



# Contents

---

<b>CHAPTER 1: INTRODUCTION</b> .....	<b>1</b>
Welcome To Canvas 15 .....	1
About The Documentation .....	1
Keyboard Keys .....	1
Choosing Commands .....	1
Getting Help With Canvas .....	2
Using The Help .....	2
Showing The Startup Screen .....	2
Using The Canvas Assistant .....	3
Using The Dynamic Help .....	3

---

<b>CHAPTER 2: DOCUMENTS AND SETUP</b> .....	<b>4</b>
Running Canvas .....	4
Overview Of The Canvas Interface .....	4
Viewing The Smart Toolbox .....	6
Using AutoSnap Palettes .....	9
Using The Toolbar .....	10
Using The Properties Bar .....	11
Using The Docking Bar .....	15
Using The Docking Pane .....	17
Using The Status Bar .....	18
Viewing Documents .....	19
Changing The View Magnification .....	20
Using Expressions For Numeric Values .....	23
Using Context-Sensitive Menus .....	25
Opening And Running Multiple Instances Of Canvas .....	25
Saving The Current Layout .....	26
Resetting To The Default Layout .....	26
Document Basics .....	26
Opening Canvas Documents .....	26
Placing Documents .....	27
Saving Canvas Documents .....	28

Undoing, Redoing, And Repeating Actions .....	31
Reverting To The Saved Version Of A Document .....	32
Working With Document Windows .....	32
Viewing And Editing Document Properties .....	33
Printing Documents .....	34
Closing Documents .....	40
Document Setup .....	41
Creating New Documents .....	41
Setting Up Documents .....	43
Setting Up Rulers .....	45
Document Scale Methods .....	47
Using The Alignment Grid .....	50
Using Alignment Guides .....	50
Document Layout .....	52
About Document Pages And Layers .....	52
Using The Page Navigator Palette .....	53
Using The Document Layout Palette .....	53
Page And Layer Controls .....	57
Page And Layer Options .....	58
Using Guide And Grid Layers .....	60
Configuration And Customization .....	62
Setting Preferences .....	62
General Settings .....	64
Text Settings .....	72
Printing Settings .....	75
Measurements Settings .....	76
Image/Multimedia Settings .....	78
Color Management .....	78
Preferences For Two-Byte Text Entry .....	80
Customizing The Keyboard And Toolbar .....	81
Saving Document Templates .....	84
File And Data Exchange .....	84
Importing And Exporting Files .....	85

Importing And Exporting Images .....	86
Using Canvas Templates .....	88
Working With Other File Formats .....	88
Using Object Linking And Embedding .....	101
Inserting ActiveX Controls In Documents .....	103
Exporting Files To Canvas Using The Canvas Print Driver .....	103

---

**CHAPTER 3: OBJECTS AND ATTRIBUTES ..... 104**

Working With Objects .....	104
Types Of Objects .....	104
Selecting Objects .....	104
Editing Objects .....	107
Copying, Cutting, Pasting, And Deleting Objects .....	109
Making Multiple Copies .....	114
Grouping And Ungrouping Objects .....	118
Moving Objects .....	119
Arranging Objects In The Stacking Order .....	120
Arranging Objects On Layers And Pages .....	121
Locking And Unlocking Objects .....	121
Aligning And Distributing Objects .....	121
Rotating, Skewing, And Flipping Objects .....	124
Scaling Objects .....	131
Scaling Objects By Area/Perimeter .....	131
Using The Object Specs Palette .....	132
Setting Print Properties For Objects .....	135
Creating Attribute Styles .....	137
Setting Default Attributes .....	138
Attaching Comments To Objects And Using Markup Tools .....	139
Assigning And Modifying Custom Object Properties .....	142
Viewing Object Properties .....	146
Inks: Colors And Patterns .....	150
Presets Palette .....	150
Attributes Palette .....	154
Working With Gradient Inks .....	160

Working With Hatch Inks .....	165
Working With Symbol Inks .....	166
Working With Texture Inks .....	168
Working With Pattern Inks .....	169
Creating Favorite Inks .....	170
Applying Inks To Objects .....	170
Using The Color Dropper .....	172
Replacing Ink Attributes .....	174
Using The Attribute Dropper .....	174
Strokes: Outline Effects .....	175
Types Of Strokes .....	175
Applying Preset Strokes .....	177
Customizing Strokes .....	185
Creating Custom Arrowheads .....	193
Customizing Dashes .....	194

---

**CHAPTER 4: DRAWING AND VECTOR EFFECTS ..... 196**

Drawing Basics .....	196
Drawing Basic Shapes .....	196
Drawing With Snap Options .....	200
Drawing By Numbers .....	202
Drawing More Complicated Shapes .....	203
Using The Smart Vector Fill Tool .....	211
Adding Annotations .....	212
Creating Flowcharts .....	214
Using Math Expression 2-D Plot Commands .....	216
Drawing And Editing Paths .....	218
Drawing With The Path Tools .....	218
Editing Object Paths .....	224
Reshaping Paths By Editing Anchor Points .....	234
Simplifying Vector Paths .....	241
Converting Polygons To Bézier Objects .....	241
Joining Open Vector Objects .....	242
Exporting And Importing Geometric Data .....	243

Editing Views Of 3D Objects .....	244
Precision Drawing And Dimensioning .....	246
Setting Up A Document's Measurement Scale .....	246
Using The Dimensioning Tools .....	247
Using Smart Mouse For Precise Alignment .....	253
Using Virtual Guides For Precise Vector Placement .....	255
Object Path Editor .....	256
Vector Effects .....	258
Perspective Effects .....	258
Offsetting Paths .....	260
Using Clipping Paths .....	260
Combining Objects .....	262
Blending Objects .....	265
Enveloping Objects .....	267
Extruding Objects .....	269
Colorizing Objects .....	273
Fractalizing Objects .....	273
Creating Shadows For Objects .....	274
Binding Objects To Path .....	275
Dynamic Objects And Clipart .....	276
Working With The Symbol Library Palette .....	276
Creating New Symbols .....	280
Modifying Preinstalled Symbols .....	280
Converting Macro Files To Symbols .....	281
Displaying Data In Charts .....	281

---

## **CHAPTER 5: PAINTING AND IMAGE EDITING ..... 284**

Painting And Image Editing .....	284
Paint Objects And Images .....	284
Creating Paint Objects .....	284
Working With Painting Tools .....	286
Selecting Brushes And Painting Options .....	294
Selecting Colors For Painting .....	296
Painting Modes .....	297

Painting Context Menu .....	298
Adding Visibility Masks To Images .....	300
Rendering Objects And Images .....	301
Using Vector And Text Tools In Paint Objects .....	303
Image Modes For Canvas Paint Objects .....	304
Removing Red Eye .....	312
Scanning, Sizing And Tracing Images .....	313
Using Scanners To Acquire Images .....	313
Choosing A Scanning Resolution .....	314
Changing Image Size .....	315
Changing Resolution .....	320
Auto-Tracing Images .....	322
Image Adjustment And Correction .....	324
Applying Image Editing Commands .....	324
Consolidating Colors .....	325
Changing Color And Contrast .....	327
Color Balance .....	329
Levels .....	329
Adjusting Brightness Curves .....	330
Hue/Saturation .....	332
Color Equalization .....	333
Blur Filters .....	333
Sharpen Filters .....	336
Adding And Removing Noise .....	337
Selections And Channels .....	339
Selecting Pixels In Images .....	339
Selecting Areas Based On Color .....	342
Converting Paths To Selections .....	345
Working With Image Selections .....	346
Saving And Loading Selections In Channels .....	351
Using The Channels Palette .....	354
Customizing Alpha Channels .....	356
Channel Masks .....	358

Transparency Effects With Channel Masks .....	360
Image Filters And Effects .....	362
Applying Effect Filters .....	362
Ripple Effects .....	370
Twirl Effects .....	372
Spherical Distortion .....	373
Artistic Effects .....	374
Using The High Pass, Maximum, And Minimum Filters .....	378
Filling Selections With Color .....	380
Creating Custom Image Filters .....	380
Rotating Images .....	382
Distorting Images .....	383
Combining Image Channels .....	385
Image Proxies .....	387
Using Proxies .....	387
Editing Proxies .....	389
Maintaining Proxies .....	390
Exporting Canvas Image Files .....	392

---

**CHAPTER 6: TEXT AND TYPOGRAPHY ..... 393**

Text Entry And Layout .....	393
Typing Text In A Document .....	393
Using The Text Tool .....	394
Creating Text Layouts .....	395
Tools And Options For Two-Byte And Vertical Text .....	396
Creating Column Layouts .....	398
Flowing Text From Column To Column .....	403
Merging Text .....	404
Text Form Field Tool .....	405
Formatting Text .....	406
Selecting Text And Objects .....	406
Applying Text Formats .....	407
Specifying Spacing Between Characters .....	411
Positioning Tabs .....	413

Horizontal And Vertical Text Scaling .....	414
Applying Paragraph Formatting .....	415
Setting Indents .....	417
Paragraph Alignment .....	418
Using Vertical Justification .....	419
Paragraph Rules .....	420
Adjusting Letter And Word Spacing .....	421
Specifying Text Flow Options .....	422
Setting Drop Caps .....	423
Inserting Headers And Footers .....	424
Working With Type Styles .....	426
Creating New Type Styles .....	426
Saving And Loading Type Styles .....	428
Using Type Styles .....	429
Applying Character Formatting .....	431
Text Editing And Proofing .....	432
Text Edit Mode .....	432
Text Selection And Navigation .....	432
Copying, Pasting, Deleting, And Moving Text Selections .....	434
Automatic Text Correction .....	437
Inserting Special Characters And Graphics In Text .....	438
Checking The Spelling Of Text .....	440
Importing Text From Other Applications .....	442
Exporting Text From Canvas Documents .....	443
Type Effects .....	444
Text Inks And Strokes .....	444
Wrapping And Repelling Text .....	446
Binding Text To Vector Objects .....	448
Applying Vector Effects To Type .....	452

---

**CHAPTER 7: SPRITE TECHNOLOGY .....** **457**

SpriteEffects .....	457
Introduction To SpriteEffects .....	457
Using SpriteEffects .....	457

Using The SpriteEffects Palette .....	458
Selections Masks .....	462
Effects Area .....	462
Lens Effects .....	464
Sharing Documents With SpriteEffects .....	468
SpriteLayer Effects .....	469
Using The Transparency Palette .....	469
Opacity Effects .....	470
Controlling The Scope Of Transparency Effects .....	472
Transparency Masks .....	472
Channel Masks .....	473
Vector Masks .....	477
Transparency And Printing .....	484

---

**CHAPTER 8: MULTIMEDIA ..... 486**

Designing For The Web .....	486
About Hyperlinks And Hypertext .....	486
Using The Link Manager Palette .....	487
Pixel Mode .....	492
Creating Slices .....	493
Using Web Buttons .....	499
Working With Animated GIFs .....	501
Creating Web Pages From Canvas Documents .....	503
Exporting As A Flash File .....	507
Exporting As PDF .....	508
Exporting As WEBP .....	513
Presentations .....	514
Creating Slide Shows .....	514

---

**CHAPTER 9: SEISMIC DATA ..... 519**

Seismic Data .....	519
Importing CGM Files .....	519
Seismic Traces Palette .....	520
Control Panel .....	520

Wiggle Options .....	521
Background Options .....	522

---

**CHAPTER 10: VISUALIZATION AND ANALYSIS ..... 524**

Data Acquisition, Visualization And Analysis .....	524
Working With DICOM Images .....	524
RAW File Format .....	525
Image Types And Filters .....	527
Accessing Image Data .....	537
About Canvas + GIS .....	540
Creating A New GIS Document .....	540
GIS Manager .....	540
GIS Positioning Palette .....	542
Choosing A Reference Point .....	543
Creating A Graticule .....	543
Warping Images .....	544
Coordinates .....	544
PointtoPoint Effect .....	545
Creating Buffers .....	546
GIS Data Formats .....	547
Opening Or Placing Geo-Referenced Files .....	548
Importing GeoTIFF Or Geo JPEG 2000 Files .....	550
Importing KMZ And KML Files .....	551
Importing GPX Files .....	551
Importing DAT ASCII Files .....	551
Importing TIGER Files .....	552
Importing SID Files .....	553
Importing DLG Files .....	554
Importing E00 Files .....	554
Importing S-57 Files .....	555
Importing ECW Files .....	556
Importing USGS DOQ Files .....	556
Importing MapInfo Files .....	557
Importing GML Files .....	558

Importing GIS Text Data Files .....	558
Importing GPS Garmin Data Files .....	560
Exporting GIS Files .....	561
Advanced Property Operations .....	566
Common Operations .....	566
GIS Object Operations .....	567

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<b>INDEX .....</b>	<b>576</b>
--------------------	------------

# Chapter 1: Introduction

## Welcome to Canvas 15

Canvas is the preferred application for technical illustrators in many industries because it offers the most flexible, scalable and integrated design environment. Canvas has the full range of precise vector object illustration tools and advanced raster image editing tools that you need — all in one single, workflow-accelerating application.

Canvas provides a complete solution for home, small business, school, and corporate users:

- An array of tools for illustration, layout, editing, proofing, and final output, so you can take projects from start to finish in Canvas.
- A dynamic and flexible interface, including a Toolbar you can configure with commands, tools, and styles as well as customizable keyboard shortcuts, a Docking pane and Docking bar to store palettes, and a Properties bar for tool settings and object manipulation.
- Help when you need it, in the form of a Dynamic Help window and the Canvas Assistant help for the tool you're currently using, built right into the interface, as well as a fully searchable Help system available from the Help menu.

## About the Documentation

Please take a few minutes to read the following information about the Canvas documentation. The Canvas 15 Help/User Guide describes the commands, tools, and features of Canvas. Certain terms and abbreviations are used to describe procedures.

 You'll find tips for working efficiently and exploring creative possibilities.

 Important items provide information to help you avoid problems.

 Other items of note are highlighted with a note icon.

## Keyboard Keys

Standard names and abbreviations are used for keyboard keys; your keyboard might use different labels.

Key Name	Description
<b>Alt</b>	The Alternate key, usually labeled <b>Alt</b> .
<b>Ctrl</b>	The key labeled <b>Ctrl</b> .
<b>Shift</b>	The key used to type uppercase characters.
<b>Enter</b>	The key labeled <b>Enter</b> .

## Choosing Commands

When a procedure tells you to choose a command, the instruction is written:

Choose **Edit | Paste**.

This tells you to open the Edit menu and choose the Paste command. You can use a keyboard shortcut if the command has one.

Some menu items open a submenu of related commands. When the documentation tells you to choose a submenu command, the instruction is written:

Choose **Object | Arrange | Bring To Front**.

This tells you to open the Object menu, choose Arrange to open the submenu, and then choose the Bring To Front command.

## Choosing Commands in the Context Menu

You can choose commands from a menu that pops up wherever the pointer is in Canvas. The commands in the menu are based on what you are doing; therefore, the menu is called the context menu.

To choose a command from the context menu, press the secondary mouse button, usually the right button.

## Using Modifier Keys

For some actions, you need to press a keyboard key while you click or drag the mouse; e.g., to select several objects, press the Shift key while you click each object. This can be written as Shift-click. If you press the Ctrl key, for example, while you drag the mouse, the action can be written as Ctrl-drag.

Some instructions say to "right-click" an object. This means to click the object using the secondary button, usually the right button, on the mouse.

## Getting Help with Canvas

If you need help while using Canvas, there are various utilities for your use.

### Using the Help

Canvas includes a Help file to provide assistance right within the program.

#### To View Help in Canvas:

Do one of the following:

- Press the **F1** key.
- Choose **Help | Canvas Help**.

When you first open the Help, the Contents topic appears. You can also search for topics or use the Index.

### Showing the Startup Screen

Select this command to open the Canvas Startup dialog box. You can create a new document, open documents, or access recent documents. You also have links to tutorials, online forums, knowledge base articles, among others.

#### To Open the Startup Screen:

Choose **Window | Show Startup**.

## Using the Canvas Assistant

Open by default, the Canvas Assistant dynamically displays information related to document setup, selected tools, and selected objects. Information is sorted according to relevancy; i.e., specific, related, or general.

### To Open the Canvas Assistant:

Choose **Help** | **Show Canvas Assistant**.

### To Close the Canvas Assistant:

Choose **Help** | **Hide Canvas Assistant**.

## Using the Dynamic Help

The Dynamic Help is a quick way to learn about the currently selected tool. In order to use the Dynamic Help, the Properties bar must be visible.

### To Open the Dynamic Help:

Do one of the following:

- Choose **Help** | **Show Dynamic Help**.
- Click the **Show Dynamic Help** icon. 

### To Close the Dynamic Help:

Do one of the following:

- Choose **Help** | **Hide Dynamic Help**.
- Click the **Hide Dynamic Help** icon. 

# Chapter 2: Documents and Setup

## Running Canvas

This section explains how to start and end a Canvas work session. It also provides an overview of the Canvas interface and describes the following basic procedures:

- Selecting tools from the Smart Toolbox™
- Using and arranging palettes
- Using the Properties bar
- Using information displayed in the Status bar
- Undoing, redoing, and repeating actions

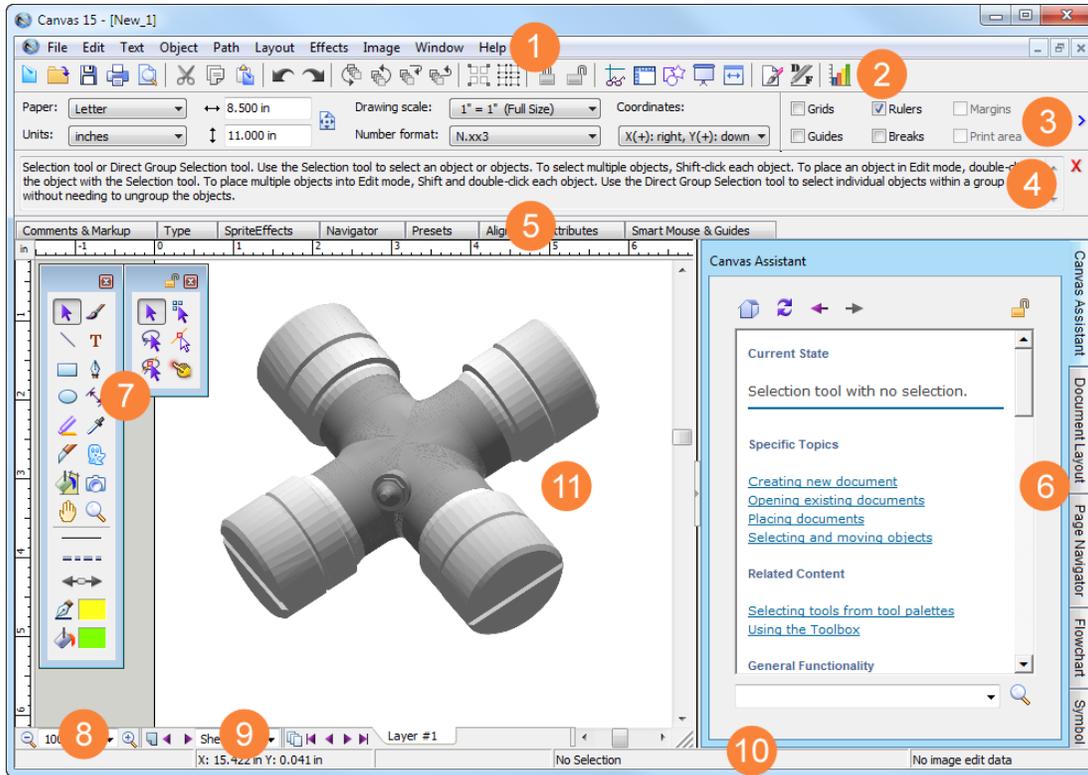
## Overview of the Canvas Interface

Canvas has four types of documents: Illustration, Publication, Animation, and Presentation. These documents share some common elements, while some specialized controls apply to particular documents types.

## Canvas Window

The Canvas interface contains eleven main components, providing you with a Layout area as the main area for working on your illustrations, and a variety of toolbars and docks with all the tools you need. Depending on your operating system and your Canvas customizations, your interface may look different than what you see in the image below.

You can customize the interface in several ways, such as by hiding the Toolbar, Properties bar, Docking bar, and Docking pane. You can also dock various palettes and customize the Toolbar. Each document window has Zoom controls, Document controls, and scroll bars. All documents share the Smart Toolbox, Properties bar, and Status bar. You can switch between Canvas documents using the Window menu, or you can tile or stack windows to see more than one document at a time.



<b>1</b>	<b>Menu bar</b>	Menus for all the Canvas features.
<b>2</b>	<b>Toolbar</b>	Shortcut icons for common tasks.
<b>3</b>	<b>Properties bar</b>	Lets you control the properties for the text, painting, or vector tools as well as document setup. You can toggle this bar on or off.
<b>4</b>	<b>Dynamic help</b>	Open this window to display information for selected tools and objects.
<b>5</b>	<b>Docking bar</b>	Provides a customizable dock for the Canvas palettes you use often. You can move the Docking bar to the left, right, or above the layout area.
<b>6</b>	<b>Docking pane</b>	Provides a large dock for the following palettes: <ul style="list-style-type: none"> <li>● Canvas Assistant</li> <li>● Document Layout</li> <li>● Flowchart</li> <li>● Page Navigator</li> <li>● Symbol Library</li> </ul>
<b>7</b>	<b>Toolbox</b>	Tool palettes snap out to the right. If you use a specific tool palette regularly, lock the palette so it remains open while you use other tools.
<b>8</b>	<b>Zoom controls</b>	Use these controls to zoom in and out of a document.
<b>9</b>	<b>Document controls</b>	Add pages and move from one page or layer to another.
<b>10</b>	<b>Status bar</b>	Displays the status and properties of the currently selected item.
<b>11</b>	<b>Layout area</b>	The main working area for creating illustrations, page layouts, presentations, and animations.

## Layout Area

The rectangle centered in the Canvas document window is the Layout area. The white space around the Layout area is known as the pasteboard and is additional working space where you can place objects before using them in an illustration. Objects on the pasteboard are saved with the document, but they are not printed.

The Layout area represents different things in the different Canvas document types.

- **Illustration:** A page, called a "sheet," with layers.
- **Publication:** A single-sided page or two facing pages with layers.
- **Presentation:** A "slide" with layers.
- **Animation:** A frame of an animation. If you select "onion-skinning", you can see objects on adjacent frames. (See "All About Onion Skinning" on page 502.)

You can change the color of the Layout area to represent the color of tinted paper.

### To Set the Layout Area Color:

1. Choose **Layout | Document Setup**.
2. In the Document Setup dialog box, select a color from the **Paper color** popup palette.

## Document Navigation Controls

A pop-up menu appears below the document window. Open this menu to move through a document.

## Viewing the Smart Toolbox

Select any tool in the Smart Toolbox and its palette, as well as related tools, automatically opens and snaps to the right of the Toolbox. The tool palette remains in that position until another tool is selected.

## To Display the Toolbox:

If the Toolbox is hidden or closed, choose **Window | Toolbox | Show Toolbox** to display it.

## To Dock the Toolbox:

Disable the **Smart Toolbox** option and then click the docking button or drag the **Toolbox** by its title bar to the Docking bar.



By default, the Smart Toolbox is active when you launch Canvas for the first time. You cannot dock the individual tool palettes when this option is enabled.

## To Disable the Smart Toolbox Option:

1. Choose **File | Configuration Center**.
2. Open the General settings and select **Functionality Options**.
3. Deselect the **Smart Toolbox** checkbox.



When the Smart Toolbox is disabled, you can dock the individual tool palettes.

If the Smart Toolbox is disabled, you click an icon to open a tool palette and then click again on the icon for the tool you want to select.



To temporarily retain a drawing tool, **Shift-click** the tool in the Toolbox. This function applies not only to basic vector tools but also to complex drawing tools, and path tools.

If you'll often use a specific tool, or related tools found on the same palette, you can also lock the palette so it stays "snapped" to the Toolbox.

## To Lock a Tool Palette:

Click on the **Lock** icon. When you select another tool, its palette snaps to the right of the locked palette.

