized to create raster layers. This "flattening" operation can be performed manually or automatically (when applying filters or retouch brushes).

Rasterization is only a requirement if the appearance of complex vector gradients or effects need to be honored, particularly for print artwork.

To rasterize a shape, line or text layer:

- On the **Layers** panel, -click a layer and select **Rasterize**.

When applying filters or retouch brushes to the above layers, automatic rasterization occurs. This means the layers can't be edited as vectors afterwards. Ensure shapes, lines and text are completely edited to your satisfaction beforehand.

Creating pixel selections

A pixel selection is simply a drawn area on your image (bounded by a flashing dashed line, often called 'marching ants'). A selection is created for various reasons:

- To limit editing (e.g., painting, applying fills, etc.) to within that selection area only.
- To selectively copy pixels.
- As a precursor to creating a mask layer.
- To draw areas for removal (cutout).

Selection boundaries are defined depending on whether individual pixels are included or excluded.

Once your selection has been created, you can invert it so all included pixels are excluded and vice versa.

Selection tools

There are several tools you can use to create pixel selections:

- **Selection Brush Tool** (see Painting pixel selections)
- **Flood Select Tool** (see Flooding pixel selections)
- **Rectangular Marquee Tool** (see Marquee pixel selections)
- **Elliptical Marquee Tool**
- **Column Marquee Tool**
- **Row Marquee Tool**
- **Free Hand Selection** (see Drawing pixel selections)

Selection procedures

Alongside the many selection tools available, there are also a variety of procedures you can follow to create a pixel selection from:

- The contents of a layer (see Pixel selections from layers)
- The luminance of a layer (see Pixel selections from layers)
- Layer and composite channels (see Pixel selections from channels)
- Curves and shapes (see Pixel selections from shapes)
- Tonal or color ranges (see Range pixel selections)
- Sampled colors (see Sampled color pixel selections)

- Quick Masks (see Quick Mask selections)
- Previously created selections (see Creating outline selections)

About selection modes

When working with, and creating, selections, you may have access to the following **Modes** which affect how your selection develops:

- **New**—cancels all current selections and creates a new selection.
- **Add**—adds areas to the current selection. If there is no selection in place, a new selection will be created.
- **Subtract**—removes areas from the current selection.
- **Intersect**—a new selection area is created from the overlap between the newly added selection area and the current selection.

Modifier keys

The following Mode modifier keys may be available for some selection tools and can aid in the creation of selections:

- The automatically adds areas to the current selection.
- The automatically removes areas from the current selection.
- Dragging using the right mouse button (rather than the left mouse button) automatically adds areas to the current selection.

To select every pixel in the image:

Do one of the following:

- On the Toolbar, select **Select All**.
- From the **Select** menu, select **Select All**.

To invert a pixel selection:

With a selection in place, do one of the following:

- On the Toolbar, select **Invert Selection**.
- From the **Select** menu, select **Invert Pixel Selection**.

If you 'invert' when no selection is in place, a marquee is placed around your entire page, therefore selecting every pixel in your image.

To hide/show a pixel selection temporarily:

- From the **View** menu, select **Show Pixel Selection**.

To remove a pixel selection:

Do one of the following:

- On the Toolbar, select **Deselect**.
- From the **Select** menu, select **Deselect**.

Painting pixel selections

Using the **Selection Brush Tool** you can define a selection by painting on your page.

Default Selection Brush 'expansion' behavior

By default the Selection Brush Tool is set to expand the selection to include similar color value pixels to those selected, even if these are not directly painted. In other words, the selection will grow up to high contrast edges within the image.

Before and after selection painted.

The number of pixels selected is determined by the size (width) of the brush in two ways:

- A larger brush size will paint a larger area in one stroke and therefore more pixels are selected.
- A larger brush size will give Affinity Photo a larger sample size in which to determine how far the selection should expand when selecting similar color value pixels.

This makes selecting an area of similar color and tone effortless.

The selection will only expand to pixels with similar color values if they are adjacent to the stroke painted. To select a separated area, you must start another stroke within that area.

Alternative 'non-expansion' behavior

As an alternative to the expansion method detailed above, the Selection Brush Tool also has a non-expansion method of selection. This method will only select pixels which are under the brush when the stroke is painted.

Difference in selection method between non-expansion (before) and expansion (after).

To create a pixel selection:

With the **Selection Brush Tool** selected:

1. Adjust the context toolbar settings. (See Selection Brush Tool for details.)
2. Drag on your page.

To refine a pixel selection:

With the **Selection Brush Tool** selected, do any of the following:

- Switch the tool's working **Mode** on the context toolbar.
- Change the brush size (**Width**).

See the note below for details.

Modifier keys

The following modifier keys can be used to aid in the creation of selections:

- The automatically adds areas to the current selection.
- The automatically removes areas from the current selection.
- Dragging using the right mouse button (rather than the left mouse button) automatically adds areas to the current selection.

- Press the and s and drag on the page. Dragging left or right will decrease or increase the brush size, respectively. Alternatively, use the [or] s, respectively.
- Press the right mouse button, then left mouse button and drag on the page. Dragging left or right will decrease or increase the brush size, respectively.

🖌️To set 'non-expansion' method:

- With the **Selection Brush Tool** selected, on the context toolbar, ensure the **Snap to edges** option is off.

Flooding pixel selections

Using the **Flood Select Tool** you can define a selection of similar color value pixels with a single click.

Flooding and tolerance

When using the Flood Select Tool, Affinity Photo will analyze the target (clicked) pixel and use its color value to create a selection which includes pixels with similar color values.

Before and after pixel clicked.

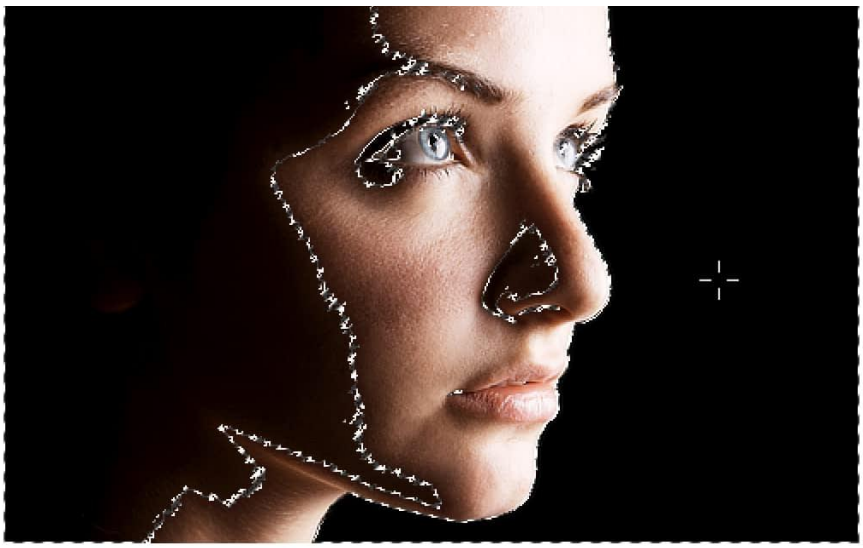
The number of pixels selected is determined by the tool's tolerance setting. The higher the tolerance the more variance allowed between the target pixel and selected pixels. Therefore a higher tolerance will likely lead to more pixels being included in the selection.

This makes selecting an area of similar color and tone effortless.

Contiguous behavior

By default, flood selecting is ***contiguous***. This means pixels with similar color values must be adjacent to one another to be selected. Therefore, pixels must be directly connected to the target pixel (or other selected pixels) to be selected. If there is a high contrast edge between areas of similar color, the pixels on the opposite side of the edge will not be selected using a single click.

As an alternative, the contiguous behavior can be switched off. This will mean pixels of similar color to the target pixel will be selected regardless of their position within the image.



Difference in selection method with contiguous on (before) and off (after). To create a pixel selection:

With the **Flood Select Tool** selected:

1. (Optional) On the context toolbar, set the **Tolerance**.
2. Click on your page.

To create a pixel selection using multiple target pixels:

With the **Flood Select Tool** selected:

1. On the context toolbar, set the **Mode** to **Add**.
2. Click on your page.
3. Repeat step 2 as needed.

Alternatively, you can subtract or intersect a 'flood selection' from the current selection using the other **Mode** options. For more information on the available selection modes, see Creating pixel selections.

To switch off contiguous selection:

- With the **Flood Select Tool** selected, on the context toolbar, ensure the **Contiguous** option is off.

Drawing pixel selections

Using the **Free Hand Selection** tool you can draw on your page to define a pixel selection. As your cursor moves across the page, the selection will extend to follow its path and continually be connected to the initial starting point.

Free hand selection in the process of being drawn. To create a pixel selection:

With the **Free Hand Selection** tool selected:

- From the context toolbar, choose from the **Freehand**, **Polygonal** or **Magnetic** selection types.
- With the **Freehand** type:
    - Click-drag to add freehand lines to the selection.
    - Hold the whilst single clicking to add straight lines to the selection.
- With the **Polygonal** type:
    - Single-click to add straight lines to the selection.
    - Click-drag to add freehand lines to the selection.
    - Hold the whilst dragging to add magnetic lines to the selection.
- With the **Magnetic** type:
    - Single-click then drag to add magnetic nodes that snap to edges.
    - Click-drag to add freehand lines to the selection.
    - Hold the whilst single clicking to add straight lines to the selection.

Range pixel selections

You can create a pixel selection using color, tonal or transparency (alpha/opacity) ranges from your image.

If you decide to create a selection based on any range, your image is analyzed and all pixels which fall into the chosen range are included in the selection. Pixels which are not in the chosen range are excluded.

Color, tonal and transparency range selections are available from the **Select** menu. These include:

- From the **Color Range** sub-menu:
    - **Select Reds**
    - **Select Blues**
    - **Select Greens**
- From the **Tonal Range** sub-menu:
    - **Select Midtones**
    - **Select Shadows**
    - **Select Highlights**
- From the **Alpha Range** sub-menu:
    - **Select Fully Transparent**—only pixels which have an opacity of 0% are selected.
    - **Select Partially Transparent**—all pixels with a transparency higher than 0% are selected.
    - **Select Opaque**—only pixels that are 0% transparent are selected.

Try creating range pixel selections before applying an adjustment layer. This allows you to target the adjustment directly to any one of the Color or Tonal ranges.

Pixel selections from layers

You can create pixel selections based on layers (or layer groups) or layer luminance.

If the layer or layer group contains areas which have an opacity lower than 100%, these are partially selected. This partial selection is based on the percentage of their opacity (i.e. areas of 20% opacity will be selected by 20%). Transparent areas will not be included in the selection.

A selection marquee only appears around areas which are selected by more than 50%. Areas selected by 50% or less will not display a marquee at their edges.

To create a pixel selection from layer contents:

Do one of the following:

- On the **Layers** panel, select a layer. From the **Select** menu, select **Selection From Layer**.
- On the **Layers** panel, click the chosen layer's thumbnail while pressing the .

To create a pixel selection from layer luminance:

- On the **Layers** panel, click the chosen layer's thumbnail while pressing the s.

Pixel selections from channels

You can create pixel selections based on a single channel or combination of channels. This feature is available from the Channels panel.

Selection created from the image's blue channel.

Pixels are selected based on the contribution that the chosen channel makes to its color value. If a channel only contributes partially to a pixel, that partial amount is selected (i.e. where a channel contributes 20% of the color to that pixel, that 20% is selected).

A selection marquee only appears around areas which are selected by more than 50%. Areas selected by 50% or less will not display a marquee at their edges.

To create a pixel selection from a channel:

- In the **Channels** panel, -click any channel and select **Load to Pixel Selection**.

To combine channels in a single pixel selection:

In the **Channels** panel:

1. -click any channel and select **Load to Pixel Selection**.
2. -click any other channel and select **Add to Pixel Selection**.
3. Repeat step 2 as needed.

Alternatively, you can subtract or intersect a channel from a selection using the other options on the context (-click) menu. For more information on the available selection modes, see Creating pixel selections.

To create a pixel selection from a selected layer's channel:

1. In the **Layers** panel, select a layer.
2. In the **Channels** panel:
    - -click a channel named after the selected layer (e.g. Background Red) and select **Create Spare Channel**
    - -click the newly created spare channel and select **Load to Pixel Selection**.

Pixel selections from shapes

You can convert a curve or shape (path) drawn using the **Pen Tool** into a selection. When created from a curve, the resulting selection will be closed using a straight line between the end nodes.

The original line or shape will be discarded when the selection is created. Ensure you keep a copy of your original line or shape if you wish to use it later in your project.

To create a pixel selection from a drawn line or shape (path):

1. Do one of the following:
    - Using the **Pen Tool** draw a curve or closed shape on your page.
    - Select a previously drawn curve or shape and then select the **Pen Tool**.
2. From the context toolbar, click **Selection**.

You can convert geometric shapes created using the Shape tools into selections by converting them to curves and then using the procedure above or creating a selection from the shape's layer.

Sampled color pixel selections

You can create a pixel selection by sampling colors from pixel layers.

Settings

The following settings can be adjusted from the dialog:

- **Tolerance**—determines how closely pixels must match the selected color to be included in the selection. For lower tolerance settings, pixels must be very close in value to the clicked pixel. For higher tolerance settings, pixel color can vary widely from the clicked pixel. Drag the slider to set the value.
- **Model**—determines the color model used when sampling. Select from the pop-up menu.

To create a pixel selection from a sampled color:

1. Select the pixel layer containing the color to be sampled.
2. From the **Select** menu, choose **Select Sampled Color**.
3. Click on the color to be sampled.
4. Adjust the settings in the dialog.
5. Click **Apply**.

Marquee pixel selections

The marquee selection tools allow you to create selections based on standard geometric shapes, such as ellipses and rectangles.

Selection tools

There are several marquee tools you can use to create pixel selections:

- **Rectangular Marquee Tool**—creates a rectangular or square selection.
- **Elliptical Marquee Tool**—creates an elliptical or circular selection.
- **Column Marquee Tool**—creates a rectangular selection of the set pixel width which spans the entire image's height.
- **Row Marquee Tool**—creates a rectangular selection of the set pixel height which spans the entire image's width.

For pixel-accurate selection, **Force Pixel Alignment** on the top Toolbar will snap pixel selection areas to full pixels when created, moved or modified. If this option is off, selections can occupy partial pixels.

Furthermore, if snapping is active, selection areas can snap to page edges and guides when being created (using the Marquee Selection Tools) or moved.

To create a pixel selection:

- With a marquee selection tool selected, drag on your page.

Modifier keys

The following modifier keys can be used to aid in the creation of selections:

- The constrains a Marquee Tool's proportions.
- The automatically removes areas from the current selection.
- The automatically adds areas to the current selection.

Drag with left and right button down (Marquee and Free hand Selection tools) to automatically add areas to the current selection.

To set the width of a column/row selection:

- With the **Column Marquee Tool** or **Row Marquee Tool** selected, on the context toolbar, adjust the **Width** setting.

Modifying pixel selections

Once you have a pixel selection in place, it can be modified in several ways.

You can modify your pixel selection by enlarging or shrinking it, applying a feather to its edge, and/or by smoothing its curve. These options are available from the **Select** menu as **Grow/Shrink**, **Feather**, and **Smooth**, respectively.

Transforming and editing selection

In addition to the options mentioned above, you can move or transform a selection using the Move Tool or edit it using pixel-editing tools in Quick Mask mode.

Settings

The following settings can be adjusted from the relevant dialogs:

- **Radius**—controls the extent of the effect.
    - Negative values for **Grow/Shrink** will shrink the selection while positive values enlarge it.
- **Circular**—if this option is unchecked (default), resizing honors the original selection shape. When checked, the selection shape is made more rounded with increasing Radius values.

For some selection tools, feathering can be applied to a selection from the context toolbar.

In addition to the modifications discussed here, you can also refine the edges of your selection. This option is available from the context toolbar and the **Select** menu.

Moving and transforming pixel selections

Once a selection has been made, it can be moved and transformed in a variety of ways.

Moving and transforming a selection and its contents

If you have a selection in place, you can move and transform it, and the pixels it encompasses, using the Move Tool. Furthermore, with the Move Tool active, the Transform panel can also be used for precision working.

Moving and transforming a selection only

If you're looking to reposition a selection, but leave the pixel content untouched, you can use the Marquee tools. However, if you wish to transform your selection while leaving the pixel content untouched, you need to enter **Quick Mask** mode. Once in Quick Mask mode, you can resize, reposition, rotate or shear a selection using the Move Tool or Transform panel.

To move and transform a selection and the pixels it encompasses:

1. With a selection in place, select the **Move Tool**.
2. Resize, reposition, rotate or shear the selection on the page using the displayed handles or, for precision, use the settings on the Transform panel. The pixels within the selection will be moved and transformed to match the new selection.

Every time the selection is moved or transformed, new pixels may be included within the new selection area. These new pixels will then be moved and transformed if the above procedure is followed again.

To move a pixel selection (leaving pixel unaffected):

1. With a selection in place, select a marquee selection tool or the **Free Hand Selection** tool.
2. Drag inside the selection

To transform a selection (leaving pixel unaffected):

1. Do one of the following:
    - Press **Q**.
    - On the Toolbar, click **Toggle Quick Mask**.
    - From the **Select** menu, select **Edit Selection As Layer**.
2. Select the **Move Tool**.
3. Resize, reposition, rotate or shear the selection on the page using the displayed handles or, for precision, use the settings on the Transform panel.

4. Repeat step 1 to exit Quick Mask mode and display the selection as a marquee.

By default, the Quick Mask is presented in the workspace as a translucent, red overlay. The red areas are not included in the selection. For more information on using Quick Mask mode, see Edit selection as layer using Quick Mask mode.

Edit selection as layer using Quick Mask mode

Using **Quick Mask** mode, you can modify (or create) a selection using pixel-editing tools.

When entering this mode, your selection is temporarily presented as a pixel mask. Pixels can be added or erased using the standard Painting and Erase tools.

- Painting in black will erase areas from the selection.
- Painting in white will add areas to the selection.
- Painting a gray will vary the opacity of the selection depending on the tone of gray used.
- Erased areas are always removed from a selection.

By default, the Quick Mask is presented in the workspace as a translucent, monochrome overlay. The monochrome areas are not included in the selection. This default view can be changed depending on your preferences.

Tools which can be used in conjunction with Quick Mask include, but are not limited to, the Erase Brush Tool, Flood Erase Tool, Flood Fill Tool, Gradient Tool, Paint Brush Tool, Paint Mixer Brush and Pixel.

You can create a new selection from scratch using the Painting tools by entering Quick Mask mode without a selection in place.

To edit a selection using Quick Mask mode:

1. Do one of the following:
    - Press **Q**.
    - On the Toolbar, click **Quick Mask**.
    - From the **Select** menu, select **Edit Selection As Layer**.
2. Click or drag on the page using any pixel-editing tool.
3. Repeat step 1 to exit Quick Mask mode and display the selection as a marquee.
4. (Optional) To create a layer mask using the current selection, from the **Layer** menu, select **New Mask Layer**.

To change Quick Mask view:

- On the Toolbar, click the arrow next to **Quick Mask Enabled** and then select a **Show As** option from the pop-up menu.

Refining pixel selection edges

Once a selection has been created, you can refine its edges to ensure your selection is as accurate as needed.

For very fine selection, e.g. of hair against a colored background, use an adjustment brush as part of the refinement to 'brush-in' fine detail.

Settings

The following settings can be adjusted from the dialog:

- **Preview**—sets the way your selection and page display. Select from the pop-up menu.
- **Matte Edges**—when selected (default), the selection area closely follows image edges. If this option is off, selection doesn't follow image edges which is useful for more accurately refining straight selection edges.
- **Border width**—expands the selection by adjusting the width of its border. Drag the slider to set the value.
- **Smooth**—determines the curvature of the selection's edge. Drag the slider to set the value.
- **Feather**—determines the softness (opacity) of the transition at the edge of the selection. Drag the slider to set the value.
- **Ramp**—changes the size of the selection. Drag the slider to set the value. Negative values will shrink the selection while positive values enlarge it.
- **Adjustment brush**—determines the adjustment brush's refinement mode.
    - **Matte**—re-analyses the selection and attempts to separate foreground detail from the background. Great for selecting hair at the edges of photos, etc.
    - **Foreground**—adds to the selection (revealing more of the foreground).
    - **Background**—deletes from the selection (revealing more of the background).
    - **Feather**—softens the alpha edge of the selection.
- **Width**—sets the width of the brush tip. Type directly in the text box or drag the pop-up slider to set the value.
- **Output**—determines how the selection is applied upon exiting the dialog. Select from the pop-up menu.

To refine pixel selection edges:

1. With a selection in place, from the **Select** menu, select **Refine Edges**.

2. Adjust the settings in the dialog.
3. If you wish to adjust the selection edges by painting, drag on the preview.
4. Click **Apply**.

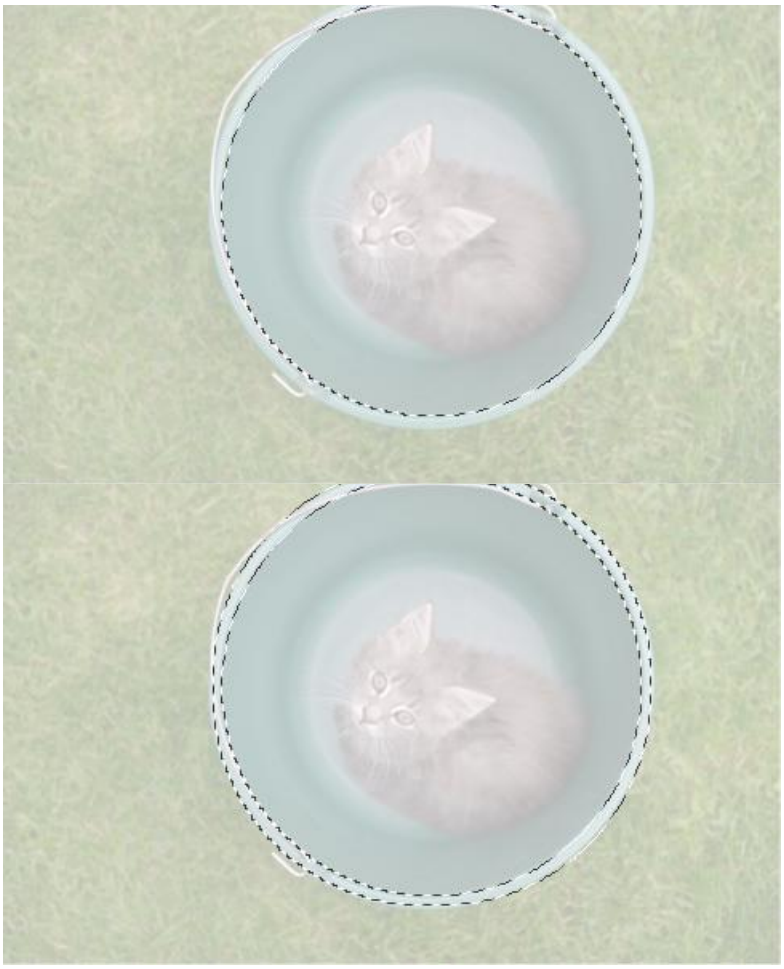
Modifier keys

The following modifier (s) can be used:

- Press the and s together and drag on the page. Dragging left or right will decrease or increase the brush size, respectively. Alternatively, use the [or] s, respectively. Dragging up or down will decrease or increase the brush hardness, respectively.
- Press the right mouse button, then left mouse button and drag on the page. Dragging left or right will decrease or increase the brush size, respectively. Dragging up or down will decrease or increase the brush hardness, respectively.

Creating outline selections

The ***Outline*** feature allows you to create a new selection based on the outer edges of a previously created selection.



Before and after outline selection created.

Settings

The following settings can be adjusted from the relevant dialogs:

- **Radius**—controls the width of the selection.
- **Circular**—when selected, the selection edges become increasingly rounded with increasing Radius values.
- **Alignment**—determines to origin for the expansion. Select from the pop-up menu.

To create an outline selection:

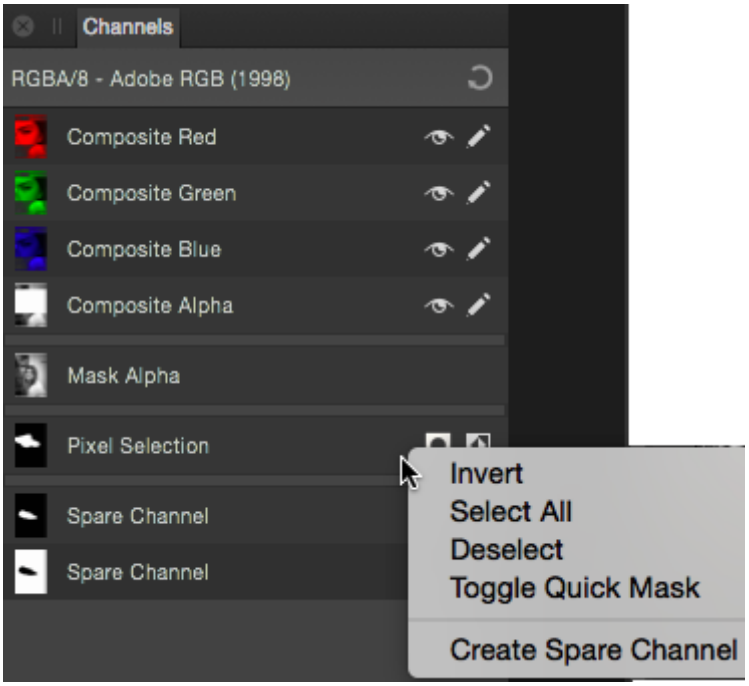
1. With a selection in place, from the **Select** menu, select **Outline**.
2. Adjust the settings in the dialog.
3. Click **Apply**.

Saving and loading selections

You can save pixel selections for later use in the current project or future projects. It's useful to be able to reinstate more complex selections at any time and stage of your project.

Saving selections as alpha channels

Any number of selections can be stored as spare alpha channels in the **Channels** panel for future use. From there you can reinstate any selection on demand.



Channels panels showing stored selections (each named as Spare Channel) for future use.

Saving selections to file

Instead of using the Channels panel, selections can be saved to a standalone file. Saved selections can then be loaded from the file into the same or another project.

To save a selection as an alpha channel:

- With a pixel selection in place, -click the 'Pixel Selection' entry and select **Create Spare Channel**.

The selection is stored at the bottom of the Channels panel as a new 'Spare Channel' entry.

To reinstate a saved selection:

On the **Channels** panel, -click the 'Spare Channel' entry, which lets you:

- Load to Pixel Selection—the saved selection is added as a new selection on the page.

- Add/Subtract/Intersect to Pixel Selection—the saved selection is added to, subtracted from, or intersected with an existing selection on the page.
- Load to "Layer name"—the saved selection is added to the mask, adjustment, or Live filter layer if previously selected in the Layers panel.
- Load to "Layer name" channel—loads the selection to a channel (e.g., Red) if the channel's layer was previously selected in the **Layers** panel.

The selection is stored at the bottom of the Channels panel as a new 'Spare Channel' entry.

To save a selection to a file:

1. With a pixel selection in place, from the **Select** menu, select **Save Selection**.
2. Adjust the dialog settings as required.
3. Click **Save**.

To load a selection from a file:

1. From the **Select** menu, select **Load Selection from File**.
2. Select the **.afselection** file you want and click **Open**.

Retouching.

Removing Red Eye

Red eye is an unsightly effect caused by a camera's flash in low light conditions. However, it can be easily corrected using the **Red Eye Removal Tool**.

The **Red Eye Removal Tool** detects red coloration in a subject's pupil and instantly removes it.

👁To fix red eye:

1. Use the **Layers** panel to select the layer containing a subject with the red eye effect.
2. Click the **Red Eye Removal Tool**.
3. Place the pointer above and slightly to the left of the pupil.
4. Drag the bounding box so that it covers the pupil and release. The pupil should change color. If the initial selection is wrong, undo the result and reselect the bounding box.
5. The effect of the tool is cumulative. If the result is not dark enough, repeat the selection.

Avoid making the rectangle too large as you may affect other red-based areas of the image.

Retouching

Retouching techniques utilize a selection of brush-based tools for focused color and tonal adjustment.

In contrast to the adjustment layers, the retouch brushes apply modifications to a selected pixel layer, thereby affecting individual pixels on the layer.

The retouch brushes provide the opportunity for precision work in editing images and pixel layers. For example, the **Dodge Brush Tool** is ideal for lightening areas of shadow within a photo while leaving other areas unaffected.

The retouch brushes available include:

 **Dodge Brush Tool**

Dodging adjusts the exposure under the brush stroke to lighten the painted area. This has the opposite effect to Burning.

 **Burn Brush Tool**

Burning adjusts the exposure under the brush stroke to darken the painted area. This has the opposite effect to Dodging.

 **Sponge Brush Tool**

Sponging lets you increase or decrease the color saturation under the brush.

 **Blur Brush Tool**

Blurring reduces the contrast between pixels under the brush stroke, thereby softening the edges of the painted area. This has the opposite effect to Sharpening. Blurring does not smear color within the painted area like Smudging.

 **Sharpen Brush Tool**

Sharpening increases the contrast between pixels under the brush stroke, thereby enhancing the edges of the painted area. This has the opposite effect to Blurring.

 **Median Brush Tool**

Painted pixels are blended together to reduce noise under the stroke.

Smudge Tool

Smudging is a technique which allows you to blend pixels within an image. The brush 'picks up' color from the click point and 'drags' it in the brush stroke direction.

Don't forget other retouching tools such as Cloning and Healing Brush tools, Blemish Removal Tool, and Inpainting Brush Tool. You'll also be able to use the Patch Tool and Red Eye Removal Tool.

To use a retouch brush:

1. Use the **Layers** panel to select the pixel layer that you want to work on.
2. Select a retouch brush tool from the **Tools** panel.
3. The tool uses a soft-round brush by default. To use a different brush style, choose one from the **Brushes** panel.
4. On the context toolbar, change the brush values as desired.
5. Drag on the image to apply the effect under the brush stroke.

Removing blemishes

Use the **Blemish Removal Tool** to remove small imperfections such as pimples, with a single click.

The Blemish Removal Tool works by blending a target area with a sample area to remove (or reduce) the undesired discoloration.

Before and after cloning to fix skin imperfections.🩹 To remove blemishes:

1. Use the **Layers** panel to select a layer to work on.
2. Click **Blemish Removal Tool** from the **Tools** panel.
3. Adjust the context toolbar settings.
4. Do one of the following:
    - Click on the target area.
    - Drag from the target area to the sample area.

Modifier keys

The following modifier (s) can be used:

- To change brush size, use the [or] .

Cloning and healing

Cloning is the process of duplicating samples from one part of an image to introduce replicated content for creative effect or to repair the original.

About cloning

The clone source

The Clone Brush Tool copies pixels from one part of an image (or layer) to another. The tool uses a source (shown as a '+' cursor) to clone from; this moves in relation to the tool's cursor (shown as an 'o' cursor) with its position being able to be redefined as you clone from different areas.

Before and after cloning. Introducing a cloned object to your image.

The clone source can be one of the following context toolbar options:

- **Current Layer**—pixels on the selected layer only.
- **Current Layer & Below**—pixels on the currently selected layer and any visible layers beneath (including vector objects and the effects produced by adjustment layers).
- **Layers Beneath**—pixels on any visible layer beneath the currently selected layer (including those from any vector objects and the effects produced by any visible adjustment layers).
- **Global**—pixels previously sampled by cloning in from one or more other documents (raster layer only).

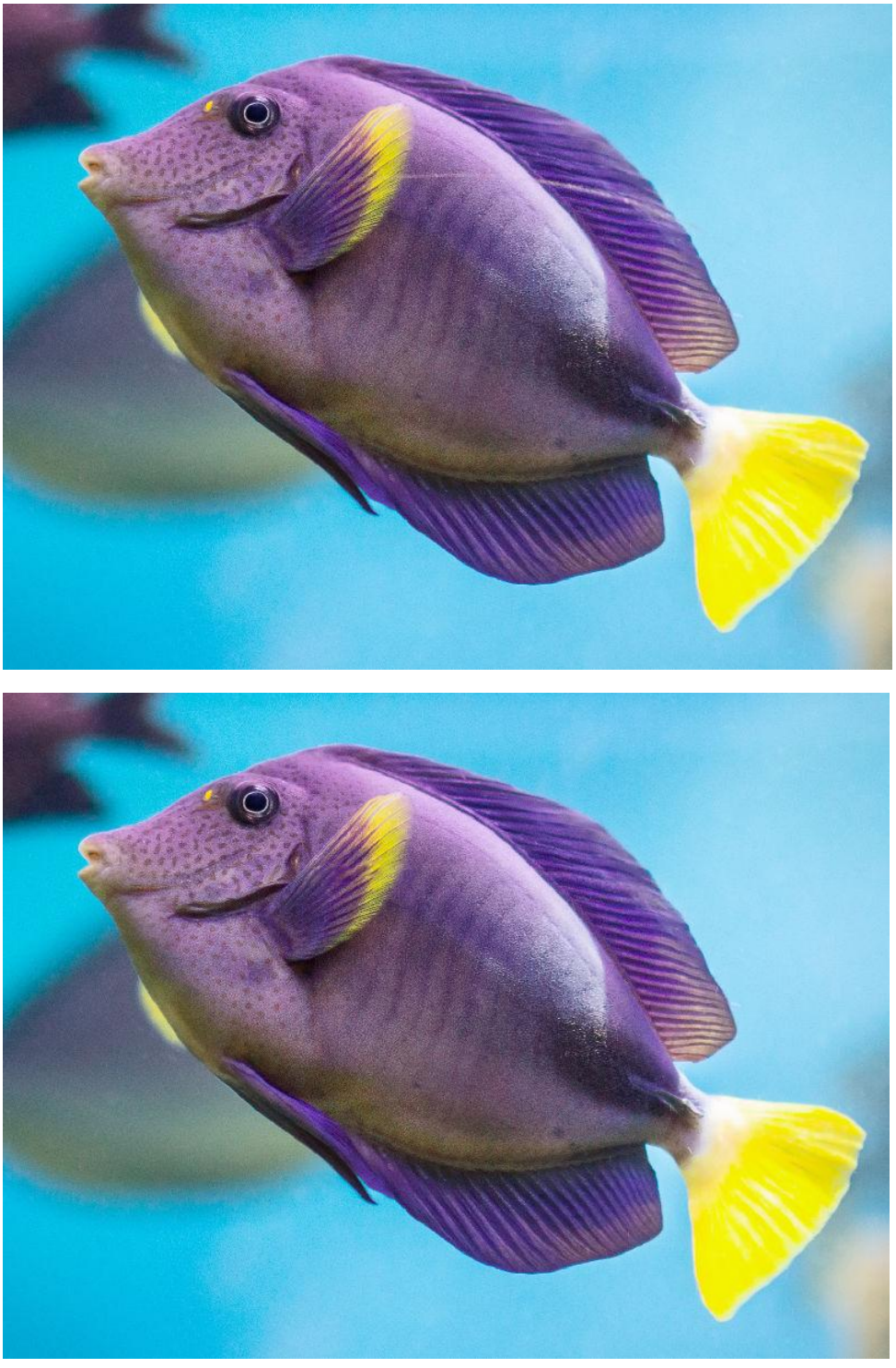
Global source

You can define a global *source* in a secondary open document and paint the sampled pixels into your working document by selecting the clone source option 'Global'. The **Sources** panel stores all your global sources; you can then select any stored global source and clone from it. Any new documents can make use of the panel's global sources.

The Global source can only be defined from a single, raster layer. To use a document containing multiple layers and/or vector objects, you must flatten the document first.

About healing

The Healing Brush Tool paints samples from one part of an image onto another. It's useful for removing defects and for general photo retouching. In many respects it works like the cloning, however, it blends the target pixels with the sample pixels by matching the texture, tone, and transparency of the sample pixels with the target pixels.



Before and after healing of an unwanted line crossing an image.

Using the Clone or Healing Brush Tools

To clone/heal a sample from the current image:

1. Use the **Layers** panel to either select an existing raster layer to copy to, or to create a new raster layer.
2. Select the **Clone Brush Tool** or **Healing Brush Tool** from the **Tools** panel.
3. The tool uses a soft-round brush by default. To use a different brush style, choose one from the **Brushes** panel.
4. Adjust the context toolbar settings.
5. To define (or re-define) the cloning source, hold the and click on the area you wish to begin sampling from.
6. (Optional) Rotate the sample by either using the left and right arrow keys or the **Rotation** control on the context toolbar.
7. (Optional) Set the scale of the sample by either using the up and down arrow keys or the **Scale** control on the context toolbar.
8. (Optional) Transform the sample by using the **Flip** pop-up menu on the context toolbar.
9. Drag on the image to paint the sample.

It is best practice to temporarily hide adjustment layers during the above procedure. This allows you to copy the original image. If the adjustment layers are visible, the *adjusted* pixels will be permanently applied.

Modifier keys

The following modifier (s) can be used:

- To change brush size, use the [or] .

To clone/heal a sample from one image to another:

1. Open the image that you want to copy pixels from and use the **Layers** panel to select the raster layer that you wish to copy from. To source from vector layers you need to rasterize it first.
2. Click the **Clone Brush Tool** or **Healing Brush Tool**.
3. To define (or re-define) the cloning source, hold the and click on the area you wish to begin sampling from.
4. On the context toolbar, click **Add Global Source**.

The source is stored, along with other global sources, in the **Sources** panel. The panel can be switched on via **View>Studio**.

5. Open the image that you want to paint the sample into.
6. Use the **Layers** panel to either select an existing raster layer to copy to, or to create a new raster layer.
7. Click the **Clone Brush Tool** or **Healing Brush Tool**.
8. The tool uses a soft-round brush by default. To use a different brush style, choose one from the **Brushes** panel.
9. Adjust the context toolbar settings.
10. Select a stored global source from the **Sources** panel. If you only have one global source you can simply select the **Global** source from the pop-up menu on the context toolbar instead of using the panel.
11. (Optional) Select rotate, scale or flip options as described above.
12. Drag on the image to paint the sample.

Inpainting

Inpainting (image interpolation) is the process by which lost or deteriorated image data is reconstructed, but within the context of digital photography can also refer to replacing or removing unwanted areas of an image. For example, you can remove or replace:

- Power lines and other obstructions
- People and animals
- Vignetting
- Lens flares
- Background details
- Dust spots and scratches
- Stuck or "hot" pixels

Removing objects from a landscape image.

About inpainting

The Inpainting Brush Tool is used to paint over (and identify) damaged or unwanted areas. Complex algorithms then take over to harvest information from the surrounding areas of the image in order to reconstruct the missing data.

Inpainting is particularly useful for repairing physically damaged printed photos which have been subsequently digitized.

To restore image data using the Inpainting Brush Tool:

1. Use the **Layers** panel to select a layer to work on.
2. Click the **Inpainting Brush Tool**.
3. The tool uses a soft-round brush by default. To use a different brush style, choose one from the **Brush** panel.
4. Adjust the context toolbar settings.
5. Drag across the image to identify the area of lost or damaged data.

Best Practices:

- Zoom in close to the area you wish to inpaint.
- Set a suitable brush size from the context toolbar.
- If you are painting out people or complex shapes, try painting over gaps (e.g., inbetween legs and arms) as well for better consistency.
- Remember you can always do multiple passes if the result of the inpainting does not look authentic or seamless enough. Simply paint over the areas again.

Modifier keys

The following modifier (s) can be used:

- To change brush size, use the [or] .

As a supplementary method to brush-based inpainting, you can inpaint areas selected in advance via **Edit>Inpaint**.

Patching

Patching is a retouching technique which involves replacing an undesirable pixel region with a patch (a drawn freehand selection area) made up of pixels sourced from another, more suitable, part of your image or another document.

Patching out an extensive mascara smudge enclosed within the patch's freehand selection area.

About patching

Patching, like healing, blends the target pixels with the sample pixels by matching the texture, tone, and transparency of the sample pixels with the target pixels. When patching, you can also select whether to only apply the texture of the source to the target and whether there is a level of transparency applied.

Selection

The selection can act as any of the following:

- **As Target**—pixels are modified based on the properties of the source pixels. These pixels are sourced from under the cursor anywhere outside the selected area.
- **As Source**—pixels are used to modify the target area(s) selected.

  For both, the sample can be scaled or rotated before or after it has been applied.

Global source

You can define a source in one open document and paint the sampled pixels into another open document using **Set Global Source**.

Once a source is defined, the **Global source** option becomes available from the layer selection dropdown. It will remain available until a new source is defined, even if the original global source document is closed.

The Global source can only be defined from a single, raster layer. To use a document containing multiple layers and/or vector objects, you must flatten the document first.

🩹To patch when selection is target:

1. Use the **Layers** panel to either select an existing raster layer to copy to, or to create a new raster layer.
2. Select the **Patch Tool** from the **Tools** panel.
3. Drag on the image to draw a freehand selection area. This will be the *target* area.
4. Adjust the context toolbar settings. Repeat the above step if necessary.
5. Click on the image to define the source area.
6. (Optional) Drag the nodes of the applied area to modify the scale and rotation. Alternatively, use the **Scale** and **Rotation** controls on the context toolbar.

7. Click anywhere on the image to confirm placement and remove the selection.

It is generally best practice to temporarily hide adjustment layers during the above procedure. This allows you to copy the original image. If the adjustment layers are visible, the *adjusted* pixels will be permanently applied.

🩹To patch when selection is source:

1. Use the **Layers** panel to either select an existing raster layer to copy to, or to create a new raster layer.
2. Click the **Patch Tool**.
3. On the context toolbar, select **Selection is source**.
4. Drag on the image to define a selection. This will be the *source* area.
5. Adjust the context toolbar settings. Repeat the above step if necessary.
6. Click on the image to place pixels from the source area.
7. (Optional) Drag the nodes of the applied area to modify the scale and rotation. Alternatively, use the **Scale** and **Rotation** controls on the context toolbar.

You can patch repeatedly with the same source by clicking on different areas of your image.

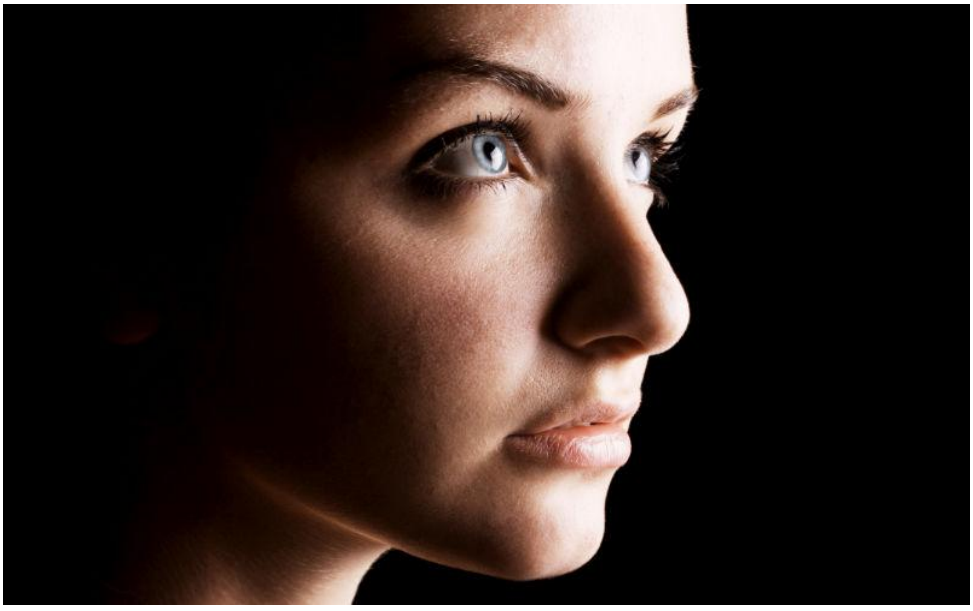
🩹To patch from a global source:

1. Open the image that you want to copy pixels from and use the **Layers** panel to select the raster layer that you wish to copy from.
2. Click the **Patch Tool**.
3. On the context toolbar, select **Selection is source**.
4. Drag on the image to define a selection. This will be the *global source* area.
5. On the context toolbar, click **Set Global Source**.
6. Open the image that you want to paint the sample into.
7. Use the **Layers** panel to either select an existing raster layer to copy to, or to create a new raster layer.
8. Click the **Patch Tool**.
9. On the context toolbar:
    - Ensure **Selection is source** is still selected.
    - Select **Global** from the layer selection dropdown.
10. Click on the image to place pixels from the source area.

11. (Optional) Drag the nodes of the applied area to modify the scale and rotation. Alternatively, use the **Scale** and **Rotation** controls on the context toolbar.

Frequency separation

Frequency separation allows you to retouch texture and tone/color independently for powerful portrait retouching.



Before and after retouch on high and low frequency layers.

Frequency separation

Although the term frequency separation is initially intimidating, the concept is straightforward. By automatically separating your image color/tone and texture into separate low and high frequency layers, respectively, you'll be able to retouch color/tone and texture independently.

- *Skin tone and color* (shadows, blotches, etc.) are made smoother by blurring with the Dodge or Blur Brush Tool. The Healing Brush Tool also works well here.

- *Unwanted textures* (spots, stray hair, blemishes, dimples, and wrinkles) can be removed with the Clone Brush Tool or Blemish Removal Tool.

In frequency separation, a Gaussian Blur and High Pass filter are applied to created low and high frequency layers.

To apply frequency separation:

1. From the **Filters** menu, select **Frequency Separation**.
2. Drag on either high or low pass preview panes, to set the **Radius** (or use the slider in the dialog); this sets the balance between texture and tone. Set the value so the image's Low Frequency preview blends image color and tone but without losing major features within it.
3. (Optional) From the dialog, check **Feature Protection Tolerance** and set a tolerance value on the slider. This preserves major facial features when applying subsequent brush strokes.

Use selection tools and masking on both frequency layers just as with other layers.

Press the **F** key to switch from the High frequency layer to the Low frequency layer (and vice versa).

To retouch color or tone:

1. From the **Layers** panel, select the Low Frequency layer.
2. Apply retouch tools to the layer as appropriate.

To retouch textures:

1. From the **Layers** panel, select the High Frequency layer.
2. Apply retouch tools to the layer as appropriate.

Applying adjustments

There are a range of adjustments which can be applied to your photo as a new layer for corrective or creative purposes.

Available Adjustments:

- LUT
- Black and White
- Brightness and Contrast
- Channel Mixer
- Color Balance
- Curves
- Exposure
- Gradient Map
- HSL
- Invert
- Levels
- OCIO
- Posterize
- Recolor
- Selective Color
- Shadows/Highlights
- Soft Proof
- Split Toning
- Threshold
- Vibrance
- White Balance

Adjustments are applied to your image from the **Adjustment** panel and most include customizable settings alongside general adjustment options.

Adjustment layers only affect layers which are below them. Alternatively, you can make an adjustment a child of a layer (or layer group), thereby affecting that layer (or layer group) only.

Some adjustments (i.e., Curves, Levels, or Channel Mixer) can be made in any color space independently of the document color space.

There are additional adjustments available in **Develop Persona** which are arranged on various panels. For more information, see Developing a raw image.

For specific targeting of adjustments, create a pixel selection before applying an adjustment layer. Only those pixels included in the selection are affected by the adjustment layer. (A layer mask is applied.) For more information, see the Using adjustment layers topic.

Settings

The following general settings are available from all adjustment dialogs:

- **Delete**—closes the dialog and deletes the adjustment layer, removing the adjustment from the image.
- **Merge**—merges the current adjustment layer with the layer immediately below it in the layer order.
- **Add Preset**—adds the current adjustment settings as a preset for use with later images and projects.
- **Reset**—reverts all dialog settings to default.
- **Opacity**—how see through the adjustment layer is.
- **Blend mode**—changes how the applied pixels interact with existing pixels on the layer below. Choose mode type from a pop-up menu.
- ⚙**Blend Ranges**—click to access a dialog for setting the blend ranges, blend gamma and antialiasing settings for the selected layer.

Not all adjustments have a dedicated dialog or customizable settings.

To apply an adjustment:

1. On the **Adjustment** panel, select an adjustment.

   The adjustment is added directly above the selected layer or at the top of the stack if no layer was selected.

2. (Optional) Click one of the adjustment preset thumbnails.
3. If a dialog appears for the adjustment, follow the steps below:
   i. Adjust the settings in the dialog.
   ii. (Optional) Click **Add Preset** to make your custom settings available in step 2 for future sessions.

iii. Close the dialog.

You can replace an applied adjustment *of the same type* by selecting a new preset or custom adjustment from the bottom of the Layers panel. This maintains the adjustment layer's position in the layer stack.

To rename or delete a saved adjustment:

- On the **Adjustment** panel, -click a custom adjustment, then select an option.

To view an applied adjustment's settings:

- On the **Layers** panel, double-click the adjustment layer's thumbnail.

To apply an adjustment from the Layers panel:

1. On the **Layers** panel, select a layer.
2. Click **Adjustments** and select an adjustment from the pop-up menu.

   The adjustment is added directly above the selected layer.
3. If a dialog appears for the adjustment, follow the steps below:

   i. Adjust the settings in the dialog.

   ii. Close the dialog.

Adjustments are also available from the **Layer** menu's **New Adjustment Layer** sub-menu.

Tonal adjustments

Tonal adjustments are used to correct and modify the lightness values within photos.

Available tonal adjustments include:

- Brightness and Contrast—uses two settings to adjust the lightness of all pixels within a photo and the tonal differences between them, respectively.
- Curves—uses graph manipulation to precisely adjust the lightness and contrast of a photo.
- Exposure—retrieves lost detail in highlights or shadows caused by poor exposure.
- Levels—reassigns the black, white and gamma points within a photo to redistribute pixel lightness.
- Shadows/Highlights—applies tonal adjustment to the darkest and/or lightest areas in a photo.

Brightness and Contrast adjustment

Adjust the values in the shadows and highlights, and the overall tonal range, of images.

Before and after adjustment applied.

You can also adjust the tonal range of images using the **Levels** and **Curves** adjustments.

Settings

The following settings can be adjusted:

- **Brightness**—controls the lightness/darkness of the image. Drag the slider to the left to decrease brightness, drag to the right to increase it.
- **Contrast**—controls the tonal range of the image. Drag the slider to the left to decrease the contrast between dark and light areas, drag to the right to increase it.
- **Linear**—by default, the adjustment prevents shadow and highlight clipping by modifying pixels relative to their original lightness value. When selected, this option modifies pixels using absolute values and clipping may occur.

Curves adjustment

Adjust the color, tone and alpha channels with the curves adjustment, either on individual channels or by adjusting the master curve.

This adjustment is available in Develop Persona on the **Tones** panel.

Adjustments can be made in any color mode, regardless of the document's current color mode (so you can edit LAB curves in an RGB document and vice versa).

Settings

The following settings can be adjusted:

- Select a color mode (**GRAY/RGB/CMYK/LAB**) from the first pop-up menu.

- Specify a single color channel to apply the adjustment to, including the layer's alpha channel. **Master** (the default choice) applies the adjustment to all channels. Select from the second pop-up menu.
- **Picker**—allows you to drag on the image to modify the adjustment. The initial click will place a node on the curve in relation to the pixel selected. Dragging up will lighten the image while dragging down will darken it. The curve graph will update accordingly.
- **Input minimum** and **Input maximum** are useful for 32-bit documents with out of range tonal values, but can also be used to fine tune the manipulated tonal range in 8-bit and 16-bit documents:
    - **Input minimum**—specify, in float, a minimum value to use as tonal input.
    - **Input maximum**—specify, in float, a maximum value to use as tonal output.

The color mode, **Alpha** channel and **Picker** options are not available in Develop Persona.

To adjust a curves graph:

On the curves graph, do any of the following:

- In the dialog, click **Picker** and then drag up or down on the page.
- Drag the curve to adjust the tonal range of the image.
- Click on the curve to add additional nodes.
- Click to select a node and then press the to remove it.

In general:

- Drag the curve downwards to correct overexposure.
- Drag the curve upwards to correct underexposure.
- Create a gentle S-shape by adding nodes (see above) and dragging the curve in opposite directions to correct washed out images.

Exposure adjustment

Alters the overall exposure of the image: good for correcting overexposure/underexposure, or for giving an image a high key or low key look.

Settings (Photo Persona; as adjustment layer)

The following setting can be adjusted:

- **Exposure**—controls the highlight/shadow levels of the image. Drag the slider to the left to increase shadows, drag to the right to increase highlights.

Settings (Develop Persona; in Basic panel)

The following settings can be adjusted:

- **Exposure**—controls the highlight/shadow levels of the image. Drag the slider to the left to increase shadows, drag to the right to increase highlights.
- **Blackpoint**—determines the range of pixels in the image considered to be pure black. Drag the slider to the right to include pixels in the range (thereby increasing shadows), drag to the left to exclude pixels (thereby reducing shadows).
- **Brightness**—controls the lightness/darkness of the image. Drag the slider to the left to decrease brightness, drag to the right to increase it.

Levels adjustment

Adjust the tonal values and color balance of an image by setting the black point, white point, and gamma. Adjusting the levels affects the pixel distribution within an image.

Before and after adjustment applied.

Adjustments can be made in any color mode, regardless of the document's current color mode.

Settings

The following settings can be adjusted:

- Select a color mode from the first pop-up menu.
- Specify a single color channel to apply the adjustment to, including the layer's alpha channel. **Master** (the default choice) applies the adjustment to all channels. Select from the second pop-up menu.
- **Black Level**—determines the range of pixels in the image considered to be pure black. Drag the slider to the right to include pixels in the range (thereby increasing shadows), drag to the left to exclude pixels (thereby reducing shadows).
- **White Level**—determines the range of pixels in the image considered to be pure white. Drag the slider to the left to include pixels in the range (thereby increasing highlights), drag to the right to exclude pixels (thereby reducing highlights).
- **Gamma**—determines the distribution of mid-tone pixels in the image. Enter a gamma value or drag the slider to the left to redistribute pixels towards the black point, drag to the right to redistribute towards the white point.

To create a negative-style (inverted) image, position the **Black Level** slider further to the right than the **White Level**.

Holding whilst modifying the Black Level or White Level provides a real time clipping preview.

Shadows/Highlights adjustment

Adjust the lightness of the shadows and highlights in your image.

Before and after adjustment applied.

Rather than applying a lighting adjustment to your entire image, making it lighter or darker, this adjustment affects the image's shadow and highlight areas and surrounding pixels.

This adjustment is available in Develop Persona on the **Basic** and **Overlays** panels.

Settings

The following settings can be adjusted:

- **Shadows**—controls the lightness of image shadows. Drag the slider to the left to darken shadow areas, drag to the right to lighten them.
- **Highlights**—controls the lightness of image highlights. Drag the slider to the left to darken highlight areas, drag to the right to lighten them.

Color adjustments

Color adjustments are used to modify the color of all, or a range of, pixels within a photo. Depending on the adjustment, the modification can be subtle or extreme.

Available color adjustments include:

- Black and White—converts a color photo to grayscale.
- Channel Mixer—adjusts the color of a photo by modifying individual RGB channels.
- Color Balance—adjusts the contribution of particular colors to a set tonal range.
- Gradient Map—uses the lightness value of pixels in a photo to recolor it using a specified gradient.
- HSL—shifts the hue, saturation and luminosity values of pixels in a photo.
- Lens Filter—emulates the use of a lens filter to tint the color of the image.
- OCIO—(OpenColorIO only) provides source and destination color space transforms.
- Recolor—converts a color photo to monochrome using a specified tint.
- Selective Color—subtly adjusts the color of a photo by modifying individual RGB, CMYK and lightness channels.
- Split Toning—tints and recolors highlights and shadows.
- Threshold—converts any photo into a two-tone, black and white image based on pixel lightness.
- Vibrance—adjusts the intensity of subtle colors within a photo.
- White Balance—removes undesirable color casts from a photo by adjusting the 'temperature' of the light.

Black and White adjustment

Convert a color image to monochrome while maintaining full control over how individual colors are converted.

In Photo Persona, this adjustment comes with a handy **Picker** setting which identifies the predominant color of a selected area and adjusts the relevant slider automatically.

This adjustment is available in Develop Persona on the **Tones** panel.

You may wish to apply a color tone, such as sepia, to the resulting grayscale image. To do this, you could use a **Recolor** adjustment or add a fill layer above with a blend mode and/or reduced opacity applied.

You can also create black and white images using the **HSL**, **Gradient Map**, and **Threshold** adjustments.

Settings

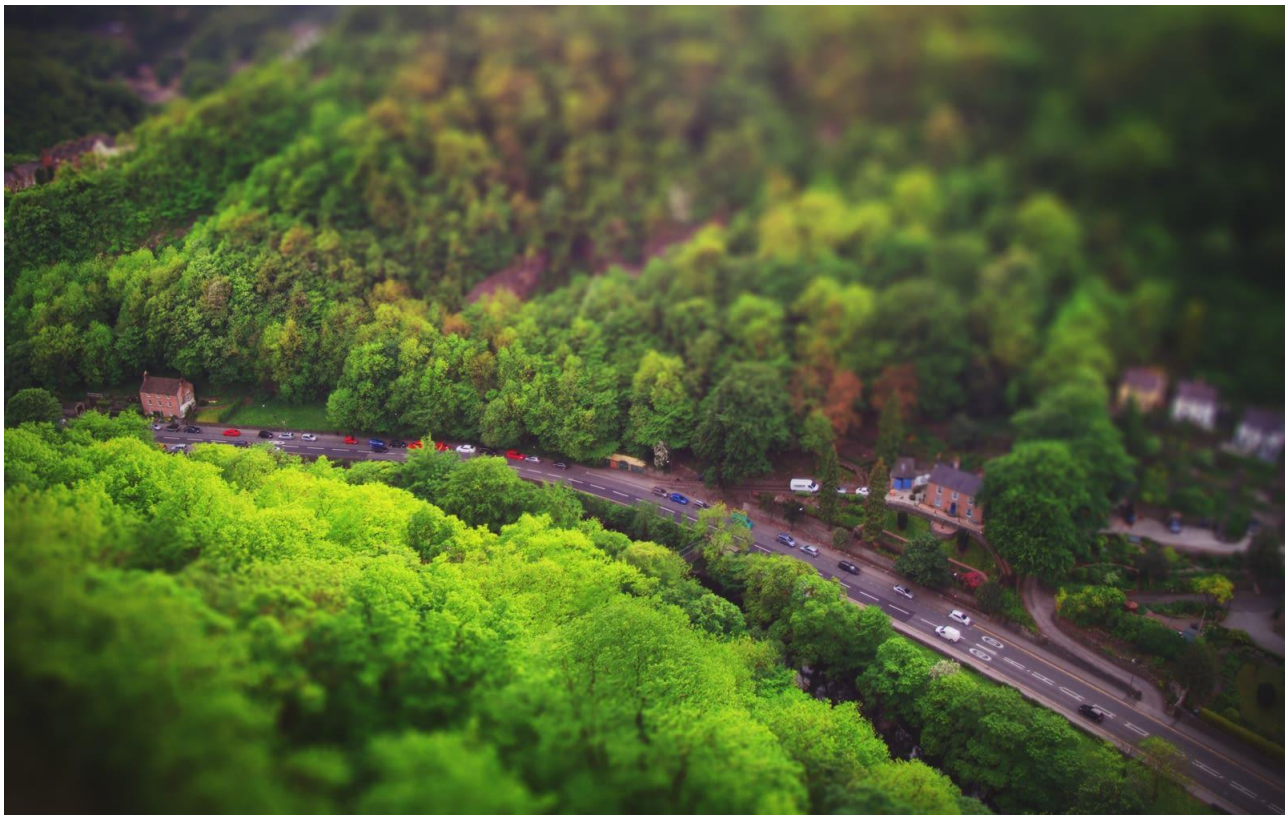
The following settings can be adjusted:

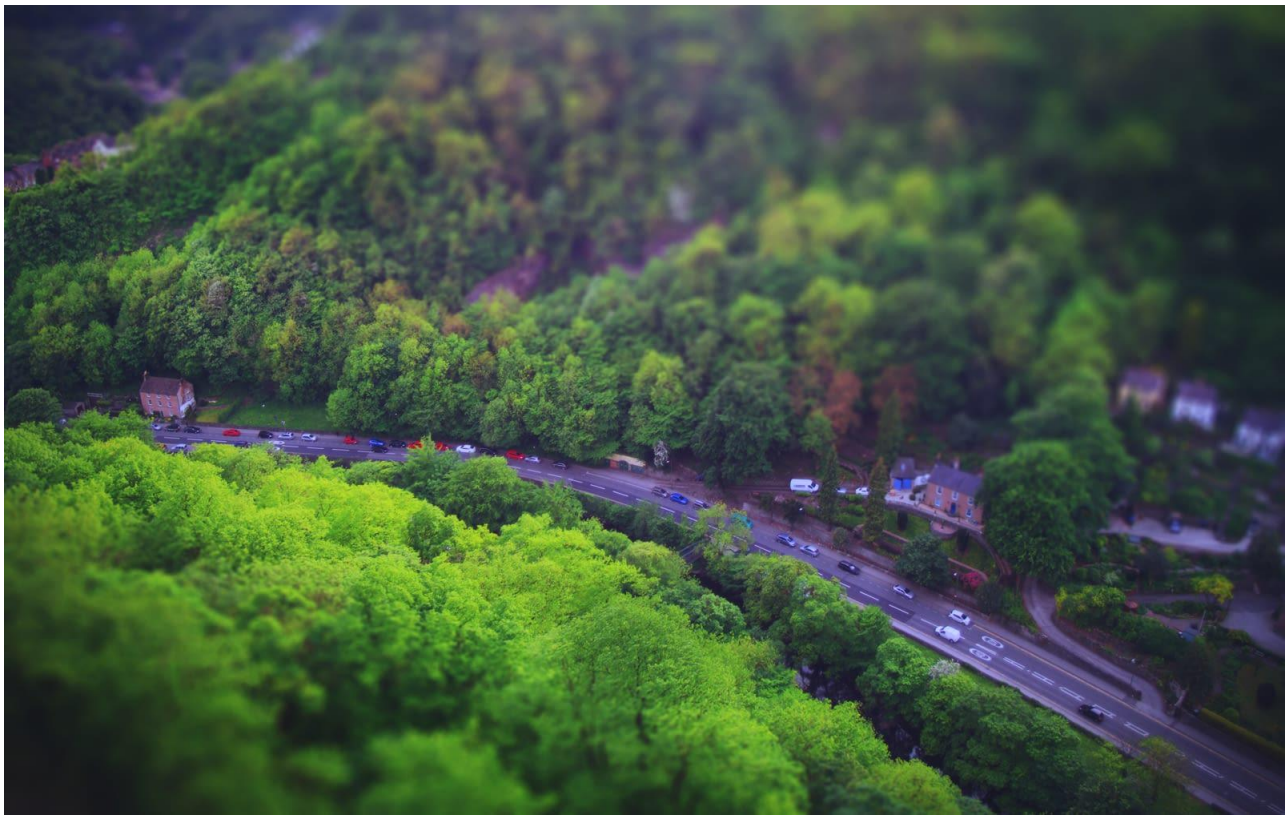
- The sliders control the lightness value of the named color areas of the image. Drag the slider to the left to darken areas of the named color, drag the slider to the right to lighten them.
- **Picker**—allows you to drag on the image to modify the adjustment. The initial click will identify the predominant color, dragging left will darken areas of the identified color while dragging right will lighten them. The corresponding slider will be updated.

The **Picker** option is not available in Develop Persona.

Channel Mixer adjustment

Adjust the color of individual channels to produce effects not easily achieved with other color adjustment tools.





Adjustments can be made in any color mode, regardless of the document's current color mode.

Settings

The following settings can be adjusted:

- **Output Channel**:
    - Select a color mode from the first pop-up menu.
    - Specify a single color channel to apply the adjustment to, including the layer's alpha channel. Select from the second pop-up menu.
- The sliders control the contribution of the named color to the selected output channel. Drag the slider to the left to decrease the level of the named color, drag the slider to the right to increase it.
- **Offset**—controls the overall influence the selected output channel has on the image as a whole. Drag the slider to the left to decrease the output channel's contribution, drag the slider to the right to increase it.

Modifying the alpha channel produces a keying/matting effect.

Color Balance adjustment

The Color Balance adjustment provides a way to modify the contribution of particular colors to a set tonal range.

Settings

The following settings can be adjusted:

- **Tonal Range**—determines the tones to be adjusted. Select from the pop-up menu.
- The sliders control the balance of the named colors in the selected **Tonal Range**. Drag the slider toward the color you wish to emphasize.
- **Preserve luminosity**—if this option is off (default), the adjustment ignores the original lightness value of pixels. When selected, the adjustment modifies pixel colors with respect to their original lightness value.

Gradient map adjustment

The Gradient Map adjustment maps the equivalent grayscale range of an image to a specified color gradient. This provides an effective (and creative) way of recoloring an image.

A Gradient Map applied using a custom opacity and blend mode.

Settings

For dialog settings, see the Gradient editing topic.

To create a black and white image, ensure the gradient contains only grayscale values.

HSL adjustment

Fine-tune the colors in your image, or even completely change them, by modifying the hue, saturation and luminosity (lightness).

Before and after adjustment applied.

Settings

The following settings can be adjusted:

- **Channel**—alter all colors at once (**Master**) or choose an individual color set (e.g., **Yellows**).
- **HSV**—when checked, uses the Hue Saturation Value (HSV) model instead of Hue Saturation Lightness (HSL). The Saturation and Luminosity sliders behave differently between the two models.
- **Hue Shift**—controls the color tint of pixels in the image. Drag the lower slider to shift the colors through the spectrum. (See note below.)
- **Saturation Shift**—controls the intensity of the colors in the image. Drag the slider to the left to decrease color intensity, drag to the right to increase it.
- **Luminosity Shift**—controls the overall brightness of the image. Drag the slider to the left to decrease brightness, drag to the right to increase it.

Why two spectrums for Hue Shift?

The upper spectrum represents pixel colors in the original image, using cyan as a midpoint. This spectrum is *not* a slider and cannot be adjusted.

The upper spectrum is a reference for the color shift of image pixels when the lower slider is adjusted. Before adjustment, the spectrums are identical.

If, for example, you drag the slider to the right the green section of the lower spectrum will soon lie under the cyan midpoint. All cyan pixels in the image will now appear green. All other pixels in the image will all shift to an equal degree, e.g. blue will become cyan, and green will become orange.

To create a desaturated (black and white) image, position the **Saturation Shift** slider to the far left.

Lens Filter adjustment

Emulates the use of a lens filter to tint the color of the image.

Before and after adjustment applied.

Settings

The following settings can be adjusted:

- **Filter Color**—Choose the color/tint of your lens filter.
- **Optical Density**—Adjust the density (or strength) of the lens filter: this controls how much of the tint is blended into the image.
- **Preserve Luminosity**—When checked, prevents the change in color from affecting the luminance channel of the image. If unchecked, increasing the optical density will typically reduce the luminosity of the image.

OpenColorIO adjustment

The **OpenColorIO** adjustment is designed to help with OpenColorIO color-managed workflows by allowing color transforms between source and destination color spaces. See Using OpenColorIO for more information.

Before (ACEScg) and after (Linear sRGB) adjustment applied.

Settings

The following settings can be adjusted:

- **Source Color Space**—sets the input color space to use for transforming.
- **Destination Color Space**—sets the output color space.

This adjustment requires a valid OpenColorIO configuration in order to be usable. See Using OpenColorIO for instructions on setting up a configuration.

Recolor adjustment

Create a monochrome image using the full spectrum of colors.

Before and after adjustment applied.

Settings

The following settings can be adjusted:

- **Hue**—controls the color tint applied to the image. Drag the slider to shift the tint through the spectrum.
- **Saturation**—controls the intensity of the image's color. Drag the slider to the left to decrease color intensity, drag to the right to increase it.

Creating black and white and sepia images:

- To create a desaturated (black and white) image, position the **Saturation** slider to the far left.
- To create a sepia image, position the **Hue** slider anywhere around the orange section of the spectrum and position the **Saturation** slider anywhere left of the center.

Selective Color adjustment

The Selective Color adjustment provides a way to subtly adjust and enhance colors in your image on an individual channel basis. It makes a useful tool for color balance corrections.

Before and after adjustment applied.

This adjustment produces subtle effects. Even at the extreme ends of the adjustment, you shouldn't see many artefacts or saturated pixels. If you intend to make extreme adjustments, such as completely recoloring pixels, then the HSL adjustment will be more suitable.

Settings

The following settings can be adjusted:

- **Color**—determines the color to be adjusted. Select from the pop-up menu.
- **Relative**—when selected (default), color is added or subtracted in proportion to the amount of that color present in the source pixels, giving a more natural effect. If this option is off, colors are added or subtracted based on the absolute percentage specified, regardless of the how much of that color is present in the image.
- The sliders control the levels of the named color in the selected **Color**. Drag the slider to the left to decrease the level of the named color, drag the slider to the right to increase it.

Split Toning adjustment

Tints and recolors highlights and shadows.

Before and after adjustment applied.

Settings

The following settings can be adjusted:

- **Hue**—controls the color tint of highlights/shadows. Drag the slider to set the value.
- **Saturation**—controls the intensity of the highlight/shadow colors. Drag the slider to the left to decrease color intensity, drag to the right to increase it.
- **Balance**—controls the emphasis of the adjustment. Drag the slider to the left to emphasize highlight color, drag to the right to emphasize shadow color.

The first set of Hue/Saturation sliders adjusts highlight areas, while the second set adjusts shadow areas.

Threshold adjustment

Create a two-tone, black and white image from grayscale or color images based on a pixel intensity threshold.

Before and after adjustment applied.

Any pixels lighter than the threshold are converted to white; any pixels darker than the threshold are converted to black.

Settings

The following settings can be adjusted:

- **Threshold**—controls the transition point between pixels being converted to black or white. Drag the slider to the left to convert more pixels to white, drag the slider to the right to convert more pixels to black.

Vibrance adjustment

Adjust the intensity of subtle colors in your images while minimizing the over-saturation (clipping) of more intense colors. Skin tones are also preserved to retain a natural appearance.

Before and after adjustment applied.

This adjustment is also available in Develop Persona on the **Basic** panel (Enhance).

Settings

The following settings can be adjusted:

- **Vibrance**—controls the intensity of colors in the image. Drag the slider to the left to reduce color intensity, drag the slider to the right to increase color intensity.

White Balance adjustment

Remove unwanted color casts or give an image a warmer or cooler feel.

Before and after adjustment applied.

The adjustment lets you control white balance using:

- the dialog's sliders
- a white point picker (Photo Persona only)

- a White Point Tool (Develop Persona only)

In Photo Persona, white balance is available as an adjustment layer. In Develop Persona, it appears on the **Basic** and **Overlays** panels.

