

# Adobe Illustrator CS6 Fundamentals



## Basic concepts and file formats

- Raster images [.psd] have a fixed resolution [eg. 300 ppi] while vector objects [.ai] are resolution independent.
  - PostScript language [developed by Adobe Systems] led to laser print technology, imagesetters and DTP revolution.
  - Vector art is basically PostScript described objects that can be scaled to any size [.eps - Encapsulated PostScript]
  - Acrobat .pdf [Portable Document Format] cross platform for viewing/printing files. Free Reader from adobe.com
- File > Export** many bitmap image formats [BMP, PNG, JPG, PSD, TIF, etc.] or as Flash SWF files depending on the need, for use in publishing, the web or mobile device delivery.

## History and relationship to other programs

Initially developed for Macintosh only and released in 1987.

- many versions [2-10] released through 1990's before ...
  - **Creative Suite** introduced in 2004, added editable Effects
  - **CS2** in 2006, added Live Trace [tracing bitmaps to paths] and Live Paint for applying flexible fills to many shapes
  - **CS3** in 2007 introduced Live Color, the Color Guide, Color Groups and better integration with Adobe Flash
  - **CS4** in 2008 added Multiple Artboards, the Blob Brush, Separations panel and enhanced the Appearance panel
  - **CS5** in 2010 introduced drawing in perspective, variable-width strokes, Shape Builder tool and enhanced brushes
  - **CS6** in 2012 introduces the dark interface, updated Image Trace engine and Pattern creation tools, gradient strokes.
- Illustrator is part of an entirely integrated [Master Suite] of software including: Photoshop and InDesign for work in print; Flash and Dreamweaver for the web; After Effects and Premiere for animation/video; Acrobat for interactive PDFs.

## Setting Preferences and getting Help

**Illustrator > Preferences / Edit > Preferences**  $\mathbb{A}+K / \text{ctrl}+K$

- General** – Keyboard Increment defines arrow key distance
- User Interface** – Brightness can be customized to be dark/light
- File Handling & Clipboard** – turn off PDF and turn on AICB to preserve paths to copy/paste into Photoshop or InDesign.

**Help > Illustrator Help** – is supposed to launch Adobe Help.

Up to date content is downloaded and available for offline viewing in the Help app or with any browser [preferences]

- **Download Help PDF** [20MB] – until offline help is supported  
[http://helpx.adobe.com/pdf/illustrator\\_reference.pdf](http://helpx.adobe.com/pdf/illustrator_reference.pdf)
- **Search** – [helpx.adobe.com](http://helpx.adobe.com) for all Adobe programs

**Additional Help:** *Visual Quickstart Guide*, by Elaine Weinmann, *Adobe Illustrator CS6 WOW! Book*, by Sharon Steuer, *Adobe Illustrator CS6 Classroom in a Book*, from Adobe Press.

## The Workspace

Turn on **Window > Application Frame** [and Application Bar] to take advantage of tabbed window, Workspace Switcher and more. All panels are listed alphabetically in the **Window** menu. They can float or be 'docked' in groups, where they can be resized to show the panel names. To use one of the preset workspaces, go to **Window > Workspace** or select one from the Workspace Switcher in the Application Bar. **Save Workspace...** for as many customized panel arrangements as you want.

.....  
**Hide/show all panels** tab

.....  
**Hide/show all panels [except Tools & Control]** shift+tab

**Edit > Keyboard Shortcuts** to customize shortcuts for all aspects of the program ['Save' a Keyset file based on the default set].

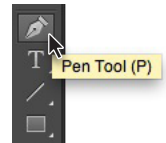
## Know Your Toolbox

In the default workspace, the toolbox is in one column, for two column view, click the double triangles above the panel.

To make it float, drag the title bar.

Almost every tool and button in the toolbox can be accessed with a single key stroke. [mouse over for tool tip].

Learn the ones you use most often.