When palettes are locked, you can relocate them to another part of the layout area. To do so, place the pointer on the palette title bar and **Shift-drag** the palette from the Toolbox.

Also, if you **Ctrl-drag** the palette, you can move a group of locked palettes or a single locked palette away from the Toolbox.

## To Unlock a Locked Palette:

Click the **Lock** icon.

## Using the Tools

In the Smart Toolbox, tools are represented by icons in two columns. The tools that aren't displayed are available on tool palettes that snap to the Toolbox when opened.

## To Select a Tool Displayed in the Toolbox or Tool Palette:

Click the tool. The selected tool is shaded, like a recessed button.





### To Access an Individual Tool:

Click on the arrow icon and select the particular tool from the menu. The tool will be selected in the Toolbox.

### Using AutoSnap Palettes

Canvas organizes tools, special effects, object attributes, and other functions in palettes. Palettes can remain open on screen, and they can be docked on the Docking bar. They can also attach together due to Canvas' "snapping" technology for floating palettes, or rather AutoSnap™ palettes.

### To Enable AutoSnapping:

1. Choose **File | Configuration Center**.
2. Open the General Settings and select **Functionality Options**.
3. Select the **AutoSnap palettes** checkbox.

If you have two or more palettes open, you can position them so they attach together. Once attached, you can then move them around as a group.

### To Tear Off a Group of Palettes:

Click on a palette's title bar and hold down the **Ctrl** key while dragging the palette away. Any palettes to the right of the selected palette move simultaneously.

### To Tear Off a Single Palette:

Click on a palette's title bar and hold down the **Shift** key while dragging the palette away. Only the selected palette moves.

### To Disable the AutoSnap Palettes Option:

1. Choose **File | Configuration Center**.
2. Open the General settings and select **Functionality Options**.
3. Deselect the AutoSnap palettes checkbox.

Some palettes have an Apply button that you must click if you want to implement the current settings. A palette stays open until you click its close box or use a command to close it.

### To Roll Up a Palette so Only its Title Bar is Visible:

Click on the minus button on the palette title bar.

### To Dock a Palette:

Click on the arrow button or drag the palette to the docking bar. (See "Using the Docking Bar" on page 15 and "Using AutoSnap Palettes" on page 9.)

### To Arrange Palettes:

Choose **Window | Palettes | Clean Up Palettes**. Canvas moves all open palettes except the ToolBox and floating tool palettes to the upper-right corner of the document.

## To Close All Palettes:

Choose **Window | Palettes | Put Away Palettes**. Canvas closes all open palettes, including the Smart Toolbox and floating tool palettes.

## Palettes Submenu

All Canvas palettes are listed in the **Window | Palettes** menu. To display a palette, choose the name of the palette in the submenu. If a palette is behind other palettes, it comes to the front. If a palette is docked, the palette comes off the Docking bar and opens.

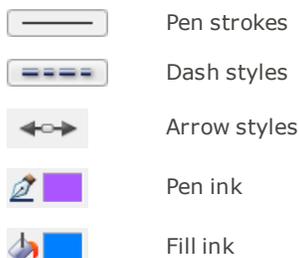


Tool palettes are listed in the **Windows | Toolbox** submenu.

Some palettes are also associated with commands in other menus; e.g., the **Layout | Document Layout** command opens the Document Layout palette. The **Image | Show Channels/Hide Channels** commands open and close the Channels palette.

## Presets Palette Icons in the Toolbox

You can access the Presets palette from the Strokes icon, Dash styles icon, Arrow styles icon, Pen Ink icon, and Fill Ink icon in the Toolbox. You can use these icons to select preset colors, dashes, arrows, and pen widths. To open the Presets palette, click on one of these icons to open the palette and then drag the palette away from the Toolbox.



When editing an image, the Pen Ink icon is replaced by the Brushes icon.

For procedures on selecting inks and strokes, see "Inks: Colors and Patterns" on page 150, and "Strokes: Outline Effects" on page 175. For information on selecting and using brushes, see "Painting and Image Editing" on page 284.

## Using the Toolbar

The Toolbar contains buttons you click to choose commands and tools. The Toolbar appears below the menu bar.



A standard set of commands appears on the Toolbar when you first run Canvas. You can use the Customize command to change the buttons on the Toolbar. Add buttons to the Toolbar for commands, tools, and custom colors and styles. (See "Customizing the Keyboard and Toolbar" on page 81.)

## To Display the Toolbar:

Choose **Window | Show Toolbar**.

## To Hide the Toolbar:

Choose **Window | Hide Toolbar**.

## To Select an Item on the Toolbar:

Click its button.

You can identify Toolbar items by displaying tooltips. Point to an icon and a tooltip appears with the name of the command or tool.

## To Display Tooltips if They Don't Appear:

Choose **File | Configuration Center**. Within the General settings, open the **Functionality Options** manager, and select **Show information tooltips**.

## Using the Properties Bar

Use the Properties bar to quickly modify the document setup, create some vector objects, modify tool settings, apply a filter or effect to an object, cache objects, or apply text formatting.



If you hide the Properties bar, you won't be able to display the Dynamic Help window.

## To Show the Properties Bar:

Choose **Window | Show Properties Bar**.

## To Hide the Properties Bar:

Choose **Window | Hide Properties Bar**.

## Viewing and Modifying Document Setup

When no items are selected in a document, the Properties bar displays document setup information. You can quickly and easily change the various document controls.

## Document Setup Options

<b>Paper</b>	Select a standard paper size, or select Custom to enter a custom width and height.
<b>Units</b>	Select the unit of measure to use in the document.
<b>Width and Height</b>	Displays the height and width of the document. If you change these measurements, Paper is changed to Custom.
	Click the Orientation icon to change the orientation between portrait and landscape.
<b>Drawing scale</b>	Select a drawing scale or set a custom scale for the document.
<b>Number format</b>	Select a number format.
<b>Coordinates</b>	Select a format for displaying coordinates.
<b>Grids</b>	Displays a background grid. This can be helpful for laying out objects in a document.
<b>Guides</b>	Displays any guides used in the document. To add a guide, drag the cursor from the vertical or horizontal ruler across the document.

<b>Rulers</b>	Displays the vertical and horizontal rulers.
<b>Breaks</b>	Displays page breaks.
<b>Margins</b>	Displays page margins.
<b>Print area</b>	Displays the printable area.
<b>Text boxes</b>	Displays text boxes.
<b>Spelling errors</b>	Displays spelling errors.
<b>Select Across layers</b>	Enables selections of objects across more than one layer.

## Changing Tool Settings

When you select a tool, its settings automatically appear in the Properties bar. Use the menus, checkboxes, and scroll boxes to change the tool settings.

For example, if you select the **Brush tool**, the following settings appear in the Properties bar:

## Modifying Object Properties

When an object is selected, the Properties bar automatically displays the object's reference point, coordinates, height, width, rotation, and skew settings. You can also change the object's opacity and transfer mode.

## Common Object Properties

<b>X and Y</b>	Displays the X and Y coordinates.
	For line objects, the Properties bar displays the X/Y coordinates for the start of the line and the end of the line, the length of the line, and the angle of the line.
<b>Coordinate arrows</b>	Displays the default coordinate format for the document.
<b>Reference point</b>	Displays the reference point for the object. This is the point on the selected object (or its bounding box) that position data is based on. The reference point is also the fixed point used in an object's transformation.
	
<b>Width and Height</b>	Displays the height and width of the object.
<b>Scale</b>	Click the <b>down arrow</b> to change between scaling the object proportionally or not proportionally. Proportional scaling means that if you change the width of the object, the length is adjusted automatically so that the object retains the same proportions.
	
<b>Transform</b>	Click the <b>down arrow</b> to transformed and untransformed dimensions.
	
<b>Rotation</b>	Click the <b>down arrow</b> to change the direction or rotation. Enter a degree value in the Rotate field and press <b>Enter</b> . If you are rotating an image, you can also use the Image Hard Rotate options.
	
<b>Skew</b>	Click the <b>down arrow</b> to change between horizontal and vertical skew. Enter a degree value in the Skew field

	and press <b>Enter</b> .
<b>Opacity</b>	Move the opacity slider to the right or left depending on the desired transparency. For vector objects, you can also choose to apply the effect on the stroke and fill or only the fill by clicking on the <b>Transparency</b> button.   For text objects, you can change the opacity and transfer mode by using the Transparency palette ( <b>Window   Palettes   Transparency</b> ).
<b>Transfer</b>	Select a <b>Transfer</b> mode. See "Using Transfer Modes" on page 482.
<b>Transparency</b>	Select transparency on the object's stroke and fill, or just on the fill.
	
<b>SpriteEffects</b>	Select a SpriteEffects effect. See "Using SpriteEffects" on page 457.
<b>Make Lens</b>	Click this button to make the object a lens. You can then apply SpriteEffects to the lens. The effects appear on objects that are viewed through the lens. See "Creating a Lens" on page 464.
<b>SpriteEffects Palette</b>	Click to open the SpriteEffects palette. See "Using SpriteEffects" on page 457.
	
<b>Anti-alias Object</b>	Select this checkbox to smooth the edges of the object.
<b>Scale by Area/Perimeter</b>	Click to open the Scale By Area/Perimeter dialog box, where you can select scale settings.   <b>Shift + click</b> multiple objects to display their combined Area and Perimeter measurements.
	

### To Move an Object:

Do one of the following:

- Click on the object to select it, then drag it to the new position.
- Click on the object to select it, then modify the X/Y coordinates and (optionally) the reference point in the Properties bar.

 To copy an object and paste it in the same position on a different page, you can do so by copying the object and then pressing **Shift** and choosing **Edit | Paste**.

### To Resize an Object:

Do one of the following:

- Click on the object to select it, then drag the object handles to resize it.
- Click on the object to select it, then enter values in the width and height fields in the Properties bar.

### To Cache Vector Objects:

Caching can be used to speed up the display of complex objects, which is useful when a document contains complex objects that you do not need to edit often. When you cache an object, Canvas stores a low-resolution preview in memory. The preview can be displayed quickly when you move the object or change views. You can cache any type of object for faster display. To cache vector objects, group the objects first. The Cache Object checkbox only appears if the vector objects are grouped.

1. Group the selected vector objects.
2. Click the **Cache Object** checkbox.
3. Enter a value in the PPI field.

 You can also group vector, image, and text objects and then cache the grouped object.

### To Align Objects:

When you select more than one object the Align options are displayed on the Properties bar. You can choose to align left edges, right edges, tops, bottoms, vertical or horizontal centers, or the centers of the objects.

1. Select more than one object.
2. Click one of the Align icons on the Properties bar.

### Modifying Images and Paint Objects

When an image or paint object is selected, the Properties bar automatically displays image and paint object settings such as filters, adjust options, and export options.

### Common Image and Paint Object Properties

<b>Filters</b>	Select a filter to apply to the object. The last five used filters appear at the top of the menu on the Properties bar. If you don't click on the arrow icon to open the menu, the last filter used will be applied.
<b>Adjust</b>	Select an Adjust filter to apply to the object.
<b>Export</b>	Select an option to export the object to a different format.
<b>Crop</b>	Select a crop and scale default size, or select <b>Custom</b> to define a special crop size. See "Changing Image Size" on page 315.
<b>Res</b>	Enter a resolution in pixels per inch (PPI).
<b>Preserve Data</b>	Click the checkbox to prevent resampling when the resolution is changed.
<b>Image Mode</b>	Select an image mode. See "Image Modes for Canvas Paint Objects" on page 304.
<b>Cache Object</b>	Select the paint object and then click the <b>Cache Object</b> checkbox. Enter a value in the PPI field.
	 When a cached paint object is placed into Paint Edit mode, it returns to the original resolution.
<b>Res</b>	Enter a resolution in pixels per inch (PPI).

### Formatting Text

When using various tools to create or select text objects, the text formatting options appear in the Properties bar. See "Formatting Text with the Properties Bar" on page 408.

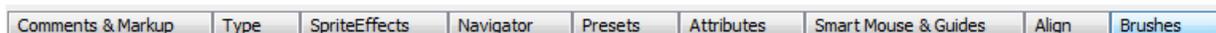
You can also format text using the Type palette (**Text | Type**) and the Text menu settings.

## To Cache Text Objects:

1. Group the selected text objects.
2. Click the **Cache Object** checkbox.
3. Enter a value in the PPI field.

## Using the Docking Bar

You can use the Docking bar to customize the Canvas interface. By default, the Docking bar is displayed near the top of the screen below the Properties bar when you launch Canvas for the first time.



## To Display the Docking Bar:

Choose **Window | Docking Bar | Show Docking Bar**. When you display the Docking bar, the palettes that were docked the last time it was displayed will remain locked.

## To Hide the Docking Bar:

Choose **Window | Docking Bar | Hide Docking Bar**.

You can move the Docking bar from the top to the right and left sides of your workspace.

## To Move the Docking Bar:

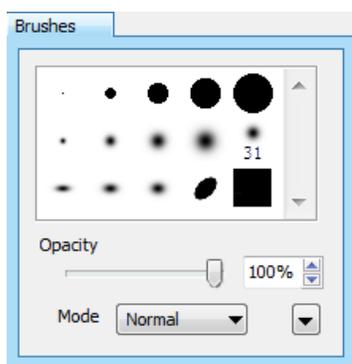
Click and hold the pointer on the Docking bar, (not on a palette tab). Drag the Docking bar from its present position to either the top, left, or right.

The settings for the Docking bar are stored in the CVAppData.Set file.

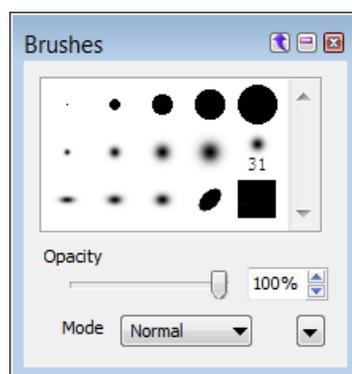
## Docking Palettes

When you dock a palette, a tab with the palette's name appears on the Docking bar. The tabs of docked palettes give you quick access to tools or features. Docked palettes also leave more screen space.

You can dock most Canvas palettes, including tool palettes. (See "Tool Palettes" on page 8.) You can dock other palettes from the Toolbox, including the Inks, Strokes, Transparency, and Brushes palettes. You can also dock command or effects palettes such as Align, Blend, Envelope, Object Specs, and Type. Dialog boxes that require you to click OK or Cancel before continuing can't be docked.



Docked palette



Floating palette

You can dock as many palettes as you want on the Docking bar, depending on the size of your screen. (See "To Adjust the Size of Tabs on the Docking Bar:" on page 16

### To Dock a Palette:

Do one of the following:

- Drag a palette to the Docking bar and drop it when a tab outline appears.
- Click the Docking button located in the upper right corner of the palette. 

### To Dock a Tool Palette from the Toolbox:

First drag the palette away from the Toolbox so its title bar appears. Then, drag the tool palette onto the Docking bar.

### To Change the Position of a Docked Palette:

Drag the palette's tab to another position on the Docking bar.

### To Remove a Docked Palette:

Drag the palette's tab away from the Docking bar.

### To Dock All Open Palettes:

Choose **Window | Docking Bar | Dock All Palettes**.



To access the Docking bar commands, you can also right-click an empty area of the Docking bar.

### To Dock Palettes When Closed:

Choose **Window | Docking Bar | Dock Palettes When Closed**.

### To Arrange Docked Palettes:

Choose **Window | Docking Bar | Clean Up** to arrange the tabs of docked palettes evenly on the Docking bar.

### To Arrange Tabs by Name:

Choose **Window | Docking Bar | Clean Up By Name** to arrange the tabs of docked palettes in alphabetical order.

### To Adjust the Size of Tabs on the Docking Bar:

1. Choose **Window | Docking Bar | Set Tab Length**.
2. In the dialog box, select one of the following:
  - **Auto**: Displays the full name of docked palettes.
  - **Max Characters**: Sets a specific tab size. Enter the number of characters to display. A smaller number results in smaller tabs.
3. Click **OK**.

### To Make a Selection from a Docked Palette:

Click the palette's tab on the Docking bar. The palette pops open and you can click a tool or other item in the palette to select it. When you click in the document or the Toolbox, the palette closes again. To close the palette without selecting anything, click anywhere outside the palette.

You can use docked palettes as if they are floating, with one exception: you cannot drag objects into docked palettes.

 Palettes that are docked in the Docking bar when you quit Canvas will be docked the next time you launch Canvas.

## Using the Docking Pane

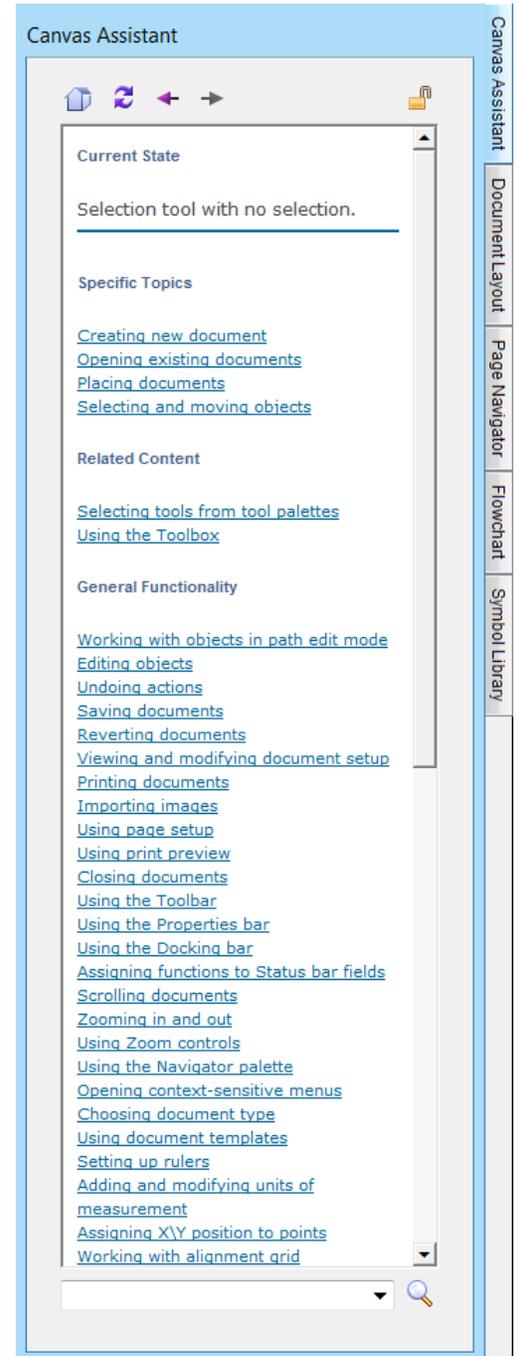
You can use the Docking pane, located to the right of the Layout Area, to dock the following palettes:

- Canvas Assistant
- Document Layout
- Flowchart
- Page Navigator
- Symbol Library

### To Show or Hide the Docking Pane:

Click the Expand/Collapse button on the vertical splitter bar.

 If you remove all the palettes from the Docking pane and close them, you will not be able to see the vertical splitter bar and the Docking pane will be hidden. To reopen the Docking pane, open one of the palettes, such as the Canvas Assistant, and drag it to the Docking pane.



## Docking Palettes

When you dock a palette, a tab with the palette's name appears in the Docking pane stacked with the Canvas Assistant. The tabs of docked palettes give you quick access to tools or features and leave more screen space for working on your document.

### To Dock a Palette:

Do one of the following:

- Drag a palette to the Docking pane and drop it when the palette window expands to fill the pane.
- Click the Docking button located in the upper right corner of the palette. 

### To Remove a Docked Palette:

Click on the palette name at the top of the Docking pane and drag the palette away from the pane.

### To View a Docked Palette:

Click the palette's tab to bring the palette forward.

### To Arrange Docked Palettes:

Click and drag a palette's tab to move it to another position in the Docking pane.

 Palettes that are docked in the Docking pane when you quit Canvas will be docked the next time you launch Canvas.

## Using the Status Bar

The Status bar is at the bottom of the Canvas window. The Status bar provides information about commands, tools, objects, and program operations.

### To Set the Number of Information Fields:

Point to the **Status Bar**, open the context menu, and choose from the Number of Fields submenu.

### To Add Fields:

Point to the **Status Bar**, open the context menu, and choose a function in the Add to Right or Add to Left submenu.

### To Remove a Field:

Point to the field, open the context menu, and choose Remove.

New fields that you add to the Status Bar are blank until you assign a function to each field. If you reduce the number of fields, Canvas removes fields from the right end of the status bar.

### To Adjust the Width of a Field:

Drag its border right or left.

During certain actions, such as saving a document, Canvas displays a progress bar in the Status bar.

## Assigning Functions to Fields

To assign a function to a field in the Status bar, right-click on a field to open the context menu, and choose a function in the Show submenu.

- **Hintline:** The Hintline area displays tool names, tips, and status messages. When you move the pointer over a tool icon or other item, the Message area shows the tool's name and function. You can use this feature to take a tour of the Canvas tools and interface.
- **Mouse position:** When you move the pointer, draw, resize, or rotate objects, Canvas displays the coordinates of the pointer.
- **Object Name & Number:** Displays the current page number and layer number. Symbols indicate layer options, including non-printing, locked, and color override. When an object is selected, the field displays the object's number in the sequence of objects on the layer.
- **Object Type:** Displays information about selections. When one object is selected, the field displays the type of object selected. When multiple objects are selected, the field shows the number of objects selected. When you select an object group, the field displays **Group of n objects**, with **n** as the number of objects.
- **Object Details:** Displays various details about selected objects, such as the position of points on the bounding box of a rectangle (as measured from the rulers' zero point) and the number of points in a path object. For other objects, the field displays data such as the diameter of ovals and the angle of arcs.
- **Image Edit Data:** Displays information about paint objects.
- **GIS Position:** Displays the GIS position of the cursor.

## Viewing Documents

This section describes how you can adjust your view of a document. Viewing options in Canvas lets you:

- Control when Canvas redraws objects.
- Scroll to any area with the Hand tool or scroll bars.
- Increase or decrease the view magnification.
- Restore any view magnification and location.
- Display wireframe and process-color views.

## Controlling When Canvas Refreshes the Display

Canvas refreshes the display, which redraws all visible objects, when you scroll or change magnification. When you work with complex images, you can interrupt the redraw to save time, then refresh the display when you're ready.

### To Interrupt Display Redraw:

Press **Esc** during normal redraw.

### To Refresh the Display:

Choose **Layout | Display | Refresh**. You can refresh the display after interrupting screen redraw, or when you want to refresh the display.

## Scrolling Documents

You can use scroll bars or the Hand tool to move to areas of a document that aren't displayed in the document window.

## Using Scroll Bars

Document scroll bars represent the full document area. The position of the scroll box within a scroll bar indicates the current view area.

### To Scroll Using Scroll Bars:

Do one of the following:

- Click one of the arrows to move in the arrow direction.
- Drag the scroll box toward the part of the document you want to see. For example, drag up to see more of the top.
- Click the scroll bar to scroll one screen length toward the side of the scroll box that you clicked. For example, click to the right of the scroll box to move one screen to the right.

## Using the Hand Tool

Using the Hand tool to scroll a document is like sliding a piece of paper on a desktop.

 To temporarily switch to the Hand tool while using another tool, press the **Spacebar** and drag with the **Hand** pointer.

### To Scroll with the Hand Tool:

1. Select the **Hand tool**. The pointer becomes a hand. 
2. Drag to make the document follow the pointer. e.g. To move a document up so you can see the bottom, drag toward the top of the screen.

## Changing the View Magnification

You can change your view of a document by changing the view magnification. Zoom in to enlarge objects or zoom out to see a larger area.

 Zooming changes the view on screen, but doesn't change the actual size of anything in the document.

You can zoom with the Magnifying Glass tool, the Zoom controls, and Zoom commands. You can use magnification levels from 0.0001 to 102400 percent. Normal magnification is 100 percent.

### To Use a Command to Zoom:

Choose **Layout | Views | Zoom In** or **Zoom Out**. Zoom In increases magnification to the next higher preset level; Zoom Out decreases magnification to the next lower preset level.

### To Enter a Zoom Percentage:

1. Do one of the following:
  - Choose **Layout | Views | Zoom**.
  - Press **Ctrl** and the slash key (**/**).
2. Enter a zoom percentage from 0.0001 to 102400 and press **Enter**.