Settings

The following settings can be adjusted:

- **White Balance**—controls the 'temperature' of the image. In the **Develop Persona** this is measured in Kelvin (K). Drag the slider to the left to cool the image, or drag the slider to the right to warm the image.
- **Tint**—tints the image either towards magenta or green. This is useful for removing color casts, especially if the image was taken under artificial lighting (e.g., tungsten or fluorescent).
- **Picker**—allows you to sample the image to set the white point on which the white balance will be calculated. You can sample using one of the following methods:
    - Click to sample a pixel under the cursor.
    - Drag the cursor across the image to sample all pixels under the cursor. The averaged color from those pixels is used.
    - Press the and drag to sample under a rectangular marquee, again using the averaged color of those pixels.

In Develop Persona, a dedicated **White Point Tool** is used instead of the **Picker**. It offers the same sampling functionality as the Picker.

In Develop Persona, the image uses the camera's "As Shot" White Balance values by default. Checking the adjustment's check box displays those values, which can be reverted to at any time by unchecking the adjustment's check box.

Other adjustments

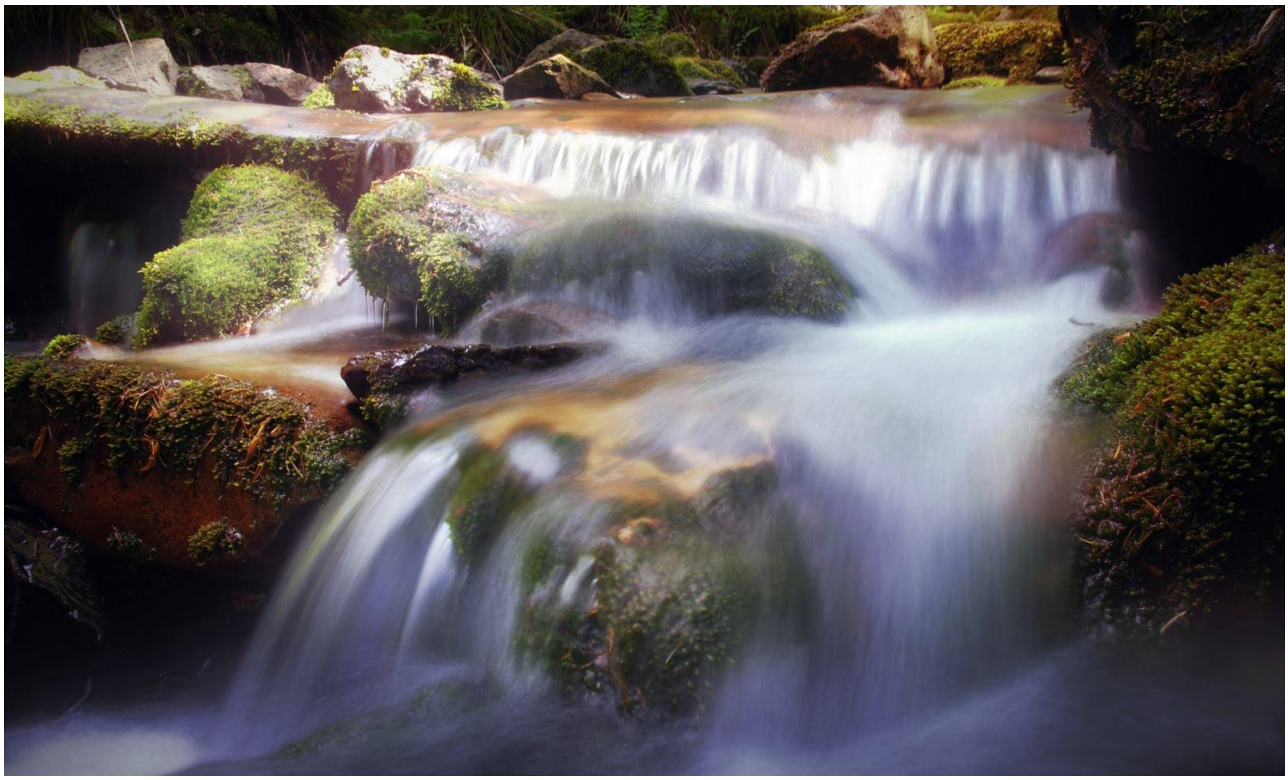
As well as tonal and color adjustments, there are a range of other adjustments which can be applied to your photo for corrective, creative or proofing purposes.

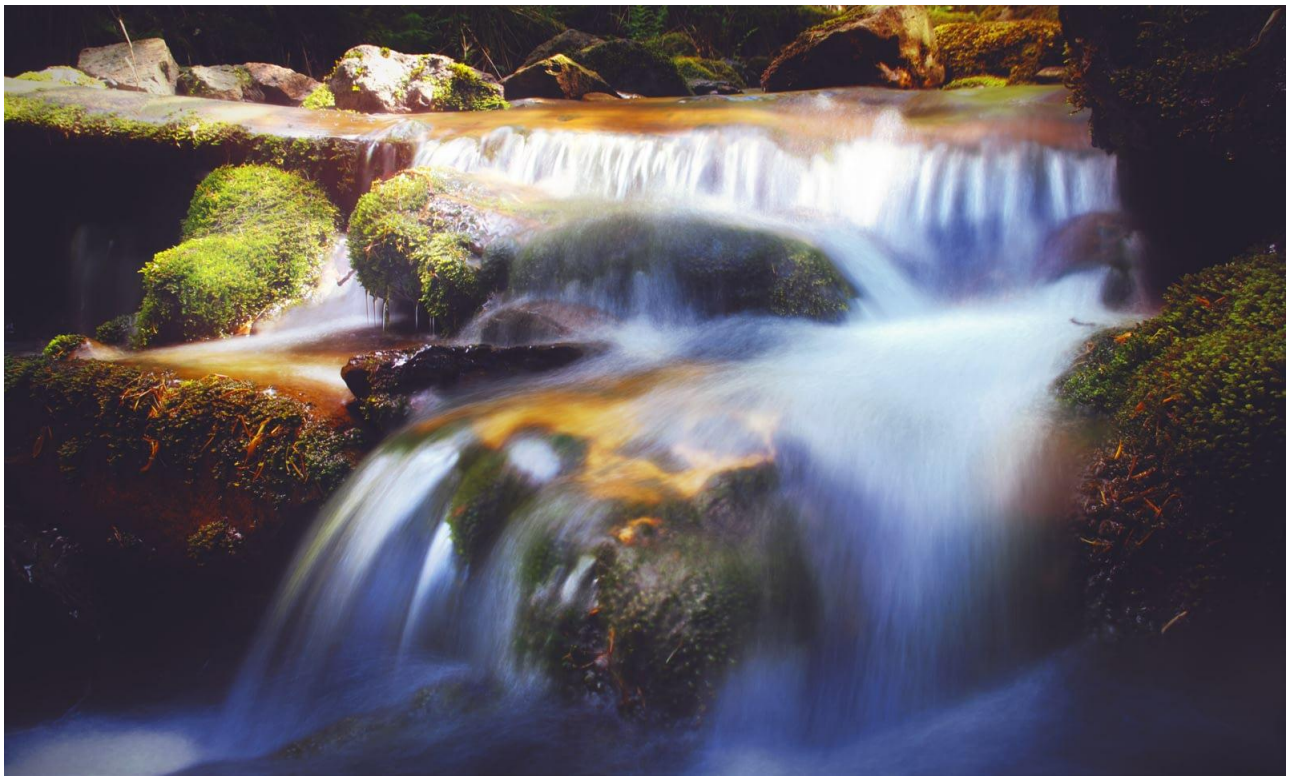
Available adjustments include:

- LUT—adjusts the color values of a photo based on a defined matrix.
- Invert—reverses the color values of a photo to create a negative image.
- Posterize—expresses a photo as blocks of solid color.
- Soft Proof—provides a preview of a photo when output for a specific color space or device.

LUT adjustment

The LUT adjustment allows you to emulate image colors used in a variety of media platforms.





A LUT (look-up table) remaps pixel color values based on a defined XYZ matrix. This allows you to quickly replicate the appearance of various types of media, such as reproducing the cold, blue tone attributed to science fiction and horror movies.

The look up table is stored within a file previously exported from Affinity Photo or other applications (e.g., video packages). Alternatively, it can be inferred by comparing images.

Settings

The following settings can be adjusted:

- **Load LUT**—sets the LUT used in the adjustment. In the pop-up dialog, navigate to and select a file, and click **Open**.
- **Infer LUT**— Applies a LUT adjustment without the need of a separate LUT file by comparing a 'source' image and its adjusted exported image. With a new 'target' image loaded, click **Infer LUT**, then in the pop-up dialog, navigate to and select both source and adjusted files in turn, and click **Open**.

The following types of LUT files are available: ***.3dl**, ***.csp**, ***.cube**, and ***.look**.

Invert adjustment

Create a negative image by inverting all color channels.

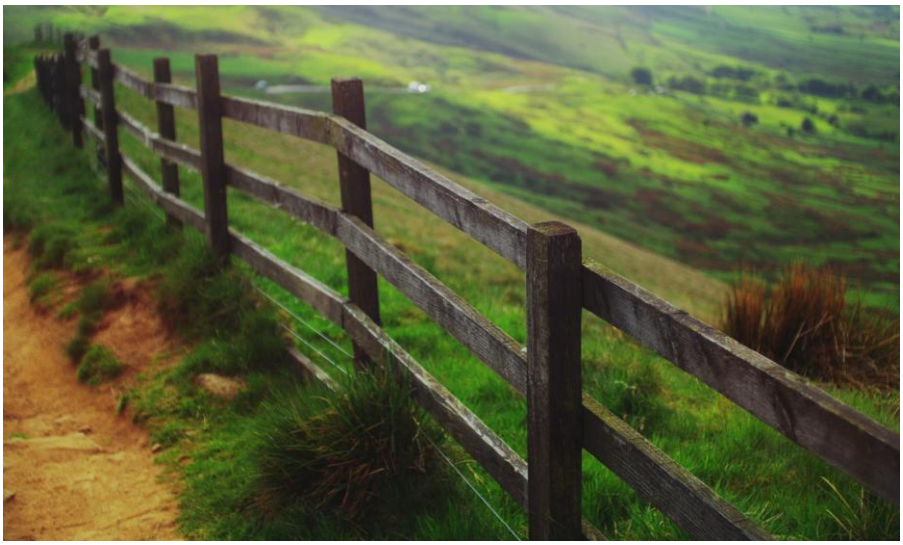
This adjustment has no customizable settings.

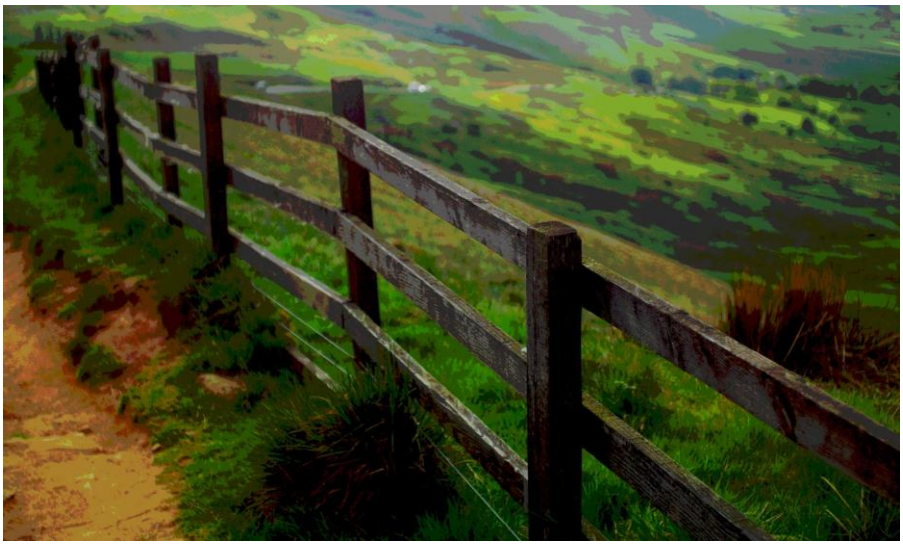
You can use Invert as part of the process of making edge masks and to apply sharpening and other adjustments to selected areas of an image.

For more control in creating a negative-style (inverted) image, you can use a **Levels** adjustment.

Posterize adjustment

Creates large, flat areas of color or tone in your images.





Settings

The following settings can be adjusted:

- **Posterize Levels**—controls the number of colored areas produced and the complexity of the resulting image. Drag the slider to the left to decrease the number of colored areas (thereby simplifying image layout), drag to the right to increase colored areas (thereby giving a more complex image layout).

The number displayed in the dialog represents the **level** of complexity rather than the number of resulting colors.

Soft Proof adjustment

Preview the effect of creating an output for a specific color space or device.

This adjustment allows you to preview different output options for your photo or design. It can also be used creatively for tonal effects. As it behaves like a standard adjustment layer, it must be hidden or removed before exporting or sending to print, otherwise its effect will be included in the output.

Settings

The following settings can be adjusted:

- **Proof Profile**—determines the color profile used. Select from the menu or use the up/down arrow keys to cycle through options.
- **Rendering Intent**—sets the visual purpose for applying the adjustment. Select from the pop-up menu.
- **Black point compensation**—when selected (default), the photo's black point is adjusted to honor the current contrast within the current proof profile. If this option is off, the photo's black point is not adjusted and image contrast may not be honored.
- **Gamut check**—when selected, RGB colors without a CMYK equivalent will display as gray.

Exporting custom adjustments as LUTs

You can create your own LUTs based on the adjustments applied to a project.

You can create custom LUTs from custom adjustments for future use or distribution.

Settings

The following settings can be adjusted:

- **Title**—sets the descriptive name of the adjustment.
- **Format**—sets the exported file type. Select from the pop-up menu.
- **Quality**—sets the complexity of the exported adjustment. Drag the slider to set the value.

The following types of LUT files are available: ***.3dl**, ***.csp**, ***.cube**, and ***.look**.

To export as a LUT:

1. Apply one or more adjustments to your project.
2. From the **File** menu, select **Export LUT**.
3. Adjust the settings in the dialog.
4. Click **Export**.
5. Navigate to and select storage folder, name the file, and then click **Save**.

Applying filters

Filters can be applied to layers within your document for corrective or creative purposes.

About filters

In Affinity Photo, filters are available in both non-destructive and destructive forms. A variety of filters are available as Live Filters which are non-destructive.

For destructive filters, it's a great idea to make a duplicate layer of the layer you planned to work on. By applying a filter to the duplicated layer, you preserve the original layer's contents, with the option to hide the 'filter' layer as needed.

If a selection is in place before the filter is applied, the filter will only affect pixels within the selection.

Available filters:

- **Blur**
    - Average
    - Gaussian Blur
    - Diffuse Glow
    - Box Blur
    - Motion Blur
    - Radial Blur
    - Zoom Blur
    - Lens Blur
    - Depth Of Field Blur
    - Field Blur
    - Maximum Blur
    - Minimum Blur
    - Bilateral Blur
    - Median Blur
    - Custom Blur
- **Sharpen**
    - Unsharp Mask
    - Clarity

    - High Pass
- **Distort**
    - Deform
    - Perspective
    - Twirl
    - Pinch/Punch
    - Spherical
    - Ripple
    - Lens Distortion
    - Rectangular to Polar
    - Polar to Rectangular
    - Pixelate
    - Displace
    - Shear
    - Mirror
    - Affine
    - Equations
- **Noise**
    - Denoise
    - Add Noise
    - Diffuse
    - Perlin Noise
    - FFT Denoise
    - Dust & Scratches
- **Detect**
    - Detect Edges
    - Detect Horizontal Edges
    - Detect Vertical Edges
- **Colors**

    - Vignette
    - Remove Vignette
    - Chromatic Aberration
    - Defringe
    - Erase White Paper
    - Monochrome Dither
    - Web Safe Dither
    - Emboss
    - Solarize
    - Halftone
- **Other**
    - Lighting
    - Haze Removal
    - Shadows / Highlights

Available live filters:

- **Blur**
    - Gaussian Blur
    - Box Blur
    - Median Blur
    - Bilateral Blur
    - Motion Blur
    - Lens Blur
    - Depth Of Field Blur
    - Field Blur
    - Diffuse Glow
- **Sharpen**
    - Clarity
    - Unsharp Mask
    - High Pass

- **Distort**
    - Ripple
    - Twirl
    - Spherical
    - Displace
    - Pinch/Punch
    - Lens Distortion
    - Perspective
- **Noise**
    - Denoise
    - Add Noise
    - Diffuse
    - Dust & Scratches
- **Colors**
    - Vignette
    - Defringe
    - Halftone
- **Lighting/Tonal**
    - Lighting
    - Shadows / Highlights

Settings

The following general settings are available from all filter dialogs:

- **Before/After**—when selected, a dividing line is displayed over the document to show a before and after preview. Drag the dividing line to reposition it.
- **Cancel**—exits the dialog without applying the changes to the filter.
- **Apply**—exits the dialog and applies the filter settings to the layer.

Live filters have these additional settings:

- **Delete**—closes the dialog and deletes the filter layer, removing the filter from the image.

- **Merge**—merges the current filter layer with the layer immediately below it in the layer order.
- **Add Preset**—adds the current settings as a preset for use with later images and projects.
- **Reset**—reverts all dialog settings to default.
- **Opacity**—how see through the filter layer is.
- **Blend mode**—changes how the applied pixels interact with existing pixels on the layer below. Choose mode type from a pop-up menu.

To apply a filter:

1. On the **Layers** panel, select a layer (we recommend that this is a duplicate layer).
2. Select the filter from the **Filters** menu.
3. If a dialog appears for the filter, follow the steps below:
    i. Adjust the settings in the dialog.
    ii. Click **Apply**.

Not all filters have a dedicated dialog or customizable settings.

To apply a live filter from the Layers panel:

1. On the **Layers** panel, select a layer.
2. Click **Live Filters** and select a filter from the pop-up menu.
3. If a dialog appears for the filter, follow the steps below:
    i. Adjust the settings in the dialog.
    ii. Close the dialog to apply.

The filter is clipped to the selected layer, restricting its effect to just that layer.

Blur filters

Use blur filters to apply creative blurring effects to your photo.

Available filters include:

- Average—applies a uniform color averaged across your image.
- Bilateral Blur—blurs while retaining high contrast.
- Box Blur—blurs based on a boxed region.
- Custom Blur—applies your own blur using a customizable pixel matrix.
- Depth Of Field Blur—applies elliptical or Tilt-shift blur gradients.
- Diffuse Glow—blurs with a soft glow effect.
- Field Blur—adds focal points to a blurred image.
- Gaussian Blur—a smoothing blur for noise reduction.
- Lens Blur— simulates blurring from wide aperture lens usage.
- Maximum Blur—broadens highlights, reduce shadows.
- Median Blur—blurs while affecting color regions.
- Minimum Blur—shrinks highlights, increase shadows.
- Motion Blur—blurs to simulate directional movement.
- Radial Blur—gives a circular blur at a chosen position.
- Zoom Blur—blurs to simulate zooming-in motion effect.

Average

The Average filter calculates the average color in the current layer (or selection) and then applies it throughout that area.

About the Average filter

This filter can be found in the **Filters** menu, in the **Blur** category.

This filter has no customizable settings.

Bilateral Blur

The Bilateral Blur filter blurs an image while retaining areas of high contrast. As these contrast changes most commonly occur at edges, it makes the filter very useful both for noise reduction and for creating interesting stylistic effects.

About the Bilateral Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the size of the area sampled for the blur. Type directly in the text box or drag the slider to set the value.
- **Tolerance**—controls whether pixels are included within the blur based on the difference between tonal values of neighboring pixels. At larger tolerance values, pixels with greater tonal differences will be included within the blur. Type directly in the text box or drag the slider to set the value.

Box Blur

The Box Blur filter blurs an image based on the average color of neighboring pixels. At high radius levels, this results in an obvious 'box' effect. At lower radius levels, it results in an effect similar to Gaussian Blur.

About the Box Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

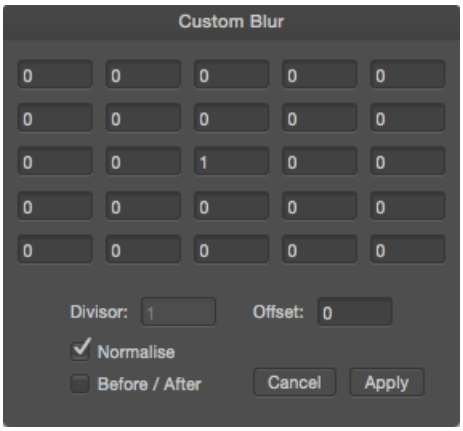
Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls intensity of the filter. Type directly in the text box or drag the slider to set the value.

Custom Blur

The Custom Blur filter allows you to construct your own filter to apply a customized blur.



Custom Blur matrix window.

About the Custom Blur filter

When this blur filter is applied to an image, each pixel's brightness value is recalculated according to the customized formula.

The cells in the matrix represent a target pixel (at the center) and its surrounding pixels. Numbers in these cells are multipliers ("coefficients") by which each pixel's brightness will be multiplied. The filter examines each pixel, takes the sum of all these multiplications, and comes up with a new value for each target pixel. If a cell's value is 0, the corresponding pixel makes no contribution to the recalculated value of the target pixel.

This filter can be found in the **Filter** menu, in the **Blur** category.

Settings

The following settings can be adjusted in the filter dialog:

- Matrix cell—sets the multiplier used to determine pixel brightness. Type directly in the text box or use the arrow s to set the value.
- **Divisor**—sets the value by which the overall multiplied brightness is divided. Type directly in the text box to set the value.
- **Offset**—adjusts the overall brightness. Positive values increase the overall brightness, negative values decrease the overall brightness. Type directly in the text box to set the value.
- **Normalize**— when selected (default), the Divisor is automatically set to the sum of all the values set in the matrix cells to maintain the overall lightness of the original image. If this option is off, the Divisor can be adjusted manually.

Depth Of Field Blur filter

The Depth Of Field Blur filter applies a blur gradient that can be used to simulate extreme depth of field and miniaturization effects, such as tilt shift.

Using the Tilt-Shift mode to produce a miniature model effect.

About the Depth of Field Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Modes

- **Elliptical**—useful for photos with a single subject, as it creates an graduated elliptical blur vignette.
- **Tilt Shift**—often used to simulate a scene created by models.

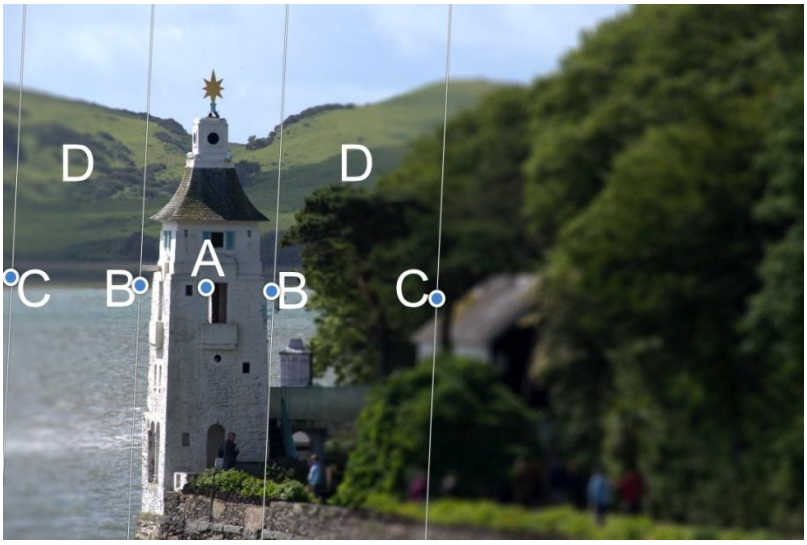
Settings

The following settings can be adjusted in the filter dialog:

- **Mode**—choose from the pop-up menu to define the type of blur generated.
- **Radius**—controls intensity of the blur. Type directly in the text box or drag the slider to set the value.
- **Vibrance**—controls the color intensity of less saturated colors (a high value increases the 'model-like' effect).
- **Clarity**—increases the local contrast and gives the appearance of increasing the sharpness of the image.

Modifying the applied blur gradient

The gradient stops determine the position and extent of the transition between the areas in sharp focus and those that are blurred.



(A) Focus origin, (B) Inner lines, (C) Outer lines, (D) Transition areas.

The focus origin (A) defines the central point at which the image is kept completely in focus. Reposition the focus origin by dragging on the stop.

The inner lines (B) define the width of the area in focus. For the Tilt Shift mode these can be set independently by dragging each of the stops in turn, or, symmetrically by dragging one of the stops while holding the . The Elliptical mode always matches the shape of the inner lines to the outer lines so that only the width can be specified.

The outer lines (C) define the end of the blur transition. For the Tilt Shift mode, these can be set independently by dragging each of the stops in turn, or, symmetrically by dragging one of the stops while holding the . The Elliptical mode always sets the stops in pairs.

The transition areas (D) between the inner and outer lines are where the blurring gradually increases. The wider the lines, the more gradual the transition. The area on the outside of the lines has the filter applied at the full amount set by the **Radius** slider.

The angle of the filter can be changed by dragging the stops at an angle. Once the desired angle is achieved, holding the will temporarily lock the angle to allow for further adjustment of the width of the adjustment.

When using the tilt shift effect to "miniaturize" a scene, you will get the best effect if you choose your images carefully. Models are generally viewed from above, so the tilt shift effect will work best on images taken with an elevated viewpoint and a wide angle of view. Buildings, roads, traffic and railways make excellent subjects.

Diffuse Glow

Diffuse Glow broadens highlights in the active layer or selection by brightening gradually outward from existing highlights, producing a soft halo effect. This creates a romantic, almost dreamy effect, similar to that of photographing an image through a soft diffusion filter.

Using diffuse glow to add intensity and softness to the highlights of an image.

About the Diffuse Glow filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls how much the pixels surrounding the highlights are affected. Type directly in the text box or drag the slider to set the value.
- **Intensity**—controls the strength of the highlights. Type directly in the text box or drag the slider to set the value.
- **Threshold**—determines the range of lightness values affected. As the tolerance decreases, the effect spreads to areas that were darker to begin with. Type directly in the text box or drag the slider to set the value.
- **Opacity**—alters the transparency of the effect. Type directly in the text box or drag the slider to set the value.

Field Blur filter

The Field Blur filter lets you control blurring at specific areas of your image.

About the Field Blur filter

Against a uniformly blurred image, one or more selection handles can be added, positioned and edited to control the extent of blurring at that handle position, i.e.the focus origin. Multiple areas of focus can therefore be created.

Handles are independent of each other and can be repositioned and edited individually.

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Global Radius**—controls the intensity of the blur across the whole image. Type directly in the text box or drag the slider to set the value.
- **Selected Handle Level**—controls the amount of blurring at the selected handle. Decreasing the value brings the image under the handle increasingly into focus.
- **Selected Handle Power**—controls the extent of the transition out from the area under the handle between sharp focus and blurring.

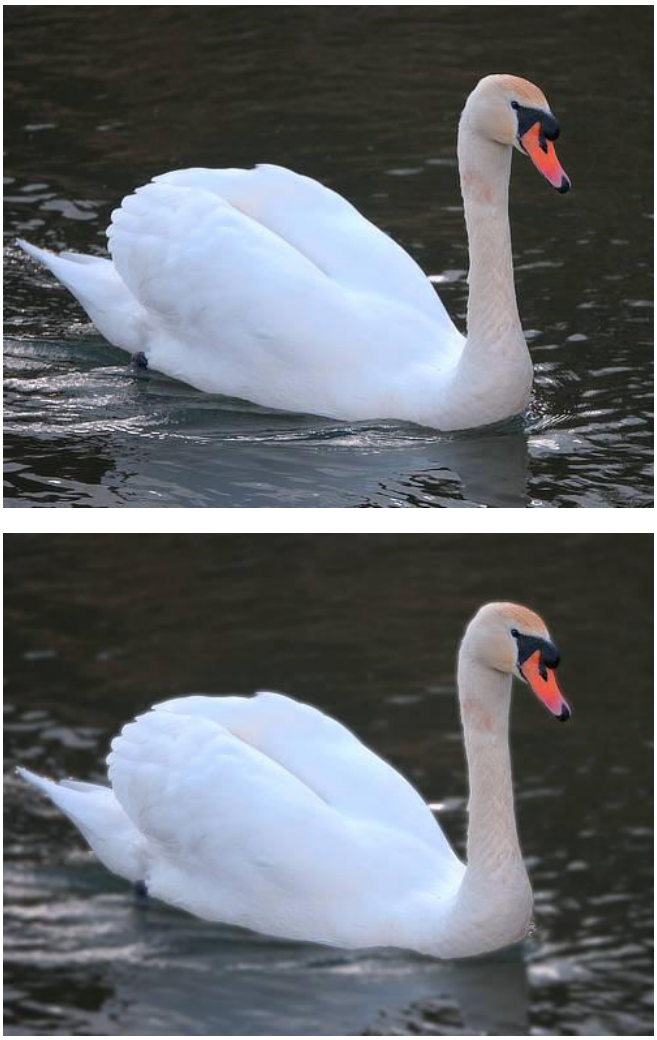
To add additional selection handles:

- Click on the page.

A selected handle shows as a double ring, as opposed to a single ring (deselected).

Gaussian Blur

The Gaussian Blur filter is used to reduce image noise or detail by creating a pleasing, smooth blur using a weighted average. It's especially useful for reducing moiré (interference) patterns.



Gaussian blur added to the water.

About the Gaussian Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls how much dissimilar pixels are blurred. Type directly in the text box or drag the slider to set the value.
- **Preserve Alpha**—when checked, object edges are not subject to blurring.

Lens Blur

The Lens Blur filter mimics the blur applied to a photo when a wide aperture is used to achieve a narrow depth of field. It can be used to improve the composition of a photo by applying a shallow depth of field to blur unwanted background. Unlike the Gaussian Blur filter, the Lens Blur filter recreates the the bokeh effects generated with a real camera lens.

About the Lens Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the number of pixels affected. Type directly in the text box or drag the slider to set the value.
- **Number of Blades**—sets the number of virtual aperture blades which controls the shape of the 'iris' and the shape of the specular highlights. Type directly in the text box or drag the slider to set the value.
- **Blade Curvature**—sets how round the iris shape becomes. Type directly in the text box or drag the slider to set the value.

The shape of the iris affects the shape of the specular highlights (bokeh). The most noticeable bokeh shapes are created using a low blade curvature and fewer aperture blades. To mimic the effects of your own lenses, be sure to match the number of aperture blades.

Maximum Blur

The Maximum Blur filter broadens highlight regions in the image, and shrinks darker areas. It works by comparing each pixel to its neighbor and replaces darker pixels with lighter pixels. This is most useful for modifying masks.

About the Maximum Blur filter

This filter can be found in the **Filters** menu, in the **Blur** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the intensity of the filter. Type directly in the text box or drag the slider to set the value.
- **Circular**—if this option is off (default), highlight regions expand to form square areas. When selected, expanded highlight regions are circular.

Median Blur

The Median Blur filter broadens color regions in the image. At low settings it's useful for removing noise, especially as it retains edges better than Gaussian Blur. At much higher intensities it introduces flat areas of color.

Median Blur on a photograph.

About the Median Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

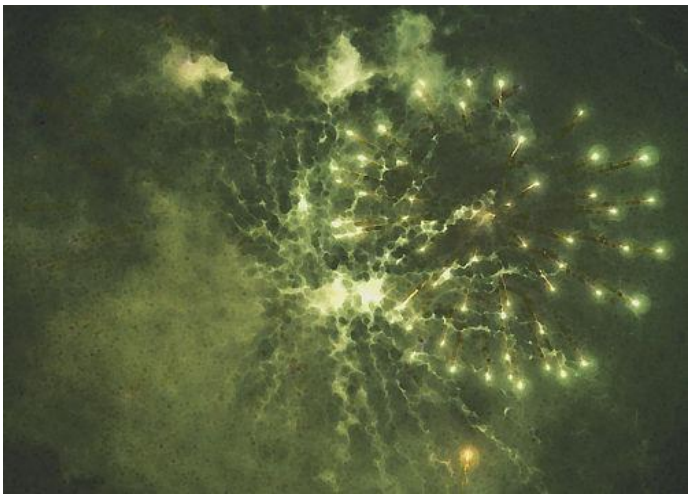
Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls intensity of the filter. At high levels it creates large, flat areas of color. Type directly in the text box or drag the slider to set the value.

Minimum Blur

The Minimum Blur filter shrinks highlight regions in the image, and broadens darker areas. It works by comparing each pixel to its neighbor and replaces lighter pixels with darker pixels. This is most useful for modifying masks.



About the Minimum Blur filter

This filter can be found in the **Filters** menu, in the **Blur** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls intensity of the filter. Type directly in the text box or drag the slider to set the value.
- **Circular**—if this option is off (default), darker regions expand to form square areas. When selected, expanded darker regions are circular.

Motion Blur

The Motion Blur filter blurs in a specified direction to give the impression of movement. This gives an effect similar to panning with a camera at slower shutter speeds.

Motion Blur can add the impression of speed or movement to images.

About the Motion Blur filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the amount of 'zoom'. Type directly in the text box or drag the slider to set the value.
- **Rotation**—controls the angle at which the blur is applied. Drag the dial to set the value.

Radial Blur

The Radial Blur filter creates blur in concentric circular lines from an origin point. This gives the impression of movement and rotation, similar to the effect of a fast rotating object taken at a slower shutter speed.

About the Radial Blur filter

This filter can be found in the **Filters** menu, in the **Blur** category.

Drag on the image to set the origin.

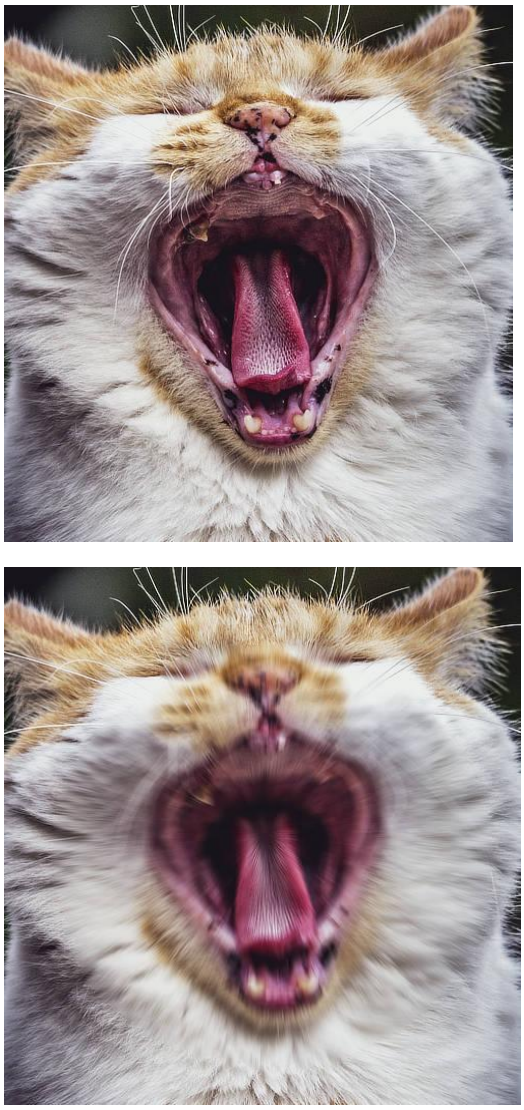
Settings

The following settings can be adjusted in the filter dialog:

- **Angle**—controls the amount of 'spin'. Type directly in the text box or drag the slider to set the value.

Zoom Blur

The Zoom Blur filter applies converging streaks from an origin point. This gives the impression of movement, similar to the effect of using a long exposure while zooming in to a subject.



Using Zoom Blur to convey power and sound..

About the Zoom Blur filter

This filter can be found in the **Filters** menu, in the **Blur** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the amount of 'zoom'. Type directly in the text box or drag the slider to set the value.

Color filters

Use color filters to add creative color effects or correct color anomalies in your photo.

Available filters include:

- Chromatic Aberration—removes lens-related color fringing automatically.
- Defringe—remove color fringing by sampling.
- Emboss—creates a convex rounded-edge effect.
- Erase White Paper—intelligently removes white and replaces with transparency.
- Monochrome Dither—converts the image to black and white monochrome.
- Remove vignette—fixes unwanted vignetting around your image.
- Solarize—sets lightness above which image colors are inverted.
- Vignette—adds an elliptical surround to your image.
- Web Safe Dither—makes your image web safe by reducing colors.
- Halftone—simulates continuous tone reproduction.

Chromatic Aberration

Lateral chromatic aberration is caused when the camera lens focuses different wavelengths of light at slightly different distances. This causes the red, blue and green planes to go out of alignment, causing multiple color fringes and out of focus details. The problem often gets more pronounced with increasing distance from the center of the image.

The Chromatic Aberration filter fixes chromatic aberration by warping the blue and red planes so they align with the green plane—which is usually the most in focus—and finds the best alignment.

Aligning the chroma planes using the filter.

About the Chromatic Aberration filter

This filter can be found in the **Filters** menu, in the **Colors** category.

This filter has no customizable settings.

If there is any remaining chromatic aberration this can be mitigated by using the Defringe filter. You should always apply the chromatic aberration filter before the defringe filter, and always apply it to an uncropped image.

Defringe

Purple fringing, or bichrominance as it's more correctly termed, is a form of chromatic aberration caused by the over-excitation of the pixels on the sensor in the camera. The effect can occur anywhere within an image but it's most common at the edges of high contrast areas, especially when a dark element is strongly backlit, such as branches silhouetted against a blue sky. The Defringe filter selectively adjusts these areas to remove the color fringing.

Using the Defringe filter to remove purple fringing from the window edges.

About the Defringe filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

On selecting the Defringe filter, it will default to settings which remove the purple fringing, as this is the most common type. This can be manually adjusted as necessary in the dialog, or by sampling the fringe color on the page to remove it.

Settings

The following settings can be adjusted in the filter dialog:

- **Fringe Color**—defines the color of the fringe to be desaturated. Drag the slider or click on the image to define the hue.
- **Also Remove Complementary Hue**—also removes fringing matching the chosen hue's complementary color (e.g., choosing purple would also remove yellow fringing).
- **Tolerance**—defines how close the fringe color must be to the defined color before it is affected. Type directly in the text box or drag the slider to set the value.
- **Radius**—defines the radius of the pixels affected around the fringed areas. Type directly in the text box or drag the slider to set the value.
- **Edge Brightness Threshold**—defines the amount of contrast needed between the fringed areas before affecting the pixels. Type directly in the text box or drag the slider to set the value.

Emboss

The Emboss filter uses the contrast of an image to remap contours to create a 3D effect, similar to bas-relief. Like many of the other filters, it's very versatile and most useful when combined with other techniques.

Using Emboss on a duplicate layer with its blend mode set to "Saturation".

About the Emboss filter

This filter can be found in the **Filter** menu, in the **Colors** category.

Settings

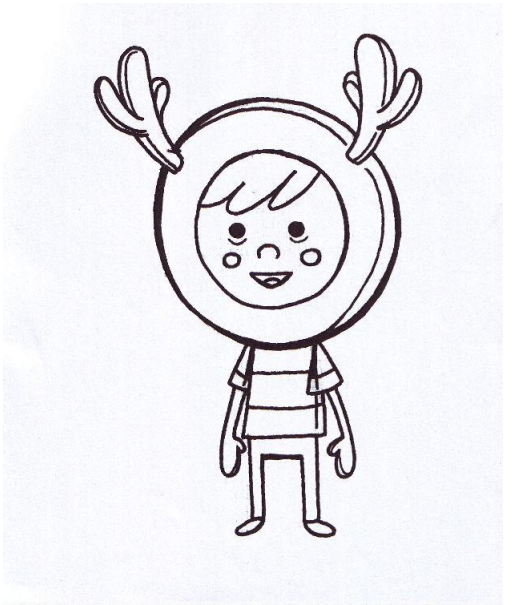
The following settings can be adjusted in the effects dialog:

- **Radius**—controls the number of pixels affected. Type directly in the text box or drag the slider to set the value.
- **Amount**—controls the intensity of the filter. Type directly in the text box or drag the slider to set the value.
- **Rotation**—controls the angle of the lighting. Drag the dial to set the value.
- **Monochrome**—when selected, the final effect only contains grayscale values.

This filter can effectively sharpen images suffering from small amounts of motion blur.

Erase White Paper

The Erase White Paper filter applies transparency to white areas of an image to remove them. All other colors remain unaffected.



Using the filter to remove white paper from a scanned document.

About the Erase White Paper filter

The filter is really useful if want to use line art previously drawn on physical media (paper). After scanning, the areas of scanned white paper can be stripped away by using the filter, allowing coloring and texture to be added to complete the design.

This filter can be found in the **Filter** menu, in the **Colors** category.

This filter has no customizable settings.

Monochrome Dither

The filter converts the image to black and white monochrome.

About the Monochrome Dither filter

This filter can be found in the **Filter** menu, in the **Colors** category.

This filter has no customizable settings.

Remove Vignette

The Remove Vignette filter automatically removes unwanted vignetting from the edges of your image. The filter makes a best effort attempt at removal. For heavily vignetted images (showing extreme instances or if a vignette has been applied by design), results may vary.

About the Remove Vignette filter

This filter can be found in the **Filter** menu, in the **Colors** category.

This filter has no customizable settings.

Solarize

The Solarize filter lets you set a lightness value above which image colors are inverted.

Solarize used with a blend mode of Subtract to create a stark contrast between shadows and highlights.

About the Solarize filter

This filter is used to imitate the darkroom technique of re-exposing a partially developed image to light to produce dramatic changes in mid-tone regions in the image.

This filter can be found in the **Filter** menu, in the **Colors** category.

This filter has no customizable settings.

Vignette

The Vignette filter can be used to either add vignetting to an image, or remove it from the image.

About the Vignette filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Exposure**—sets the type and value of the effect. Negative values darken the effect, positive values lighten the effect. Type directly in the text box or drag the slider to set the value.
- **Hardness**—controls how much feather/blur is applied to the transition. Type directly in the text box or drag the slider to set the value.
- **Scale**—controls the size of the vignette. Type directly in the text box or drag the slider to set the value.
- **Shape**—determines whether the vignette is circular or elliptical.

Web Safe Dither

The Websafe Dither filter minimizes flat colors and loss of detail when reducing the color depth of your image. This helps make the image more acceptable for viewing on the web.

About the Web Safe Dither filter

This filter can be found in the **Filter** menu, in the **Colors** category.

This filter has no customizable settings.

Halftone

The Halftone filter simulates the look of continuous tone through a choice of screen types.

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Screen Type**—provides a choice of how the continuous tone is generated from **Dot**, **Line**, **Circular** or **Color**.
- **Screen Angle**—changes the direction of the tone reproduction.
- **Cell Size**—dictates the size of each individual dot, line or circle that makes up the continuous tone.
- **Contrast**—increases or decreases the tonal contrast between each cell.
- **Gray Component Replacement**—(Color screen type only) controls the contrast of areas between color cells.
- **Under Color Removal**—(Color screen type only) controls the influence of the color cells. Increase to lessen their influence and desaturate the image.

Distortion filters

Distortion filters move pixels in your image to produce various distortion effects.

Available filters include:

- Deform—distorts from one or more anchor point positions.
- Displace—distorts using a displacement map.
- Lens Distortion—fixes barrel and pincushion lens distortions.
- Mirror—provides a reflection using one or more mirrors.
- Perspective—a filter based on the Perspective Tool.
- Pinch/Punch—squeezes or bulges an image area.
- Pixelate—creates blocks of color to obscure image areas.
- Polar to Rectangular—distorts by changing polar to rectilinear X/Y coordinates.
- Spherical—creates a convex or concave sphere distortion.
- Rectangular to Polar—distorts by changing rectilinear X/Y to polar coordinates.
- Ripple—produces a radial rippling effect.
- Shear—apply a linear or curved shear to an image horizontally and/or vertically.
- Twirl—creates a clockwise or counter-clockwise twirl effect.
- Affine—moves, scales, or rotates by percentage amounts.
- Equations—apply custom transform filter based on mathematical expressions.

Deform

The Deform filter allows you to warp areas of your image from one or more placed anchor points. It can be useful for making subtle corrections or targeted distortions!

About the Deform filter

This filter can be found in the **Filters** menu, in the **Distort** category.

Click on an image to set the anchor point and then click again to set a second point; the image deforms by dragging placed points by varying amounts.

Click-dragging to create a marquee selection allows multiple anchor points to be selected and manipulated simultaneously.

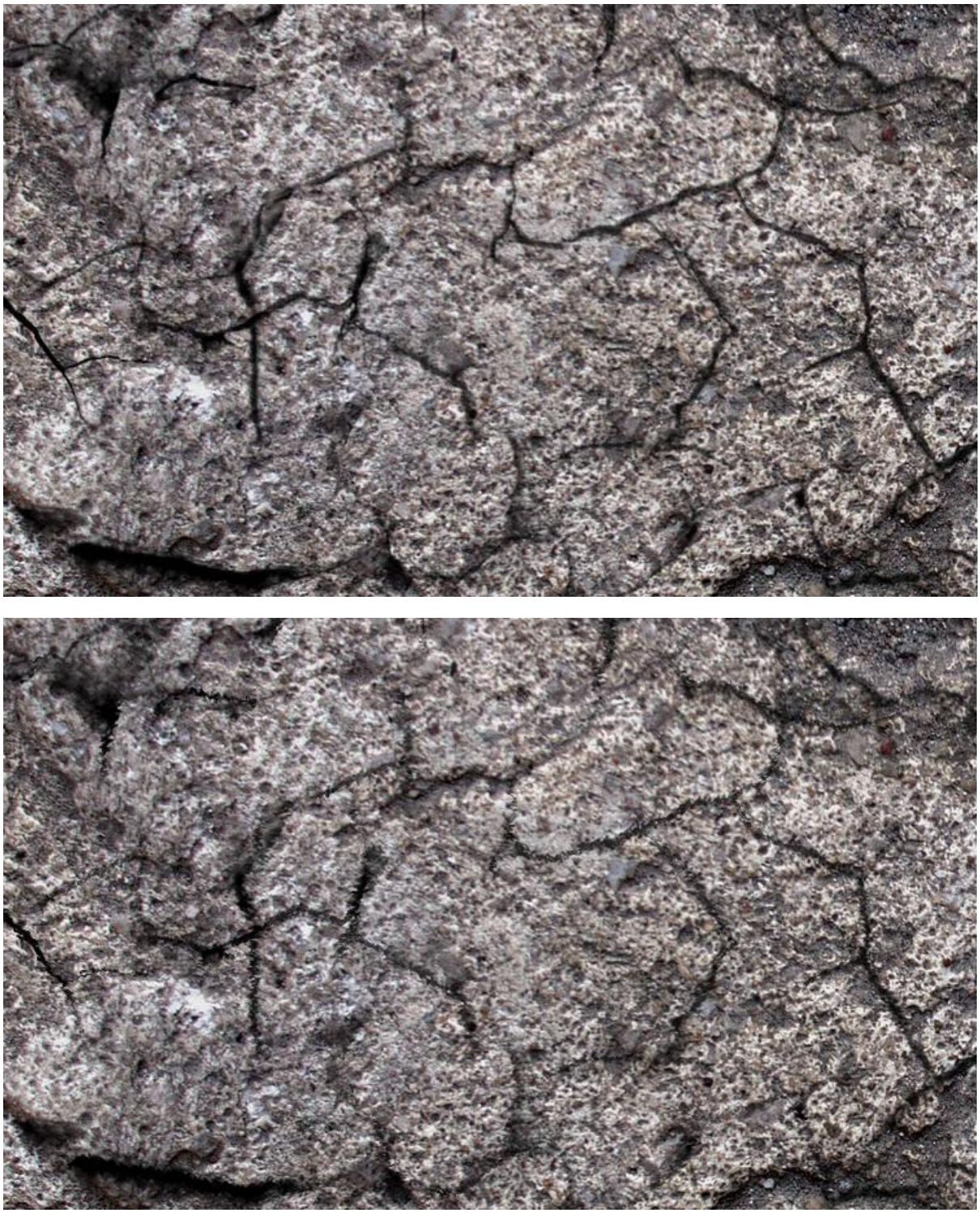
Settings

The following settings can be adjusted in the filter dialog:

- **Master**—controls intensity of the warp when dragging points. Type directly in the text box or drag the slider to set the value.
- **Linear Constraints**—choose from the pop-up menu. **Rigid** only allows the pixels directly related to the anchor point to change. The pixels can rotate and move, but not stretch. **Similarity** affects surrounding pixels and allows them to stretch as well as rotate.

Displace

The Displace filter applies distortion according to a pattern defined by a displacement map. The lightness values of pixels within the displacement map determine the degree to which the distortion occurs.



Using a texture as a displacement map to blend objects together.

About the Displace filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Strength**—sets the intensity of pixel displacement. Negative values shift pixels upwards, positive values shift pixels downwards. Type directly in the text box or drag the slider to set the value.
- **Scale To Fit**—when selected (default), the displacement map stretches or shrinks to fit the document size. If this option is off, the displacement map retains its native dimensions.
- **Load Map From File**—sets the displacement map used in the filter. In the pop-up dialog, navigate to and select a file, and click **Open**.
- **Load Map From Layers Beneath**—determines the displacement map using layers beneath the selected layer.

Lens Distortion

The Lens Distortion filter provides a way of correcting distortion caused by the curvature of a camera lens. It's especially useful for correcting barrel distortion (where straight edges are bowed outwards), or for correcting pincushion distortion (where straight edges are bowed inwards).

About the Lens Distortion filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Distortion**—controls how much the filter is applied. Type directly in the text box or drag the slider to set the value. Drag to the left (negative value) to remove barrel distortion, drag to the right (positive value) to remove pincushion distortion.

Most lenses only need values between +5 and -3 to correct distortion. It's also useful to turn grids on so that you can see when the lines are straight.

Mirror

The Mirror filter produces mirror effects ranging from horizontal single-mirror reflections to multi-mirror kaleidoscopes.

Mirror used with the Ripple and Motion Blur filters to create the impression of a subject submerged in water.

About the Mirror filter

This filter can be found in the **Filters** menu, in the **Distort** category.

Click and drag on the image to move the reflection point from its default position.

Settings

The following settings can be adjusted in the filter dialog:

- **Number of mirrors**—Sets the number of mirror for image reflections.
- **Input**—Rotates the original image and reflection about a rotation point in opposite directions.
- **Output**—Further rotates the mirrored image by a chosen degree.

Perspective

The Perspective filter can be used to either correct converging perspective lines caused by lens distortion, or to apply perspective for a creative effect.

Lens distortion can often cause the perspective of a photo to be out, creating the appearance that lines are not vertical or horizontal when they should be.

Using the Perspective Tool to alter the appearance of a building/structure.

About the Perspective filter

The Perspective filter can be adjusted in single or dual plane mode, if applied via the **Filters** menu (**Distort** category). If using the non-destructive, live filter, only single plane mode is available.

The live filter can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Planes**—the initial grid layout options. Select from the pop-up menu.
- **Mode**—the preview options. Select from the pop-up menu.
    - **Source**—the image remains static as the perspective box is positioned. When the perspective filter is applied, the image is stretched and cropped to the original canvas size.
    - **Destination**—the image is directly linked to the perspective box and transforms with the box as the anchor points are dragged.
- **Show grid**—when selected (default), a grid is displayed between anchor points and lines. If this option is off, only anchor points and lines display.
- **Autoclip**—(Available in Dual Plane mode) Specifies whether or not to alter the image beyond the boundaries of the perspective grid points. If disabled, the image will look continuous; if enabled, the image will have visible seams where the perspective tool has been applied that can then be retouched.
- **Before/After**—if this option is off (default), your page displays your image with the current perspective applied. When selected, your page displays the adjusted and original images simultaneously with a sliding divider which can be repositioned and shows 'Before' and 'After'.

Pinch/Punch

The Pinch/Punch filter can be used either in small amounts to correct or enhance portraits, or in extreme amounts to create bizarre effects.

Pinch creates a concave spherical distortion (squeezes an area) and Punch creates convex spherical distortion (bulges an area).

About the Pinch/Punch filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Pinch/Punch**—sets the type and value of the distortion. Negative values give a pinch effect, positive values give a punch effect. Type directly in the text box or drag the slider to set the value.
- **Radius**—controls intensity of the filter. Type directly in the text box or drag the slider to set the value.

Pixelate

The Pixelate filter creates blocks of uniform color. The filter is especially useful when confined within a selection area to obscure subject matter.

About the Pixelate filter

This filter can be found in the **Filters** menu, in the **Distort** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Quantization**—controls the size of the generated blocks. Type directly in the text box or drag the slider to set the value.

Polar to Rectangular

The Polar to Rectangular filter converts an image from polar coordinates to rectangular coordinates. This means that a circle can be turned into a straight line.

About the Polar to Rectangular filter

This filter can be found in the **Filters** menu, in the **Distort** category.

This filter has no customizable settings.

Spherical

The Spherical filter gives objects the appearance of being wrapped around a spherical shape, distorting the image and stretching it to fit the curve.

Sharks have good days too!

About the Spherical filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Intensity**—sets the type and value of the distortion. Negative values give a concave effect, positive values give a convex effect. Type directly in the text box or drag the slider to set the value.
- **Radius**—controls the size of the effect. Type directly in the text box or drag the slider to set the value.

Rectangular to Polar

The Rectangular to Polar filter converts your image from rectangular coordinates to polar coordinates. This means that horizontal lines can be turned into circles, sunburst effects can be created, and various other effects. It's a handy effect if you want to create a circular frame from a rectangular border.

About the Rectangular to Polar filter

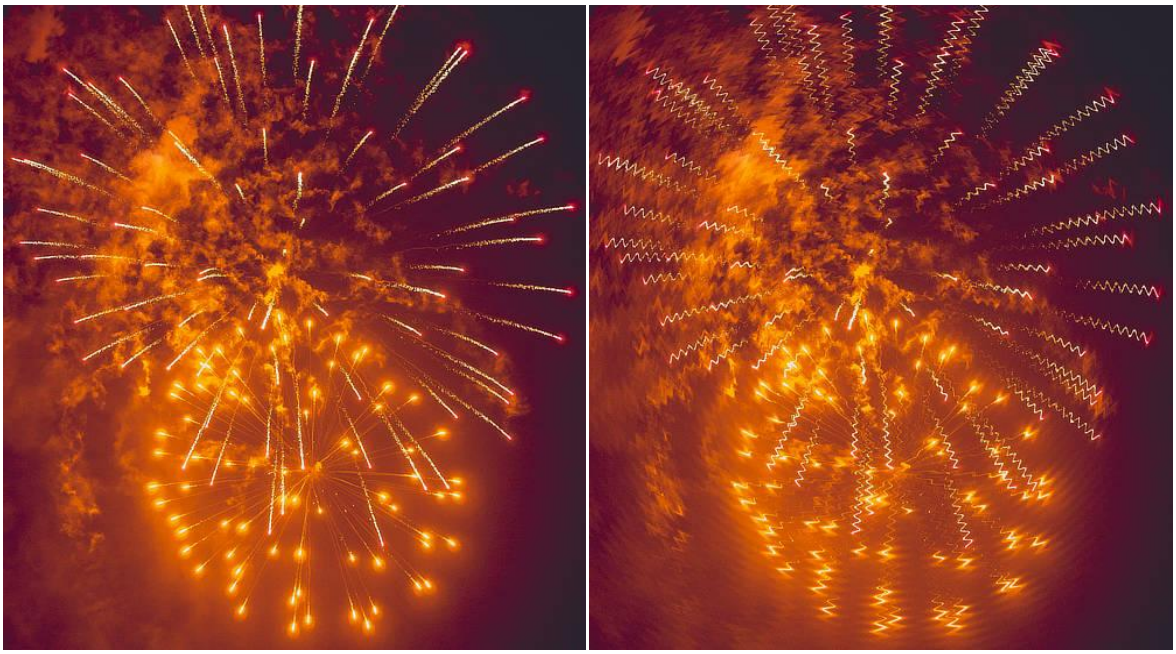
This filter can be found in the **Filters** menu, in the **Distort** category.

This filter has no customizable settings.

This filter can also be used to create a cylinder anamorphosis—an art form popular in the 18th century. When viewed in a mirrored cylinder, the distorted image appears completely normal!

Ripple

The Ripple filter adds a watery, undulating pattern, like ripples on the surface of a pond.



The Ripple filter used to achieve a unique effect.

About the Ripple filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Intensity**—controls the extent of the effect. Type directly in the text box or drag the slider to set the value.

Shear

The Shear filter applies distortion according to customizable linear or curved graphs. Horizontal and/or vertical shearing is possible via separate graphs.

About the Shear filter

The graphs are set and modified in the filter dialog. They can apply linear shearing by moving end nodes in the graph only. Shearing to a curve is possible by reshaping the line.

This filter can be found in the **Filters** menu, in the **Distort** category.

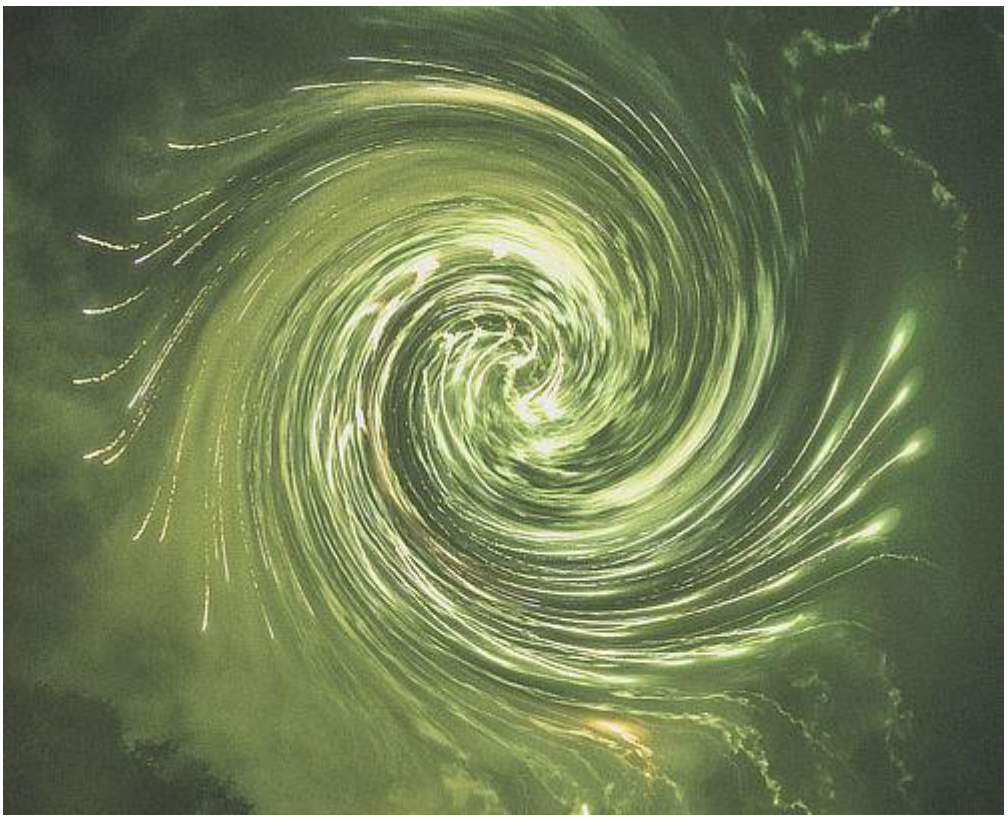
Settings

The following settings can be adjusted in the filter dialog:

- Horizontal/Vertical shear graph (left/right): Move end nodes horizontally or vertically (for linear shearing), or click along the graph's line and move the added node to reshape the curve (for curve shearing). For the latter, add more nodes if needed for more complex curved shearing.

Twirl

The Twirl filter applies a clockwise or counter-clockwise distortion effect to images.



The Twirl filter applied to a fireworks photograph.

About the Twirl filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Drag on the image to set the origin.

Settings

The following settings can be adjusted in the filter dialog:

- **Angle**—sets the type and value of the distortion. Negative values give a counter-clockwise effect, positive values give a clockwise effect. Type directly in the text box or drag the slider to set the value.
- **Radius**—changes the number of pixels affected. Type directly in the text box or drag the slider to set the value.

Affine

The Affine filter allows you to move, scale and rotate either a selection or the entire document by percentage amounts.

Using the Affine filter to flip the direction of a subject within an image (additional cloning and inpainting work required).

About the Affine filter

This filter can be found in the **Filters** menu, in the **Distort** category.

Settings

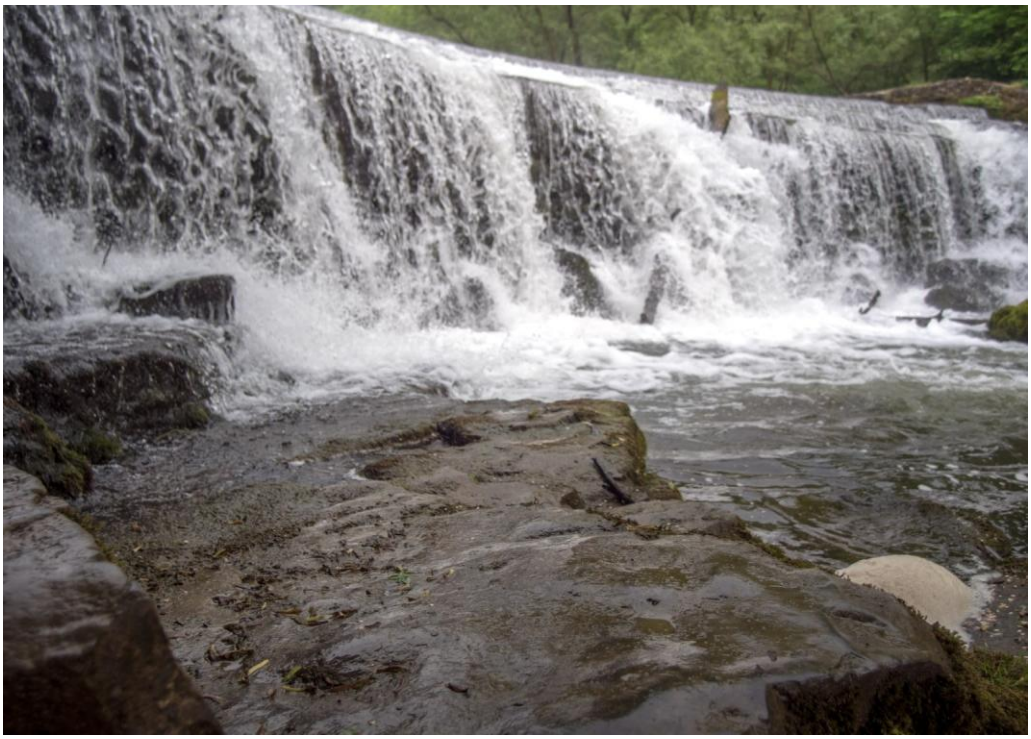
The following settings can be adjusted in the filter dialog:

- **Rotation**—controls the rotation of the document or selection.
- **Scale X/Y**—independent controls for horizontal and vertical scaling.
- **Offset X/Y**—controls the horizontal and vertical offset of the document or selection.
- **Extend Mode**—specifies how to handle the blank area created by the filter:
    - **Zero**: Does not fill the blank space.
    - **Full**: Fills the blank space with pure white.
    - **Repeat**: Repeats the last edge of pixels continuously to fill the blank space.
    - **Wrap**: Wraps the selection back around; useful for seamless texture work.
    - **Mirror**: Produces a mirror image of the selection.

Using Affine with 50% X and Y offset to expose the image edges: cloning these out will create a seamless texture.

Equations

The Equations filter allows you to apply transform filters through mathematical expressions.



Before and after a transform equation.

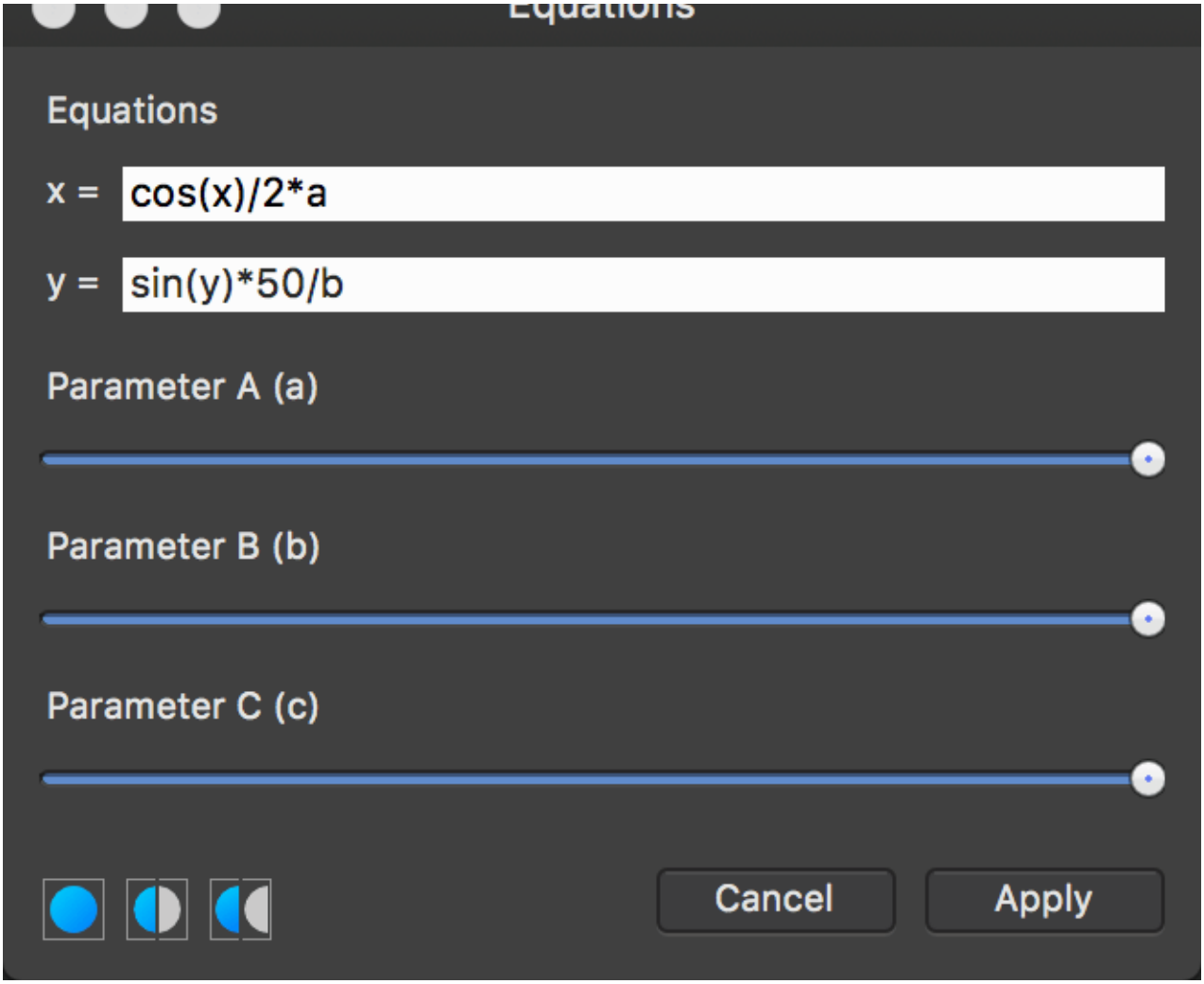
About the Equations filter

This filter allows you to apply a transform to a raster layer using mathematical expression. You can achieve a number of distortion-type effects through the use of predetermined variables, trigonometry, exponentiation, etc. Additionally, you can use custom variables **a**, **b** and **c** in the equations and control their values through sliders on the filter dialog.

Settings

The following settings can be adjusted in the filter dialog:

- **Coordinate System**—choose from Cartesian or Polar coordinates.
- **Cartesian**
    - **x =** —enter expressions for the X-axis.
    - **y =** —enter expressions for the Y-axis.
- **Polar**
    - **r =** —enter expressions for the radius.
    - **t =** —enter expressions for the polar angle (theta).
- **Parameter A (a)**—controls the value of custom variable **a**.
- **Parameter B (b)**—controls the value of custom variable **b**.
- **Parameter C (c)**—controls the value of custom variable **c**.
- **Extend Mode**—chooses how to treat pixels outside of the image bounds:
    - **Zero**—fills pixels outside the image bounds with zeros (alpha values).
    - **Full**—fills pixels outside the image bounds with constant values (pure white).
    - **Repeat**—fills pixels outside the image bounds with repetitions of the image's edge pixels.
    - **Wrap**—fills pixels outside the image bounds with copies of the image; useful for positional offset filters and seamless texture authoring.
    - **Mirror**—fills pixels outside the image bounds with mirrored (reflected) copies of the image.



An example equation being entered into the filter dialog.

Edge detection filters

Edge detection filters isolates and strengthens vertical edges, horizontal edges, or both, while darkening the rest of the image.

Available filters include:

- Detect Edges—isolates all edges in your image.
- Detect Horizontal Edges—isolates horizontal edges in your image.
- Detect Vertical Edges—isolates vertical edges in your image.

Detect Edges

The Detect Edges filter isolates and strengthens both horizontal and vertical edges while darkening the rest of the image. It is useful for creating stylized effects and edge masks.

Detect Edges used on a duplicate layer whose blending mode is then set to "Subtract", giving a cell shaded look.

About the Detect Edges filter

This filter can be found in the **Filters** menu, in the **Detect** category.

This filter has no customizable settings.

This filter works by detecting changes in RGB values. It is most useful when used in conjunction with blending modes and masks for other filters and adjustments.

Detect Horizontal Edges

The Detect Horizontal Edges filter isolates and strengthens horizontal edges while darkening the rest of the image. It is useful for creating stylized effects and edge masks.

Detect Horizontal Edges filter with Pin Light blend mode applied.

About the Detect Horizontal Edges filter

This filter can be found in the **Filters** menu, in the **Detect** category.

This filter has no customizable settings.

This filter works by detecting changes in RGB values. This means that some images will work better than others.

Detect Vertical Edges

The Detect Vertical Edges filter isolates and strengthens vertical edges while darkening the rest of the image. It is useful for creating stylized effects and edge masks.

Detect Vertical Edges filter with Pin Light blend mode applied.

About the Detect Vertical Edges filter

This filter can be found in the **Filters** menu, in the **Detect** category.

This filter has no customizable settings.

This filter works by detecting changes in RGB values. This means that some images will work better than others.