## Creating a New Document

.....  
**File > New...**  $\mathbb{A}+N / \text{ctrl}+N$

- **Profile** – select from list of default presets [Print, Web, etc.]
- **Number of Artboards** – can be any number from 1 to 100 [Spacing and Columns available for multiple artboards]
- **Size** – choose from list or enter custom width/height, set Units [points, inches, etc], orientation flips width/height
- **Bleed** – creates a set of guides for each artboard [eg. 9 pt]
- **Advanced** – incl. Color Mode and Raster Effects resolution

## Working with Guides and Grids

Non-printing guides are dragged from the rulers and can be rotated 90° by holding down **option/alt** while dragging. Guide and Grid options are set in the Preferences. [eg. color/style, grid frequency]

.....  
**View > Rulers > Show/Hide Rulers**  $\mathbb{A}+R / \text{ctrl}+R$

.....  
**Illustrator / Edit > Preferences > Units**  $\mathbb{A}+, / \text{ctrl}+,$

.....  
**View > Guides > Show/Hide Guides**  $\mathbb{A}+, / \text{ctrl}+,$

.....  
**View > Guides > Lock Guides**  $\mathbb{A}+option+, / \text{ctrl}+alt+,$

.....  
**View > Show/Hide Grid**  $\mathbb{A}+' / \text{ctrl}+'$



**Viewing and Navigation**

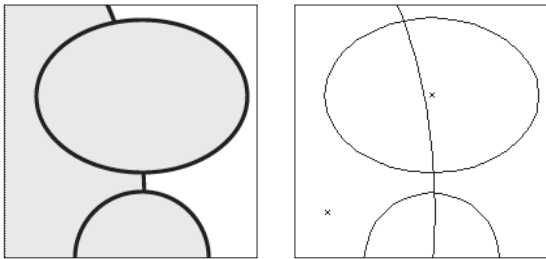
What you see on screen is controlled through the **View** menu. From commands for zooming and page fitting to display of object edges, rulers, grids and guides. For basic viewing and navigation, it's best to use the following shortcuts:

<b>Hand Tool</b>	<b>space bar</b>
<b>Zoom In</b>	<b>space+⌘ / ctrl+space +click</b>
<b>Zoom Out</b>	<b>⌘+option+space / ctrl+alt+space +click</b>
<b>View &gt; Fit in Window</b>	<b>⌘+0 / ctrl+0</b>
<b>View &gt; Show Rulers</b>	<b>⌘+R / ctrl+R</b>
<b>View &gt; Guides &gt; Show/Hide Guides</b>	<b>⌘+; / ctrl+;</b>
<b>View &gt; Guides &gt; Lock Guides</b>	<b>⌘+option+; / ctrl+alt+;</b>
<b>View &gt; Show/Hide Grid</b>	<b>⌘+` / ctrl+`</b>

Guides are dragged from the rulers and can be rotated 90° by holding down **option** while dragging. Guide and Grid options are set in the preferences. [eg. color/style, grid frequency]

Vector artwork is typically displayed in Preview mode. To only display the vector paths that make up the objects use:

<b>View &gt; Preview/Outline</b>	<b>⌘+Y / ctrl+Y</b>
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Artwork can be viewed in Preview or Outline mode

**Drawing Basic Objects**

<b>Rectangle Tool</b>	<b>M</b>
<b>Ellipse Tool</b>	<b>L</b>
<b>Dialog box to enter precise values</b>	<b>click</b>
<b>Constrain to square or circle [while dragging]</b>	<b>shift</b>
<b>Draw from the center [while dragging]</b>	<b>option / alt</b>

Stacking order is determined by the order objects are added to the page [within each layer]. To change the stacking order:

<b>Object &gt; Arrange &gt; Bring Forward</b>	<b>⌘+] / ctrl+]</b>
<b>Object &gt; Arrange &gt; Send Backward</b>	<b>⌘+[ / ctrl+[</b>
<b>Object &gt; Arrange &gt; Bring to Front</b>	<b>⌘+shift+] / ctrl+shift+]</b>
<b>Object &gt; Arrange &gt; Send to Back</b>	<b>⌘+shift+[ / ctrl+shift+[</b>

**Selecting and Editing**

Select and move objects with the Selection Tool [black]. Use the Direct Selection Tool [white] to select and move only specific anchor points on a path. Note that the selected points are solid-filled, unselected points stay hollow/white.