## Using Zoom Shortcuts

You can use keyboard shortcuts to zoom in and out.

### To Zoom in with Any Tool Selected:

Press **Ctrl+Spacebar** and click or drag a box around an area; to zoom out, press **Ctrl+Shift+Spacebar** and click or drag a box around an area.

### To Zoom in Directly:

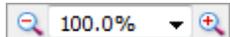
Press **Ctrl+Alt+ Plus (+)**.

### To Zoom Out:

Press **Ctrl+Alt+ Minus (-)**.

## Using the Zoom Controls

You can use the Zoom controls at the bottom left of the document window to adjust the view magnification. The Zoom controls display the current magnification and let you change magnification.



### To Zoom to the Next Preset Magnification Level:

Click the Zoom-in or Zoom-out button. The Zoom-in button increases magnification. The Zoom-out button decreases magnification.

### To Open the Preset Magnification Menu:

Click on the menu icon and the zoom menu pops open. Select a magnification level.

### To Enter Any Magnification Percentage:

Type the magnification percentage in the Magnification Level field of the Zoom controls.

## Using the Magnifying Glass

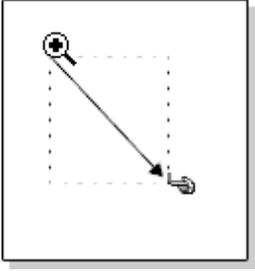
Use the Magnifying Glass tool to zoom in and out from an area that you select in the document.

### To Use the Magnifying Glass:

1. Select the **Magnifying Glass** tool. The pointer becomes a magnifying glass with a + sign. 
2. Click the center of the area you want to magnify. Canvas zooms to the next preset magnification level and centers the view at the point you clicked.
3. To reduce rather than magnify, **shift-click** the area you want to center on screen at reduced magnification.

### To Magnify an Area to Fill the Screen:

With the Magnifying Glass tool, drag a box around the area you want to magnify.



## Using Views Commands

You can use Views commands to quickly change your view of the current document. Choose the following commands in the **Layout | Views** submenu.

- **Home view:** Displays the upper-left corner of the document at normal (100 percent) magnification.
- **Fit to Window:** Reduces or increases magnification to the maximum magnification level for the layout area to fill the document window.
- **Fit to Selection:** Reduces or increases magnification to the maximum magnification level for the selected objects to be visible in the document window.
- **Fit to Objects:** Reduces or increases magnification to the maximum magnification level for all objects on the current page, sheet, slide, or frame to be visible in the document window.

## Using Custom Views

You can create custom views to save the current magnification level and position in the document.

### To Create a Custom View:

1. Choose **Layout | Views | New View**.
2. In the New View dialog box, enter a name for the view and click **OK**. The new view will appear beneath Home View in the **Layout | Views** submenu.

A checkmark appears next to the view name when a custom view is selected. Canvas assigns shortcut keys (which appear in the menu) so you can quickly select the custom views you have created.

### To Delete a Custom View:

Choose **Layout | Views | Delete View**.

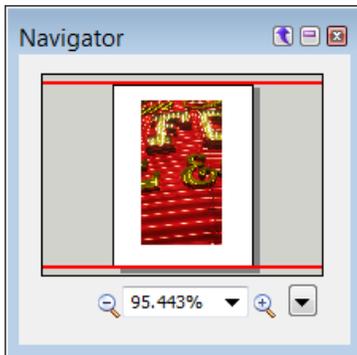
- If only one custom view exists, Canvas deletes it.
- If more than one custom view appears in the Views submenu, the Delete Views dialog box opens. Select a view and click **OK**. Canvas removes the selected view from the Views submenu.

## Using the Navigator Palette

The Navigator palette provides an overview of a document. You can use this floating palette to scroll the document and zoom in and out.

## To Display the Navigator Palette:

Choose **Window | Palettes | Navigator**.



## Zooming and Scrolling

The Navigator palette shows a reduced-size view of the entire layout area. A red rectangle, the View box, represents the current view position in the document. The box is small when you zoom in to view details and becomes large (relative to the layout area) as you zoom out.

- **Scrolling:** In the Navigator palette, move the view box to change your view of the layout area. Drag the view box to the part of the layout area you want to see. e.g. To see the top of a page, drag the view box to the top of the layout area.
- **Zooming:** You can use the zoom controls to change the magnification level. Type a number in the text box to change the magnification level. Type a higher number to zoom in or a lower number to zoom out. Normal magnification is 100%. Click the Zoom-in button on the right to double the magnification level. Click the Zoom-out button on the left to reduce magnification by half. The Zoom controls are at the bottom of the document window. (See "Using the Zoom Controls" on page 21.)



To quickly change the view area, click within the Navigator palette. The view box moves to where you click and the layout area shifts as well.

## View Options

You can choose view options from the Navigator palette menu. This menu contains the same commands as the **Layout | Views** submenu. You can choose Home View, Zoom In, and Zoom Out, custom views that you have saved, and commands that make all objects or the entire layout area visible in the window.

## Previous View

You can use the Views menu to return to your previous view, including magnification level and area of the document.

To return to your previous view, select **Layout | Views | Previous View**, or press **F4**.

## Using Expressions for Numeric Values

You can type basic mathematical expressions to specify numeric values in Canvas dialog boxes and palettes. You can use addition, subtraction, division, and multiplication operators in simple expressions; e.g., you can type a fractional value, such as 2/3, in place of a decimal value.

## To Type an Expression:

To enter operators in expressions, type a plus sign (+) for addition; a minus sign (-) for subtraction; a slash (/) for division; and an asterisk (\*) for multiplication.

You can type parentheses to nest values and operators in expressions. Do not type an equal sign in an expression.

Canvas calculates the result of a mathematical expression when you press **Tab** or **Enter**, or click an **Apply** button, or move to another value in a dialog box.

## To Modify a Value:

1. To use an existing value in an expression, click after the number to place an insertion point.
2. Type the remainder of the expression; e.g., to make the width of an object 3 times larger, click after the existing value and type \* 3, and then press **Enter**. To make the value one-third as large, type / 3.

By entering expressions after existing values in the Transform palette, you can move objects incrementally; e.g., to move an object 3/4 inch to the right, type + 3/4 after the X value.

## Specifying Measurement Units

In most dialog boxes, you can type abbreviations to specify measurement units. You can use this feature to override a document's measurement units or the specific measurement units used in these dialog boxes.

For example, when inches are a document's unit of measurement, you can type 1 cm to specify 1 centimeter. Canvas converts 1 cm and displays it as .3937 inches.

The following are the abbreviations you can type to specify a unit of measurement.

Abbreviation	Unit of measure
<b>in</b>	inches
<b>ftf</b>	feet
<b>y</b>	yards
<b>mi</b>	miles
<b>p</b>	picas
<b>pt</b>	points
<b>mm</b>	millimeters
<b>m</b>	meters
<b>km</b>	kilometers
<b>cmc</b>	centimeters

## To Use an Abbreviation for a Measurement Unit:

In a text box that accepts numerical values, type a value followed by the abbreviation for the measurement unit.

Canvas converts the numerical value to the measurement units you are using in the document when you press **Tab** or **Enter**, or click an **Apply** button, or click in another edit box.

You can even type a mathematical expression using more than one measurement unit; e.g., you can type 1p+1cm.

## Using Context-Sensitive Menus

Canvas has context menus that you can pop up in the drawing area, giving you quick access to common commands. The menus are context-sensitive; the available commands depend on the current operation.

Choose common editing commands, such as Cut, Copy and Paste, when an object is selected. Other commands are available when an object is in Edit mode; e.g., image-editing commands appear in the context menu when you edit a paint object. Path-editing commands appear when a vector object is in Edit mode.

When no objects are selected, you can choose view commands such as Zoom In, Zoom Out, Show Rulers, and Show Guides. If the Clipboard contains objects or text, you can choose Paste. You can choose Undo after performing an action that can be undone.

## Using Context Menus

To apply a command to an object, select the object first. To use other commands, you do not need to select an object before displaying the context menu.

Click the right mouse button. A context menu appears. Click a command in the menu to choose it.

When you are editing an object, you can point to a specific item to display commands for editing that item; e.g., if you point to an anchor point on a path, you can choose commands to modify the anchor point in the context menu.

For information on specific commands that appear in the context menu, refer to the command name in the Index.

## Opening and Running Multiple Instances of Canvas

You can configure Canvas to automatically open in a new instance each time you create or open a document. This can be useful for accelerating workflow.

### To Create a New Document in a New Instance of Canvas:

1. Choose **File | New**.
2. In the New Document dialog box, select the **Open in a new application window** checkbox.
3. Click **OK**.

### To Open a File in a New Instance of Canvas:

1. Choose **File | Open**.
2. In the Open dialog box, select the **Open in a new Canvas application window** checkbox.
3. Click **Open**.



When multiple files are selected, all files will be opened in the same instance.

## Synchronization of Setting Changes:

Most changes in settings will not be saved until you exit the instance of Canvas in which you made the changes. Instances being opened take the settings of the last instance of Canvas that was closed. Therefore, the order in which you exit multiple instances is relevant.

## Saving the Current Layout

Many users find that they frequently position the main Canvas window, toolboxes, Docking bar, Toolbar, Properties bar, and floating palettes, and put them into states that are optimal for their personal workflow. These layouts can be saved to allow quick access for future use.

### To Save the Current Layout:

1. When you have the windows, toolboxes, and palettes positioned and sized as you would like them, choose **Window | Window Layout | Save...**
2. In the Save new window layout dialog box, enter a name for your layout.
3. Click **OK**.

### To Open a Saved Layout:

1. Choose **Window | Window Layout**.
2. Select your saved layout from the list in the Window Layout menu.

### To Delete a Saved Layout:

1. Choose **Window | Window Layout | Delete**.
2. In the Delete Window Layout dialog box, select the saved layout from the list that you want to delete.
3. Click **Delete**.

## Resetting to the Default Layout

You can reset Canvas' layout to the factory default layout at any time. In other words, you can revert back to the layout that you see when you launch Canvas for the very first time.

### To Reset to the Default Layout:

Choose **Window | Window Layout | Reset to Default Layout**.

## Document Basics

Canvas documents are the containers for your work. You can create and save vector drawings, text, raster images and effects in Illustration, Publication, Presentation and Animation documents.

This section describes the basics of working with Canvas documents, including how to open, save, view, and print them.

## Opening Canvas Documents

Use the Open command to open Canvas documents. The general procedure is the same for opening Canvas documents and any other type of file that Canvas supports.



Documents opened recently are listed in the File menu.

## To Open a File:

1. Choose **File | Open**.
2. In the Open dialog box, select the file to open. Canvas displays a preview if the selected document contains a preview.
3. Click **Open**.

## To Open a Document You Worked with Recently:

Choose the document name from the list of recently opened documents in the File menu.

## To Start Canvas and Open a Document Simultaneously:

Double-click a Canvas document icon in a folder or directory on your system. The program starts and the document opens.

## Options for Opening Canvas Files

When you choose **Open**, a directory dialog box lets you select a file in the scroll list and see a preview.

You can select **Show All Files** to list all the files in a folder. This is different than Selecting **All** in the File Format pop-up menu, which lists all files that Canvas can open.

If you need additional help working with files, folders, and directories, refer to your Windows documentation.

You can open more than one document at a time in Canvas. When you open a document, Canvas loads the document into your system's memory. You need to have enough memory available to hold the document's contents. Documents that contain many complex objects or large high-resolution images require more memory than simple documents.

When you work with a document, changes you make to the document are not saved until you use the Save or Save As commands.

## Substituting Fonts When Opening Documents

If a document you open uses fonts that aren't available on your system, Canvas displays a dialog box before opening the document. Use the dialog box to review which fonts are required by the document and to select substitute fonts, or you can let Canvas select substitutes.

## To Substitute Fonts When Opening a Document:

1. Select a font listed under Original Font, or Shift-click to select multiple fonts. This column lists fonts that are specified in the document but are not available.
2. Choose a substitute font in the "With" pop-up menu. The name of the font appears in the list under Substitute Font. Canvas displays the font name in its corresponding typeface so you can preview the font substitution.
3. Select the checkbox to permanently replace the missing fonts with the fonts you choose in this dialog box.
4. After you select substitutes for the missing fonts, click **OK** to open the document. To cancel the changes, click **Clear Changes** to let Canvas choose a substitute and open the document.

## Placing Documents

Use the Place command to incorporate a document stored on disk into an open Canvas document. With the Place command, you can insert a Canvas document, an image, or a non-Canvas illustration document; e.g., you can place a document containing your company logo within a document in which you are preparing a sales brochure.

The Place command lets you visually set the location and dimensions of the incorporated document. You can also control which layers, pages, or slides to place, and whether to place them on the current layer, page, or slide, or on new ones, depending on the document type (Illustration, Publication, Animation, or Presentation).

If you place one Canvas document type (Illustration, Publication, Animation, or Presentation) into another document type, Canvas converts the placed pages, sheets, or slides to the format of the current document. Document pages (and sheets or slides) can be added to the current document, along with their layers.

### To Place a File in an Open Canvas Document:

1. Choose **File | Place**.
2. In the Place dialog box, select the file that you want to place and then click **Place**.
3. If the file has more than one page or layer, in the Place Options dialog box, configure the options and then click **OK**.
4. Position the Place cursor in the open document where you want the top-left corner of the placed file to be.
5. Click to place the file at its original size; Canvas inserts the upper-left corner of the file at the point you click.

### To Define the Dimensions of the File You Are Placing:

Drag to create a bounding box. Canvas inserts the file and scales it to fit the bounding box.

### Place Options

When you place a file with multiple pages or layers, the Place Options dialog box lets you specify how the placed file should be added to the current document.

<b>Place on current layer</b>	Places the file's objects on the current layer of the current page. No pages or layers are created in the current document.
<b>Show Place Cursor</b>	Select this option if you want to set the position or size of placed items on the current page. After you click <b>OK</b> in the Place Options dialog box, a place pointer appears. Click to set the position of the upper-left corner of the placed items, or drag to enclose an area in which you want the placed items to fit.
<b>Add new layer(s) to current page</b>	Places the document's layers as new layers on the current page in the current document.
<b>Add new page(s)</b>	Places the document's pages and layers as new pages and layers in the current document.
<b>Preserve objects positions and dimensions</b>	If you are placing a document of a different scale, you can choose to select this option to automatically scale the objects to match the scale of the current document. If you do not want to scale the objects, deselect this checkbox.
<b>Scale Options</b>	Click to this option if you want to exclude certain types of objects from scaling.
<b>Select Layers</b>	Click to choose specific pages or layers to place. A dialog box lists the available items. <b>Shift-click</b> two items to select a range. <b>Ctrl-click</b> to select multiple items and toggle selected items. Click <b>OK</b> to close the dialog box.

### Saving Canvas Documents

In Canvas you can choose to save an entire document, a selection, or a layer. You can also use compression, or apply a password to protect a document.

Use one of the following:

- **Save:** Updates a document file on disk and overwrites the previously saved version.
- **Save As:** Lets you create a new file on disk from an open document, save documents as templates, and use other graphics and text file formats.

When you use these commands, the default format for storing documents is the native Canvas format.

## Saving Files

### To Save a New Canvas Document:

1. Choose **File | Save As**.
2. In the Save As dialog box, select a location to store the document and type a file name.
3. Click **Save** to store the document on disk.

### To Save Changes to a Document as You Work:

Choose **File | Save** to update the document file on disk.

### To Save a Document with a New Name or in a New Location:

Choose **File | Save As**. Enter a new name or select a new location in the directory dialog box, and then click **Save**.



To avoid losing your work in the event of a power failure or system failure, use the Save command frequently as you work to store changes on disk. Also use the AutoSave feature located in the General settings in the Configuration Center. (See "Setting Preferences" on page 62.)

## Saving Selections and Layers

In the Save As dialog box you can choose options to save selections or layers, and create previews.

<b>Save Entire Document</b>	The default setting tells Canvas to save a complete document.
<b>Save Selection</b>	Choose this option after you select the objects in the document that you want to save as a new document. If you don't select anything, this option is not available.
<b>Save Layer</b>	Select this option to save one or more layers in a new document. Then, click <b>Layers</b> to specify which layers to save. This option isn't available if the document has only one layer.
<b>Use Compression</b>	Check this box to reduce the size of files saved on disk.
<b>Save Preview</b>	Select the this option to save a low resolution preview of the document. In applications that support previews, you can see a thumbnail image of the document before opening the file.

## Maintain Editing Capability When Saving a Canvas Document as a PDF

When saving a Canvas document as a PDF, you have the option to maintain the editing capability within Canvas. This means that if you choose to open your PDF document back into Canvas, you will still be able to edit the elements.

## To Preserve Canvas Editing Capability When Saving as a PDF:

1. Click **File | Save As**.
2. Enter a file name
3. Select PDF from the Save as type drop-down list.
4. Click **Save**.
5. Check **Preserve Canvas editing capability** checkbox in the PDF Options dialog box.

 When opening the PDF back in Canvas, select the object and click the ungroup button in the properties bar to edit the individual elements of the PDF.

 Preserving Canvas editing capabilities makes your PDF file size larger.

## Applying Password Protection to Canvas Documents

If you want to control who can open a Canvas document, you can protect the document with a password.

### To Add a Password to a Document:

1. In the Save As dialog box, select the **Encrypt file** checkbox.
2. In the Password text box, enter a password.
3. In the Confirm text box, enter the same password again.
4. Click **OK**.

### To Change the Password on a Document:

1. In the Save As dialog box, click the **Modify key** button.
2. Enter and confirm the new password, and then click **OK**.

 The encrypt option is only available when you save the document in the native Canvas format. The PDF export has its own encryption method. (See "Exporting as PDF" on page 508.)

## Saving Documents in Multiple Formats

You can save a document in more than one format by setting the Multiple Save Options.

### To Save a Document in Multiple Formats:

1. Choose **File | Save As**.
2. In the Save As dialog box, select the Multiple Save checkbox.
3. Click the **Options** button to select the formats you want to save.

<b>Raster Formats / Non-raster Formats</b>	Select the formats you want to save the file in.
<b>Display Options dialog</b>	Select this checkbox to display the Render Image or PDF Options dialog boxes so that you can select the settings for each format.
<b>Save companion files in subfolder</b>	Select this checkbox to save the files in a subfolder. The Canvas image is saved in the folder you specify in the Save As dialog box, and the other files are saved in a subfolder with the same name as the Canvas image.  For example, if your Canvas image is named New_1.cvx, the subfolder containing the other files will also be named New_1.  If you do not select this checkbox, files are saved in the same folder as the Canvas document.
<b>Reset</b>	Click this button to reset the Multiple Save options to the factory defaults.

Once you have saved a document in multiple formats, next time you save the document, it will be saved in all the formats you selected by default. If you want to choose different formats, click **File | Save As**, and click the **Options** button to change the multiple format options.

 The Multiple Save checkbox is only available if you have selected CVX - Canvas as the document type in the Save As dialog box.

 If you use the same Multiple Save options regularly, you might want to create a Canvas Template TPL file to save your settings. When you create a new document using the template file, your Multiple Save options are applied to the file.

## Undoing, Redoing, and Repeating Actions

You can easily correct mistakes, restore your work to an earlier state, and repeat commands using the Undo, Redo, and Again commands. The minimum and maximum number of times you can undo changes can be changed within the Configuration Center. (See "Setting Preferences" on page 62.)

Canvas uses memory to store operations so they can be undone. The amount of memory depends on the operation; e.g., undoing a filter applied to a 2 MB image requires significantly more memory than reversing a change in type size.

Canvas allocates memory to ensure that you can undo the specified minimum number of actions. Canvas tries to set aside enough memory so you can undo the specified maximum number of actions. It uses this memory if it's needed for other operations. Therefore, you should be able to undo the specified minimum number of actions, but you might not be able to undo the specified maximum number of actions. The memory allocation ensures that you'll have the most memory available in Canvas.

### To Cancel an Action:

Do one of the following:

- Choose **Edit | Undo**. You can choose **Edit | Undo** multiple times to undo canceled actions in reverse order.
- Press **Ctrl+Z**.
- Choose **Window | Palettes | Undos**. In the palette, select an action that you want to undo.

 Not all actions can be canceled with the Undo command. Actions that cannot be canceled include scrolling; closing or reverting to an earlier version of a document; selecting and deselecting objects; deleting settings in palettes; and saving documents.

## To Restore Actions You Canceled Using Undo:

Do one of the following:

- Choose **Edit | Redo**. You can choose **Edit | Redo** multiple times to reinstate canceled actions in reverse order.
- Press **Ctrl+Shift+Z**.
- Choose **Window | Palettes | Undos...** In the palette, select an action that you want to redo.

## To Repeat a Command or Other Action:

Choose **Edit | Again**.

When an action can be repeated, the Again command includes the name of the action; e.g., after you rotate an object, the Again command appears as "Rotate Again."



Not all actions can be repeated. The Again command isn't available if the previous action can't be repeated.

## Reverting to the Saved Version of a Document

The Revert command lets you discard changes made to a document since it was last saved. This is the same as closing the document without saving changes, and then opening the original from disk.

Be certain that you want to discard all changes to a document before choosing the Revert command, because you cannot use the Undo command to restore your work after using the Revert command.

Keep in mind that you can use the Save As command to save a document with a new name. If you are not certain that you want to discard changes to a document, use Save As to store a new version on disk, then open the original document and compare the two.

## To Revert to a Document's Saved Version:

1. Choose **File | Revert**.
2. Confirm that you want to discard all changes.

## Working with Document Windows

Each document you open appears in its own window. You can work with Canvas document windows the same as other windows. You can resize a window, expand it to fill the screen, and minimize or roll it up. Canvas provides commands to organize and select document windows when more than one is open.

## Selecting Among Open Documents

When you open several documents at once, only one is active. The Window menu displays the names of open Canvas documents. The name of the active document has a check mark.

## To Change the Active Window:

Do one of the following:

- Choose the document's name in the list at the bottom of the Window menu.
- Click a document's window.

When you open more than one document, information in the Properties bar and Status bar, such as the pointer's location, applies to the active document. The same is true of floating palettes; palette settings apply to the active document and they change when you switch documents.

## Arranging Windows

When you open more than one document window, you can stack or distribute them on screen so they are easier to work with.

When Canvas arranges document windows, it resizes them if necessary so they fit within the main program window or screen area.

### To Arrange Windows in Rows:

Choose **Window** | **Tile Down**.

### To Arrange Windows in Columns:

Choose **Window** | **Tile Across**.

### To Stack All Windows:

Choose **Window** | **Stack**.

### To Arrange Icons of Minimized Windows:

Choose **Window** | **Arrange Icons**.

## Viewing and Editing Document Properties

With the Properties command, you can view the properties of documents. You can view standard data and add your own metadata to a document.

### To View or Edit Properties:

1. Choose **File** | **Properties** to open the Document Properties dialog box. This dialog box contains the following tabs: General, Statistics, Summary, and Custom.
2. Click a tab to display its options. Use the procedures later in this section to edit the options, where applicable, then click **OK** to implement the settings.



The document must be saved for some of its properties to be displayed.

### Choosing a Property

To view or customize a property, select a tab in the dialog box.



The creation time can be different on the General and Statistics tabs. The Statistics tabs displays the date and time the document was created as a new document. The General tab displays the time it was first saved.

- **General:** Describes general information about a saved document, such as type, location, size, attributes, when it was created, and when it was last modified.

- **Statistics:** Displays when the document was created and when it was last modified. It also shows the last time the document was printed, the name of the person it was last saved by, the number of revisions, and the total editing time. The Statistics box contains information about the document and the objects contained in it.
- **Summary:** Lets you customize information about the document. You can enter a title, subject, author, manager, and company. In the Category and Keyword boxes, you can type data to categorize the document. The Comments box lets you type comments about the document.
- **Custom:** Lets you add custom data to the document. You can choose names and data types for these entries, as described next.