Noise filters

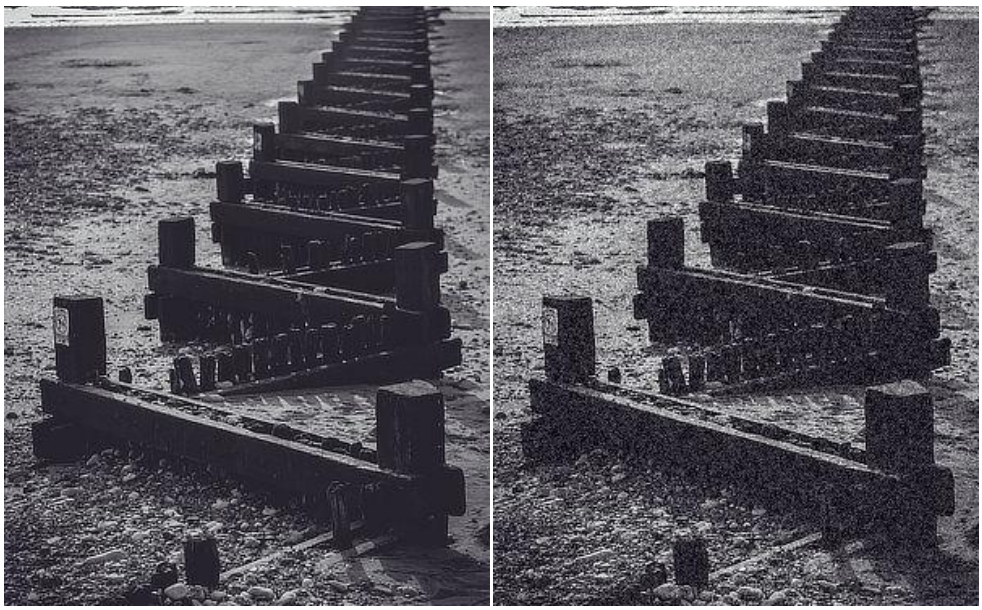
Noise filters can be used to reduce or add noise (graininess) to your photo.

Available filters include:

- Add Noise—introduces noise to recreate natural texture.
- Clarity—gives contrast-based image sharpening.
- Denoise—reduces luminance and color noise.
- Diffuse—adds noise to image edges.
- FFT Denoise—reduces noise using a Fourier Transform algorithm.
- Perlin Noise—creates noise with a cloud-like appearance.
- Dust & Scratches—removes dust and scratch artefacts.
- Deinterlace— converts field based video images to progressive images.

Add Noise

All digital images have a certain level of noise (random pixel distribution) which helps to create atmosphere, texture, and depth. After image manipulation, such as resizing, cloning, applying gradients, etc., this texture noise is often lost and the image can take on a very flat appearance. The Add Noise filter adds random pixels to the image, introducing a level of noise to help return the textures in the image. This also helps to seamlessly blend effects.



About the Add Noise filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Intensity**—controls the level of noise generated. Type directly in the text box or drag the slider to set the value.
- **Monochromatic**—When checked, only tones in the image are affected.
- Noise distribution type:
    - **Uniform**—produces completely random noise distribution. It is often best used in color images.
    - **Gaussian**—produces a wider range of light and dark pixels as it uses a special curve to generate the noise. It's often the best choice for grayscale images.

Clarity

The Clarity filter enhances the local contrast in an image. Its greatest influence is in the mid-tonal range. This results in a sharpening effect.

Using the Clarity filter to accentuate the outline and details of the image's subject.

About the Clarity filter

In Photo Persona, this filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

In Develop Persona, this filter is available on the **Basic** panel (Enhance).

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls intensity of the filter. Type directly in the text box or drag the slider to set the value.

Setting the value via a text box is not available in Develop Persona.

Denoise

The Denoise filter is a powerful form of noise reduction. At higher settings, it also creates a really pleasing, posterizing effect.

About the Denoise filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Luminance Denoise**—controls the intensity of noise removal from the luminance channel. Type directly in the text box or drag the slider to set the value.
- **Color Denoise**—controls the intensity of noise removal from the chrominance channel. Type directly in the text box or drag the slider to set the value.
- **Detail**—controls the final quality of the reduction. Higher values will give a better quality finish but the application of the filter will take longer. Type directly in the text box or drag the slider to set the value.
- **Contribution**—determines the opacity of corrected pixels. '100%' makes corrected pixels fully opaque; 50% makes pixels 50% transparent.

This process is very complex and therefore may take some time to apply.

Diffuse

The Diffuse filter adds noise to the edges in the image (or selection).

About the Diffuse filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

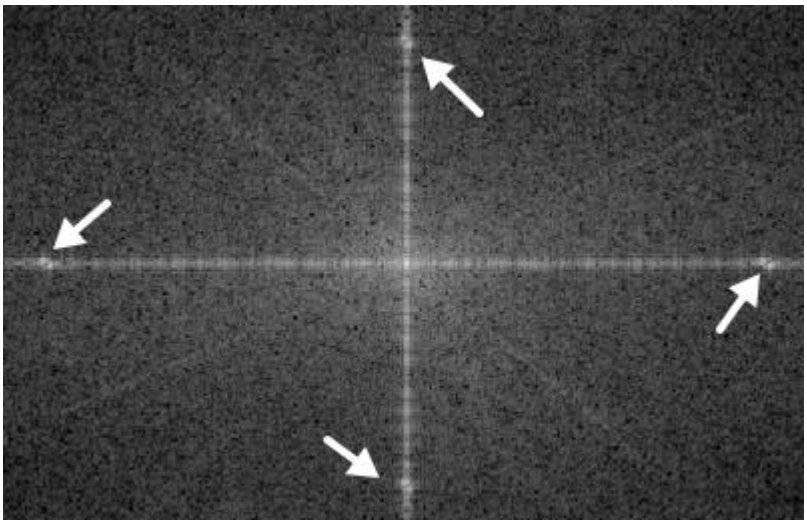
- **Intensity**—controls the level of noise generated. Type directly in the text box or drag the slider to set the value.

FFT Denoise

The FFT denoise filter (Fast Fourier Transform) removes periodic noise from scanned images.

About the FFT Denoise filter

Periodic noise is encountered on scanned images when the scanner has been subject to electrical or electromagnetic interference. By using a grayscale Fourier spectrum generated from the image, periodic noise peaks can be edited out of the spectrum by using a brush.



Paired noise peaks on Fourier spectrum mirrored across both horizontal and vertical lines.

This filter can be found in the **Filters** menu, in the **Noise** category.

Settings

The following settings can be adjusted in the Fourier spectrum:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. 100% opacity erases pixels completely on the first pass. A lower opacity only partially erases the peaks.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.

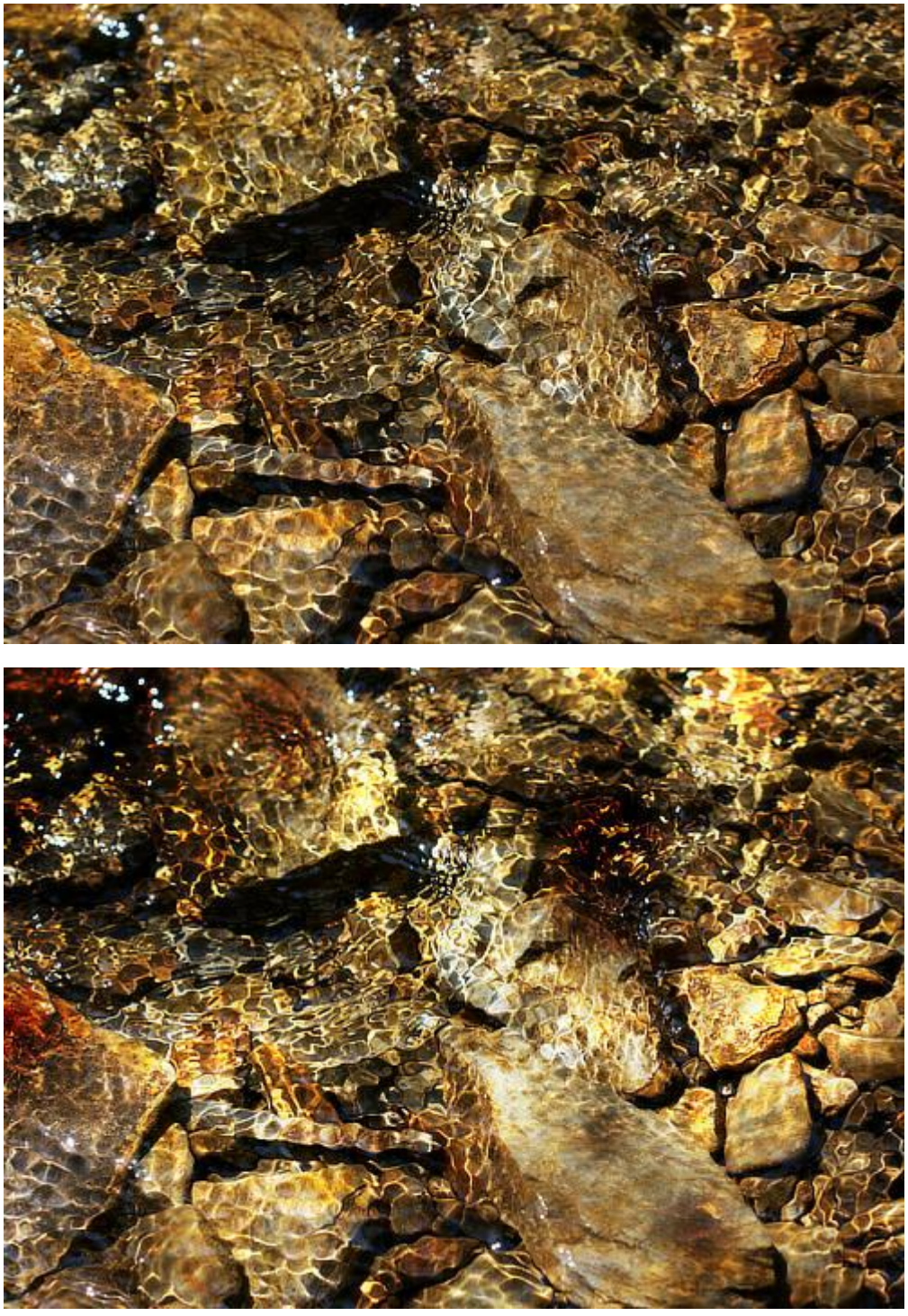
To remove periodic noise:

- From the grayscale Fourier spectrum, select brush properties from the top toolbar. Take care to set a brush width that encompasses the noise peaks entirely.
- Paint out the frequency noise pairings on both horizontal and vertical lines.

Use your to zoom in/out of areas of the spectrum.

Perlin Noise

Perlin noise generates pixels with values that vary between the foreground and background colors, resulting in a cloud pattern. Sometimes known as Clouds or Difference Clouds. It can be used to create realistic looking scalable textures, including cloud, smoke, and rock or earth-like effects, and is a great way of adding realism to textured areas.



Perlin Noise used to add texture to a photograph using blend modes.

About the Perlin Noise filter

This filter can be found in the **Filters** menu, in the **Noise** category.

When the filter is applied, the clouds are generated using the currently selected background and foreground colors. The image data on the active layer is replaced.

If the layer is fully transparent, the filter will not be applied. The layer must have some pixel data.

Settings

The following settings can be adjusted in the filter dialog:

- **Octaves**—controls the cloud complexity. Type directly in the text box or drag the slider to set the value.
- **Zoom**—controls the zoom level of the clouds and the complexity of the noise. Type directly in the text box or drag the slider to set the value.
- **Persistence**—controls how blurred or grainy the effect is. Type directly in the text box or drag the slider to set the value.
- **Blend mode**—changes how the applied pixels (noise) interact with existing pixels on a layer. Select from the pop-up menu.

You can create marble textures and other interesting patterns by applying the filter several times using a Difference blend mode.

Dust & Scratches

The Dust & Scratches filter removes artefacts like dust and scratch marks from your images by mapping out dissimilar pixels.

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the size threshold for determining dust and scratch artefacts. If the artefacts are mainly fine in detail, use a smaller radius. Larger radius values will tackle larger artefacts.
- **Tolerance**—determines how aggressively the filter should analyze the image. Increase the slider to reduce the amount of the image that the filter will affect.
- **Channel Tolerance**—when checked, the **Tolerance** slider works on a per-channel basis. Useful for color images as it can produce smoother results and fewer artefacts.

If you are struggling to remove all dust and scratch marks whilst maintaining a sharp image, don't forget that you can use the **Undo Brush** tool to remove the effect from areas where you want to retain detail.

Deinterlace

The Deinterlace filter removes the line "combing" effect found in images taken from interlaced video streams. It takes either the even (top) or odd (bottom) set of fields and interpolates the other set to produce a whole, progressive image.

Before and after deinterlacing of an interlaced video frame.

About the Deinterlace filter

This filter can be found in the **Filter** menu, in the **Noise** category. There are two further options, **Even Rows** and **Odd Rows**.

Even/Odd Row selection

- **Even Rows**: The odd (bottom) row fields will be discarded and the image will be interpolated from the even (top) row fields. Use typically if your source is in the NTSC format or in 1080i50/1080i60 (HD).
- **Odd Rows**: The even (top) row fields will be discarded and the image will be interpolated from the odd (bottom) row fields. Use typically if your source is in PAL DV (tape-based camcorders).

Sharpen filters

Sharpen filters can be used to bring into focus photos that appear slightly blurred.

Available filters include:

- Clarity—sharpens the image by affecting local contrast.
- High Pass—sharpens image edges.
- Unsharp Mask—sharpens image edges as an alternative to High Pass.

Clarity

The Clarity filter enhances the local contrast in an image. Its greatest influence is in the mid-tonal range. This results in a sharpening effect.

Using the Clarity filter to accentuate the outline and details of the image's subject.

About the Clarity filter

In Photo Persona, this filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

In Develop Persona, this filter is available on the **Basic** panel (Enhance).

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls intensity of the filter. Type directly in the text box or drag the slider to set the value.

Setting the value via a text box is not available in Develop Persona.

High Pass

The High Pass filter retains details where sharp color transitions occur, generally at the edges, and suppresses the rest of the image.

High Pass filter applied with an Overlay blend mode for sharpening.

About the High Pass filter

When a High Pass filter is applied at a high radius value to a duplicate layer and combined with a contrast blend mode (such as overlay, soft light or hard light), it can be used as a useful sharpening technique.

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls how many pixels are kept and how many are suppressed. (At higher radius values, only edge pixels are kept.)
- **Monochrome**—when selected, the final effect only contains grayscale values.

Unsharp Mask

In spite of its misleading name, the Unsharp Mask filter is a flexible and powerful way to increase apparent sharpness in an image.

Unsharp Mask can be used to add punch to an image, or to help sharpen soft images.

About the Unsharp Mask filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the filter dialog:

- **Radius**—controls the number of pixels affected around the existing light pixels. A smaller radius enhances smaller scale detail. Type directly in the text box or drag the slider to set the value.
- **Factor**—controls how much contrast is added. Type directly in the text box or drag the slider to set the value.
- **Threshold**—controls how much contrast there needs to be between colors before the sharpening effect 'kicks in'. Use higher values for grainy images or skin tones.

The Unsharp Mask filter affects the whole image (or selection). For fine control, it can be useful to apply it to a separate duplicate layer(s), and then either use a mask to allow sharpening of only specific areas, or use blends modes set to lighten/darken and change the opacity of these layers to get the effect that you want.

Apply Image

Apply Image lets you composite images together on the same layer and use a number of expressions for advanced channel blending.

Blending a fashion model's photo with a transparent overlay.

About Apply Image

Apply Image lets you blend a layer from a source image into a target image's layer. The images are composited into a single layer. Channel expressions and blend modes are available to composite the layers.

The source image can be scaled automatically to the target image horizontally, vertically or both, avoiding having to size the images equally first.

To blend two images:

1. Open your target image.
2. From the **Layers** panel, select the layer that you want to blend the source image with.
3. From the **Filters** menu, select **Apply Image**.
4. Click **Load Image** and navigate to, then select the source image to import. If the image is another layer within your document, you can also click-drag it onto the dialog box to use it.
5. (Optional) Check the **Equations** option in order to enable channel blending.
6. (Optional) Set the **Opacity** level to control how transparent the imported image appears.
7. Select a **Blend Mode** to alter how the source image's colors blends with the target image. Select from the pop-up menu.
8. (Optional) Uncheck **Scale Horizontal To Fit** to retain the imported images native width. When checked, the image is stretched/shrunk to the main image. Uncheck **Scale Vertical To Fit** to retain native height.
9. Click **Apply**.

To use channel expressions:

1. With the **Apply Image** dialog open, either load an image or choose **Use Current Layer As Source** to blend the image with itself.
2. Check the Equations option in order to enable channel blending.
3. Choose a color space to blend in with the **Equation Color Space** dropdown.
4. Now use the available expressions to blend channel information. Some expressions include:
    - Use **D**+**Channel** to specify a destination image channel (the original layer). E.g., **DB** for **Destination Blue** channel.
    - Use **S**+**Channel** to specify a source image channel (the image you have loaded in). E.g., **SR** for **Source Red** channel.

- Use +, -, *, / to add, subtract, multiply or divide respectively. E.g., **SR/SG*SB** to divide **Source Red** by **Source Green** and then multiply by **Source Blue**.

Removing a yellow color cast using channel expressions.

Shadows / Highlights

The Shadows / Highlights filter allows for stronger manipulation of the shadow and highlight tonal regions in an image. It can be used to reduce contrast, boost shadow detail and recover highlight detail.

About the Shadows / Highlights filter

This filter can be applied as a non-destructive, live filter. It can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

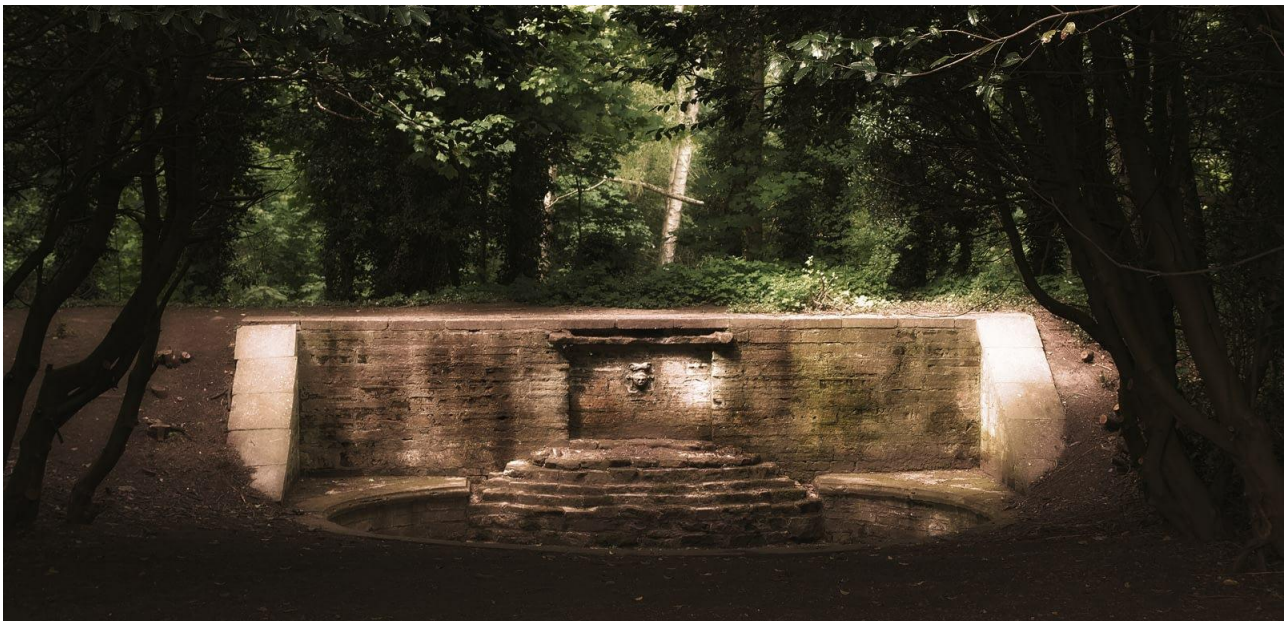
Settings

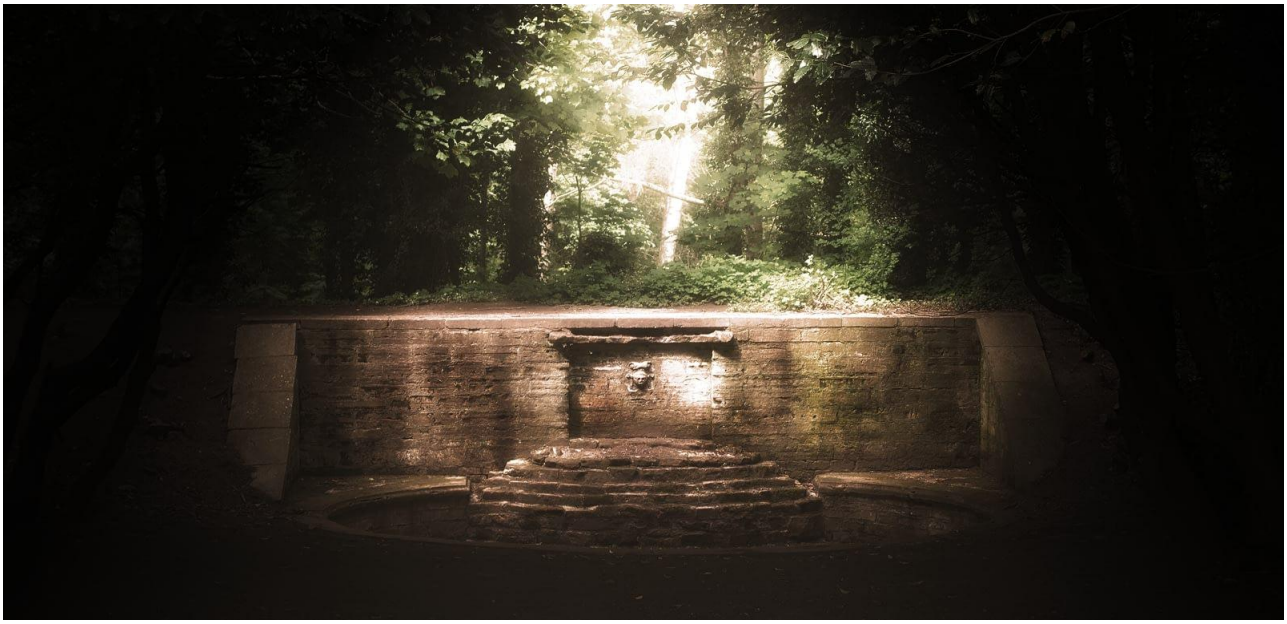
The following settings can be adjusted in the filter dialog:

- **Shadows Strength**—control how much shadow detail is boosted.
- **Shadows Range**—specify the tonal range to boost. Moving the slider to the right will boost a greater range of shadow tones.
- **Shadows Radius**—controls the range of neighboring pixels that are analyzed when boosting shadow detail. Moving the slider to the right produces a stronger contrast, similar to the Clarity filter. Move the slider to the left for a flatter result.
- **Highlights Strength**—control how much highlight detail is recovered.
- **Highlights Range**—sets the tonal threshold for recovering highlight detail. Move the slider to the right to recover a greater range of highlights.
- **Highlights Radius**—controls the range of neighboring pixels that are analyzed when recovering highlight detail. Moving the slider to the right produces a stronger contrast, moving the slider to the left produces a smoother result but may make posterization more visible.

Lighting effects

The Lighting feature simulates lighting from one or more light sources.





About lighting

Lighting effects simulate ambient, point, directional, and spot lighting in your design. You can supplement the single light source with additional light sources for more advanced lighting control; different light source types can be used in combination, each being independently configured and positioned using on-screen handles.

Affinity Photo also lets you create lighting effects from 3D bump maps made from texture inherent in any image.

Source types

Different source types give dramatically different results. The types are best imagined with a few examples.

- ***Spot***: Casts a elliptical beam of light focusing on a specific subject of interest, like a torch.
- ***Point***: Casts omnidirectional light, like a light bulb.
- ***Directional***. Casts light directionally from infinity, e.g. from the sun.

Lighting effects can be applied as a non-destructive, live filter, which can be accessed via the **Layer** menu, from the **New Live Filter Layer** category.

Settings

The following settings can be adjusted in the dialog:

- **Diffuse**—sets the level of diffused 'scattered' light reflected from the surface. Higher values reflect more light.
- **Specular**—sets the level of light reflected from the surface that reflects in a single outgoing direction (rather than being diffused), to form a highlight (hotspot).
- **Shininess**—controls the spread of the specular reflection above. Set the value lower for larger and more widespread highlights; higher for smaller, sharper highlights.
- **Specular color**—sets the color for specular reflection.
- **Ambient**—Sets the level of uniform 'background' lighting.
- **Ambient light color**—Sets a color for ambient light.
- **Light**—Click to select a point light source. You can **Add**, **Copy** or **Remove** additional light sources.
- **Type**—selects the light source type (see above).
- **Color**—selects the light source color.
- **Distance**—selects the light source distance from the page.
- **Texture**—Creates texture from the image itself.

For 3D Bump Maps:

- **Load bump map**—click to load an image that you want to convert to a 3D bump map. Use **Clear bump map** to remove any applied map.
- Uncheck **Scale Horizontal To Fit** to retain the imported images native width. When checked, the image is stretched/shrunk to the main image.

- Uncheck **Scale Vertical To Fit** to retain native height.
- **Opacity**—alters the transparency of the texture. Type directly in the text box or drag the slider to set the value.

To apply a spot light:

1. From the **Filters** menu, select **Lighting**.
2. From the **Type** pop-up menu, select 'Spot'.
3. Drag the on-screen handle at the apex of the 'fan' shape to adjust the distance and direction of the light.
4. (Optional) Drag the Elevation handle situated along the center line to set the height of the spot light above the page.
5. (Optional) Drag the outer and inner handles at the end of the fan to set the outer and inner cone, respectively.

To apply a point light:

1. From the **Filters** menu, select **Lighting**.
2. From the **Type** pop-up menu, select 'Point'.
3. Reposition the default point light by dragging the center handle over a subject of interest.
4. Drag the circle's edge inwards or outwards to set the light's distance from the page.

To apply a directional light:

1. From the **Filters** menu, select **Lighting**.
2. From the **Type** pop-up menu, select 'Directional'.
3. On the Lighting panel, drag the cross-hair within the **Direction** dial.

To load a 3D bump map:

1. On the Lighting panel, click **Load bump map**, navigate to, then select your image.
2. Click **OK**.
3. Adjust **Texture** to set the amount of texture displayed.

Haze Removal

Before and after using Haze Removal.

About the Haze Removal filter

This filter can be found in the **Filters** menu.

Haze Removal can remove slight to extreme cases of haze affecting an image. Its most typical use is for landscape photography where the haze causes low contrast and low saturation, but it can also be used to improve images taken during rainy and foggy conditions.

Settings

The following settings can be adjusted in the filter dialog:

- **Distance**—controls the depth of the haze removal: moving the slider to the right removes haze towards the background of the image.
- **Strength**—specifies how strong the haze removal effect should be. More strength results in more extreme haze removal.
- **Exposure Correction**—allows for correction of the image's exposure: use if haze removal causes underexposure or overexposure.

Using plugins

Installed PhotoShop-compatible 64-bit plugins can be made available to Affinity Photo to extend the range of effects available to you.

About plugins

Configuring plugins in Affinity Photo can be automatic or be configured manually on a per plugin basis.

With an active internet connection, detected or added plugins are evaluated and their support status is reported next to the plugin name under the "Detected Plugins" list.

- *Automatic*: Some third-party plugins can install automatically to Affinity Photo's default plugin folder. No further configuration is needed.
- *Manual*: Installed plugins are located manually and then linked to from within Affinity Photo as described below. You'll need to target the .plugin file itself, then allow supporting files, necessary for the plugin to operate, to be accessed.

Due to the varying standard of third-party plugins, you may experience problems when using this feature. This is beyond Serif's control, so we recommend that you save your work before using plugins, then test your plugins before commencing.

To view auto-configured installed plugins:

1. From the **Affinity Photo** menu, select **Preferences**.
2. From the **Edit** menu, select **Preferences**.
3. Select the **Photoshop Plugins** tab.
4. Click **Open Default Folder in Finder**.
5. Click **Open Default Folder in Explorer**.

This default location is not configurable.

To enable untested or potentially unsupported plugins:

1. Check "Allow Unknown Plugins to be used" beneath the Detected Plugins list.

To link to your plugin file manually:

1. From the **Affinity Photo** menu, select **Preferences**.
2. Select the **Photoshop Plugins** tab.

3. Under the **Plugin search folders** box, click **Add**, then navigate to the parent folder that contains the .plugin file. For example, this could be in a PhotoShop folder such as /Applications/Adobe PhotoShop CS6/Plug-ins.

You can add as many plugins as you like by repeating the above process.

To allow access to supporting plugin files:

1. From the **Photoshop Plugins** tab, under the **Plugin support folders** box, click **Authorize Global**.
2. The folder dialog will default to root ("Macintosh HD"). You can click **Authorize** here and access to support files will be applied recursively, or you can specify a particular directory that contains the support files.
3. The folder dialog will default to root. You can click **Authorize** here and access to support files will be applied recursively, or you can specify a particular directory that contains the support files.
4. Press **Close**.

To apply an installed plugin:

- From the **Filters** menu, select the plugin from the **Plugins** flyout.

You'll be prompted to restart Affinity Photo for the plugins to take effect.

If your plug-in entries are displayed but are grayed out, ensure that you have a pixel layer selected rather than a mask, adjustment, live filter, shape, curve, or text layer.

Stitching panoramas

Panoramas are created in the **Panorama Persona**. This persona is only available through stitching together multiple images and serves as a dedicated workspace for panorama editing.

Multiple images can be stitched together to create a wider and taller scene, referred to as a panorama. The benefits of creating a panorama are:

- Capturing a much wider view of a scene.
- Producing higher resolution images than can be achieved with just one exposure; useful for printing large images and other large size applications.

Panorama Persona can create multiple panoramas simultaneously from your image collection. Each detected panorama is stitched and previewed, before you create your panorama(s) by preview selection. A new document is created per panorama.

- Individual Images
- Final Panorama

Shooting tips

- Where possible, use either a tripod or fast shutter speeds to avoid motion blur; blurry subjects will produce poor results when stitching.
- Keep your exposure settings (shutter speed, aperture, ISO, white balance) identical between shots to produce a consistent result.
- Try to avoid shooting at extreme wide angles as this will introduce lens distortion. If you are using a typical zoom kit lens (e.g., 18-55mm), try zooming in to its maximum focal length.
- Always shoot from the same vantage point for best results.

To stitch one or more panoramas:

1. From the **File** menu, select **New Panorama**.
2. From the dialog, click **Add** to locate and select your images.
3. (Optional) If you have images you do not wish to include, you can uncheck them from the image list.
4. Click **Stitch Panorama** to stitch images together. One or more previews are generated in the adjacent **Panoramas** window.
5. (Optional) For multiple panoramas, deselect a preview thumbnail if you don't want to make that panorama.
6. Click **OK** (this may take time depending on number of images and their complexity).

You may need to fine-tune your panorama using masking and transforming techniques (see Editing panoramas) before removing unwanted transparent regions using cropping or inpainting.

To finish your panorama:

In the Panorama Persona, do one of the following:

- Select the **Crop Tool**, and from its context toolbar, select **Crop to Opaque**.
- Select **Inpaint Missing Areas** from above your panorama. The inpainting process takes place on exit and intelligently replaces transparent regions at the edge of your image with alternative image content.

Editing panoramas

If panorama stitching yields alignment errors or you simply require more control over how each image is stitched, you can further edit the panorama between the initial stitching and the final result.

To edit a panorama:

1. Create a new panorama following the instructions listed in Stitching panoramas.
2. When the initial stitching is complete, the panorama will be opened with a selection of tools available.

3. To correct alignment, use the **Transform Source Image** tool and click-drag the corner handles of stack images to transform them. The center handle can also be dragged to alter the stack image's position.
4. For more detailed editing, use the **Add to Source Image Mask** tool to paint in areas that you want to use from the stack's surrounding images. Use the **Erase from Source Image Mask** to remove areas.
5. Make your edits accordingly, then click **Apply** and the final panorama will be rendered.

Panorama editing tools:

- **Hand Tool**— move across the panorama by click-dragging.
- **Zoom Tool**— zoom in and out of the panorama.
- **Transform Source Image**—manipulate the corners of each stitched image to manually align them.

- 🖌️**Add to Source Image Mask**—add an area to the current image mask that will reference the surrounding stacks.
- 🖌️**Erase from Source Image Mask**—erase an area from the current image mask; this will use the original image's data rather than referencing from the surrounding stacks.
- 🖼️**Crop**—crop the panorama to remove transparent/missing areas.
- 🖌️**Inpaint Missing Areas**—automatically inpaints missing areas (represented by transparent checker-boarding) when the final panorama is rendered. Enabled by default.

When using **Add to Source Image Mask** and **Erase from Source Image Mask**, single-click on the correct stack image first to select it. Unused areas of a stack image are covered in a transparent overlay.

32-bit HDR editing

Affinity Photo has full support for 32-bit float editing, including import/export for OpenEXR and Radiance formats. Compared to 8-bit or 16-bit, 32-bit presents an unbounded color space that can contain a vast amount of tonal information. This means the information can be modified to extremes without losing fidelity or accuracy. For example, highlight detail blown out by an adjustment or filter can be recovered even after successive operations.

Uses for 32-bit HDR

Popular uses for 32-bit editing include:

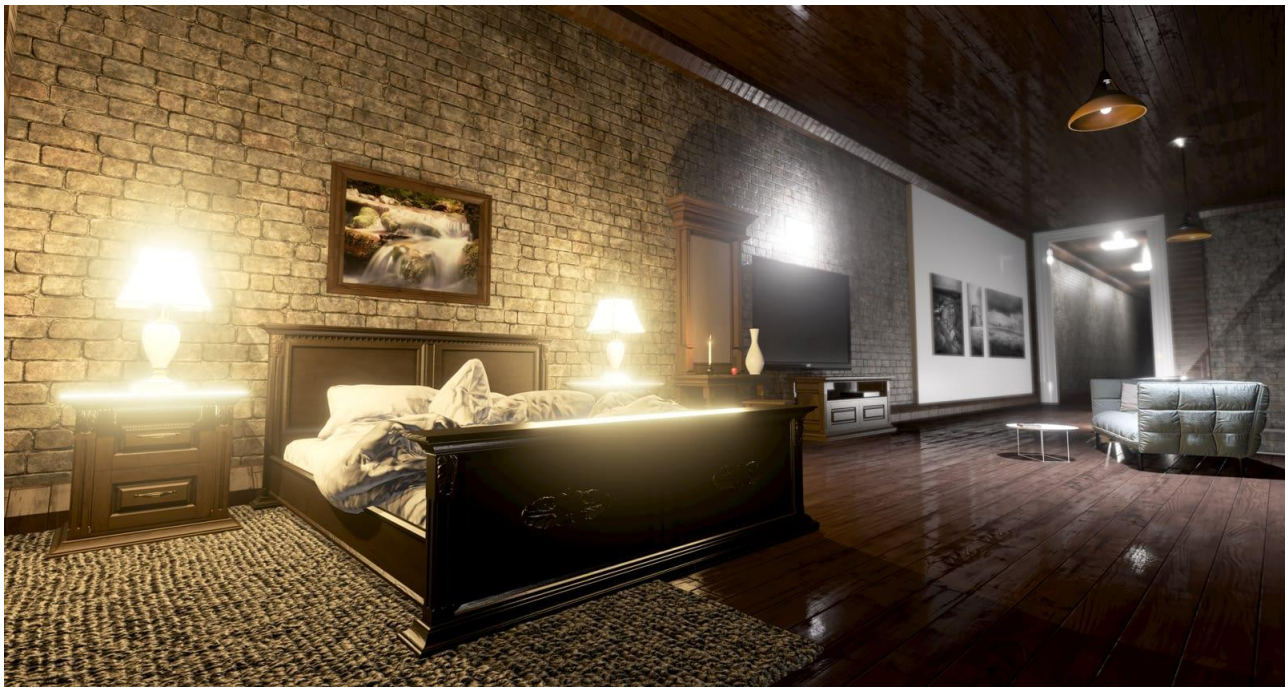
- HDR merging from several exposures to produce an image with greatly increased dynamic range. The result typically has to be tone mapped in order to be viewed properly on most displays.
- 3D render editing. Full renders and buffer passes from 3D software and 3D engines can be professionally color managed and edited losslessly.
- General image editing and design work with increased precision. Useful for fine gradient work, heavy tonal manipulations and composite work.

If you are using 32-bit editing for lossless workflows (e.g., 3D compositing/rendering) where you are not compressing or modifying the tonal range, you can use the 32-bit Preview panel to preview different areas of the large 32-bit tonal range. The added functionality of OpenColorIO can be accessed through this panel.

Photo supports multi-layered (multichannel) OpenEXR documents. For more information, see 32-bit OpenEXR support.

Examples

3D render passes



Before: Base HDR color render pass of a 3D scene. **After**: Base HDR color tone mapped and blended with scene color pass.

Exposure merging for greater dynamic range

Before: Single exposure from camera. **After**: 7 bracketed exposures merged and lightly tone mapped.

Merging to 32-bit HDR

Multiple exposures of the same subject can be merged to produce an unbounded 32-bit document, which contains a significant amount of tonal range—more, in fact, than most displays outside of specialized equipment can reproduce. The resulting 32-bit image can then be edited with Photo's extensive set of tools, adjustments and filters, or it can be tone mapped in order to map the extensive 32-bit tonal range to a result that looks suitable for most displays.

To HDR merge several images:

1. From the **File** menu, select **New HDR Merge**.
2. From the dialog, click **Add** to locate and select your images.
3. Click **OK** to begin merging the images.
4. (Optional) If your image set contains moving subjects between each exposure, check **Automatically Remove Ghosts**.
5. The HDR merging is previewed in stages: first, the image alignment, then the HDR merge itself.
6. By default, the merged result will then be taken into the **Tone Mapping Persona** for tone mapping. See Tone Mapping HDR images for more information.

You can stop Photo from automatically entering the Tone Mapping Persona and tone mapping your 32-bit image. On the **New HDR Merge** dialog, uncheck **Tone map HDR image**. Once the HDR merge is complete, you will then remain in the Photo Persona to make further edits.

If you choose not to automatically tone map your image, the **Sources** panel will be displayed, allowing you to manually retouch the merged result. If **Automatically Remove Ghosts** was checked, the **Sources** panel will contain a de-ghosted source as well as the original merged source. For more information, see Sources panel.

Below you will see a 32-bit image being displayed as 8-bit with no tone mapping or further tonal adjustments applied. 32-bit simply contains too much tonal range to display, so we typically apply a procedure called *Tone Mapping* to map that tonal information to a range that can be displayed accurately. See the topic Tone Mapping HDR images for more information.

Before: A 32-bit image with **no** tone mapping—the range of 32-bit is too great to display. Instead we see an image with extreme contrast.
After: A 32-bit image after being tone mapped. The vast range of tonal information has been "mapped" to a range that can be reproduced by most displays.

Once work on a 32-bit image is completed, you may need to convert its color format and, crucially, its color profile if you intend to distribute or share it. For example, you might want to export as an 8-bit JPEG with an sRGB color profile. Alternatively, if you are maintaining a lossless workflow, you can stay in 32-bit and export to a linear unbounded format.

To convert the color format and profile before export:

1. From the **Document** menu, select **Color Format** and choose your desired format; for example, RGB 8-bit.
2. A color profile will be automatically assigned: for RGB 8-bit/16-bit documents, this will be **sRGB IEC61966-2.1**.

To maintain a 32-bit workflow for importing into other software:

1. From the **File** menu, select **Export**.
2. Choose the **OpenEXR** format and click **Export**, then specify where to save your document.

Tone Mapping HDR images

Tone Mapping is the process of taking a range of tones and remapping them to a smaller range that most displays and other devices can accurately reproduce.

A tone mapped 32-bit image.

To tone map an HDR image:

1. With a 32-bit document open, select a pixel layer and then click **Tone Mapping Persona**.
2. Once in the Tone Mapping Persona, your image will have a default tone map applied to it.
3. Experiment with the adjustments in the **Tone Map** panel. See below for a list of options.
4. On the context toolbar, click **Apply**.

Before/after of a tone mapped image.

Presets

The Tone Mapping Persona contains a number of presets that appear on the left hand side within the **Presets** panel. Simply click one to apply it. You can also create your own presets, or import new ones.

Settings

The following settings are available in the **Tone Map** panel:

- **Tone Compression**—controls how much of the unbounded tonal range to map. Increasing the slider results in more tone compression.
- **Local Contrast**—adds or removes local contrast. Increasing local contrast helps to boost clarity in the image.
- **Exposure**—raises or lowers the overall exposure.
- **Black Point**—sets the black clipping level. Increase to further clip black tones.
- **Brightness**—controls mid tone levels. Increase to raise mid tones.
- **Contrast**—controls global contrast. Use in conjunction with Clarity to significantly change the tone mapped look.
- **Saturation**—adds or decreases overall color intensity.
- **Vibrance**—adds or decreases color intensity without clipping color tones.
- **White Balance**—changes the balance of color tones. Tones can be made cooler or warmer by dragging the **Temperature** slider, and color casts can be corrected using the **Tint** slider.
- **Shadows & Highlights**—controls compression of shadow and highlight tones. Useful for fine tuning tones.
- **Detail Refinement**—controls additional sharpening to the image. Its effects are more subtle compared to the **Detail Refinement** found in the Develop Persona. For a "gritty", over sharpened effect, try a large **Radius** value and small **Amount** value.
- **Curves**—allows adjustment of tonal range using a curves graph.

Tone Mapping non-HDR images

The Tone Mapping Persona can also be entered from non 32-bit documents, which means you can achieve a tone mapped look from any 8 or 16-bit imagery.

32-bit OpenEXR support

Affinity Photo has full OpenEXR 32-bit document support, including multichannel (or "multilayer") import and export.

OpenColorIO Integration

With an OpenColorIO configuration (see OpenColorIO for more information), OpenEXR documents with a valid color space affix (eg **filename_acescg.exr**) will be converted from that color space to **scene_linear** upon import.

Additional configuration

Additional OpenEXR options are available from the **Color** options on the Preferences menu:

- **Associate OpenEXR alpha channels**—when enabled, alpha channel information is merged to its associated RGB pixel layer's alpha channel. By default (disabled), imported alpha channels are imported as separate layers with an **.A** affix.
- **Post divide EXR colors by alpha**—when enabled, divides color channels by the alpha channel.
- **Perturb zero EXR alpha**—when enabled, alters zero alpha information so post-division with color channel information can be achieved if **Post divide EXR colors by alpha** is enabled. By default (disabled), zero alpha information is left untouched.

Multichannel import/export

Photo supports multichannel OpenEXR documents for both import and export.

Multichannel import:

- Each channel is imported to a discrete layer in the Layers panel.
- Each layer retains its affix (e.g., **.RGBA**, **.XYZ**).
- Layers can be hidden or shown and edited individually.

Multichannel export:

- Each discrete layer with its channel affix (e.g., **.RGBA**) is exported to its own channel.
- All layers are exported to channels regardless of whether they are hidden or shown at the time of export.
- In order to export as multichannel OpenEXR, either the correct preset must be chosen, or the multichannel setting must be enabled on the OpenEXR export dialog. See below for more information.

An example of how a multichannel OpenEXR document looks once imported.To export a multichannel OpenEXR document:

1. From the **File** menu, choose **Export**.
2. Select the **EXR** export format.
3. From the **Preset** dropdown, select **OpenEXR 32-bit linear (layered)**.
4. (Optional) Access the **More** dialog to configure the multilayer settings:
    - **Include unknown channels**—channels whose type cannot be determined will still be exported as a single luminance-based channel.
    - **Compression**—determine a compression format to use for a reduced file size. Compression may also be disabled entirely.
    - **Image pixels**—choose whether to encode Image channels (**RGBA** etc) as 16-bit (half float) or 32-bit (full float).
    - **Spatial pixels**—choose whether to encode Spatial channels (**XYZ** etc) as 16-bit (half float) or 32-bit (full float).
    - **Other pixels**—choose whether to encode other/undetermined channels as 16-bit (half float) or 32-bit (full float).
5. Choose **Export** to export the document to a chosen filename and directory.

Using OpenColorIO

In addition to 32-bit editing support, Affinity Photo also implements OpenColorIO; a color management system that provides a full color managed workflow. It is predominantly used for motion picture production but can be used for any situation where accurate end-to-end color management is required.

Setting up OpenColorIO

By default, Photo's OpenColorIO features are not immediately usable. An **.ocio** configuration file is required alongside a number of supporting files such as lookup tables.

The OpenColorIO website (http://www.opencolorio.org) contains some sample configurations that provide a number of suitable input and output profiles, including several Academy Color (ACES) configurations.

To configure OpenColorIO in Photo:

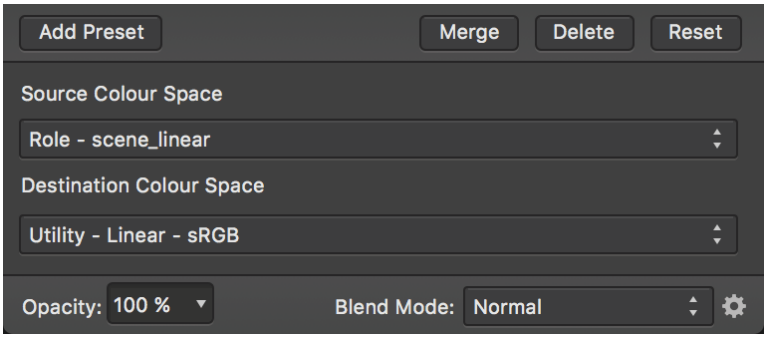
1. Download and extract your chosen OpenColorIO configuration to a folder.
2. From the **Affinity Photo** menu, select **Preferences**.
3. From the **Edit** menu, select **Preferences**.
4. On the **Color** tab, under **OpenColorIO Configuration File**, choose **Select** and navigate to the extracted directory. Choose the **.ocio** configuration file.
5. Under **OpenColorIO Search Folder**, click **Select** and choose the extracted directory (it should already be the current highlighted directory from when the **.ocio** configuration file was selected).
6. You will be prompted to restart the app, which is necessary for the OpenColorIO settings to take effect.

Using OpenColorIO

OpenColorIO is exposed in Affinity Photo through two methods:

- The **32-bit Preview** panel contains a **Display Transform** option that only becomes available with a valid OpenColorIO configuration. This can be used to achieve a non-destructive, color managed workflow. See 32-bit Preview for more information.
- An **OCIO** adjustment layer (see OCIO Adjustment) can be added to losslessly convert between color spaces. You can have multiple **OCIO** adjustment layers within a document, which allows you to accommodate composite layers from different color spaces. An example layer stack might be (in hierarchical order):
    - **OCIO Adjustment**—from ***Utility - Linear - sRGB*** back to ***Role - scene_linear***

- **sRGB Pixel Layer—composite element**
- **OCIO Adjustment**—from ***Role - scene_linear*** to ***Utility - Linear - sRGB***
- **Pixel Layer**—original layer



An OCIO Adjustment layer going from **Role - scene_linear** to **Utility - Linear - sRGB**.

When loading OpenEXR documents, Photo always converts from the source color space to **scene_linear**. With a valid OpenColorIO configuration, Photo will also present a message to let you know which color profile it has converted from. This is usually determined by a filename affix, for example **"render_acescg.exr"**.

Image stacks

Non-destructive image stacks blend together a series of images based on the same scene or almost identical subject matter. Visual differences between images in the series can then be removed, composited together, or used for creative effects.

About image stacks

Use image stacks for:

- Exposure merging: Merging images of varying exposures.
- Object Removal: Use a series of images to blend out unwanted subject matter from a specific image in an image set.
- Noise reduction: Blend together multiple shots of the same subject and average out the noise.
- Creative effects: Simulate long exposure imagery and combine bright subjects (e.g., fireworks) for a composite effect.

About stack operators

A choice of operators can be applied to your stack depending on what you want to achieve. Median can be used for most blending operations such as object removal, exposure merging (exposure blending) and noise reduction.

Stack operators include:

- **Mean**—averages pixel content across the stack of images. Good for long exposure simulation and noise reduction.
- **Median**—removes pixel content that is not consistent in each image. Suitable for object removal and noise reduction.
- **Maximum**—uses the maximum pixel values from each image. Can be used for creative exposure blending where the subject is lighter than the background.
- **Minimum**—uses the minimum pixel values from each image. Suitable for exposure blending where the subject is darker than the background.
- **Range**—indicates areas that change across the image stack. Good for analyzing what has changed between each image.
- **Mid-Range**—uses the middle pixel values from each image. Can be used to increase tonal range if used with bracketed exposures.
- **Total**—produces the total value of pixels from each image. Usually results in overexposure, but can be used to lighten very underexposed imagery.

- **Standard Deviation**—analytical: measures the distribution of information between the images. Useful for object removal as it clearly indicates areas that will be averaged out with a Median operator.
- **Variance**—analytical: as Standard Deviation, indicates how pixel values are spread between images. More intense distributions are shown very clearly.
- **Skewness**—analytical: highlights edge detail and indicates the intensity of pixel value distribution. Can be used to determine tonal and spatial differences between images.
- **Kurtosis**—analytical: detects the peakedness of an image. A brighter result represents low noise levels and a tonal uniformity (most pixels at dominant gray level). Darker results represent greater noise and less tonal uniformity (more pixels further away from dominant gray level).
- **Entropy**—analytical: represents the number of bits required to encode information in the stack. Could be used with stacked video frames (within the same scene or shot).

To create a stack:

1. From the **File** menu, select **New Stack**.
2. From the dialog, click **Add** to locate and select your images for blending. Click **Open** to add the images to the stack list.
3. (Optional) Uncheck **Automatically Align Images** to manually align images later in the **Layers** panel.
4. Choose a Perspective or Scaling operation from the menu to allow for successful auto-alignment. The former applies a perspective adjustment to each image; the latter repositions and/or sizes the image layer.
5. Check **Live Alignment** to allow the above perspective adjustment to be made non-destructively (this may affect performance depending on size and number of images to be stacked).
6. Click **OK**.

Your images are blended and presented in a Live Stack Group in the **Layers** panel. You can manually align layers if auto-alignment isn't 100% accurate.

Once stacked, you may notice 'checkerboard' transparency at the very edge of your stack group. This is an intentional result of auto-alignment and can be either cropped away or, if you're merging the stack image layers together, inpainted out instead.

To change stack operator:

1. On the **Layers** panel, click the Stack operator icon on the Live Stack Group. The default operator is Median as indicated by the icon.
2. From the pop-up menu, select a stack operator suited to the type of photos you are stacking (see above). The icon will change depending on the operator selected.

Once you've applied a stack operator, the image layers in the stack shouldn't require manipulation (of opacity, blend modes, blend ranges, etc.) except for possible re-alignment (if auto-adjustment was not satisfactory). However, depending on image content you may need to apply additional adjustments to the stack or mask some areas for best results.

Exposure merging using stacks

Exposure merging brings together images deliberately shot at different exposure levels to produce an image of a higher dynamic range. Such an approach is likely when areas in your shot are in high contrast and you'd like to bring together differently exposed areas as a solution.

Not to be confused with HDR merge, exposure merging composites images without creating an HDR image or applying HDR tone mapping, producing quicker and often more natural results.

Shooting tips

Here are a few things to consider when shooting.

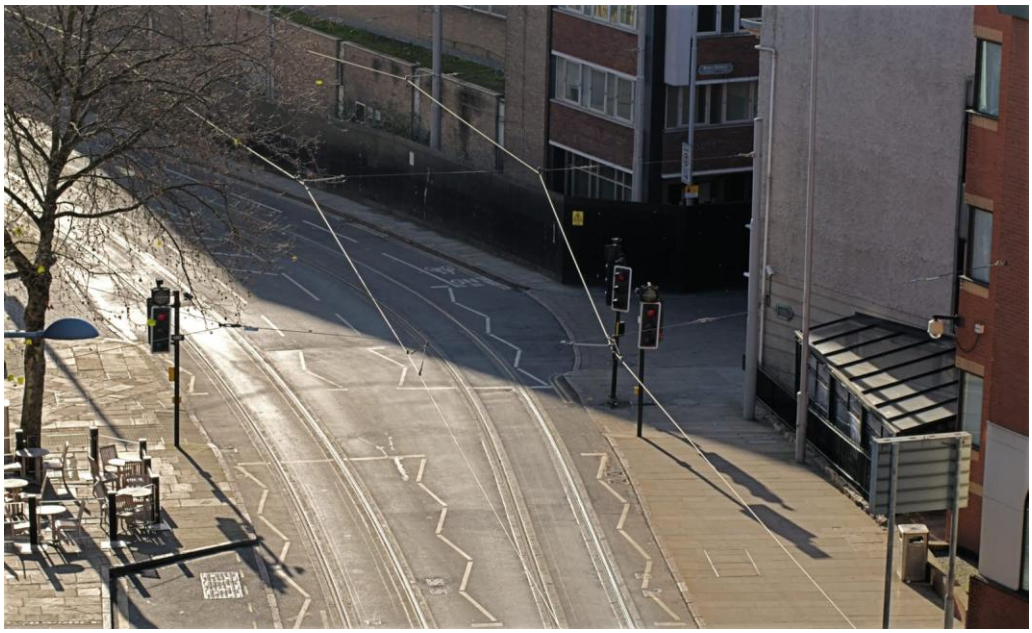
- To allow for perfect image alignment, use a tripod or ensure your camera is in a fixed position.
- Ensure enough photos have been taken to cover the full dynamic range required from the scene.
- If available, you can take advantage of your camera's auto bracketing feature to obtain photos at multiple exposure levels.
- Take advantage of continuous shooting modes to automatically capture your images.
- Avoid flash photography.

To create an exposure merging stack:

1. From the **File** menu, select **New Stack**.
2. From the dialog, click **Add** to locate and select your images. Click **Open** to add the images to the stack list.
3. Click **OK**.
4. On the **Layers** panel, select the **Mean** or **Mid-Range** stack operator from the Stack Operator pop-up menu on the Live Stack Group layer.

Object removal using stacks

Object removal solves the problem of moving subject matter being included in your images—think of passing crowds, vehicles, birds flying, or other annoying distractions. Obviously, a single shot taken at a specific time may be the perfect solution but it may not be practical or possible to wait for this.



Shooting tips

- To allow for perfect image alignment, use a tripod or ensure your camera is in a fixed position.
- Take a pragmatic approach and be realistic. Scenes full of moving objects cannot be completely emptied, nor will stationary objects magically disappear (but can be made to using the Inpainting Brush tool later!).

To create an object removal stack:

1. From the **File** menu, select **New Stack**.
2. From the dialog, click **Add** to locate and select your images. Click **Open** to add the images to the stack list.
3. Click **OK**.
4. On the **Layers** panel, select the **Median** stack operator from the Stack operator pop-up menu on the Live Stack Group layer.

Be prepared to selectively retouch images in your stack if ghosting occurs. This may be due to the same or different objects overlapping in more than one image. To resolve, add a mask to your problem image in the stack (hide/show each image layer to locate the ghosting effect).

Noise reduction using stacks

Noise Reduction with stacking allows you to improve the SNR (Signal to Noise ratio) of your imagery by stacking together multiple shots of the same subject and "averaging" out the noise. Since the subject remains consistent from shot to shot but noise is random, it can be removed efficiently without compromising the clarity of the subject.

This technique is beneficial for static scenes, especially in low light photography where noise is often unavoidable, either due to high ISO values or long exposures.

Shooting tips

Here are a few things to consider when shooting.

- To help image alignment, use a tripod or ensure your camera is in a fixed position.
- The higher the ISO value you shoot at, the greater the number of shots you will need to effectively reduce the noise.
- If shooting handheld, use a high speed burst mode if available for the best framing consistency between shots.
- Try and use a fixed white balance to avoid large differences in tone between the shots.

To create a noise reduction stack:

1. From the **File** menu, select **New Stack**.
2. From the dialog, click **Add** to locate and select your images. Click **Open** to add the images to the stack list.
3. Click **OK**.
4. On the **Layers** panel, select either the **Median** or **Mean** stack operator from the Stack Operator pop-up menu on the Live Stack Group layer. Results between each mode may vary: try both and see which you prefer.

Creative effects using stacks

Stacking can be used for more individual, creative effects that require specific image content to achieve.

Shooting tips

Here are a few things to consider when shooting.

- To help image alignment (if you are using it), use a tripod or ensure your camera is in a fixed position.
- Try and use a fixed white balance to avoid large differences in tone between the shots.

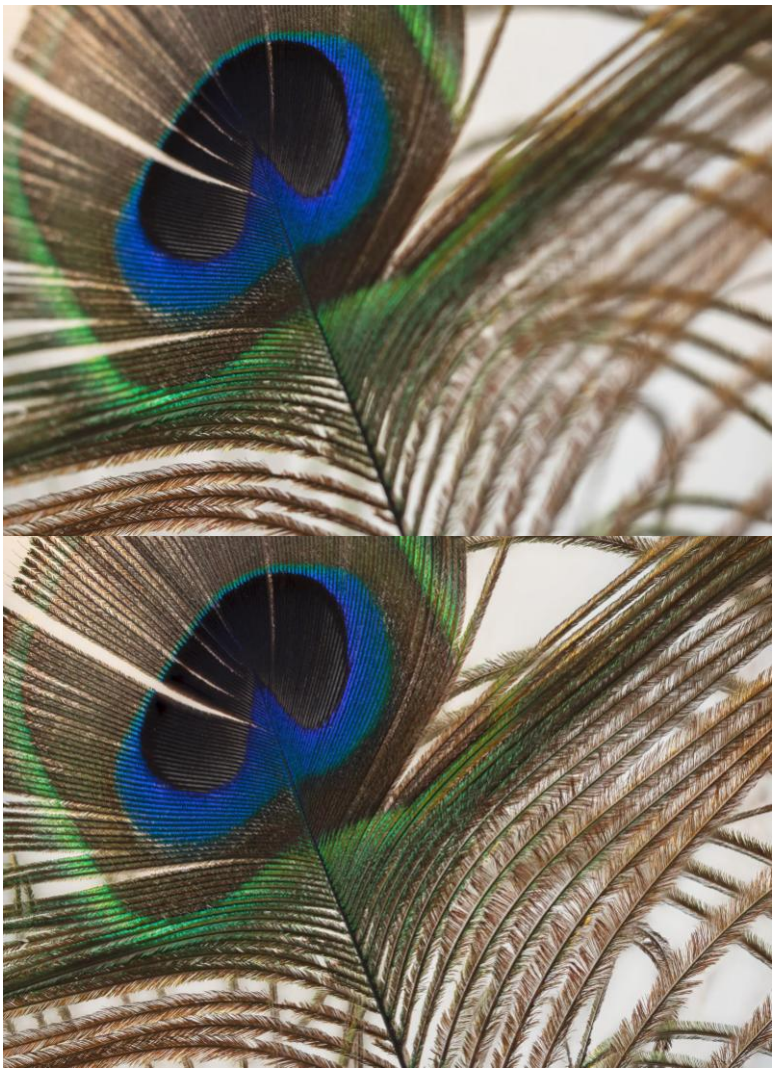
To create a stack:

1. From the **File** menu, select **New Stack**.
2. From the dialog, click **Add** to locate and select your images. Click **Open** to add the images to the stack list.
3. Click **OK**.
4. On the **Layers** panel, experiment with the **Stack Operator**. **Median** is selected by default, but try **Maximum** and **Range** in particular for more creative effects.

Focus merging images

Multiple images of the same subject that have different focus distances can be merged together to create an image that has a greater depth of field. Focus merging will take the most detailed areas from each image (e.g., the areas in focus) and blend them together for the final output. The benefits of focus merging are:

- Increased depth of field for macro photography whilst being able to use larger apertures. This avoids having to use smaller apertures (e.g., f/16) where diffraction may become an issue and produce a soft image.
- Ensuring front-to-back sharpness with landscape photography. While hyperfocal distances typically result in a large area of the scene being in focus, focus merging can be used for more difficult scenarios, such as elements close to the lens that may not be covered by the hyperfocal distance.



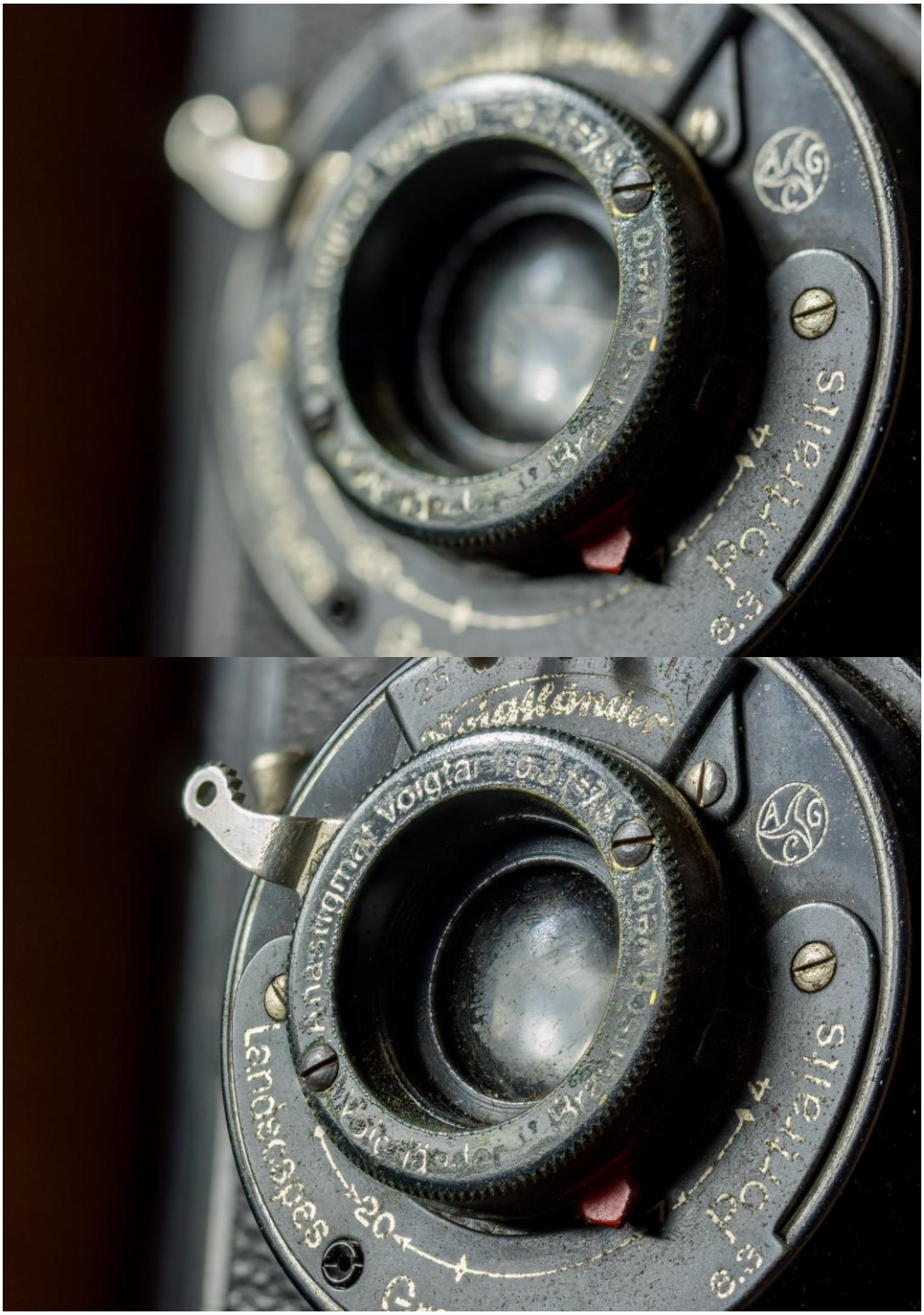
Before: One image with shallow depth of field. **After**: 50 images focus merged to produce image with greater depth of field.

Shooting tips

- For best alignment, the images will want to be acquired with the camera on a tripod or some form of stabilization.
- Keep your exposure settings (shutter speed, aperture, ISO, white balance) identical between shots to produce a consistent result.
- Some cameras have a focus bracketing feature, which takes a burst of shots, changing the focus distance for each shot.
- Your focus differential (how much the focus changes between each shot) should depend on the type of photography. Macro photography will typically need a narrower differential, and more shots, to ensure front-to-back sharpness. Landscape or wide angle photography can have a wider differential and fewer shots (e.g., shots focused at foreground, hyperfocal and infinity distances).

To focus merge several images:

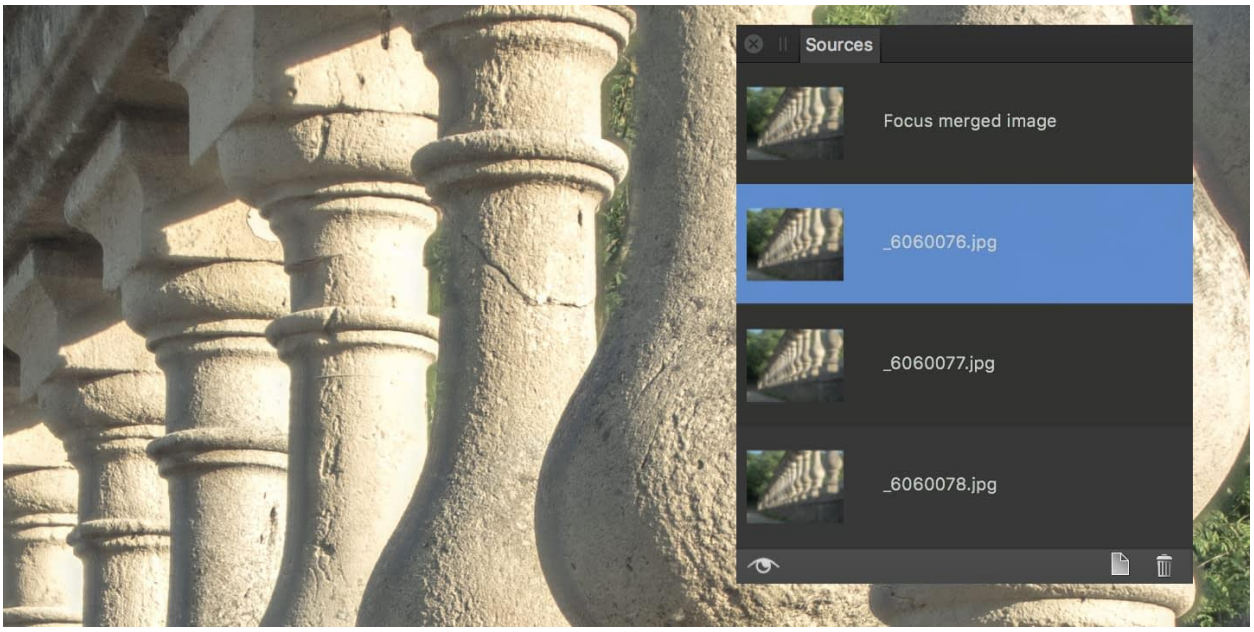
1. From the **File** menu, select **New Focus Merge**.
2. From the dialog, click **Add** to locate and select your images.
3. Click **OK** to begin merging the images.
4. The focus merging is previewed in its three stages: initial alignment, image blending, and final merging.
5. Once focus merging is complete, the final result can be seen as a new document, ready to edit.



Before: One image with shallow depth of field. **After**: 20 images focus merged to produce image with greater depth of field.

Focus merge source cloning

Once a set of images have been focus merged, Photo will display the **Sources** panel populated with a list containing the final merged result and all the individual images used to create the focus merge. This gives you the option of re-editing areas of the result using the **Clone Brush Tool**.



The Sources panel for cloning and retouching focus merge results. To edit a merged result using the **Sources** panel:

1. Ensure the **Clone Brush Tool** is selected from the **Tools** panel.
2. Click an image from the list in the **Sources** panel to set it as the current clone source.
3. You can enable the **Toggle source preview** eye icon which will allow you to preview each image and find the best source to clone from. When you have chosen the correct source, disable this option in order to edit the merged result again.
4. Using the realtime preview as a guide, paint over the areas of the focus merged image you wish to replace with the clone source.

Equirectangular projection

Before: Unmapped equirectangular image (360x180). **After**: Projected image.

Equirectangular images, typically 360x180 panoramas, can be mapped to a live projection in Affinity Photo and edited whilst they are being projected. This allows for instant feedback of detailed retouching, brush work and masking—all operations that would be difficult on an unmapped equirectangular image.

360x180 imagery is often obtained either from dedicated 360 cameras, or by stitching a series of shots together using dedicated 360 stitching software.

To edit an equirectangular image in live projection:

1. With an equirectangular image layer selected, from the **Layer** menu, choose **Live Projection>Equirectangular Projection**.
2. The image layer will then enter live projection and the **Edit Live Projection** tool will be automatically selected.
3. Use the **Edit Live Projection** tool to navigate around the image until you settle on an area you wish to edit.
4. Using the appropriate tools, make your edits.

To pan around an image in live projection:

1. If you choose another tool when panning in live projection, you will temporarily leave the **Edit Live Projection** tool.
2. To pan around the image again, either:
    - Choose the **Move Tool**, then from the context toolbar, select the **Edit Live Projection** tool.
    - From the **Layer** menu, choose **Live Projection>Edit Live Projection** (you can also use the keyboard shortcut listed for this option).

To add additional layers in live projection view:

1. Whilst in live projection view, you can add content to the projected image such as text, images and brush work on new layers.
2. Add your new layer content. For example, you could add some Text at the Nadir (bottom pole) with a copyright notice.
3. Position and rotate the layer as you wish using the **Move Tool**. You can also match perspective by using the **Perspective Tool**.
4. With the new layer selected, from the **Layer** menu, choose **Merge Down**. This will merge and rasterize the layer into the main equirectangular image layer.
5. Once the content is merged, you can pan around the live projection by choosing the **Move Tool**, then selecting the **Edit Live Projection** tool from the context toolbar.

To exit live projection and convert the image back to equirectangular mapping:

1. Converting your image layer back to its original equirectangular mapping will allow you to export and share it—some image hosts support 360 image projection, or alternatively you can implement a Javascript/WebGL-based viewer on your own web pages if you wish.
2. To clear the live projection, select your image layer, then from the **Layer** menu, choose **Live Projection>Remove Projection**.

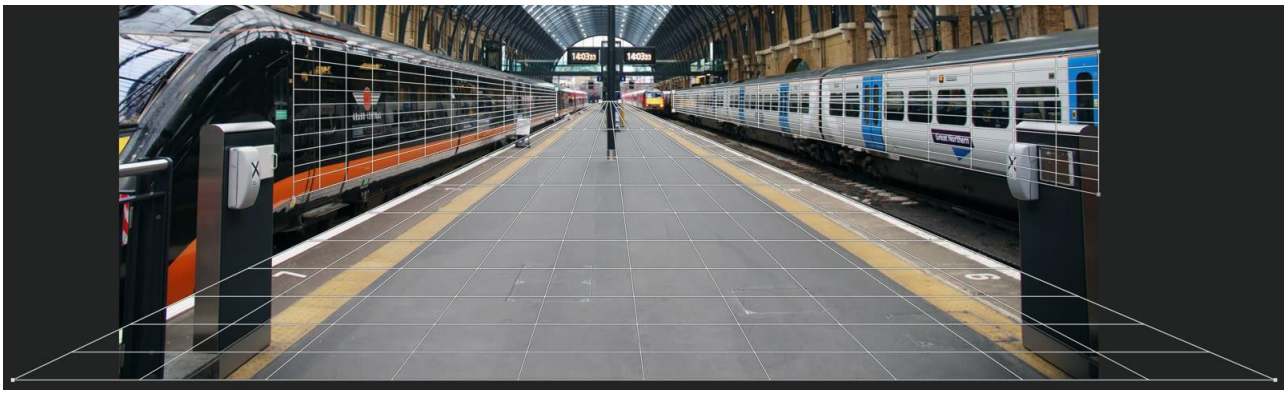
Examples

Removing the tripod at the Nadir (bottom pole) using the Inpainting Brush.