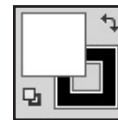
<b>Selection Tool [black pointer]</b>	<b>V</b>
<b>Direct Selection Tool [white pointer]</b>	<b>A</b>
<b>Toggle Direct Selection / Group Selection tools</b>	<b>option / alt</b>
<b>Temporarily activate last used selection tool</b>	<b>⌘ / ctrl</b>
<b>Edit &gt; Undo [unlimited]</b>	<b>⌘+Z / ctrl+Z</b>
<b>Edit &gt; Redo [unlimited]</b>	<b>⌘+shift+Z / ctrl+shift+Z</b>
<b>Select &gt; All [unlocked objects]</b>	<b>⌘+A / ctrl+A</b>
<b>Select &gt; Deselect</b>	<b>⌘+shift+A / ctrl+shift+A</b>

- To select more than one object [V] or anchor points [A] [click+drag] across or [shift+click] multiple objects/points.
- To make a copy of an object, use the standard shortcut of holding **option / alt** while dragging with the Selection Tool.

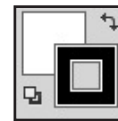
**Fill and Stroke attributes**

<b>Default attributes: fill with white, 1 pt black stroke</b>	<b>D</b>
<b>Toggle between fill/stroke</b>	<b>X</b>
<b>Swap fill/stroke attributes</b>	<b>shift+X</b>

- **Window > Color** to select your own fill/stroke
- **Window > Swatches** to select from libraries of preset groups of colors [first panel button]
- **Window > Stroke** to set other stroke attributes
- Access most attributes in the Control panel
- **Eyedropper Tool [i]** – used to sample and then apply attributes to another selected object. [hold down **option / alt** to apply attributes]
- Once all attributes have been set, they can be saved and applied to other objects by creating a **Window > Graphic Styles** click the new button, then double-click the icon to name the style.

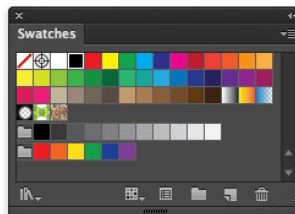


Fill active



Stroke active

Last used solid Color, Gradient and None attributes can be applied with shortcuts or the buttons at bottom of toolbox.



Swatches panel shows solid color swatches, gradients, patterns and two Color Groups [in default view]. Use panel buttons to load Swatch Libraries, show only specific kinds of Swatches, edit Swatch Options, create a New Color Group from selected swatches, or create a New/Delete a Swatch.

## Working with Color

### Synchronizing Color Settings

For consistent color management, the color settings for all Creative Suite programs are synchronized in Adobe Bridge.

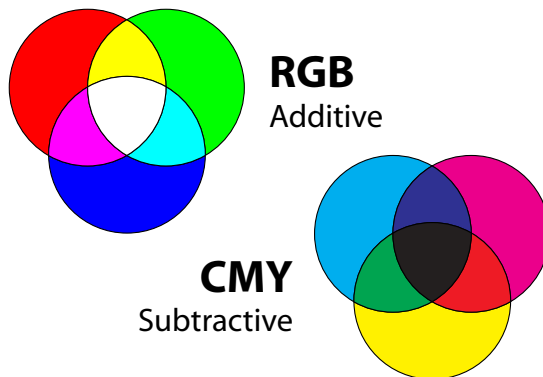
**Edit > Creative Suite Color Settings** ⌘+shift+K / ctrl+shift+K

To check your color settings or create a custom settings file:

- **Edit > Color Settings** – choose one of the presets from the ‘Settings’ or choose your own working spaces and color management policies, then ‘Save’ the custom settings file. Once saved, the custom settings will be available in Bridge [Show Custom Settings Files], then ‘Apply’ to synchronize.