### To Enter Custom Data:

1. Choose a name from the list for the data entry, or to create a new data name, type a name in the **Name** text box.
2. Choose a data type from the Type menu. You can choose Text, Date, Number, or Yes or No. Then, depending on the type, enter a value in the **Value** box:
  - For Text, type any text value.
  - For Date, type a date from 1/1/1601 through 12/31/9999.
  - For Number, type a numeric value.
  - For Yes or No, click Yes or No.
3. Click **Add** to add the data entry to the Properties box.

### To Modify a Data Entry:

Click the entry in the Properties box, then change the type or value. You cannot change the name of the entry. Click **Modify** to apply the change.

### To Delete a Data Entry:

Select the entry in the Properties box and then click **Delete**.

## Printing Documents

In Canvas, you can print to any printer set up on your computer or network, including PostScript and non-PostScript printers.



For information on installing, setting up, and selecting a printer to use, refer to your operating system documentation.

## Printing a Document

If your document uses a standard paper size and you want to print all the visible objects on the page, you can simply select a printer and print the document. However, Canvas also offers the flexibility to print multiple pages on a page, scale the page to fit the paper, print color separations, print registration marks, and much more.

### To Print a Document:

1. Choose **File | Print**.
2. In the Print dialog box, select a printer from the **Name** drop-down list in the Printer section.
3. On the General tab, set the **Print range** and **Copies** settings.

4. Select any other options you want to use from the **Advanced**, **Separations**, and **Page setup** tabs.
5. Click the **Print** button.

## Print Options

The Print dialog box contains four tabs: General, Advanced, Separations, and Page Setup.

### General Options

<b>Printer</b>	<p><b>Name:</b> Select a printer from the drop-down list.</p> <p><b>Properties:</b> Click this button to modify the properties in the printer driver.</p> <p><b>Print to file:</b> Select this checkbox if you want to generate a postscript file rather than a printed document.</p>
<b>Print range</b>	<p><b>All pages:</b> Prints all the pages in the document.</p> <p><b>Pages:</b> Prints the pages you specify.</p> <p><b>Selection:</b> Prints the currently selected object.</p> <p><b>Odd-numbered pages only:</b> Prints only the odd-numbered pages.</p> <p><b>Even-numbered pages only:</b> Prints only the even-numbered pages.</p>
<b>Copies</b>	<p><b>Number of copies:</b> Enter the number of copies you want to print.</p> <p><b>Collate copies:</b> Prints all pages of the document in order based on the number of copies requested, rather than printing all copies of page 1, all copies of page 2, and so on.</p> <p><b>Reverse order:</b> Prints from the last page to the first, keeping pages in the correct order if the printer stacks pages face-up in the output tray.</p> <p><b>Print facing pages:</b> If the document is formatted for spreads, Canvas prints facing pages on a single page. This option is available for printing Publications only.</p> <p><b>Skip blank pages:</b> Does not output document pages (or separation plates) that are completely blank.</p>
<b>Preview</b>	Click this button to see a preview of the printed page.



Some documents can be larger than the paper in your printer. To print the entire document, select the **Tile** option in the Page Setup dialog box. Canvas will “tile” (divide) the document into a series of pages matching the paper size of your printer.

### Advanced Options

<b>Optimization</b>	<p><b>Optimize image resolution to printer:</b> Optimizes the resolution of images based on the printer capabilities.</p> <p><b>Print proxied images at full resolution:</b> Prints the high-resolution images that are linked to the proxies in the document. Canvas outputs the images from the linked files on your computer. If you do not select this option, Canvas prints proxy images rather than the high-resolution images. This is faster and could be adequate when you are proofing other parts of a document.</p>
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**Always send header:** Sends a header to a Postscript printer.

**Text always in front:** Because of the way that Canvas renders SpriteLayer effects, text that is not in front of all other objects can be output as rendered images rather than text. If you want to avoid rendering text for printing, select this option. Canvas will print the text objects in front of all other objects.

If you have text that has special effects or is behind transparent objects, you should not select this option, so the text will be rendered and printed as it appears in the document.

**Kanji fonts resident:** Uses resident Kanji fonts on Postscript printers when you are printing Japanese text.

**Transparency rendering:** Choose an option in the Transparency Rendering menu to specify how transparency and SpriteEffects will be rendered (converted to pixels for printing).

- **Smallest area:** Renders the area inside the bounding box of all transparent objects. This generates the least amount of additional data to print transparency effects. Do not choose this option if you are printing in color on non-PostScript printers and the document has vector and transparent objects that share the same color, because these printers will not match the colors precisely. In some cases, non-standard PostScript printers might produce a slight pixel shift between a transparent and non-transparent area of a vector object. If this happens, select **Complete Area**.
- **Complete area:** Renders the area within the bounding boxes of all transparent objects, as well as objects that are overlapped by transparent objects (or intervening objects). This is the best setting to use when you print to a non-PostScript printer, such as a Windows GDI printer, to avoid color-matching problems
- **Entire document:** Renders all objects in the document as one or more images that are sent to the printer. This is equivalent to processing the document in an internal RIP (raster image processor) in Canvas. This option produces the greatest amount of image data. However, this option can be useful if you experience problems producing accurate output of transparency or other effects when you use a particular printer or printer driver.
- **No transparency:** Does not render any transparency effects in the document. If you select this option, transparency (SpriteLayer) and image (SpriteEffects) effects will not be printed; transparent objects will be printed as opaque objects.

The one exception to this rule involves vector objects that have a transparency Scope setting of Fill only when printing to a PostScript printer, because PostScript can print transparent fill inks in vector objects without rendering. For information on the Scope setting, see "To Set an Object's Transparency Scope:" on page 472.

 Select **Don't Render Transparent Objects** if you need to quickly print a proof of a complex document. This allows you to check the positioning of objects without seeing the final transparency effects.

 Rendered transparency effects are transmitted as image data when printing to PostScript printers.

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**Color mode:** Choose an option to control color accuracy when using a color printer. In general, when you print to a color printer, it's best to choose a color specification that matches the colors in the document you're printing; e.g., choose CMYK if your document contains CMYK colors only.

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- **RGB:** Outputs colors using RGB color specifications. A non-color printer will convert the color values to print as shades of gray.
  - **Black & White:** Prints all colors as black or white.
  - **Colors As Grays:** Canvas converts color values to shades of gray for printing on any printer, including color printers.
  - **CIE L\*a\*b:** Uses color calibration to try to match printed colors to their appearance on screen. Keep in mind that many on-screen hues cannot be reproduced on paper with printing inks. For example, colors that look bright and saturated on screen, such as hot pink, cyan, and brilliant orange, will appear muted in printed materials.
  - **CMYK:** Outputs colors using CMYK color specifications. A non-color printer will convert the color values to print as shades of gray.

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**Image compression:** Choose a format for output of image data to a PostScript device or file. The format you choose affects the amount of data transmitted and the size of a PostScript file. This setting can affect compatibility with networks and PostScript printers.

- **ASCII:** Outputs image data as plain text. This is the most compatible format, but it transmits (or saves in files) the largest amount of data.
- **Binary:** Outputs images as binary data, which might not be compatible with all printers and networks. Binary data is half the size of ASCII data.
- **Level 2 ASCII:** Outputs images in an ASCII format that is compatible with PostScript Level 2 devices. This produces files that are approximately 20% smaller than regular ASCII PostScript files.
- **RLE:** Outputs images using Run Length Encoding compression. This format is compatible with PostScript Level 2 devices. This form of compression is most efficient when documents contain images that have large areas of flat color.
- **JPEG:** Outputs images using JPEG compression. This format is compatible with PostScript Level 2 devices. JPEG compression requires more system memory and more processing time at the printer than other compression methods. However, this format achieves the fastest printing results with continuous-tone (photographic) images and documents containing transparency effects.



By default, Canvas uses JPEG compression for printing images. This can reduce the amount of data sent to the printer. If a network print spooler reports errors with a JPEG data stream, select **Images: ASCII** or **Level 2 ASCII** and try printing again. The **Images** setting affects printing of images and rendered effects only.

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**Additional  
Information**

**Registration marks:** Adds registration marks, used for alignment in colored printing.

**Canvas file name:** Includes the Canvas filename at the top of the page.

**Crop marks:** Includes crop marks, short vertical and horizontal lines that indicate the border where an illustration or page can be trimmed.

**Plate names:** Includes plate names when you are printing separations.

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## Separations Options

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<b>Print separations</b>	Select this checkbox if you want to print color separations.
<b>Plates</b>	<b>Halftone setting:</b> Select the halftone setting. The default settings can be used with most desktop printers. <b>Print spot colors as process:</b> Prints any spot colors in the document as process colors.
<b>Trapping and overprinting</b>	<b>Overprint black text:</b> Overprints black text. <b>Overprint black objects:</b> Overprints black objects. <b>Trap size:</b> Enter the number of points to use for traps.

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## Page Setup

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<b>Scale</b>	<b>Fit to paper:</b> Scales a document to fit within the page's printable area. Remember that objects outside the layout area, will not be printed. <b>Center on paper:</b> Centers a document on the printed page. If you're printing selected objects only, Canvas shifts the selected items to the center of the printed media. This option can be useful when you have selected objects that you want to print in the center of the page, but they are not centered in the document itself. <b>Tile:</b> Prints a large document by dividing it among "tiles" of printer pages. Type an Overlap value in the text box so part of the document repeats at the edge of adjoining tiles; the overlap makes it easier to assemble the complete document after printing.
<b>Thumbnails</b>	<b>Print thumbnails:</b> Select the number of pages to print per page. The preview area shows how your pages will be placed on the paper.

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## Previewing Your Printed Document

The print preview reflects the current print settings and the page setup. In the preview, you can see which objects, layers, and pages will be printed. You can make sure the layout fits in the printable area of the paper. If you choose the **Tile** option in the Page Setup tab or dialog box, the preview shows the tiles as separate pages.

### To Preview a Printed Document:

1. Do one of the following:
  - Choose **File | Print Preview...**
  - Choose **File | Print**, then click the **Preview** button.
2. Do one or more of the following to preview the document:
  - Click the zoom buttons to increase or decrease the magnification of the preview.
  - Click the arrow buttons to view other pages.
  - If you are previewing separations, click the plate buttons to view the plates that will be printed for each page.

- When you have finished previewing the document, do one of the following:
  - Click **Print** to send it to the current printer when you finish previewing a document and the settings are correct.
  - Click **Close** to return to the document without printing.

## Print Preview Options

The Print Preview dialog box provides the Options, Separations, and Page setup tabs with the same options as the Print dialog box. (See "Print Options" on page 35.) You can use the Messages tab to view any printing related warnings or errors, such as warnings about spot colors.

Additional options appear at the bottom of the dialog box:

<b>Show rasterized area</b>	Select this checkbox to see the objects that will be rendered when sent to the printer. This option depends on the selection in the Transparency rendering menu.
<b>Show overprint/choke/spread</b>	These checkboxes are related to the trapping technique that you can apply to objects via the Object Specs palette (Trap tab). If you have applied any technique, select the appropriate checkbox.
<b>Normal display</b>	Select this radio button to switch to normal display if using wireframe display.
<b>Wireframe display</b>	Select this radio button to switch to wireframe mode.

## Using Page Setup

If you always want to use the same settings when you print a particular document, you can save the settings in the Page Setup dialog box. It's a good idea to set these options when you create a document so you can see page breaks correctly on the screen.

### To Set Up Pages for Printing:

Choose **File | Page Setup**.

## Page Setup Options

<b>Printer</b>	Select a printer from the drop-down list.
<b>PPD</b>	If the printer you are using is a Postscript printer, also select a PPD (Postscript Printer Description).
<b>Fit To Paper</b>	Scales a document to fit within the page's printable area. Remember that objects outside the layout area, will not be printed.
<b>Center On Paper</b>	Centers a document on the printed page. If you're printing selected objects only, Canvas shifts the selected items to the center of the printed media. This option can be useful when you have selected objects that you want to print in the center of the page, but they are not centered in the document itself.
<b>Tile</b>	Prints a large document by dividing it among "tiles" of printer pages. Type an Overlap value in the text box so part of the document repeats at the edge of adjoining tiles; the overlap makes it easier to assemble the complete document after printing.
<b>Printer Properties</b>	Click this button to set up the printer properties in the printer's print driver.



Canvas can obtain the page orientation from the printer properties. Select the correct page orientation in the Page Setup dialog box, deselect any objects in your document, and then, in the Properties bar, select **From Printer** in the Paper menu.

## Setting the Print Area

If you want to print only a selected area of a page, you can set the print area to define how much of the page is printed. This can be especially useful for large documents that don't fit easily on standard sizes of paper or complex documents where you want to focus on a single component. Once you have set a print area, you can choose to toggle it on or off depending on whether you want to print just the print area or the entire document.

### To Set the Print Area:

1. Choose **File | Print Area | Set Print Area**.
2. Use the Print Area cursor to draw a box around the area you want to print.
3. In the Print Area dialog box, check and adjust the Left, Top, Width, and Height measurements as necessary.
4. Click the **OK** button.

An orange box appears in the document to indicate the printable area.

### To Toggle the Print Area on or off:

In the Properties bar, select or deselect the **Print area** checkbox.

When the Print area is on, an orange box appears to indicate the printable area. When the Print area is off, the orange box disappears.

### To Remove the Print Area:

Choose **File | Print Area | Clear Print Area**.

## Troubleshooting Document Printing

A few key factors affect how Canvas prints a document. Canvas decides which objects to print based on the following:

- **Document boundary:** Canvas does not print objects that are outside the layout area (the rectangle that represents the document on screen). Objects that are partly inside and partly outside the layout area will be cropped in the printout.
- **Visible layers:** Objects on layers that are not visible are not printed.
- **Printable layers:** If a layer's print option (in the Document Layout palette) is off, nothing on the layer is printed.
- **Printable objects:** If an object is made non-printable (in the Document Layout palette or the Trap tab in Object Specs), the object will not print.
- **Printable area:** If you have set a print area, then only the area within the print area is printed. You can toggle the printable area by selecting its checkbox in the Properties bar.

## Closing Documents

When you close a document, Canvas removes the document window from the screen. Closing a document doesn't save it. (Canvas will warn you if you try to close a document that has changed.)

## To Close a Canvas Document:

Choose **File | Close**. You can also click the Close button in the document's title bar to close the document.

## Document Setup

When you create a new Canvas document, you select a document type. Then you specify the document size and other options.

This section explains how to create new documents and how to set up document rulers, drawing scales, guides, and alignment grids.

## Creating New Documents

In Canvas, you can create several different types of documents: Illustrations, Publications, Presentations, and Animations.

There are two ways to create a new document:

- **Startup dialog box:** When you first start Canvas, you can create a new document from the Startup dialog box. The new document opens immediately. You can then use the Configuration Center to change document attributes such as the document units and drawing scale.
- **Inside Canvas:** If you have Canvas open already, you can create a new document from the **File | New** menu or by clicking the New Document icon. The New Document dialog box opens so that you can set the document attributes immediately.

## To Create a New Document from the Startup Dialog Box:

In the Startup dialog box, click a document type.



If you don't see the Startup dialog box, choose **Window | Show Startup**.

## To Create a New Document from Inside Canvas:

1. Do one of the following:
  - Choose **File | New**.
  - Click the New Document icon.
2. In the New Document dialog box, select the document type.
3. Select options for the new document.
4. Click **OK**.

## New Document Options

The items that you define in this dialog box can be modified via the Properties bar or Document Setup manager (**Layout | Document Setup**).

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<b>Type of document</b>	Select a type of document. Depending on your choice, the dialog box may offer more or fewer options; i.e., Publication offers Margin settings, rather than a Drawing scale, as well as a layout menu.
<b>GIS Document</b>	If you are using Canvas +GIS, for illustrations, you can select this checkbox to work with a GIS document. Once you click <b>OK</b> , the GIS manager opens so you can configure the GIS settings.

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<b>Drop-down list</b>	For a Publication document, select one of the following: <ul style="list-style-type: none"> <li>• <b>Full page:</b> Creates a single page document.</li> <li>• <b>Facing pages:</b> Creates a document with pages designed to be viewed side by side, like a spread in a magazine. A facing-pages document has a master page with left and right pages.</li> <li>• <b>Tent card:</b> Creates a document with two landscape pages designed to use as a tent card.</li> <li>• <b>Greeting card:</b> Creates a document with four pages designed for use as a greeting card.</li> </ul>
<b>Choose document template</b>	Use a template instead of choosing a document type and defining page size and orientation. Select templates for illustrations, publications, or presentations. (See "Using Document Templates" on page 43.)
<b>Paper</b>	Define the document size and paper unit. The maximum document size is 2000 miles x 2000 miles. Select preset sizes, or set the document size to the printer paper, or enter a custom size. To set up a custom size, choose Custom and enter the width and the height. Select the paper unit from the menu.  To change the page orientation of the document, click the Portrait or Landscape button. This swaps the width and height values.  To change the paper color, select a color from the drop down.
<b>Document units</b>	Choose the measurement units for the rulers. (See "Setting Up Rulers" on page 45.)  Select the Pixel mode checkbox to view graphics at 72 ppi before they are rendered.
<b>Drawing scale</b>	For an illustration, animation, or presentation, select one of the preset scale options or create a custom scale. (See "Setting Up Rulers" on page 45.)
<b>Margins</b>	For a publication, select the left, right, top, and bottom page margins.
<b>Save as default</b>	Select this checkbox if you consistently work with the same document type and layout.

## Choosing a Document Type

When you create a new document, you can select an Illustration, Publication, Presentation, or Animation document.

### Illustrations



The most commonly-used format, Illustration documents are the basis for most Canvas technical illustrations.

Illustration documents are general-purpose documents for all types of illustrations and graphics. You can specify a custom document size, and the document can have multiple pages (called sheets), with multiple layers on each sheet.

### Publications



Publish documents using one of the standard paper sizes or a custom size. Specify full pages or facing pages, or choose one of the standard templates to create brochures, flyers, labels, magazine pages, and more.

Publication documents are designed for publications printed with two-sided (facing) pages, although you can also create a Publication that has pages with single sides. You can use master pages to hold items that you want to appear throughout the publication. You can also use multiple layers on each page.

## Presentations



Presentations and slideshows provide a powerful way of displaying technical data.

Presentation documents are designed for on-screen slideshow presentations. You can use multiple layers and a master slide to hold background elements. You can use more than a dozen transition effects, including wipe and dissolve, during slide show playback.

## Animations



Create simple animations from your technical illustrations.

An Animation document is designed for creating and editing web (GIF) animation files. An animation is composed of multiple frames, which are equivalent to the image frames of film-based animations.

You can use onion-skinning in an Animation document. When you select onion-skinning, frames adjacent to the current frame appear in the background. This helps set up object movement in an animation.

## Using Document Templates

Templates are special Canvas documents that you can use as the basis for new documents. When you select a template in the New dialog box, Canvas creates a new document containing the graphics and text in the template and uses the template's settings for layers, slides, pages, rulers, grids, guides, views, and default object attributes.

How is a template different than a regular Canvas document? When you choose a template in the New dialog box, Canvas creates a new document based on the template, but doesn't actually open the template file. When you make changes to the new document and save it to disk, the changes don't affect the template.

Canvas treats a template in a similar way when you open one by double-clicking its icon or using the **Open** command. In either case, rather than open the actual template document, Canvas makes a new document based on the template's document type and contents.

Templates, like regular Canvas documents, are various types: Illustration, Presentation, Publication, and Animation. In the New dialog box, the templates listed in the Use Template pop-up menu match the document type selected in the Type of Document area.

## Setting Up Documents

After you create a document, you can use the Document Setup manager in the Configuration Center to change the document type, measurement units, size, orientation, and other options (**Layout | Document Setup**).

The Document Setup manager present similar options for each type of document, with some specific options for a particular document type; e.g., in a Publication document, you can set facing pages and page margins. In a Presentation document, you can specify screen size.

### To Set Up a Document:

1. Choose **Layout | Document Setup**.
2. In the Document Setup manager, select the options you want and click **OK**.

## Document Setup Options

The following options are available in all document types, except as noted.

## Document Units

Choose an option in the Document Units pop-up menu. The unit you select will be used in the rulers.

## Document Size

You can set the document size to match the paper in your printer, or set up a document based on a standard or custom size. The controls for document size are labeled according to the type of document (Illustration, Publication, and so on).



For illustrations larger than the current paper size, toggle the Breaks option in the Properties bar to see or hide page breaks. A line around the layout area indicates page boundaries.

To use a standard size, choose an option from the pop-up menu. You can choose standard sizes based on the document type.

- **From Printer:** To base the dimensions of the layout area on your printer's page size, choose **From Printer**. The layout area will match the settings in the Page Setup dialog box. For more information, see "Matching Documents to Printer Pages" on page 45.
- **Custom:** To specify custom dimensions, choose **Custom**. Type the width in the first box and the height in the second box.
- **From Screen:** In Presentations and Animations, you can base the size of the layout area on the monitor's size. To do this, choose **From Screen**.

## Orientation

To change the orientation of the document, click the button in the Orientation area. This swaps the width and height values of the document.

## Margins

To set margin size for two-sided Publications, enter the Inside, Outside, Top, and Bottom margins in the text boxes in the Margins area. For single-sided Publications, enter Right, Left, Top, and Bottom margins. The margin is measured from the edge of the paper. Margins are not available in other document types.

On screen, the document's margins appear as a dashed line. The page boundary appears as a solid line around the edge of the layout area. Make sure the margins are not outside the page boundary.

## Page Layout

To specify multiple pages per sheet in a Publication, choose Tent Card or Greeting Card in the Sheet Layout pop-up menu.

## Facing Pages

To create double-sided pages, select Facing Pages. When Facing Pages is on, the document has a left and a right master page that you can apply to its left-hand and right-hand pages. This option is available in Publication documents only. Note that once you select Facing Pages for a Publication, it cannot be undone or changed to another document type.

## Paper Color

Lets you apply a solid color to the document layout area. The paper color is for display purposes only and does not print. To apply a paper color, select a color from the pop-up palette.



When objects are partially transparent, the paper color is visible through the objects. However, while the paper color is not visible through solid objects, in the real world, the colors of objects will be affected by the color of the paper they are printed on; e.g., a yellow circle printed on blue paper will appear green. This is not shown on screen in Canvas when you use the Paper Color option.

Canvas includes the paper color when it renders transparent objects, so the paper color affects the rendered image the same as it does on screen in Canvas.

## Matching Documents to Printer Pages

Selecting From Printer in the Document Setup dialog box tells Canvas to use the page information from the Page Setup dialog box. Canvas sets the orientation and dimensions in the Document Setup dialog box to match the selected page size.

When From Printer is selected and you change the page settings, Canvas changes the dimensions of the document to match. You can choose **File | Page Setup** to change the paper size, or its orientation; Canvas will update the dimensions of the document and you do not have to choose **Layout | Document Setup**.

When the document type is Illustration, and you select From Printer, the document size is equal to the printable area or page boundary of the paper selected in the Page Setup dialog box. For all other document types, the document size is equal to the paper size, rather than the page boundary.

 If working with a large document, you can define a printable area. (See "Troubleshooting Document Printing" on page 40.) You can then toggle the Printable area option in the Properties bar.

On most printers, the page boundary is smaller than the paper size. Illustration documents are sized to the page boundary, so illustrations will fit on the paper without being scaled. You should note that the page boundary on many printers is not centered exactly on the paper.

Canvas takes scaling into account when it sets the document dimensions and you specify a scaling factor in the Page Setup dialog box; e.g., if you specify 50% scaling, the document size will be twice the page size (or twice the page boundary size in an Illustration).

 To see or hide the page boundary, you can toggle the Breaks option in the Properties bar. Canvas indicates the page boundary by a solid line around the border of the page.

When From Printer is selected, Canvas checks the Page Setup information each time you open the document. If necessary, it adjusts the document's dimensions to match the page information.

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### See Also:

→ [Printing Documents](#)

## Setting Up Rulers

You can set up rulers for a document using various units of measure and display the rulers at the top and left of the document window. Rulers help you track the pointer's movement and let you create alignment guides in the layout area.

When you create a new document, you can also set the document's drawing scale. Canvas bases the rulers and all object measurements on the drawing scale. Canvas uses scale measurements in the Object Specs palette, Properties bar, and in Dimension objects. You can also change these settings for the document in the Configuration Center. (See "Setting Preferences" on page 62.)