Before: The original equirectangular image. **After**: Using live projection to compose a scene from a certain area of the 360 image.

Perspective projection

Perspective projection allows you to project (or map) perspective planes to flat 2D representations and edit them.



Editing multiple planes in Perspective projection.

After adding a perspective plane, you can temporarily remove perspective. This lets you apply texture, text, and brush strokes in 2D without having to manually transform the content to maintain perspective. Once edited, and the projection is removed, the added edits are transformed automatically ensuring that perspective is kept realistic.

Multiple planes can be defined—each one can be edited individually.

To use Perspective projection:

1. With an image open, from the **Layer** menu, choose **Live Projection>Perspective Projection**.
2. An initial perspective plane will be added covering the image. Drag the four corner nodes to align the plane to a particular area within the image (e.g., vanishing point).
3. Select any tool, adjustment or filter to automatically project the plane to a flat 2D canvas.
4. Using the appropriate tools, make your edits.
5. Once finished with the chosen perspective plane, select the **Move Tool**, then from the context toolbar, choose **Edit Live Projection**.

To add additional perspective planes:

1. Whilst in the **Edit Live Projection** mode, from the context toolbar, choose **Add Plane**.
2. Transform the second plane using its corner nodes.
3. Select between multiple planes by clicking anywhere on them.

To remove perspective planes:

1. Whilst in the **Edit Live Projection** mode, click on a plane to select it.

2. From the context toolbar, choose **Remove Plane**.

To exit Live Perspective projection:

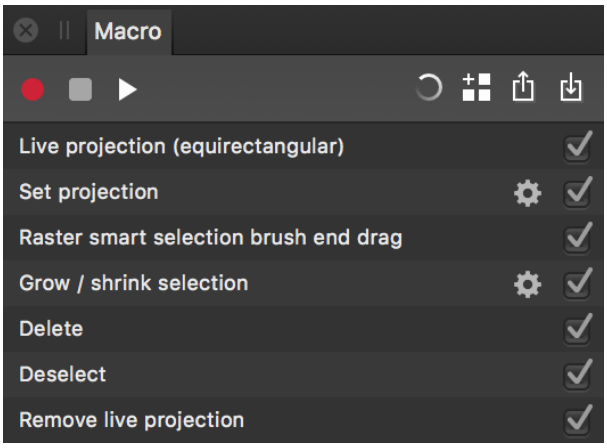
- At any time during Perspective projection editing, from the **Layer** menu, choose **Live Projection>Remove Projection**.

Examples

Before: Original image. **After**: Image with an area edited using Perspective projection.

Macros

Affinity Photo supports a powerful and intuitive macro recording and playback feature, presented as the **Macro** panel. It allows you to record multiple operations and then play them back sequentially as one action.



The Macro panel showing a series of recorded actions.

About macros

Through the **Macro** panel, you can record any operation in Photo; from applying a Gaussian Blur to adding a gradient fill. It is hugely useful for workflow purposes as you can record common workflow steps and apply them to your documents in a single click. Additionally, you can exclude operations from the recording if they were performed accidentally or are no longer needed, and expose certain parameters to the user for configurable playback.

Macros can be saved locally (they appear in the **Library** panel) and exported to an **.afmacro** file format for sharing and re-importing.

- To record a macro:

1. On the **Macro** panel, click the **Start recording** icon.
2. Perform the operations you wish to record. They will appear one by one in the macro operation list.
3. (Optional) Uncheck any operations you do not wish to include (e.g., if they are no longer required).
4. When you are finished recording, click the **Stop recording** icon.
5. (Optional) To continue recording the macro, click the **Start recording** icon again.
6. (Optional) To play back and preview your macro, click the **Play** icon.

7. (Optional) To retrospectively change parameters on a particular operation, click the **Settings** icon next to the operation. This is useful for fine tuning your macros, or quickly creating variations (e.g., Moderate, Standard, Extreme, etc).
8. (Optional) Within the **Settings** dialog for a recorded action, enable the **Eye** icon to expose the parameter to the user (making it interactive) when the macro is run.

To reset (clear) the macro operation list:

- With one or more operations listed, click the **Reset** icon.

To save a macro:

1. Once you have recorded your macro, click the **Add to Library** option.
2. You will be prompted to choose a category and enter a name for your recorded macro. Enter a name and click **OK**.
3. The **Library** panel will become visible with the saved macro appearing in its library category.

To export a macro:

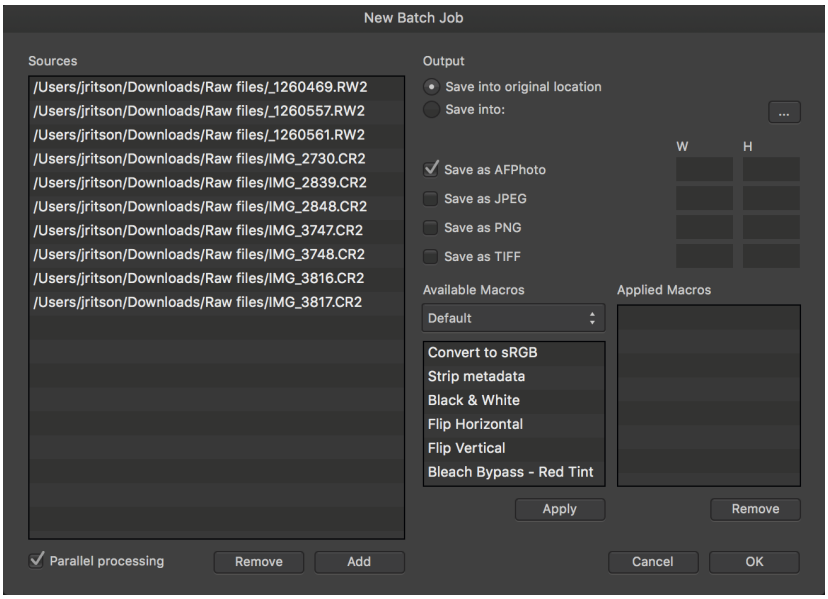
1. Once you have recorded your macro, click the **Export** option.
2. A file export dialog will then appear. Choose where to export your macro and name it accordingly, then click **Save**.
3. The macro will then be saved as an .afmacro file.

To import a macro:

1. From the **Macro** panel, click the **Import** option.
2. A file import dialog will appear. Navigate to the .afmacro file, select it and click **Open**.
3. The macro operations will then populate the macro operations list. You can then modify, play back or save the macro.

Batch jobs

Batch jobs allow a number of image files to be processed: specific processing instructions can be automated, boosting workflow efficiency.



The Batch Job dialog with files added to the **Sources** list.

About batch jobs

The **Batch Job** feature allows you to specify an unrestricted number of source files to process and export. Raw files will be automatically developed, and both the exported file format and image dimensions are configurable.

Batch jobs can work in conjunction with Macros. Any number of pre-recorded macros can be applied to the source files, meaning you can very quickly apply certain operations to several files.

To start a batch job:

1. On the **File** menu, choose **New Batch Job**.
2. Below the **Sources** list, choose **Add** to bring up a file import dialog.
3. Select your desired image files (including raw files) to add to the **Sources** list and click **Add**.
4. Set your Output options (see below for more information), then click **OK** to begin batch processing.

Settings

The following settings are available in the **Batch Job** panel:

- **Parallel processing**—when checked, allows images to be processed asynchronously—one for each processor core or thread. For most modern machines with dual/quad-core processors, leaving this on is recommended for more efficient processing.
- **Output**:
    - **Save into original location**—writes the new image files into the same directory as the originals.
    - **Save into:**— allows you to specify a different directory to write the new image files into.
- **Save as AFPhoto**—writes an **.afphoto** version of each source image.
- **Save as JPEG**—writes a **JPEG** version of each source image.
- **Save as PNG**—writes a **PNG** version of each source image.
- **Save as TIFF**—writes a **TIFF** version of each source image.
- **Save as OpenEXR**—writes a **32-bit OpenEXR** version of each source image.
- **Available Macros**—lists all macros in their respective categories for adding to the batch job. Click **Apply** to add the currently selected macro to the **Applied Macros** list.
- **Applied Macros**—lists macros that will be applied to each source image in the batch job.

Warping using Liquify Persona

Liquify Persona provides the perfect environment for highly accurate warping of images.

Before and after liquify effect applied.

When a warp is applied to an image, the overlaid mesh will update to describe the warp on a grid. Furthermore, modifying the grid will update the warped image below.

Image warping is controlled using a combination of the Liquify tools. These can be divided into three types:

- Direct—these affect the image by painting over image pixels. These include the **Push Forward**, **Push Left**, **Twirl**, **Pinch**, **Turbulence** and **Reconstruct** Liquify tools.
- Indirect—these affect the mesh. These include the **Clone Mesh** Liquify tool.
- Masking—these apply or remove masked areas. These include the **Freeze** and **Thaw** Liquify tools.

These Liquify tools are supported by a dedicated Brush panel.

Warping can be further modified and controlled using the Mesh and Mask panels.

To warp using the Liquify tools:

1. Click a Liquify tool.
2. Adjust settings on the **Brush** panel.
3. Do one of the following:
    - Click or drag on the image to apply the default warp effect.
    - -click or -drag on the image to apply the opposite warp effect. (Not available on all tools.)
4. The effect of the tool is cumulative. If the result is not strong enough, repeat the step above.

Modifier keys

The following modifier (s) can be used:

- Press the and s and drag on the page. Dragging left or right will decrease or increase the brush size, respectively. Alternatively, use the [or] s, respectively. Dragging up or down will decrease or increase the brush hardness, respectively.
- Press the right mouse button, then left mouse button and drag on the page. Dragging left or right will decrease or increase the brush size, respectively.
- With many Brush tools in Photo or Liquify Persona, you can quickly change the opacity of your brush using numerical keys.

🌐To warp using Clone Mesh:

1. Click the **Liquify Clone Mesh Tool**.
2. Adjust settings on the **Brush** panel.
3. -click on the area of the mesh you wish to copy.
4. Click on the area of the mesh to 'paste' the copied effect.
5. Repeat the step above to apply the copied effect elsewhere on the image.

🔄To remove a warp effect:

For individual pixels:

1. Click the **Liquify Reconstruct Tool**.
2. Click or drag on the image to remove the warp effect.

For the entire image:

- On the **Mesh** panel, click **Reset Mesh**.

To strengthen or subdue the current warp effect:

1. On the **Mesh** panel, set the **Reconstruct Mesh** value:
    - **Above 100%** to strengthen the effect.
    - **Below 100%** to subdue the effect.
2. (Optional) Click **Apply** and then repeat the above step to further strengthen or subdue the effect.

To permanently apply the warp effect:

- On the context toolbar, click **Apply**.

The warp is permanently applied to the image and the Photo Persona environment will display.

To discard applied warp effects and exit Liquify Persona, click **Cancel** on the context toolbar.

Mesh controls

The Toolbar provides quick access to mesh controls which allow you to reset, save and load a mesh.

-  **Reset Mesh**—applies a new mesh and removes all currently applied effects from the underlying image.
-  **Save Mesh**—saves the current mesh for future application.
-  **Load Mesh**—applies a previously saved mesh.

For more information on mesh controls, see the Mesh Panel topic.

View modes in Liquify Persona

There are a variety of view modes available in Liquify Persona which give you the opportunity of seeing how your warped image compares to the original.

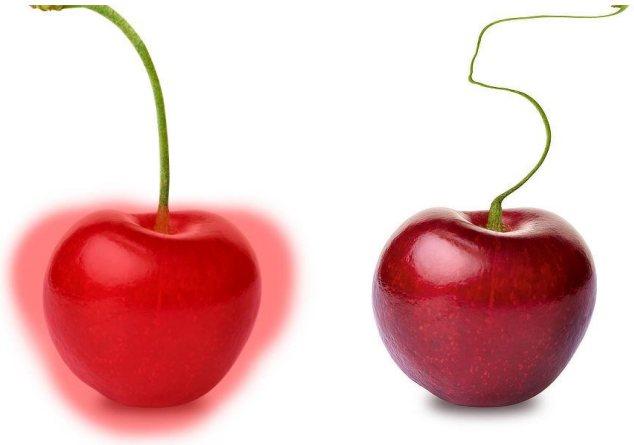
 To activate view modes:

On the Toolbar, do one of the following:

- Click **None** to display the warped image in isolation.
- Click **Split** to display both warped and original image on the same page. A sliding divider can be repositioned to view the image 'Before' and 'After' warping
- Click **Mirror** to display warped and original image side-by-side on separate pages. Panning and zooming affects both pages simultaneously so the same area is always displayed in both pages

Masking in Liquify Persona

Protect parts of an image from warp effects applied in Liquify Persona by applying a mask.



Before and after liquify effect applied, with mask in place (shown in red).

Freezing areas to make a mask

There may be areas of your image which you want to protect from being warped by the Liquify tools. You can do this by 'freezing' those areas using the Liquify Freeze Tool. Frozen areas can be thawed using the Liquify Thaw Tool, if you wish them to be subject to warps once more.

To apply a mask:

Do one of the following:

- With the **Liquify Freeze Tool** selected, drag on the page to select areas to be masked.
- On the Toolbar, select **Mask All** to apply a mask to the entire image.

To remove areas of a mask:

Do one of the following:

- With the **Liquify Thaw Tool** selected, drag on the page to remove areas from a mask.
- On the Toolbar, select **Clear Mask** to remove a mask entirely from the image.

To invert masked areas:

- On the Toolbar, select **Invert Mask**.

To mask (or freeze) large areas of your image, do one of the following:

- On the Toolbar, select **Mask All** and then use the **Liquify Thaw Tool** to remove parts of the mask.
- Use the **Liquify Freeze Tool** to select areas *to be warped* and then on the Toolbar, select **Invert Mask**.

Brush Panel (Liquify Persona only)

The **Brush** panel allows you to control the settings for the Liquify tools.

Settings

The following settings are available in the panel:

- **Size**—the brush (stroke) size in pixels. Type directly in the text box or drag the slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the slider to set the value.
- **Opacity**—the strength of the effect applied with each stroke. Type directly in the text box or drag the slider to set the value.
- **Speed**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the slider to set the value.
- **Ramp**—determines the shape at the edge of the brush (and therefore the shape of the mesh after a stroke has been applied). Select from the pop-up menu.

Mask Panel (Liquify Persona only)

The Mask panel allows you to control the mask applied to the warped image.

The following settings are available in the panel:

- **Clear Mask**—removes the current mask from the image.
- **Mask All**—applies a mask to the entire image.
- **Invert Mask**—reverses the mask settings so all areas which are not masked become masked and vice versa. Opacity values of masked pixels are also inverted.

Mesh Panel (Liquify Persona only)

The Mesh panel allows you to set the appearance of the grid superimposed on the image.

The following settings are available in the panel:

- **Show Mesh**—when selected (default), a grid of horizontal and vertical lines displays as an overlay on the image.
- **Divisions**—sets the size of squares in the mesh. Type directly in the text box or drag the slider to set the value.
- **Color**—sets the color of the mesh lines. Click the color swatch to display a pop-up panel. See the Color panel topic for more information on the settings available.
- **Opacity**—how see through the mesh is. Type directly in the text box or drag the slider to set the value.
- **Reconstruct Mesh**—sets the strength of the overall warp effect across the entire grid. 0% will remove any currently applied effect from the image. Type directly in the text box or drag the slider to set the value.
- **Apply**—applies the current warp effect to the image and resets the Reconstruct Mesh setting to 100%.
- **Load Mesh**—applies a previously saved mesh.
- **Save Mesh**—saves the current mesh for future application.
- **Reset Mesh**—applies a new mesh and removes all currently applied effects from the underlying image.
- **Last Mesh**—applies mesh settings used in the last Liquify session.

Painting brush strokes

Use the Paint Brush Tool to apply brush strokes to your design.

Applying brush strokes to color scanned line art.

Painting

The Paint Brush Tool and other brush-based tools can be used to add brush strokes to your image for creative or corrective reasons. An impressive selection of categorized brushes is available for use with these tools in the **Brushes** panel. Each category in the panel contains brushes of varying properties and characteristics.

The appearance of brush strokes are determined by a combination of the chosen brush tool, the Brushes panel and the tool's context toolbar.

If you want to save a brush, these can be stored in the panel as a custom brush for future use.

The Undo Brush Tool can be used to undo modifications made to an image layer by other painting tools.

🖌️To paint brush strokes:

1. Use the **Layers** panel to select the layer that you want to work on, or create a new layer.
2. From the **Tools** panel, select the **Paint Brush Tool** or other brush-based tool. (See tip below.)
3. From the **Brushes** panel, select a brush thumbnail of your choice. (See tip below.)
4. Adjust the context toolbar settings.
5. Select a stroke color from the **Color** panel.
6. Drag on the page in the direction that you want the brush stroke to follow.

If you wish to switch brush tools, while maintaining the selected brush type, you can set this preference using the Assistant Manager. Alternatively, you can set Affinity Photo to automatically select a particular brush tool when a brush type is selected. See the Modifying brushes topic for more information.

When using the brush tools, the area under the cursor shows a preview of the currently set brush color and properties. You can switch the preview off via **Affinity Photo>Preferences>User Interface**.

When using the brush tools, the area under the cursor shows a preview of the currently set brush color and properties. You can switch the preview off via **Edit>Preferences>User Interface**.

Modifier keys

The following modifier (s) can be used:

- The draws a straight brush stroke from the end of the previous brush stroke to the next position you click.
- Press the and holding down the left mouse button picks up a new color under the brush to paint with.
- Press the and s together and drag on the page. Dragging left or right will decrease or increase the brush size, respectively. Alternatively, use the [or] s, respectively. Dragging up or down will decrease or increase the brush hardness, respectively.
- Press the right mouse button, then left mouse button and drag on the page. Dragging left or right will decrease or increase the brush size, respectively.
- With many Brush tools in Photo or Liquify Persona, you can quickly change the opacity of your brush using numerical keys.

To undo painted modifications:

1. From the **Tools** panel, select the **Undo Brush Tool**.
2. Paint over pixels which you want to return to their original value.

To erase brush strokes after you paint:

1. From the **Tools** panel, select the **Erase Brush Tool**.
2. Paint over areas of your brush stroke.

To use opacity quick keys:

1. Select a Brush tool.
2. Press a numerical key, or two numerical keys in quick succession, to set the opacity. For example:
    - Press **4** for 40% opacity.
    - Press **0** for 100% opacity.
    - Press **4** and **5** for 45% opacity.
    - Press **0** and **7** for 7% opacity.

Erasing

Affinity Photo lets you erase areas of a layer using a combination of the Erase Brush Tool, the Brushes panel and the tool's context toolbar. Alternatively, you can use the Background Erase Brush Tool or the Flood Erase Tool to remove pixels from a layer.

Use of Erase Brush Tool, Background Erase and Flood Erase tools.

Erasing on a layer

You can use the Erase Brush Tool to erase unwanted pixels directly on the layer using the same principles as using the Paint Brush Tool.

The Background Erase Brush Tool takes a sample of the color under the cursor when you begin to erase, and will remove all closely matching colors along the stroke.

The Flood Erase Tool removes areas of the layer based on the color selected using a powerful tolerance setting.

Erasing on a vector layer

As pixels don't exist on a vector layer, a pixel mask is created and applied over the vector layer instead; the erasing process prevents the shape, line or text from being modifiable from that point forward. However, the pixel mask can be modified at any point using pixel brushes. See Layer masking for more details.

The Flood Erase Tool cannot be used on a vector layer.

To erase on a pixel layer:

1. From the **Layers** panel, select a pixel layer.
2. From the **Tools** panel, select the **Erase Brush Tool**.
3. From the **Brushes** panel, select a brush of your choice.
4. Adjust the context toolbar settings.
5. Drag on the page in the direction that you want the erase brush stroke to follow.

To use the Background Erase Brush Tool:

1. From the **Layers** panel, select a layer. (If you select a vector layer, it will be automatically rasterized when the tool is used.)
2. From the **Tools** panel, select the **Background Erase Brush Tool**.
3. From the **Brushes** panel, select a brush of your choice.
4. Adjust the context toolbar settings.
5. Place the cursor over the color you want to erase in the image and drag within the image to erase the targeted color beneath the brush cursor.

To use the Flood Erase Tool:

1. From the **Layers** panel, select a pixel layer.
2. From the **Tools** panel, select **Flood Erase Tool**.
3. Adjust the context toolbar's **Tolerance** setting to control the extent of flood erasing across pixels. Experimenting will produce labor saving results.
4. Click on the image to select the target pixel.

To erase on a vector layer:

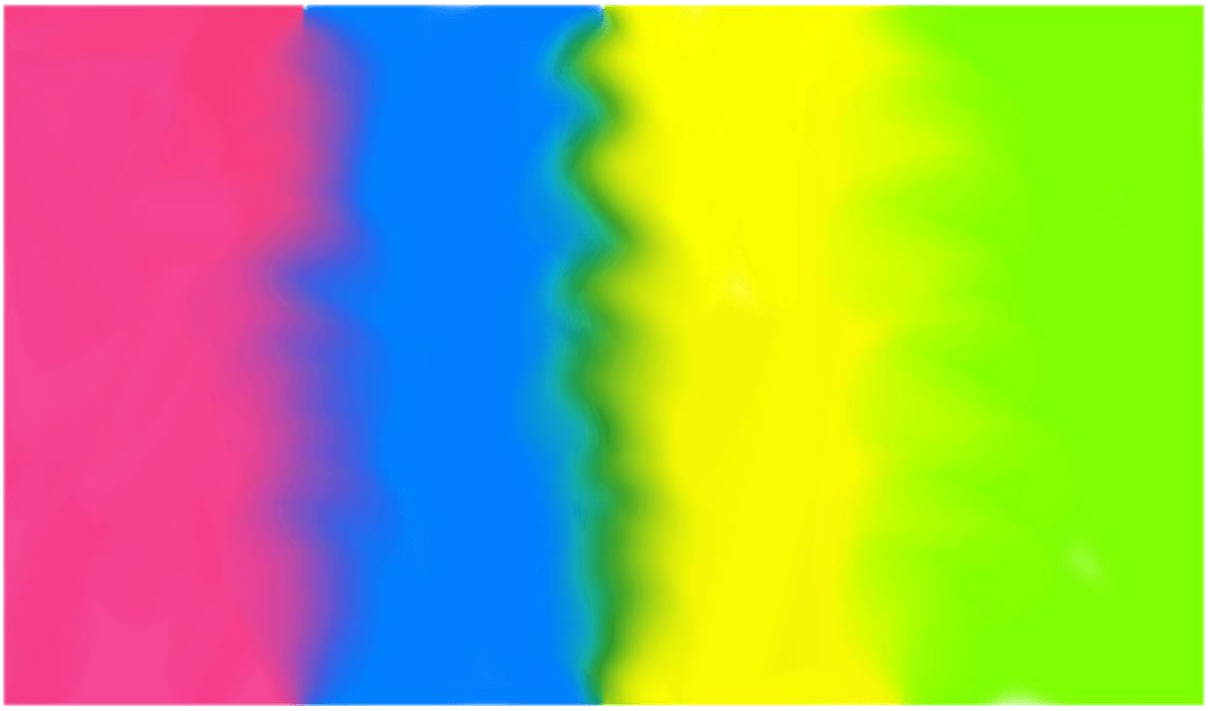
1. From the **Layers** panel, select the vector layer.
2. From the **Tools** panel, select the **Erase Brush Tool**.
3. Paint on the vector layer to erase.

You'll notice a mask thumbnail appear next to the layer. While this remains selected you can continue erasing.

A layer mask is added by default, however, using the Assistant Manager you can control how pixel erasing works on vector layers. You can optionally rasterize the layer completely or take no action (preventing erasing from occurring).

Mixing paint colors

Affinity Photo gives you the opportunity to digitally simulate the mixing of wet paint applied to a canvas.



Effect of dragging the Paint Mixer Brush across color boundaries.

Using the Paint Mixer Brush

The Paint Mixer Brush is pre-loaded with the Foreground color selected on the Color panel. As you drag on the page, this color blends with the color of pixels underneath the stroke, giving a smudged appearance to the image.

By default, the mixed color remains on the Paint Mixer Brush. However, the brush can be manually 'cleaned' at any time. As soon as you drag on the page with a clean brush, the brush will pick up the color directly underneath it.

Alternatively, the mixed color can be manually removed from the brush at any time and reloaded with the Foreground color. You can also set this to occur automatically every time you begin a new stroke.

To simulate a clean brush (with no paint on it), set the Foreground color on the Color panel to **None**. As soon as you drag on the page, the brush will pick up the color directly underneath it.

To mix paints:

1. On the **Tools** panel, select **Paint Mixer Brush**.
2. On the **Color** panel, set the Foreground color.

3. On the **Brushes** panel, select a brush type.
4. Adjust the context toolbar settings.
5. Drag on the page.

To simulate a clean brush (with no paint on it):

With the **Paint Mixer Brush** selected, do any of the following:

- Set the Foreground color on the **Color** panel to **None**.
- On the context toolbar, click **Clean Brush**

To remove mixed paint and reload the Paint Mixer Brush:

- With the **Paint Mixer Brush** selected, on the context toolbar, select **Load Brush**.

To automatically clean and reload the brush after each stroke, on the context toolbar, select the **Auto Load Brush** option.

Replacing colors by brush

You can recolor areas of an image using the Color Replacement Brush Tool.

Before and after painting with the Color Replacement Brush Tool with the Foreground color set to blue.

Using the Color Replacement Brush Tool

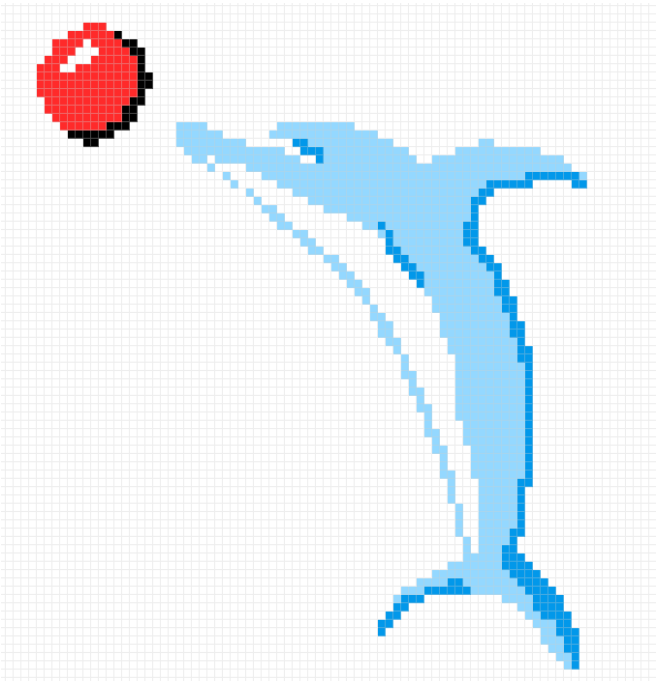
The Color Replacement Brush Tool takes a sample of the color under the cursor when you begin to paint, and will replace all closely matching colors along the stroke with the current Foreground color. The targeted color's hue will be replaced with the current Foreground color's hue, while retaining lightness values of the original pixels.

 To replace colors by brush:

1. From the **Layers** panel, select a layer. (If you select a vector layer, it will be automatically rasterized when the tool is used.)
2. From the **Tools** panel, select the **Color Replacement Brush Tool**.
3. From the **Brushes** panel, select a brush of your choice.
4. Adjust the context toolbar settings.
5. From the **Color** panel, choose a Foreground color to replace the color you want to change.
6. Drag the brush cursor over the targeted color.

Pixel-aligned painting

To achieve hard-edged painted strokes, which align to individual pixels, you can use the Pixel Tool.



The Pixel Tool adds pixels directly to the layer using the same principles as using the Paint Brush Tool. You can select from any of the brushes from the Brushes panel to use with the Pixel Tool.

To apply pixel brush strokes:

1. Use the **Layers** panel to select the layer that you want to work on, or create a new layer.
2. From the **Tools** panel, select the **Pixel** tool.
3. From the **Brushes** panel, select a brush thumbnail of your choice. Use hard-edged brushes from the Basic category for best results.
4. Adjust the context toolbar settings.
5. Select a stroke color from the **Color** panel.
6. Drag on the page in the direction that you want the brush stroke to follow.

Although the Pixel Tool will align to pixels by design, switching on a one-pixel fixed grid may help stroke alignment.

The keyboard modifiers available to the Paint Brush Tool apply equally to the Pixel Tool.

Creating custom pixel brushes

You can create a custom brush from a preset or from scratch using a raster image.

To create a custom preset brush stroke from scratch:

On the **Brushes** panel, click Panel Preferences and then select:

- **New Intensity Brush**—creates a brush stroke based on the opacity values of a raster image. In the pop-up dialog, navigate to and select a file, and click **Open**.
- **New Round Brush**—creates a brush stroke based on a circular shape.
- **New Square Brush**—creates a brush stroke based on a rectangular shape.
- **New Image Brush**—creates a brush stroke based on the color values of a raster image. In the pop-up dialog, navigate to and select a file, and click **Open**.

The new brush is added to the selected category using default settings. To edit the default settings, follow the procedure below from step 3.

To create a custom preset brush stroke from a preset:

1. On the **Brushes** panel, select a brush and click Edit Brush.
2. In the dialog, click **Duplicate** and then **Close**.
3. Select the new brush at the bottom of the panel and click Edit Brush.
4. Adjust the settings in the dialog. See Modifying brushes for more information.
5. Click **Close**.

Additional options from Panel Preferences allow you to create, rename, delete, import and export brush categories.

Move brushes to any created category by -clicking and selecting a category name from the **Move Brush to Category** menu option. Custom categories adopt the naming convention 'Brushes', 'Brushes 2', 'Brushes 3', etc.

Modifying brushes

Brushes can be modified before you paint on your design. Basic modifications can be made from the context toolbar, while advanced adjustments can be made from the **Brushes** panel. Both methods set brush properties for subsequent brush strokes, but the latter edits your brush permanently.

Settings

The following settings are available:

General

- **Size**—sets the default width of the stroke. This can still be overwritten for individual brush strokes using the context toolbar.
- **Accumulation**—sets the deviation in the opacity or visibility of the stroke as it is painted.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases.
- **Spacing**—sets the distance between each nozzle point. A lower percentage results in the nozzles blending together to give a flowing stroke. A higher percentage pushes nozzles away from each other creating a spray-style stroke.
- **Flow**—controls how fast color is built up under your brush.
- **Shape**—sets the diameter of the brush nozzles.
- **Rotation**—sets the angle at which the brush nozzles are drawn. Great for non-round brushes, e.g. for calligraphic effects.
- **Blend Mode**—changes how the applied color interacts with existing colors on a layer. Select from the pop-up menu.
- **Wet edges**—sets the default 'wet edge' behavior of the brush. Select from the pop-up menu.

  The 'wet edge' behavior builds paint up along the edges of your pixel brush stroke, producing a watercolor effect.
- **Associated Tool**—sets the tool which is automatically selected when the brush is selected. Select from the pop-up menu.

  The associated tool's icon will appear next to the brush on the Brushes panel.

Dynamics

- Jitter settings determine the extent to which a chosen controller (Pressure, Velocity, Rotation, etc.) will affect the above General settings. Pick a controller from the pop-up menu and click

the adjacent Ramp profile icon to select a standard profile from lower thumbnails or create your own using the ramp chart. Move circular nodes to reshape the ramp, add nodes to the ramp by clicking on the line, or select a node to delete a node with the (simplifying the ramp). Check **Linear** for straight lines between all nodes; If unchecked (non-linear), nodes are connected using smooth curves.

- **Scatter X**—sets the deviation in the horizontal position of the stroke the preset will allow as a stroke is painted.
- **Scatter Y**—sets the deviation in the vertical position of the stroke the preset will allow as a stroke is painted.

Hue, Saturation, and Luminosity Jitter settings affect the brush color, which is set via the Color panel. Similarly, Flow Jitter affects brush opacity, also set on the Color panel.

Texture

For nozzle control:

- **Brush Nozzles**—displays the nozzles currently used in the current brush.
- **Add**—adds an additional nozzle to the preset.
- **Remove**—deletes the selected nozzle from the preset.

For base texture control:

- **Base Texture**—displays the underlying texture or pattern for the current brush.
- **Set Texture**—launches a dialog to add a base texture, as an image, to the brush. For example, to simulate a textured surface like paper or canvas.
- **Remove**—deletes the base texture from the current brush.
- **Invert**—creates a negative version of the texture.
- **Mode**—controls how the base texture contributes to the current brush. Select from the pop-up menu.
    - **None**—the base texture is ignored, so only the brush nozzles are used.
    - **Nozzle**—allows nozzles to build up brush color onto the base texture depending on flow and opacity response.
    - **Final**—the density of the base texture is kept constant, with no nozzle flow or opacity response.
- **Scale**—sets the size at which the texture is displayed. A lower percentage will display the texture at a larger size. A higher percentage will display the texture tiled at a smaller size.

Images for base textures should be JPG or PNG. Any reasonably sized image will be acceptable as the base texture can be scaled (above).

Additional settings:

- **Reset**—returns all stroke settings to those of the saved brush preset.
- **Duplicate**—saves the current stroke settings to a new preset.
- **Close**—exits the dialog and applies stroke settings to the selected preset.

To modify brush settings:

1. Choose one of the following:
    - With the Paint Brush Tool selected, on the context toolbar, click **More**.
    - On the **Brushes** panel, click Edit Brush.
2. Adjust the settings in the dialog.
3. Click **Close**.

For more information on creating custom brush presets, see the Creating custom brushes topic.

Using layer effects

Layer effects can be applied to any layer to add more creativity to your design.

Available layer effects:

- Gaussian Blur
- Outer Shadow
- Inner Shadow
- Outer Glow
- Inner Glow
- Outline
- Bevel/Emboss
- 3D Effect
- Color Overlay
- Gradient Overlay

Layer effects can be applied to any layer from either the **Effects** panel or the **Layers** panel.

When a layer has one or more effects applied, an icon appears to the right of the layer's name in the Layers panel.

By working with duplicate layers, blend modes and masks, it's possible to obtain a great degree of control over the effects that you generate.

To apply layer effects:

1. Select the layer(s) that you want to apply the effect to.
2. On the **Effects** panel, select the checkbox of the effect that you want to apply.
3. Adjust the settings as desired—options vary for each effect.
4. If required, select any other effects and adjust the settings.

To edit layer effects:

1. Select the layer that you want to edit.
2. On the **Effects** panel, click the arrow to expand the options for the effect you want to edit. Applied effects will be checked.
3. Adjust the settings as desired—options vary for each effect.
4. If required, repeat for any other effects.

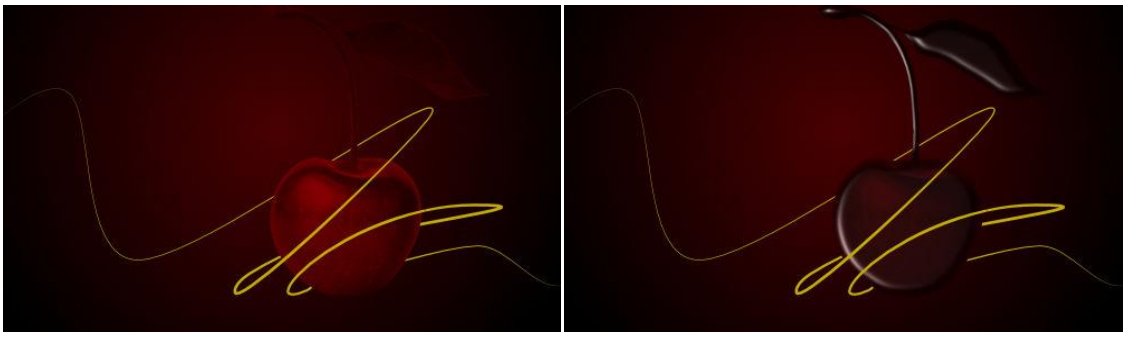
To edit layer effects using the Layer Effects dialog:

1. Click the effects icon on the layer entry in the **Layers** panel.
2. In the dialog, click on the label of the effect that you want to edit.
3. Adjust the settings as desired—options vary for each effect.
4. If required, repeat for any other effects.

If you create a set of layer effects that you want to use again you can save time and effort by saving them as a style to the Styles panel. This way they can be applied to any new layer with a single click.

3D Effect

The 3D effect is used to create the impression of a textured surface.



Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

- **Opacity**—controls the transparency of the effect.
- **Radius**—controls the extent of the effect.
- **Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Depth**—sets the depth of the effect. This can be linked to Radius or set independently.
- **Soften**—blurs the shadows and highlights.
- **Profile**—defines how the light is applied and sculpts the ridges, valleys, and bumps that are shaded in the process.
- **Remove Profile**—returns the profile to the default setting where light is applied evenly.
- **Diffuse**—sets the amount of diffuse color reflected from the surface when lit by the **Light source**. A high setting will give a matt appearance, while a low setting will give a gloss appearance.
- **Specular**—sets the intensity of specular color reflected from the surface when lit by the **Light source**. A high setting will give a gloss appearance, while a low setting will give a matt appearance.
- **Shininess**—sets the amount of specular color reflected from the surface when lit by the **Light source**. A high setting gives sharper highlights, while a low setting will give widespread highlights.

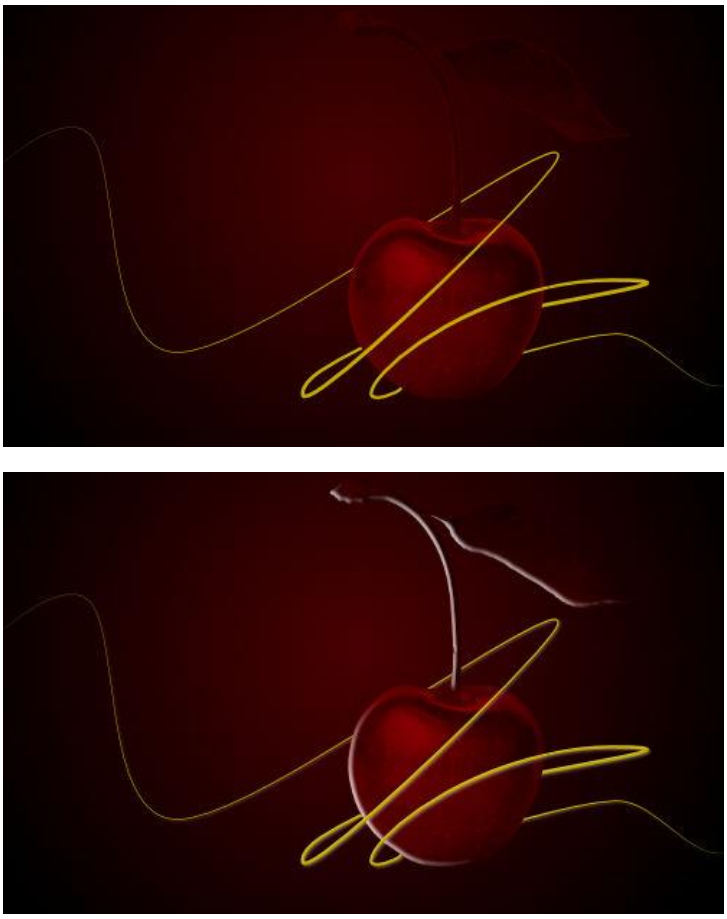
- **Specular color**—sets the specular color. Click the color box to choose the color from the pop-up panel.
- **Ambient**—sets the intensity of ambient light.
- **Ambient light color**—sets the color of the ambient light. Click the color box to choose the color from the pop-up panel.
- **Light source**—select a light source from the pop-up menu. You can then adjust the settings below for the selected light source.
- **Add**—applies an additional light source to the effect.
- **Remove**—deletes the selected light source. If there is only one light source it cannot be removed.
- **Direction**—represents the position of the light source, shadow or gradient. Click or drag to adjust the direction (and set the **Azimuth** and **Elevation** automatically).
- **Azimuth**—defines the direction of the light source, shadow or gradient.
- **Elevation**—defines the 'height' of the light source.
- **Color**—sets the color of the selected light source. Click the color box to choose the color from the pop-up panel.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

To apply a preset or custom profile:

1. Click the Profile thumbnail.
2. On the pop-up panel, choose either:
    - one of the Standard profile thumbnails.
    - A custom profile: Click on the curve to add a node, drag a node or portion of the curve to shape it.
3. Select the Linear checkbox to create a sharp curve or deselect to create a smooth curve.
4. Click away from the pop-up panel to apply the profile.

Bevel/Emboss

The Bevel/Emboss effect is used to add rounded edges and shadows to give a 3D impression.



Before and after effect applied.

Depending on the type of bevel or emboss set, the rounded edge might be inside or outside layer content, convex or concave, and may include a shadow.

For all bevel/emboss effects you can adopt a preset or custom profile that defines the bevel/emboss edge.

Settings

The following settings are shown on the **Effects** panel:

- **Opacity**—controls the transparency of the effect.
- **Radius**—controls the extent of the effect.
- **Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

By default, you'll apply a Pillow Emboss effect when using the Effects panel. For an inner/outer bevel and a basic emboss effect, use the Layer Effects dialog.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

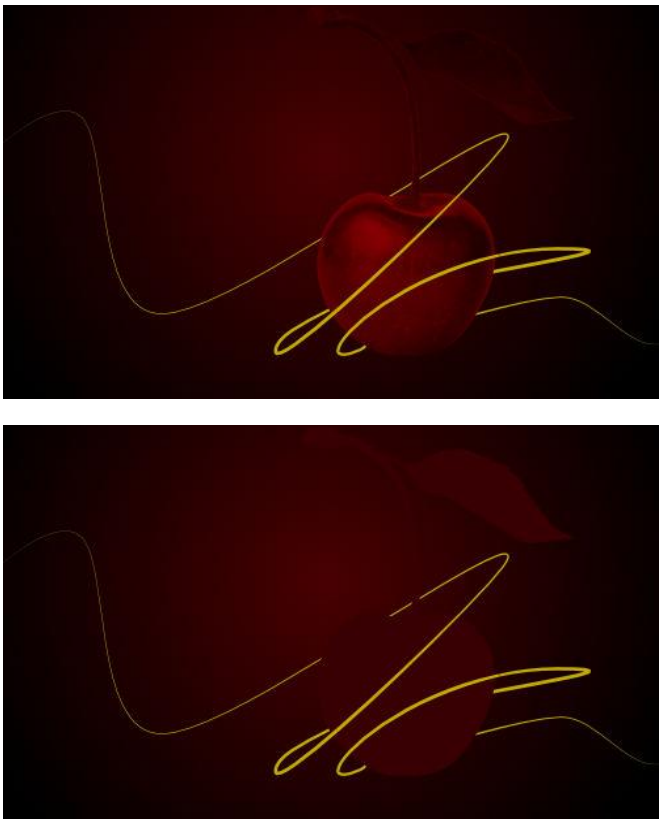
- **Type**—sets an Inner bevel, Outer bevel, Emboss or Pillow emboss effect. Select from the pop-up menu.
- **Depth**—sets the depth of the effect. This can be linked to Radius or set independently.
- **Soften**—blurs the shadows and highlights.
- **Profile**—defines how the light is applied and sculpts the ridges, valleys, and bumps that are shaded in the process.
- **Invert**—reverses the effect of the lighting profile.
- **Remove Profile**—returns the profile to the default setting where light is applied evenly.
- **Direction**—represents the position of the light source, shadow or gradient. Click or drag to adjust the direction (and set the **Azimuth** and **Elevation** automatically).
- **Azimuth**—defines the direction of the light source, shadow or gradient.
- **Highlight**—sets the blend mode, color and opacity for the highlight. Blend mode defaults to screen.
- **Shadow**—sets the blend mode, color and opacity for the shadow. Blend mode defaults to multiply.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

To apply a preset or custom profile:

1. Click the Profile thumbnail.
2. On the pop-up panel, choose either:
    - One of the Standard profile thumbnails.
    - A custom profile: Click on the curve to add a node, drag a node or portion of the curve to shape it.
3. Select the Linear checkbox to create a sharp curve or deselect to create a smooth curve.
4. Click away from the pop-up panel to apply the profile.

Color Overlay

The Color Overlay effect is used to apply a solid color on top of any existing colors.



Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

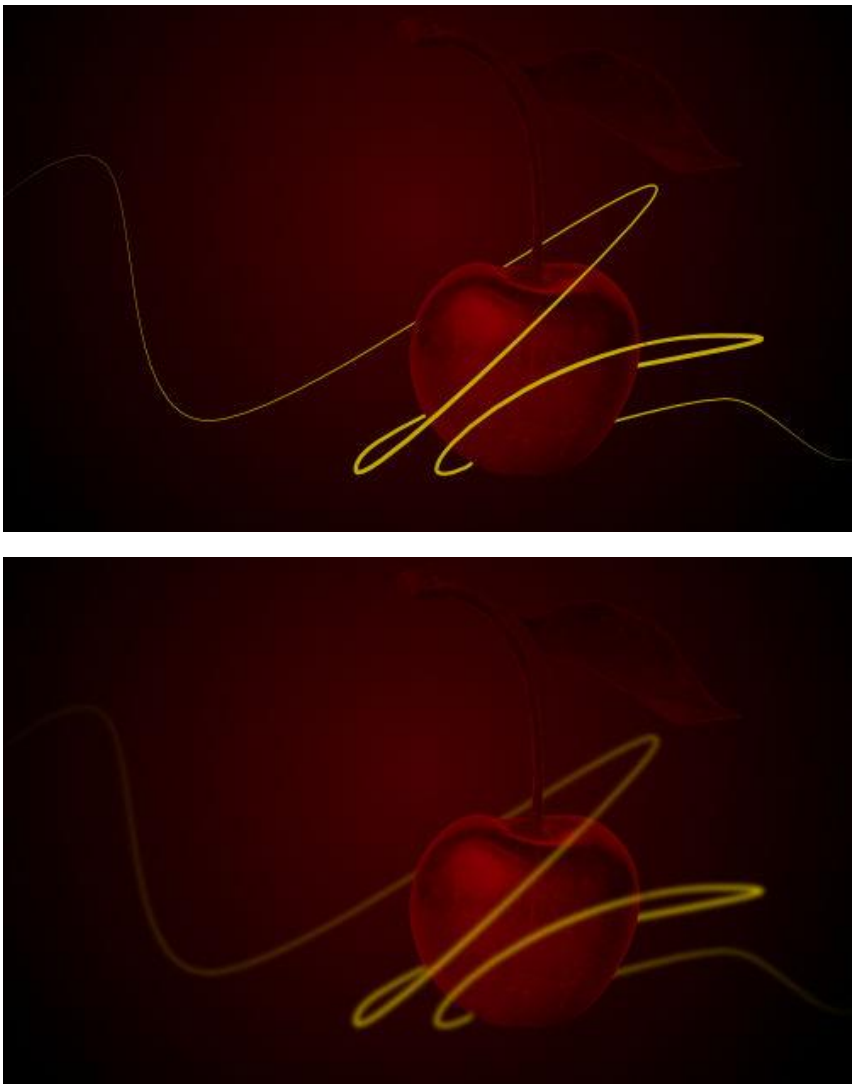
- **Color**—sets the color of the effect. Click the color box to choose the color from the pop-up panel.
- **Opacity**—controls the transparency of the effect.
- **Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Blend mode**—changes how the effect interacts with content below the current layer.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

Gaussian Blur

The Gaussian Blur effect is used to create a pleasing, smooth blur using a weighted average.



Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

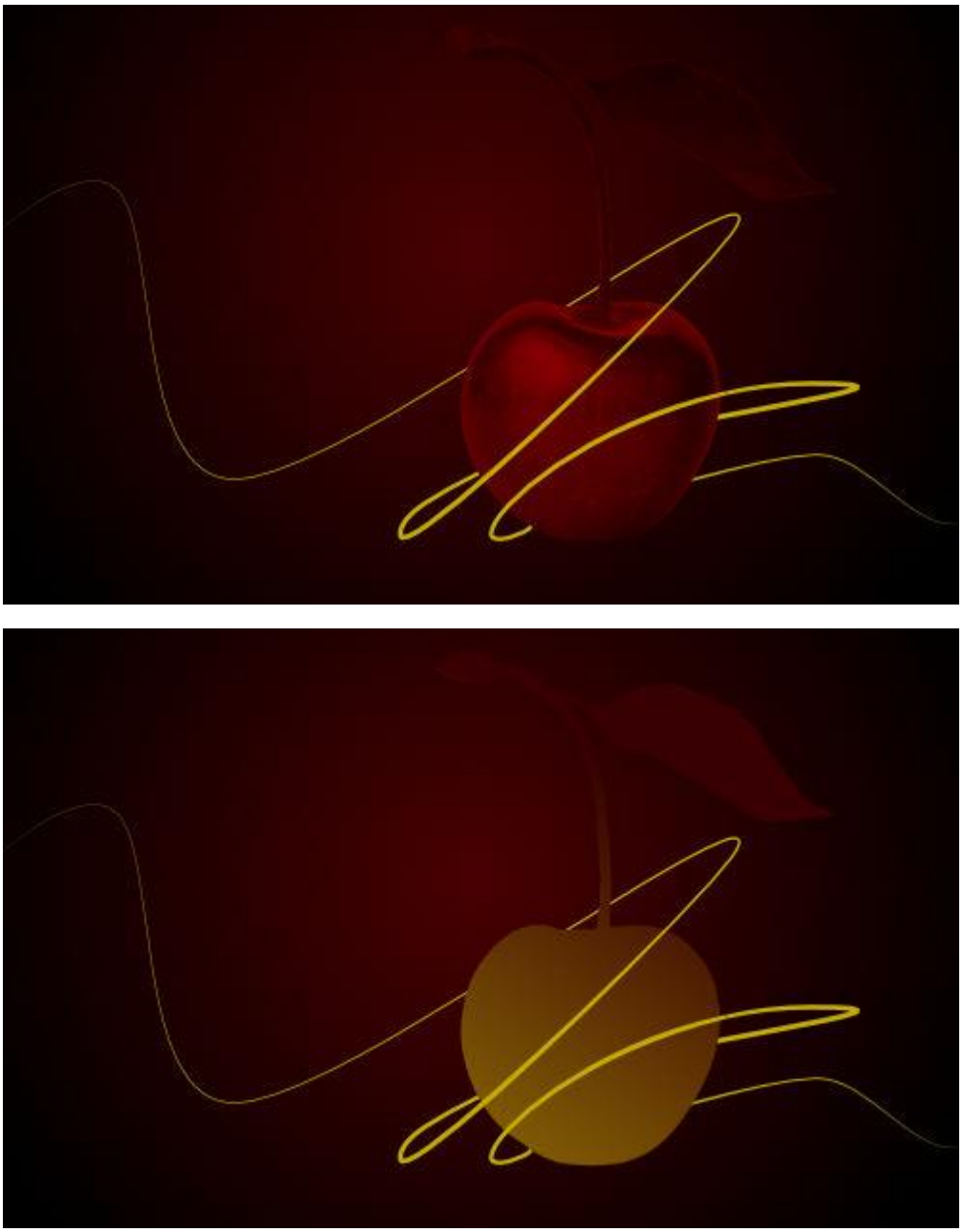
- **Radius**—controls the extent of the effect.
- **Preserve Alpha**—when checked, object edges are not subject to blurring.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

Gradient Overlay

The Gradient Overlay effect is used to apply a grayscale or color gradient on top of any existing colors.



Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

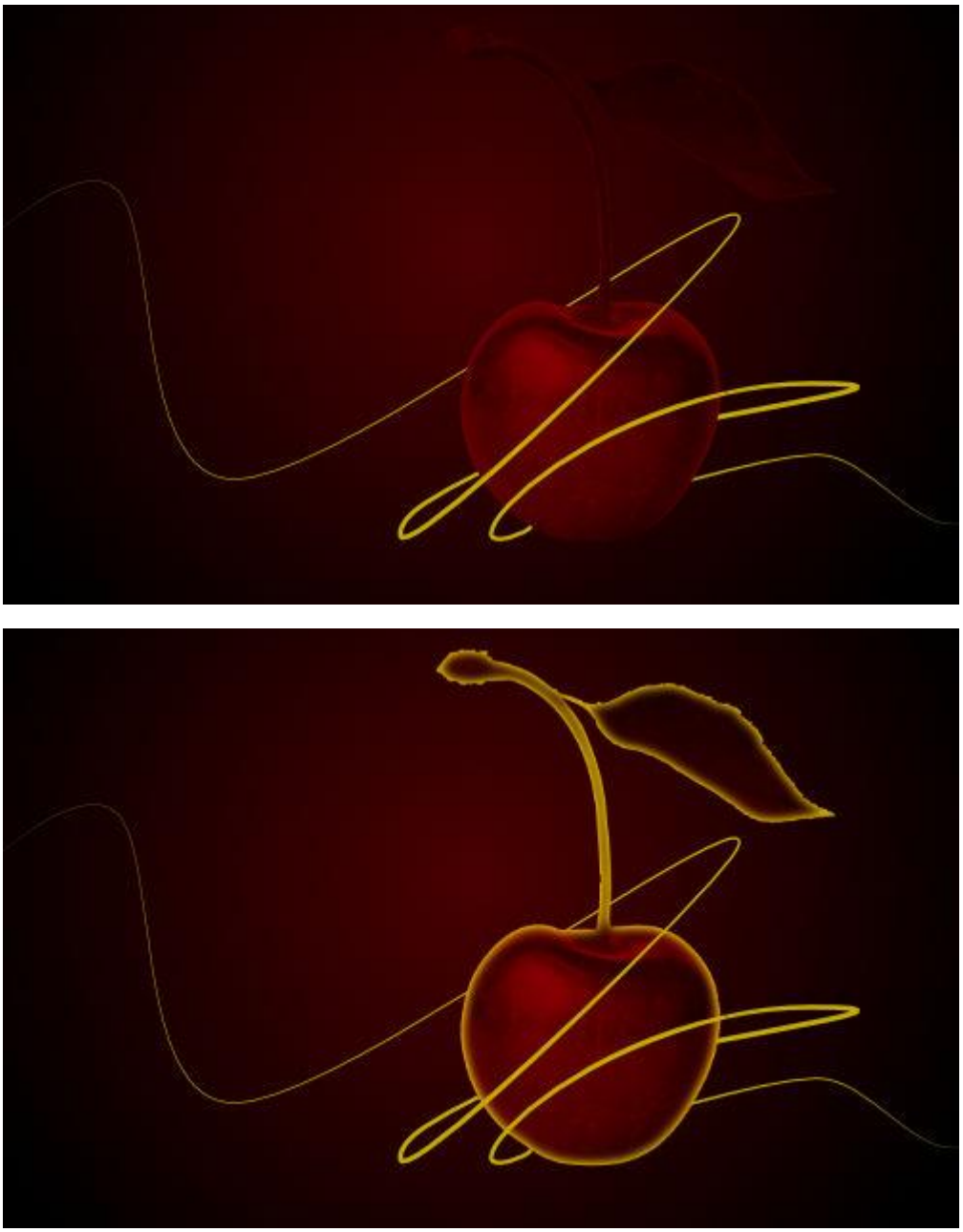
- **Opacity**—Controls the transparency of the effect.
- **Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Type**—determines the gradient type used. Select from the pop-up menu.
- **Gradient**—sets the grayscale or color gradient. Click the gradient thumbnail to edit.
- **Scale**—defines the spread of the gradient separately for the X (horizontal) and Y (vertical) axes.
- **Offset**—defines the start and end points of the gradient. This is set separately for the X (horizontal) and Y (vertical) axes.
- **Angle**—defines the direction of the light source, shadow or gradient.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

Inner Glow

The Inner Glow effect is used to add a color border to the inside of an edge. It can be set to the edge or center of the edge.



Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

- **Color**—sets the color of the effect. Click the color box to choose the color from the pop-up panel.

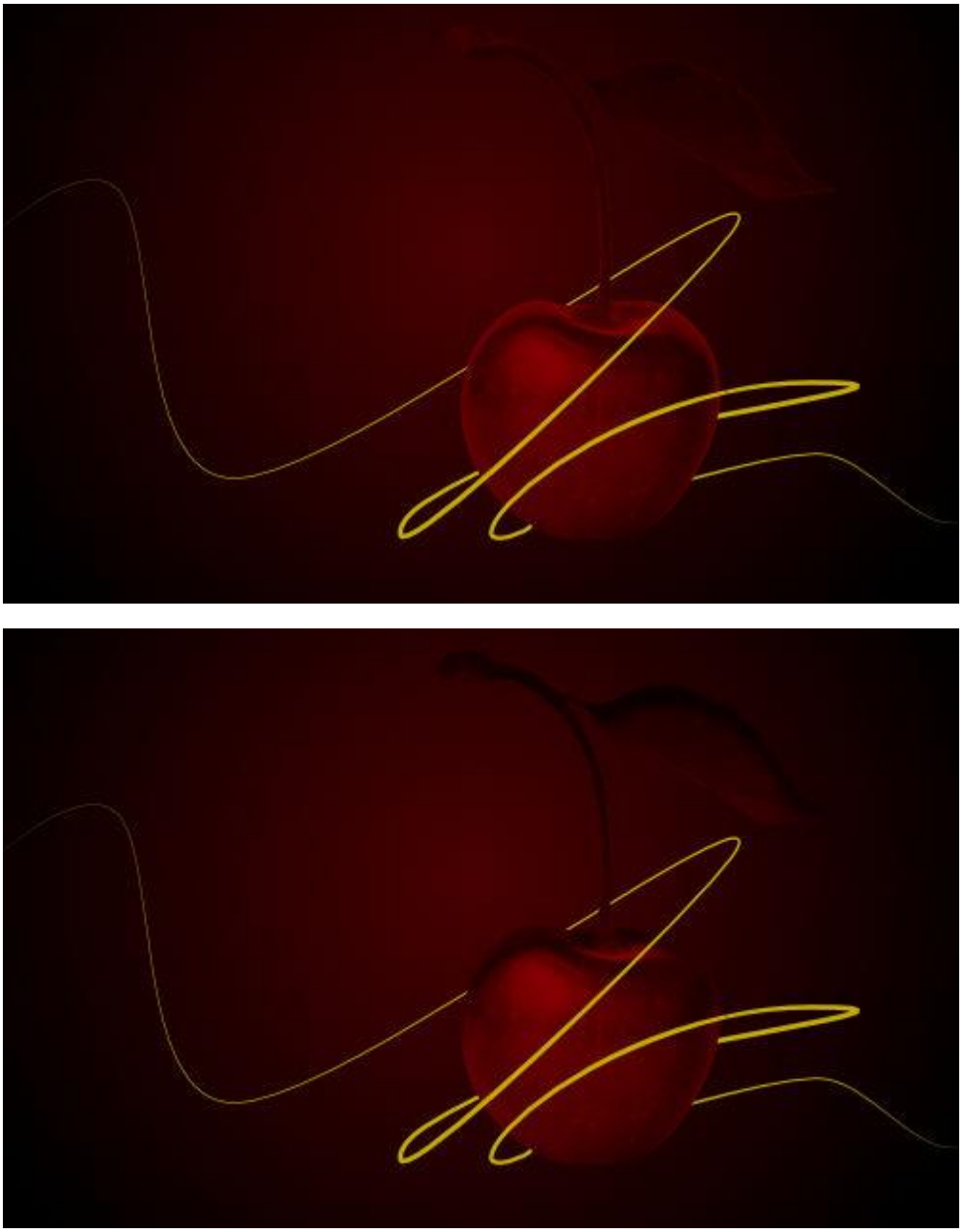
- **Opacity**—controls the transparency of the effect.
- **Radius**—controls the extent of the effect.
- ⚙**Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Blend mode**—changes how the effect interacts with content below the current layer.
- **Intensity**—determines how much the radius of the effect is blurred.
- **Center/Edge**—determines the origin of the effect.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

Inner Shadow

The Inner Shadow effect is used to add a diffused shadow to the inside of an edge.



Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

- **Color**—sets the color of the effect. Click the color box to choose the color from the pop-up panel.
- **Opacity**—controls the transparency of the effect.

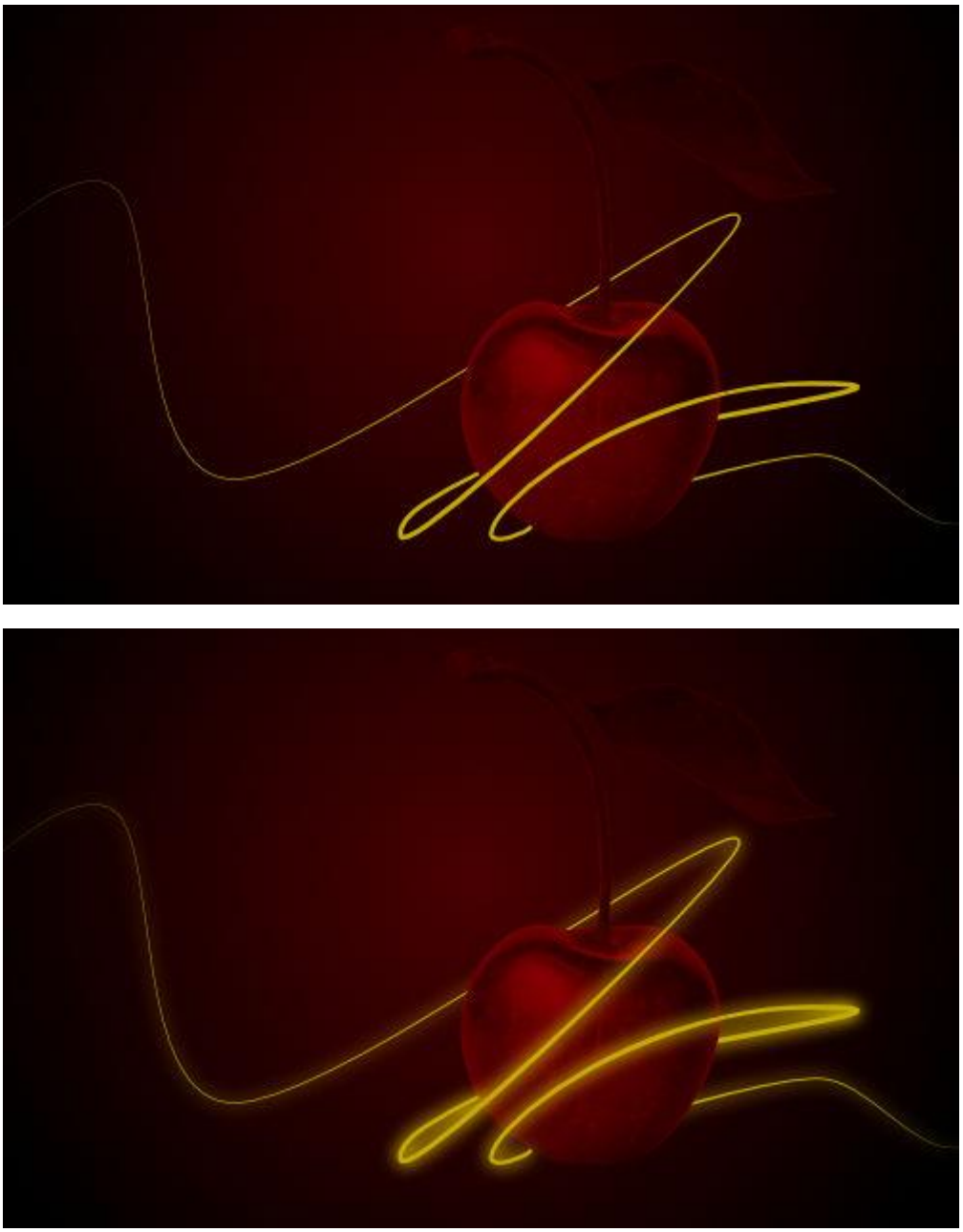
- **Radius**—controls the extent of the effect.
- **Offset**—changes the distance between the layer content and the effect.
- **Offset Tool**—drag on the layer content to set that angle and offset simultaneously.
- **Angle**—defines the direction of the light source, shadow or gradient.
- **Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Blend mode**—changes how the effect interacts with content below the current layer.
- **Intensity**—determines how much the radius of the effect is blurred.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

Outer Glow

The Outer Glow effect is used to add a color border to edges.



Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

- **Color**—sets the color of the effect. Click the color box to choose the color from the pop-up panel.
- **Opacity**—controls the transparency of the effect.

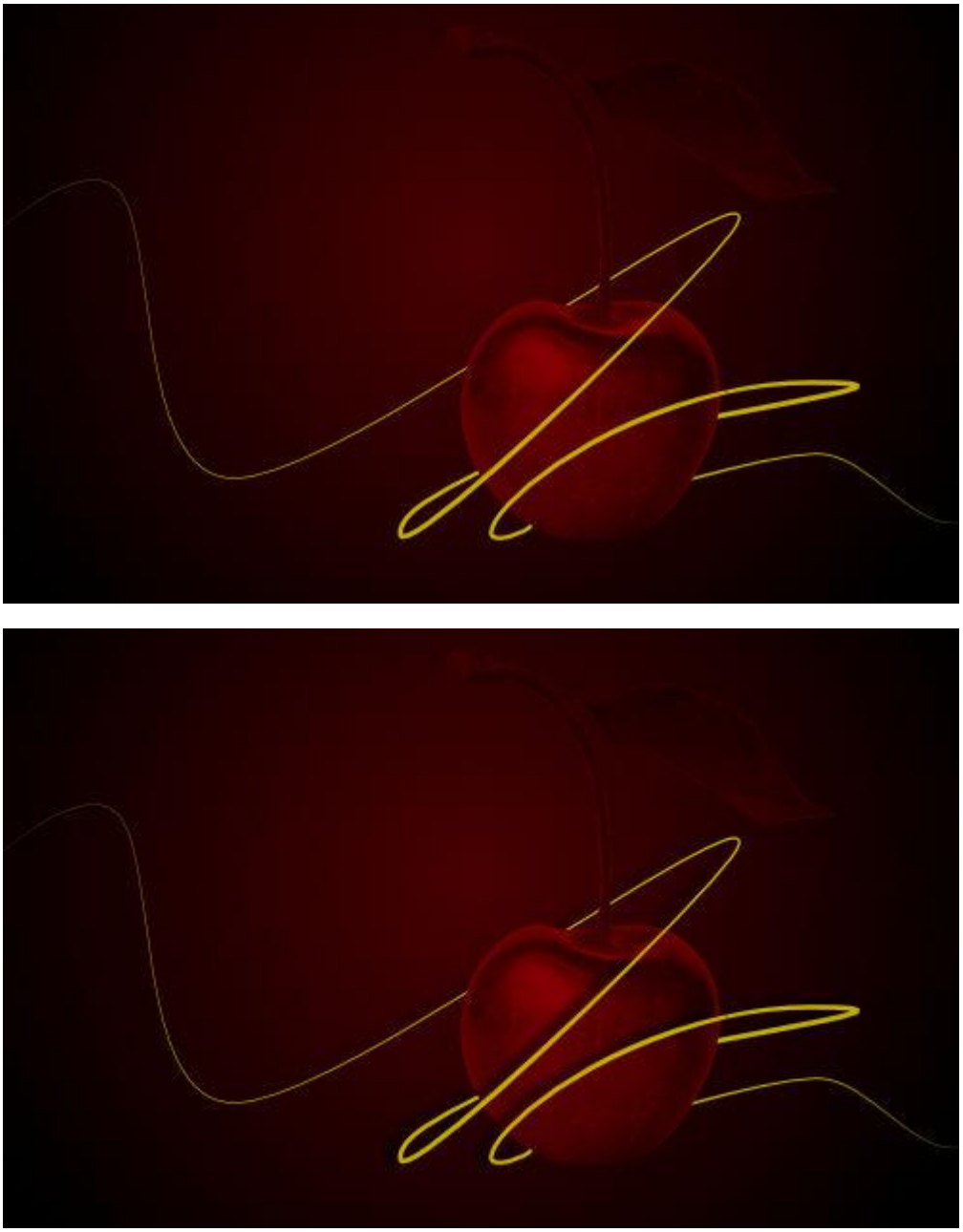
- **Radius**—controls the extent of the effect.
- **Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Blend mode**—changes how the effect interacts with content below the current layer.
- **Intensity**—determines how much the radius of the effect is blurred.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

Outer Shadow

The Outer Shadow effect is used to add a shadow to edges.



Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

- **Color**—sets the color of the effect. Click the color box to choose the color from the pop-up panel.
- **Opacity**—controls the transparency of the effect.