### Color models

- **HSB** model – hue, saturation, brightness describe color
  - **RGB** model [Additive] combines Red, Green & Blue to produce a fairly wide gamut [all at max. 255 = white]
  - **CMYK** model [Subtractive] uses Cyan, Magenta, Yellow and Black ink; has a very limited gamut [all at 0% = white]
- \*Color space or ‘gamut’ refers to the range of color that can be represented by a particular color model



### Adding Swatches, Tints and Shades

After creating a new color, simply click the ‘New Swatch’ button [beside the trash] in the Swatches panel.

- **Tints** – to create a lighter tint of a color, hold down **shift** key while dragging any of the sliders in the Color panel
- **Shades** – for darker versions, simply add black [K=50%]
- **Window > Color Guide** – offers an easy alternative. After the ‘base color’ is set, the panel displays tints and shades of the base color, plus a group of other colors from a harmony rule



### Using Live Paint

A group of overlapping shapes can be easily ‘painted’ by turning them into a ‘Live Paint Group’ then using the Live Paint Bucket [K] to apply colors from the swatches panel.

- select the objects to be turned into a Live Paint Group
- click with Live Paint Bucket to convert and apply colors
- use arrow keys to select colors from the swatches panel

## Working with Gradients

### Gradient Tool

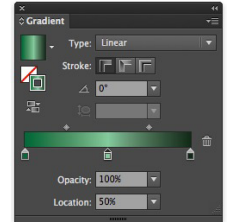
G

### Window > Gradient

⌘+F9 / F9

Basic gradients can be linear or radial. After applying the gradient [choose from Swatches] **click+drag** – start/end points and angle of gradient are determined by the dragging action.

- **Edit Gradient** – double-click one of the ‘color stops’ below the gradient bar, then choose a new color or swatch
- **Add a new ‘stop’** – click anywhere below the gradient bar
- **Delete existing ‘stop’** – simply drag it down, away from the bar
- default midpoint [50%], drag the ‘diamonds’ left or right to change
- to save a new gradient, click ‘New Swatch’ on the Swatches panel



**Gradient Mesh** uses gradients applied across a grid that can be mapped onto just about any shape, although it works best on smooth shapes. Follow the steps below [*Gradient Mesh.ai*]

- create an ellipse, filled with a solid color and no stroke
- use the [white] Direct Selection tool to change the shape
- **Object > Create Gradient Mesh** – set Rows and Columns to 2 or 3, Appearance = To Center, Highlight = 80%
- use the Direct Selection tool to change the color/tone of specific points and note how they blend into the mesh



### Working with Blends

Distinct from gradients, the Blend Tool ‘morphs’ one shape into another, changing color and outline smoothly over a specified number of steps. The objects at either end of the blend can continue to be edited until the blend is expanded.

- create two different shapes, in different colors, no stroke.
- select both objects, then go to **Object > Blend > Make**
- to set the spacing to a specific number of steps or amount of spacing [not smooth] go to **Object > Blend > Blend Options**

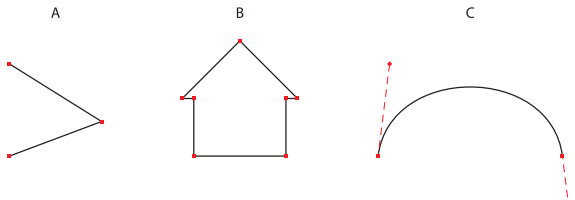


Making Paths

Using the Pen Tool

Pen Tool

Paths consist of anchor points joined by line segments that can be straight or curved. Open 'Making Paths.ai' and set fill to none, stroke to 2 pt and choose a stroke color. This file is set to **View > Snap to Grid** to make it easier. **View > Show Grid** if you want, then for a challenge, once you've finished the exercise, try drawing all paths again with both 'Show Grid' and 'Snap to Grid' turned off.