### To Display and Hide Rulers:

Toggle the Rulers checkbox in the Properties bar. The rulers must be displayed if you want to create alignment guides in the layout area.

## To Set Up Rulers:

1. Choose **Layout | Rulers**.
2. In the Ruler dialog box, select a unit of measurement from the Document unit drop-down list. This unit is displayed in the rulers, Object Specs palette, as well as Properties bar.
3. Define the drawing scale in the Document scale section. You can use the Pre-defined scales or establish a custom scale; e.g., if you set the drawing scale to 1 inch = 1 foot, and draw a line 1 inch long on screen, Canvas displays the line's length as 1 foot.
4. Choose the formats for the numbers, angles, and coordinates. For the number format, you can choose from no decimals to six decimals, or even use exponentials or fractions.
5. Click **OK**.

## Adding and Modifying Units of Measurement

You can further customize the rulers by adding units of measurements or modifying the definitions of existing ones.

 The Add unit feature is a document-based function; i.e., any units that you add pertain to that particular document and will not be available when you open another document.

To access these functions, choose **File | Configuration Center** to open the Configuration Center. Under the Measurements manager, click on **Define unit**.

### To Delete a Unit of Measurement:

Select the unit in the menu and click the **Remove** button.

### To Add a Unit of Measurement:

1. Click the **Add** button.
2. In the Add Unit dialog box, enter the Unit name, Plural name, as well as Abbreviation.
3. Set up the new unit's drawing scale by using the Length and Minor divisions controls.
4. Click **OK** to add the unit to the menu.

### To Modify a Unit of Measurement:

 You cannot change the unit name or plural name.

1. Click the **Modify** button.
2. In the Modify Unit dialog box, change the unit's Abbreviation, if needed.
3. Set up the unit's new drawing scale by using the Size and Subdivisions controls.
4. Click **OK** to close the dialog box.

## Assigning X/Y Position to Points

If you are trying to recreate a portion of an illustration, you may need to move the zero points or assign an X/Y position to a specific point in the drawing area.

### To Assign a Position:

1. Place the cursor over the intersection of the rulers in the upper left corner. The cursor changes to a double-sided arrowhead.
2. Click and drag the cursor to the location in the Canvas work area where you want to assign the X/Y position.
3. In the Assign Position dialog box, enter the X/Y coordinates in the fields or use the scroll boxes.
4. Click **OK**. The Rulers shift to reflect the assigned position.

### To Change Rulers:

You can change the current document unit and drawing scale by using the Units and Drawing Scale menus in the Properties bar. To view these items, deselect all objects.

### To Use ‘Tear-Off’ Rulers:

When rulers are displayed, you can move a copy of a ruler into the layout area to measure specific areas of an illustration. When you tear off a ruler and move it, Canvas takes a snapshot of the ruler and pastes it into the document as a paint object. A tear-off ruler isn't active like the rulers displayed at the window edges.

### To Place a Tear-Off Ruler in a Document:

Point to the ruler you want to tear off, press **Alt** and drag a copy of the ruler into the document.

## Document Scale Methods

Canvas features scaling options that will certainly be useful to those who work with large documents, such as shape files. When selecting certain options, the Scale Options dialog box opens. When selecting the Set Document Scale command, the Define Document Scale dialog box opens.

### To View These Scaling Methods:

Choose **Layout | Document Scale**.



When you use either method in a geo-referenced document, the GIS referencing is adjusted.

## Scale Options

The Document Scale dialog box appears when you choose **Crop And Fit to Sheet**, **Fit All Objects to Sheet**, or **Fit Selection to Sheet**. If you do not wish to scale a certain object, select its respective checkbox.

You also have the option of applying this command to objects on hidden layers.



If you leave a checkbox deselected, the corresponding objects are scaled once you click **OK**.

## What is a Point Object?

A point object represents a geometric shape that consists of a single point. You can select vector objects in your document and switch their status to point object.

If you were creating a floor plan and had created small vector objects that represent items such as tables, chairs, lamps, etc., you would probably not want them to change size if you decide to change the scale. Therefore, you could select them and assign them the point object status.

### To Switch to Point Object Status:

1. Select all objects to be changed.
2. Choose **Object | Treat as Point Object** to assign the point object status. When you select an object that has point object status, Point Object is indicated in the Status bar.

### To Remove the Point Object Status:

1. Select all point objects to be changed.
2. Choose **Object | Treat as Regular Object**. The object returns to its previous status, i.e. vector object.

## Crop and Fit to Sheet

When applied, a hard crop is performed and the resulting objects is scaled proportionally. This command can be used on both image and vector objects.

 The document scale and origin are adjusted so that object position and dimensions are preserved. In a GIS document, the georeferencing information is also preserved.

### To Crop and Fit to Sheet:

Drag the crosshair diagonally across the objects to form a cropping rectangle. Place the cursor within the cropping rectangle and click to complete the crop.

 You can move or resize the cropping rectangle, if necessary.

## Fit All Objects to Sheet

When applied all objects within the document will be scaled proportionally. The objects are contained within the bounds of the top and bottom of the document.

 If the document contains 5000+ objects, a warning dialog box appears. All previous operations, including Fit All Objects To Sheet, cannot be undone.

## Fit Selection to Sheet

When applied, the selected objects will be scaled proportionally. The objects are contained within the bounds of the top and bottom of the document.

## Set Document Scale

You can use this command to customize a document's drawing scale, which is useful if you are working with objects that have known measurements.

### To Use the Set Document Scale Command:

1. Choose **Layout | Document Scale | Set Document Scale**. The Define Document Scale dialog box opens. The cursor changes to a crosshair.
2. Click the crosshair once to establish the scaling start point.
3. Click a final time to set the scaling end point. The resulting distance is indicated in the Page distance field. The Define Document Scale dialog box opens. The first value is the distance that you measured. The unit of measurement corresponds to the ruler's unit of measurement.
4. Enter the custom scale in the bottom field and select the unit of measurement from the menu.
5. Click **OK**.

## Scale Bar

The Scale Bar command draws a labeled scale bar. Scale bars are included in a variety of illustrations and images.

 The labels on the scale bar are created using the default text settings. Although you can change the text appearance afterwards, you should establish the text settings before making the scale bar.

### To Open the Create Scale Bar Dialog Box:

Choose **Object | Options | Create Scale Bar**.

### Create Scale Bar Dialog Box

The current document scale is indicated at the top of the dialog box.

<b>Units</b>	Select a primary unit from the menu. The primary unit is displayed above the scale bar.
<b>Secondary Units</b>	If necessary, select a secondary unit. The secondary unit is displayed below the scale bar.
<b>Major Division Length</b>	Enter the desired length for the scale bar.
<b>Major Division Count</b>	Enter the number of major divisions for the primary unit.
<b>Minor Division Count</b>	Select the checkbox and enter the number of secondary divisions for the primary unit.
<b>Style</b>	Select an option for the scale bar's appearance.
<b>Font</b>	Select a font for the scale bar. Select Title to indicate the current document scale above the scale bar. If Title is enabled, you can control the point size. Use the Text control to change the point size for the scale bar labels.

## Using the Alignment Grid

You can display a grid of vertical and horizontal lines to aid in positioning objects in a document. You can also turn on the snap-to-grid feature to make Canvas snap objects into alignment with the grid when you drag near a grid line.

When snap-to-grid is active, the pointer movements snap to the grid according to the settings in the Grids manager.

### To Display Grids:

Do one of the following:

- Select the Grids checkbox in the Properties bar.
- Choose **Layout | Display | Show Grids**.

### To Turn Off Grids:

Do one of the following:

- Deselect the Grids checkbox in the Properties bar.
- Choose **Layout | Display | Hide Grids**.

### To Turn on Snap-to-Grid:

Choose **Layout | Grids and Guides | Snap to Grids**. Choose the command again to turn off snap-to-grid.

### To Temporarily Override the Grid Constraint:

Press **Tab** as you create, resize, or move objects.

### To Set Up the Alignment Grid:

1. Choose **Layout | Grids and Guides | Grids and Guides Settings...**
2. In the Grids manager, enter a value in the Line Distance X: Units text box.
3. Enter a value in the Line Distance Y: Units text box.
4. Enter a value in the Snap Factor X: Fields text box.
5. Enter a value in the Snap Factor Y: Fields text box.

You can enter decimal or fractional values; Canvas converts fractional values to decimal values; e.g., if the Line Distance is 1 inch, a Snap Factor of 1/2 Fields sets snap points every 1/2 inch.

6. Select Snap to X and Snap to Y to make objects snap to the snap points on both sets of grid lines.
7. Click **OK** to implement the grid settings.



You can also use **SHIFT + arrow keys** to precisely position objects on your grid.

## Using Alignment Guides

You can create alignment guides and alignment objects. Other objects can “snap” to alignment guides and objects. Alignment guides are horizontal and vertical lines you drag into a document from the rulers. When you create alignment guides, Canvas places the guides on a guide layer. You can also create guide objects from any vector objects. Guide objects are placed on a guide layer; e.g., if you draw a

rectangle on a guide layer, objects can snap to the sides of the rectangle. Alignment guides and objects normally do not print, because the guide layers are set to be non-printing.

### To Show or Hide Guides:

Do one of the following:

- Toggle the Guides checkbox in the Properties bar. Deselect any objects to view the checkbox.
- Choose **Layout | Display | Show Guides** or **Layout | Display | Hide Guides**.

### To Activate Snapping to Guides:

Choose **Layout | Grids and Guides | Snap to Guides**. When the snap-to feature is active, objects you move will snap to alignment guides and objects on guide layers.

### To Set Up Alignment Guides:

1. Display the rulers by selecting the Rulers checkbox in the Properties bar.
2. Point to either ruler and drag a guide into the document area.

### To Remove a Guide:

Drag the guide back to its ruler.

### To Move Objects Touching an Alignment Guide:

Press **Ctrl** as you drag an alignment guide. This method does not apply to alignment objects on a guide layer.

### To Set Up Alignment Objects:

1. Select one or more vector objects.
2. Choose **Object | Arrange | Send to Guide Layer**. Canvas moves the selected objects to the guide layer on the current page.

The ink and stroke attributes of guide objects are overridden by default on guide layers. Guide objects appear with a blue pen ink, a 1-point stroke, and no fill ink.

 If you move an alignment object off a guide layer, its original attributes reappear.

You can edit guide objects without moving them off a guide layer; e.g., you can select a guide object, drag its selection handles, use freeform mode to transform it, and use Edit mode to reshape it.

### To Position Guides Numerically:

After you place a guide line in a document, you can set its position numerically.

1. Double-click an alignment guide to open the Guides dialog box.
2. Select Horizontal or Vertical to set the guide's orientation.
3. Enter the Guide position in the text box. Positive values go down and to the right from the zero point. Negative values go up and to the left.
4. Click **OK**.

When you enter a value for the position of a guide, you can use the current measurement units, or enter a unit abbreviation; e.g., to place a vertical guide 3 inches to the right of the zero point, type "3in" (without quotes) if the current units are not inches. To set a horizontal guide 2 picas above the zero point, type "-2p".

## Document Layout

You can use multiple pages and layers in any document as well as set up master pages, shared layers, guide layers, and grid layers. Layout options also include slide transitions and timing for GIF animations. (See "Creating Slide Shows" on page 514, and "Working with Animated GIFs" on page 501.)

This section describes document layout options and procedures, including how to add, delete, and arrange pages and layers, and use the Document Layout palette.

### About Document Pages and Layers

Pages, layers, and master pages are a common element of all types of Canvas documents.

#### Pages

All Canvas documents can contain multiple pages. Here, "pages" is used as a general term for elements that make up a document.

- Publications can have single or facing pages.
- Illustrations have pages, called "sheets," which are single-sided.
- Presentations have pages, called "slides," which can be displayed in sequence as "slide shows."
- Animations have pages, called "frames," which form animation sequences for animated GIF files.

In the Document Layout palette, pages are at the top level of the layout hierarchy, followed by layers, groups, and objects.

The Layout area in Canvas represents a document page. Page and layer controls are located at the bottom of the screen. The current page is shown in the Page menu and the Page Navigator palette.

#### Layers

A layer is a transparent level that objects are placed on. On a page you might have one or more layers. You can use layers to organize similar objects together. For example, you might use one layer for text and another layer for objects. By default, when you place or draw objects on a page, they are placed on a single layer. Layers can help you work efficiently. You can organize objects on layers, and you can display, print, and save layers individually.

In the Document Layout palette, a page's layers are listed after the page name. Objects are listed after the layer they are on. A new page has one layer (Layer #1). You can add layers to any page, including master pages.

You can save time by sharing layers in a document. A shared layer is similar to a master page. As with a master page, objects on a shared layer appear on every page where the shared layer is applied. You can update multiple pages by editing a shared layer.

#### Master Pages

Master pages are available in Publication documents. Similar elements called "master slides" are available in Presentation documents, and "master frames" are available in Animation documents.

Master pages are pages used as a master or background for other pages. The objects on the master page can appear on every page in a document. For example, if you wanted to add a logo to every page in your document, you could create a master page with the logo, and then apply the master page to your other pages. If the logo is changed or updated, you can simply update the master page, rather than having to update every page of your document.

In the Document Layout palette, the master page is listed under each page where the master page is visible. The main master page is at the top of the list. As with other pages, you can use one or more layers on a master page. By selectively hiding layers on the master page, you can control the master page's appearance throughout a document or on selected pages. The master page at the top of the layout list can be locked.

## Using the Page Navigator Palette

The Page Navigator palette displays thumbnail previews of the pages in your document. Using the Page Navigator palette, you can quickly find and go to a particular page. Page names are displayed at the bottom of each page preview. The current page is highlighted with an orange border.

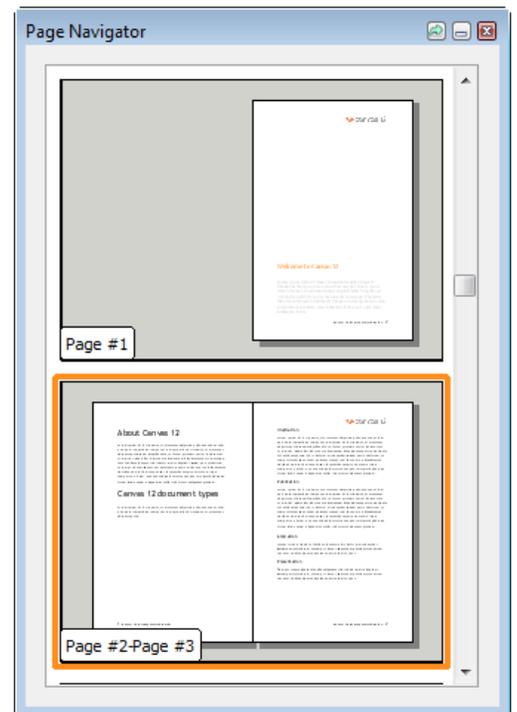
### To Open the Page Navigator Palette:

Choose **Window | Palettes | Page Navigator...**

The Page Navigator palette floats, so you can place it anywhere on screen. You can dock the palette on the Docking bar or the Docking pane.

### To Resize the Page Preview:

1. In the Page Navigator palette, right-click on a page preview.
2. Select one of the following:
  - **Fit Preview to Frame Size:** Resizes the preview to display the whole page in the frame.
  - **Reduce Preview Size:** Reduces the size of the preview. You can see less detail but more of the page.
  - **Increase Preview Size:** Increases the size of the preview. You can see less of the page but more detail.



## Using the Document Layout Palette

The Document Layout palette is the control center for working with pages, layers, and objects. The palette is available in all types of documents (some options are based on document type). The palette shows a list of the pages, layers, and objects in the current document. You can use the palette to add, delete, and move items and set layout options. You can select, move, copy, and delete objects.

### To Open the Document Layout Palette:

Do one of the following:

- Choose **Layout | Document Layout**.
- Right-click on a Layer tab at the bottom of the document window to open the Layer menu, and then select **Show Document Layout**.

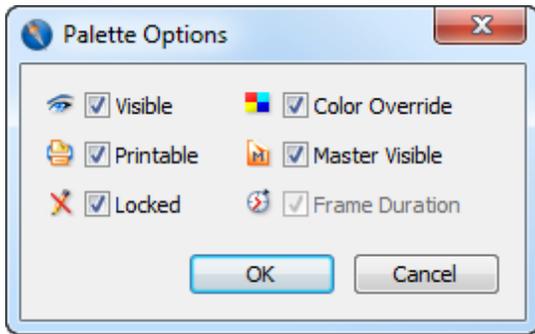
The Document Layout palette floats, so you can place it anywhere on screen. You can dock the palette on the Docking bar or the Docking pane.

## Setting Options in the Palette

The Document Layout palette has columns of settings for several options: master pages, visibility, locking, printing, layer override colors, and animation frame duration.

### To Display or Hide Columns:

1. Click the palette's drop-down arrow and choose **Palette Options**.
2. In the Palette Options dialog box, select the options that you want to appear in the Document Layout palette. Some options are not available in all types of documents.



We recommend selecting **Master Visible** to facilitate working with master pages.

The following are the options columns in the Document Layout palette. You can also use dialog boxes to change options. (See "Using the Options Dialog Box" on page 58.)

## Palette Options

<b>Visible</b>	Click to show or hide a page, layer, or object. Hiding a page hides all its layers (unless one is the current layer). When something is hidden, a hollow circle appears in the Visible column. If the object is visible, a blue-filled circle appears in the column.
<b>Printable</b>	A bullet indicates an item will print. When no bullet appears, the item will not print. If you change this option on a page, the setting is applied to all the page's layers.
<b>Locked</b>	Click to lock or unlock a page, layer, or object to prevent or allow changes. A bullet indicates an item is locked and its contents can't be selected, moved, edited, or deleted. Grid layers are always locked. A padlock icon indicates an item is also password-protected.
<b>Color Override</b>	Click in the column to apply an override color to a layer. A square with the override color appears in the column. To select an override color in the Layer Options dialog box, double-click the layer name. To hide a layer's override color, click in the column to remove the color square.
<b>Master Visible</b>	Click to show or hide the master page on a document page. If the master page is hidden, a hollow circle with

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gray outline appears in the column. When the master page is visible, the hollow circle has a blue outline. Master pages are not available in Illustration documents.

You can hide master page layers using the Visible option. Hiding all master page layers is the same as hiding the master page.

---

#### Frame Duration

In Animation documents, this column shows the duration of a frame in hundredths of a second. To change the frame's duration, double-click the frame name, change the duration value in the Frame Options dialog box, and click **OK**.

---

## Using the Layout List

You can use the list in the Document Layout palette to display and select pages, layers, and objects. You can expand the list to display more detail, or collapse it to display fewer items.

Items in a document are listed in a tree format in the Document Layout palette. The layout list is a hierarchy. Pages are at the top level, followed by layers, then group objects, then individual objects. Each level is indented to the right from the level above. The master page and its layers are listed after a page's regular layers.

The name of the selected item in the list is shaded. The active layer name is bold. Names of master layers, shared layers and objects on shared layers are italic.

### To Expand or Collapse Items in the List:

Do one of the following:

- Click a plus to expand the list; click a minus to collapse it.
- **Ctrl-click** an item to toggle the state of its sub-items. If you **Ctrl-click** a page, its expanded layers will collapse, and its collapsed layers will expand.
- Choose **Expand All** or **Collapse All** in the palette's menu. The current level (pages, layers, or object groups) will expand or collapse. You can also **Alt-click** in the list to do the same thing.

### Selecting Items

You can select one or more items at once in the layout list. The name of a selected item is shaded.

- Selecting a page makes it the current page. The last current layer of the current page will be the current layer.
- Selecting a layer makes it the current layer.
- Selecting an object selects the object in the document.
- Selecting any item that is not visible makes the item visible.

### To Select One Item:

Click the name of the item in the list.

### To Select Multiple Items:

Click the first item and **Shift-click** the last item. This selects a continuous range of pages, layers, or objects. To select or deselect individual items in a selection, press **Ctrl-click** each item.

## To Hide a Selected Item:

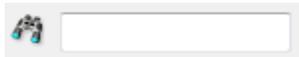
Click **Object** | **Hide Selected Objects**.

## To Show All Hidden Items:

Click **Object** | **Show All Hidden Objects**.

## Searching for Items

Canvas can find items in the layout list by searching their names. This means you can go to pages and layers, and select objects in a document, by typing some or all of the text in an item's name in the search box.



## To Select an Item in the List:

Type the text to find in the search box in the Document Layout palette.

When you stop or press **Enter**, Canvas searches the list from the current page. The search includes only items that are visible in the list, (not collapsed pages).

You can type text in upper or lower-case. If an object in the list is named "Rectangle Fill 0c 67m 45y 23k" and you type "23K" Canvas will select the object. Default object names are object type and ink values. Default page and layer names are item type and sequence number. Double-click on a layer, page, and object in the layout list to assign names to these items. Their assigned names will appear in the layout list.

## Adding, Deleting, and Moving Pages and Layers

If you want to change a document's layout, you can add, delete, as well as move pages and layers. You can do this in the Document Layout palette, use commands in the Layout menu, or use the Page & Layer controls. (See "Page and Layer Controls" on page 57.) In addition, you can arrange, copy, and delete objects in the Document Layout palette.

## To Add Pages:

In the Document Layout palette, click the **New Page** button. 

Canvas adds a page, sheet, slide, or frame to the end of the document. In the list, the item's name is the next number in sequence.

You can also add pages by choosing **Add Page** (Sheet/Slide/Frame) in the palette's menu. You can assign a name to the page in the dialog box.

## To Add Multiple Pages:

1. Choose **Insert** in the **Layout** | **Pages (Sheets/Slides/Frames)** | **Insert** submenu.
2. In the Insert dialog box, enter the number of pages you want to add, choose a location to insert the new pages, and click **OK**.

## To Add Layers:

In the Document Layout palette, select a page or layer and click the **Add Layer** button. 

Canvas adds a new layer to the current page. You can also click the **New Layer** icon at the bottom of the document window.



You can merge layers, which moves objects from a source to a destination layer and deletes the source layer. Click the source layer to select it in the layout list. **Shift-click** the destination layer. Choose **Merge Layers** in the palette's menu.

In addition, you can add layers by choosing open the Document palette menu and selecting **Add Layer**. A dialog box lets you change the layer's name and select other options. (See "Page and Layer Options" on page 58.)

## Arranging Items

If you want to move pages, layers, or objects, you can drag them in the layout list. If you drag to a collapsed part of the list, the list expands.

Canvas does not rename layers if you change their order or move them to other pages in the list. However, if you change the order of pages, Canvas does rename them, unless you have given them unique names.

## To Copy Items:

Select one or more items in the palette, and then **Ctrl-drag** them to a new layer.

## To Delete Items:

Drag the items from the list to the **Trash** icon. You can also delete items by selecting them in the palette and then choosing **Delete** in the palette's menu. 

## To Delete Multiple Pages:

1. Choose **Layout | Pages (Sheets/Slides/Frames) | Delete**.
2. In the Delete dialog box, enter the page range to delete, and click **OK**.

## Page and Layer Controls

Canvas features additional page and layer controls at the bottom of the screen that can be used in addition to the Document Layout palette.



## To Add Pages:

1. Click the **New page** icon. 
2. In the Insert dialog box, enter the number of pages (sheets or slides) and indicate the placement; i.e., before or after a certain page.

## To Add Layers to a Page:

Click the **New layer** icon. 

Another layer is added automatically to that page.

## To Toggle Between Pages:

Open the Page menu and select the page that you want to view. You can also use the Page arrows to the left of the Page menu.

## To Toggle Between Layers:

Use the Layer controls located to the right of the page & layer controls. If your document contains multiple layers, these controls scroll through the various layers.



## Page and Layer Options

In each type of document, you can set options for pages and layers. Use the Document Layout palette to set some options. (See "Setting Options in the Palette" on page 54.) Additional options are in dialog boxes.

 You can set options for multiple items by selecting them and choosing **Options** in the palette's menu. Do this to set the duration for multiple frames of an animation, or to apply transitions to multiple slides.

## Using the Options Dialog Box

### To Open the Options Dialog Box:

1. In the Document Layout palette, do one of the following:
  - Double-click a page, master page, or layer to open an Options dialog box.
  - Select the item and choose **Options** in the palette's menu.
2. In the Options dialog box, select from the following options and click **OK** to apply the settings. Some options, as noted, are not available for all items or document types.