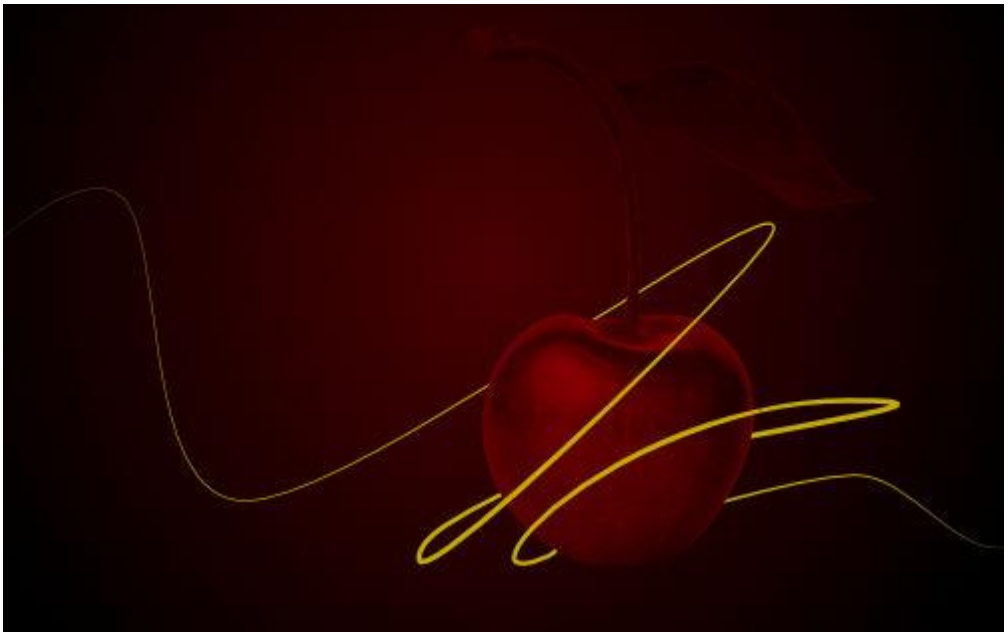
- **Radius**—controls the extent of the effect.
- **Offset**—changes the distance between the layer content and the effect.
- **Offset Tool**—drag on the layer content to set that angle and offset simultaneously.
- **Angle**—defines the direction of the light source, shadow or gradient.
- **Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

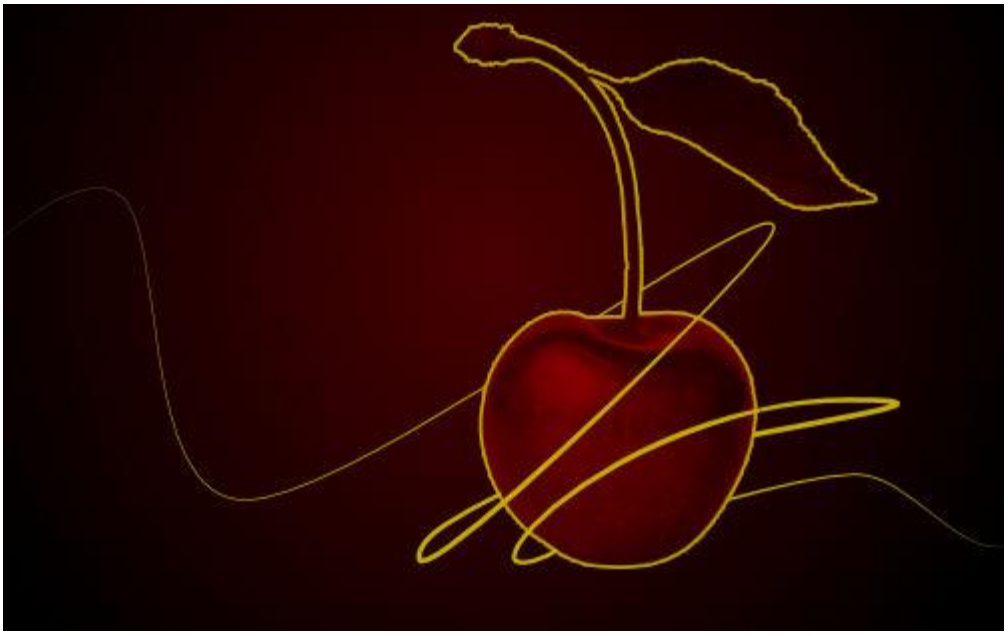
The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Blend mode**—changes how the effect interacts with content below the current layer.
- **Intensity**—determines how much the radius of the effect is blurred.
- **Fill knocks out shadow**—when checked (default), if the fill is semi-transparent, the option prevents the effect from showing through the fill and contributing negatively.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

Outline

The Outline effect is used to add a colored outline to layer content.





Before and after effect applied.

Settings

The following settings are shown on the **Effects** panel:

- **Color**—sets the color of the effect. Click the color box to choose the color from the pop-up panel.
- **Opacity**—controls the transparency of the effect.
- **Radius**—controls the extent of the effect.
- **Layer Effects**—provides access to the **Layer Effects** dialog for more advanced settings and controls.

The following advanced settings can be adjusted in the **Layer Effects** dialog:

- **Blend mode**—changes how the effect interacts with content below the current layer.
- **Alignment**—sets the position of the outline. Select from the pop-up menu.
- **Fill style**—sets the type of fill applied to the outline.
- **Scale with Object**—when selected (default), the effect scales in proportion to the layer contents if the content is resized. If this option is off, the effect's scale remains unchanged when the layer content is resized.
- **Fill Opacity**—sets the opacity of the layer contents without affecting the applied effects.

The **Fill style** includes the **Contour** type. Contour applies a gradient fill which runs from the inner to the outer edge of the outline width.

About color

Affinity Photo can use different color models to represent different ways of describing color. These models (RGB, CMYK, Lab, and Gray) can be selected as you create your new document.

Color definitions are described comprehensively on the internet, so in this section we'll just focus on how to set a color model, the model's color space, and how a color profile represents that color space.

In terms of selecting color as you design, Affinity Photo provides the Color panel's HSL color wheel by default or optional sets of sliders. Furthermore, the Swatches panel can be used for easy access to preset and custom 'saved' colors that you'd like to use again.

If you're happy to leave color management until output is required, you can create new documents with the suggested default color format RGB/8 with sRGB IEC61966-2.1 color profile.

Color models

A screen uses varying amounts of light to create the colors that you see. In the physical world, inks are used to create the color on the page. Color is stored by turning colors into numbers. A color model is used to describe the numerical system used.

As not all devices have the same ability to display color, a color space is used to define the gamut (available range) of color. By working within a color space suitable for the intended output device, you can be confident that your colors will be able to be displayed as intended.

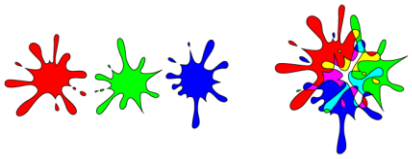
In Affinity Photo, you can take advantage of an end-to-end CMYK or Lab color-managed workflow as you create a new document.

About color models

Different color models represent color as numbers in different ways. When working in Affinity Photo, you can choose one of four color models.

RGB model

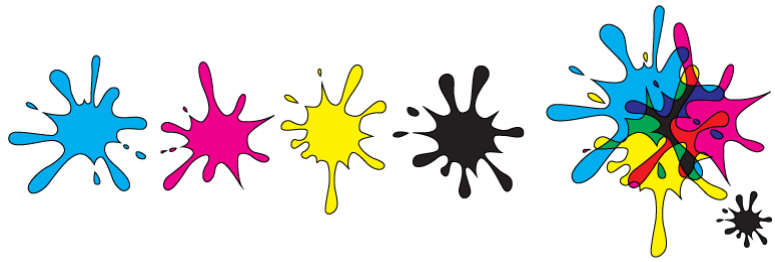
The RGB model is an additive color model. The primary colors of light, Red, Green and Blue, are combined in various degrees to make other colors in the spectrum.



A representation of the RGB color model. This model is universal within digital cameras and electronic displays.

CMYK model

The CMYK model is a subtractive model. Cyan, Magenta and Yellow are combined to make each color. A fourth ink, Black, is also used for extra control and can be used either on its own for a true black, or combined with the other inks for a rich black.

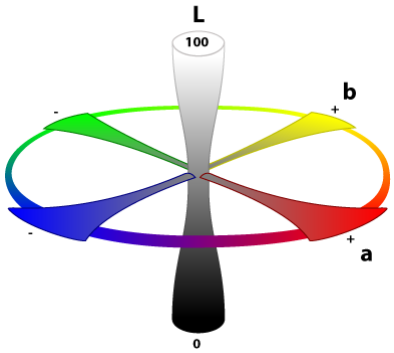


A representation of the CMYK color model. When the three colors combined they make black. Black is also added as a separate color for extra tonal control.

The way that the color model is implemented is defined by the color space that is chosen; this is possible by selecting a color profile.

Lab

Lab color represents the theoretical range of human vision using three channels: Lightness (L), and two color channels of opposing values of 'red - green' (a) and 'yellow - blue' (b). It can be very useful when used creatively, especially as Lightness can be adjusted without any change to hue or saturation.



A representation of the Lab color opposition model. Lightness (L) is controlled separately to the two color channels (a, b).To select a new document's color model:

- As you create a new document, select an option from the **Color Format** pop-up menu.

The **Color Format** of a document is a combination of a color model and a bit depth setting (8 or 16).

To change your document's color model at any time:

- From the **Document** menu, select an option from the **Color Format** sub-menu.

Color spaces

Your color space dictates the range of colors that are available to your screen or other output device.

About color space

Each output device, for example, your display or printer, is only capable of producing a certain range of colors. A color space is a specific implementation of the color model used to define the color gamut (i.e., the range of available color). For example, Adobe RGB, sRGB, Apple RGB, and so on, are all unique color spaces for the RGB color model. Different color spaces are also available for CMYK and Lab color models.

Each output device, for example, your display or printer, is only capable of producing a certain range of colors. A color space is a specific implementation of the color model used to define the color gamut (i.e., the range of available color). For example, sRGB, Apple RGB, and so on, are all unique color spaces for the RGB color model. Different color spaces are also available for CMYK and Lab color models.

In order for a device to know which color space to use, it looks at the assigned color profile. You can choose your color space by assigning a color profile to your document.

Which color space should I use?

Which color space you choose depends on what you're doing and the color model you're choosing to operate in.

If you're unsure of what color space to operate, it's advisable to stick with the default sRGB IEC61966-2.1 profile if using the RGB color model.

If you need to use a color space that is not available in Affinity Photo, it will have to be installed on your system. Devices can install color profiles for you. Consult your system's color management documentation for instructions.

Color management

The color and tonal information in a digital document is stored as numbers. When we share these documents between devices, the device has to work out how to display the color. As not all devices can display the same color gamut it can lead to colors looking different on each device.

Images without color profiles (or with unsupported color profiles) may not look the same across each device.

To ensure that the color looks the same on each device, we use color profiles to tell the device how to display or render the color information.

Images with the correct profile for a calibrated device should closely match.

In Affinity Photo, an opened file's color profile is honored by default. You have the option to convert it to the current working color space. When placing images into an existing document, the image's embedded color profile will always be converted to the document's current working space.

On export, you can choose to embed the document's or a named color profile to ensure accurate color management. Alternatively, the exported file can be unprofiled by not embedding the document or named profile.

Assigning color profiles

Affinity Photo lets you choose global default color profiles, assign a color profile as you create a document, or at any point during your session.

Most commercial printers will accept sRGB as they'll be able to do their own profiling at the print stage to get the best results for your work.

For the CMYK color model, it's best to consult your print partner for an appropriate CMYK color profile recommendation.

To select default global color profiles:

1. From **Affinity Photo>Preferences** (Color option), select an RGB, CMYK, Grayscale or LAB color profile from the pop-up menus.
2. From **Affinity Photo>Preferences** (Color option), select an RGB, CMYK, Grayscale or LAB color profile from the pop-up menus.
3. Choose a **Rendering Intent** option and check **Black Point compensation**.

The chosen profile will be used as the current working space and will be offered when creating new documents, or will be used if you choose to convert an opened file's color space (discarding its own color profile).

To select a new document's color profile:

- As you create a new document, select an option from the **Color Profile** pop-up menu.

To convert the color space of file to be opened to the current working space:

- Prior to opening the file, from **Affinity Photo>Preferences**, check the **Convert opened files to working space** option.
- Prior to opening the file, from **Edit>Preferences**, check the **Convert opened files to working space** option.

Options exist to warn that a file's working space will be converted, or that an unprofiled file will be assigned the current working space's profile.

To change your document's color profile at any time:

1. From the **Document** menu, select **Convert ICC Profile**.
2. Select a profile from the list in the dialog.
3. Click **Convert**.

To embed a color profile on file export:

1. With Export Persona active, choose your **Preset** in the Export Options panel.
2. (Optional) Select a different **ICC profile** from the pop-up menu. Otherwise, the document's color profile will be embedded.
3. Check **Embed ICC profile**.

You can also embed an ICC profile via **File>Export** (click **More>** in the dialog).

By default, exported files are unprofiled, i.e. a color profile is not embedded within them. This maintains a low file size optimized for web use. On opening the file, your working color profile will be assigned to the file.

About soft proofing

Soft proofing simulates output as you edit and design with respect to the color profile and the paper medium you intend to print on.

In Affinity Photo, this can be done by applying a **Soft Proof** adjustment to your project. You can then preview how your output will appear, preventing any nasty surprises at print time.

Because soft proofing is applied as an adjustment you can apply multiple adjustments, and therefore produce soft proofs for multiple output devices.

As an example, if you want to create several different output types, you might want to start with a color profile on document creation with a wide gamut (e.g., Adobe RGB 1998), and then change the profile to match the output destination. However, color information may be thrown away if changing to a smaller color gamut—simply changing back to a profile with a wider gamut will not restore the additional color information. By applying a soft proof adjustment you prevent this, allowing you to work in a wider gamut until you are ready to change to your chosen output profile.

Sampling (or picking) colors

The act of color picking lets you sample colors within or outside Affinity Photo, then use them throughout your design.

About sampling colors

Color sampling appears in two slightly different forms within Affinity Photo. It exists as a 'component' of selected panels as well as a standalone tool.

Both versions function in slightly different ways:

- A color picker appears on the **Color** and **Swatches** panels (and other color-related pop-up panels) in the Photo Persona.
- The standalone **Color Picker Tool** appears on the **Tools** panel in the Photo Persona only.

Regardless of which you use, a sampled color is stored and applied from the swatch next to the color picker's icon on the **Color** or **Swatches** panel.

To use the Color Picker Tool:

1. On the **Tools** panel, select the **Color Picker Tool**.
2. Adjust the settings on the context toolbar.
3. Do one of the following:
    - (For on-page sampling) Click to pick up any color on the page.
    - (For screen-wide 'magnified' sampling) Drag to select any color under a magnifier anywhere within or outside the app.

To use a panel's color picker:

- From the **Color** panel, **Swatches** panel or any pop-up panels, drag from the color picker icon to select any pixel on your screen.

To apply a sampled color to an object:

1. Select one or more objects.
2. On the **Color** or **Swatches** panel, click the selector (e.g. Fill or Stroke) to which you want to apply the color.
3. Click the swatch next to the color picker icon on the panel.

To automatically apply a sampled color to a vector object:

1. Select one or more vector objects.

2. On the **Color** or **Swatches** panel, click the selector (e.g. Fill or Stroke) to which you want to apply the color.
3. On the **Tools** panel, select the **Color Picker Tool**.
4. On the context toolbar, ensure **Apply to Selection** is selected.
5. Do one of the following, to apply to selected objects:
    - Click a color on the page.
    - Drag to select any color under a magnifier anywhere within or outside the app.

Selecting colors

Affinity Photo offers several ways of choosing colors for your photo edits and design.

About selecting colors

An essential requirement for efficient editing and design is the ability to access colors easily and intuitively. You may have a preferred method for color selection, so Affinity Photo provides a choice:

- Color panel—for selection from color wheel, sliders, or boxes using different color models.
- Swatches panel—for selection by swatch from different preset or custom categories, including PANTONE® Colors.
- Color Picker—for sampling colors anywhere on your screen; great for complementary color work.
- Context toolbar—for selection of Fill and/or Stroke colors from the context toolbar that displays when vector content is selected.
- Gradient tool—apply or edit a color gradient across a pixel or vector layer. Choose from the tool's context toolbar.

Using the Color panel

With the Color panel, colors can be adopted by tools (or applied to vector content) in just a few clicks. Opacity and noise are further color attributes which can be applied. Colors can be saved to a palette in the Swatches panel.

To select a color (using default HSL Color Wheel):

1. Click the Foreground or Background swatch at the top left of the panel.
2. Click for a hue color on the outer ring.
3. Click in the inner triangle to set the combined Saturation and Lightness.

The relevant swatch updates to the selected color.

Click Panel Preferences menu on the Color panel to select color via RGB, HSL, CMYK, LAB or Grayscale sliders; in 8 bit, 16 bit or percentage modes where applicable; or use Hue, Saturation or Lightness boxes.

To switch colors between the swatch selectors:

- Click the double-headed arrow. The colors switch (but the active swatch selector remains the same.)

To adjust opacity or noise setting:

1. Select the toggle button to the bottom-left of the panel.
2. Drag the slider to set the value.

To use a different color model:

1. Click the Panel Preferences menu, and select **Sliders** from the menu.
2. At the top right of the panel, click the current color mode displayed, e.g. RGB, to reveal a pop-up menu.
3. Select a different color model from the menu.

To apply a color tint:

1. Click the Panel Preferences menu, and select **Tint** from the menu.
2. Drag the slider to the left or right to increase or decrease the color tint, respectively.

To use a different color mode:

- Click the Panel Preferences menu, and select **8 bit**, **16 bit** or **Percentage** from the menu.

To save colors to Swatches panel:

Click the Panel Preferences menu, and select one of the following:

- **Add Color to Swatch**—adds the current color to the currently loaded palette in the Swatches panel.
- Select a chord type from the **Add Chord to Swatch** pop-up menu—adds a chord of the current color to the currently loaded palette in the Swatches panel.

Using the Swatches panel

The Swatches panel provides color swatch presets that are selectable from various categories. You can easily apply grays, solid colors, or gradient colors as presets.

To use a color swatch:

Do one of the following:

- Choose a palette category from the category pop-up menu and click a color swatch in the palette.
- Click a swatch from the **Recently used** swatches.
- Click a **None** swatch to make the color completely transparent.

Hold down the when selecting a swatch to honor the opacity and/or noise already applied to your object (i.e. only the color of the object will update).

Using the Color Picker

The picker lets you sample colors within or outside Affinity Photo, then use them in your project.

 To use the Color Picker:

1. Drag the **Color Picker** icon to the color you want to sample.
2. Click the swatch selector you want to apply the color to.
3. Click the swatch next to the **Color Picker** to apply the color.

Using context toolbar (vector content only):

For quick access, Fill and Stroke swatches are available from the context toolbar of any selected vector content.

To apply a fill or stroke color to vector content:

1. Select the object.
2. From the context toolbar, click either the 'Stroke' or 'Fill' swatch.
3. From the flyout choose color from a **Swatches**, **Color**, or **Gradient** pane.

Using the Color pane, you have the option of selecting color using an HSL Color Wheel by default; RGB, RGB (HEX), HSL, CMYK, Lab, Grayscale sliders; or independent Hue, Saturation, or Lightness boxes.

Using Gradient

Use the Gradient tool to apply your own gradient paths across either a pixel layer or to vector content fills; you can also apply solid and bitmap fills. The tool's context toolbar lets you change the gradient to be radial, elliptical, or conical.

 To use the Gradient tool:

1. Select a pixel or vector layer.
2. Select the **Gradient** tool from the Tools panel.
3. From the context toolbar, select a fill type from the **Type** pop-up menu.
4. Drag the cursor across the content.

   Hold down the to constrain the angle of the gradient path to 45°.

Create and modify your own gradient fills by clicking the color swatch, adjacent to the Type pop-up menu, on the context toolbar.

For preset gradient fills, use the Swatches panel.

Accessing PANTONE® Colors

PANTONE® Color palettes are available from the main Swatches panel. They are also available from the pop-up Swatches panel on the context toolbar when a shape, line, or stroke is selected.

To access PANTONE® Colors:

- On the **Swatches** panel (or pop-up Swatches panel), from the category pop-up menu, select your preferred PANTONE palette.

Registration color

Printing to PDF will allow you to include printer marks, including registration marks assigned with registration black (100%C:100%M:100%Y:100%K). However, you can add this registration color as a swatch that can be assigned to an object on the page, creating an on-page registration mark.

To add a registration color as a swatch:

- From the Swatches panel, click **Panel Preferences**, then select **Add Registration Color**.

You can then apply the swatch to an object on the page.

Color Chords

A color chord is a spread of harmonious colors which can be used in conjunction with each other to produce appealing designs.

About color chords

Color chords are created by first choosing a base color and then picking a chord type (built on professional color theory). A spread of colors is then populated and stored in the current palette in the **Swatches** panel. You can then select from these colors as you design.

Chord types are based on the HSL color wheel and include:

- **Complementary**—the base color and its opposite on the color wheel.
- **Split Complementary**—the base color and the colors adjacent to its opposite on the color wheel.
- **Analogous**—the base color and the colors adjacent to it on the color wheel.
- **Accented Analogic**—as for Analogous but, like Complementary, also includes the base color's opposite.
- **Triadic**—three colors spaced equally around the color wheel starting from the base color.
- **Tetradic**—four colors arranged around the color wheel in two complementary color pairs, starting from the base color. Otherwise known as 'Rectangle'.
- **Square**—four colors spaced equally around the color wheel starting from the base color.
- **Tints**—colors which vary in lightness from the base color to white.
- **Shades**—colors which vary in lightness from the base color to black.
- **Tones**—colors which vary in saturation from the base color to gray.

You'll find a wide range of color theory websites on the Internet.

To create a color chord:

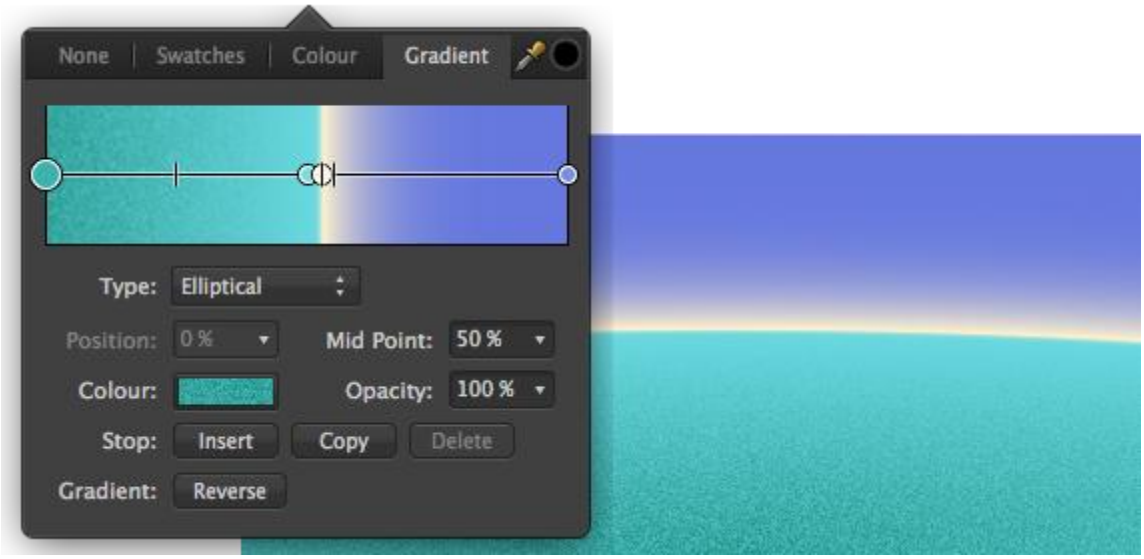
1. (Optional) On the **Swatches** panel, click Panel Preferences and choose an 'Add Palette' option.
2. Do one of the following:
    - With no content selected, select a color using the **Color** or **Swatches** panel.
    - Select page content with the color you wish to work with. Remember to select the appropriate color selector on the **Color** or **Swatches** panel.
3. On the **Color** panel, click the Panel Preferences menu and select a chord type from the **Add Chord to Swatch** pop-up menu.

Gradient editing

The Gradient tool does a great job in drawing a simple color gradient across layers (pixel layers, fill layers, adjustment layers, live filter layers, layer masks) as well as vector and text content. However, you might want to apply a more complex fill, introducing more than two colors along the gradient path, adjust where each color is positioned and/or control color transitions. You can do this in two ways.

- Directly on the Gradient tool path.
- Via the tool's context toolbar.

Using the former, you modify the gradient by eye; the latter lets you design with precision and absolute control.



Complex gradient applied directly to page content and then adjusted using the pop-up panel from the context toolbar.

Gradient settings

The following settings can be adjusted via tool's context toolbar (color swatch):

- **Type**—determines the gradient type (linear, elliptical, etc.) via a pop-up menu.
- **Position**—controls the position of the stop along the gradient from left (0%) to right (100%), with 50% representing the central point.
- **Mid Point**—adjusts the spread of colors between the selected color stop and the stop to its right.
- **Color**—click the color swatch to display a pop-up panel where you can modify the selected stop's color (including noise value).

- **Opacity**—controls how see through the stop is. 100% represents fully opaque, 0% represents fully transparent.
- **Insert**—adds a new stop between a selected stop and the stop to its right. The stop adopts the color at its new position.
- **Copy**—duplicates the selected stop, positioning it between the selected stop and the stop to its right.
- **Delete**—removes the selected stop from the gradient. Deleting an end stop shortens the path back to the adjacent stop.
- **Reverse**—the gradient is reversed, i.e. like a mirror image.

To modify a gradient (directly on an object):

With the **Gradient** tool selected, click the content with a gradient fill applied and then do any of the following:

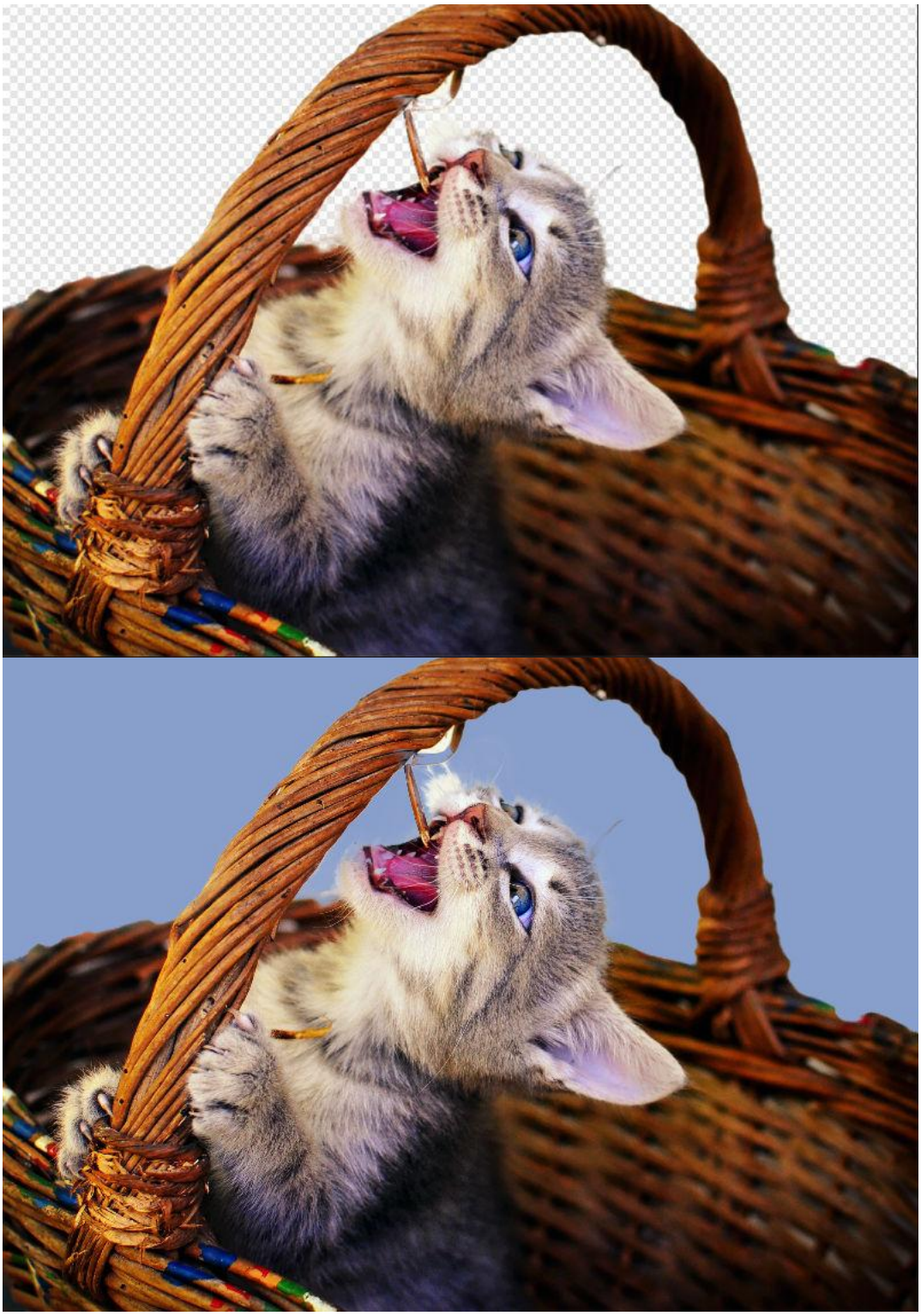
- Click on the gradient path to add a stop.
- Click a stop to select it. Selected stops display larger than other stops.
- Drag a stop to reposition it along the gradient path. End stops can be repositioned (by dragging) to extend or contract the gradient's length; the angle of the gradient can also be changed by dragging.
- Drag a mid point marker to adjust the spread of colors between two color stops.
- Apply a color (or opacity or noise value) to a selected stop from the Color panel.
- Delete a selected stop by pressing .

To modify a gradient (via the tool's context toolbar):

1. With the **Gradient** tool selected, click page content.
2. From the context toolbar, select the color swatch.
3. Click the **Gradient** option which lets you modify your gradient using the above settings.

Matting

Matting is a useful feature which allows you to swap out regions of transparency with a color of your choice, particularly useful when repurposing transparent PNG files.



Before and after matting applied. Color sampled from the cat's eye.

To replace transparency with a color matte:

1. From the **Edit** menu, click **Matte**.
2. From the dialog, choose one of the following:
    - **Custom Color**—pick any color from the adjacent swatch using a pop-up HSL Color wheel.
    - **Primary Color**—uses the currently set primary color from the Color panel.
    - **Secondary Color**—uses the currently set secondary color from the Color panel.
3. (Optional) Reduce the **Opacity** to limit the color strength.
4. Click **Apply**.

For a complementing color, try color sampling on the image, using the sampled color as the primary color.

Using channels

The image or document's color mode determines the number and type of color channels available to you. Each channel stores color information specific to it, which, when combined with other channels, brings about the full color image. For example, a red channel would store only red color information in RGB color mode.

Channel information is displayed in the **Channels** panel.

Color modes and channels

For each color mode, the following channels are available.

- **RGB**: Red, Green, Blue channels
- **CMYK**: Cyan, Magenta, Yellow, Black channels
- **Grayscale**: Intensity channels
- **Lab**: Lightness, AOpponent, BOpponent channels

On new documents, the **Color Format** option presents Color mode and bit depth options in combination.

Image and layer channels

The Channels panel always displays an image's channels when loaded. From an image channel you can:

- Hide the channel.
- Protect the channel from editing.
- Create a Spare Channel (i.e., a saved selection) from the channel information.
- Store a new selection based on the channel information.
- Add, subtract, or intersect a channel's selection to/from/with a previously made selection, respectively.

For any currently selected layer (pixel, mask, adjustment or Live filter), the layer's channel(s) are displayed below the image channels. From each layer's channel you can:

- Invert, clear, and fill the channel information.
- Create a new grayscale layer.
- Create a new mask layer.
- Create a Spare Channel (i.e., a saved selection) from the channel information.

Alpha channels

The Channels panel also displays the alpha channel for the whole image or currently selected pixel, mask, adjustment, or Live filter layer. These channels store transparency information, so it's a great place for more advanced masking control.

Pixel selections

Another great use of alpha channels is the ability to store more complex selections that would otherwise be difficult or time consuming to recreate again. The Channels panel reports your current pixel selection as a channel entry, so by creating a 'new' Spare Channel from that pixel selection you've stored the selection for future use.

Pixel selections and masks

Because alpha channels store both selection and masks, the Channels panel acts as a great central point for working between masks and selections.

Blend ranges

You can control how specific color channels of the current layer blend with the underlying layer(s). For more information, see Layer blend ranges.

To hide/show image channels:

- From the **Channels** panel, click **Visible** on the channel entry.

To protect image channels from editing:

- From the **Channels** panel, click **Editable** on the channel entry. A grayed out icon means the channel is no longer editable.

To create a mask or grayscale layer from a current layer's channel:

- -click the layer's channel, then click **Create Mask Layer** or **Create Grayscale Layer**.

The new layer is added to the Layers panel.

To invert, clear or fill a layer's channel:

- -click the layer's channel, then click an option from the pop-up menu.

To save a selection as an alpha channel:

- With a pixel selection in place, -click the 'Pixel Selection' entry and select **Create Spare Channel**.

The selection is stored at the bottom of the Channels panel as a new 'Spare Channel' entry.

Vector specific.

Global colors

Global colors can be created and applied to different objects in your design. If you want to change the color across your design at a later time, you can simply edit the global color in the Swatches panel and all objects update with the new color automatically and simultaneously.

About global colors

The global color could be applied as a solid fill, stroke, or a color used in a gradient fill. They can be made while in RGB, CMYK, HSL, LAB, Grayscale, or Tinting color modes.

Global colors are added to the currently selected document palette in the Swatches panel. If a document palette does not exist when your document's first global color is created, a new document palette is automatically created for you in which the color will be stored. Once created, you can apply the global color to your design.

 A global color is indicated by a tab in the bottom-left corner of its color swatch.

You can check if a global color has been assigned to an object's stroke or fill by using the Color panel.

If you're importing a document palette containing global colors as a System or Application palette, the global colors will be converted to standard colors.

If you're importing a document palette containing global colors as an Application palette, the global colors will be converted to standard colors.

To create a global color from an existing object:

Do one of the following:

- Select the object, choose a Document palette in the **Swatches** panel, set the Stroke/Fill color selector, then click **Add current color to palette as a global color**.
- -click the object and select **Add to Swatches**, then **From Fill as Global**, **From Line as Global** or **From Both as Global** depending on the object property you want to save.

To create a global color from scratch:

1. On the **Swatches** panel, select a Document palette from the palette pop-up menu. If no Document palette exists you can create one from the panel's Panel Preferences menu.
2. From **Panel Preferences**, select **Add Global Color**.
3. Adjust the settings in the dialog.
4. Click **Add**.

To convert an existing color swatch into a global color:

1. In the **Swatches** panel, choose a Document palette from the pop-up menu.
2. -click a displayed swatch and select **Make Global**.

If you have objects in your design which had the original color applied, these *will not* be updated to use the global color automatically. You will have to apply the global color manually.

To edit a global color:

1. On the Swatches panel, -click the chosen color swatch and select **Edit Fill**.
2. From the dialog, select a color.

All objects using the global color will be updated automatically.

Spot colors

When you create global colors from scratch, you can set these to be a spot colors.

In professional printing, spot colors can be used instead of CMYK process colors when your artwork contains a very limited color set. By setting these colors to be spot colors, print costs can be reduced significantly. You may also be able to accurately reproduce colors otherwise impossible with process colors.

As well as setting a global color to be a spot color, you can use pre-supplied PANTONE® spot colors.

 A spot color swatch is indicated by a small dot in the bottom-right corner of its color swatch.

You can check if a spot color has been assigned to an object's stroke or fill by using the Color panel.

When publishing to PDF, the **Honor spot colors** option in the Export Options panel (Export Persona selected) lets you include spot colors in your output. You can also make the spot colors overprint in the same panel.

In advance of using this feature, consult your print provider for advice on their use.

To create a spot color:

1. On the **Swatches** panel, select a Document palette from the palette pop-up menu. If no Document palette exists you can create one from the panel's Panel Preferences menu.
2. From **Panel Preferences**, select **Add Global Color**.
3. Adjust the settings in the dialog.
4. Select the **Spot** option.
5. Click **Add**.

Overprinting

For professional printing, global colors can be made to overprint. By applying an overprint color to objects selectively you can control overprinting.

About overprinting

Overprinting means that you can print one ink color on top of another instead of, by default, the underlying color being 'knocked out' (removed).

As a professional printing feature, overprint works when publishing PDFs using a CMYK color space and PDF/X compatibility.

You don't need to explicitly make an overprint for black, for black text or black graphics, as this is set by default. On PDF publishing, you can control black overprinting using the **Overprint black** option in the Export Options panel (for any PDF export options).

 An overprint color swatch is indicated by a curved tab in the top-right corner of its color swatch.

You can check if an overprint color has been assigned to an object's stroke or fill by using the Color panel.

In advance of using this feature, consult your print provider for advice on its use.

To create an overprint color from scratch:

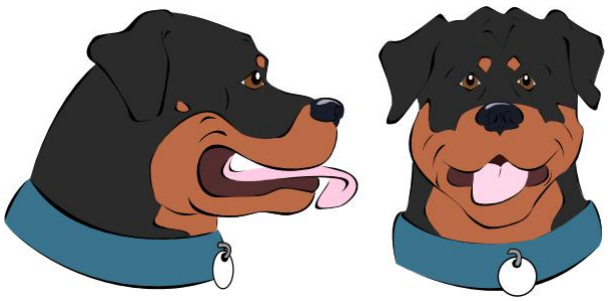
1. On the **Swatches** panel, select a Document palette from the palette pop-up menu. If no Document palette exists you can create one from the panel's Panel Preferences menu.
2. From **Panel Preferences**, select **Add Global Color**.
3. Adjust the settings in the dialog.
4. Select the **Overprint** option.
5. Click **Add**.

To make an existing global color overprint:

- On the **Swatches** panel, -click the global color swatch's thumbnail, then select **Overprint**.

About lines and shapes

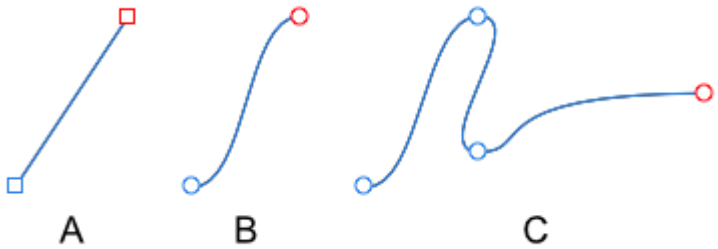
When you want to draw vector lines and shapes you'll need to use the Pen and Shape tools. Editing lines and shapes is done with the Node tool or the as you draw.



An example of combined vector lines and shapes.

Lines

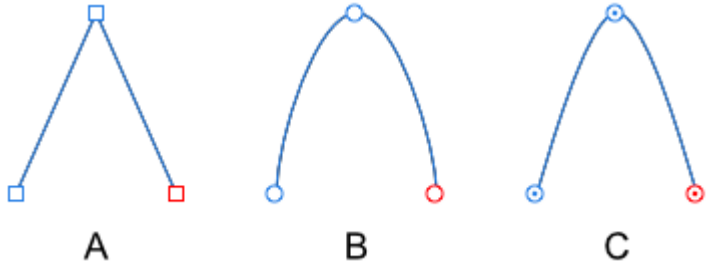
A line has distinct start and end points, called ***nodes***, with one or more nodes placed along the line's length which delimit each line ***segment*** and the segment's shape.



Segments between nodes can be straight (A) or curved (B). Multiple segments make up more complex curves (C).

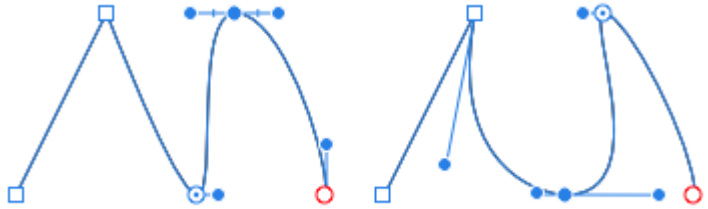
The type of node controls how the curve is shaped between segments. There are three basic types of node:

- Sharp (A)—curve abruptly changes direction at the node creating a sharp non-symmetrical corner.
- Bézier (B)—curve is smooth at the node (controllable by ***control handles***; not shown).
- Smart (C)—curve is symmetrical using a line of best fit at the node.



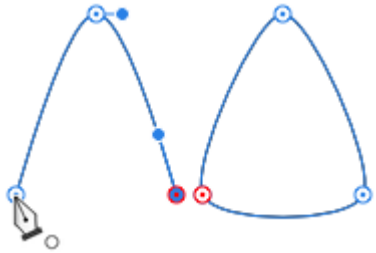
When drawing curves, any combination of nodes can be used to create the desired curve.

For Smart and Bézier curves, each node has one or two control handles when drawn. For Bézier curves, the length and slope of the control handles determine the shape of the line segment; Smart curves automatically set the control handle position to form a best fitting curve through the node.



Shapes

A shape is a ***closed*** curve—it has no discernable start or end—made up of multiple curves.



You can also easily create geometric type shapes using the Shape tools. These have special properties that enable you to quickly create otherwise difficult to draw shapes, such as circles, rectangles and polygons.

Curves and closed shapes can be given stroke and fill properties.

Draw lines and shapes

Vector curves (lines and shapes) are easily created using the Pen Tool. The tool has several modes that change the way the curve is drawn.

To draw precise curves with the Pen Tool:

1. Select the **Pen Tool**.
2. On the context toolbar, click one of the modes:
    - **Pen Mode**—click-drag on the page to create repeated nodes; repositioning the displayed off-curve control handles at each node defines the shape of the next segment as you lay down nodes.
    - **Smart Mode**—click repeatedly on the page to lay down each node; a best fitting curve is created without need for control handle adjustment.
    - **Polygon Mode**—click repeatedly on the page to lay down each node; a line is created with sharp nodes made up of straight segments.
    - **Line Mode**—click and drag on the page to create a simple single-segment straight line.
3. To complete the curve without closing it, press the . To close the curve, click on the starting node.

To continue an existing curve:

1. Place the pen pointer over the final node on the curve that you want to continue.
2. Click once to select the node.
3. Continue to place new nodes as needed.

To close curves to create a custom shape, Do one of the following:

- With the line selected with the **Pen** or **Node Tool**, click **Close Curve** on the context toolbar.
- For the Pen tool only, click on the starting node to join the curves and create the shape.

Modifier keys

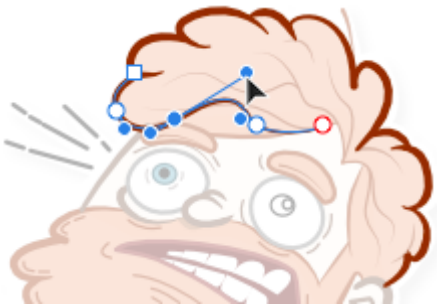
The following modifier can be used to speed up the workflow:

- The temporarily activates the Node tool.
- The constrains control handles to 45 degree intervals in Pen mode.
- The forces the node into cusp mode.

Edit vector lines and shapes

Vector lines and shapes are easily edited using either:

- The as you draw your line or shape.
- The **Node Tool**.



Use the former for fine tuning and line adjustment as you draw, the latter for more prolonged editing operations.

To edit lines as you draw:

- Press the to move nodes and adjust control handles when fine tuning of your line is needed.

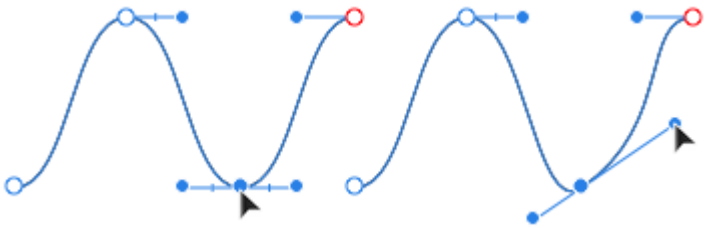
  Color and opacity can also be altered from the Color panel.

With pressed, you can edit other lines in the same way by clicking them.

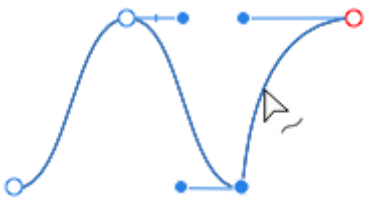
To change curvature of a segment:

Do one of the following:

- Select the node and then drag the control handles.



- Drag on the segment directly to pull it into position.



Modifier keys

When using the Node Tool, the following modifier keys can be used to speed up the workflow:

- The constrains the control handle to 45 degree intervals. In Smart mode, node positioning is constrained vertically or horizontally instead.
- The changes the node type to a sharp node to create a cusp.

The Node Tool can be used in conjunction with the **Transform** panel to position or scale selected nodes precisely.

To add nodes:

- With the path selected, click at the point where you want the node to be added.

To delete nodes:

- Select the node and press the .

The curve will automatically reshape because of the deleted node, but you can retain the curve's original geometry by pressing + instead.

To close curves:

Do one of the following:

- Select the path and click **Close Curve** on the context toolbar.
- Drag the end node and drop on top of start node when the pointer changes.

To break (split) curves:

- Select the node at the point at which you want the curve to break and click **Break Curve** on the context toolbar.

To join curves:

1. With the Node Tool (hold down the if using the Pen Tool), hold down with the and select both curves.
2. Click **Join Curves** on the context toolbar.

To reverse curves:

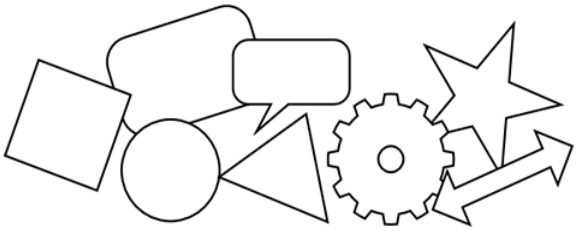
- Click **Reverse Curve** on the context toolbar. The start node becomes active, ready for further drawing from the opposite end of the curve.

To convert nodes to a different type, Do one of the following:

- Select the node(s) you want to change and click one of the node types, **Sharp**, **Smart** or **Smooth**, on the context toolbar.
- Hold the and click on the node to convert it to a **Sharp** node.

About geometric shapes

Most geometric shapes, such as squares, circles and polygons, are difficult to draw accurately freehand. We've provided a selection of useful shapes to help you solve this problem. The shapes are fully geometrically correct, customizable, and can even be converted to curves for additional editing.



Once created, the shapes are easy to modify by changing the properties on the context toolbar or by dragging the special red handles. When hovered over, the direction in which they can be dragged is indicated by the pointer and/or a horizontal line.

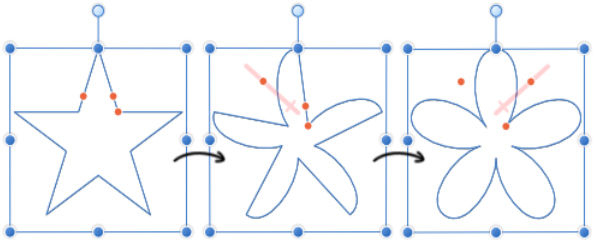
Available shapes:

- Rectangle Tool
- Ellipse Tool
- Rounded Rectangle Tool
- Triangle Tool
- Diamond Tool
- Trapezoid Tool
- Polygon Tool
- Star Tool
- Double Star Tool
- Square Star Tool
- Arrow Tool
- Donut Tool
- Pie Tool
- Segment Tool
- Crescent Tool
- Cog Tool
- Cloud Tool

- Callout Rounded Rectangle Tool
- Callout Ellipse Tool
- Tear Tool
- Heart Tool

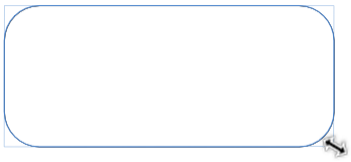
Draw and edit shapes

Geometric and other special shapes that would be otherwise hard to draw can be easily created using one of the corresponding shape tools. Once drawn, both the shape and its stroke can be made into curves for more freeform design.

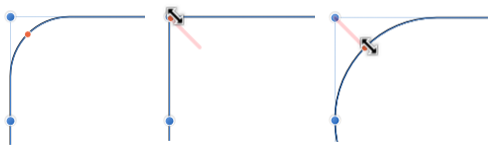


To draw a new shape:

1. Choose one of the shape tools, e.g., **Rounded Rectangle Tool** from the Tools panel.
2. Drag on the page to create the shape and use the modifier to constrain the shape's proportions if needed.



3. Modify options as required, either by changing the values on the context toolbar or by dragging the red handle(s) (if available).



When you hover over a handle, a red guide line will appear to suggest the direction of drag needed to modify your shape.

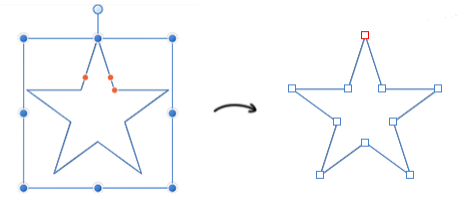
To edit an existing shape:

1. Click the **Node Tool**.
2. Select the shape, either by clicking the shape or by clicking the layer entry in the **Layers** panel.
3. Edit the shape as required by either by directly dragging the red handle(s), or by changing the values on the context toolbar.

Shapes have special snapping properties which allow lines to snap to various angles within the shape.

To convert a shape to curves:

- Click **Convert to Curves**, found in either the **Layer** menu or on the context toolbar.



The shape is now made from curves. Segments and nodes can be modified with the **Node Tool**.

Modifier keys

As you create shapes, the following modifier keys can be used while the shape is being drawn:

- The constrains shape's proportions at the time of creation.
- The draws or resizes from center (can be combined with the).
- Where appropriate, on many shapes, the moves the red handles in pairs.
- The lets you rotate a shape about its opposite handle.
- Pressing the right mouse button lets you rotate a shape about its opposite handle.

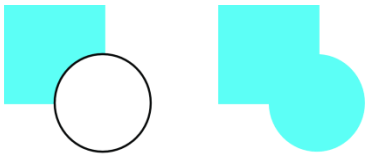
Joining vector shapes

Vector shapes can be joined together to create composite shape variations which can be fully edited as curves.

Joining operations

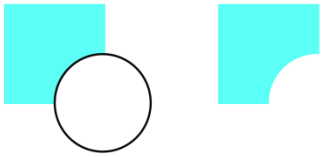
There are various Boolean operations available:

Add—creates a new curve layer from the sum of the selected shape layers.



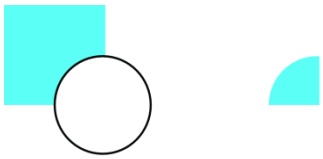
Before and after operation.

Subtract—removes overlapped areas of the lowest shape layer. All other selected shape layers are discarded.



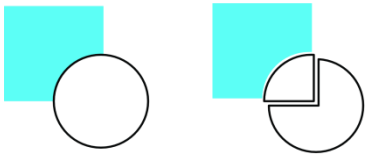
Before and after operation.

Intersect—creates a new curve layer from the overlapping areas of selected shape layers.



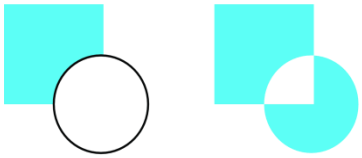
Before and after operation.

Divide—splits shape layer areas into separate curve layers; the curve layer from the intersecting area retains the color of the upper shape layer.



Before and after operation.

Combine—merges selected shape layers into a curve layer with transparent area where filled regions overlap.



Before and after operation.

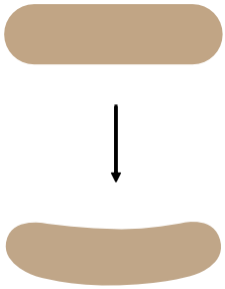
New curve layers adopt the properties of the lowest shape layer in the selection.

To implement join operations:

1. Select multiple shape layers.
2. Press the and click, then from the **Geometry** sub-menu, select an operations command.
3. Press the right mouse button, then from the **Geometry** sub-menu, select an operations command.

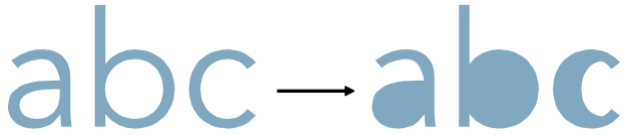
Converting to curves

You can create new shapes by converting geometric shapes (created using the Shape tools) into curves and then adjusting the nodes of the resulting shape.



The rounded rectangle shape is converted to curves to allow the horizontal edges to be modified.

The ***Convert to Curves*** operation is not limited to geometric shapes. You can also convert text to curves too.



Text converted to curves and then nodes removed to modify bowl, counter, and aperture of the letters.

Once a shape or text has been converted to curves, it can no longer be edited in its conventional way. For example, you would not be able to change the font of text once it has been converted to curves.

To convert a shape to curves:

1. Select the shape with either the **Move** or the **Node Tool**.
2. Do one of the following:
    - Click **Convert to Curves** on the context toolbar.
    - From the **Layer** menu, select **Convert to Curves**.

The shape is now made from curves. Segments and nodes can be modified by double-clicking with the **Node Tool**.

Styles

Instead of having to create layer effects from scratch, the Styles panel can be used to apply a pre-designed style to your layer content. If you want to save combinations of layer effects for future use, these can be stored in the panel as a custom style.

For vector shapes and text, the fill, color and transparent properties of the shape/text can be saved as a style along with any applied layer effects. You can reuse the style on vector shapes later.

If you plan to save some styles, create a custom category in the panel first.

To apply a style:

1. Select a layer from the **Layers** panel.
2. From the Styles panel, select a category from the pop-up menu.
3. Click a style thumbnail.

To create a custom category:

- Click Panel Preferences and choose **Add Styles Category** from the menu.

To rename a styles category:

1. Choose the category you want to rename from the category pop-up menu.
2. Click Panel Preferences and choose **Rename Category** from the menu.
3. Type a new name for the category in the dialog and click **OK**.

To save a style:

1. On the **Styles panel**, select a category to save the style into.
2. Do one of the following:
    - Select the object whose style you want to save, click Panel Preferences on the **Styles panel**, then choose **Add Style from Selection** from the menu.
    - -click the object and select **Create Style**.

Paste Style and Layer Effects

The Paste Style and Paste FX features allow you to copy layer styles (i.e, fills and strokes or combinations of layer effects) from one layer and apply them directly to another layer.

To copy and paste layer attributes and effects:

1. Select the layer with the style to be copied.
2. From the **Edit** menu, select **Copy**.*
3. Select the layer which will receive the copied style.
4. Do any of the following:
    - From the **Edit** menu, select **Paste Style**.
    - From the **Edit** menu, select **Paste FX**.

*Alternatively, you can cut (rather than copy) the layer. From the **Edit** menu, select **Cut**.

Working with text

There are two varieties of text, Artistic and Frame, to give you flexibility when working with typography.

Text objects contain both character and paragraph elements, making it easy to modify standard text attributes such as font, size, format, and alignment. Both text tools have quick access settings on the context toolbar and supporting panels and dialogs for more extensive, advanced options.

When snapping is switched on, the baseline of the first line in a text object will snap to the baseline of the first line in other text objects.

When performing text editing, Photo supports all standard text selection and formatting techniques and shortcuts.

Affinity Photo lets you temporarily hide text while you're concentrating your design work on other areas of your page.

The unique features of artistic text and frame text are discussed in the Artistic text and Frame text topics.

If you're opening projects created on another computer, the original fonts used may be missing from your computer. If so, you'll get a **Missing Fonts** dialog indicating the fonts which are missing. The font will be substituted for a replacement system font.

When text using the missing font is selected in your project, its font name will be prefixed with a '?' on the context toolbar, and will show in red text in the **Font** pop-up menu.

By default, the size of text is expressed in points, regardless of the units set within your document. If you wish text size to reflect document units, this can set in Preferences.

To select text objects for formatting:

- With the **Move Tool** selected, do one of the following:
    - Click a text object to make formatting changes to all the text within the text object.
    - Double-click a text object to make formatting changes to sections of text within the text object.
- With either of the text tools selected, click a text object to make formatting changes to sections of text within the text object.

To hide/show all text:

- From the **Text** menu, select **Hide All Text**. To display again, select **Show All Text**.

Artistic Text

Artistic text, as the name suggestions, is best suited to decorative or artistic typographical design.

Artistic text can be modified in many of the same ways as drawn objects, while still retaining standard text attributes. This makes it ideal for single words, headlines, pull quotes, etc,.

When artistic text is resized, the text stretches or contracts to fit its new dimensions. It's relative font size automatically updates on the context toolbar.

Although paragraph attributes can be set for artistic text, it is more likely modifications will be to character attributes and on-page positioning using design aids and a creative eye.

Artistic text can be converted to curves for advanced typographical design. Once artistic text is converted to curves, you will not be able to use standard text attributes to modify it.

To create artistic text:

With the **Artistic Text Tool** selected:

1. Drag on the page to set the size of the text.
2. Do one of the following:
    - Type your text
    - Paste previously copied text.
    - From the **Text** menu, select **Insert Text from File**. In the pop-up dialog, navigate to and select a file, and click **Open**.

For text imported from external applications, use Paste without Format (**Edit** menu) for 'clean' unformatted text.

To resize artistic text:

With the artistic text selected, do one of the following:

- To resize height and width simultaneously (constraining the aspect ratio), drag the object's corner handles.
- To resize height and width independently (unconstrained), drag the object's central, side handles.

Modifier keys

When using the Artistic Text Tool, the following modifier keys can be used:

- The reverses the resize conventions (as described above).
- The resizes the text from the center.

- The allows placed text to be rotated about its opposite handle.
- Pressing the right mouse button lets you rotate placed text about its opposite handle.

Text Tools and the

The uses the following logic when a Text Tool is active:

1. If the is used when glyphs (characters) are selected, the glyphs are deselected but the caret (cursor) remains inside the text object. (You can then continue editing the text within the text object.)
2. If the caret is inside the text object and no glyphs are selected, the will remove the caret and select the text object. (You can then press **V** to switch to the Move Tool to reposition the text object.)
3. With the text object selected, pressing the will deselect the text object.

Frame text

Frame text is perfect for presenting paragraphs with a formalized structure and layout. If you want to present text in columns, frame text is the ideal solution.

By clicking in the drawn frame then typing, you're able to fill the frame with frame text. If excess text overflows the bottom of the frame, you can either reduce the text's font size from the context toolbar or make the text frame larger; both methods will make the text fit the frame.

To create frame text:

With the **Frame Text Tool** selected:

1. Drag on the page. This sets the initial size of the text frame.
2. Do one of the following:
    - Type your text.
    - Paste (V) previously copied text.
    - From the **Text** menu, select **Insert Text from File**. In the pop-up dialog, navigate to and select a file, and click **Open**.

For text imported from external applications, use Paste without Format (**Edit** menu) for 'clean' unformatted text.

Modifier keys

When using the Frame Text Tool, the following modifier keys can be used:

- The constrains frame's proportions at the time of creation (to a square) or when resizing.
- The resizes the frame from its center.
- The allows placed frame text to be rotated about its opposite handle.
- Pressing the right mouse button lets you rotate placed frame text about its opposite handle.

Text Tools and the

The uses the following logic when a Text Tool is active:

1. If the is used when glyphs (characters) are selected, the glyphs are deselected but the caret (cursor) remains inside the text object. (You can then continue editing the text within the text object.)

2. If the caret is inside the text object and no glyphs are selected, the will remove the caret and select the text object. (You can then press **V** to switch to the Move Tool to reposition the text object.)
3. With the text object selected, pressing the will deselect the text object.

Resizing text frames

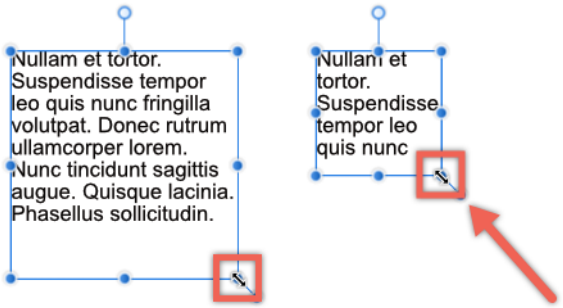
When resizing a frame you can control whether:

- Text remains at its set size and reflows through the frame.
- Text scales as the frame is resized.

To reflow text with frame resize:

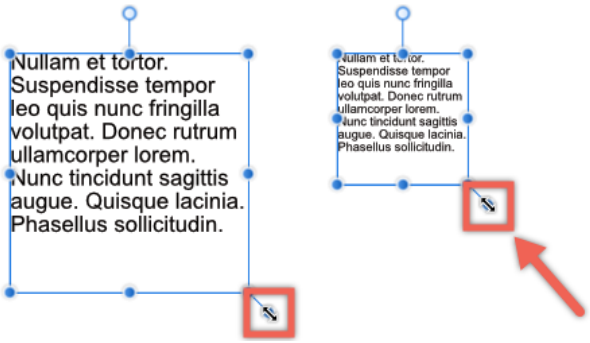
With the text frame selected, do one of the following:

- To resize height and width simultaneously, drag the object's corner handles.
- To resize height and width independently, drag the object's side handles.



To scale text with frame resize:

- With the text frame selected, drag the object's scale handle (extends from the bottom-right corner of the selection).



Character formatting

Character formatting describes text attributes which are applied at a character level.

Character formatting includes attributes such as font and size and may be applied to a single letter or single word as well as full paragraphs or stories. This type of formatting is useful for both art and frame text.

With your text (or text object) selected, character formatting settings are available from the context toolbar, the **Text** menu, and the **Character** panel.

Incremental changes

Rather than setting a finite value for certain text attributes, the **Text** menu offers the following incremental changes:

- **Size**
    - **Bigger/Precise Bigger**—increases the size of the text by ten increments/one increment.
    - **Smaller/Precise Smaller**—decreases the size of the text by ten increments/one increment.
- **Spacing**
    - **Use Default**—sets the character tracking to the font's default setting.
    - **Use None**—sets the character tracking to zero.
    - **Tighten/Tighten More**—condenses character tracking by one increment/five increments.
    - **Loosen/Loosen More**—expands character tracking by one increment/five increments.

To access the Character panel:

Do one of the following:

- With text selected, on the context toolbar, click **Character**.
- From the **Text** menu, select **Show Character**.
- From the **View** menu, select **Studio>Character**.

Paragraph formatting

Paragraph formatting describes text attributes which are applied at a paragraph level.

Paragraph formatting includes attributes such as alignment, leading, and indents which can only be applied to full paragraphs or stories.

This type of formatting can be applied to artistic text, but is more appropriate for frame text.

With your text (or text object) selected, paragraph formatting settings are available from the context toolbar, the **Text** menu, and the **Paragraph** panel.

To access the Paragraph panel:

Do one of the following:

- With text selected, on the context toolbar, click **Paragraph**.
- From the **Text** menu, select **Show Paragraph**.
- From the **View** menu, select **Studio>Paragraph**.

To add tab stops:

On the **Paragraph** panel, in the **Tab Stops** section:

1. Set the tab stop space using the input box.
2. Click **Add New Tab Stop**.

A new tab stop is added to the paragraph and is listed on the left within the Tab Stops section. If you repeat the above procedure to add multiple tab stops, the tab stop space is calculated from the position of the previously added tab stop.

To modify and delete tab stops:

On the **Paragraph** panel, in the **Tab Stops** section, do one of the following:

- Double-click a listed tab stop and type in a new value to adjust the tab stop position.
- Select a listed tab stop and set the **Alignment** and/or **Leader**.
- Select a listed tab stop and click **Delete Selected Tab Stop** to remove a tab stop.

OpenType font features

Affinity Photo provides support for ***OpenType*** font features. These extend the font's character set which lets you present text with a greater degree of typographical control.

Text example of an OpenType stylistic set using the font Gabriola.

Font features supported include ligatures, alternates, swash variants, stylistic sets, and figure positions. You'll also get ligature control via the **Ligatures** sub-menu.

To apply OpenType font features:

1. Assign a font to your text that supports OpenType font features.
2. From the **Text** menu, select **Show Typography**.
3. Adjust the settings in the dialog.

The available font features differ between fonts. This is dependent on how the font was designed by the font designer.

As OpenType fonts are cross-platform, you can make use of OpenType fonts from both Mac and Windows operating systems.

Special characters

Special characters can be added to your text objects to increase your design options.

Typographical and special characters are available for insertion into a text object from the **Text** and **Edit** menus. These characters include line breaks, non-breaking spaces, and copyright and trademark symbols, as well as icons, emoticons, and other embellishments.

The following characters can be added from the **Text** menu's **Insert Character** flyout:

- Line Break
- Em Dash
- En Dash
- Figure Dash
- Em Space
- En Space
- Zero Width Space
- Non-Breaking Space
- Non-Breaking Hyphen
- Soft Hyphen

To add special characters:

With an insertion point in the text object:

1. From the **Edit** menu, select **Emoji & Symbols**.
2. Select a category by clicking the icons at the bottom of the pop-up dialog.
3. Click a displayed symbol to add it to the text object at the insertion point.

Spelling

The built-in spell checker ensures the text in your design is perfect before being published.

There are several ways to interact with the spell checker, including using the **Spelling** dialog or searching for and handling spelling errors directly on the page.

Spelling errors are indicated by red underlining.

Settings

The following options are available from the **Spelling** dialog (spell checker):

- Current word—select and type to manually input a suggested correction.
- Suggestions list—select a word from the list of suggestions to replace the current word.
- **Change**—substitutes the misspelt word with the current word.
- **Find Next**—displays the next misspelt word.
- **Ignore**—ignores the mis-spelling of the current word.
- **Learn**—adds the current word to the dictionary.
- **Define**—looks up the current word in the launched macOS dictionary application.
- **Guess**—shows a list of possible alternatives for the current word.
- **Check Spelling In**—sets the scope of the spell check. Select from the pop-up menu.

To check spelling:

From the **Text** menu, from the **Spelling** sub-menu, select one or more of the following:

- **Spelling Options**—runs the spell checker.
- **Check Spelling**—displays and selects the next misspelt word.
- **Check Spelling While Typing**—highlights spelling errors as you type.

To correct a misspelt word on the page:

- With one of the text tools selected, -click the misspelt word and select an alternative from the pop-up menu.

To ignore a misspelt word on the page:

1. Select the misspelt word.
2. From the **Text** menu, from the **Spelling** sub-menu, select **Ignore Misspelt Word**.

Using text styles

Text styles can be applied to text within your designs for efficiency and consistency.

About text styles

A text style is a set of one or more attributes which can be applied to text in bulk. Later, if you chose to modify a text style, any text which uses that style will update to conform to the changes you've made.

Every new document comes with a default set of text styles but the Text Styles panel provides you with the ability to create and manage a document's text styles as well as remove them.

Text styles are assigned to one of three ***types*** (paragraph, character and group), but are flexible in how they can be used. For more information, see Text style types.

Applying text styles

Text styles can be applied to text using the Text Styles, Paragraph or Character panels, the context toolbar or a custom keyboard shortcut.

Furthermore, if you have established a strict order for your text styles, using **Next Style**, you can apply an entire set of text styles to a story (or portion of a story) in one go.

If local formatting has been applied, this can be quickly removed using the Text Styles panel, leaving the currently applied text styles in place.

To apply a text style to a paragraph:

1. With the **Artistic Text Tool** or **Frame Text Tool** selected, click inside a paragraph or drag to select multiple paragraphs.
2. Do one of the following:
    - On the context toolbar, select a text style from the **Paragraph Style** pop-up menu.
    - On the **Paragraph** panel, select a text style from the **Paragraph Style** pop-up menu.
    - On the **Text Style** panel, select a paragraph text style.
    - Use a custom keyboard shortcut.

To apply a text style to a sentence, word or character:

1. With the **Artistic Text Tool** or **Frame Text Tool** selected, select a portion of text.
2. Do one of the following:
    - On the context toolbar, select a text style from the **Character Style** pop-up menu.
    - On the **Character** panel, select a text style from the **Character Style** pop-up menu.

- On the **Text Style** panel, select a character text style.
- Use a custom keyboard shortcut.

To apply ordered text styles to a story:

1. With the **Artistic Text Tool** or **Frame Text Tool** selected, select multiple paragraphs.
2. On the **Text Styles** panel, click on a listed style's options menu and select **Apply ... Then Next Styles**.

To remove local formatting:

1. With the **Artistic Text Tool** or **Frame Text Tool** selected, select a portion of text.
2. On the **Text Style** panel, select **Reset Formatting**.

Creating and managing text styles

Text styles can be created in the Text Styles panel, ready for applying to text. They can also be managed and modified to improve your design and workflow.

There are several ways to create a new text style:

1. build it from scratch—the new text style will have no initial connection to any other text style.
2. duplicate it from another style—the new text style will initially be exactly the same as the selected text style but has no connection to that style.
3. base it on an existing style—the new text style will use the selected text style as its base. A connection between the styles is retained and a hierarchy is established.

A text style can be modified in two ways:

- Editing the text style directly.
- Updating the text style to match some selected, locally formatted text.

You can also set up your own keyboard shortcuts to apply individual text styles to text.

To create a text style from scratch:

1. (Optional) Select a portion of text or click inside a paragraph.
2. On the **Text Styles** panel, select:
    - **Create Paragraph Style**—to create a new paragraph style.
    - **Create Character Style**—to create a new character style.
    - **Create Group Style**—to create a new group style.

    See Text style types for more information.
3. Adjust the settings in the dialog.
4. (Optional) In the **Edit Text Style** dialog, select the **Apply style to selection** option to apply the style to the text selected in step 1.
5. Click **OK**.

To create a text style from an existing style:

1. On the **Text Styles** panel, click on a listed style's options menu and select:
    - **Duplicate**—to start with settings exactly the same as the selected style.
    - **Create Style Based on**—to automatically set the dialog's **Based on** option to the selected style.
2. Adjust the settings in the dialog.

3. Click **OK**.

To edit an existing text style:

1. On the **Text Styles** panel, click on a listed style's options menu and select **Edit**.
2. Adjust the settings in the dialog.
3. Click **OK**.

To update a text style:

1. Select a portion of text or click inside a paragraph and make any local changes via the context toolbar, Character panel or Paragraph panel.
2. On the **Text Styles** panel, select:
    - **Update Paragraph Style**—to update the paragraph style applied to the current text to match the local formatting.
    - **Update Character Style**—to update the character style applied to the current text to match the local formatting.

To assign a keyboard shortcut to a text style:

1. On the **Text Styles** panel, click on a listed style's options menu and select **Edit**.
2. In the dialog, select the **Style** section and then click inside the **Keyboard shortcut** box.
3. Press your required key combination.
4. Click **OK**.

If a warning icon appears in the box, the shortcut is already assigned to another action or text style. Hover over the icon to see what that action or text style is.

To remove a keyboard shortcut from a text style, click the cross icon inside the **Keyboard shortcut** box.

Options

The following options are available in the **Style** section of the **Edit Text Style** dialog:

- **Based on**—sets the default settings for this style. In a hierarchical sense, the Base on text style is the master style to this subordinate style.
- **Next style**—for paragraph styles, this determines the text style automatically applied to the following paragraph (see note).
- **Keyboard shortcut**—sets the keyboard shortcut which will apply this text style.
- **Type**—determines the predominant nature of the text style.

- **Show in both panels**—if this option is off (default), the text style can only be applied in its predominant way (determined by the Type set above). When selected, a paragraph style can be applied as a character style and vice versa.
- **Reset Formatting**—removes all the settings applied in the Character, Typography and Paragraph sections of this dialog. The settings in this Style section remain unchanged.

The **Next style** feature is only activated when you press the when typing text or when using the **Apply … Then Next Styles** option in the **Text Styles** panel.

Additional Edit Text Style dialog options:

- **Style name**—defines the name the text style will use throughout the app.
- **Character**—assigns character-level attributes to the text style or overwrites those determined by the Based on style. See Character panel for details.
- **Typography**—activates OpenType features for the text style or overwrites those determined by the Based on style. See OpenType font features for details.
- **Paragraph**—assigns paragraph-level attributes to the text style or overwrites those determined by the Based on style. See Paragraph panel for details.
- **Style settings**—lists all the attributes applied to the current text style.
- **Apply style to selection**—applies the current text style to any selected text (if text was selected prior to entering the dialog).

Where **[no change]** is shown, an attribute remains unchanged from the **Based on** style.

Removing text styles

Text styles can be detached from selected text or detached throughout a document. A text style can also be removed entirely from your document.

There are a few things to consider when detaching and deleting text styles. Do you want to:

- Remove the text style from being applied to text or delete it entirely from the document.
- Return styled text to the default settings or leave it as it is currently formatted.
- Affect specific instances of text or all text within the document.
- Do a combination of the above.

Each detachment or deletion method will have a different impact on the text and text styles in your document. Chose the method below based on the outcome you desire.