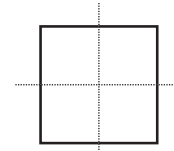
Making Paths.ai

- Path A: simple straight paths [click, click, click] don't drag [⌘ / ctrl] to access Direct Selection tool, to move anchor points and deselect path before starting next one
- Path B: [shift+click] constrains paths to 45/90° angles. Clicking back on first anchor point closes the path.
- Path C: [click+drag] up to first diamond from first point, then [click+drag] from second point down to the second diamond.
- Path D: [click+drag] up, [click+drag] down and repeat to end of path. [⌘ / ctrl+click] to deselect the path when finished.
- Path E: starts the same, but instead of dragging down from the second point, drag up again, by same amount.
- Path F: same again, [option/alt+click] the anchor point to change direction, then just [click+drag] in new direction OR [option/alt+click+drag] direction line for the new curve.
- Path G: combines all of the above into one path.

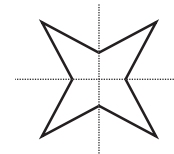
straight path [unconstrained]	click+click
straight path [constrained to 45° / 90°]	shift+click
change direction [to straight]	option / alt+ click+click
change direction [to curve]	option / alt+ click+drag

Modify Existing Paths

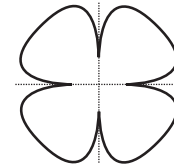
Once you have created a path/object, there are many ways you can modify it. Open 'Modifying Paths.ai' and select the Direct Selection Tool [A].



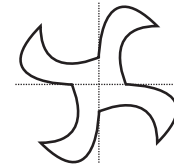
Drag specific anchor points to change the shape of the square / circle on left. [option+drag] to make a copy of the square on the right in the template. Move center points in using direct select, and holding [shift] while dragging.



Convert Direction Point Tool [shift+C]. [click+drag] on the points of the star to turn it into a flower [click] on a point that has curves to make it a corner again.



If you [click+drag] directly on a direction point [diamonds at the end of direction lines] it's possible to turn one side of a curve into a corner, leaving the other side untouched.



Open the 'Tracing Shapes.ai' and trace all the paths that make up the various shapes. A general rule: Try to use as few anchor points as possible. The fewer the smoother the path.

Placing a Template

You can place a scanned image or sketch into Illustrator to use as a template. Template layers are set to be locked and dimmed to 50% by default [mimicking tracing paper] so that you can do your tracing on a working layer on top.

- **File > Place** to bring in the image. Select desired file, making sure that the 'Link' and 'Template' boxes are ON.
- a new locked layer is created beneath 'Layer 1' called *Template 'your file name'*. **Double+click** layer for options.

Working with Image Trace

Illustrator has a powerful tracing engine, that can trace images using one of the presets in the Image Trace options.

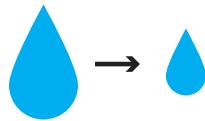
- select the placed image [unlock template if necessary]
- **Object > Image Trace > Make** or click the 'Image Trace' button in the Control panel. [only available if image is selected]
- 'Black and White' preset is applied by default. To select a different preset, use the pop-up in the Control panel or
- **Window > Image Trace** – experiment with different presets
- **Object > Expand** – tracing result can now be painted



## Transforming Objects

All transformations happen in relation to a 'point of origin' crosshair that appears at the center point of the object. Most transformations can be performed in a 'freehand' fashion, in a 'constrained' fashion or by precise settings in a dialog box.

Scale Tool	S
Rotate Tool	R
Constrain freehand transformation	shift
Copy while performing transformation	option / alt
Define a new 'point of origin'	click
Dialog box based on new 'point of origin'	option / alt+click
Object > Transform > Transform Again	⌘+D / ctrl+D



**Scaling** – drag away from the point of origin to increase size, drag towards the point of origin to reduce size of selected objects.

- **shift** while dragging on 45° angle keeps art proportional
- **double-click** the Scale Tool [in toolbox] for dialog box to enter precise uniform or non-uniform values.
- 'Scale Strokes and Effects' should be ON to keep thickness of strokes relative to the shapes they are applied to.
- choosing 'Copy' will create a new object at the new size.