## Options Dialog Box

<b>Name</b>	In the text box, type a name for the item. By default, Canvas names pages and layers based on their order in the list.
<b>Locked</b>	Select the Locked option to prevent changes to a page's layers, to individual layers, or to individual objects.  A locked page can be changed in some ways. If a master page is visible, changes to the master page will appear on the locked page. Also, a locked page does not prevent a document from being deleted. If a locked page is copied, the copy is also locked.
<b>Password</b>	You can select the Password option when Locked is selected. When the Password option is used, the assigned password must be entered to unlock or change the page. To assign a password, select the <b>Password</b> option and type at least three characters in the text box. After you click <b>OK</b> , enter the password in the confirmation dialog box that appears and click <b>OK</b> .
<b>Visible</b>	The Visible option can be changed only in the Document Layout palette list. In Options dialog boxes, the Visible option is not available because a current item can't be hidden.
<b>Grayed</b>	Select Grayed to make solid color inks of objects on the layer appear to be grayed (desaturated).
<b>Color Override</b>	Select Color Override to apply a color to a layer. Select White Fill to apply a white fill ink to vector objects and

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text objects on a layer that has a color override.

When you apply a color override to a layer, you temporarily assign a color to vector and text objects on the layers you specify. A color override does not affect paint objects. When you turn off the Color Override option, all affected objects revert to their original colors.

---

### White Fill

The White Fill option lets you control how override colors appear on vector objects. This option doesn't change how override colors appear on text.

When White Fill is selected, Canvas applies the override color to the pen ink of vector objects and applies white as the fill ink; i.e., the override color becomes the color of the stroke of vector objects, while the inside of the object remains white. When White Fill is not selected, Canvas applies the override color as both pen and fill inks.

If you use the White Fill option, objects without a visible stroke are not visible against the white layout area.

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## Using Master Pages

Master pages (slides/frames) hold common elements that you want to appear on most pages. Objects on the master page's layers appear on pages where the Master Page option is selected.

You can unlink a master page. This lets you edit the page's contents like you would any layer that isn't shared, without changing the appearance of the master page on other pages. Canvas also lets you re-link a master page.



Illustration documents do not use master pages.

### To Unlink a Master Page:

1. Select the page where you want to unlink the master page. (Do not select the master page item or a layer).
2. Choose **Unlink Master** in the palette's menu. The layers of the master page become regular layers of the current page.

### To Link a Master Page:

1. Select the page to which you want to link the master page.
2. Choose **Link Master** in the palette's menu. Canvas links the master page to the current page. Other elements on the page are not affected.

## Sharing Layers

Sharing a layer means linking a layer to more than one page in a document. Since the shared layers are linked, if you modify one layer, all the linked layers will change. Therefore, shared layers can be used like additional master pages. The names of shared layers and objects on them are indicated in *italics* in the Document Layout palette.

Unsharing a layer converts it from a shared layer into a regular, non-linked layer on one page or throughout a document.

### To Share a Layer:

1. Select the layer you want to share in the Document Layout palette.
2. Choose **Share Layer** in the palette's menu.

3. In the Select dialog box, select the pages in the list that you want to share the layer and click **Select**. The shared layer name appears in the list of layers for each page you selected.

 The name and content of the dialog box changes according to the type of document you are creating; i.e., pages, sheets, frames, or slides.

 You can also share a layer by pressing **Shift** and dragging the layer to another page (except the master page).

### To Unshare a Layer:

1. Select the layer you want to unshare.
2. Choose **Unshare Layer** in the palette's menu.
3. In the message box, click one of the following:
  - **Yes:** Unshares all instances of the shared layer in the document. Canvas unlinks the layers and creates a copy of the layer on each page.
  - **No:** Unshares the layer on the currently selected page only. The rest of the layers remain shared.

### Dispersing Objects

You can use the Disperse command to quickly move objects to pages throughout a document. This is useful for creating frames and slides. For example, you can select a series of graphics, and use Disperse to place one graphic on each frame in an Animation document. You can spread objects over existing pages or Canvas will create pages for the objects. Dispersed objects are placed on a new layer on each page.

### To Disperse Objects:

1. Select the objects to disperse. The objects should be on the same layer and should not be grouped.
2. Choose **Object | Arrange | Disperse**.
3. In the Disperse dialog box, select one of the following:
  - **Dynamically allocated partitions:** Canvas will create pages to hold the selected objects.
  - **Select partitions:** Click **Select** to display a list of pages. **Shift**-click pages to select them, and then click **Select**.
4. In the Objects per partition text box, enter the number of objects to place on each page (Canvas divides the number of objects evenly if you select pages; remaining objects go on the last selected page).
5. Click **OK** to disperse the selected objects.

### Using Guide and Grid Layers

In addition to general purpose layers, you can use special layers containing drawing aids called guides and grids. Like other layers, guide layers and grid layers appear in the Document Layout palette. You can arrange these layers by dragging them in the list to place them in front of or behind other layers.

## Guide Layers

When the command **Layout | Snap To | Guides** is selected, objects that you draw and move will snap to guides on the guide layer. Guides that you drag from the rulers, and text sections you draw with the Section tool will appear on the current page's guide layer. You can also draw on a guide layer to create "magnetic" guide objects. You can move or copy a guide layer to another place within the present page or to another page altogether.

By default, objects on guide layers are light blue. By changing the guide layer override color, you can make the objects any color.

### To Add a Guide Layer:

1. Select the page to which you want to add a guide layer.
2. Choose **Add Guide Layer** in the Document Layout palette's menu.
3. In the New Guide Layer dialog box, enter a name, select **Visible** checkbox to display the layer, and click **OK**.

### To Change a Guide Layer's Name, Override Color, or Other Properties:

Double-click the layer and change the options in the Layer Options dialog box. See "Page and Layer Options" on page 58.

### To Arrange Guide Layers:

Select the guide layer and then drag the guide layer to its new position.

### To Copy Guide Layers:

Select the guide layer and **Ctrl-drag** the guide layer to its new position.

### To Delete Guide Layers:

Do one of the following:

- Select the guide layer and drag it to the trash can icon in the Document Layout palette.
- Select the guide layer and choose **Delete** from the palette's menu.

## Grid Layers

Grid layers display gray grids that can help you position objects precisely. When the command **Layout | Snap To | Grid** is selected, the bounding boxes of objects will snap to the grid. When you create a grid it appears on a grid layer. Grid layers are locked by default. You can configure the current page's grid using the **Layout | Grids** command. You can move or copy a grid layer to another place within the present page or to another page altogether.

By default, grid layers are gray.

### To Add a Grid Layer:

1. Select the page to which you want to add a grid layer.
2. Choose **Add Grid Layer** in the palette menu.
3. In the New Grid Layer dialog box, configure the options as desired, and then click **OK**. Canvas adds a new grid layer.

### To Change a Grid Layer's Name or Other Properties:

Double-click the grid layer and change the options in the Layer Options dialog box. See "Page and Layer Options" on page 58.

### To Arrange Grid Layers:

Select the grid layer and drag the grid layer to its new position.

### To Copy Grid Layers:

Select the grid layer and **Ctrl-drag** the grid layer to its new position.

### To Delete Grid Layers:

Do one of the following:

- Select the grid layer and drag it to the trash can icon in the Document Layout palette.
- Select the grid layer and choose **Delete** from the palette menu.

## Configuration and Customization

You can customize your Canvas work environment to best suit the needs of a specific project and maximize your productivity. This section describes how to set preferences, customize keyboard shortcuts and the Toolbar, save document templates, and create custom sets of Canvas tools.

### Setting Preferences

The Configuration Center provides a central place for you to set preferences for a range of Canvas options, including general application settings, text, printing, measurement, and image/multimedia tool settings.

### To Open the Configuration Center:

Choose **File | Configuration Center**.

### Configuration Center

The various application and document settings are organized in the left pane of the Configuration Center dialog box.

### View Controls

When the Configuration Center is open, you can change the display by using the View controls located in the upper left corner:

	<b>Categorized</b>	The settings managers are grouped according to use. Five major groups appear in the list; i.e., General, Text, Printing, etc. Open a group to see its settings options.
	<b>Alphabetical</b>	All the settings options are listed in alphabetical order in the left pane. Click on an option to see its related manager.
	<b>Hide all groups</b>	Click this icon to collapse the left pane.
	<b>Show all groups</b>	If you have collapsed the left pane so you can only see the selected settings managers, click this icon to see the entire dialog box.

## To Change a Preference:

When turning on an option, you may also have to enter a value or choose a menu option. Remember that an option is on when its checkbox is selected. An option is off when its checkbox is deselected.

1. Open the **Configuration Center**.
2. Open a category in the left pane and then click on a settings option, like Display Options. The related settings manager appears in the right pane.
3. Make any adjustments in the settings manager.
4. To implement the current settings, click **OK**.

## To Save the Settings as Default:

Select the **Save as default** checkbox in the top right corner of the Configuration Center.

## Hotkeys



Remember that you must be in Vector Edit mode to use the hotkeys.

Use these single-letter hotkeys when editing a vector object:

Hotkey	Action
<b>V</b>	Selection Arrow
<b>A</b>	Direct Edit Selection Arrow
<b>Y</b>	Lasso Selection
<b>W</b>	Direct Edit Lasso Selection
<b>B</b>	Bézier Tool
<b>T</b>	Text Tool
<b>O</b>	Oval Tool
<b>P</b>	Polygon Tool
<b>M</b>	Smooth Polygon Tool
<b>R</b>	Rectangle Tool
<b>F</b>	Freehand Tool
<b>E</b>	Reshape Tool
<b>L</b>	Line Tool
<b>S</b>	Push Tool
<b>I</b>	Dropper Tool
<b>C</b>	Scissor Tool
<b>K</b>	Knife Tool

Hotkey	Action
<b>` (accent grave)</b>	Set Default Stroke (or) Fill
<b>D</b>	Assign Default Stroke (or) Fill
<b>X</b>	Swap Fill/Stroke



Remember that you must be in Image Edit mode to use the hotkeys.

Use the following single-letter hotkeys when editing images:

Hotkey	Tool/Action
<b>W</b>	Wand Tool
<b>M</b>	Marque Tool
<b>L</b>	Image Lasso Tool
<b>V</b>	Remote Move Tool
<b>P</b>	Pencil Tool
<b>E</b>	Eraser Tool
<b>H</b>	Marker Tool
<b>B</b>	Paintbrush Tool
<b>A</b>	Airbrush Tool
<b>K</b>	Bucket Tool
<b>G</b>	Blend Tool
<b>F</b>	Blur Tool
<b>Q</b>	Sharpen Tool
<b>S</b>	Rubber Stamp Tool
<b>N</b>	Smudge Tool
<b>O</b>	Dodge Tool
<b>B</b>	Burn Tool
<b>D</b>	Sponge Tool
<b>R</b>	Red Eye Reduction Tool
<b>X</b>	Swap Fill / Stroke
<b>` (accent grave) or C</b>	Set Default Stroke / Fill
<b>Ctrl 0 - 9</b>	Switch Channels

## General Settings

In the Configuration Center, in the General folder, you can set preferences for a number of general application and document settings.

## Attributes

The Attributes manager contains options for both dashes and inks.

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### Dash Drawing

If you are applying dashed pen stroke to objects, you can define how dashes are handled if an object has corners.

**Preserve Corners:** Select this option to keep the corners intact; i.e., dashes will not be applied to the corners of objects.

**Continue with Dash:** Select this option to apply dashes to the corners of objects.

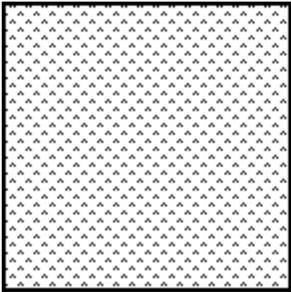
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### Inks

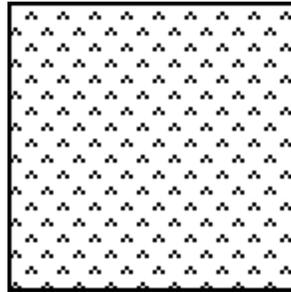
When working with objects that contain Hatch, Texture, Symbol, or Pattern inks, it is possible to magnify these objects without magnifying the ink as well.

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The following examples show what happens when inks are scaled or not scaled:



Object at 200% magnification  
(fill ink does not scale)



Object at 200%  
magnification  
(fill ink scales)

## Color Calibration

Use these options to change color settings within Canvas. (See "Color Management" on page 78.)

## Display Options

In Display Options, you can configure most of the options for screen display. Change display options and set the default display options for new documents. You can change these same settings in the Display Options manager dialog box.



The items in the Show, Alert, and Preview groups can be individually toggled on and off by choosing **Layout | Display**. When a special display option is active, a checkmark appears next to the option in the menu.

### To Open the Display Options Manager:

Choose **Layout | Display Options...**

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### Save as default

Any settings you select in the dialog box are saved as the default setup for new documents.

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<b>Show</b>	The normal Canvas display shows all objects with their inks, strokes, and other attributes as they are in the document.
<b>Alert</b>	<p><b>Gamut Warning:</b> This mode highlights colors that are outside the CMYK color gamut. It replaces out-of-gamut colors with a special indicator color. Bright green is the default indicator color.</p> <p><b>Ink Coverage:</b> This mode shows all areas of the image that exceed a specified ink coverage. Bright green is the default indicator color.</p>
<b>Preview</b>	<p><b>Wireframe:</b> Wireframe mode shows vector objects without their assigned ink or stroke attributes. When Wireframe is selected, vector objects are hollow and have 1-point black pen strokes. Text characters appear solid black. Paint objects are hollow and only their bounding box appears. With this mode, the screen display tends to speed up.</p> <p><b>Pixel Mode:</b> The Pixel Mode setting allows users to view graphics at 72 ppi before they are rendered. When creating Web graphics, the standard resolution is 72 ppi. At the same time, all of your images will remain fully editable. Pixel Mode also prevents pixel shifting, which sometimes occurs when objects are exported to the Web. (See "Designing for the Web" on page 486.)</p>
<b>Cache</b>	<p>Caching in Canvas is a technique that can dramatically increase display speed. When an object is cached, Canvas creates a low-resolution version of the object to display on screen. This can make it much easier to work in documents that contain complex vector objects or high-resolution images, which can significantly slow down zooming and scrolling.</p> <p>When you are not editing cached objects, it usually won't matter that they are displayed at lower resolution. You'll enjoy significantly faster display without losing any capabilities. When you want to edit a cached object, Canvas loads the original; you do not need to take any special action or uncache the object.</p> <p><b>Draw with Cache:</b> Select this option to display low-resolution versions of cached objects for faster display. Cached objects are objects that have been cached with either the Cache Object command or the Auto Cache Images option. (See "Cache" on page 66.)</p> <p>When Draw with Cache is not selected, Canvas retains any low-resolution previews that it has created in memory, but displays the full paths of vector objects and displays paint objects at normal resolution.</p> <p><b>Auto Cache Images:</b> Select Auto Cache Images to automatically cache paint objects whose resolution is above a threshold that you specify.</p> <p> If Auto Cache Images is selected, but Draw with Cache is not selected, Canvas will cache paint objects (if their resolution is above the set threshold), but will not display the low-resolution versions.</p> <p>Cached paint objects are displayed at low resolution for faster display. Enter the desired display resolution in the second text box.</p> <p>To uncache all paint objects, deselect Auto Cache Images. A message appears. Click <b>Yes</b> to uncache all paint objects. This is equivalent to using the Uncache Object command on each paint object individually.</p> <p> If you want to uncache paint objects and Auto Cache Images is already cleared, use the Uncache Object command instead.</p>
<b>Document Resolution</b>	To set the resolution threshold, enter a value from 72-2540 ppi in the first text box. When the resolution of a paint object is equal to or greater than the specified resolution, Canvas caches the paint object.

## To Change the Gamut Warning Color:

Choose **Edit** | **Calibration** | **Gamut Warning**. Select a color from the pop-up menu.

## To Change the Ink Coverage Color or Value:

Choose **Edit** | **Calibration** | **Ink Coverage**. Select a color from the menu. Enter an amount percentage value in the Amount box.

## Caching Objects

This command can be used to speed up the display of complex objects, which is useful when a document contains complex objects that you do not need to edit often. When you cache an object, Canvas stores a low-resolution preview in memory. The preview can be displayed quickly when you move the object or change views. You can cache any type of object for faster display.

### To Cache an Object:

1. Select the object to cache.
2. Choose **Object** | **Options** | **Cache Object**.
3. In the dialog box, enter a preview resolution value, from 2 to 300 pixels per inch, in the text box. Lower resolutions produce rougher previews.
4. Click **OK**. Canvas displays a preview of the cached object at the cached resolution.

### To Uncache an Object:

1. Select a cached object.
2. Choose **Object** | **Options** | **Uncache Object**. Canvas returns the object to its normal resolution.

## Document Setup

In Document Setup, you can switch the current document type, modify document size and orientation, as well as change document units and scale. You can change these same settings in the New Document dialog box.

 Although you can switch to another document type in midstream, you should save the current document in its entirety and then change the document type.

## Defining a Drawing Scale

The Document scale section has several options in the Pre-defined scales menu. You can also select Custom from the menu and then define your scale with the "Page distance = world distance" controls.

If you select "1:1" as the scale, you are actually drawing in real-world units; i.e., you aren't drawing "to scale".

You can also establish a drawing scale by using the Set Document Scale command. (See "Set Document Scale" on page 49.)

## Functionality Options

Use the Functionality Options to setup a range of document options.

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**Maximize on Opening** Opens documents at full screen size. Otherwise, documents open at a standard size that fits any monitor, but

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might not fill the screen completely.

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**Fit to Window**

Opens documents so the full layout area can be seen in the center of the window. When this option is off, documents open in Home View (100% magnification with the upper-left corner of the page in the upper-left corner of the window).

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**AutoSnap palettes**

See [Using AutoSnap Palettes](#).

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**Smart Toolbox**

See [Viewing the Smart Toolbox](#).

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**AutoSave**

Select this checkbox if you want Canvas to automatically save a document after a certain period of time. The time periods are designated in minutes.

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**Create backup when saving**

Saves a copy of the current document each time you save changes to the document. The backup copy has the extension ".bak," and Canvas saves to this same file each time.

---

**Show information tooltips**

Displays information, tips and shortcuts in small boxes that appear when you point at an item, such as a tool, button, or object. For example, if you move the pointer over the Copy button in the Tool Bar, Canvas displays the command name and shortcut. Canvas also displays user comments when you point to an object that has comments, and displays information when you point to an ink in the Inks palette. For color inks, Canvas displays color system information. For example, if you point to a CMYK ink, the color values such as "5c 2m 92y 0k" appear in a pop-up box. For other inks, Canvas displays the ink name.

---

**Canvas 6-style object locking**

When you lock an object or group of objects, you can select and copy locked object(s) by clicking on the object or group of objects. Copied objects will not be locked.

---

**Scale Stroke Weight**

When you scale an object by dragging its selection handles, if the object has a solid pen stroke, Canvas will scale the pen weight proportionately with the object.

---

**Paste as MetaObject**

When copying from other applications, select this option to paste as a metaobject. (See "Inserting Objects into Canvas Documents" on page 101.) Text, however, is pasted as OLE if this option is enabled. If you copy both an object and text, they will paste as OLE.

---

**Select Across Visible Layers**

Lets you select objects on all visible layers in a document, rather than just the active layer.



If this option is off, you can still select objects on other visible layers by pressing Tab and clicking the objects.

---

**Search selection on clicks**

When this option is on, you can drag a selected object from behind another object. If this option is off, you can drag only the front object, because dragging deselects a back object.

---

**Freeform Selection**

Lets you place objects in Freeform mode by clicking already-selected objects. Otherwise, you must use the **Effects | Freeform** command to put an object in Freeform mode.

---

**No Background Updates**

Prevents Canvas from redrawing open Canvas documents when you are working in another application. This option lets other applications run faster when Canvas is in the background.

---

**Number of Undo Levels**

Enter a number in the Min box to set the minimum number of actions that Canvas can reverse. The default is three. Enter a number in the Max box to specify the maximum number of actions that Canvas reverse. The default is 10.

---

**Preview View capture delay**

Specify the amount of time that must elapse before the view change is recorded.

---

---

**Default Save As file format** Select a format for Canvas to default to when Save As is selected.



You still have the option of changing the file format in the Save As dialog on an individual basis.

---

**Allow multiple instances of Canvas** Select this checkbox to enable multiple instances of Canvas to open for use on dual monitors.

---

## To Undo an Action in Canvas:

Do one of the following:

- Choose **Edit | Undo**.
- Choosing **Window | Palettes | Undos**.



See "Undoing, Redoing, and Repeating Actions" on page 31.

## Painting

The Painting manager lets you set preferences for displaying and editing paint objects and images.

---

**Brush Pointer** These options let you change the pointer displayed for painting tools. The default pointer is a symbol of the current painting tool.

**Standard Pointer:** Displays the icon for the current painting tool.

**Precise Pointer:** Displays a crosshair pointer. The intersection of the crosshair is the center of the current brush.

**Brush Size Pointer:** Displays an outline of the current brush as the pointer.



Open the context menu to change the pointer while you edit a paint object.

---

**Filter Operations** **Apply individually:** Apply filter operations individually.

**Combine channels & apply:** Combine channels and then apply filter operations.

---

**Legacy Plug-ins** Click the Browse button to set the location of Photoshop-compatible plug-ins for use in Canvas. In the directory dialog box that appears, select the folder containing the plug-ins. The path name of the folder appears below the Plug-ins button on the Painting tab. Installed plug-in filters appear in the **Image | Filters** submenu.

**Hide Plug-in Host Warning:** Suppresses the message that Canvas displays if it tries to load a software plug-in that requires a specific host program. Deselect this option if you want Canvas to display the message so you can choose whether to load the plug-in.

---

**Additional options** **Separate grayscales as black:** Select to separate grayscale paint objects on the black plate only. Deselect this option for Canvas to treat gray color values as RGB colors that will be separated as CMYK grays.

**Select through transparency:** Select through transparency.

**Display channel previews in color:** Makes channel previews in the Image Channels palette appear in color

---

---

**Anti-aliased clipboard:** Anti-aliases vector and text objects pasted from the Clipboard into a paint object.

**Anti-aliased Canvas objects:** Anti-aliases Canvas vector and text objects drawn in a paint object. For example, if you add text to a paint object in Edit mode, Canvas rasterizes and anti-aliases the text.

---

## Personality Manager

Use the Personality Manager to select your use of Canvas and color output needs. The Toolbox and related tool palettes will be rearranged to suit your needs.

At any time, you can make modifications to the Personality Manager if your needs change.

### To Access the Personality Manager:

Choose **File | Configuration Center** or **Canvas | Configuration Center** and click the Personality Manager option in the General settings. Make your changes and restart the program.



Changes in the Personality Manager affect the Canvas settings file.

## Screen Rendering

Use the Screen Rendering options to setup the way images are rendered.

---

### Vector quality

The options in this menu affect the entire screen display in Canvas.

**Draft:** Provides the fastest screen display by drawing vector objects less smoothly. Choosing this option can increase display speed by 300%.

**Normal:** Provides fast screen display and draws smooth vector objects. This is the recommended setting and is selected by default.

**Anti-aliased:** Significantly smooths all objects on screen, including text and vector objects by anti-aliasing their edges. However, this anti-aliasing slows the display compared to Draft or Normal settings. The effect of the anti-aliased option is independent of the anti-aliased option on the Display tab. If either option is selected, text is anti-aliased and vice-versa.



Anti-aliased is especially useful when you create screen shots or display slide shows on screen.

---

### Image

When activated, this feature will significantly enhance the visual quality of scaled images. Interpolation takes place whenever an image needs to be reduced or downsampled. In other words, whenever the number of pixels being displayed is less than the available number of pixels at the destination. An example of downsampling would be when a 300 ppi image is set to be displayed at 100%.



Interpolation is a mathematical procedure which estimates values of a function at positions between listed or given values.