To detach a text style from styled text and return text to default settings:

1. Select a portion of text or click inside a paragraph.
2. Do one of the following:
    - On the context toolbar, select **[No Style]** from a text style pop-up menu.
    - On the **Paragraph** or **Character** panel, select **[No Style]** from a text style pop-up menu.
    - On the **Text Styles** panel, select the paragraph or character **[No Style]**.

To affect all the text in your document, first select all the text objects in your document and then follow the procedure above.

To detach a text style from styled text but leave text unaffected:

1. Select a portion of text or click inside a paragraph.
2. On the **Text Styles** panel, click a text style's option menu and select **Detach Paragraphs From** or **Detach Characters From**.

To remove a text style from a document and return all styled text in the document to the default settings:

Do one of the following:

- Select a portion of text or click inside a paragraph and then, on the **Text Styles** panel, click **Delete Style**.
- On the **Text Styles** panel, click a text style's option menu and select **Delete**.

To remove all connected text styles from a document and return all styled text in the document to the default settings:

- On the **Text Styles** panel, click a **group** or ***master*** text style's option menu and select **Delete Group**.

To remove all text styles from a document but leave text unaffected:

- From panel preferences on the **Text Styles** panel, select **Detach and Delete All Styles**.

Text style types

There are three types of text style in Affinity Photo which are used for differing purposes.

About text style types

There are no restrictions on what text attributes and properties can be applied to a text style, regardless of its type. Instead, the type determines the predominant purpose of that text style.

There are three types of text style:

- **Paragraph**—used to define the properties of paragraphs.
- **Character**—used to define the properties of individual glyphs (or words, lines and sentences inside a paragraph).
- **Group**—used to define the properties for a group of text styles.

Paragraph and Character text styles

Although text styles are assigned a type, Affinity Photo gives you the option of applying paragraph and character text styles flexibly. For example, you can set paragraph styles to selected glyphs as if they are character styles, without affecting the style applied to the paragraph. To activate this feature, you must set the text style to **Show in both panels**.

If a keyboard shortcut is attached to a text style, that shortcut will apply the style using its predominant nature. For example, if you select a portion of text and use a shortcut to apply a paragraph text style, the selected text's paragraph will be modified, not just the selected text.

Group text styles

A **Group** text style cannot be applied directly to text on the page. Instead it defines the foundations on which other text styles are built and allows you to quickly create a text style hierarchy. Group text styles only display in the Text Styles panel.

The Group style can be considered as the group's ***parent*** or ***master*** text style. All other styles which are based on a Group style are considered to be ***child*** or ***subordinate*** styles.

You can create subordinate text styles within a group by selecting the Group text style as the **Based on** style.

The complexity of your hierarchy is entirely in your hands—subordinate styles can also be master styles with their own subordinates and group styles can be introduced as subordinates to a master group style.

To edit a text style's type:

1. On the **Text Styles** panel, click on a listed style's options menu and select **Edit**.
2. In the dialog's **Style** section, select an option from the **Type** list.
3. Click **OK**.

To allow flexible use of a text style:

1. On the **Text Styles** panel, click on a listed style's options menu and select **Edit**.
2. In the dialog's **Style** section, select the **Show in both panels** option.
3. Click **OK**.

To create a text style hierarchy:

1. On the **Text Styles** panel, select **Create Group Style**.
2. Adjust the settings in the dialog.
3. Click **OK**.
4. On the **Text Styles** panel, click on the newly created group style's options menu and select **Create Style Based on**.
5. Adjust the settings in the dialog.
6. Click **OK**.

Export

The Export dialog provides a streamlined approach to exporting your document or current selection to a common file format. You can make use of pre-supplied or your own saved presets, as well as access more advanced settings.

For a more comprehensive set of export options, use Export Persona.

General settings

The following general settings can be adjusted from the Export dialog:

- **Format**—select the format for your exported file.
  Export formats include PNG, JPEG, GIF, TIFF, PSD, PDF, SVG and EPS.
- **Preset**—sets predefined export options for the selected file format. Select from the pop-up menu.
  As well as the default application presets, this pop-up menu will give you the option of selecting a custom preset.
- **More**—accesses advanced settings for the chosen file format. For more information on these settings, see the Export Options panel topic.
- **Area**—instead of exporting the whole page, you can export the currently selected layer content, with or without its background using the 'Selection with background' or 'Selection without background' options.
  To export drawn slices or specific layers, use Export Persona.
- **Don't export layers hidden by Export Persona**—when selected, layers which have been hidden while in Export Persona are excluded from the exported file even if they display on the page. If this option is off, all objects on the page (which are within the Area selected above) will be exported regardless of whether they are hidden in Export Persona.

Additional settings

For PNG, JPEG, GIF and TIFF file formats:

- **Size**—by default, displays the native dimensions of your image. Type value(s) to set an alternative width and/or height for your exported image.
- 🔒 **Lock aspect ratio**—when selected (default), the image's native aspect ratio is honored. If this option is off, exported image width and height can be set independently.

For PNG, JPEG, GIF, TIFF and PSD file formats:

- **Resample**—select which resampling method (see note below) to use if the image is to be upsampled or downsampled on export.

For JPEG file formats:

- **Quality**—sets the resulting quality of the exported image. Higher quality may result in significantly larger file sizes.

For SVG file formats:

- **Export text as curves for font independence**— when selected, the text in the resulting file will be drawn as curves (therefore displaying precisely as intended, even if viewed on a device without the used fonts installed). If this option is off (default), text will be exported as text and the viewing device will need the used fonts installed for it to be viewed correctly.

For PDF, SVG and EPS file formats:

- **Raster DPI**—this option lets you choose the resolution for rasterization for effects which will be rasterized on export.

For EPS file formats:

- **Postscript level**—sets the version of the exported postscript file. Select from the pop-up menu.

For TIFF file formats:

- **Save Affinity Layers**—Layers in the document are preserved in the exported TIFF image.

Resampling methods

The following resample settings are available:

- **Nearest Neighbor**—simple resampling which has the fastest processing time. Use for hard-edge images.
- **Bilinear**—algorithmic resampling for use when shrinking images.
- **Bicubic**—algorithmic resampling for use when enlarging images. Resampling is smoother than Bilinear but has a slower processing time.

- **Lanczos 3**—complex algorithmic resampling which gives the best results but with the longest processing time. Available as 'separable' and 'non-separable'; the latter gives marginally better results, but is slightly slower than 'separable'.

Depending on the image format, the export dialog will offer an **Estimated File Size** for the exported image.

To export a design as an image:

1. From the **File** menu, select **Export**.
2. Adjust the settings in the dialog.
3. Click **Export**.

To create a custom preset from advanced settings:

1. From the **File** menu, select **Export**.
2. In the dialog, select **More**.
3. Adjust the settings in the dialog.
4. Click **Manage Presets** and select **Create preset**.
5. Type in the name of the custom preset and click **OK**.

For more information on the settings available in the **More** dialog, see the Export Options panel topic.

Print

You can print the project's page to create a physical or PDF copy for distribution.

The final print of the page will include all currently visible objects. This might vary depending on the active Persona. For instance, objects which are visible in other Personas will not display in Export Persona if they are set to 'not export'. Layer visibility and exportability is controlled by the Layers panel.

Settings

Affinity Photo supports all the standard printing options available for the OS along with the following settings (available via the **Show Details** of the dialog):

- **Actual Size**—the project's current image and canvas size is honored.
- **Scale to Fit**—the image is temporarily scaled to fill the selected page size with no cropping taking place.
- **Scale**—the image is printed at the temporary scale set in the adjacent input box.

If you intend on printing to **Actual Size**, we recommend checking your image and canvas size before proceeding to print.

To print project pages:

1. From the **File** menu, select **Print**.
2. In the dialog, adjust settings as appropriate.
3. Click **Print**.

Exporting using Export Persona

The Export Persona is a dedicated workspace for exporting layers, groups, and objects as export slices to different file formats and image sizes simultaneously. You'll also be able to export custom drawn slices.

How it works

The Export Persona uses a combination of panels and tools to create slices. Slices are export areas which you choose to output from your document.

The Layers panel, Export Options panel and Slices panel are used in combination in Export Persona. A Slice Tool is a unique tool in Export Persona which is used to create custom slices.

Using the Layers panel

The **Layers** panel is different from the Layers panel in Draw Persona. It is used exclusively as a precursor for selecting layers, groups, or objects from which slices can be created, and added to the **Slices** panel.

When you export a Layers panel item as a slice, the slice will automatically size to what is considered to be the extent of the selected item. A circle symbol at the top right of the slice indicates that it is auto-sized. If you choose to resize the slice, the symbol changes to a square, indicating that the slice has been modified. A resized slice created from a Layers panel item can be reset to 'auto-sized' at any point.

Using the Export Options panel

The **Export Options** panel lets you set up your default export settings, or settings for the currently selected item prior to slice creation.

Using the Slices panel

The **Slices** panel stores all your slices (from the Layers panel or Slice Tool) ready for export directly from the panel. Each created slice has an initial export format (e.g., PNG, JPG, or SVG) associated with it on creation, with additional export formats being added per slice if needed; each export format lets you export at different size scaling or absolute sizes.

You can use the filenames in the **Slices** panel to specify (or create) a folder hierarchy in which to place your exported files. This is achieved through the use of the forward slash, or oblique, character.

For example, a PNG hero image could be placed within an **img** folder within an **assets** folder using the following syntax: **assets/img/hero**

If any part of the folder structure does not exist, the folder hierarchy will be created when the appropriate slices are exported using **Export Slices (*n*)**.

You can export the entire document's page using **File>Export** or by selecting the predefined spread area on the **Slices** panel.

Using the Slice Tool

The Slice Tool gives you full freedom to create export areas of all sizes, over any part of your document.

The  **Force Pixel Alignment** option on the Toolbar, when selected, will ensure your slices snap to full pixels when created, moved or modified.

To set default export options:

1. On the **Export Options** panel, select the **Defaults** tab.
2. Adjust settings as appropriate.
3. Jump back to the **Selection** tab when finished.

The settings will be used when your next slice is created.

 To export an area of the document as an image:

1. Do one of the following:
    - On the **Layers** panel, select a layer, group or object and click **Create Slice**.
    - With the **Slice Tool** selected, drag on your page to define your export area.
2. Do one of the following:
    - On the **Export Options** panel, adjust export settings as appropriate.
    - Jump to the **Slices** panel, expand the slice entry and alter the export format or choose an **Export preset** from the pop-up menu (PNG, JPEG, and Apple icon design presets only).
3. (Optional) On the **Slices** panel, click the + icon under the export format entry to add an additional graphic export format.
4. (Optional) On the **Slices** panel, click the indented + icon under the export size entries to add increasing levels of resolution (2x, 3x, etc.) to the export format.
5. Do one of the following, to control what gets exported:
    - Select **Click to export all formats for this item**.

    - Select **Click to export this size**. This exports a specific export format for a slice at a specific size.
    - Click **Export Slices (*n*)** to export all formats and sizes for all checked slices in the Slices panel.
6. Navigate to and select the storage folder for the exported image(s) and then click **Export**.
7. (Optional) On the **Slices** panel, select **Continuous** if you want to automatically re-export export areas if the document is subsequently changed. This option is only available if **Export Slices (*n*)** was selected above.

Modifier keys

When using the Slice Tool, the following modifier keys can be used:

- The constrains the area's proportions to a square.
- The if pressed as you drag out a slice area, draws from the center of the original drag position (can be combined with the).

 To reset the dimensions of an manually resized export area created from a layer:

1. With the **Slice Tool**, select a resized export area.
2. On the context toolbar, select **Revert to auto sized**.

Export Options panel

Set the export options for a predefined export area using the Export Options panel.

About the Export Options panel

Once an export area has been defined, the Export Options panel allows you to set specific export attributes for that area. Using the panel, different export areas on the page can have different settings applied. This gives you full control over your exported images.

You can save custom settings as a preset for future use.

General settings

The following settings are available in the panel:

- **Mode**—with Selection enabled, the export options can be modified for the selected export area to be different from the default export option settings; Defaults, when enabled, sets the default export options for new slices.
- **Preset**—sets predefined export options for a range of common file formats, color modes, and bit depths. Select from the pop-up menu.
- **File format**—sets the graphics format for the exported image. Select from the pop-up menu.
- **Resampler**—select which resampling method (see note below) to use for the export.
- **Embed metadata**—when selected, any raster image's original metadata is preserved in the exported file. If this option is off, all original metadata is removed.

Additional settings

For JPEG, PNG, TIFF, GIF, OpenEXR and Radiance HDR file formats:

- **Pixel format**—sets the color mode for the exported image. Select from the pop-up menu.
- **Matte**—sets the background color for the exported image. Select from the pop-up panel.
- **ICC Profile**—by default, this is set to the ICC profile of the project (document). However, the project's ICC profile can be overwritten for this export area. Select from the pop-up menu.
- **Embed ICC profile**—when selected, the ICC profile is included within the exported image's data, allowing the image to be viewed using the correct profile on any device. If this option is off, the viewing device must possess the ICC profile otherwise a substitute profile is used.

For JPG, PDF, SVG and EPS file formats:

- **Quality**—sets the resulting quality of the exported image. Higher quality may result in significantly larger file sizes.

For PDF, SVG and EPS file formats:

- **Rasterize**—select an option for rasterizing design elements which are unsupported by the file format. Select from the pop-up menu:
    - **Nothing**—no elements within the design are rasterized on export, therefore unsupported elements are not included in the exported file.
    - **Everything**—all elements within the design are rasterized for a resulting exported file which perfectly matches your original design.
    - **Unsupported properties**—only unsupported elements are rasterized in the exported file.
- **Downsample images**—select whether to downsample raster images within the design.
- **Above**—if this set DPI is exceeded by raster design elements, those elements will be rasterized down to this set DPI. This option is dependent on the **Downsample images** option being active.
- **Use document resolution**—ensures the export is the same DPI as the current project's setting.
- **Use DPI**—overrides the current project's resolution setting for the export. The exported image's DPI is set using the adjacent input box
- **Allow JPEG compression**—when selected, rasterized design elements will be compressed to decrease exported file size. If this option is off, rasterized design elements will be exported as uncompressed.

For PNG and GIF file formats:

- **Palletized**—when selected, encodes the exported image by mapping it to the Palette and Colors settings set below. (This option cannot be switched off for GIF images.)
- **Palette**—by default, this is set to be automatically determined. However, you can specify an encoding palette yourself. Select from the pop-up menu.
- **Colors**—selects the number of colors available in the palette. Select from the pop-up menu.

For SVG and EPS file formats:

- **(Use) Relative coordinates**—when selected, objects in the exported file have relative positions for maximum editability. If this option is off, object positions are fixed to create a file which is optimized for viewing.

For JPG file format:

- **Progressive**—when selected, the exported image is progressively compressed for optimized viewing when downloading.

For PSD file format:

- **Compatibility mode**—when selected, the exported file will be compatible with other applications which do not support some features (file size may also increase). If this option is off, the exported file may not be readable by other applications (depending on the features used in the image).
- **Smallest file sizes**—when selected, the exported file will be compressed where possible but may not be readable by other applications. If this option is off, no compression will take place for the exported file.
- **Rasterize all layers**—when selected, layer content is rasterized in the exported file (the layer structure is retained). If this option is off, no rasterization takes place on export.
- Strategies—set the way to export specific project attributes. Select from the pop-up menu.
    - **Preserve accuracy**—the listed attribute will be rasterized to preserve its intended design.
    - **Preserve editability**—the listed attribute will be exported with its original settings to allow for easy editing.

For PDF file format:

- **Compatibility**—sets the version and type of PDF to be exported. Select from the pop-up menu.
- **Color Space**—choose whether to use the document's current color space or export using a selected color space. Select from the pop-up menu.
- **Profile**—choose whether to use the document's current color profile or export using a specific color profile. Select from the pop-up menu.
- **Embed profiles**—when selected (default), the chosen (or document's) color profile will be embedded in the exported file. If this option is off, the exported file will not have the color

profile embedded with it (the viewing device will need to have the appropriate color profile installed to view the exported PDF accurately).

- **Honor spot colors**—when selected, spot colors within the design are exported as spot colors. If this option is off, spot colors are converted to an equivalent color within the exported file's color space (see above).
- **Overprint black**—when selected, design elements which use CMYK black are set to overprint. If this option is off, CMYK black elements are set to be indistinguishable to other colors during printing.
- **Include bleed**—when selected, any Bleed set in Document Setup will be included in the PDF output.
- **Include printer marks**—when selected, the PDF output will show printer marks around the page edge. All printer marks are added by default. However, particular types of printer marks can be switched off, depending on your preference. These include:
    - Crop marks
    - Registration marks
    - Color and grayscale bars
    - Page information
- **Embed fonts**—select an option for handling fonts used in the document.
    - **Text as Curves**—all text is converted to curves. This ensures the resulting exported file will display correctly regardless of the fonts installed on the viewing device.
    - **All Fonts**—any fonts used in the document are embedded in the exported file. This ensures the resulting exported file will display correctly regardless of the fonts installed on the viewing device.
    - **Uncommon Fonts**—fonts used are only embedded in the exported file if they are not part of the fonts traditionally installed on most devices. The viewing device must have the expected fonts installed to view any common fonts in the exported file.
    - **No Fonts**—no fonts are embedded in the exported file. A viewing device must have all the used fonts installed to accurately view the exported file.
- **Subset fonts**—when selected, embedded fonts will only include the glyphs used in the document. If this option is off, all glyphs for the used fonts are embedded in the exported file, regardless of whether they appear in the document or not.

- **Allow advanced features**—when selected, all design features supported by the PDF file format are exported as vectors. If this option is off, depending on the nature of these features, they are rasterized or converted to curves on export. These features include:
    - Artistic text which has been horizontally or vertically stretched.
    - Text which has an applied stroke.
    - Linear and radial gradients.
    - Non-solid transparencies.

  If the **Allow advanced features** option is selected on export, the resulting PDF, when imported into other applications, may cause the above advanced features to be rasterized or rendered incorrectly. The third party's app may also display an error message on PDF import.

For SVG file format:

- **Export text as curves**—when selected, the text in the resulting file will be drawn as curves (therefore displaying precisely as intended, even if viewed on a device without the used fonts installed). However, this option will increase file size, and text won't be editable as text or available to "text to speech" in other apps. If this option is off, text will be exported as text and the viewing device will need the used fonts installed for it to be viewed correctly.
- **Longer text spans**—when selected, text is placed relative to previous lines of text (therefore producing smaller file sizes and simpler file structures). If this option is off, text is placed with absolute coordinates.
- **Use hex colors**—when selected, colors in the exported file are expressed as RGB Hex values (therefore reducing file size but less human-readable). If this option is off, colors are exported as standard RGB values.
- **Flatten transforms**—when selected, transformed objects are 'fixed' in the exported file. This allows for the file to be viewed more accurately across applications. If this option is off, objects remain dynamically transformed to allow for more flexible editing.
- **Use tile patterns**—when selected, rasterized areas may be converted to a vector shape with a filled bitmap to give smoother, sharper edges. However, this might not be supported by some apps. If this option is off, objects will exist as singular elements within the exported file.
- **Set viewBox**—when selected, the exported file includes coordinates and dimensions which define the view box of the image. If this option is off, no view box data is included in the exported file. The export area is used to define the view box.

- **Add line breaks**—when selected, the code in the exported file will be optimized for human viewing and reading. If this option is off, the image will be exported with code on a single line which will make the file size significantly smaller.

For EPS file format:

- **Postscript level**—sets the version of the exported postscript file. Select from the pop-up menu.
- **Minimize size**—when selected (default), the exported file will be compressed to create the smallest file size possible.

Resampling methods

The following resample settings are available:

- **Nearest Neighbor**—simple resampling which has the fastest processing time. Use for hard-edge images.
- **Bilinear**—algorithmic resampling for use when shrinking images.
- **Bicubic**—algorithmic resampling for use when enlarging images. Resampling is smoother than Bilinear but has a slower processing time.
- **Lanczos 3**—complex algorithmic resampling which gives the best results but with the longest processing time. Available as 'separable' and 'non-separable'; the latter gives marginally better results, but is slightly slower than 'separable'.

To save custom settings as a preset:

1. Set the export options as desired.
2. Click Panel Preferences, and select **Create preset** from the pop-up menu.
3. Enter a name and click **OK**.

The new preset is added to the end of the **Preset** pop-up menu and is also accessible from the **Export** dialog.

You can delete and rename custom presets by selecting the appropriate option from the Panel Preferences pop-up menu.

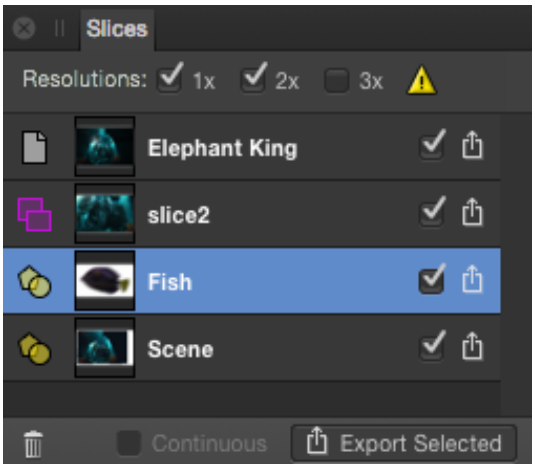
Slices panel

The Slices panel allows you to export defined areas of your design to universally recognized raster image formats.

About the Slices panel

Once an export area has been defined, the Slices panel allows you to export the area at various sizes and formats.

The panel can be populated with one or more slices. Each slice possesses a single *export setup*, within which multiple *export formats* (detailing file format and scaling options) may be stored. In turn, each export format can have multiple *export sizes*. This allows different graphics formats, of different sizes, to be exported from each slice simultaneously.



The Slices panel showing export areas in the document.

Options

The following options are available in the panel:

- **Batch builder**—Creates Xcode JSON batches from multiple Apple Universal or Application icon slices. For Xcode UI development only.
- **Export preset**—presents slice presets offering common graphics formats and options for Apple app icon design.
- **Copy export setup to clipboard**—copies a selected slice's export setup (including multiple export formats) to clipboard. If you select a graphic-specific export format within the setup, the button can be used to copy that export format to another slice's export setup.
- **Replace export setup from clipboard**—pastes a copied slice's export setup from the clipboard to another selected 'target' slice. A copied export format can be pasted too.

- **Add Export format from clipboard**—pastes a copied export format selected from a slice's export setup and adds it to another slice's export setup.
- Delete—removes the panel item and corresponding export area from the page. The Page panel item cannot be deleted.
- **Continuous**—when selected, slices are re-exported automatically if the content within the slices are modified. This option becomes available once **Export Slices (*n*)** has been clicked and an export folder selected.
- **Export Slices (*n*)**—exports all checked panel items.

The forward slash (or oblique) character can be used in slice filenames in export setups in the Slices panel. The word preceding the slash will be used to create a containing folder for the file named at the end, when exported using **Export Slices (*n*)**.

For example, a PNG slice with a filename in the Slices panel of **assets/img/hero** will create **hero.png** within an **img** folder within an **assets** folder.

Export Setup Options

The following options are available in the export setup for each slice entry:

- Page—indicates that the export area is the entire page.
- Slice—indicates an export area drawn with the Slice Tool.
- Slice (from item)—indicates an export area created from an layer, group or object.
- Thumbnail—visually indicates the area to be exported.
- Filename—displays the name for the export area. Type directly in the text box to set your own file name. If a name has not been set, unique names are suggested.
- ✓Active/Inactive—when checked, the area is exported when **Export Slices (*n*)** is clicked at the bottom of the panel.
- Export—exports the area represented by the panel item.
- Path—defines the folder name for the JSON imageset to be written to. For Xcode UI development only.
- Builder—generates supplementary Xcode JSON files along with the exported slices for Apple icons. For Xcode UI development only.

Export Format Options

You can store multiple formats within every slice's export setup. The following options are available for each format:

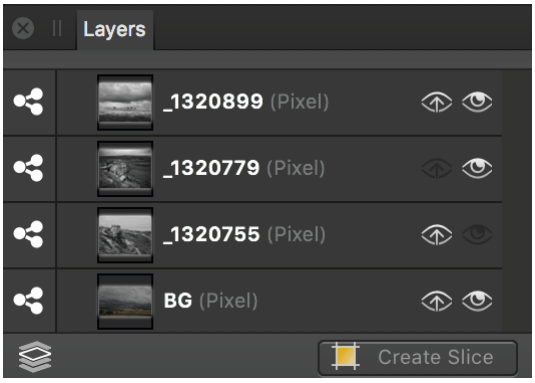
- File format—select a file format to be exported from the pop-up menu.
- Size scaling—select scaling options (e.g., 1x, 2x, etc.) to set for the export format.
- Additional properties—lets you choose a custom DPI and a path and filename made up of defined tokens or custom user variables.
- Export—exports the slice using this export format.

Layers panel (Export Persona)

The Layers panel in Export Persona lets you create slices from entire layers, groups or selected objects.

About the Layers panel

The panel lets you target layers, groups or objects in your document that you want to specifically export. By selecting them, they can be made into slices from the same panel; the Create Slice option generates slices for the Slices panel from which raster images can be exported.



The Layers panel showing layers in the current document.

Options

The following options are available in the panel:

- **Visible in export**—when enabled, the item is visible and can be exported. When disabled, the item is hidden and can't be exported.
- **Make item visible**—when enabled, the item is visible. When disabled, the item is hidden. The item can be exported in both states.
- **Edit All Layers**—allows selection of objects across all layers (rather than the current layer).
- **Create Slice**—creates a slice from the selected layer, group or object in readiness for export.

For child objects, the visibility options may show as being partly grayed out if the parent object has the corresponding visibility option switched off.

Using undo, redo and history

It's easy to revert changes to a file when you've either made a mistake or if you simply don't like the result.

Any edits you make to your document are stored in the History panel. You can then use this, or standard quick keys, to undo an edit. You can also redo an edit which you have recently undone.

A document's history can be saved along with the document, so earlier edits can be returned to even if the document is closed and reopened.

To undo or redo a change:

Do one of the following:

- From the **Edit** menu, click **Undo** to go back one step, or **Redo** to redo the step previously undone.
- On the **History** panel, click one of the entries in the list to jump to that state.
- On the **History** panel, drag the slider left to undo a change, right to redo a change.

To return to root:

- On the **History** panel, drag the slider to the farthest position to the left.

To save history with a document:

1. From the **File** menu, select **Save History With Document**.
2. In the **Saving With History** dialog, click **Yes** to accept the conditions discussed in the dialog.
3. Save your document.

Saving your document's history with your document may significantly increase the size of your project file.

You can switch off the save history feature by repeating step 1 of the procedure above.

To set the History panel preferences:

1. In the **Affinity Photo** menu, click **Preferences**.
2. In the **Edit** menu, click **Preferences**.
3. Click **Performance**.
4. Drag the **Undo Limit** slider left to reduce the number of stored changes, right to increase the number of stored changes.
5. Click **Close**.

Using snapshots

Snapshots are great for storing your current work at any point in time, much like a freeze frame. You might do this in advance of carrying out more complex operations where you might need to restore back to a previous point in time (if things don't go to plan!).

If you're experimenting with different approaches, you can also create different snapshots for each approach which lets you explore, compare and evaluate each in turn. You then have the option to choose a preferred snapshot to continue working from. Compared to reverting edits step-by-step using the History panel, snapshots let you define a stage in your session from which you can restore from. If needed, you can also take your snapshot to a new document.

About the Snapshot panel

The Snapshot panel is available from the Photo and Develop Personas; for the former, it can be switched on via **View>Studio**; for the latter, it can be viewed by clicking 'Snapshot' at the top right of your workspace.

The Snapshot panel can also be used in conjunction with the Undo Brush Tool to paint back to a chosen snapshot. Enabling the panel's camera icon preceding an entry sets the chosen snapshot to paint back to. In Photo Persona, snapshots are saved with your document and are available to be used in future sessions.

To create a snapshot:

- From the **Snapshots** panel, click **Add Snapshot**.

The snapshot, showing date and time, is added to the panel.

To restore a snapshot:

1. From the **Snapshots** panel, select a snapshot from the list.
2. Click **Restore Snapshot**.

To create a new document from a snapshot:

1. From the **Snapshots** panel, select a snapshot from the list.
2. Click **New Document from Snapshot**.

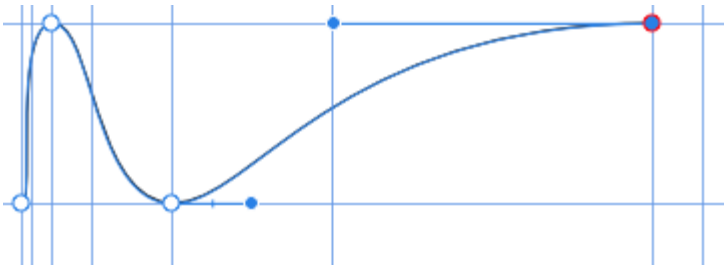
To delete a snapshot:

1. From the **Snapshots** panel, select a snapshot from the list.
2. Click **Delete**.

Any saved snapshot can be added to your document as a flattened layer using **Layer>New Layer From Snapshot**.

Guides

Guides are non-printing, non-exporting lines that float over your page and assist with positioning of layer content. They can be created and positioned by dragging from a ruler (for 'by eye' placement) or via the **Guides Manager** (for precision using the document's units or a percentage).



To add a guide:

Do one of the following:

- Drag from either the horizontal or vertical ruler which can be switched on via the **View** menu.
- From the **View** menu, select **Guides Manager**. Click the **Add new guide** icon for either horizontal or vertical guides.

To move a placed guide:

Do one of the following:

- Drag the guide with the **Move Tool** when you see the cursor change.
- From the **View** menu, select **Guides Manager**. Double-click on the value for the guide you want to edit and type a new position into the value field. (Note that you do not need to type the units.)

To position guides by percentage:

1. From the **View** menu, select **Guides Manager**.
2. Select the **Percent** option.

Percentages are calculated from the top-left of the document page.

To show or hide guides:

- From the **View** menu, select **Show Guides**. A check mark is displayed next to the menu item when the guides are visible.

If guides are hidden, they will automatically become viewable again if a new guide is added by dragging from a ruler.

To remove guides:

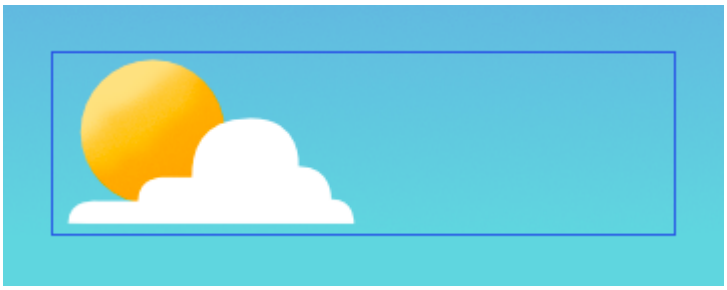
Do one of the following:

- With the **Move Tool** selected, drag the guide off the page.
- From the **View** menu, select **Guides Manager**. Click to select the value for the guide you want to delete and then click the **Remove guide** icon.

When creating or moving layer content, you can snap to guides.

Margins

Page margins allow you to design with printing in mind.



The margins give an indication of the extent of the page that will be printed when using a desktop printer. Design elements positioned outside the margins may not be printed.

Margin positions are set up on document creation either manually or by using the settings of an installed printer. They are non-printing and non-exporting.

Margins can also be used for snapping to when creating or moving layer content.

To set page margins:

1. On document setup, check **Include margins**.
2. In the dialog, do one of the following:
    - Set the **Left Margin**, **Right Margin**, **Top Margin**, and **Bottom Margin**.
    - Click **Retrieve Margin from Printer** to automatically set margins to the settings of your desktop printer.

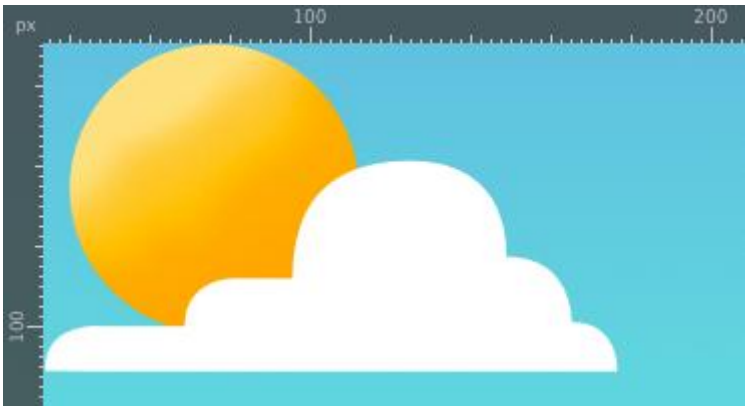
If you intend to export your design, rather than printing it directly, you can design without added margins. If this is the case, you can keep the **Include Margins** unchecked on document setup.

To hide/show margins:

- From the **View** menu, deselect/select **Show Margins**. A check mark is displayed next to the menu item when the margins are visible.

Rulers

Rulers are useful when you need to accurately place layer content or guides in the Document View.



The point where 0 appears on each ruler is called the ruler origin.

To show or hide rulers:

- From the **View** menu, select **Show Rulers**. A check mark is displayed next to the menu item when the rulers are visible.

To change document units:

- With either the **View Tool** or **Zoom Tool** selected, choose a unit of measurement from the pop-up menu on the context toolbar.

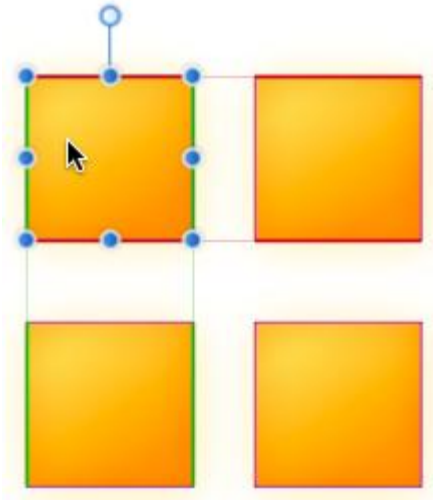
Changing the units will automatically change the units on displayed rulers.

Dynamic guides

Dynamic guides are intelligent guide lines which automatically appear when moving and aligning vector shapes or a curve's nodes.

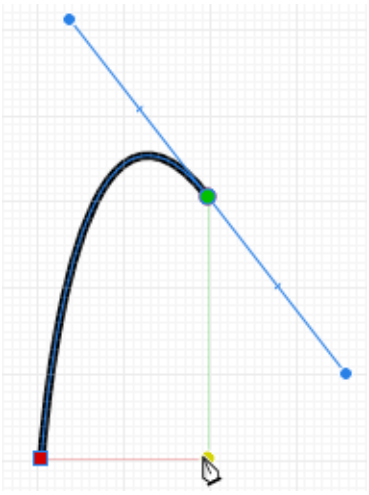
Dynamic guides appear automatically in two instances:

- As you drag vector layer content to help you align and resize to a shape's, line's or text's edges, centers, vertices, and page elements (e.g. page margins). These guides display in red when aligning horizontally and in green when aligning vertically.



  You'll only see them when snapping is enabled, and when your snapping preset has the **Snap to object bounding boxes** option checked.

- When drawing curves with the Pen Tool. If snapping options on the tool's context toolbar are enabled, nodes or control handles can be snapped to other nodes. To help this, dynamic guides show while dragging nodes or handles. Snapping and guide behavior is completely independent of the 'global' Snapping option on the main toolbar.



Rotate canvas

Rather than rotating the document, you can rotate the canvas instead, which is akin to physically rotating your working space. This allows you to view your document from a different angle without manipulating its layout.

About canvas rotation

Being able to rotate the canvas is beneficial for a number of applications:

- Brush and fine detail work
- Product design (e.g., product box/packaging layouts with content at 90/180 degree angles)
- Tablet-assisted design (drawing at angles)

To rotate the canvas:

- From the **View** menu, select **Rotate Left** or **Rotate Right**. The canvas will be rotated in 15 degree increments.

From the same menu, select **Reset Rotation** to reset the canvas back to its original rotation.

For greater efficiency, assign your own custom keyboard shortcuts to rotating and resetting canvas operations. See Customizing keyboard shortcuts for more information.

For Trackpad users, canvas rotation can be carried out using a gesture.

To switch off/on canvas rotation (for Trackpads):

- From **Affinity Photo>Preferences** (Tools option), uncheck or check **Enable Canvas Rotation with Trackpad**.

Snapping

Snapping simplifies the positioning of crop areas, selection areas, and layer content (pixel or vector) by 'magnetizing' areas or content to other content or page elements (guides, page edges, etc.).

Snapping for accurate crop and selection areas

To precisely create the above areas you can use snapping to position to previously placed guides or to the page edge itself.

Simply drag out your crop or selection area until its edge meets the positioned guide.

Snapping for vector lines, shapes, and text

Snapping causes images, brush strokes, lines, shapes, and selection areas to align to nearby grid lines, guides, margins, or spreads, or any combination of these. You can also snap to object bounding boxes, key points on shapes and to an object's geometry. Text can also snap to the baseline of other text (the first line only for text frames).

To activate/deactivate snapping:

- Click **Snapping** on the main toolbar.

To temporarily override snapping:

- Press the while you're positioning. Snapping won't occur while the is depressed.

Snapping for vector layers

To help understand snapping behavior, colored dynamic guides and target nodes display when you snap to objects. The colors used are:

- Red line: Object snaps to target horizontally.
- Green line: Object snaps to target vertically.
- Yellow node: Object snaps to shape's key points horizontally and vertically.
- Purple node: A curve's node snaps to a shape's key points.
- Blue line: Object snaps to third plane when using triangular projection grid.
- Orange line: Object snaps to target horizontally or vertically if a projection grid is active.

Dynamic guides work in conjunction with snapping to provide a visual aid when aligning. Dynamic guides also include labels which report the distance between the snapping objects (measured in the document's set units).

For web graphic development, you may wish to use Force Pixel Alignment. This complements any active snapping settings.

Snapping candidates

Snapping candidates are page objects which are available for you to snap to. You can set how candidates are created using the following settings:

- **Candidate List**—limits the number of objects which are snapping candidates to the number you set. Creating a new object, or hovering over an existing object, designates it as a snapping candidate in this case. Only the active snapping candidates can be snapped to.
- **Immediate layers**—limits the number of candidates to the objects on the current layer.
- **Immediate layers and children**—limits the number of candidates to the objects on the current layer and any of the layer's subordinate child layers.
- **All layers**—does not limit the number of snapping candidates in the document.

To activate/deactivate snapping:

- Click **Snapping** on the main toolbar.

To temporarily override snapping:

- Press the while you're positioning an object. Snapping won't occur while the is depressed.

Snapping presets for vector layers

A powerful and comprehensive set of snapping options are available to you. To make snapping setup quick and easy, one of several snapping presets can be chosen which group recommended snapping options according to how you plan to work.

To select a snapping preset:

1. Click the **Snapping** option's arrow.
2. From the **Preset** pop-up menu, select a preset.

To customize a snapping preset:

1. Click the **Snapping** option's arrow.
2. Select a preset on which to base your new snapping options.
3. Check individual options on/off to override the current preset's options.

The options will be in effect immediately.

To save as a custom preset for future use:

1. Click the button adjacent to the **Presets** pop-up menu.

2. Select **Create preset**.

The custom preset is in effect immediately.

Snapping options for vector layers

Individual snapping options can be switched on or off to suit your needs, drawing style, and the project you are working on. The preset that you initially adopted will be customized in the process.

The following options are available from the pop-up dialog:

- **Screen tolerance**—controls the distance you have to be to an object before snapping occurs.
- **Enable snapping**—when checked, objects will snap to specified criteria. This must be selected to change other options.
- **Presets**—Select a preset which is a grouping of snapping options for specific ways of working.
    - Page layouts—for designs to be printed, where snapping to placed guides, margins, and spreads is important.
    - Page layouts with objects—as above but with additional object-to-object alignment.
    - Object creation—perfect for simple object-to-object alignment to bounding boxes and their midpoints, plus for some shapes to key points. Key points are automatically added points on some objects, e.g. where a shape's corner is made rounded, key points are placed at the start and end of the rounded corner.
    - Curve drawing—the setup for non-geometric use (i.e., drawing with the pen or brush tools).
    - UI design—for UI/web design for pixel accuracy when using snapping to fixed guides and grid.
- **Only snap to visible objects**—when checked, only visible objects are snapped to.
- **Show snapping candidates**—when checked, highlights the active snapping candidates, i.e. objects that can be snapped to by prior selection or hover over.
- **Show snapping hints**—when checked, displays potential snapping candidates when objects are near by.
- **Force pixel alignment**—identical to the Toolbar option—see Force Pixel Alignment.
    - **Move by whole pixels**—identical to the Toolbar option—see Force Pixel Alignment.
- **Snap to grid**—when checked, content snaps to a line grid (if switched on from the **View** Menu). Not available when using Force Pixel Alignment.

- **Snap to guides**—when checked, content snaps to guides (if switched on from the **View** Menu).
- **Snap to spread**—when checked, content snaps to the edge of the page (ignoring margins).
    - **Include spread mid points**—when checked, content snaps to vertical or horizontal center of the page. This option is only available if the above option is selected.
- **Snap to margin**—when checked, content snaps to page margins (if switched on from the **View** Menu).
    - **Include margin mid points**—when checked, content snaps to vertical or horizontal center of the page margin. This option is only available if the above option is selected.
- **Snap to object bounding boxes**—when checked, objects can be aligned based on its bounding box.
    - **Include bounding box mid points**—when checked, objects snap to vertical or horizontal center of a target object. This option is only available if the above option is selected.
    - **Snap to gaps and sizes**—when checked, arrows represent matched gaps between snapping candidates and matched horizontal and/or vertical sizes.
- **Snap to shape key points**—when checked, objects can be aligned to key points on shapes, such as the start and end of a rounded corner.
- **Snap to object geometry**—when checked, objects can be snapped to object vertices and not simply to the bounding box or key points. Vertices are object corners or intersections, such as the points of a star, within a shape's bounding box.

Snapping always snaps to the currently set measurement unit (set via the View Tool or Zoom Tool).

You can also access the above settings from the **Snapping Manager** via the **View** menu.

Force Pixel Alignment

Force Pixel Alignment will snap vector objects, nodes and handles, and pixel selection areas to full pixels when created, moved or modified. If this option is off, objects and selections can occupy partial pixels.

Force Pixel Alignment is particularly useful for web graphic development.

Move By Whole Pixels

In addition to Force Pixel Alignment, the **Move By Whole Pixels** option allows you to constrain the movement of vector objects, nodes and handles to whole pixels.

Move By Whole Pixels is particularly useful for repositioning an object by a particular pixel distance while also maintaining the relevant partial pixels an object occupies.

If you deactivate **Move By Whole Pixels** but have **Force Pixel Alignment** active, moving an object which occupies partial pixels will also transform it marginally.

Force Pixel Alignment complements any active snapping settings.

 To activate/deactivate Force Pixel Alignment:

- Click **Force Pixel Alignment** on the Toolbar.

 To activate/deactivate Move By Whole Pixels:

- With **Force Pixel Alignment** active, click **Move By Whole Pixels** on the Toolbar.

To temporarily override snapping:

- Press the while you're positioning. Snapping won't occur while the is depressed.

Grids

A non-printing, non-exporting grid can be displayed on your page to help you lay out layer content more accurately.

Grid overlaid over image with layer content selected

The grid is overlaid over your page to help you align objects. They are gray by default but can be any color you choose.

Grids can be ***automatic*** or ***fixed***—the former (as default) changes the frequency of grid subdivisions as you zoom in/zoom out, the latter always keeps the grid frequency constant (irrespective of zoom level).

Grids work best when combined with snapping, in particular when the Snap to Grid option is enabled. They can be based on any document unit and will line up perfectly with rulers (when switched on).

To show or hide grid:

- On the **View** menu, select **Show Grid**.

🔍To adjust automatic grid spacing:

With the **Zoom Tool** selected, do one of the following:

- Zoom in to see smaller grid divisions.
- Zoom out to see larger grid divisions.

At all zoom levels the grid shows as grid 'blocks' further split into grid subdivisions.

To create a fixed square grid:

1. From the **View** menu, select **Grid and Axis Manager**.
2. Uncheck **Use automatic grid**.
3. Set the **Spacing** and **Divisions** values.
4. Click **Close**.

To customize grid color:

1. From the **View** menu, select **Grid and Axis Manager**.

2. Click the **Grid lines** or **Subdivision lines** swatch to display a pop-up panel to set the line color(s).
3. Drag the sliders to set the opacity of either, or both, line colors.
4. Click **Close**.

For a different color or opacity for the subdivision lines compared to the main grid lines, click the **Link the grid colors** symbol next to the swatches.

To create a rectangular grid:

1. From the **View** menu, select **Grid and Axis Manager**.
2. Uncheck **Use automatic grid**.
3. Select **Advanced** and uncheck **Uniform**.
4. Do one of the following:
    - Set the **Spacing** and **Divisions** for the first and second axis.
    - Select **Fixed aspect ratio**, set the **Spacing** and **Divisions** for the first axis and then set the **Aspect ratio** and **Divisions** for the second axis.
5. Click **Close**.

To create a fixed angular grid:

1. From the **View** menu, select **Grid and Axis Manager**.
2. Uncheck **Use automatic grid**.
3. Select **Advanced**.
4. From the **Grid type** pop-up menu, select **Two axis custom**.
5. Set the **Angle** of either axis.
6. Click **Close**.

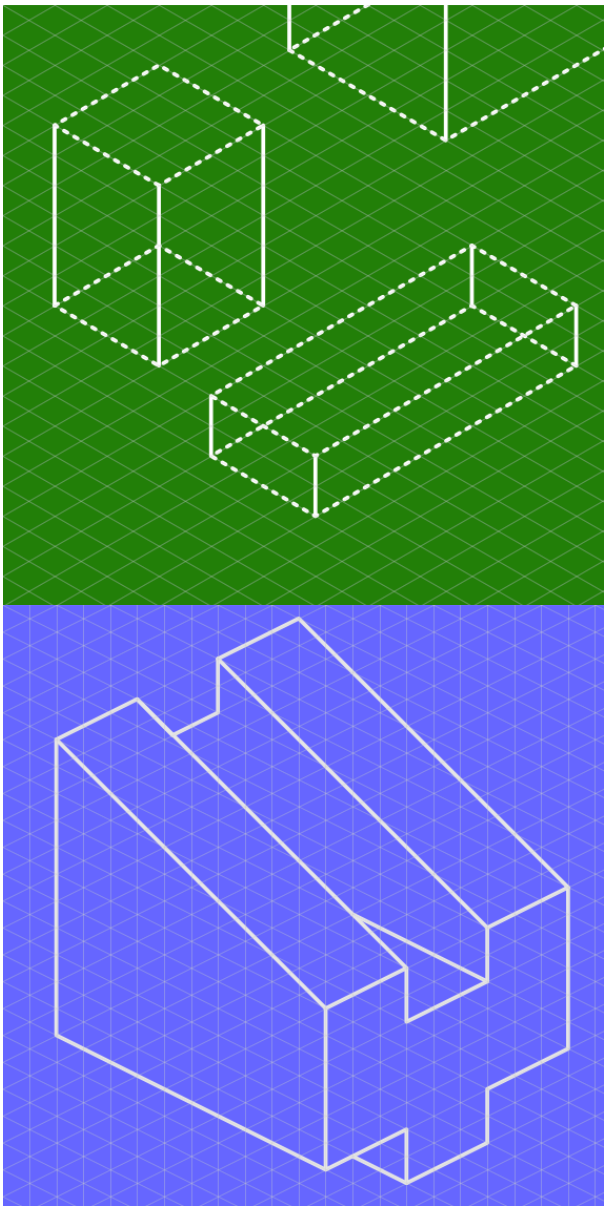
To set isometric angles, set First and Second Axis to 30° and 150°, respectively.

🔍To change document units:

- With either the **View Tool** or **Zoom Tool** selected, choose a unit of measurement from the pop-up menu on the context toolbar.

Parallel projections

Affinity Photo makes use of a highly customizable projection grid, perfect for UI/game design, digital design modelers, and mock ups.



Isometric and Triangular grids.

About parallel projections

Plane sets can be enabled so you can design on front, side and top planes; each plane can be toggled into by using a single key modifier.

Instead of the commonly used isometric projection grid, a choice of other project grid presets can be selected (e.g., dimetric, triangular); you can even create custom projection grids with options for grid sizing, custom aspect ratios, and gutters for more advanced use.

Drawing on projection grids

Once in a specific mode and plane set you can create line and shape drawing using the Pen Tool or pre-designed geometric shapes.

For pen drawing, use the Pen Tool's Polygon or Line Modes for straight line segments. For geometric shapes, skew shapes to fit your grid.

About snapping controls

Grids work best when combined with snapping (switch on via top toolbar), in particular when the Snap to Grid option is enabled from the Snapping button's pop-up menu. Object handles snap precisely to any grid line and line intersections.

Grids can be based on any document unit, shown when switching on the rulers.

About custom grids

If you're looking beyond the projection mode presets such as isometric you can customize the grid to your liking.

To set your projection grid:

1. From the **View** menu, select **Grid and Axis Manager**.
2. Uncheck **Use automatic grid**.
3. Click **Advanced** to access projection grids.
4. From the **Grid type** pop-up menu, select a project mode, e.g. Isometric.

The **Grid and Axis Manager** is also ideal for laying out two-dimensional fixed grids as well as projection grids.

To create plane sets:

- On the dialog, check **Create plane set**.

You can then cycle between planes on demand to design on top, side, and front of your drawing.

To jump between planes:

- Press the ' .

To customize your projection grid:

1. From the **Grid type** pop-up menu, select **Two axis custom** or **Triangular custom**.
2. Select **Create plane set** to activate and configure the **Up** axis.
3. Adjust the settings in the dialog.
4. Click **Close**.

Assistant Manager

The Assistant Manager controls how painting, layer addition, and applying filters has an effect on layers in your document. The Manager lets you choose whether or not to be alerted of layer operations as they occur.

Alert messages inform you that Affinity Photo has performed an action that you need to be aware of. This is as a result of the last operation you performed. Assistant Manager can decide the default type of action to take. While in Photo Persona, several types of operation can lead to different actions.

- **Painting with no layer selected**: Creates a new pixel layer for your brush strokes using 'Add new pixel layer and paint' if there is no pixel or vector layer selected; 'Take no action' means that no pixel painting is allowed.
- **Erasing from vector layers**: Erases on a created layer mask applied to your vector layer, immediately rasterize the vector layer and erase directly on it, or take no action.
- **Other brushes on vector layers**: For retouching pixel brushes (e.g., Burn Brush Tool, Smudge Brush Tool, etc.), any applied brush stroke rasterizes the vector layer by default. You can change this behavior by selecting 'Take no action' which doesn't convert the layer or apply the stroke.
- **Brush tool sharing**: Choose whether a selected brush is shared between tools of a similar nature (e.g. Dodge, Burn and Sponge Brush Tools), shared across all tools, or each tool's brush is set independently.
- **Applying filters to vector layers**: For effect and retouch filters from the **Filters** menu, applying a filter to a vector layer rasterizes it by default. You can change this behavior by selecting 'Take no action' which doesn't convert the layer or apply the filter.
- **Adding adjustment layer to selection**: If you've created a selection, any adjustment applied to the selection is added as a new adjustment layer above the currently selected layer or made a child adjustment layer of the selected layer instead. With no layer selected, a new adjustment layer is added to the top of the layer stack in both instances.
- **Adding mask layer to selection**: Analogous to 'Adding adjustment layer to selection' above, but for mask layers.
- **Adding filter layer to selection**: Analogous to 'Adding adjustment layer to selection' above, but for filter layers.

To change Assistant Manager settings:

1. From the **View** menu, click **Assistant Manager**.
2. Select options from the relevant option's pop-up menu.

To switch off alerts or the Assistant Manager completely:

1. From the **View** menu, click **Assistant Manager**.
2. Uncheck **Alert when assistant takes an action** or **Enable assistant**, respectively.

In **Develop Persona**, the Assistant Manager will present a limited set of options that allow you to control how RAW files are developed. See Developing a raw image for more details.

Vector content defaults

When you create vector content, its appearance is initially determined by the default settings for the particular content you are creating.

These defaults can be changed in the current document, saved globally for future documents or returned to factory settings at any time. Synchronizing defaults lets you base a new default on currently selected content, with the option to save the defaults or revert to saved defaults if needed.

Vector content defaults are stored separately for stroke and fill attributes, art text attributes, and frame text attributes.

To synchronize defaults to current selection:

1. Select an object with the attributes you wish to save as default settings.
2. From the **Edit** menu, select **Defaults**, then **Synchronize from selection**.

Synchronized defaults override saved defaults for this document only. This is a great way to work with a set of defaults temporarily for a single document without having to save them.

To save defaults:

- From the **Edit** menu, select **Defaults**, then **Save**.

The defaults used for this document become the global defaults for all future documents.

To revert synchronized defaults back to saved defaults:

- From the **Edit** menu, select **Defaults**, then **Revert**.

  If vector content is currently selected, its attributes revert to the default settings.

To reset defaults to factory settings:

- From the **Edit** menu, select **Defaults**, then **Factory Reset**.

  If vector content is currently selected, its attributes revert to the default settings.

The **Synchronize from selection** and **Revert defaults** menu options apply to the current document only. The **Save** and **Factory Reset** menu options apply globally.

At a Glance

The workspace is designed to make photo editing easy, with all of the tools you need at your finger tips. If you've worked with raster image editing applications before, you'll find that many of the commands and options will be familiar to you.

Within Affinity Photo, each active Persona has its own workspace layout, tools and panels. These are visible when the Persona is selected. However, the fundamental concept of the workspace is common to all Personas.

The default document view and workspace (Photo Persona active).

Document View

The document view, shown by default, shows the page that you are working on.

Menu bar

The Menu bar organizes commands in menus and shows the commands appropriate to the Persona that you are currently working in. Shortcut menus provide a quick way to access commands that are also found in the standard menus.

Persona toolbar

Hosts the current Personas available in Affinity Photo. The active Persona's icon appears in with saturated colors.

Toolbar

The Toolbar hosts some of the most commonly used commands and functions for the active Persona. Like menus, it's also fully customizable.

Context toolbar

The context toolbar contains the commands and options that are specific to the active tool.

Tools panel

The Tools panel contains the tools that you will need when working on your projects. The tools contained inside the panel change according to the Persona that you are currently working in. The Tools panel can either be docked or free-floating (Separated mode only) depending on your preference. It can also be customized.

Studio panels

These panels contain settings that support your project workflow and active tool. Some panels may change to reflect the Persona that you are currently working in. Panels can either be docked or free-floating depending on your preference. Their layout can be customized.

Status bar

The status bar at the bottom of the active document view provides useful information such as hints and shortcuts for the current tool or operation.

Keyboard shortcuts

You can quickly access common tools and commands using your keyboard. Many of the shortcuts are the same as those that you use in other apps (such as **C** to copy). You'll find many of the shortcuts listed next to menu items (and in the list below).

You can quickly access common tools and commands using your keyboard. Many of the shortcuts are the same as those that you use in other apps (such as +**C** to copy). You'll find many of the shortcuts listed next to menu items (and in the list below).

For complete flexibility, you can customize keyboard shortcuts to your own way of working.

Editing shortcuts

Action	Key
Resize Document	-+**I**
Resize Canvas	-+**C**
Select multiple	-click
Select overlapping layer content	-click
Reset Selection Box	**.**
Toggle Snapping	**;**
Erase with Pixel Tool	
Switch between Stroke/Fill (or Color 1/Color 2) color selectors (Color and Swatches panels)	**X**
Swap Stroke/Fill (or Color 1/Color 2) color selectors	**X** +**X**
Set No fill on Stroke/Fill (or Color 1/Color 2) color selectors	**/** (International and selected keyboards only)
Toggle between Crop Tool overlays (Crop Tool enabled)	**O**
Flip golden spiral overlay (Crop Tool enabled)	+**O**
Modify attribute listed on a panel or dialog	Drag attribute text label

Action (Transforming)	Key
Move with horizontal, vertical or diagonal constraint	-drag
Rotate in 15° intervals	-drag rotation/corner handle
Rotate around opposite corner	-drag corner handle Drag corner handle then hold down right mouse button
Cancel a sizing, moving, or creating operation	
Resize from center	-drag from a corner handle
Mirror shearing	-drag Ctrl-drag
Nudging	Arrow keys
Nudging (10x measurement units)	-arrow keys

Vector-specific shortcuts

Action	Key
Resize maintaining aspect ratio	-drag from a corner handle
Edit curves as you draw	
Creates cusp node (sharp corner)	-drag control handle
Snap a curve's control handle to 45° intervals	-drag control handle
Convert to Curves	+

File shortcuts

Action	Key
New Document	**N** +**N**
New From Clipboard	**N** +++**N**
Open Document	**O** +**O**

Close Document/Close App (when no documents open)	**W** +**W**
Switch Document/View	+
Save	**S** +**S**
Save As	**S** ++**S**
Export	**S** +++**S**
Print	**P** +**P**

Tools shortcuts

Action	Key
Flood Fill Tool / Gradient cycle	**G**
View Tool	**H**
Move Tool	**V**
Crop Tool	**C**
Selection Tools cycle	**W**
Pen and Node Tool cycle	**P**
Zoom Tool	**Z**
Clone Tool	**S**
Shape Tools cycle	**U**
Text Tools cycle	**T**
Dodge, Burn and Sponge Brush Tool cycle	**O**
Retouch Tools cycle	**J**
Painting Tools cycle	**B**
Erase Tools cycle	**E**
Marquee Selection Tools cycle	**M**
Free hand Selection Tool	**L**

Action (Liquify Persona only)	Key
Liquify Push Forward Tool	**P**
Liquify Push Left Tool	**L**
Liquify Twirl Tool	**T**
Liquify Pinch Tool	**U**
Liquify Turbulence Tool	**B**
Liquify Mesh Clone Tool	**C**
Liquify Reconstruct Tool	**R**
Liquify Freeze Tool	**F**
Liquify Thaw Tool	**W**
Liquify Zoom Tool	**Z**
Liquify View Tool	**H**

Action (Develop Persona only)	Key
White Balance Tool	**W**
Red Eye Removal Tool	**R**
Blemish Removal Tool	**L**
Overlay Paint Tool	**B**
Overlay Erase Tool	**E**
Overlay Gradient Tool	**G**
Crop Tool	**C**
Zoom Tool	**Z**
View Tool	**H**

Action (Export Persona only)	Key
Slice Tool	**S**
Layer Select Tool	**L**

Action (Panorama Persona only)	Key
Transform Source Image Tool	**A**
Add To Source Image Mask Tool	**L**
Erase From Source Image Mask Tool	**U**

Edit shortcuts

Action	Key
Undo	**Z** +**Z**
Redo	**Z** +**Y**
Copy Merged	++**C**
Paste Style	**V** ++**V**
Paste FX	**V** ++**V**
Paste Inside	**V** ++**V**
Paste without Format	**V** +++**V**
Fill	+**F5**
Inpaint	+

Layer operations shortcuts

Action	Key
Select All Layers	**A** ++**A**
Group	**G** +**G**
Ungroup	**G** ++**G**
Duplicate	**J** +**J**
Invert	**I** +**I**
Move to Front	**]** ++**]**
Move Forward One	**]** +**]**

Move to Back	++**[** ++**[**
Move Back One	**[** +**[**
New Layer	**N** ++**N**
Merge Down	**E** +**E**
Merge Selected	**E** ++**E**
Merge Visible	**E** +++**E**
Toggle between Frequency Separation layers	**F**

Action (Live Projection only)	Key
Edit Live Projection	**P** ++**P**

Brush shortcuts

Action	Key
Picks up a new brush color	-drag
Change selected layer content/brush tool's opacity	numeric keys (4=40%, 43=43%, etc.)
Increase/decrease brush width	] [
Decrease/increase brush width with on-screen readout	-drag (left/right) Right mouse button press++drag (left/right)
Decrease/increase brush hardness with on-screen readout	-drag (up/down) Right mouse button press++drag (up/down)

Text shortcuts

Action	Key
Bigger text	+
Smaller text	**<** +**<**
Precise bigger text	++
Precise smaller text	**<** ++**<**
Tighten	+

Loosen	+
Tighten More	++
Loosen More	++
Bold	**B** +**B**
Italic	**I** +**I**
Underline	**U** +**U**
Show Character	**T** +**T**
Show Typography	**T** ++**T**
Superscript	**+** ++**=**
Subscript	**-** ++**-**
Align Left	**L** ++**L**
Align Center	**C** ++**C**
Align Right	**R** ++**R**
Justify Left	**|** ++**|**
Increase Paragraph Leading	+
Decrease Paragraph Leading	+
Precise Increase Paragraph Leading	++
Precise Decrease Paragraph Leading	++
Raise Baseline	++
Lower Baseline	++
Precise Raise Baseline	+++
Precise Lower Baseline	+++
Spelling Options	**;** ++**;**
Line Break	+
Non Breaking Space	+

En Dash	**-** +**-**
Em Dash	**-** ++**-**

View shortcuts

Action	Key
Zoom In	**+** +**=**
Zoom Out	**-** +**-**
Zoom to Fit	**0** (or double-click View Tool icon) +**0** (or double-click View Tool icon)
(Zoom to) 100%	**1** (or double-click Zoom Tool icon) +**1** (or double-click Zoom Tool icon)
(Zoom to) 200%	**2** +**2**
(Zoom to) 400%	**3** +**3**
(Zoom to) 800%	**4** +**4**
(Zoom to) Actual Size	**8** +**8**
(Zoom to) Pixel Size	**9** +**9**
Hot key zoom in	-click +-click
Hot key zoom out	-click +-click
View tool	**H**
Hot key panning	
Scroll vertically up/down	**Mouse scroll wheel**
Scroll horizontally left/right	**+Mouse scroll wheel**
Switch between views	` +`
Show Rulers	**R** +**R**
Show Guides	**;** +**;**
Show Grid	' +'

Grid Plane cycle	'
Split View cycle (not Photo Persona)	,

Pixel selection/Mask shortcuts

Action	Key
Select All	**A** +**A**
Deselect	**D** +**D**
Invert Pixel Selection	**I** ++**I**
Add to selection (Marquee/Free hand selection tools only)	-drag Drag with left and right button down
Remove from selection	
Grow/Shrink	**B** +**B**
Feather	**F6** +**F6**
Refine Edges	**R** ++**R**
Move selection in 1-pixel increments	**Arrow key**
Move selection in 10-pixel increments	**arrow key** +**arrow key**
Selection from layer	-click layer thumbnail or **O** -click layer thumbnail or ++**O**
Selection from layer luminance	-click layer thumbnail +-click layer thumbnail
Polygon selection (Freehand Selection Tool only)	-click on page. +-click on page.
Quick Mask	**Q**

Workspace shortcuts

Action	Key
Show/Hide Studio (panels)	**H** ++**H**

Show/Hide Toolbar	**T** ++**T**
Toggle UI	
Hide Workspace	**H** +**H**

Adjustment and Filter shortcuts

Action	Key
Levels (Adjustment)	**L** +**L**
HSL (Adjustment)	**U** +**U**
Invert (Adjustment)	**I** +**I**
Curves (Adjustment)	**M** +**M**
Black and White (Adjustment)	**B** +++**B**
Repeat Filter	**F** +**F**

Liquify Persona shortcuts

Action	Key
Mask All	**A** +**A**
Clear Mask	**D** +**D**
Invert Mask	**I** +**I**

Misc shortcuts

Action	Key
Preferences	**,** +**,**

OSX shortcuts

Action	Key
Special Characters	
Toggle Full Screen	**F**
Hide Workspace	**H**

Hide Others (applications)	**H**
Media Browser	**M**

Toolbar

The Toolbar hosts commonly used tools and options to keep them at your fingertips. Options are placed in logical groups to improve ease of use.

The tools and options may differ depending on the currently active Persona.

Settings

The following options are available from the Toolbar.

Enhancement:

-  **Auto Levels**—automatically applies a levels adjustment to the image.
-  **Auto Contrast**—automatically applies a contrast adjustment to the image.
-  **Auto Colors**—automatically applies a color adjustment to the image.
-  **Auto White Balance**—automatically applies a white balance adjustment to the image.

Selection:

- **Select All**—selects all pixels on the entire layer.
-  **Deselect**—deselects all pixels in the current selection.
-  **Invert Selection**—selects the portion of the current layer outside the current selection.

Quick Mask:

- **Quick Mask**—click to switch to Quick Mask mode to create selections using the painting tools.
- Quick Mask options—customize settings from the pop-up menu.

Snapping:

-  **Force Pixel Alignment**—when selected (default), vector content and pixel selections will snap to full pixels when created, moved or modified. If this option is off, partial pixels can be occupied.

- **Snapping**—when selected, layer content will obey the snapping rules defined by the current snapping options. If this option is off (default), snapping is disabled.
- Snapping options—customize settings from the pop-up menu.

Assistant Options:

- **Assistant options**—click to control layer rasterization behavior and enable supporting on-screen alerts.

Order:

- **Move to Back**—repositions the selected layer(s) at the bottom of the **Layers** panel.
- **Back One**—moves the selected layer(s) down one position in the **Layers** panel.
- **Forward One**—moves the selected layer(s) up one position in the **Layers** panel.
- **Move to Front**—repositions the selected layer(s) at the top of the **Layers** panel.

The above options are also available from the **Arrange** menu.

Align:

- **Arrange**—displays a pop-up dialog allowing you to align and distribute layer content.

Insert Target:

- **Insert behind the selection**—when selected, new layers are added below the currently selected layer(s).
- **Insert at the top of the layer**—when selected, new layers are added at the top of the layer stack.
- **Insert inside the selection**—when selected, new layers are added inside the current selection.

If all target options are off (default), new layers are added above the currently selected layer.

Mesh (Liquify Persona only):

- **Reset Mesh**—applies a new mesh and removes all currently applied effects from the underlying image.
- **Save Mesh**—saves the current mesh for future application.
- **Load Mesh**—applies a previously saved mesh.

Mask (Liquify Persona only):

- **Mask All**—applies a new mask to the entire image.
- **Clear Mask**—removes the mask from the image.
- **Invert Mask**—reverses which areas are masked and which areas are not.

Split View (Liquify and Develop Personas only):

- **None**—displays in full view.
- **Split**—displays in split view for side-by-side 'Before - After' comparison.
- **Mirror**—displays a split mirrored view for side-by-side 'Before - After' comparison.

Before / After (Develop Persona only):

- **Sync Before**—updates the 'Before' view using the settings applied in the 'After' view.
- **Sync After**—removes all the settings applied in the 'After' view to return the image to the 'Before' view.
- **Swap**—switches the applied settings of the 'Before' and 'After' views.

Orientation (Develop Persona only):

- **Rotate Counter-clockwise**—rotates the image 90° to the left.
- **Rotate Clockwise**—rotates the image 90° to the right.

Design Aids (Develop Persona only):

- **Show Clipped Highlights**—when selected, highlight areas which suffer from loss of detail due to clipping are displayed on the image in red.

-  **Show Clipped Shadows**—when selected, shadow areas which suffer from loss of detail due to clipping are displayed on the image in blue.
-  **Show Clipped Tones**—when selected, midtone areas which suffer from loss of detail due to clipping are displayed on the image in yellow.

Persona Toolbar

The Persona toolbar hosts the current Personas available in Affinity Photo.

Settings

The following options are available from the Toolbar:

-  **Photo Persona**—provides the core set of photo editing tools.
-  **Liquify Persona**—switches to warping tools for retouch and special distortion effects.
-  **Develop Persona**—switches to a tonal and lens correction environment with support for raw image development.
-  **Tone Mapping Persona**—moves to an environment for tone mapping HDR and non-HDR imagery through global and local contrast.
-  **Export Persona**—switches to a slice-based image export environment.

The active Persona can also be switched by accessing the top **Affinity Photo** menu.

The active Persona can also be switched by accessing the top **File** menu.

The **Panorama Persona** is only accessible through the **New Panorama** feature on the **File** menu.

Context toolbar

The context toolbar always updates to show the options available for the currently selected tool, making it quick and easy to tailor the settings as you edit and design.

In Normal mode, the context toolbar appears below the Toolbar and immediately above the document view. In Separated mode, the context toolbar floats and can be placed anywhere on your screen.

Each time you select a new tool, the context toolbar shows the commands and options relevant to the selected tool.

In some cases, the commands shown by the context toolbar change depending on selection type and the active Persona.

The toolbar is always visible, even in full screen view. It cannot be turned off as the toolbar is essential for most tools.

Photo editing tools.

🖐🏼View Tool

The **View Tool** is used to move the visible portion of your document in the **Document view**.

The context toolbar for the View Tool also contains the tools to change the zoom level of your document.

If you double-click on the View Tool's icon on the Tools panel, the zoom will be set to 'Fit'.

Tool shortcut: **H**

Hot key panning:

You can never pan so far that your page disappears out of view, regardless of current zoom level.

Settings

Zoom settings are changed on the context toolbar.

- Set a zoom level. Select from the pop-up menu.
- Drag the slider to adjust the zoom level.
- Set a unit of measurement. Select from the pop-up menu.

Move Tool

The **Move Tool** allows you to select layer content. Once selected, the Move Tool allows you to move, rotate, and resize the selected content.

Use the Shift key with the tool to constrain objects to Vertical, Horizontal or diagonal (45°).

Tool shortcut : **V**.

Settings

The following settings are available on the context toolbar:

- **Preferences**—provides access to the Preferences dialog for advanced application settings (shows when no content is selected).
- **Reset Selection Box**—after reshaping, rotating, or shearing the layer content, this option resets the selection box to vertical (shows when layer content is selected):
- **Lock Children**—when checked, any child layer(s) of a selected ungrouped layer cannot be altered when the selected layer is transformed. Great for maintaining the size, position and aspect ratio of a clipped picture when resizing its parent layer.

For vector content, the context toolbar options update depending on the object selected. Settings may include the following:

- **Fill**—click the color swatch to display a pop-up panel to update fill color.
- **Stroke**—click the color swatch to display a pop-up panel to update stroke color.
- Line style—click to display a pop-up panel to set the **Width** and line style.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.
- **Ungroup**—splits selected group into individual content for focused manipulation.

Under **Preferences>Tools**, the **Move Tool Aspect Constrain** option can be used to specify whether or not to constrain the aspect ratio by default when resizing. The option can also be set to automatic, letting the software decide based on the selected content.

Color Picker Tool

The **Color Picker Tool** allows you to sample colors from anywhere on your document or screen.

Sampled (or picked) colors from the Color Picker Tool are stored in the swatch next to the tool's icon on the **Color** or **Swatches** panel.

Tool shortcut : **I**

Settings

The following settings can be adjusted from the context toolbar:

- **Apply to Selection**—when selected (default), the picked color will automatically apply to the selected object's Fill or Stroke, depending on which color selector is active on the Color or Swatches panel. If this option is off, the picked color is not automatically applied.
- Source—determines from where the tool can pick colors—**Current Layer** restricts picking to the currently selected layer; **Global** picks from all layers.
- Radius—Choose to sample from directly under the cursor (Point 1x1) or from differently sized square areas where the color is averaged.