**Rotating** – drag around the point of origin to rotate objects. For best control, drag outside of object.

- **shift** while dragging constrains to 45°/90° angles
- **double-click** Rotate Tool for dialog to enter specific angle.
- choosing 'Copy' will create a new object at the new angle.
- if angle divides evenly into 360, the transformation can be repeated until the object comes around 'full circle.'



**Reflecting** – don't recommend attempting freehand reflecting. It's much easier to use dialog box.

- **double-click** Reflect Tool [O] for dialog to select the 'Axis' to reflect over [horizontal or vertical] or a specific angle.
- choosing 'Copy' will create a new object at the new angle.
- by default, reflections are applied over the point of origin at the center of the object. Use shortcut below to define new point of origin to reflect/copy away from object.



**Shearing** – can be done freehand, but like reflecting, it's usually better to preview while using the dialog

- **double-click** Shear Tool [O] for dialog to select the 'Axis' to reflect over [horizontal or vertical] or a specific angle.
- choosing 'Copy' will create a new object at the new angle.
- 

## Working with Text

Text in Illustrator falls into one of four basic categories:

- **Point Type** – **click** the Type Tool to make an anchor point, then begin typing. Alignment is relative to that point.
- **Area Type** – **click+drag** with the Type Tool to make a frame or **click** inside any object to turn it into a text frame.
- **Path Type** – **click** on a path with the Type [or Type on a Path] Tool and begin typing to flow text along the path.
- **Outlined Type** – has been converted into vector objects that looks like type, but it is no longer editable text. The shapes can be modified, but not the font, kerning or tracking, etc.

Text placed from other applications makes its own area type frame. If **View > Show Bounding Box** is ON, you can use the Selection tool to resize/reposition the frame. Use the Direct Selection tool to reshape the frame. Double-click anywhere inside the frame to activate the Type Tool.

### Basic Text Formatting

Type Tool	T
Window > Type > Character	⌘+T / ctrl+T
Window > Type > Paragraph	⌘+option+T / ctrl+alt+T

Format all the text in a particular occurrence by selecting the object, then setting attributes in the Character/Paragraph panels, or in the Control panel [with a type object selected].

Decrease/increase font size	⌘+shift+</> / ctrl+shift+</>
Decrease/increase kerning/tracking	option / alt+←/→
Decrease/increase leading	option / alt+↑/↓

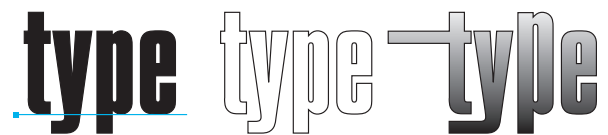
All paragraph formatting [incl. attributes, indents and spacing, tabs, paragraph composer, justification, etc.] should be saved as a paragraph style and local overrides to specific words [eg. **bold**, *italic*] should be saved as a character style.

- **Window > Type > Paragraph Styles** use the panel menu or **[option/alt+click]** 'new' button to name the paragraph style
- **Window > Type > Character Styles** works the same, but for single characters or words within a story.

### Turning Type into Objects

If you want to be able to fill type with a gradient or edit the type as an object, you have to turn it into outlines. It's best to apply this command to a COPY of your editable type.

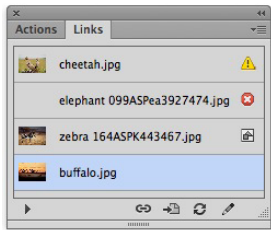
Type > Create Outlines	⌘+shift+O / ctrl+shift+O
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Imported Graphics

Managing Linked Graphics

When you place images [File > Place] be sure that 'Link' is selected. If it isn't, all graphics placed into Illustrator are *embedded* which means they are NOT *linked* to the original. There are many disadvantages to embedding images [don't]. Managing linked files is done with the **Window > Links** panel.