**Auto:** Is the optimal setting for interpolation of a photographic image. The Auto setting automatically chooses

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**Nearest Neighbor:** This will remove some pixel information from your image; however, if used, this setting will be the fastest. The Nearest Neighbor setting merely gathers pixel data from the “nearest neighbor” of each pixel, therefore interpolation does not actually occur.

**Fast Bilinear:** Uses a bilinear interpolation algorithm during downsampling, which is optimized for speed. This setting can be used for working with line art and may be used with some photographic images.

**Fast Bicubic:** Uses a bicubic interpolation algorithm, which is optimized for speed. This setting is appropriate if you work primarily with photographs. Due to the blurring effect, this method is not recommended for line art.

**Box:** Displays considerable tiling or jaggies when you resize an image.

**Triangle:** Produces good results with photo-realistic images and with images that are irregular or complex. This method uses interpolation to minimize the raggedness normally associated with image expansion.

**Bicubic:** Is an appropriate setting if you work primarily with photographs. Due to a blurring effect, we do not recommend the Bicubic setting if you work with line art.

**Bell:** Smooths the image.

**BSpline:** Produces smooth transitions, but may cause excessive blurring.

**Lanczos:** Produces the sharpest image, but may also introduce some ringing artifacts.

**Mitchell:** Produces smooth transitions when enlarging photo-realistic images. This filter is a good compromise between the ringing effect of Lanczos and the blurring effect of other filters.

---

<b>Pasteboard Color</b>	Use the color palette to select a color for the pasteboard area.
<b>Object Caching</b>	Keeps screen images in memory so the display refreshes significantly faster when you move or edit objects. This is the recommended option. If you deselect this option, less memory (up to 4 MB) is used for screen display, but displaying complex images might be very slow.
<b>Compatibility Mode (Slower)</b>	Uses compatibility mode.
<b>Show All Previews in File Open</b>	Shows all previews in the Open dialog box.
<b>Image Edit</b>	Lets you control how transparency appears when a paint object is in Edit mode.  <b>No preview:</b> Displays a checkerboard pattern to represent transparency in an image. This isolates an image from background objects, which can be helpful for editing complex compositions.  <b>Items in background only:</b> Displays transparency in an image during editing. Objects behind the image are rendered realistically while you edit. (If no objects are behind the paint object, the document’s white layout area shows through transparent areas.) Objects in front of a paint object are hidden during image editing.  <b>Preview all:</b> Displays both background and foreground transparency during image editing. This is the most accurate preview.

---

## Selection

---

<b>Show originals when dragging and resizing</b>	When you drag or resize an object, it will follow the pointer and also appear in its original position until you release the mouse button.  Selecting this option means that when you drag an object, an outline of the object (without pen ink, fill ink, or stroke) will follow the pointer.
<b>Allow Drag in Path Edit Mode</b>	Allow dragging in Path Edit mode.
<b>Offset for duplicating objects</b>	Tells Canvas how far (in pixels) from the original to put object copies when you choose <b>Edit   Duplicate</b> or <b>Edit   Paste</b> .
<b>Offset for moving objects</b>	You can specify the number of pixels that objects move when you use a combination of modifier and arrow keys. For example, with the default settings, <b>Ctrl+Right Arrow</b> moves a selected object 50 pixels to the right, and <b>Alt+Right Arrow</b> moves it 10 pixels to the right.
<b>Selection Handle Size</b>	Select a size for selection handles.
<b>Auto-scroll to selection</b>	Keeps objects that you move using the arrow keys in view by scrolling the document window.

---

## User Info

Specify a name and initials for object comments, which you can insert using the Comments command. (See "Attaching Comments to Objects and Using Markup Tools" on page 139.) You can also establish the default directory for downloading clipart with the Symbol Library palette.

---

<b>Name</b>	Type a name in the text box. When you attach a comment to an object, Canvas associates the name you enter with the comment. By default, Canvas uses the name entered when Canvas was installed.
<b>Initials</b>	Type initials in the text box. When you attach comments to an object, Canvas associates these initials with the comment.

---

## Text Settings

In the Configuration Center, in the Text folder, you can set preferences for how the application handles text.

### Auto Correct

Use these options to specify corrections you want Canvas to make as you type.

---

<b>Correct Two Initial Capitals</b>	Corrects a word that you type beginning with two capitalized letters.
<b>Capitalize first letter of sentences</b>	Capitalizes the first letter you type following typical sentence-ending punctuation, such as periods, question marks, or exclamation points, even if these marks are followed by a quotation mark or parenthesis. Canvas may or may not capitalize the first letter following unusual punctuation, such as Web site addresses or abbreviations in the middle of sentences, so sentences containing unusual punctuation should be checked.

---



Auto Correct does not capitalize the next word if you insert sentence-ending punctuation in existing text.

---

**Capitalize names of days**

Capitalizes the full name of weekdays; e.g., this option replaces "saturday" with "Saturday." It does not expand abbreviations for day names, such as "wed." or "Thurs.," unless you add these abbreviations to the replacement list.

---

**Correct Accidental Usage of the Caps Lock Key (Windows only)**

Corrects non-standard word capitalization. If the first letter of a word is lowercase and the other letters are uppercase, this changes the first letter to uppercase and the rest of the letters to lowercase; e.g., this option replaces "rEPEL" with "Repel." If the first two letters of a word are uppercase and the rest are lowercase, this changes the first letter to uppercase and the rest of the letters to lowercase; e.g., replacing "REpel" with "Repel".

---

**Replace Text as You Type**

Replaces text that you type with any specified replacement text. Each set of typed text and replacement text appears in the scrolling list in the Auto Correct dialog box. (See "Setting Up Text Replacement" on page 437.)

---

## Dictionary

Use this option to add an unlimited number of words to the personal dictionary. You can also delete words. By adding words to the User Dictionary, you can "teach" Canvas new words and special terms, and prevent Canvas from stopping unnecessarily while checking spelling. (See "Modifying the User Dictionary" on page 442.)

## Type

The Type settings in the Configuration Center let you customize options for text and typography.

---

**Text Input**

**When Typing Into Document:** Select either Auto type into object or Allow single letter shortcut.

**Auto type into object:** This option allows you to automatically begin typing text characters into a selected object.

**Allow single letter shortcut:** If activated, you will be allowed to access the vector and image editing tools using simple single-letter shortcuts. The list below details the various hotkey commands and how they may be applied.

**Use Smart Quotes:** Select this option if you want Canvas to insert true typographical apostrophes ('), single quotation marks ('), and double quotation marks (") when you type these characters with the Text tool. Otherwise, these characters appear as straight tick marks, or foot (') and inch (") marks. Of course, the actual appearance of the characters depends on the design of the typeface in use.

The character that Canvas inserts when you type a quotation mark depends on the position of the insertion point in the text, and its position relative to other quotation marks; e.g., Canvas always inserts an open quotation mark (") when you type a quotation mark immediately following a space.



Use Smart Quotes has no effect on text that you type with the Path Text tool.

**Use Greeked text:** Select this option if you want Canvas to replace lines of text characters with gray bars,

---



The Greeked text setting does not affect printing. You should set the size the same as most body text in your documents. This lets you view headlines and display type normally, while Canvas replaces the body text at 100% magnification. Then, when you zoom in to edit the body text, it will appear normally at the higher magnification.

Enter a size in points in the adjacent text box. When this setting is selected, Canvas replaces text at the specified size and smaller when the display magnification is 100% or less; e.g., if you specify 12 points, and zoom to 200%, Canvas replaces any text that is 6 points or smaller. If you zoom to 50%, Canvas replaces text that is 24 points or smaller.

**Drag & Drop Text:** Enable this option so you can highlight text and drag that text to a new location within the same text object.

---

### Copy & Paste

**Smart Copy:** With this option on, if you copy and paste text that begins a paragraph, Canvas pastes the text as a new paragraph using the original paragraph settings. With this option off, Canvas pastes text into the current paragraph using the existing paragraph settings.

**Replace Selection:** Activating this function allows you to automatically replace selected text when you paste into a Canvas document. If this option is not activated, text will be pasted into the center of your document.

**Pasted Text Box Size:** Enter the point size that you would like your text box to be when you paste text into your document. The setting that you choose will become the default size for all text boxes that will be created when you paste text into your document.

---

### Font History

**Activate font history:** Select this option to list the most recently used fonts at the top of your Fonts menu.

**# of fonts to keep in history:** Select the number of fonts that are to be stored in the history.

**Clear font history:** Click this button to empty the recent font history.

---

### Additional Options

**Enable two-byte script:** This option tells Canvas to accommodate text characters that require twice as much data (two bytes) as text characters in most Western languages. This makes it possible to create documents using specialized two-byte fonts, including Chinese, Korean, and Japanese. (See "Tools and Options for Two-Byte and Vertical Text" on page 396.)

**Auto word select:** When you use the I-beam pointer to highlight specific text, this option ensures that you select only whole words (all characters between blank spaces). As you drag to highlight text, Canvas detects when you drag over a space. As you continue to drag, Canvas locates the next space and selects the characters in between.

**Draw text as Bézier:** When using a 256-color display, Windows cannot dither colors in text to approximate a non-system color; instead, Windows uses the closest solid colors. Turning this option on tells Canvas to redraw text as objects, which lets Windows dither colors when necessary. This method is resource-intensive and can be slow; turn this option on only if you need to see dithered color in text on a system with a 256-color display.

**Multi-Column Font Menu:** When activated, you will view all of the fonts in your system in a multi-column format. If this feature is not activated, then you will view your fonts in a single-column format.



If you elect to use the single-column format, use the navigation arrows located at the top and bottom of the list to scroll through the fonts list. To see the list of available fonts, choose **Text | Font**.

---

## Printing Settings

The Printing settings let you control the appearance of printed output. These settings affect printed output when you use the Print as: Composite setting in the Print dialog box, and do not affect printing when you use the Print as: Separations setting.

## Gamut Warning

This mode highlights colors that are outside the CMYK color gamut. It replaces out-of-gamut colors with a special indicator color. By default, the indicator color is bright green. (See "Printing Settings" on page 75.)

## Ink Coverage

This mode shows all areas of the image that exceed a specified ink coverage. By default, the indicator color is bright green. (See "Printing Settings" on page 75.)

## Output Settings

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### Resolution

Use these settings to control the appearance of printed documents.

**Output to maximum resolution:** Select this checkbox to print documents at the printer's highest resolution. This setting disables image-reduction options and fast-printing features of QuickDraw® printers, which require a setting of 72 dpi. (See "Output Resolution of Transparency Effects" on page 484.)

If you print documents to a PostScript printer, it's a good idea to select this option; however, if you are using Japanese fonts (two-byte), you can deselect the **Output to maximum resolution** checkbox, and then use the menu to select 300 dpi to speed up printing.

When Output to maximum resolution is not selected, you can choose the resolution (from 72 to 2,540 dpi) to use in the Resolution menu.

---

### Halftone

Set the halftone screen frequency and the halftone screen angle for composite printing. You can also use the printer's default halftone settings.

For most desktop publishing purposes, the printer's default settings are probably the best to use. For commercial printing, you might need to specify a particular frequency and angle for the best output. If you are sending documents to a commercial printer, ask about the appropriate halftone screen settings.

**Use printer default:** Select this option when you often print to desktop devices such as laser printers, and the default halftone screen frequency and angle are appropriate for your documents.

**Frequency:** To specify a halftone screen frequency, deselect the Use printer default checkbox, and enter the frequency in lines per inch in the text box. A higher frequency requires a higher printer resolution to produce the same number of grayscale levels in printed halftones.

**Angle:** If you want to specify the angle of the screens used for halftoning, rather than use the printer's default setting, deselect the **Use printer default** checkbox, and enter the angle in the **Angle** checkbox.

---

### Postscript text type

All Bezier

No Bezier

---

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Combination

### Printer Options

**PS L2 (Faster printing of text):** Allows you to send a block of text to the printer for faster printing of text. If disabled, text is sent character by character.

**Screen enhancement feature for true halftones:** This option, when enabled, always prints halftones at the highest possible LPI. If disabled, a halftone is printed at the printer's resolution.

**Document bleed size:** By default, the bleed size is set to 9 pt (1/8 in). Enter a new value in the text field.

---

## Registration Marks

Define the appearance of the registration marks. By default, the fill is white and the size is 72 pts. (See "Drawing Registration Marks Manually" on page 207.)

## Measurements Settings

In the Configuration Center, in the Measurements folder, you can define units, setup grids and guides, and set the unit of measure used in the rulers and drawing scale.

## Define Units

You can further customize the rulers by adding units of measurements, modifying the definitions of existing ones, or deleting them. (See "Setting Up Rulers" on page 45.)

---

### Units

**To add units:** Click the **Add** button. In the Add Unit dialog box, enter a Unit name, Plural name, and Abbreviation. Select a Length and unit of measurement on which to base the new unit. Select the Minor divisions for the unit; e.g., if you wanted to have a unit that was based on 1 inch, enter 1 for Length and select inches from the menu. Then, select the Minor divisions that you want to use.



You can add this unit to any future documents by selecting the **Add to all new documents** checkbox in the Add Unit dialog box.

**To modify units:** Select an existing unit and then click the **Modify** button. In the Modify Unit dialog box, you can change the Abbreviation and Minor divisions.

**To delete units:** Select a user-defined unit and click the **Remove** button.



You cannot delete default units; i.e., inches, centimeters, etc. You also cannot delete units that are currently being used as the document unit. Change the document unit first.

---

## Grids and Guides

You can use grids and guides to aid in positioning objects in a document. You can also use **SHIFT + arrow keys** to position objects on your grid. You can also turn on the snap-to-grid and snap-to-guide features to make Canvas snap objects into alignment with the nearest grid or guide.

Use these settings to create an alignment grid. (See "Using the Alignment Grid" on page 50.)

<b>Grid</b>	<p><b>Line distance X:</b> This is the distance from one vertical grid line to another.</p> <p><b>Line distance Y:</b> This is the distance from one horizontal grid line to another.</p> <p><b>Snap factor X:</b> This value sets the snap points along the horizontal lines of the grid and guide.</p> <p><b>Snap factor Y:</b> This value sets the snap points along the vertical lines of the grid and guide.</p> <p><b>Snap to X/Snap to Y:</b> Select one or both options to make objects snap to the snap points on both sets of grid and guide lines.</p>
<b>Guides</b>	Snap distance in points.

You can also change these settings using the Grids and Guides manager, available from the **Layout** menu.

### To Open the Grids and Guides Manager:

Choose **Layout | Grids and Guides | Grids and Guides Settings...**

### To Show or Hide Grids:

Do one of the following:

- Toggle the Grids checkbox in the Properties bar.
- Choose **Layout | Display | Show Grids/Hide Grids.**

### To Show or Hide Guides:

Do one of the following:

- Toggle the Guides checkbox in the Properties bar.
- Choose **Layout | Display | Show Guides/Hide Guides.**

### To Turn on Snap-to-Grid:

Choose **Layout | Grids and Guides | Snap to Grids.** Choose the command again to turn off snap-to-grid.

### To Turn on Snap-to-Guide:

Choose **Layout | Grids and Guides | Snap to Guides.** Choose the command again to turn off snap-to-guide.

## Ruler

The Ruler manager lets you choose measurement settings, such as document units, document scale, and numerical format. If you're accustomed to creating large illustrations, such as billboards or 2-D architectural drawings, Canvas gives you the freedom to create a document in its actual size and draw in real-world units.

<b>Document unit</b>	Select a unit of measurement from the drop-down list. This unit is displayed in the rulers, in the Object Specs palette, and in Properties bar.
<b>Document scale</b>	Select a pre-defined scale or set a custom scale.
	<b>Pre-defined scales:</b> Select a common scale from the drop-down list.

---

**Page distance/World distance:** Create a custom scale by entering the ratio and units of measurement for the page distance versus the world distance. For example, you could create a scale that was 1 inch on the page to 1 foot in the world.

---

<b>Format</b>	Select the formats for the numbers, angles, and coordinates. For the number format, you can choose from no decimals to six decimals, or even use fractions. (See "Floating Point Technology" on page 246.)
	<b>Numbers:</b> Select a number format.
	<b>Coordinates:</b> Select a format for displaying coordinates.
	<b>Area format:</b> Select a format for displaying area.
	<b>Angles:</b> Select Euclidean or Clock-like.

---

## Image/Multimedia Settings

In the Configuration Center, in the Image/Multimedia folder, you can set preferences for a number of application tools and effects.

## Color Management

Canvas uses the Little Color Management System or its own internal color management system to achieve accurate color reproduction in printing and display. The active color management system handles conversions from one color mode to another.

The Little CMS supports ICC (International Color Consortium) profiles. Use ICC profiles to calibrate monitors and output devices.

## ICC Profiles

ICC profiles are used for color management by Canvas and other programs. Canvas installs ICC profiles that are appropriate for most monitors and color printers.

 You can obtain additional ICC profiles for specialized devices, such as film writers, graphics arts monitors, and prepress proofing devices from the device's manufacturer.

## To Change Color Settings within Canvas:

1. To change the color management settings, go to one of the following:
  - Choose **Edit | Calibration | Color Management**.
  - Choose **File | Configuration Center... | Color Management**.
2. Select profiles and other options as described in the table below.
3. Click **OK** to implement the settings.

## Color Management Options

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### Color Engine

Choose the Little CMS or Canvas CMS.

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Select if you would like to preview the color engine on screen, or simulate on the monitor the appearance of the CMYK colors that will be printed. If you opt to have your printer device emulated on screen, select your **Soft Proofing Intent** from the drop-down. (In other words, select the strategy for handling situations where not all colors will fit in the output device's color space.)

<b>Working Spaces</b>	<b>RGB</b>	Selects the ICC profile for conversion to and from RGB color space.
	<b>CMYK</b>	Selects the ICC profile for conversion to and from CMKY color space.
	<b>LAB</b>	Selects the ICC profile for conversion to and from LAB color space.
<b>Devices</b>	<b>Monitor</b>	Select a monitor ICC profile that matches your monitor, or use the default profile. To change the profile, choose Other. In the dialog box, in the upper pane, select a profile and click Open.
	<b>Printer</b>	Select an ICC profile for your printer or use the default profile. To change the profile, choose Other. In the dialog box, in the upper pane, select a profile and click Open.
<b>Rendering Intent</b>		Choose a rendering intent:  <b>Perceptual (Images):</b> Maintains relative color values as the values are mapped to the printer gamut. This method preserves the relationship among colors, though color values can change.  <b>Saturation (Graphics):</b> Maintains relative saturation values of colors. Colors that are outside the printer gamut are converted to the closest colors with the same saturation that are inside the printer gamut.  <b>Relative Colorimetric:</b> Leaves colors that fall inside the gamut unchanged. This method usually converts out-of-gamut colors to colors that have the same lightness but fall just inside the gamut.  <b>Absolute Colorimetric:</b> Disables white-point matching when converting colors. This option is not generally recommended.
	<b>Black Point Compensation (Non-ICC)</b>	Controls whether to compensate for differences in black points when converting colors between color spaces.

---

### To Emulate the Appearance of Colors (That Will be Printed) on the Monitor

1. In the Color Management dialog, choose the appropriate printer profile from the Printer drop-down menu.
2. Select the **Emulate printer device on screen** radio button.
3. Select an appropriate Soft Proofing Intent from the drop-down menu.
4. Click **OK**.

### Color Management Tips

If you require the highest quality color matching and output, becoming familiar with the factors that can cause problematic color shifts can help you to avoid unexpected results.

In general, the color management system handles conversion between color systems, such as RGB and CMYK. The system makes the conversion as accurate as possible, taking into account the characteristics of the color display and color printing devices.

If you want to prevent even slight changes in color values, avoid conversion from one color system to another. When you paint in an image, use the color system that matches the image mode; e.g., use RGB colors for RGB Color mode, and CMYK colors for CMYK Color mode.

If you paint a CMYK color into an RGB Color mode image, Canvas converts the CMYK color values to RGB values. When color calibration is active, the color management system uses the specifications of the selected ICC profiles in the conversion process.

 You must use a printed swatchbook to view the printed appearance of a color. You should never rely entirely on the appearance of a color on screen.

Avoid using RGB color in a document that will be printed commercially using process (CMYK) colors. When you specify process colors, it's best to use a matching system ("Color Systems" on page 157).

## Preferences for Two-Byte Text Entry

The options for the Inline preferences let you specify whether you want to always enter two-byte text directly into a document, or use a text-entry window when the apparent type size is outside a range that you have set. This feature is available only when you are running system software that supports two-byte fonts, and are using two-byte fonts to enter text into a document. This preference does not affect printing.

Using a low zoom level can make it difficult to see text as you type. By using the text-entry window, you can see and edit text in the window, regardless of the current view magnification level.

### To Set Inline Text-Entry Preferences:

1. Choose **File | Configuration Center**.
2. In the Configuration Center, open the Inline manager within Text settings.

 You must first enable two-byte script in the Type manager.

3. Specify the following options, and then click **OK** to implement the current settings:
  - If you always want to use a text-entry window, regardless of the size of the type, select the **Never** option.
  - If you want a text entry window to appear when you type text at some apparent type sizes, select the **For text from** option. Type a number from 6 and 255 in each text box. These numbers set the range in which the text-entry window does not appear and you type directly into a document.

A character's apparent size is the size at which it appears on screen, based on the current view magnification level; e.g., 12 point type appears to be 12 points at 100%; at 200%, it appears to be 24 points; at 50%, it appears to be the size of 6 point type.

## Using the Text-Entry Window

If you choose the "For text from" option and type text in a document at an apparent point size that is outside the specified range, the text-entry window appears at the bottom of the screen. You can type and edit text directly in the window. To enter the text into the current document, press **Enter**.

If the apparent size of text changes because you change the view magnification, actual point sizes that are beyond the specified "For text from" range might not cause the text-entry window to open. In this case, you can type the text directly into the document.

## Customizing the Keyboard and Toolbar

Via the Customize dialog box, you can assign keyboard shortcuts to commands, tools, attributes, object styles, and font styles. You can also place buttons for these items on the Toolbar.

### To Customize the Keyboard and Toolbar:

Choose **File | Customize**.

### Customize Dialog Box

Use the options in the Customize dialog box to select items, and then create keyboard shortcuts and place buttons on the Toolbar.

<b>Category</b>	Choose the category of items to customize. The contents of the scrolling list change according to the selected category.
<b>Sub-Category</b>	Only active if Menus is selected in the Category menu. The commands in the selected menu appear in the scrolling list.
<b>Scrolling list</b>	Displays all tools or styles in the selected category or subcategory (for menus). For inks and strokes, the list contains the inks or strokes you select from the pop-up palettes. Select an item in the scrolling list to assign a shortcut to it or to place a button for it on the Toolbar. The selected item is highlighted.
<b>Current Shortcut Key</b>	Displays the current keyboard shortcut for the selected item, if a shortcut exists.
<b>Press New Shortcut Key</b>	With an item selected in the scrolling list, press the keyboard keys you want to assign to the item. To use a modifier key, press and hold <b>Shift</b> , <b>Ctrl</b> , or <b>Alt</b> . Press a letter, number, or function key. The new shortcut keys appear in the box.
<b>Menu icon</b>	Click <b>Modify</b> to open the Modify icon dialog box and customize the menu bar icons. Click <b>Restore</b> to return the icons to their default appearance.
<b>Assign</b>	Click to assign the keystrokes in the Press New Shortcut Key box to the selected item.
<b>Remove</b>	Click to remove the current shortcut keystrokes from the selected item.
<b>Reset All</b>	Click to restore the default shortcut keys to all items.
<b>Reset</b>	Click to restore the default shortcut keys to the item selected in the scrolling list.
<b>Palettes</b>	A pop-up palette appears when the Category selection is Inks; three palettes appear when the Category is Strokes. Select an ink or stroke from the palette. The selected item appears in the scrolling list and on the Toolbar.
<b>Remove Selection</b>	When the Category selection is Inks, Strokes, Object Styles, or Font Names and Sizes, click the <b>Remove Selection</b> button to remove a selected item from the scrolling list. This also removes a button for the item from the Toolbar.
<b>Save Set</b>	<p>After you customize Canvas, you can save the current configuration in a file. You can create other custom configurations and save these in configuration files. A configuration file stores all the current keyboard shortcut assignments and the setup of buttons on the Toolbar.</p> <p>Click <b>Save Set</b> to create a file of all current shortcut keys and Toolbar buttons. In the directory dialog box, type a name for the file and click <b>Save</b>.</p>

<b>Load Set</b>	Click <b>Load Set</b> to import a file of shortcut keys and Toolbar buttons. In the directory dialog box, select the file to load and click <b>OK</b> . Canvas resets the shortcut keys and the Toolbar according to the configuration stored in the file.
<b>Clear All</b>	Click <b>Clear All</b> to clear all of the customized settings in the scrolling list and all buttons on the Toolbar.
<b>Close</b>	Click to close the Customize dialog box. Inks or strokes added to the scrolling list remain in the list when you close the dialog box.