Crop Tool

The **Crop Tool** allows you to remove portions of your photo or image. Crops are non-destructive and can use specific aspect ratios as required.

Settings

The following settings can be adjusted from the context toolbar:

- **Apply**—applies the crop to your image once you've defined the crop area (based on the positioned overlay).
- **Mode**—sets the aspect ratio of the crop area. Select from the pop-up menu.
- Crop dimension boxes—for Custom Ratio and Absolute Dimension modes, sets the width and height, respectively.
- **Units**—sets the units used by the crop area.
- **Rotate**—rotates the crop area by 180°.
- **Straighten**—switches to Straighten mode to align crooked photos horizontally or vertically.
- **Overlay**—offers various overlays for better photo composition.
- **Reset**—resets all settings to their defaults.
- **Darken Border**—renders areas outside of the crop boundary darker for easier previewing.

Zoom Tool

The **Zoom Tool** is used to change the zoom level of your page in the **Document view**.

If you double-click on the Zoom Tool's icon on the Tools panel, the zoom will be set to 100%.

Tool shortcut: **Z**

If you have a trackpad, you can use 'pinch to zoom' to zoom in and out at any time, regardless of tool selection.

Settings

The following settings can be adjusted from the context toolbar:

- Set a zoom level. Select from the pop-up menu.
- Drag the slider to adjust the zoom level.
- Set a unit of measurement. Select from the pop-up menu.

Vector line tools.

Pen Tool

The **Pen Tool** is used to precisely draw lines and shapes.

It has four modes, **Pen mode**, **Smart mode**, **Polygon mode** and **Line mode**, which are available to select in the context toolbar. Each mode changes how the line is drawn.

Pen mode

The most powerful and precise mode used to create bézier lines and shapes with smooth or sharp corners and nodes.

Smart mode

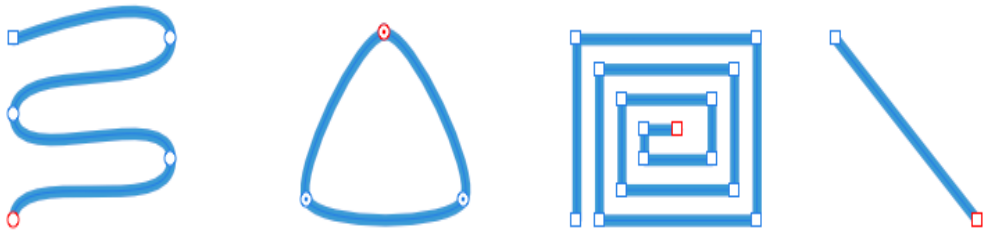
Easily create flowing lines and shapes by clicking and placing nodes.

Polygon mode

Used to draw straight lines with sharp nodes and shapes with straight edges.

Line mode

Used to draw single-segment straight lines.



Pen Mode, Smart Mode, Polygon Mode, Line Mode

Settings

The following settings can be adjusted from the context toolbar:

- **Mask**—converts the shape into a protected area, masking the remaining layer content.
- **Selection**—converts the shape into a selection.
- **Mode**—switches between **Pen**, **Smart**, **Polygon** and **Line** mode (see above).
- **Convert**—converts the selected node into a **Sharp**, **Smooth**, or **Smart node**.
- **Action**—Manipulates the curve(s):
    - **Break Curve** opens the shape at the selected node.
    - **Close Curve** joins the start and end nodes to create an enclosed shape.
    - **Smooth Curve** modifies a line or shape, by adding and removing nodes, to make it more aesthetic.
    - **Join Curve** connects two separate curves together to make one curve. Curves need to be both selected with the using either the Node Tool or as you draw.
    - **Reverse Curve** lets you draw from the opposite end of the curve. The start node becomes active, ready for further drawing.
- **Snap**—Controls node snapping:
    - **Align to nodes of selected curves**—will snap any node you drag to any other node on the same or a different curve.
    - **Snap to geometry of selected curves**—will snap dragged nodes to the same or different curve's path or node.
    -  **Snap all selected nodes when dragging**—will snap multiple selected nodes, when dragging, to a "target" node on any selected curves.
    -  **Snap off-curve handles**—will align a dragged control handle to an adjacent node.

  These options are independent of the global snapping options.
- **Use Fill**—When checked, the concave area of the line is filled with the currently set fill color (from Color panel) as you draw.

Node Tool

The **Node Tool** is used to edit existing lines and shapes.

Settings

The following settings can be adjusted from the context toolbar:

- **Convert**—converts the selected node into a **Sharp**, **Smooth**, or **Smart node**.
- **Action**—Manipulates the curve(s):
  - **Break Curve** opens the shape at the selected node.
  - **Close Curve** joins the start and end nodes to create an enclosed shape.
  - **Smooth Curve** modifies a line or shape, by adding and removing nodes, to make it more aesthetic.
  - **Join Curves** connects two separate curves together to make one curve. Curves need to be both selected with the using either the Node Tool or as you draw.
  - **Reverse Curve** lets you draw from the opposite end of the curve—The start node becomes active, ready for further drawing.
- **Snap**—Controls node snapping:
  - **Align to nodes of selected curves**—will snap any node you drag to any other node on the same or a different curve.
  - **Snap to geometry of selected curves**—will snap dragged nodes to the same or different curve's path or node.
  - **Snap all selected nodes when dragging**—will snap multiple selected nodes, when dragging, to a "target" node on any selected curves.
  - **Snap off-curve handles**—will align a dragged control handle to an adjacent node.

  These options are independent of the global snapping options.

Selection tools.

🖌️Selection Brush Tool

The **Selection Brush Tool** allows you to select a region of your image by painting.

The Selection Brush Tool functions in a similar way to the other brushes in Affinity Photo. By simply dragging on your image, you can add or remove regions from a selection. The selection will grow or shrink depending on the brush settings.

Settings

The following settings can be adjusted from the context toolbar:

- **Mode**—sets the way in which your selection develops as you paint:
    - **Add**—the brush stroke adds areas to the current selection. If there is no selection in place, you will create a new selection by painting.
    - **Subtract**—the brush stroke removes areas from the current selection.
- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Snap to edges**—selection is expanded to the edges of content underneath the brush stroke.
- **All layers**—if this option is off (default), the selection is only applied to the current layer. When selected, the selection applies to all layers in your image.
- **Refine**—click to display the Refine Selection dialog to access advanced selection settings.

Flood Select Tool

The **Flood Select Tool** enables you to select pixels of a similar color.

Pixels added to a selection are determined by the color of the pixel or adjacent pixels under the tool when you click or drag across the page, respectively. The dragging operation controls the selection tolerance, i.e. how much the selection will grow to encompass pixels of similar color values under the cursor.

Settings

The following settings can be adjusted from the context toolbar:

- **Mode**—select from **New**, **Add**, **Subtract**, and **Intersect**.
- **Tolerance**—sets the range of pixels affected when a pixel is clicked. For lower tolerance settings, pixels must be very close in value to the clicked pixel. For higher tolerance settings, pixel color can vary widely from the clicked pixel.
- **Contiguous**—when enabled, only selects a range of pixels within the same area. If disabled, similar pixel ranges will be selected even if they are separated and in different parts of the image.

About selection modes

The four modes available from the context toolbar affect how your selection develops.

- **New**—cancels all current selections and creates a new selection.
- **Add**—adds areas to the current selection. If there is no selection in place, a new selection will be created.
- **Subtract**—removes areas from the current selection.
- **Intersect**—a new selection area is created from the overlap between the newly added selection area and the current selection.

Marquee Selection Tools

The Marquee Selection Tools provide various ways of applying selections to your image.

The Marquee Selection Tools are available in various shapes including **Rectangular**, **Elliptical**, **Column**, and **Row**. All marquees are applied by simply selecting the desired shape and then dragging on your image.

A **Free Hand Selection Tool** is also available for defining the selection area as a drawn pencil line, polygonal straight line edges, or snapped magnetic nodes.

Settings

The settings for each tool vary but may include some or all of the following settings, which can be adjusted from the context toolbar:

- **Mode**—select from **New**, **Add**, **Subtract**, and **Intersect**.
- **Refine**—click to display the Refine Selection dialog to access advanced selection settings.
- **Feather**—reduces the sharpness of selection edges by partially selecting edge pixels.
- **Antialias**—if this option is off (default), pixels at the edge of the selection are opaque. When selected, selection edges are smoothed by applying transparency to edge pixels.
- **Width**—sets the width of the **Column** or **Row** selection tools.

About selection modes

The four modes available from the context toolbar affect how your selection develops.

- **New**—cancels all current selections and creates a new selection.
- **Add**—adds areas to the current selection. If there is no selection in place, a new selection will be created.
- **Subtract**—removes areas from the current selection.
- **Intersect**—a new selection area is created from the overlap between the newly added selection area and the current selection.

Free Hand selection types

The **Free Hand Selection Tool** offers three distinct selection types:

- **Freehand**—creates a selection which follows the cursor's exact movements.

- **Polygonal**—creates a selection based on connected straight lines with a single click defining each change in direction.
- **Magnetic**—creates a selection by creating automatic nodes that snap to distinct edges while following the cursor's movement. Click to define custom node positions.

Modifier keys

When using the Free Hand Selection tool, the following modifier keys can be used to aid in the creation of selections:

- The temporarily switches to **Polygonal** if using **Freehand**.
- The temporarily switches between **Polygonal** and **Magnetic**.
- If using **Polygonal** and **Magnetic**, dragging will temporarily invoke **Freehand**.

Fill tools.

Flood Fill Tool

The **Flood Fill Tool** allows you to fill in areas of your page, selection, or object with a single click.

The Flood Fill Tool works by replacing the color of pixels on the current layer with the Fill color set on the Color panel. The pixels affected are determined by the following:

- The color of the pixel under the tool when you click on your page.
- Whether the pixels are within the same selection area.
- The pixels are directly connected to the clicked pixel or any others that are affected.
- The tool's **Tolerance** settings (see below).

Settings

The following settings can be adjusted from the context toolbar:

- **Tolerance**—sets the range of pixels affected (filled) when a pixel is clicked. For lower tolerance settings, pixels must be very close in value to the clicked pixel. For higher tolerance settings, pixel color can vary widely from the clicked pixel.
- **Contiguous**—if enabled, the flood will only be applied to affected pixels that are in the same area of the image. If disabled, the flood will be applied to all the pixels that match the tolerance setting regardless of where they are in the image.

Gradient

The **Gradient** tool allows you to apply and adjust gradient colors on all layers, including pixel layers, fill layers, adjustment layers, live filter layers, layer masks, as well as vector and text content.

Settings

The following settings can be adjusted from the context toolbar:

- **Type**—converts the gradient's color type. For example, from **Linear** to **Radial**.
- Select, pick, and modify the layer's solid or gradient color—click the color swatch to display a pop-up panel. See the Color panel, Swatches panel, and Gradient editing topics for more information on the settings available.
- **Rotate gradient**—rotates the applied gradient by 90°.
- **Reverse gradient**—the end stops swap places. (All intermediate stops are also repositioned accordingly.)
- **Maintain fill aspect ratio**—if this option is off (default), the end stops can be resized separately which changes aspect ratio. When selected, the end stops are locked to keep the aspect ratio (i.e. changing one will automatically update the other). This setting affects only **Elliptical** and **Bitmap** fills.

Paint tools.

🖌️Paint Brush Tool

The Paint Brush Tool lays down pixels on the page, creating strokes with antialiased edges. This creates a natural transition between the stroke and the surrounding pixels.

Its variable width lines can be controlled either by velocity—most useful when drawing with a mouse—or by pressure—for use when drawing with a pressure-sensitive device.

Other brush-based tools use similar settings to control the appearance of the applied pixels, although there may be slight variations.

Most brushes use a soft, round brush as their default. Alternative styles can be selected from the **Brushes** panel.

With any Brush tool selected in Photo Persona, you can quickly change the opacity of your brush using numerical keys. For more information, see the Painting brush strokes topic.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the pixel brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the pixel brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Blend Mode**—changes how the applied pixels interact with existing pixels on a layer. Select from the pop-up menu.
- **Wet Edges**—builds paint up along the edges of your pixel brush stroke, producing a watercolor effect.

- **Protect Alpha**—when checked, you are not able to paint on the current layer's transparent regions.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Color Replacement Brush Tool

The **Color Replacement Brush Tool** works by replacing the color of pixels on the current layer with the Foreground color selected on the **Color** panel.

The pixels affected by the Color Replacement Brush are determined by the following:

- The color of the pixel under the tool when you click on your page.
- Whether the pixels are within the same selection area.
- The pixels are included in the painted stroke.
- The tool's **Tolerance** settings (see below).

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Tolerance**—sets the range of pixels affected when a pixel is clicked. For lower tolerance settings, pixels must be very close in value to the clicked pixel. For higher tolerance settings, pixel color can vary widely from the clicked pixel.
- **Sample continuously**—if this option is off (default), the initial click position determines the reference color to be replaced. When selected, new reference colors are determined as the cursor moves.
- **Contiguous**—when selected (default), only adjacent qualifying pixels under the stroke are recolored. If this option is off, all qualifying pixels under the stroke are recolored, even if they are non-adjacent.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Pixel

The Pixel Tool draws pixel-aligned, hard-edged lines. This is in contrast to the **Paint Brush Tool** which may have a slight pixel variance due to its antialiasing.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the line thickness in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Blend mode**—changes how the applied pixels interact with existing pixels on a layer. Select from the pop-up menu.
- **Protect Alpha**—when checked, you are not able to paint on the current layer's transparent regions.
- **Alternate**—changes the behavior of the alternate modifier (-Click):
    - **Erase**—erases created pixels.
    - **Background color**—temporarily switches to the background color in the swatch.
    - **Undo from snapshot**—paints-in from a chosen snapshot (see Using snapshots).

You can erase pixel brush strokes while the is pressed.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Paint Mixer Brush

The Paint Mixer Brush is ideal for digitally simulating the mixing of wet paint applied to a canvas. As you drag the Paint Mixer Brush across the page, the color currently on the brush blends with the color on the page, smudging and mixing them together.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Strength**—defines the extent to the smudging. Type directly in the text box or drag the pop-up slider to set the value.
- **Load Brush**—removes the mixed color currently on the brush and replaces it with the Color 1 swatch color set on the Color panel.
- **Auto Load Brush**—when selected, each new stroke will automatically **Load Brush** as described above before pixels are applied to the page.
- **Clean Brush**—removes the mixed color currently on the brush, leaving a brush with no initial color applied to it.
- **Model**—selects a different color model for use with the brush. RYB is a historical subtractive color model based on red, yellow and blue as primary colors.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Erase tools.

🖌️Erase Brush Tool

You can erase from any area of your photo using the **Erase Brush Tool**. Erased pixels become transparent.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. 100% opacity erases pixels completely on the first pass. A lower opacity only partially erases the pixels.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Background Erase Brush Tool

With the **Background Erase Brush Tool**, you can erase pixels of a similar color. This makes it useful for tasks such as erasing the background while leaving the foreground intact.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. 100% opacity erases pixels completely on the first pass. A lower opacity only partially erases the pixels.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Tolerance**—how dissimilar the pixels can be compared to the sampled pixel for the pixels to be erased. A low percentage affects only pixels very similar to the sampled pixel
- **Sample continuously**—if this option is off (default), samples the color only once on the first click. When selected, samples color continuously as you drag.
- **Contiguous**—when selected (default), affects neighboring pixels as well as the sampled pixel color. If this option is off, affects only the selected pixel color.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Flood Erase Tool

The **Flood Erase Tool** enables you to erase pixels of a similar color with a single click.

Flood Erase Tool works by replacing the color of pixels on the current layer with fully transparent pixels. The pixels affected are determined by the following:

- The color of the pixel under the tool when you click on your page.
- Whether the pixels are within the same selection area.
- The pixels are directly connected to the clicked pixel or any others that are affected.
- The tool's **Tolerance** settings (see below).

Settings

The following settings can be adjusted from the context toolbar:

- **Tolerance**—sets the range of pixels affected when a pixel is clicked. For lower tolerance settings, pixels must be very close in value to the clicked pixel. For higher tolerance settings, pixel color can vary widely from the clicked pixel.

Retouch tools.

🔍Dodge Brush Tool

Dodging is a technique used in photography to control exposure and make areas of a photo lighter.

The **Dodge Brush Tool** allows you to precisely lighten areas of your image, and even limit the effect to just shadows, highlights or midtones. The effect is cumulative—the more you paint over an area, the more pronounced the lightening effect will be.

When using this brush you'll get the best results by using a low opacity setting and gradually building up the effect.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Tonal Range**—limits the effect to a specific tonal range. Choose **Shadows**, **Midtones** or **Highlights** from the pop-up menu.
- **Protect Hue**—when selected, the color tone remains faithful to the original hue.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

🔥Burn Brush Tool

Burning is a technique used in photography to control exposure and make areas of a photo darker.

The **Burn Brush Tool** allows you to precisely darken areas of your image, and even limit the effect to just shadows, highlights or midtones. The effect is cumulative—the more you paint over an area, the more pronounced the darkening effect will be.

When using this brush you'll get the best results by using a low opacity setting and gradually building up the effect.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Tonal Range**—limits the effect to a specific tonal range. Choose **Shadows**, **Midtones** or **Highlights** from the pop-up menu.
- **Protect Hue**—when selected, the color tone remains faithful to the original hue.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Sponge Brush Tool

The **Sponge Brush Tool** can be used to selectively saturate or desaturate areas within an image.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Saturate**—when selected, brush strokes increase the saturation of the existing pixels.
- **Desaturate**—when selected, brush strokes decrease the saturation of the existing pixels.
- **Vibrance**—when selected, brush strokes adjust the intensity of subtle colored pixels, while minimizing clipping of highly saturated colored pixels.
- **HSL Saturation**—when selected, adjusts the color intensity of all pixels.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Clone Brush Tool

The **Clone Brush Tool** paints samples from one part of an image onto another. It's useful for removing defects, general photo retouching and duplicating parts of an image. Like all brush tools, it is pressure sensitive to create natural looking strokes when using a pressure-sensitive device.

The **Clone Brush Tool** can clone from other images (called Global Sources) using the Sources panel.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Blend mode**—changes how the applied pixels interact with existing pixels on a layer. Choose mode type from a pop-up menu.
- **Aligned**—when selected (default), the origin of the sample remains a fixed distance from the pointer. If this option is off, the origin of the sample always returns to the sample location defined initially.
- Source—the source determines the layer(s) from which the pixels are sampled from. Select from the pop-up menu.
- **Add Global Source**—sets the currently defined sample origin as a global source for use in other images. Remember to select a source using -click first.
- **Rotation**—sets the degree of rotation applied to the sample. The result can be previewed inside the brush cursor. Type directly in the text box or drag the pop-up slider to set the value.
- **Scale**—sets the scale of the sample between 1% and 1000%. Type directly in the text box or drag the pop-up slider to set the value. The result can be previewed inside the brush cursor.

- **Flip**—allows for horizontal and vertical flipping of the resulting clone relative to the sampled area. Choose horizontal, vertical or both directions from a pop-up menu.

The **Rotation** setting can be adjusted using the left and right arrow keys. The **Scale** setting can be adjusted using the up and down arrow keys.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Undo Brush Tool

The **Undo Brush Tool** can be used to selectively undo modifications to individual pixels, restoring them to a previous history state or a saved snapshot.

After setting a brush source, you can blend the image's current state back to a previous state, like painting backwards in time.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Blend Mode**—changes how the applied pixels interact with existing pixels on a layer. Select from the pop-up menu.
- **Blend**—when selected (default), pixels which do not overlap those in the selected history or snapshot state are unaffected, allowing the blending of the current document state with the selected, previous state. If this option is off, all pixels are returned to the previous state when painted.
- **Protect Alpha**—When checked, you won't be able to paint on the current layer if it has transparent regions.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

To paint from history or a saved snapshot:

1. Display the History or Snapshot panel.

2. Click the **Undo Brush Source** camera icon on the history state or snapshot you want to paint back to.
3. Begin painting with the Undo Brush Tool.

💧Blur Brush Tool

You can use the **Blur Brush Tool** to blur hard edges within an image. The effect is cumulative so the more you paint over an area, the more pronounced the blur effect will be. The blur is only applied to pixels on the currently selected layer.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Sharpen Brush Tool

Sharpening increases the contrast of neighboring pixels. The **Sharpen Brush Tool** gives you full control over the areas that are sharpened and has a cumulative affect. You can easily apply clarity and unsharp mask sharpening selectively with a few strokes of a brush!

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Mode**—determines the sharpening effect to be applied. Select from the pop-up menu.

About the sharpening modes

The three modes available from the context toolbar have slightly different effects on the underlying pixels.

- **Clarity**—increases local contrast.
- **Unsharp Mask**—increases contrast of edge pixels.
- **Harsh**—increases contrast on all pixels.

When using this brush you'll get the best results by using either low opacity or flow settings and then gradually building up the effect.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Median Brush Tool

The **Median Brush Tool** can be used to selectively reduce noise by blending pixels under the stroke.

As with all brush tools, you can create natural looking strokes when using a pressure-sensitive device.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Smudge Brush Tool

The **Smudge Brush Tool** allows you to drag color around an image, similar to dragging a brush or finger through wet paint. It can be used to blend colors and create interesting brush effects.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Strength**—defines the extent to the smudging. Type directly in the text box or drag the pop-up slider to set the value.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Healing Brush Tool

The **Healing Brush Tool** enables you to repair and retouch unsightly areas of an image.

The **Healing Brush Tool** can clone from other images (called Global Sources) using the Sources panel.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.
- **Aligned**—when selected (default), the origin of the sample remains a fixed distance from the pointer. If this option is off, the origin of the sample always returns to the sample location defined initially.
- Source—the source determines the layer(s) from which the pixels are sampled from. Select from the pop-up menu..
- **Add Global Source**—sets the currently defined sample origin as a global source for use in other images. Remember to select a source using -click first.
- **Rotation**—sets the degree of rotation applied to the sample. The result can be previewed inside the brush cursor. Type directly in the text box or drag the pop-up slider to set the value.
- **Scale**—sets the scale of the sample between 1% and 1000%. Type directly in the text box or drag the pop-up slider to set the value. The result can be previewed inside the brush cursor.
- **Flip**—allows for horizontal and vertical flipping of the resulting healing area relative to the sampled area. Choose horizontal, vertical or both directions from a pop-up menu.

The **Rotation** setting can be adjusted using the left and right arrow keys. The **Scale** setting can be adjusted using the up and down arrow keys.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Patch Tool

The **Patch Tool** allows you to repair a more extensive area of an image by selecting pixels and replacing them from another target area of your current or other document.

Settings

The following settings can be adjusted from the context toolbar:

- Mode—select from **New**, **Add**, **Subtract**, and **Intersect**.
- **Selection is source**—if this option is off (default), the selection is the target area where pixels will be replaced. When selected, the selection is the source area from where pixels will be copied.
- **Texture Only**—if this option is off (default), hue information from the source area is preserved and the target area's hue will update accordingly. When selected, hue information from the source area is disregarded and the target area's hue will remain unchanged.
- **Transparent**—if this option is off (default), the source area is placed on the target area as fully opaque. When selected, the source area is placed one the target area with varying transparency depending on the color value of individual pixels.
- Source—the source determines the layer(s) from which the pixels are sampled from. Select from the pop-up menu. The 'Global' option enables patching using pixels previously sampled in another document (raster layer only).
- **Set Global Source**—sets the currently defined sample origin as a global source for use in other images.
- **Rotation**—sets the degree of rotation applied to the sample. The result can be previewed inside the selection. Type directly in the text box or drag the pop-up slider to set the value.
- **Scale**—sets the scale of the sample between 1% and 1000%. Type directly in the text box or drag the pop-up slider to set the value. The result can be previewed inside the selection.

About selection modes

The four modes available from the context toolbar affect how your selection develops.

- **New**—cancels all current selections and creates a new selection.
- **Add**—adds areas to the current selection. If there is no selection in place, a new selection will be created.
- **Subtract**—removes areas from the current selection.

- **Intersect**—a new selection area is created from the overlap between the newly added selection area and the current selection.

🩹Blemish Removal Tool

The **Blemish Removal Tool** enables you to remove small imperfections from images with a single click.

You can save presets of the applied blemish fixes, which can be useful for reapplying saved fixes to other images, e.g. when correcting images where the camera had dust on its sensor.

The tool is available in both Photo Persona and Develop Persona.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the area size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Save Preset**—saves the current blemish fixes to a preset for later application.
- **Blemishes**—Displays the blemish preset(s) saved with Save Preset.
- **Load Preset**—Loads the currently selected blemish set in the Blemishes pop-up menu.

Inpainting Brush Tool

The **Inpainting Brush Tool** restores damaged, lost, deteriorated or unwanted areas of an image.

Settings

The following settings can be adjusted from the context toolbar:

- **Width**—the brush (stroke) size in pixels. Type directly in the text box or drag the pop-up slider to set the value.
- **Opacity**—how see through the brush is. Type directly in the text box or drag the pop-up slider to set the value.
- **Flow**—how fast the brush effect is applied (1% is very slow, 100% is immediate). Type directly in the text box or drag the pop-up slider to set the value.
- **Hardness**—how hard the edges of the brush are. The brush appears softer as the percentage decreases. Type directly in the text box or drag the pop-up slider to set the value.
- **More**—click to display the Brushes dialog to access advanced brush settings.
- **Force pressure to control size**—Click to control brush size with pressure if using a pressure-sensitive device. This overrides brush defaults.

This Brush Tool can be associated with a particular brush in the **Brushes** panel. For more information, see the Modifying brushes topic.

Red Eye Removal Tool

The **Red Eye Removal Tool** quickly fixes the red eye effect in your photos and preserves the detail of the eye.

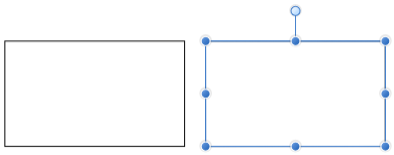
Settings

This tool has no customizable settings.

Vector shape tools.

Rectangle Tool

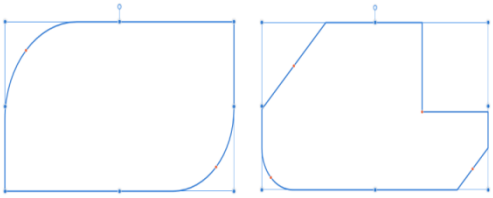
Rectangles are commonly used when drawing and are arguably one of the most used shapes in artwork and design. The **Rectangle Tool** makes it extremely quick and easy to draw rectangles and squares.



Default shape before customization.

Customization

The context toolbar's **Single radius** option can be used to allow one of several corner types to be applied selectively to any corner. Once applied, the displayed red handle can be dragged to control the corner radius.



Two possible outcomes when the options are customized—selective rounded and mixed corner shapes.

Settings

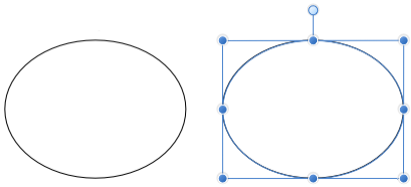
The following settings can be adjusted from the context toolbar:

- **Single radius**—when selected (default), allows you to modify all four corners simultaneously by setting one radius. If this option is off, you can set each corner radius individually and change corner type.
- **Absolute sizes**—by default, the corner radius is specified as a percentage of the object and scales as the object is resized. When selected, this option allows you to specify the corner radius in units. If the object is resized, the corner radius remains the same instead of scaling with the object.
- **Corner**—sets the style and radius of the rectangle's corners. You can choose a Rounded (fillet), Straight (chamfer), Concave (scallop) or Cutout option.

- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Ellipse Tool

An ellipse is a useful object and one that is virtually impossible to create freehand. The **Ellipse Tool** takes the hassle out of creating circles and ellipses.



Default shape before customization.

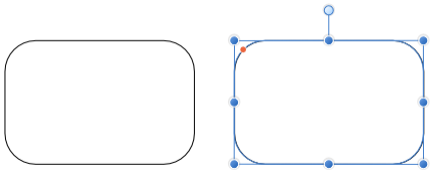
Settings

The following settings can be adjusted from the context toolbar:

- **Convert to Doughnut**—Swaps the ellipse for a doughnut shape.
- **Convert to Pie**—Swaps the ellipse for a pie shape.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Rounded Rectangle Tool

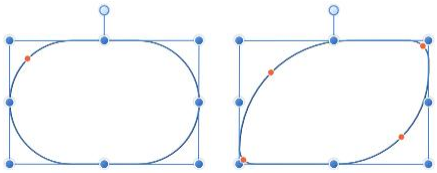
The Rounded Rectangle Tool provides an easy way to create rectangles with rounded corners.



Default shape and handle position (in red) before customization.

Customization

The Rounded Rectangle Tool has several options on the shape and on the context toolbar to enable the radius of the corners to be controlled.



Two possible outcomes when the options are customized.

Settings

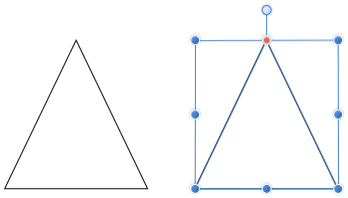
The following settings can be adjusted from the context toolbar:

- **Single radius**—when selected (default), allows you to modify all four corners simultaneously by setting one radius. If this option is off, you can set each corner radius individually and change corner type.
- **Absolute sizes**—by default, the corner radius is specified as a percentage of the object and scales as the object is resized. When selected, this option allows you to specify the corner radius in units. If the object is resized, the corner radius remains the same instead of scaling with the object.
- **Corner**—sets the style and radius of the rectangle's corners. You can choose a Rounded (fillet), Straight (chamfer), Concave (scallop) or Cutout option.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.

- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Triangle Tool

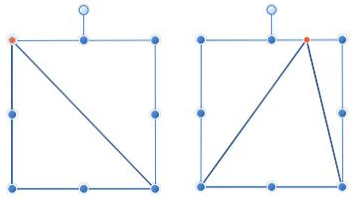
Create all types of triangles including true isosceles and right-angle triangles easily with the Triangle Tool.



Default shape and handle position (in red) before customization.

Customization

The Triangle Tool offers a handle on the shape and options on the context toolbar to enable the triangle to be modified.



Two possible outcomes when the option is customized.

Settings

The following settings can be adjusted from the context toolbar:

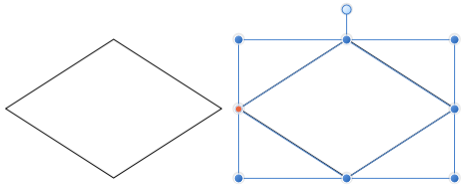
- **Top point**—controls the position of the top point of the triangle from left (0%) to right (100%), with 50% representing a central point.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Isosceles, Right-Angled and Equilateral triangles

- To create an isosceles triangle, set the top point to 50%.
- To create a right-angled triangle, set the top point to either 0% or 100%.
- To create a true equilateral triangle (where all three sides are the same length), use the **Polygon Tool**. Ensure that you constrain the shape with the as you draw, and then set the number of sides to 3 on the context toolbar.

🔷Diamond Tool

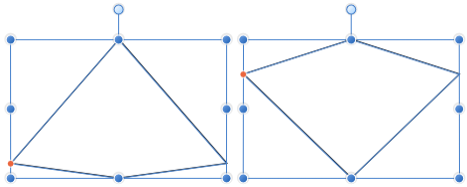
Easily create diamonds, rhombuses and kites with the **Diamond** Tool.



Default shape and handle position (in red) before customization.

Customization

The Diamond Tool has the option on the shape and on the context toolbar to change the height of the midpoint to create a kite shape.



Two possible outcomes when the option is customized.

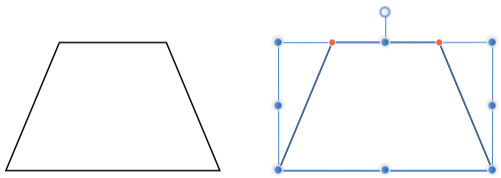
Settings

The following settings can be adjusted from the context toolbar:

- **Mid point**—controls the position of the mid points of the sides of the shape from bottom (0%) to top (100%), with 50% representing a central point.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Trapezoid Tool

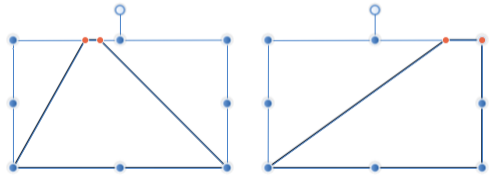
Easily create trapezoids with the **Trapezoid** Tool.



Default shape and handle position (in red) before customization.

Customization

The Trapezoid Tool has options on the shape and on the context toolbar to change the position of the top corners. This sets the length of the top edge (base) and the angles of the lateral sides (legs).



Two possible outcomes when the options are customized.

Settings

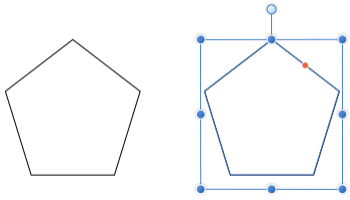
The following settings can be adjusted from the context toolbar:

- **Left/Right point**—controls the position of the top-left/right corner of the trapezoid from left (0%) to right (100%), with 50% representing a central point.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

The left point cannot be positioned further to the right than the current position of the right point, and vice versa.

Polygon Tool

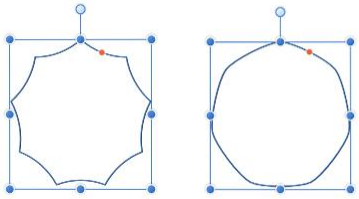
The Polygon Tool enables you to create useful multi-sided geometric shapes.



Default shape and handle position (in red) before customization.

Customization

The Polygon Tool has several options on the shape and on the context toolbar to enable the number of sides, and the side curvature to be controlled.



Two possible outcomes when the options are customized.

Settings

The following settings can be adjusted from the context toolbar:

- **Sides**—sets the number of sides (and angles) of the polygon.
- **Curve**—sets the convex or concave nature of the sides of the polygon. The percentage curve available is determined by the number of sides. For straight sides, set to 0%.
- **Smooth points**—applies smoothing to the points of the polygon, resulting in the appearance of a continuous curve. This only applies when the curve of sides is greater than 0%.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.

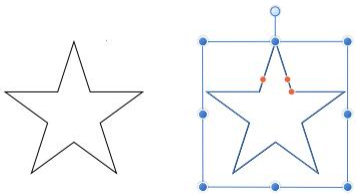
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Equilateral triangles

To create a true equilateral triangle (where all three sides are the same length), use the **Polygon** Tool. Ensure that you constrain the shape with the as you draw, and then set the number of sides to 3 on the context toolbar.

★Star Tool

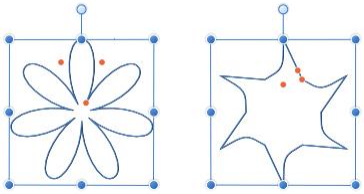
The **Star Tool** enables you to create all sorts of stars quickly and easily. The added controls even makes it possible to add curved sides to create alternative shapes.



Default shape and handle position (in red) before customization.

Customization

The Star Tool has several options on the shape and on the context toolbar to enable the number of points, the inner radius (length of points) and the curvature of the left and right sides of the points to be controlled.



Two possible outcomes when the options are customized.

Settings

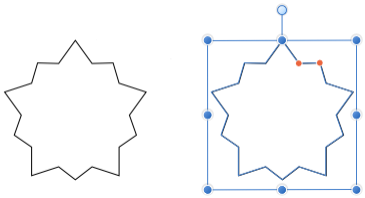
The following settings can be adjusted from the context toolbar:

- **Curved edges**—when checked, the sides of the star's points can be curved using the **Left/Right curve** settings.
- **Points**—sets the number of protrusions on the shape.
- **Inner radius**—controls the length of the points relative to the center of the star.
- **Outer circle/Inner circle**—sets the roundness at the point's tips or inner vertices.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.

- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Double Star Tool

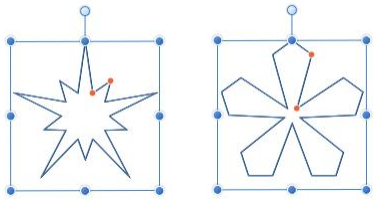
The **Double Star Tool** enables you to create all sorts of stars quickly and easily. The Double Star Tool can have different values for its primary and secondary points to create a unique appearance.



Default shape and handle position (in red) before customization.

Customization

The Double Star Tool has several options on the shape and on the context toolbar to enable the number of (primary) points and the inner radius (length of points) of the primary and secondary points to be controlled.



Two possible outcomes when the options are customized.

Settings

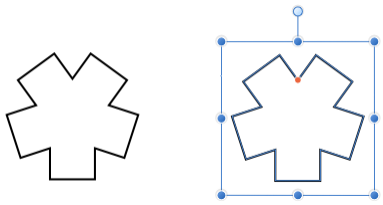
The following settings can be adjusted from the context toolbar:

- **Points**—sets the number of primary points of the star.
- **Inner radius**—controls the length of the points relative to the center of the star.
- **Point radius**—controls the length of the secondary points relative to the center of the star.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.

- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Square Star Tool

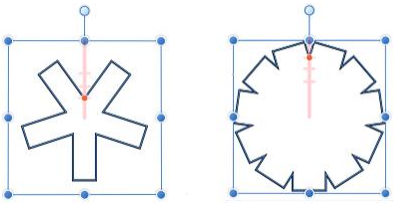
The **Square Star Tool** enables you to create all shapes from crosses to sunbursts quickly and easily.



Default shape and handle position (in red) before customization.

Customization

The Square Star Tool has several options on the shape and on the context toolbar to enable the number of sides and the cutout to be controlled.



Two possible outcomes when the options are customized.

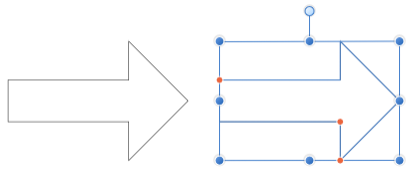
Settings

The following settings can be adjusted from the context toolbar:

- **Sides**—sets the number of squared points on the shape.
- **Cutout**—controls the width of all squared points by cutting out the region between the shape's bounding box and the red shape handle.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

↔Arrow Tool

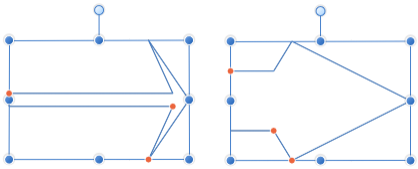
The **Arrow Tool** makes it easy to quickly add arrows to your design.



Default shape and handle position (in red) before customization.

Customization

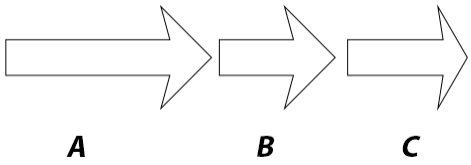
The arrow has several options on the shape and on the context toolbar to enable the body thickness and the shape and size of the arrow head to be controlled.



Two possible outcomes when the options are customized.

Fixed head proportions option

When **Fixed head proportions** is selected, if the shape is resized horizontally, the arrow head retains its proportions and the body shrinks or stretches.



This example shows what happens when you resize an arrow (A) with (B), and without (C), **Fixed head proportions** selected.

Settings

The following settings can be adjusted from the context toolbar:

- **Thickness**—controls the height of the arrow body.
- **Ends**—sets the 'head' style on either end of the arrow.
- **Proportional**—when selected (default), the head proportions remain fixed when the arrow is resized. If this option is off, the head resizes with the design.

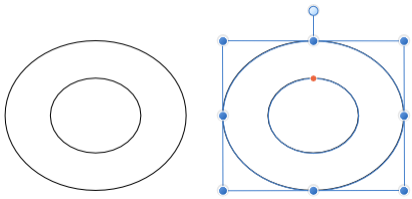
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Context toolbar options update depending on the **Ends** style selected (see above). Settings may include the following:

- **Length**—controls the length of the arrow head/tail.
- A control for the depth and shape of the end style.
- **Size**—controls the horizontal width of the arrow tail. (When Proportional is set, 100% represents a perfect circle, square or diamond.)

Donut Tool

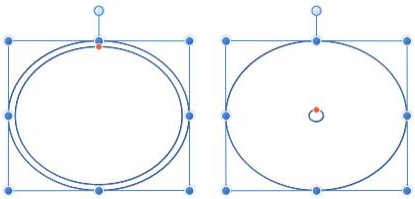
The **Donut Tool** easily creates an ellipse shape with a hole cut out of the center.



Default shape and handle position (in red) before customization.

Customization

The Donut Tool has the option on the shape and on the context toolbar to control the size of the hole and completion of the circle.



Two possible outcomes when the option is customized.

Settings

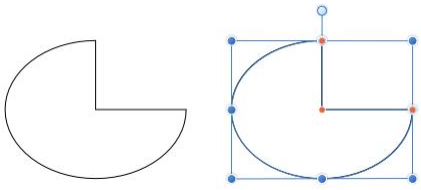
The following settings can be adjusted from the context toolbar:

- **Hole radius**—controls the width of the hole at the shape's center.
- **Start/End angle**—sets the position of the start/end points relative to 360°. The greater the difference in the angles, the larger the portion of pie.
- **Total angle**—sets the position of the total angle relative to the start angle.
- **Invert angles**—switches the Start and End angle values. This converts acute shapes to obtuse (and vice versa) and flips the shape horizontally and/or vertically.
- **Close Pie**—if the circle is incomplete, closes the shape to create a full circle.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.

- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Pie Tool

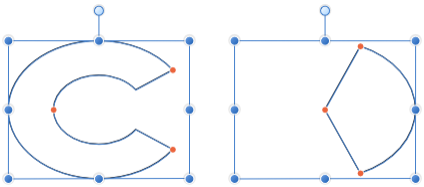
The **Pie Tool** makes it easy to create pie shapes, pie segments and donuts with segments removed. As the segments are geometrically correct, it's easy to create shapes with the exact angle you need for charts and other uses.



Default shape and handle position (in red) before customization.

Customization

The Pie has several options on the shape and on the context toolbar to enable the start and end angle and the size of the donut hole to be controlled.



Two possible outcomes when the options are customized.

Settings

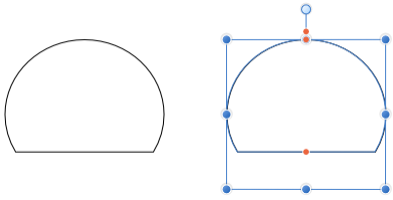
The following settings can be adjusted from the context toolbar:

- **Hole radius**—controls the width of the hole at the shape's center.
- **Start/End angle**—sets the position of the start/end points relative to 360°. The greater the difference in the angles, the larger the portion of pie.
- **Total angle**—sets the position of the total angle relative to the start angle.
- **Invert angles**—switches the Start and End angle values. This converts acute shapes to obtuse (and vice versa) and flips the shape horizontally and/or vertically.
- **Close Pie**—if the circle is incomplete, closes the shape to create a full circle.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.

- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Segment Tool

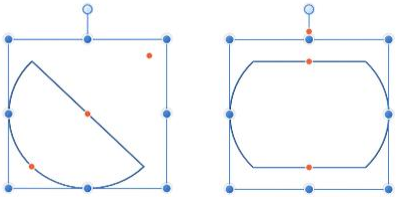
The **Segment Tool** makes it easy to create an ellipse with a percentage removed as a section.



Default shape and handle position (in red) before customization.

Customization

The Segment Tool has several options on the shape and on the context toolbar to enable the percentage removed from the upper and lower section of the ellipse, and the angle of the ellipse to be controlled.

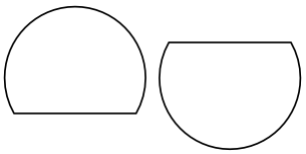


Two possible outcomes when the options are customized.

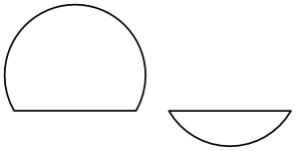
Settings

The following settings can be adjusted from the context toolbar:

- **Angle**—sets the shape's starting angle.
- **Lower/Upper line**—controls the position of the shape's two straight lines. This determines the thickness of the segment.
- **Mirror**—updates the above settings to give a reversed (flipped) version of the current shape.



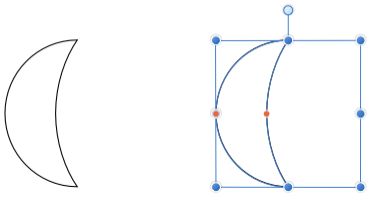
- **Negate**—updates the above settings to give the inverse (opposite) of the current shape.



- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Crescent Tool

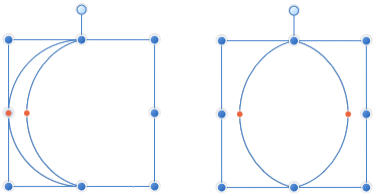
The **Crescent Tool** can be used to create crescent shapes from the thinnest 'New Moon' shape, to a full ellipse.



Default shape and handle position (in red) before customization.

Customization

The Crescent Tool has two options on the shape and on the context toolbar to enable the amount of curve on the left and right side of the shape to be controlled.

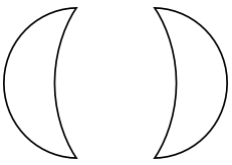


Two possible outcomes when the options are customized.

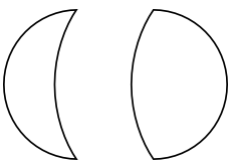
Settings

The following settings can be adjusted from the context toolbar:

- **Left/Right curve**—controls the curve of the left/right side of the shape. Negative values move the curve to the left, positive values move the curve to the right.
- **Mirror**—updates the above settings to give a reversed (flipped) version of the current shape.



- **Negate**—updates the above settings to give the inverse (opposite) of the current shape.

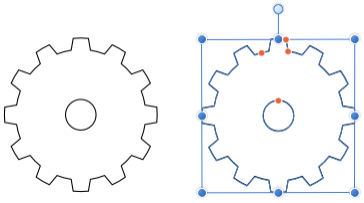


- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.

- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Cog Tool

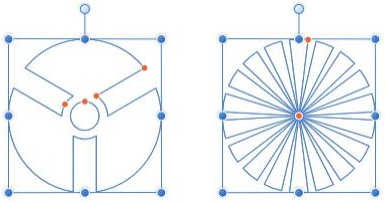
The **Cog Tool** is possibly one of the most versatile shape tools in the shape toolset. It's geometrically accurate and has a wide range of customizable control points to allow you to create a wide range of useful shapes, from cogs to sunbursts!



Default shape and handle position (in red) before customization.

Customization

The Cog Tool has several options on the shape and on the context toolbar to enable the number of teeth, tooth and notch size, and inner radius and hole size to be controlled.



Two possible outcomes when the options are customized.

Settings

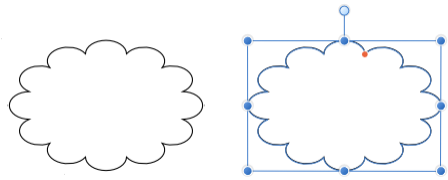
The following settings can be adjusted from the context toolbar:

- **Teeth**—sets the number of protrusions on the shape.
- **Inner radius**—controls the width of cog's teeth relative to the width of the shape.
- **Hole radius**—controls the width of the hole at the shape's center.
- **Tooth size**—controls the width of the upper end of the cog's teeth.
- **Notch size**—controls the width of the lower end of the cog's teeth.
- **Curvature**—adds a curved edge to cog teeth.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.

- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Cloud Tool

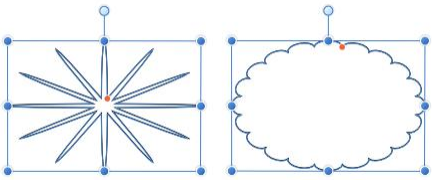
The **Cloud Tool** makes it easy to add clouds to your designs.



Default shape and handle position (in red) before customization.

Customization

The Cloud Tool has several options on the shape and on the context toolbar to enable the number of bubbles and the radius of the bubbles to be controlled.



Two possible outcomes when the options are customized.

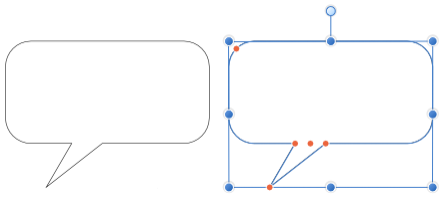
Settings

The following settings can be adjusted from the context toolbar:

- **Bubbles**—sets the number of protrusions on the shape.
- **Inner radius**—controls the length of the bubbles relative to the width of the shape.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

💬Callout: Rounded Rectangle Tool

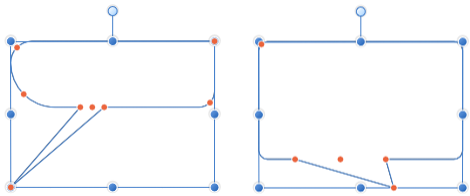
The Rounded Rectangle Callout Tool provides a quick way of creating a callout or speech bubble in your design.



Default shape and handle position (in red) before customization.

Customization

The Rounded Rectangle Callout Tool has several options on the shape and on the context toolbar to enable the size, shape and position of the tail, the radius of the corners (including the ability to edit each corner separately) and the depth of the callout rectangle to be controlled.



Two possible outcomes when the options are customized.

Settings

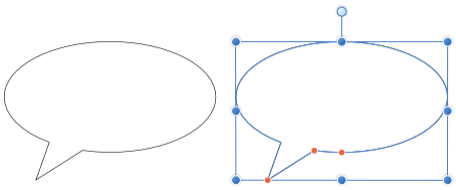
The following settings can be adjusted from the context toolbar:

- **Single radius**—when selected (default), allows you to modify all four corners simultaneously by setting one radius. If this option is off, you can set each corner radius individually.
- **Absolute sizes**—by default, the corner radius is specified as a percentage of the object and scales as the object is resized. When selected, this option allows you to specify the corner radius in units. If the object is resized, the corner radius remains the same instead of scaling with the object.
- **Radius**—sets the radius of the rectangle's rounded corners.
- **Tail height**—controls the height of the shape's protrusion relative to the height of the shape.
- **Tail end position**—controls the position of the point of the protrusion from left (0%) to right (100%), with 50% representing a central point.
- **Tail position**—controls the position of the protrusion along the base of the shape from left (0%) to right (100%), with 50% representing a central point.

- **Tail width**—controls the width of the protrusion along the base of the shape.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

💬Callout: Ellipse Tool

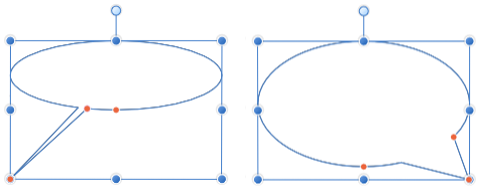
Create traditional looking callouts and speech bubbles with the Callout Ellipse Tool.



Default shape and handle position (in red) before customization.

Customization

The Ellipse Callout Tool has several options on the shape and on the context toolbar to enable the size, shape and position of the tail, and the depth of the callout ellipse to be controlled.



Two possible outcomes when the options are customized.

Settings

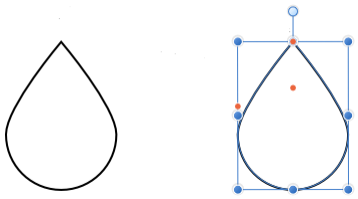
The following settings can be adjusted from the context toolbar:

- **Absolute sizes**—by default, the tail height and end position are specified as a percentage of the object and scales as the object is resized. When selected, this option allows you to specify these attributes in units. If the object is resized, the tail height and end position remain the same instead of scaling with the object.
- **Tail height**—controls the height of the shape's protrusion relative to the height of the shape.
- **Tail end position**—controls the position of the point of the protrusion from left (0%) to right (100%), with 50% representing a central point.
- **Tail angle**—controls the width and position of the protrusion along the base of the shape.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.

- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Tear

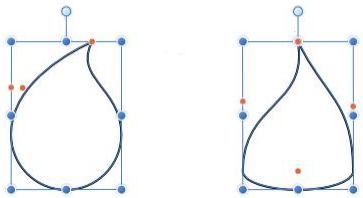
The **Tear** Tool enables you to create many types of tear or droplet shapes quickly and easily.



Default shape and handle position (in red) before customization.

Customization

The Tear Tool has several options on the shape and on the context toolbar to enable the ball size, curve, tail position and bend to be controlled.



Two possible outcomes when the options are customized.

Settings

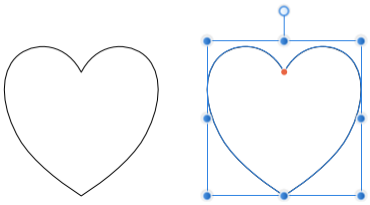
The following settings can be adjusted from the context toolbar:

- **Fixed ball size**—by default, the elliptical end of the shape scales as the object is resized. When selected, a new option allows you to specify a fixed size.
    - **Ball size**—controls the curvature of the elliptical end of the shape. A value of 0% gives the shape a completely flat base.
- **Curve**—controls the curvature of the edges which connect the elliptical end of the shape to the point.
- **Tail position**—controls the position of the point of the shape from left (0%) to right (100%), with 50% representing a central point.
- **Bend**—controls additional edge curvature (see **Curve** above). Positive values curve both edges to the right (with the left edge affected more), negative values curve both edges to the left (with the right edge affected more).
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.

- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

💙Heart Tool

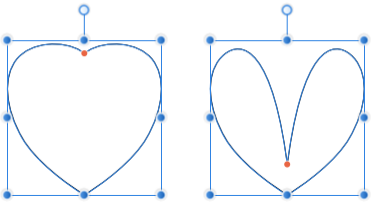
Create heart shapes with variable lobes with the Heart Tool.



Default shape and handle position (in red) before customization.

Customization

The Heart Tool has the option on the shape and on the context toolbar to enable the height of the lobes to be controlled.



Two possible outcomes when the option is customized.

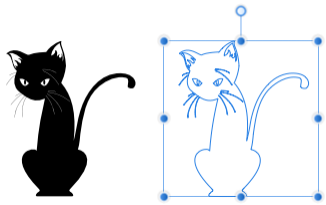
Settings

The following settings can be adjusted from the context toolbar:

- **Spread**—controls the height of the heart's lobes.
- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Cat

Cats are cool. Everyone loves cats, especially the guys here on the Affinity team! So if you need a cat to add to your images, the Affinity **Cat** comes to the rescue!



Customization

The Affinity Cat shape can't be customized, well, not unless you convert him to curves first. We think he's cool enough.

Activating the Cat shape tool

To use the Cat shape tool, you must hold the as you open the Shapes flyout. Affinity Cat will be available in the list.

Settings

The following settings can be adjusted from the context toolbar:

- **Show Rotation Center**—displays a movable rotation center about which the shape can be rotated.
- **Hide Selection**—when selected, the object's selection box is temporarily hidden when transforming the object. If this option is off, the selection box remains visible during transformation. The selected behavior persists across all objects unless it is manually switched.
- **Reset Selection Box**—after reshaping, rotating, or shearing the shape, this option resets the selection box to vertical.
- **Convert to Curves**—converts the selected object into a series of connected lines and nodes.

Text tools.

Artistic Text Tool

The **Artistic Text Tool** allows you to add artistic text to your design.

Artistic text, as the name suggestions, is best suited to decorative or artistic typographical design.

Settings

The following settings can be adjusted from the context toolbar:

- **Font**—sets the font of the text. Select from the pop-up menu.
- Set text size—type directly in the text box or drag the pop-up slider to set the value.
- Set text format—click to display a pop-up menu with optional formats for the selected font, or select **Bold**, **Italic**, and/or **Underline**.
- **Character Style**—applies a character style to the selected text. Select from the pop-up menu.
- **Paragraph Style**—applies a paragraph style to the selected text or to the paragraph in which the caret currently resides. Select from the pop-up menu.
- Set paragraph alignment—select from **Left Align**, **Center Align**, **Right Align**, or **Justified** (with additional pop-up menu options).
- Set leading (distance between text baselines)—type directly in the text box or select from the pop-up menu.
- **Character**—provides access to the Character panel for advanced text settings.
- **Paragraph**—provides access to the Paragraph panel for advanced paragraph settings.

When setting the Leading, specifying a unit of measurement (i.e. mm or inches) will set an **Exact** distance, while specifying a percentage will set a **% Height** based on the text's font size.

Frame Text Tool

The **Frame Text Tool** allows you to add a text frame which acts as a container for paragraph text.

Frame text is best suited to working with text which will be presented in paragraphs with a formalized structure and layout. If you want to present text in columns, frame text is the ideal solution.

Settings

The following settings can be adjusted from the context toolbar:

- **Font**—sets the font of the text. Select from the pop-up menu.
- Set text size—type directly in the text box or drag the pop-up slider to set the value.
- Set text format—click to display a pop-up menu with optional formats for the selected font, or select **Bold**, **Italic**, and/or **Underline**.
- **Character Style**—applies a character style to the selected text. Select from the pop-up menu.
- **Paragraph Style**—applies a paragraph style to the selected text or to the paragraph in which the caret currently resides. Select from the pop-up menu.
- Set paragraph alignment—select from **Left Align**, **Center Align**, **Right Align**, or **Justified** (with additional pop-up menu options).
- Set leading (distance between text baselines)—type directly in the text box or select from the pop-up menu.
- **Character**—provides access to the Character dialog for advanced text settings.
- **Paragraph**—provides access to the Paragraph dialog for advanced paragraph settings.

When setting the Leading, specifying a unit of measurement (i.e. mm or inches) will set an **Exact** distance, while specifying a percentage will set a **% Height** based on the text's font size.

Warp tools.

Mesh Warp Tool

The **Mesh Warp Tool** allows you to distort an image (or portion of an image) using a highly customizable grid comprising of nodes and lines.

Settings

The following settings can be adjusted from the context toolbar:

- **Apply**—accepts the current warp applied to the image and exits the warp operation.
- Choose between **Destination** and **Source** mode from the pop-up menu. **Source mode** allows you to set default mesh points that can then be restored with **Synchronize**.
- **Synchronize**—restores the original, unwarped image while maintaining any adjusted mesh grid.
- **Reset**—restores the grid to a uniform rectangular shape. Nodes which have been added are distributed evenly across the grid.
- **Hide Mesh**—hides/shows the grid. The warp mesh can still be adjusted when hidden (indicated by the cursor change).
- **Resampling**—select which resampling method (see note below) to use for the warped image.
- **Convert**—switches the selected node to **Sharp** or **Smooth**.

Resampling methods

The following resample settings are available:

- **Bilinear**—algorithmic resampling for use when compressing images.
- **Nearest Neighbor**—simple resampling which has the fastest processing time. Use for hard-edge images.
- **Bicubic**—algorithmic resampling for use when enlarging images. Bicubic resampling is sharper than Bilinear resampling but has a slower processing time.

Perspective Tool

The **Perspective Tool** allows you to modify the perspective of your image. It has full History support, meaning each modification (such as handle dragging and option toggling) can be undone.

Using the Perspective Tool to alter the appearance of a building/structure.

Settings

The settings can be adjusted from the pop-up dialog after selecting the tool:

- **Planes**—set the number of planes on which perspective can be applied. Select from the pop-up menu.
- **Mode**—set the mode in which the grid will operate. 'Destination' automatically applies perspective to the whole image as you adjust the grid. 'Source' lets you size, position and shape the grid without affecting the image; you can then apply perspective to the image by jumping back to the 'Destination' option and dragging handles.

- **Show Grid**—when selected (default), a grid displays over your image to allow you to adjust the perspective with precision. If this option is off, only the boundaries of the perspective area is displayed.
- **Autoclip**—(Available in Dual Plane mode) Specifies whether or not to alter the image beyond the boundaries of the perspective grid points. If disabled, the image will look continuous; if enabled, the image will have visible seams where the perspective tool has been applied that can then be retouched.
- **Before/After**—if this option is off (default), your page displays your image with the current perspective applied. When selected, your page displays the adjusted and original images simultaneously with a sliding divider which can be repositioned and shows 'Before' and 'After'.

Liquify Tools

The Liquify tools can be used in isolation or combination to allow you to warp an image as appropriate.

The Liquify tools available include:

 **Push Forward Tool**

Shifts pixels in the direction of the stroke.

 **Push Left Tool***

Shifts pixels 90° to the left of the stroke direction. This spreads and compresses edges along the stroke.

 **Twirl Tool***

Applies a clockwise rotational distortion under the stroke (centered around the middle of the tool cursor). If the tool is used in one area multiple times, the strength of the distortion increases.

 **Pinch Tool***

Applies a concave spherical distortion under the stroke. If the tool is used in one area multiple times, the strength of the distortion increases.

 **Turbulence Tool**

Applies a crumbling distortion under the stroke which compacts some mesh lines together while expanding others. If the tool is used in one area multiple times, the strength of the distortion increases.

 **Mesh Clone Tool**

Paints samples from one part of the mesh onto another. Ideal for applying previously set mesh adjustments to another area of the image. (-click sets the sample area.)

 **Reconstruct Tool**

Reduces the warp effect applied to an image using the above tools. If the tool is used in one area multiple times, the strength of the underlying effect decreases. With the appropriate number of applications, the area will return to its original, unwarped state.

Freeze Tool

Protects areas of the image from any warp effects by applying a mask.

Thaw Tool

Allows areas of the image to be warped by removing the current mask.

Modifier s

When using the above tools the following modifier s can be used:

- You can quickly decrease or increase the brush width using the [or] s, respectively.
- The reduces the rate at which the warp effect is applied.
- For tools marked with an asterisk (*), the switches modes to achieve the opposite warp effect.

Settings

Tool settings can be adjusted using the Brush panel.

Raw Tools

The Raw tools allow you to make and modify adjustments applied to an image in Develop Persona.

The Raw tools available include:

View Tool

Used to move the visible portion of your document in the Document view.

Zoom Tool

Used to change the zoom level of your page or canvas in the Document view.

Red Eye Removal Tool

Quickly fixes the red eye effect in your photos and preserves the detail of the eye.

Blemish Removal Tool

Enables you to remove small imperfectionsremove small imperfections from images.

Overlay Paint Tool

Allows you to add areas to the selected overlay adjustment.

Overlay Erase Tool

Allows you to remove areas of the selected overlay adjustment.

Overlay Gradient Tool

Allows you to apply linear, elliptical, or radial graduated opacity to the selected overlay adjustment.

Crop Tool

Removes areas of an image to improve composition.

White Balance Tool

Automatically sets the White Balance of the image depending on the color of the pixel clicked under the tool's cursor or pixels selected by dragging (averaged color).

Export tools.

 Slice Tool

The **Slice Tool** allows you to create and edit export areas so you can select portions of your page to be exported as individual raster images.

Available in Export Persona only.

32-bit Preview panel

The 32-bit Preview panel provides configurable exposure and gamma controls to preview the vast tonal range of a 32-bit document without tonally modifying it. This is especially useful for floating point lossless workflows (e.g., 3D rendering), where edits need to be made to the image without sacrificing the available tonal range through tonal compression or adjustments.

About the 32-bit Preview panel

The panel options include:

- **Exposure**—increases or decreases the preview exposure of the image, allowing you to better visualize the highlight or shadow tonal ranges for editing.
- **Gamma**—alters the gamma correction value.
- **Display Transform**—(OpenColorIO option) allows you to switch between a Linear RGB color space, unmanaged, or a display transform to a different color space:
    - **ICC Display Transform**—transform using the monitor's assigned ICC profile.
    - **Unmanaged**—no transform is applied.
    - **OCIO Display Transform**—choose an output profile to preview your document with this color space. Generally you want to match this with the display profile of your panel (e.g., **P3** or **Rec.2020** for specifically profiled monitors).

In order to use the **Display Transform** options, you must have a valid **OpenColorIO** configurable file and directory defined. See Using OpenColorIO for more information.

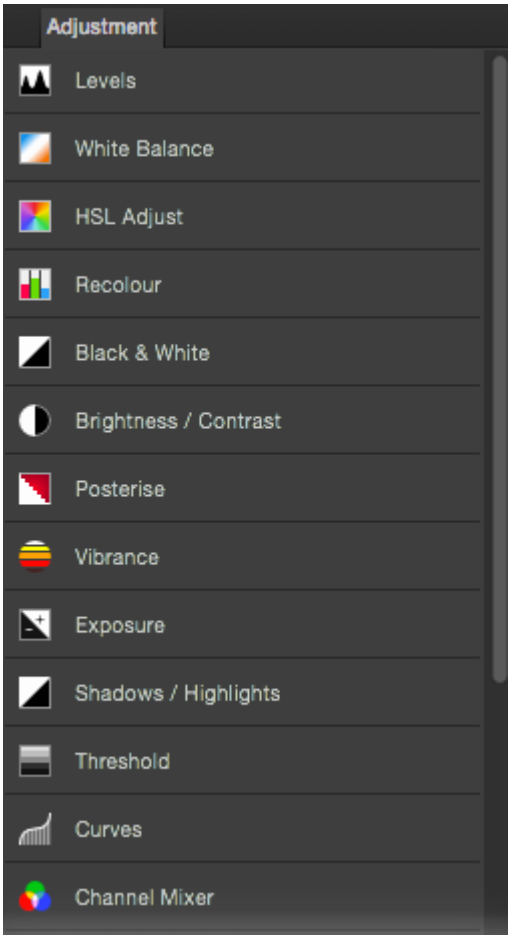
If you intend on tone mapping or tonally modifying your image to compress its tonal range, you will likely not need to use this panel.

Adjustment panel (Photo Persona only)

The Adjustment panel allows you to apply color and tonal corrections to your image non-destructively, i.e., without making permanent changes to the underlying pixels.

About the Adjustment panel

The Adjustment panel presents color and tonal adjustments under adjustment type (e.g., HSL Adjust) as a series of preset thumbnails.



The Adjustment panel.

Selecting an adjustment type expands the view to show adjustment thumbnails, with each thumbnail applying an adjustment intended for specific uses (e.g., Desaturate); clicking on a thumbnail applies that preset.

The adjustment is added as an adjustment layer to your layer stack.

As you apply a preset you can fine-tune the preset's settings, optionally creating the modified adjustment as a new preset.

You can also apply an adjustment layer directly from the **Layers** panel instead of starting from a preset.

Settings

The following general settings are available from all adjustment dialogs:

- **Delete**—closes the dialog and deletes the adjustment layer, removing the adjustment from the image.
- **Merge**—merges the current adjustment layer with the layer immediately below it in the layer order.
- **Add Preset**—adds the current adjustment settings as a preset for use with later images and projects.
- **Reset**—reverts all dialog settings to default.
- **Opacity**—how see through the adjustment layer is.
- **Blend mode**—changes how the applied pixels interact with existing pixels on the layer below. Choose mode type from a pop-up menu.

Not all adjustments have a dedicated dialog or customizable settings.

Batch panel

The **Batch** panel lists all images that are currently being processed as part of a batch job. The panel can be switched on via **View>Studio**, but has no use outside of previewing the progress of a batch job.

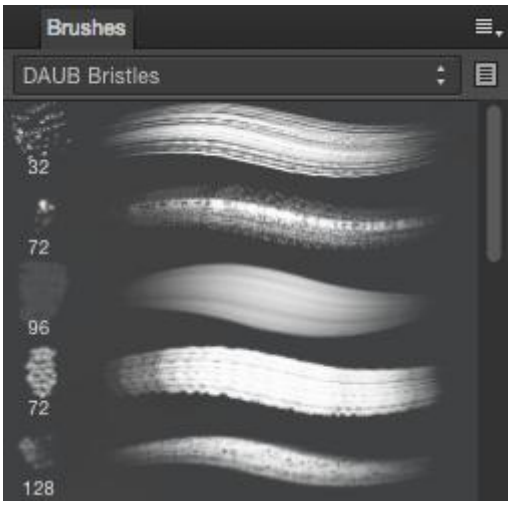
Upon starting a Batch Job, the **Batch panel** will automatically appear to provide a progress report.

Brushes panel (Photo Persona only)

The Brushes panel hosts a selection of brush presets which can be selected for use with the Paint Brush Tool and other brush-based tools. Any custom brushes you design can be saved to your own panel categories. ABR Brush files can be imported and will be available in their own separate categories.

About the Brushes panel

A choice of pre-designed brushes are available as selectable thumbnails. With the brush tool selected, the selected thumbnail sets the type of brush to be used. Brushes are arranged in categories.



The Brushes panel.

The panel displays the following:

- Category pop-up menu. To display brush thumbnails for the chosen category.
- **Edit**. Loads the selected brush, allowing it to be customized and optionally saved as a new brush preset.
- Brush thumbnails for the current category.

The following options are available from the Panel Preferences menu:

- **Create New Category**—adds a new, empty category to the pop-up menu.
- **Rename Category**—allows you to rename the currently selected brush category.
- **Delete Category**—removes the currently selected brush category.
- **Import Brushes**—allows you to import a set of pre-designed brushes, including those in ABR format.
- **Export Brushes**—allows you to export the currently selected brush category, ready for sharing with other users.

- **New Intensity Brush**—creates a brush stroke based on the opacity values of a raster image. In the pop-up dialog, navigate to and select a file, and click **Open**.
- **New Round Brush**—creates a brush stroke with a soft, feathered edge.
- **New Square Brush**—creates a brush stroke with a hard edge.
- **New Image Brush**—creates a brush stroke based on an image. In the pop-up dialog, navigate to and select a file, and click **Open**.

For more information on creating custom brushes, see Creating custom brushes.

Channels panel (Photo Persona only)

The **Channels** panel displays the color channels and alpha channel for the whole image or selected layer.

The panel also lets you create and manipulate selections from channels and store selections as channels.

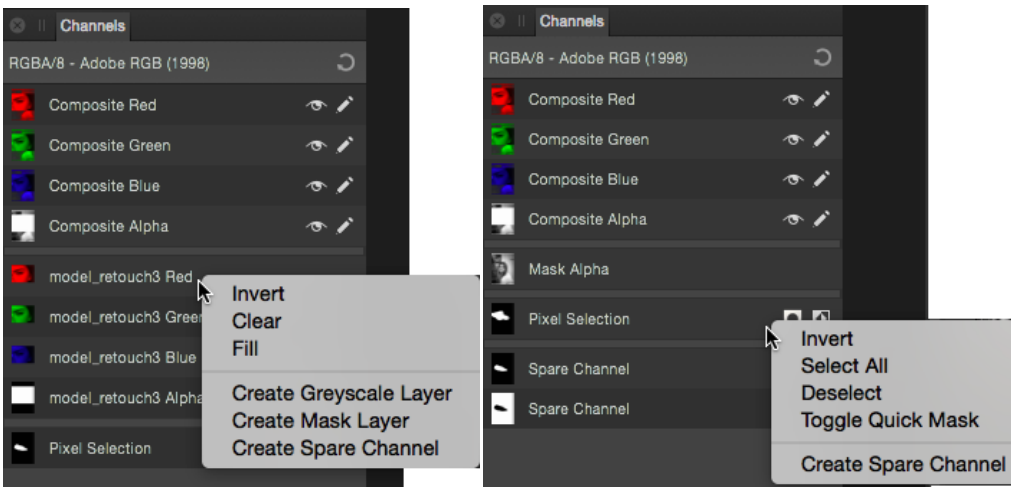
About the Channels panel

As well as the channel information for the image and current layer, you'll also see the:

- current pixel selection.
- Mask alpha*
- Adjustment layer alpha*
- Live Filter layer alpha*
- Any stored selections (as spare channels) for future use.