*Icons for a modified link, a missing link and an embedded image. Buttons are used to Relink [or Replace] Go To Link [centers image] Update Link [eg. modified] and Edit Original which will launch Photoshop and open image.*

- If an Illustrator document contains missing or modified links, you will be prompted to replace/update the link.
- Use the Relink button to replace the selected image with another or to relink an embedded image to the original.
  - Since embedded images are part of the Illustrator file they increase file size and can't be edited in Photoshop.
- **Adobe Bridge** can also be used to place images. Select the image, then **File > Place > In Illustrator** OR simply **drag+drop** images from Bridge to the Illustrator document window.

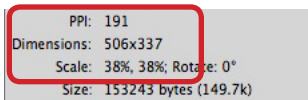
Proper Resolution and Color Mode

It is important that bitmap images have sufficient resolution at final print size and are in the appropriate color mode.

- **Print** – images must be in the CMYK color mode and between 250-300 ppi at final size [see calculation below]
- **Web** – images must be in the RBG color mode and at least 72 ppi at final size [color will be converted to RGB and resolution downsampled if if using 'Save for Web' feature]

**Checking resolution at final size** – choose 'Show Link Info' at the bottom of panel or simply **double-click** image/file in the panel.

- check that the PPI value at final size is sufficient
- even if the percentages are larger than 100%, the PPI listed represents the image resolution at final size.



Creating an Object Clipping Mask

To 'crop' anything in Illustrator, you have to create a mask.

- after placing the image, make the shape that will be the mask, positioning it on top of the image it will be masking
- then go to **Object > Clipping Mask > Make** to create the mask [fill and stroke attributes will be discarded from the mask]
- shape used to make mask doesn't have to be rectangular and can be edited after creating mask [eg. to add a stroke]
- **Object > Clipping Mask > Release** to remove clipping mask [or directly select the mask and delete it].

Preparing for Output

Saving files for use in other programs

Even saving your file in it's native (.ai) format has options. It's important to leave on the '**Create PDF Compatible File**' if the document is destined for a layout program like InDesign. [the PDF option generates a high res preview for layout]

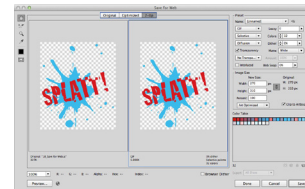
**File > Save As...** includes several other options for file format:

- **Illustrator EPS** – like the .ai format, includes option to save in 'Legacy Formats'. EPS is basically an obsolete format.
- **Adobe PDF** – for the standard 'Save Adobe PDF' dialog [presets are shared between all CS programs]. Turn on 'Preserve Illustrator Editing Capabilities' to keep editable, 'View PDF after Saving' to launch Acrobat/Reader.
- **Adobe FXG** – for artwork going to Adobe Flash or Flex.

**File > Save for Microsoft Office** – simply saves the file as a .png [to customize options for the png, use the Export option]

**File > Export** – offers a long list of image file formats to choose from including Flash [SWF] and Photoshop [PSD]. Each has unique options relating to the file format [like the ability to write layers to PSD file]. View in the destination application.

**File > Save for Web** – displays 'original' and an 'optimized' preview of the artwork. Select from a list of preset optimization settings [eg. GIF, JPEG] or customize the settings and 'Image Size' to create the smallest file size for the optimized web graphic.



Printing Options

It's possible to see how the artwork will fit on the page before printing [based on current Page Setup] or even change it.

**View > Show Print Tiling** – dotted lines indicate actual imageable area [inside box] vs. current page setup [outside box].

**Print Tiling Tool** [under the Hand Tool] lets you change where the artwork prints on the page [click and drag to position].

**File > Print – General** includes a 'Fit to Page' or 'Custom Scale' [thumbnail reflects size and can be dragged] In a document with multiple artboards, each artboard is printed separately, unless 'Ignore Artboards' is turned on. **Marks and Bleed** to add crop and registration marks or to include document bleed when printing. Choosing 'Done' saves settings with the file.