* When selected in the **Layers** panel.

By default, all color channels are visible and editable.



Channels panels showing channel for the image and selected layer (left), plus selected mask and stored selections for future use (right).

Settings

The following options are displayed on the Channels panel:

- Reset—reverts the channel settings back to default.
- Channel thumbnail—displays the color channel as a thumbnail.
- **Visible**—hides/shows the channel.
- **Editable**—protects/makes editable the channel.
- **Toggle Quick Mask**—toggles between selection and Quick Mask.
- **Invert**—inverts the pixel selection.
- **Delete**—removes the saved spare channel from the document.

More options are available via the context menu (-click) to allow you to:

- Create selections from channels.
- Add to, subtract from, and intersect channel with current selection.
- Retrieve stored selections.
- Load selections to current layer channel, mask, adjustment layer, or filter layer.
- Create grayscale layers.
- Create mask layers.
- Invert selections, layer channels and masks.

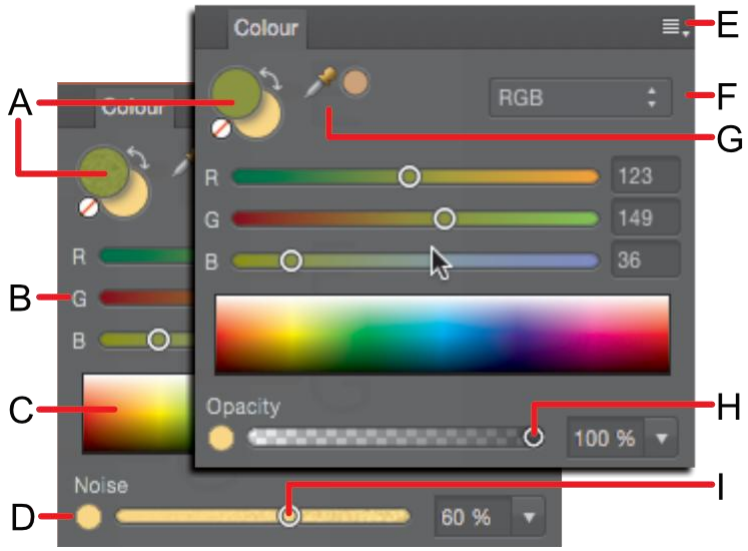
Color panel (Photo Persona only)

The **Color** panel is used to choose color for various brush tools and to apply color to the stroke and fill of vector shapes, lines, and text.

A pop-up version of the Color panel may appear when choosing color from within other dialogs.

About the Color panel

The Color panel can operate in several color modes—RGB, HSL, CMYK, LAB and Grayscale—and has various ways of presenting color options—using sliders, a color wheel (HSL only), or color boxes. Color tints can also be applied from within the panel.



Color panel (RGB sliders): (A) Foreground/Background color selectors with color 'none' swatch and 'swap' arrow, (B) RGB sliders, (C) RGB spectrum, (D) Opacity/Noise toggle, (E) Panel Preferences, (F) Color model selection, (G) Color picker tool and picked color swatch, (H) Opacity controls, (I) Noise controls.

The active color selector is shown at the front of the two color selectors. Choosing a new color will apply it to the active color selector.

For vector shapes, lines and text, the color selector is for stroke and fill color instead of Foreground and Background color, respectively.

The **Gradient Tool** changes the appearance of the **Color** panel. Only one color selector swatch is shown to represent the color of the currently selected stop on the gradient.

Using the Color panel

With the Color panel, colors can be set for use by a tool in just a few clicks. Opacity and noise are further color attributes which can be applied.

To set the color of a selector:

1. Click the selector you want to apply the color to. It will show at the front of the two color selectors.
2. Do one of the following:
    - Choose a color from the color model's **Sliders**, **Wheel** (HSL only), or **Boxes**.
    - Click the picked color swatch.
    - Click the **None** swatch to make the color completely transparent (for the tool, fill or stroke).

To switch colors between the selectors:

- Click the double-headed arrow. The colors switch but the active swatch selector remains the same.

You can switch color selectors by pressing the **X** .

To adjust opacity or noise setting:

1. Select the Opacity/Noise toggle button on the bottom-left of the panel.
2. Drag the slider to set the value.

Color selection preferences and color models

When choosing colors in the Color panel, you can choose from various selection preferences and color model values. The color selection preferences are changed in the Panel Preferences menu.

Depending on the color model selected, you can also choose to work in **8 bit**, **16 bit** or **Percentage** mode.

Some of the selection methods allow you to set color using values other than RGB. This doesn't change the working color profile of the document, but changes the input values for the colors.

You can specify color values for RGB, HSL, CMYK and Grayscale depending on the pop-up menu in the Color panel. This is not the same as the working color profile. For example, if your working profile is an RGB profile, choosing 100% K (black) from the CMYK color model doesn't convert your document to CMYK. Instead the color applied will be an RGB approximation of 100% K (black). However, if you convert or export the document to a CMYK profile, the 100% K (black) will be honored.

The following color selection preferences are available from the Panel Preferences menu.

- **Wheel**—HSL Color Wheel
    1. Drag on the outer ring to set the hue.
    2. Drag in the triangle to set saturation and lightness.

- **Sliders**—RGB, HSL, CMYK, LAB, Grayscale

    1. Select the color mode from the pop-up menu.
    2. (Optional) From the Panel Preferences menu, select **8 bit**, **16 bit** or **Percentage**.
    3. Drag sliders or type directly into the value boxes to set the color values.

- **Boxes**—Hue, Saturation, Lightness only

    - **Hue**—Drag on the hue slider to set the hue, drag in the box to set the saturation and lightness.
    - **Saturation**—Drag on the saturation slider to set the saturation, drag in the box to set the hue and lightness.
    - **Lightness**—Drag on the lightness slider to set the lightness, drag in the box to set the saturation and hue.

    Tint

    - Drag the slider to the left or right to increase or decrease the color tint, respectively.

Using the Color Picker

The picker lets you sample colors within or outside Affinity Photo, then use them in your design.

To use the Color Picker:

1. Drag the **Color Picker** icon to the color you want to sample.
2. Click the selector in the Color or Swatches panel you want to apply the color to.
3. Click the swatch next to the **Color Picker** to apply the color.

Saving chosen colors for later use

Once your color has been chosen and applied to a tool or content, there are several ways to preserve this color for later use.

The following options are available from the Panel Preferences menu.

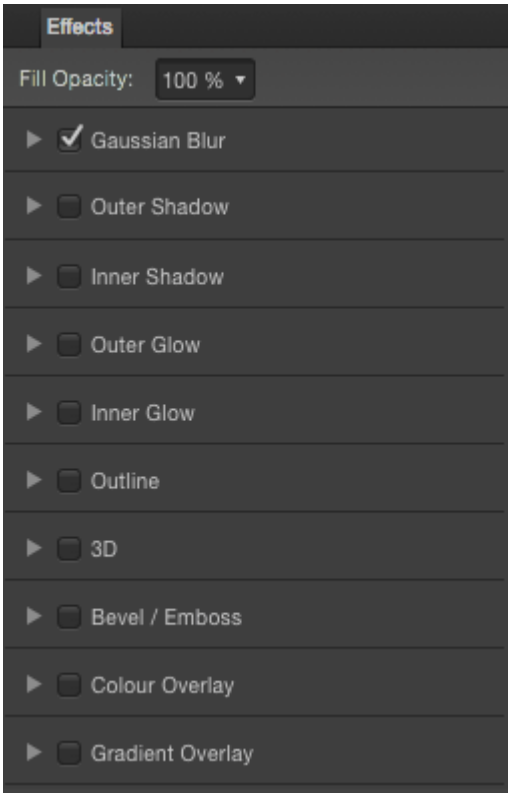
- **Copy Color to Clipboard as Hex**—this calculates the current color's Hex value and adds it to the clipboard. This is useful for web developers, to standardize on colors between graphics and HTML coding in a web environment.
- **Add Color to Swatch**—adds the current color to the currently loaded palette in the Swatches panel.
- **Add Chord to Swatch** pop-up menu—adds a chord of the current color to the currently loaded palette in the Swatches panel.

Effects panel (Photo Persona only)

Apply layer effects directly to layer contents using the Effects panel.

About the Effects panel

Layer effects can be applied to layer content. These effects are also non-destructive so you can change them at any time.



The Effects panel.

The following controls and effects are available in the panel:

- **Fill Opacity**—alters the line and fill opacity of the layer, without altering the opacity of the applied layer effect(s).
- **Gaussian Blur**—blurs the layer content.
- **Outer Shadow**—adds a shadow behind the layer content.
- **Inner Shadow**—adds a shadow inside the layer content's edges.
- **Outer Glow**—adds a color glow that emanates from outside the layer content's edges.
- **Inner Glow**—adds a color glow that emanates from inside the layer content's edges.
- **Outline**—adds an outline to the layer content.
- **3D**—adds lighting to give a 3D appearance.

- **Bevel/Emboss**—adds various combinations of highlights and shadows.
- **Color Overlay**—applies a solid color to layer content.
- **Gradient Overlay**—applies a linear gradient to layer content.

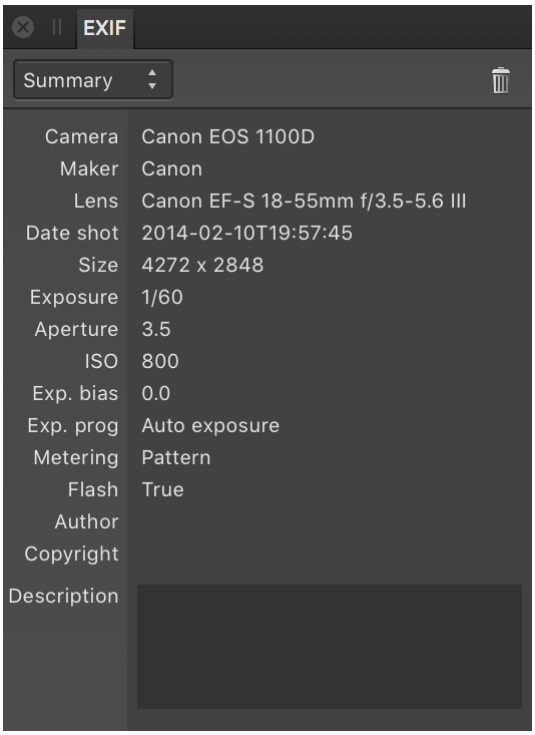
⚙More advanced options for each layer effect are available via **Layer Effects** next to each effect in the Effects panel.

EXIF panel

EXIF information is normally included in photos created on modern digital cameras; it is written into the image file automatically and provides a record of camera details, exposure settings, aperture settings, author/copyright, and more, from your image. In Affinity Photo, this information is displayed in the EXIF panel.

About the EXIF panel

The EXIF panel is available from the Photo and Develop Personas; for the former, it can be switched on via **View>Studio**; for the latter, it can be expanded into view by clicking 'EXIF' at the very bottom right of your workspace.



The EXIF panel.

The following panel options are available:

- EXIF list—The pop-up menu lets you display EXIF data as a 'Summary' list, 'All' data (as Key/Value pairings list), or a full 'RAW data' output.
- **Delete EXIF data**—Clears all EXIF data from the image.

Gradient Editor (Photo Persona only)

The Gradient Editor makes it very easy to set up and edit gradients with pinpoint accuracy.

A gradient that has been applied to a layer object can also be saved for use later on.

About the Gradient Editor

When you edit a gradient fill from within the workspace, the Gradient Editor appears, either as a pop-up panel or as the **Gradient Editor** dialog.

Each gradient is made up of two or more color stops. Clicking a stop selects it. The properties of each stop—including color and opacity—can be changed individually to create the desired gradient.

The following options are available:

- **Type**—Changes the type of the applied gradient fill. Choose from Linear, Radial, Elliptical, and Conical. (Not available in the pop-up panel.)
- **Position**—Sets the position of the selected stop (not available for the start and end stop).
- **Mid Point**—Changes how gradually the gradient spread changes between the selected stop and the stop immediately to its right. At 50% the gradient change is linear.
- **Clr**—Changes the color of a selected stop. Click the color thumbnail to show the pop-up color panel.
- **Opacity**—Sets the transparency of the selected stop.
- **Insert**—Inserts a new stop.
- **Copy**—Copies the selected stop and its properties.
- **Delete**—Deletes the selected stop.
- **Reverse**—Reverses the gradient direction.

To edit a gradient in the Gradient Editor:

Do any of the following:

- Click to select a color stop.
    - Click the color thumbnail to show the pop-up color panel, and choose a new color.
    - Change the spread of the gradient by moving the **Mid Point**, either by dragging the vertical bar on the gradient line, or by changing the input values.
    - Change the value for **Opacity** for the stop.

- To add a new stop, either click **Insert** to add a stop half way between two stops, or double-click on the gradient line. The color and opacity of the stop will be set to the color at that point in the gradient spread.
- To delete an unwanted stop, click to select it, and then click **Delete**.
- To duplicate a stop (including all properties), click to select the stop that you want to duplicate and click **Copy**. The new stop will be placed half way between the stop it was copied from and the stop to the immediate right.

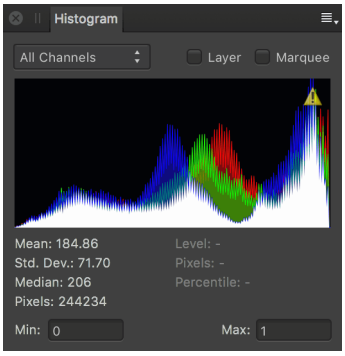
Changes made in the Gradient Editor are not reversible using **Undo**.

Histogram panel

The Histogram panel shows the distribution of Red, Green, Blue, and Luminance values for the image, layer, or current selection.

About histograms

The panel gives a valuable 'heads up' of the colors present in your image, which is useful for deciding if color or tonal correction is needed.



The Histogram panel showing pixel distribution in an RGB image (showing advanced details).

In LAB or CMYK color modes, channels for that mode are displayed instead of Red, Green and Blue (RGB).

Color distribution statistics can optionally be presented at the bottom of the panel to provide further color information. Your cursor can be moved around the histogram, displaying the pixel count at the color level (0-255) your cursor is currently placed at.

Min/Max inputs can also be presented at the bottom of the panel to constrain or expand the tonal range the histogram represents. This is especially useful for unbounded 32-bit documents where you may want to either represent more out of range information or clip it further.

The yellow triangle on the histogram can be clicked to display color distribution levels in finer detail.

To display specific channels:

- Select the **All Channels** pop-up menu, and select a specific channel.

To show the histogram for a selected layer or selection:

1. Select a layer or make a selection.
2. Check **Layer** or **Marquee**, respectively.

Not available in Develop Persona.

To display histogram statistics and min/max inputs:

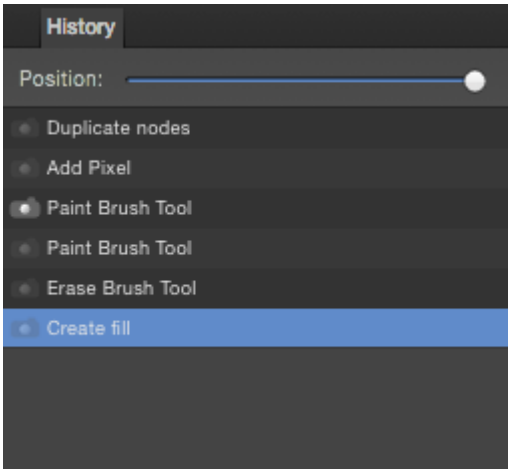
- (Optional) Click Panel Preferences and choose the **Advanced** option.

History panel

The History panel tracks changes and shows each state as a labeled entry in a list. This allows you to return to earlier points in time quickly and easily.

About the History panel

The History panel shows changes that are applied. The oldest state is the topmost in the list. When edits are made, new states are added to the bottom of the list.



The History panel showing the actions that have been carried out on the file.

If you click on an earlier state and then make a different change, any states that originally came after it are deleted.

A document's history can be saved along with the document, so earlier edits can be returned to even if the document is closed and reopened.

Unless you choose to save the document's history with the document, the undo states listed in the History panel are cleared when the document is closed.

Options

The following options are available in the panel:

- **Position**—points on the slider represent edits made to a document from root (creation or opening) on the left to the latest edit on the right. Drag the slider left to undo a change, right to redo a change.
- State—gives a brief description of the edit made to the document. Click a state to jump back/forward to that edit.
- Enable the camera icon preceding an entry to set the chosen source from which the Undo Brush Tool can paint back to.

Info panel

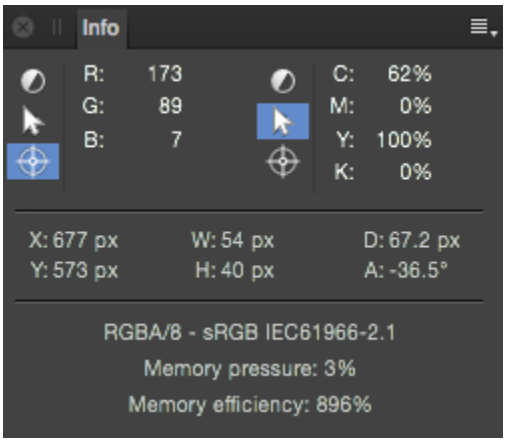
The Info panel provides continuous data readings using samplers. These can sample from the current position of the cursor or from a placed target position.

About the Info panel

The type of data tracked includes:

- color values (based on a chosen model)
- total ink level
- horizontal and vertical position
- relative height, width, distance and angle
- document color format and ICC profile
- memory information

The panel allows you to sample from under the cursor or by dragging one or more targets to the page which lets you measure color at chosen positions. The latter is useful when comparing colors before and after applying image adjustments or filters.



The Info panel.

The Info panel is available from the Photo Persona and can be switched on via **View>Studio**.

The following panel options are available for each sampler:

- Color Model—Sets the color model, or total ink level, to be tracked. Select from the pop-up menu.
- Cursor—Samples data under the current cursor position.
- Target—Samples data under a placed target on the image.

To set a target position:

1. On the sampler, click the target icon.
2. On the page, drag the red target to a desired location.

To reset the target position, drag a new target from the panel to replace the existing target.

To add a new sampler:

- Click the Panel Preferences menu, and select **Add New Sampler** from the menu.

To remove a sampler:

1. Click to select the sampler.

   The sampler will be highlighted in blue.
2. Click the Panel Preferences menu, and select **Remove Selected Sampler** from the menu.

Layers panel (Photo and Export Persona)

The Layers panel lets you manage your design more easily by assembling layer content onto separate layers, each layer being independently controlled.

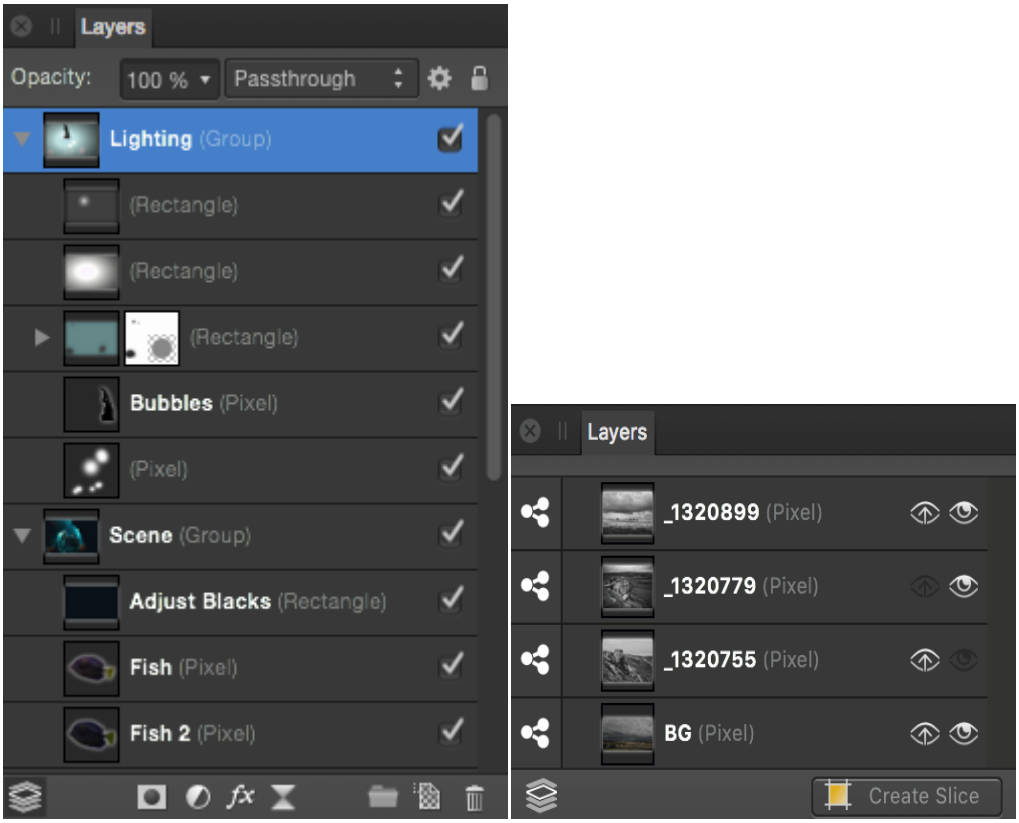
About the Layers panel

Layers are composited together to form your complete design which shows up on your page.

The panel can be used to build up your design as multiple layers, with each layer devoted to a particular facet (e.g., brush strokes, images, adjustments, as well as vector shape, line and text).

From the Layers panel you can:

- Create or delete layers
- Apply blend modes to layers
- Arrange and reorder layers
- Select layers
- Show and hide layers
- Group layers
- Lock layers
- Clip layers
- Create masks
- Add layer adjustments, effects, and filters
- Create export slices (Export Persona only)



The Layers panel, in Photo Persona (left) and Export Persona (right), showing layers in the current document.

The panel displays the following:

- **Opacity**—Adjusts opacity of the selected layer(s).
- Blend Mode—Changes how the applied pixels interact with existing pixels on the layer below. Choose mode type from a pop-up menu.
- **Blend Ranges**—Click to access a dialog for setting the blend ranges, blend gamma and antialiasing settings for the selected layer.
- **Lock/Unlock**—Click to lock or unlock selected layers to prevent or allow editing.
- **Expand/Collapse**—Click to expand/contract the layer, revealing child layers, or group layer to expand the group's content.
- Layer entry—The created layer, showing a thumbnail of layer contents and the layer name.
- Hide/Show layer—Uncheck to hide the layer; check to make it visible again.
- **Edit All Layers**—Allows selection and editing of layer contents across all layers (rather than the current layer).
- **Mask Layer**—Creates a layer mask to reveal a portion of a layer while the rest of the layer remains hidden.

- **Adjustments**—Adds a non-destructive adjustment layer for tonal and color correction.
- **Layer Effects**—Applies a layer effect to the currently selected layer.
- **Live Filters**—Applies a non-destructive filter layer to add creative effects.
- **Group Layers**—Groups the currently selected layers.
- **Add Pixel Layer**—Creates an empty new pixel layer above the currently selected layer.
- **Remove Layer**—Deletes the currently selected layer.
- **Create Slice**—Creates a slice from the layer content in readiness for export. Only shows in Export Persona.

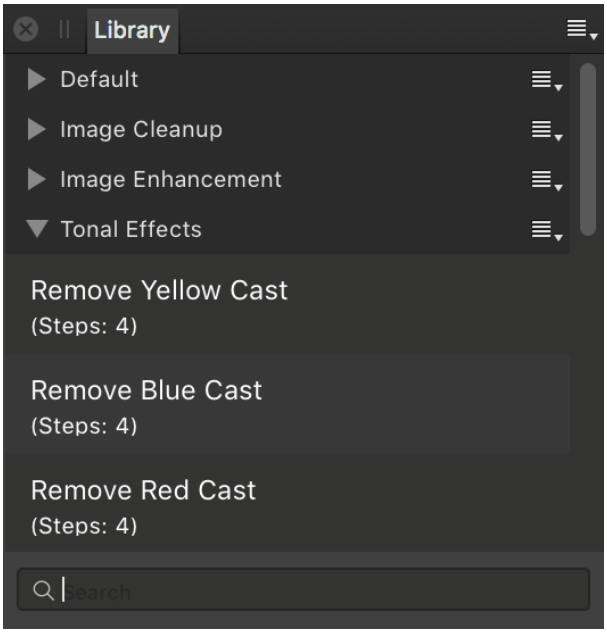
Hidden layers will not print or export.

Library panel

The **Library** panel stores macros and allows them to be applied to the current document via a single click. Both stock macros and custom saved or imported macros appear in this panel.

About the Library panel

The Library panel is available from the Photo Persona; it can be switched on via **View>Studio**. It is also launched automatically when a macro is saved from the **Macro** panel.



The Library panel showing pre-supplied macros (Default category) and custom macros (MyMacros category).

For more information on how to record, edit and use macros, see Macros.

Options

The following options are available in the panel:

- Category—displays all macros in that category. Click a category's title to collapse or expand the category.
- Search—allows you to narrow down the macros in the panel to those with names which conform to the search criteria. Type directly in the text box.

The following options are available from panel preferences:

- **Create New Category**—adds a new, custom macros category to the panel.
- **Import Macros**—adds a new category to the panel pre-populated macros.

The following options are available from the category option menus:

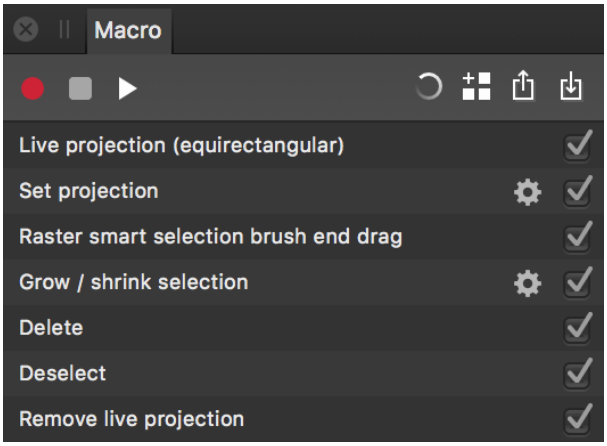
- **Rename**—allows you to rename the category.
- **Delete**—removes the category (and all its macros) from the panel.
- **Move Up**—repositions the category above the previous category so it is listed higher in the panel. If this option is grayed out, the category is at the top of the panel.
- **Move Down**—repositions the category below the next category so it is listed lower in the panel. If this option is grayed out, the category is at the bottom of the panel.
- **Export Macros**—exports all the macros stored in the current category as a single .afmacros file. On import, the macro category and individual macros are installed.

Macro panel

The **Macro** panel provides a means of recording, saving, importing and exporting macros—a series of actions and operations that can be quickly reproduced and applied to speed up and aid workflows.

About the Macro panel

The Macro panel is available from the Photo Persona; it can be switched on via **View>Studio**.



The Macro panel showing a series of recorded actions.

For more information on how to record, edit and use macros, see Macros.

Settings

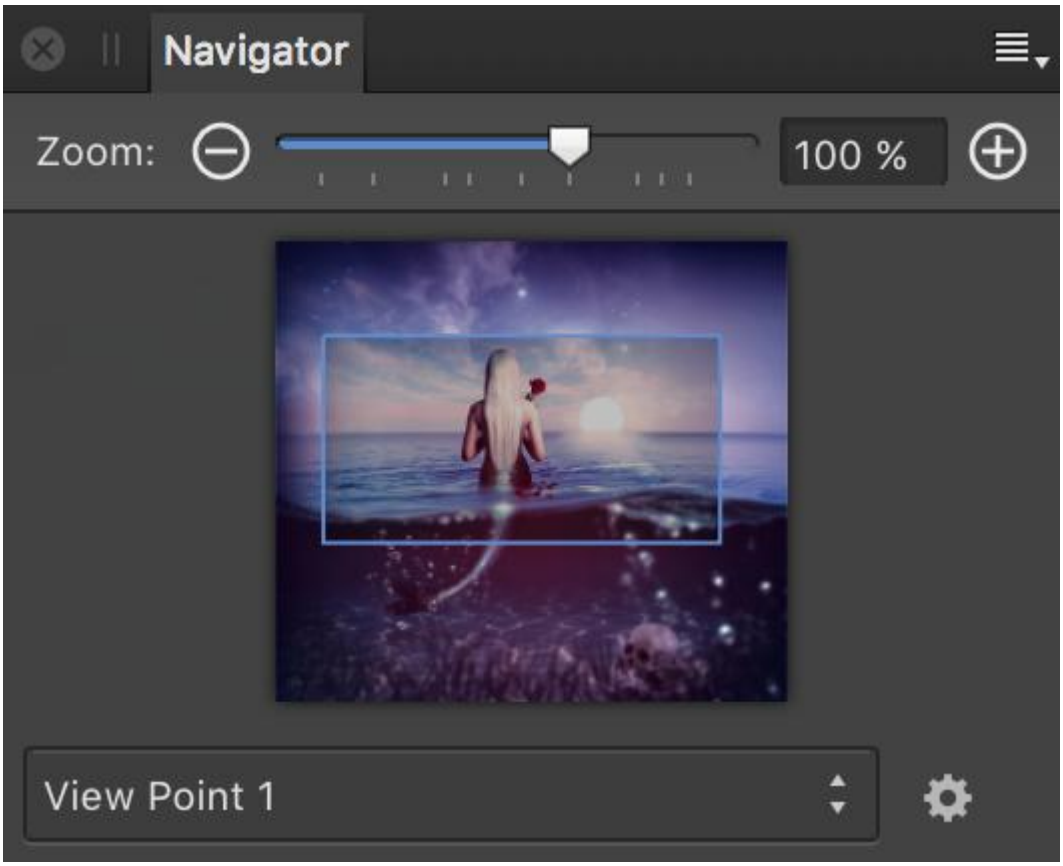
The following options are displayed on the panel:

- **Start recording**—click to record your actions and operations which are added to the panel as you record.
- **Stop recording**—click to stop recording your macro.
- **Play**—click to play back and preview your recorded macro.
- **Reset**—click to clear the currently recorded macro operations and actions. Use to start recording from scratch again.
- **Add to Library**—saves your recorded macro to the macro library. A macro needs to be saved or it will be lost on subsequent macro recording.
- **Export**—exports your recorded macro to a .afmacro file which can be shared with other Affinity Photo users or stored externally from the app.
- **Import**—imports a previously exported .afmacro file.
- **Settings**—click the cog icon to customize a specific operations's settings for the already recorded macro.

- ✓**Disable/Enable macro operation**—Uncheck to exclude the operation from playback; check to include it again.

Navigator panel

The Navigator panel lets you zoom into your design and pan around to view specific areas. You can also add, remove and switch between custom view points, which are saved zoom levels and positions.



The Navigator panel with zoom setting of 100%.

Depending on the zoom level, a view rectangle denotes the area currently visible in the main view.

To zoom into/or out of your design:

Do one of the following:

- Click **Zoom In** or **Zoom Out**.
- Drag the slider to change the zoom level.

To pan around your design:

- Drag the view rectangle around in the panel. The main view displays the areas enclosed in the view rectangle.

To add, remove and rename a view point:

- Click **Panel Preferences**, then select **Advanced**.
- With your desired zoom level and position set, click the cog icon and select **Add**.

- To rename the view point, click the cog icon and select **Rename**.
- To remove the view point, click the cog icon and select **Remove**.

To switch between view points:

- Click **Panel Preferences**, then select **Advanced**.
- From the pop-up menu, select the view point you wish to move to. The view will automatically change.
- To move between view points sequentially, you can also access **Move to Previous View Point** and **Move to Next View Point** in the **View** menu.

Adding new view points and moving between existing view point functions are mappable to custom keyboard shortcuts; see Customizing shortcuts for more information.

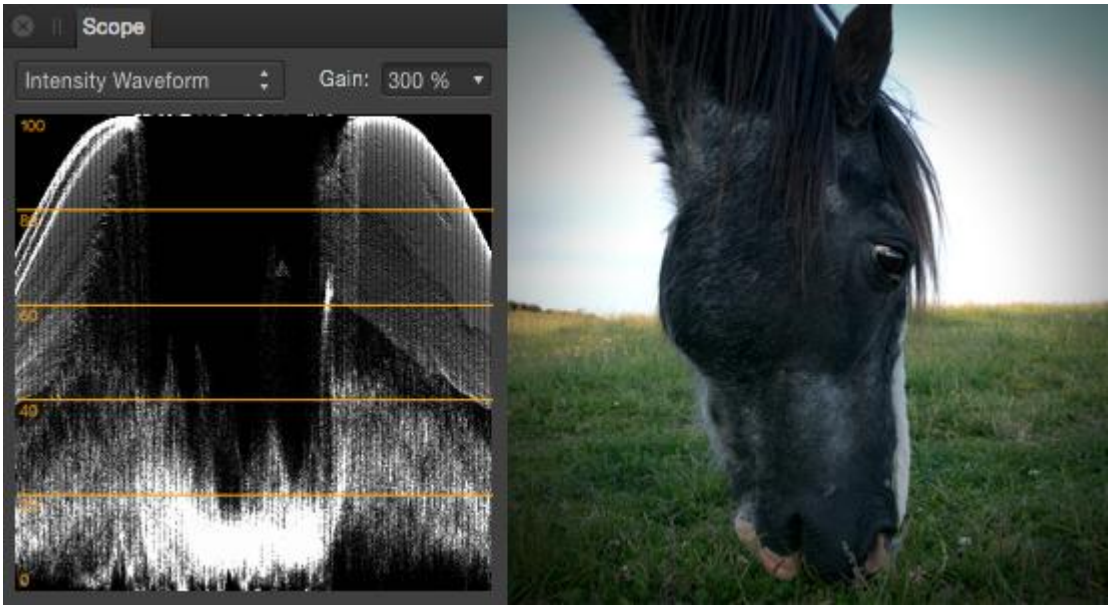
Scope panel

The **Scope** panel provides a variety of charts which allow you to examine the distribution of luminance and chrominance in an image, allowing you to judge whether tonal or color correction is needed. It can be used as an alternative to, or in combination with, the Histogram panel.

About the Scope panel

The charts available on the Scope panel allow you to analyze an image in order to identify areas which need correcting. Some of these issues may be subtle to the eye but may dramatically improve a photo once corrected. Example issues which may be identified using the Scope panel include tonal problems or color casts.

The Scope panel is available from the Photo and Develop Personas; for the former, it can be switched on via **View>Studio**; for the latter, it can be expanded into view by clicking 'Scope' at the top right of your workspace.



The Scope panel displaying the Intensity Waveform for the adjacent photo.

Available charts

- **Intensity Waveform**—displays a scatter plot of the luminance values of pixels in an image. The X axis gives the horizontal location of the pixel while the Y axis provides its luminance value.
- **RGB Waveform**—as with Intensity Waveform, but displays RGB rather than luminance values.
- **RGB Parade**—as with Intensity Waveform, but separated into RGB components.

- **Power Spectral Density**—represents the image in the frequency domain. Low frequencies are represented as solid lines. High frequencies can be seen as speckles. The color of the frequency plot indicates the dominant color tone in the image.

Power Spectral Density: the solid orange line represents the blurrier, low frequency tones of the image. The speckled areas represent the high frequencies. The blue and purple color of the high frequencies suggests the presence of chrominance noise.

- **Vectorscope**—displays a circular chart which monitors an image's color information. Saturation is measured from the center outwards from desaturation to full saturation. The direction of the pattern indicates the image's hue.

Settings

The following settings are available in the panel:

- Chart—sets the chart currently displayed in the panel. Select from the pop-up menu.
- **Gain**—sets the brightness of the points on the waveform displayed in the panel. This does not affect pixels in the image.

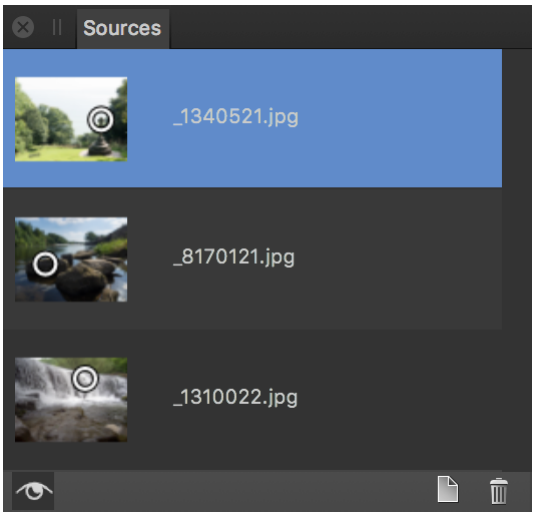
Sources panel

The **Sources** panel provides a means of storing multiple clone sources that you can use in conjunction with the **Clone Brush** and **Healing Brush** tools.

About the Sources panel

The Sources panel is available from the Photo Persona; it can be switched on via **View>Studio**.

The panel lets you set up multiple global sources and define the "pickup" area for each source, in advance of (or during) cloning, healing, or patching. After a Focus Merge or HDR Merge, the panel will also automatically appear.



The Sources panel with clone sources from several documents (showing circled clone areas).To add a global clone source and define its clone area:

1. Open an image, then from the **Sources** panel, click **Add Global Source**.
2. Double-click on the newly created source entry, then hover over the area of your document you wish to set as a clone source and click once.

Global sources can also be added to the panel when using the **Clone Brush**, **Healing Brush** or **Patch** tools by clicking **Add Global Source** on the tool's context toolbar.

To clone from a clone source:

1. Ensure you have either the **Clone Brush** tool or **Healing Brush** tool selected.
2. On the **Sources** panel, make sure the **Toggle Source Preview** option is disabled. Your current document that you wish to edit should be displayed.
3. Select a source from the **Sources** panel list.
4. Hover over your document; you should see a preview of the clone source area. Simply click once or click-drag to begin cloning or healing.

Settings

The following settings are available in the **Sources** panel:

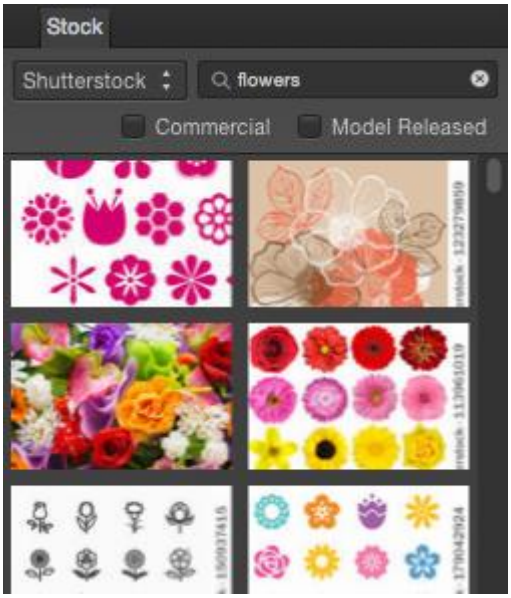
- **Toggle source preview**—when enabled, allows you to cycle through and preview each source. Disable to return to editing your current document.
- **Add Global Source**—Makes the currently active document a global source, which gets added to the bottom of the panel. When the source entry is selected and preview is enabled, you need to define a source area for that source before it can be used to clone from.
- **Delete Global Source**—deletes the currently selected global source.

Stock panel (Photo Persona only)

The **Stock** panel provides access to stock photos directly from within Affinity Photo.

About the Stock panel

The panel acts as an in-app image browser which connects to one of several photo providers (e.g., Shutterstock). You can search the provider's images, browse image thumbnails, add stock images to the page and purchase the photo within the panel.



The Stock panel populated with images.

Settings

The following settings are available in the panel:

- Archive—sets the archive currently displayed in the panel. Select from the pop-up menu.
- Search—type in the box to display images tagged with matching terms. Click the cross to remove the search term and display all images.
- **Commercial**—when selected, images displayed in the panel are restricted to those which can be used for commercial purposes.
- **Model Released**—when selected, images displayed in the panel are restricted to those which have a valid model release.

Styles panel (Photo Persona only)

The Styles panel lets you apply pre-designed drag-and-drop styles to vector layers.

About the Styles panel

Styles can comprise an individual effect with predefined settings or a combinations of effects that complement each other. The Styles panel lets you apply these with one click.

You can also save any style to the Styles panel for future use. For vector shapes and text, the stroke, opacity and other vector properties can be stored.

The Styles panel showing styles in the Default category.

The panel displays the following:

- Category pop-up menu. To display style thumbnails for the chosen category.
- Style thumbnails for the current category.
- Search—allows you to filter styles in the panel to those with names which conform to the search criteria. Type directly in the text box.

Settings

The following options are available from the Panel Preferences menu:

- **Add Styles category**—creates a new style category that you can save your custom styles into.
- **Remove category**—deletes the currently active custom category.
- **Rename category**—renames the currently active custom category.
- **Import Styles category**—if styles have been previously exported to a file you can import them using this option.
- **Export Styles category**—exports the current category, and its styles, to a file.

- **Add Style from Selection**—if your object is selected, select this option to save the object style to the current Styles panel category.

Swatches panel (Photo Persona only)

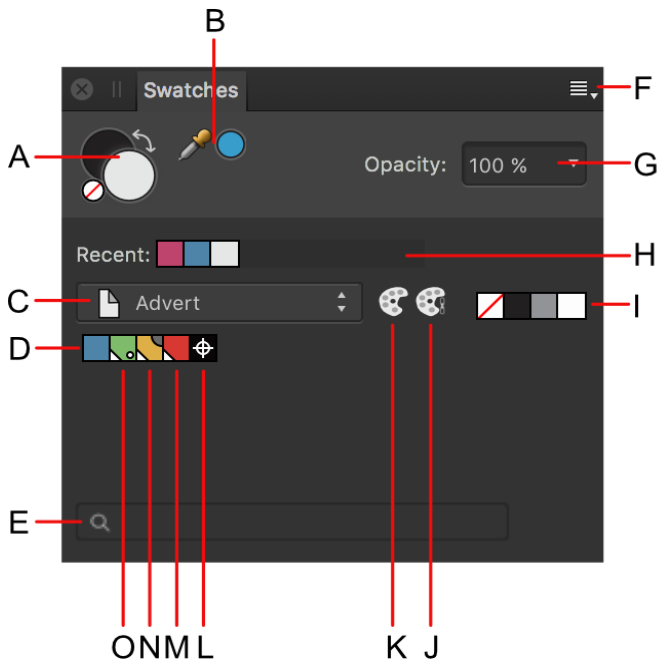
The **Swatches** panel makes it easy to use predefined colors, and also to define, store and reuse your own selection of colors.

About the Swatches panel

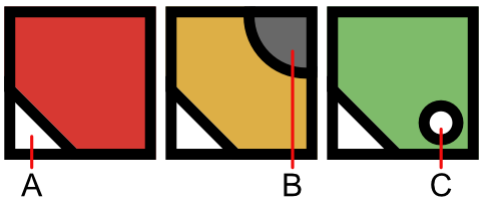
The **Swatches** panel stores your recently used colors and lets you access a range of predefined palettes, each containing solid or gradient fill swatches. These can be selected for use with various tools and for applying directly to objects. You can also create and store your own swatches as custom color palettes either for the document, application or system-wide.

As well as accessing various palettes, you can create global, spot, and overprint colors for vector content. Your registration color can also be customized.

The panel contains a search facility for displaying only named swatches which match the typed description.



Swatches panel: (A) Foreground/Background color selectors with color 'none' swatch and 'swap' arrow, (B) Color picker tool and picked color swatch, (C) Category list, (D) Category color palette swatches, (E) Search, (F) Panel Preferences, (G) Opacity control, (H) Recently used colors, (I) None, Black, Mid-gray and White swatches, (J) Add current color to palette as a global color, (K) Add current fill to palette, (L) Registration color, (M) Global color, (N) Overprint color, (O) Spot color.



Markings which distinguish specialist color swatches: (A) Global, (B) Overprint, (C) Spot.

The active color selector is shown at the front of the two color selectors. Choosing a new color will apply it to the active color selector.

For vector shapes, lines and text, the color selector is for stroke and fill color instead of Foreground and Background color, respectively.

The Swatches panel also shows None, Black, Mid-gray and White swatches, recently used colors and an opacity control. Swatches are organized into color palettes by category.

To add a customized registration color for professional printing, click **Panel Preferences**, then select **Add Registration Color**.

Preset color palettes (available from the category list pop-up menu) include macOS color palettes such as Apple, Web Safe Colors, System, and Crayons.

Preset color palettes (available from the category list pop-up menu).

To list swatches by name instead of thumbnail, click **Panel Preferences**, then select **Show as List**.

You can switch color selectors by pressing the **X** .

The **Gradient Tool** changes the appearance of the **Swatches** panel. Only one color selector swatch is shown to represent the color of the currently selected stop on the gradient.

Hold down the when selecting a swatch to honor the opacity and/or noise already applied to any vector shape, line or text (i.e. only the color will update).

Working with palettes

The ten most recently used colors are automatically added to the panel on a temporary basis. You can permanently store custom colors and gradients that you use most often in any of the palettes or you can create custom palettes to host them.

Although you can add colors to any of the predefined palette categories, we recommend that you always create your own.

The following types of palette exist within Affinity Photo:

- **Document**—these palettes are saved within the current document.
- **Application**—these palettes are saved within Affinity Photo. These palettes are available to any Affinity Photo document.

- **System**—these palettes are saved to your operating system. These palettes are available within Affinity Photo and other applications installed on your system.
- **PANTONE®**—these palettes are based on PANTONE® Colors. These palettes are available to any Affinity document.

Saving and deleting custom color palettes

To create a new palette:

- Click Panel Preferences and choose an 'Add Palette' option.

From Panel Preferences, you can also ***rename*** and ***delete*** the selected palette.

To save a color or gradient to a palette:

1. On the **Swatches** panel, select a palette from the palette pop-up menu.
2. Do one of the following:
    - -click an object, then from the pop-up menu, click **Add to > Swatches** and choose to add color from fill, stroke or both.
    - Select **Add current color to palette**.

To edit a saved swatch:

- Double-click a saved swatch.

To delete a saved swatch:

- -click the swatch you want to remove and choose **Delete Fill** from the pop-up menu.

Generating a palette from document

You can generate a palette from the colors used throughout your document.

To generate a palette from document:

- Click Panel Preferences and choose an option from **Create Palette from Document**.

A new palette is created (named after the document) using all the colors currently in the document.

Generating a palette from an image

You can generate a palette of colors from any supported image file.

To generate a palette from an image:

- Click Panel Preferences and choose **Create Palette From Image**.

- From the **Create Palette From Image** dialog, click **Select Image** or click-drag an image onto the dialog to load it.
- Change the **Number of Colors** slider to generate more or fewer colors from the selected image.
- Use the **Location** option to specify whether the generated palette should be system-wide, application-wide, or limited to the current document. You can also add the colors to the current active palette too.
- Click **Create** to complete the palette generation.

Sharing custom palettes

You can also share custom color palettes for use by other Affinity Photo users.

To export a color palette:

1. Choose the palette you want to export from the palette pop-up menu.
2. Click Panel Preferences and choose **Export Palette** from the menu.
3. Type a name for the exported file, choose the disk location you want to save it to and click **Save**.

To import a color palette:

1. Click Panel Preferences and choose **Import Palette** from the menu.
2. Locate the file you want to import and click **Open**.
3. (Optional) If the palette you are importing has the same name as an existing palette, choose an appropriate action in the dialog.

The newly imported palette will now be available to choose in the palette pop-up menu.

Setting default palettes

Any palette can be set as the default used for specific color formats. For example, you can set **RGB/8** documents to have a different default palette to **CMYK/8** documents.

To set a default palette:

1. On the **Swatches** panel, select a palette from the palette pop-up menu.
2. Click Panel Preferences and choose a color format option from the **Set as Default for** from the pop-up menu.

Text Styles panel

The Text Styles panel gives you access to all the text styles in your document, allowing you to apply them, modify them, delete them or create new ones.

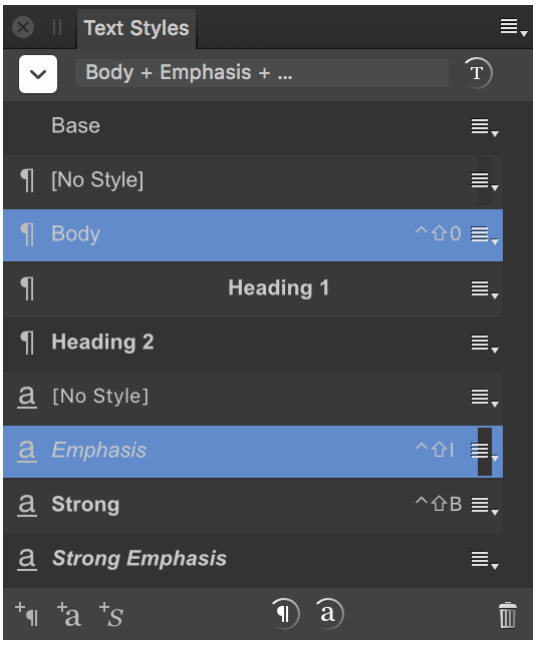
About the Text Styles panel

The Text Styles panel shows you which styles are applied to the current selection and gives you the option to apply paragraph and character styles at the caret position or to selected text.

The panel also gives you options for creating new paragraph and character styles, redefining existing styles, or deleting them.

Furthermore, there are options for setting specific text styles as defaults and for importing text styles from other projects.

For more information on using text styles, see Using text styles.



The Text Styles panel displaying default text styles.

Display preferences

There are several options, available from panel preferences, which allow you to change how styles are displayed in the panel:

- **Show Hierarchical**—styles appear nested below styles which they are **Based on**.
- **Show Samples**—when selected (default), a style's appearance mirrors what will be seen on the page. If this option is off, styles will all show as plain text.

- **Sort By Type**—when selected (default), paragraph styles are listed first, followed by character styles. If this option is off, styles are listed purely in alphabetical order.

Options

The following options are available in the panel:

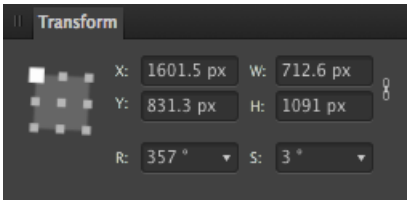
- **Current Formatting**—displays the formatting applied to the selected text or at the current caret's position. Click the arrow to the left to display overflowing information, if necessary.
- **Reset Formatting**—removes overwrites and local formatting from the selected text, ensuring it honors the Current Formatting perfectly.
- Type—specifies whether the text style is a paragraph, character or group type.
- Text style—displays the name of text styles currently available in the document.
- Keyboard shortcut—displays the key combination necessary to apply the text style. A shortcut must first be applied to a text style.
- Options menu—provides access to a pop-up menu with creation and editing options.
- **Create Paragraph Style**—launches the **Edit Text Style** dialog ready for creating a new paragraph style.
- **Create Character Style**—launches the **Edit Text Style** dialog ready for creating a new character style.
- **Create Group Style**—launches the **Edit Text Style** dialog ready for creating a new group style.
- **Update Paragraph Style**—redefines the current paragraph style to conform with the local formatting of the selected text.
- **Update Character Style**—redefines the current character style to conform with the local formatting of the selected text.
- **Delete Style**—removes the selected paragraph or character style from the document and any instances of their application.

Transform panel

When selected, layer content can be easily moved, resized and sheared by adjusting the values in the **Transform** panel.

About the Transform panel

The Transform panel repositions, sizes, rotates, or shears layer content precisely. All transforms are carried out in relation to a defined anchor point—corner, edge midpoint or center—allowing the selected transform to be adjusted.



The Transform panel showing settings applied to layer content.

The following controls are found on the Transform panel:

- Anchor point selector—transforms are carried out from the selected anchor point. Click on an anchor point to select.
- **X**—Horizontal position. Increasing the value moves the layer content to the right.
- **Y**—Vertical position. Increasing the value moves the layer content down the page.
- **W**—Width. Adjusts the layer content's width in relation to the selected anchor point.
- **H**—Height. Adjusts the layer content's height in relation to the selected anchor point.
- Link—When enabled, width and height are adjusted in proportion to each other, maintaining the current aspect ratio. When deselected, they can be adjusted independently.
- **R**—Rotation. Rotates the layer content by a specified number of degrees in relation to the selected anchor point.
- **S**—Shear. Shears the layer content by a specified number of degrees in relation to the selected anchor point.

All transform measurements are in relation to the ruler's zero point, and display in the currently set measurement units.

The number of decimal places allowed can be set via **Affinity Photo>Preferences>User Interface**.

The number of decimal places allowed can be set via **Edit>Preferences>User Interface**.

Instead of adding absolute input values you can enter expressions instead.

Changing the UI appearance

Affinity Photo has a dark User Interface. This makes it easier to accurately view and edit the colors in your designs. However, you can make the interface darker or lighter if you prefer.

To change the lightness of the UI:

1. Choose **Affinity Photo**>**Preferences**.
2. Choose **Edit**>**Preferences**.
3. Click the **User Interface** label.
4. Drag the sliders to set the **Background Gray Level** and/or **UI Gamma** level.

Preferences

Preferences comprise a series of miscellaneous options that are applied across your application. They can be used to set up your own way of working.

General options

- Choose whether to restore the last session when launching application.
- Choose to open PSDs with editable text objects.
- Select whether to show or hide file extensions.
- Choose whether to create SVGs when copying objects for better cross-platform interaction.
- Choose whether to overwrite imported PSD files when using the **Save** command, rather than creating an *.afdesign file. We recommend reading the warning provided in the dialog before selecting this option.
- **Language**—Sets the UI language independently of the operating system. Select from the pop-up menu.

Color options

- You can set up your default RGB, CMYK, Grayscale and LAB color profiles for use in future documents. Select from the pop-up menus.
- **Rendering Intent**—Choose the rendering intent for your images. Select from the pop-up menu.
- Choose whether to apply black point compensation when opening an image.
- Choose whether to convert an opened file color space to the working space and also choose whether to warn that this has occurred.
- Choose whether to receive a warning when a working profile is assigned to an unprofiled image.
- Configure **OpenColorIO** by choosing a configuration file and working directory. See Using OpenColorIO for more information.
- Configure additional OpenEXR document import options. See 32-bit OpenEXR support for more information.

Performance options

- **RAM Usage Limit**—allows you to set your preference for optimizing application performance for your projects.
- **Disk Usage Warning At**—choose the limit at which you are warned about disk usage.

- **Undo Limit**—choose the history length you are able to access.
- **View Quality**—choose the way in which the image displays during modifications. Select from the pop-up menu.
- Choose whether to dither gradients, when working on projects, to speed up performance.
- Choose a clipping option for optimizing performance.
- **File recovery interval**—choose the behavior of the application's autosave.
- Choose whether to use hardware OpenGL and/or only integrated GPU. Try the opposite of the default settings if you are experiencing performance issues.
- **Retina Rendering**—choose your rendering experience. Select from the pop-up menu.
    - **Automatic (Best)**—renders as non-retina followed by retina for balanced performance and quality.
    - **Low quality (Fastest)**—renders as non-retina only for highest performance level but compromises on quality.
    - **High quality (Slowest)**—renders as retina only for high quality but may compromise performance.
- **Rendering**—choose your rendering experience. Select from the pop-up menu.
    - **Default**—renders using the default method—typically the installed graphics card.
    - ***Graphics display adapter***—the name here varies depending on your graphics card and its driver. If you have multiple graphics cards installed you may see more than one option here.
    - **WARP**—use Windows Advanced Rasterization Platform. Try this if you are experiencing performance issues with the default option.

User Interface options

- **Background Gray Level**—controls the grayscale level of the page background.
- **UI Gamma**—adjusts the contrast of the user interface.
- **Font UI Size**—optionally increase the font size of UI text.
- **Tooltip Delay**—set the length of time before a tooltip appears when hovering over a UI element.
- **Decimal Places for Unit Types**—controls the number of decimal places allowable for each document measurement unit.
- Locks (or keeps unlocked) an imported image as a background layer.

- Choose whether line width (thickness) displays in points or in the document's measurement units.
- Choose whether text is expressed in points or in the document's measurement units.
- Choose whether the brush cursor display a preview of pixels to be placed.
- Overlays a cross-hair over the brush cursor for better targeting.
- Makes icons display in grayscale.
- Expands layer to reveal selected object entry when object is selected on the page.
- Choose whether to commit filters if subsequently carrying out a new operation while the Apply dialog is still open or whether to receive a prompt to Apply or Discard the filter instead. Clicking Apply will always commit the filter, irrespective of the this setting.
- Choose whether to activate touch bar support.

Tools options

- **Tool Handle Size**—makes selected layer content's bounding box handles and curve nodes (and handles) smaller or larger.
- Choose whether +click displays context menus (alternative to right-click with a multi-button mouse).
- Enable or disable the Force Touch context menu; when enabled, the menu is accessed by a strong-press on a Force Touch-compatible trackpad.
- Choose whether the middle mouse button will allow scrolling or zooming.
- **Move Tool Aspect Constrain**—controls the default constraining behavior when resizing objects using the Move Tool. Select from the pop-up menu.
- **Create Text with Blend Gamma**—controls the default blend gamma applied to text on creation.
- **Nudge Distance**—sets the amount by which an object is moved when using the arrow keys. Select measurement units from the pop-up menu.
- **Modifier Nudge Distance**—sets the nudge amount by which an object is moved when using the arrow keys along with the .
- **Additional dictionary folder**—add an additional folder that you can copy dictionary files into. The directory is scanned during start-up and found dictionaries will be added.

Keyboard Shortcuts options

- Use these options to define your own keyboard shortcuts. See the Customizing keyboard shortcuts topic.

Photoshop Plugins options

- **Open Default Folder in Finder**—Gain direct access to the default folder which is searched for plugins. Plugins can be added to this folder for easy access from the **Filters** menu.
- **Open Default Folder in Explorer**—Gain direct access to the default folder which is searched for plugins. Plugins can be added to this folder for easy access from the **Filters** menu.
- **Add/Remove Plugin Search Folder**—adds or removes a folder in which to search or access support files to make plugins accessible from the **Filters** menu.
- **Add/Remove Plugin Support Folder**—adds or removes folders that contain supporting files for plugins (for example directories containing executables or presets).
- **Authorize Global**—authorizes access to supporting plugin files across multiple users and further resolves compatibility issues.

Miscellaneous options

- Your current Fills, Brushes, Object Styles, User Defaults and Fonts can be reset to factory defaults.

To set preferences:

- From the **Affinity Photo** menu, select **Preferences**.
- From the **Edit** menu, select **Preferences**.

To navigate to particular preference options, use the arrow keys, pop-up menu or search facility at the top of the dialog.

Apple System Preferences allow you to control elements of the Affinity User interface such as scrollbar behavior.

Expressions for field input

Instead of adding absolute values into input fields, you can add expressions. These allow you create new values based on percentages, mathematical symbols, and another field's value.

The expression or variable presented after the comma can be used as alternative, often shortform, versions of the expression or variable.

Sizing expression examples

Use when resizing a document or transforming an object via the Transform panel.

Input	Result
+=20	Increase value by 20.
-=20	Decrease value by 20.
*2	Double size.
/2	Divide by a half.
50%, *0.5	Decrease by half.
120%, *1.2	20% bigger.

Relational expression examples

Use when resizing a document or transforming an object via the Transform panel.

Input	Result
w+20	Scales based on addition of other input value. *Example entered into Height box to set height as width plus 20 pixels.*
w-20	Scales based on subtraction of other input value. *Example entered into Height box to set height as width minus 20 pixels.*
2*w	Scaling based on a multiple of other input value. *Example is entered into Height box to set height to double the width.*
w/2	Scaling based on a division of other input value. *Example entered into Height box to set height to half the width.*
Sq(w)	Scales based on the square of other input value. *Example entered into Height box to set height as the square of the width.*

Sqrt(w)	Scales based on the square root of other input value. *Example entered into Height box to set height as the square root of the width.*
w^3	Scales based on a power of other input value. *Example entered into Height box to set height as the width to the power of three.*
12pt / x	Sets the text's x-height to 12pt.

Mathematical constants

For general use throughout the user interface.

Input	Constant
pi, Pi, PI, π	For Pi
phi, Phi, PHI, gr, GR, φ	For golden ratio
root2, rad, rt	For Pythagoras's constant
e	Euler's constant

Transform variables

Use when moving, scaling, rotating or shearing objects via the Transform panel.

Input	Variable
xposition, x	X position
yposition, y	Y position
width, w	Width
height, h	Height
rotation, r	Rotation
shear, s	Shear

Document variables

Use when setting dimensions using the New Document or Document Setup dialogs.

Input	Variable
spreadwidth, w	Document width
spreadheight	Document height
marginleft, l	Left document margin
marginright, r	Right document margin
margintop, t	Top document margin
margin, b	Bottom document margin

Typographical variables

Use when setting the size of text.

Input	Variable
xheight, x	X-height
ascent, a	Ascent
capheight, c	Cap height

Transform-Page variables

Use when sizing and positioning content using the Transform panel in relation to the page (spread).

spreadwidth, sprw, sw, pw	The width of the current spread
spreadheight, sprh, sh, ph	The height of the current spread
spreadleft, sprl, sl, pl	The position of the left edge of the current spread
spreadright, sprr, sr, pr	The position of the right edge of the current spread
spreadtop, sprt, st, pt	The position of the top edge of the current spread

spreadbottom, sprb, sb, pb	The position of the bottom edge of the current spread
marginsizeleft, mgnszl, msl	The size of the left margin on the current spread
marginsizeright, mgnszr, msr	The size of the right margin on the current spread
marginsizetop, mgnszt, mst	The size of the top margin on the current spread
marginsizebottom, mgnszb, msb	The size of the bottom margin on the current spread
marginleft, mgnl, ml	The position of the left margin on the current spread
marginright, mgnr, mr	The position of the right margin on the current spread
margintop, mgnt, mt	The position of the top margin on the current spread
marginbottom, mgnb, mb	The position of the bottom margin on the current spread
designareawidth, areawidth, aw	The space between the left and right margins on the current spread
designareaheight, areaheight, ah	The space between the top and bottom margins on the current spread

Advanced mathematical expressions

For general use throughout the user interface.

Input	Variable
Abs(x)	Absolute value
IDiv(x,y)	Results in the integer (whole number) of *x* divided by *y* (no rounding is applied)
IRem(x,y)	Results in the remainder of *x* divided by *y*
Sin(a)	Sine

aSin(a)	Inverse Sine
Cos(a)	Cosine
aCos(a)	Inverse Cosine
Tan(a)	Tangent
aTan(a)	Inverse Tangent
aTan2(a, b)	Arctangent
Min(a, b, ...)	Smaller of values
Max(a, b, ...)	Larger of values
Mid(a, b)	Average of a and b
Average(a, b, ...)	Average of arguments
Lerp(a, b, f)	Linear interpolation (a + (b - a) f)
Clamp(a, lo, hi)	a if it is between lo and hi, otherwise lo or hi
ClampMin(n, min)	clamp values below minimum
ClampMax(n, max)	clamp values above maximum
Round(n)	Round to integer
Roundup(b), ceil(n)	Round up to integer
Rounddown(b), floor(n)	Round down to integer
Truncate(n)	Truncate **n** places after decimal point.
Noise(seed / x, y)	Generate 1D noise either from a seed or based on X/Y input.
Noise2(seed / x, y)	Generate 2D noise either from a seed or based on X/Y input.
Noise3(seed / x, y)	Generate 3D noise either from a seed or based on X/Y input.
Noise4(seed / x, y)	Generate 4D noise either from a seed or based on X/Y input.

Customizing keyboard shortcuts

While the default keyboard shortcuts broadly follow industry standards and common use in other applications, it's possible to customize your keyboard shortcuts exactly to your liking.

You can customize shortcuts on an application-wide or on a per-Persona basis. Shortcuts can be customized for tools, menu items, panel switch on/off, filters, and tool operations, either being added as new shortcuts or replacing existing shortcuts.

You can optionally save your customized shortcuts to a file (.affshortcuts) that can be shared with other users or backed up for safe keeping.

Available settings are as follows:

- Persona—The pop-up menu sets the Persona for shortcut customization.
- UI Element—The pop-up menu displays the menus, commands and operations for the currently selected Persona. A Miscellaneous category groups shortcuts for commonly performed operations and lets you switch on/off panels via shortcuts.
- **Apply to all**—If checked, the shortcut applied to a UI element is shared across every Persona. If unchecked, you can uniquely assign a custom shortcut to work just within the currently selected Persona in the initial Persona pop-up menu.
- **Ignore Modifier**—Lets you create shortcuts using a single letter designation instead of using keyboard modifiers.
- **Reset**—All customized shortcuts are reset back to default.
- **Clear All Shortcuts**—All default and customized shortcuts are removed.
- **Load**—Loads a previously saved .affshortcuts file. This will overwrite your current keyboard shortcut allocations.
- **Save**—Saves the current set of shortcuts to a .affshortcuts file for sharing or backup.

To assign (re-assign) a keyboard shortcut:

1. From the **Affinity Photo** menu, select **Preferences**.
2. From the **Edit** menu, select **Preferences**.
3. Select the **Keyboard Shortcuts** tab.
4. From the initial two pop-up menus, filter shortcuts by Persona and then by UI Element, respectively.
5. From the lower shortcut list, click in the box (containing empty or existing shortcut) at the end of a shortcut entry for the shortcut you want to change.

6. Press your chosen keyboard key(s) to assign. This adds the new shortcut or overwrites the assigned shortcut.

If your chosen shortcut has already been assigned, a warning triangle () shows next to the shortcut. To resolve, assign a different shortcut.

Some shortcuts show a symbol () next to them. This indicates that the shortcut is shared between several tools. Hover over the symbol to see other tools.

 To delete a keyboard shortcut:

- Click the cross-hair icon at the end of the shortcut entry.

Customizing the workspace

Each Persona's workspace can be customized to fit your individual way of working.

To hide/show a panel:

- From the **View** menu, click the panel name on the **Studio** flyout. To show again, click the panel name again.

To hide/show all panels:

- From the **View** menu, click **Hide Studio** on the **Studio** flyout. To show all panels, click **Hide Studio** again.

To collapse a panel group:

- Double-click on the active panel label.

To expand a panel group:

- Click on the label of the panel that you want to view.

To move a panel:

- Drag the panel label to its new position, either:
    - As a free floating panel.
    - As an item in an existing panel group.

To resize a panel:

- Drag any corner of a panel.

To dock a panel:

- Drag the panel label to a panel group.
- Drag the panel label to an area of the studio. A highlight indicates where the panel can be docked.

To move a panel group:

- Drag the panel group to a new position, either:
    - As a free floating panel group.
    - As new items in an existing group.

To dock a panel group:

- Drag the panel group to another panel group.
- Drag the panel group to an area of the studio. A highlight indicates where the panel can be docked.

To reset the Persona's workspace:

1. Select the Persona that you want to reset the workspace for.
2. From the **View** menu, click **Studio** > **Reset Studio**.

Customizing the Tools panel

The Tools panel can be docked or floating, on show or hidden, depending on your preference.

The Tools panel can be customized to fit your individual way of working. By removing tools, you can slim down the Tools panel and add available tools when needed.

To dock/undock the Tools panel:

- From the **View** menu, select **Dock Tools**.

To show/hide the Tools panel:

- From the **View** menu, select **Show Tools**.

To remove/or add a tool:

1. From the **View** menu, select **Customize Tools**.
2. Drag a tool icon from the Tools panel into the flyout, or vice versa.
3. Click **Close**.

To reset the Tools panel:

1. From the **View** menu, select **Customize Tools**.
2. From the flyout, click **Reset**.

The Tools panel is reset back to its default.

To set the number of columns on the Tools panel:

1. From the **View** menu, select **Customize Tools**.
2. From the flyout, select from the **Number of Columns** pop-up menu.

If the number of columns is two or more, the Tools panel will also display color selectors. These are similar to those which appear on the Color panel and Swatches panel.

Customizing the Toolbar

The Toolbar organizes some of the most commonly used commands and functions in each Persona to keep them at your fingertips. The Toolbar can be customized to fit your individual way of working.

To show/hide tool group labels on the Toolbar:

1. Choose **View** > **Customize Toolbar**.
2. From the dialog's **Show** pop-up menu, select **Icon Only** or **Icon and Text**.

To hide/show the Toolbar:

- Choose **View** > **Show Toolbar**.

To customize the Toolbar:

1. Choose **View** > **Customize Toolbar**.
2. Drag the items from the dialog to the Toolbar.
3. Remove items by dragging them off the Toolbar and onto your Document view.

To reset the Toolbar:

1. Choose **View** > **Customize Toolbar**.
2. Drag the **default set** strip of tools at the bottom of the dialog to the Toolbar. This will revert the Toolbar back to its original settings (removing any custom buttons).

System requirements

The minimum system requirements are as follows:

- Intel processor with 64-bit support (Core 2 Duo onwards).
- 2GB RAM
- 601MB of available hard-disk space*
- 1280 x 768 display

* additional free space required during installation (cannot install on a volume that uses a case-sensitive file system or on removable flash storage devices).

Minimum:

- Windows-based PC with mouse or equivalent input device.
- Operating systems (64 bit):
    - Windows® 10
    - Windows® 8.x
    - Windows® 7 (Service Pack 1; Aero enabled)
- PC Memory:
    - 2GB RAM (4GB RAM recommended)
- Hard Drive Space:
    - 785MB for install (additional space required during installation)
- Monitor resolution
    - 1024 x 768 (at 100% scaling)
    - 1280 x 960 (at 125% scaling)
    - 1600 x 1024 (at 150% scaling)
    - 1920 x 1440 (at 200% scaling)

Additional disk resources and memory are required when editing large and/or complex documents.

Recommended:

- For optimum performance, it's recommended to ensure Aero support is enabled in your Windows Operating System.

Supported file formats

Affinity Photo is capable of opening many raster and vector file formats. Photo also imports PDF and Adobe PSD files, and exports a range of raster file formats and the PSD file format.

File type	Open	Export
Adobe Illustrator (AI)	x[1]	
Adobe Freehand (10 and MX)	x[2]	
Adobe PhotoShop (PSD)	x	x
Adobe PhotoShop (PSB)	x	
DNG	x	
EPS	x	x
GIF	x	x
JPEG	x	x
J2K,JP2	x	
JPEG-XR/JXR (WDP/HDP)	x	
PDF	x[1]	x
PNG	x	x
RAW	x[3]	
SVG	x	x
TGA	x	
TIFF	x	x
WEBP	x	
OpenEXR	x	x
Radiance HDR	x	x

[1] Multi-page files can be imported, with each page being placed on its own artboard.

[2] Multi-page Freehand files open with each page concatenated onto a single page. Add file extensions .fh10 or .fh11 in Finder to import. Text import is not supported.

[3] For a comprehensive up-to-date list, see Supported Develop (RAW) cameras.