## Choosing a Category to Customize

You can choose items to which you want to assign shortcuts or add to the Toolbar. The following items are available in the Category menu.

- **Menus:** If you select this item, you must choose one of the following menus from the Sub-Category menu: File, Edit, Text, Object, Layout, Effects, Image, and Window.
- **Tools:** The names of the tools and their icons appear in the scrolling list. Their respective keyboard shortcuts are also indicated in the Current Shortcut Key field.
- **Inks/Strokes:** Next to the scrolling list, a pop-up palette displays preset inks, or three pop-up palettes display pen strokes, dashes, and arrows. Select an ink or stroke from a palette. The item you select appears in the scrolling list and as a button on the Toolbar.

### To Remove an Ink or Stroke from the Scrolling List:

1. Select it and click **Remove Selection**; if the item is on the Toolbar, this removes it from the Toolbar also.
2. In the font size box, select a size and then press the **Add Size** button. The font size appears in the main scrolling list, and a font size button appears on the Toolbar.

### To Choose a Font:

Select a name from the menu. The font appears on the scrolling list, and a font button appears on the Toolbar.

### To Customize Keyboard Shortcuts:

1. In the Customize dialog box, select an item in the scrolling list. If the item has a keyboard shortcut, the Current Shortcut Key box shows the shortcut keys.
2. To assign a keyboard shortcut, press the keyboard keys you want to use. The keys you type appear in the Press New Shortcut Key box. Click **Assign** to assign the new keys to the item.

If the keys you type are assigned to another shortcut, the message **Currently assigned to:** appears beneath the Press New Shortcut Key box.

 Certain keys are restricted, so pressing them will not display their values. Other shortcuts are reserved by Canvas, so they can be assigned, but not applied to some procedures; e.g., **Ctrl+1**, **Ctrl+2**, and **Ctrl+3** cannot be used in painting.

You can't assign single keys as shortcuts; e.g., you can't assign "H" or "F7" to an item.

### To Remove Shortcut Keys from the Selected Item:

Click **Remove**.

### To Restore the Default Shortcut Keys to All Commands:

Click **Reset All**.

### To Restore the Default Shortcut Keys to One Command:

Select the command in the scrolling list and click **Reset**.

### To Assign Shortcuts to Inks:

Create shortcut keys for specific fill inks and pen inks.

### To Assign a Shortcut Key to a Fill or Pen Ink:

1. In the Customize dialog box, select the ink in the scrolling list.
2. Type the keyboard keys you want to use. The keys you type appear in the Press New Shortcut Key box.
3. Under the box, select whether you want the ink to be a Fill or Pen ink.
4. Click **Assign** to assign the new keys to the ink.

### To Place Buttons on the Toolbar:

Do one or both of the following:

- Select an item in the scrolling list. Inks, Strokes, Object Styles, and Fonts appear on the Toolbar automatically.
- For Menus and Tools, double-click the item in the scrolling list to add it to the Toolbar. A button for the selected item appears on the Toolbar when it is displayed.

### To Remove an Ink, Stroke, Object Style, or Font Button:

Click the **Remove Selection** button under the scrolling list, or double-click the item in the scrolling list.

### To Remove a Menu or Tools Button:

Double-click the item in the scrolling list.

### To Arrange Buttons on the Toolbar:

After you place buttons on the Toolbar, you can change their position directly on the Toolbar.

- **To move a button: Shift-drag** the button to a new location.
- **To remove a button from the Toolbar: Shift-drag** the button away from the Toolbar.
- **To add a separator between Toolbar buttons: Shift-drag** the button on the right slightly to the right. A separator line appears between the button and the one to its left.

### Using Ink Buttons

When you place buttons for inks on the Toolbar, use the buttons to apply fill and pen inks or foreground and background colors.

You can apply fill and pen inks to vector objects and text as well as select foreground and background colors for painting.

### To Apply a Fill Ink or Select a Background Color for Painting:

Click the ink button on the Toolbar. If no objects are selected, the ink becomes the current fill ink or background color.

## To Apply a Pen Ink or Select a Foreground Color for Painting:

Press **Ctrl** and click the ink button. If no objects are selected, the ink becomes the current pen ink or foreground color.

## Saving Document Templates

You can use a special kind of Canvas document, called a template, as the basis for new documents. Canvas includes many ready-made templates, and you can create your own template documents. Then, when you use the New command, you can select a template — either one supplied with Canvas or one you have created — to create a new document based on the contents and configuration of the template.

A template document stores almost all preferences settings, as well as the settings you specify with the Document Setup command, and other document setup options, including the following:

- Document type
- Configuration of layers, slides, pages, sheets and frames
- Settings for rulers, grids, guides, and views
- Current inks and strokes settings
- Text styles and default text settings
- Multiple Save options

Canvas stores some settings with the application and not in particular documents, so these settings are not included in a template document. The settings that aren't stored in a template include the position of palettes on the screen and the current set of external tools.



If you create a template with a small amount of type, such as for a letterhead, convert the type to paths so the template can be used without particular fonts being available.

## To Save a Template Document:

1. Choose **File | New** to create a new Illustration, Presentation, Animation, or Publication document.
2. Choose **Layout | Document Setup** to select measurement units, document size and orientation, and, for Publications, the margins and column layout.
3. Choose **Canvas | Configuration Center** to set up preferences for the document.
4. Create or import objects that you want to store in the template.
5. Choose **File | Save As**. In the Save as type menu, select Canvas Template and click **Save**.

For more information, see "Saving Canvas Documents" on page 28

## File and Data Exchange

Canvas supports many standard formats for exchanging files and data with other programs. This section explains how to use non-Canvas file formats, including Web image formats. It includes information on exchanging files on the Internet and Object Linking and Embedding.

## Importing and Exporting Files

Canvas lets you import and export files in many different formats, letting you easily work with colleagues who use different applications and formats. Since the native Canvas format (.CVX) saves all the objects, properties, and effects that your document can contain, it's recommended that you always save your document in this format, in addition to saving or exporting the document in other formats.

When you save or export a document in a non-Canvas format, you should be aware of the capabilities and limitations of that file format, so that you can avoid problems such as lost information and printing errors. For example, some formats support only one type of data (vector, raster, or text), while others support multiple types.

### Importing Files

In Canvas you can open a file directly, or you can create a Canvas document and then place one or more files into it. This lets you work on a single file, or combine files of different formats into a single document.

#### To Open or Place a File:

1. Choose **File**, then choose one of the following:
  - **Open**: Opens the file as a new Canvas document.
  - **Place**: Inserts the file in the current Canvas document. This command is available only if a Canvas document is open.
2. In the Open or Place dialog box, select the file you want to open, then click the **Open** or **Place** button.

For some file formats, a dialog box presents options for opening files. Select the appropriate settings, then click **OK**.

- If you open the file, Canvas creates a new document.
- If you are placing the file, a Place pointer appears. Click where you want to place the top-left corner of the file.



To import image files, you can also use the **Image | Import** command. (See "Importing Images" on page 86.)

### Exporting Files

In Canvas, exporting files in different formats is as simple as saving the file in your selected format. Because not all the different file formats support all Canvas objects and effects, it's recommended that you always save your document in the standard Canvas (.CVX) format in addition to other formats.

For example, a TIFF file can save only a single raster image; it does not support text or vector objects. If you save a Canvas document containing vector objects or text in TIFF format, all the objects in the document are changed into an image. If you then open the TIFF file, its contents appear as one raster image, so you can't edit the original text or reshape the vector objects.

When you save a document in another format, Canvas creates a new file on disk, but does not close the document or change the name of the document in the title bar. If you then try to close the Canvas document (without saving it in Canvas format), a message asks you to confirm that you want to close the document without saving it.

Always save your work as a Canvas (.CVX) document, so you can edit your work later in Canvas if necessary.



For more information about exporting files, see "Saving Canvas Documents" on page 28.

## Rendering Images

When you are saving objects and select a file format that supports images only, Canvas renders the document or selected objects. Rendering creates an image that can be saved in the selected format. The Render Image dialog box has options for rendering. (See "Rendering Objects and Images" on page 301 for more information.)

## Importing and Exporting Images

In Canvas there are several ways to import raster images into your document. You can open an image file directly, place an image in your document, or import the image. When you use the Import command, the Import dialog box filters the files you see, so that you can easily find your image files.

### Importing Images

Importing an image places it in the current document as a paint object. In most cases, Canvas stacks imported images at the center of the current view. You can also choose to import a low-resolution proxy of an image. The proxy image is linked to the original image file. The Acquire as Proxy option is only available when you import TIFF, JPEG, and CVI files.

#### To Import an Image:

1. Choose **Image | Import**.
2. In the Select images to import dialog box, select the image you want to import.
3. Click the **Import** button.

#### To Import an Image Proxy:

1. Choose **Image | Import**.
2. In the Select images to import dialog box, select a TIFF, JPEG, or CVI image.
3. Select the **Acquire as Proxy** checkbox.
4. Click the **Import** button.

The proxy image is linked to the image file.



For information about importing images with a TWAIN scanner, see "Using TWAIN-Compatible Scanners" on page 313.

## Exporting Images

When you export an image from a Canvas document, Canvas creates a file on disk from a single selected paint object. Using Export is similar to using Save As, except that you must select a paint object before you choose Export.

#### To Export an Image:

1. Select the paint object or image to export.



Images in Edit mode can't be exported. Press **Esc** to exit Edit mode.

2. Choose **Image | Export**, and select a file format.
3. In the Export Image dialog box, type a file name, select a location for the exported file, and then click **Save**.

If the image mode of the selected paint object is not supported by the chosen format, the Render Image dialog box appears. In the dialog box, select an image format supported by the file format. If an image mode is not available in the Mode menu, the selected file format does not support that mode. (See "Rendering Objects and Images" on page 301 for more information.)

## Viewing EXIF Information

EXIF (Exchangeable Image File) is a format that stores information in digital images. Almost all new digital cameras use EXIF to store information on the image such as shutter speed, exposure compensation, F number, what metering system was used, if a flash was used, ISO number, date and time the image was taken, white balance, auxiliary lenses that were used, and resolution.

Canvas provides quick and easy access to most of the information that is attached to these images.

### To View EXIF Information:

1. Select an image in your Canvas document.
2. Do one of the following:
  - Choose **Image | DCS information (EXIF)**.
  - Right-click the image and choose **DCS information (EXIF)**.



If the image does not contain any EXIF information, the DCS information (EXIF) option is not available.

## Exporting EXIF Information

When you export an image, if you choose JPEG (8-bit/channel) or TIFF (8-bit/channel or 16-bit/channel) format, you can export the EXIF information with the image. (See [Creating Web Pages from Documents](#).) However, the EXIF data is only preserved if you have not made changes to the image in the Canvas document, or if you have made changes to the image's pixels, such as if you've fixed red eye. If you have made other changes to the image, such as rotated, skewed, or adjusted the transparency, or if you have composited other objects with the image, the EXIF information is not preserved.

### To Export EXIF Information:

1. Select an image in your Canvas document.
2. Choose **Image | Export | JPEG** or **TIFF**.
3. Type a filename and select a location for the exported image.
4. Click **Save**.
5. In the Export Options dialog box, select the **Include EXIF Data** checkbox.
6. Click **OK**.

## Using Canvas Templates

Canvas includes many ready-made templates, and you can create your own template documents. Then, when you use the New command, you can select a template — either one supplied with Canvas or one you have created — to create a new document based on the contents and configuration of the template.

A template document stores almost all preferences settings, as well as the settings you specify with the Document Setup command, and other document setup options, including the following:

- Document type
- Configuration of layers, slides, pages, sheets and frames
- Settings for rulers, grids, guides, and views
- Current inks and strokes settings
- Text styles and default text settings

Canvas stores some settings with the application and not in particular documents, so these settings are not included in a template document. The settings that aren't stored in a template include the position of palettes on the screen and the current set of external tools.

 If you create a template with a small amount of type, such as for a letterhead, convert the type to paths so the template can be used without particular fonts being available.

### To Save a Template Document:

1. Choose **File | New** to create a new Illustration, Presentation, Animation, or Publication document.
2. Choose **Layout | Document Setup** to select measurement units, document size and orientation, and, for Publications, the margins and column layout.
3. Choose **File | Configuration Center** to set up preferences for the document.
4. Create or import objects that you want to store in the template.
5. Choose **File | Save As**.
6. In the Save As dialog box, navigate to the Canvas\Templates folder.
7. In the Save as type drop-down list, select TPL - Canvas Template.
8. Click **Save**.

## Working with Other File Formats

When you use other file formats supported by Canvas, you can select options when you open, place, import, save, or export some types of files. The most common file formats and their options are described in this section.

### Opening PDF Files

When opening PDF files, you can select your import options in the PDF & PS Import Options dialog box.

<b>Color mode</b>	Select RGB or CMYK.
<b>Embedded fonts</b>	Select either Substitute or Convert to paths.
<b>Vector precision</b>	Select from one to three decimal points for precision.
<b>Text merging</b>	Select an option for text tolerance. <ul style="list-style-type: none"> <li>● <b>Disabled:</b> Select this option for no merging, even for text/letters that are exactly next to each other.</li> <li>● <b>Precise:</b> Select this option for a very small amount of tolerance, so only letters next to each other will be merged.</li> <li>● <b>Tight:</b> Select this option for a higher level of tolerance, (spaces up to approximately 2 points between letters will be ignored).</li> <li>● <b>Loose:</b> Select this option for the highest level of tolerance, (meaning "merge whenever it makes sense").</li> </ul>
<b>Text flow</b>	Select a Text flow option to set how Canvas will handle hard returns in text objects. <ul style="list-style-type: none"> <li>● <b>Disabled:</b> Select this option for no text flow operations.</li> <li>● <b>Hard Returns:</b> Select this option to retain the appearance of hard returns existing at the end of sentences in text objects.</li> <li>● <b>Continuous Flow:</b> Select this option to ignore existing hard returns at the end of sentences in text objects, and yield a continuous flow of text.</li> </ul>
<b>Image merging</b>	Select <b>On</b> to allow Canvas to merge adjacent image tiles/strips from right to left, layer by layer.
<b>Page selection</b>	Use this option to specify pages for import. The default is [all pages]. Other predefined values are [even pages] and [odd pages], which would import only the even and odd pages, respectively. Other page selections may be specified as a combination of numbers separated with commas; e.g, 2, 5, 8, 13. Consecutive pages may be specified using two numbers separated with a dash; e.g., 6-9. You can even use combinations like 1, 5 - 7, 9, which would import pages 1, 5, 6, 7, and 9. The combination 1, 2, 4, 6- would import pages 1, 2, 4, 6 and all subsequent pages.
<b>Layers</b>	Select an option for importing PDF documents that contain layers. <ul style="list-style-type: none"> <li>● <b>Import layers if present:</b> Select this option to import all visible layers in the file. If deselected, all objects from a PDF file are imported to one layer with a default name.</li> <li>● <b>Import hidden layers:</b> Select this option to also import hidden layers and all objects that may be on those layers. This would work even if the option above is turned off.</li> </ul>
<b>Save these settings as default</b>	Saves the current settings as the default.
<b>Default</b>	Click Default to obtain the default settings.

## Saving in PDF Format

When saving in PDF - Acrobat® format, you can select export options in the PDF Options dialog box that appears before the file is saved. (See "Exporting as PDF" on page 508.)

## Saving in Illustrator Format

You can also save files in an Adobe Illustrator® format by choosing **File | Save As**, and then selecting AI - Adobe Illustrator. In the AI Export Options dialog box select the Illustrator settings.

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<b>Illustrator Version</b>	Choose the version of Illustrator in which you wish to save the file.
<b>Object attributes</b>	<ul style="list-style-type: none"><li>● <b>Ignore Transparency:</b> If your Canvas file contains objects with SpriteLayer transparencies, then you will need to check this option. If this feature is not activated, then all of the objects that contain transparency effects (in your Canvas file) will be converted into images. Therefore, you will not be able to edit these objects after exporting except as bitmapped images.</li><li>● <b>Basic Stroke Only:</b> The editing tools in Illustrator may not recognize a texture, hatch, or gradients for a stroke which you have created in your Canvas file. Therefore, you may wish to activate this option if you expect to use some of the more specialized tools in Illustrator after exporting the file. When activated, this feature will automatically remove all complex strokes from a Canvas file during export.</li><li>● <b>Resolution:</b> Choose from 72 to 600 DPI.</li></ul>

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## Working with CGM Files

Computer Graphics Metafile (CGM) format is a standard for exchanging 2-D graphics and text.

With Canvas, you can open, modify, and save CGM files created in other applications. CGM file properties, including WebCGM tags are retained, and can be viewed in the Object Properties palette.

Variations and extensions to the "standard" format can create incompatibilities with the Canvas file filter. When you save a Canvas document in CGM format, Canvas makes the following image color mode conversions:

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<b>Canvas image mode</b>	<b>CGM image mode</b>
<b>CMYK, Duotone, Grayscale, and LAB color</b>	RGB cell arrays
<b>Black &amp; White</b>	CGM versions 1 and 2: RGB cell arrays CGM versions 3 and 4: Black & White
<b>Multichannel</b>	First channel becomes an RGB cell array; other channels ignored

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### To Export as CGM:

1. Choose **File | Save As**.
2. Select **CGM** as the file format in the Save As dialog box.
3. In the CGM Export Options dialog box, set the export options.

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<b>CGM Version</b>	Select a version. If your original document was Version 4 (WebCGM), be sure to select this version for export so that any imported data is preserved in the exported file.
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<b>Compliance</b>	Select either CALS or ATA.
<b>VDC Precision</b>	Select either 16 Bit Integer or 32 Bit Fixed.
<b>Scaling Mode</b>	Select either Abstract or Metric.
<b>Export Paint Object</b>	If your file contains paint objects, select this option to export them. Deselect this option if you do not want to export the paint objects.
<b>Export Layer As Picture</b>	If selected, each layer is exported as a separate image. If deselected, the file will be exported as one image.
<b>Beziers As Polygons</b>	If objects contain a fill ink, select this option to preserve it. All beziers will export as polygons. If this option is deselected and the objects are exported as beziers, the fill color is removed.
<b>Bitonal Image Compression</b>	This option is enabled if Version 3 or 4 is selected in the CGM Version menu. Select either Not Compressed, Group 3 (1-dimensional), or Group 4 (2-dimensional).
<b>Font Match</b>	Click this button to open the CGM Font Matching dialog box. Select a substitute font if you want to change the font when exported to CGM format. The font remains the same in the original file.

Canvas also supports importing CGM and CGM\*PIP files. (See "Importing CGM Files" on page 519.)

## Using AutoCAD DWG Format

Defined by AutoCAD, DWG is accepted as the standard file format for data interchange by CAD users worldwide. The AutoCAD DWG import filter lets you import native AutoCAD® 2004 files. into Canvas. This filter fits an AutoCAD drawing into a specified page format.

### To Open DWG Files:

1. Choose **File | Open** or **File | Place** and select **DWG - AutoCAD** format in the directory dialog box.
2. In the DWG & DXF Import dialog box, enter the following information:

General options	<b>Source Unit</b>	Select the source unit from the menu. The chosen unit will become the document unit.
	<b>Drawing Scale</b>	Select a scale from the menu. You can even use Fit to Paper, if necessary. You can also select <b>Custom scale</b> and then enter the exact scale you want in the Drawing scale fields.
	<b>Paper Format</b>	Select a paper size from the menu.
	<b>Landscape mode</b>	Select this option to change the page orientation.
	<b>Dark background</b>	Select this option to use a black paper color. The lines will be white on import. The paper color can be changed after in the Document Setup manager ( <b>Layout   Document Setup</b> ).
Advanced options	<b>Ignore Line Widths</b>	Select this option to set a hairline stroke for each object.
	<b>Explode AutoCAD hatches</b>	Select this option to convert any hatch inks in the original to objects.

<b>Explode AutoCAD blocks</b>	Select this option to convert blocks to objects.
<b>Merge imported layers</b>	Select this option to merge all imported layers into one layer in Canvas.
<b>Import empty layers</b>	Select this option to import any empty layers in the original file.
<b>Substitute AutoCAD fonts with Arial</b>	Select this option to convert AutoCAD fonts to Arial to allow them to be edited.
<b>Save these settings as default</b>	Saves the current settings as the default.
<b>Default</b>	Click Default to obtain the default settings.

## Using Drawing Interchange Format (DXF)

Drawing Interchange Format (DXF) is a format developed by Autodesk, Inc., for exchanging data with AutoCAD and other drawing applications. DXF format provides platform-independent storage of 2D and 3D technical drawings and supports multiple layers. Canvas supports DXF files containing ASCII data, but does not support DXF files that contain data in binary format.

### Opening DXF Files

When opening or placing DXF files, the DWG & DXF Import dialog box opens. The DXF filter fits a DXF file to a specified page format. As with, the DWG import, you should know the Source Unit, Paper Format, and Drawing Scale. (See "To Open DWG Files:" on page 91.)

When opening a DXF file, Canvas makes the following conversions from DXF objects to Canvas objects:

<b>DXF objects</b>	<b>Canvas objects</b>
Blocks	Groups
Traces, Solids, and Quadratic polylines	Polygons
B-spline Polylines	Bézier curve paths
ATTDEF and ATTRIB	Text objects

Canvas doesn't support 3D objects (3D lines and 3D Face objects in DXF files), so these objects are not imported into Canvas.

### Exporting DXF Files

When you save a document in DXF format, Canvas converts the following Canvas objects and attributes to DXF objects and attributes:

<b>Canvas objects/attributes</b>	<b>DXF objects/attributes</b>
Paint object	Not converted
Pen and fill patterns	Solid pens are exported; fills are not exported
Arcs	Polylines

Canvas objects/attributes	DXF objects/attributes
Calligraphic pen strokes	Fixed-width pen strokes
Continuous dashes	Dashes start in each segment
Layer names with spaces or non-uppercase characters	Spaces removed and characters become uppercase
Grayed layers	Objects appear in original colors

In the DXF export options dialog box, select the platform format to use. You can also select options for exporting lines and circles.

## Using Encapsulated PostScript (EPS)

Encapsulated PostScript (EPS) is a file format used to save individual PostScript graphics.

### To Open EPS Files:

When you open or place an EPS file, a dialog box prompts you to choose an import method.

Choose an option and click **OK**.

- **Create EPSF Object:** Imports the EPS file as an EPS object. This object can be rotated or scaled, but you can't select or edit parts of the graphic. Canvas displays a preview image if the file contains a preview in a supported format.
- **Create Canvas Objects:** Interprets the EPS file's PostScript code to convert the EPS graphic to editable Canvas objects. Raster images become Canvas paint objects and vector objects are maintained as vector objects. Text is imported as one or more text objects. The EPS preview image is not imported. Specialized objects and attributes that have no Canvas equivalent might not be imported.
- **Place EPSF Reference:** Inserts a link to the EPS file and displays its preview image in the Canvas document. This option is useful for keeping the size of the Canvas file smaller than if EPS files are imported directly into the document. If you use this option, the EPS file must be available when you print the Canvas document. If the EPS file changes, the Canvas document is updated when you print it.

## Saving as EPS

### To Save a File in EPS Format:

1. Choose **File | Save As**.
2. In the Save As dialog box, select **EPS** format.
3. Select options in the dialog box that appears and click **OK** to save the file.

When you save a Canvas document in EPS format, you could lose specialized objects and attributes that are not supported in EPS. Canvas transparency effects are rendered and stored as images in EPS graphics, using the Transparency Rendering option and resolution that you select.

- **EPSF Type:** Choose EPS to create a composite (non-separated) EPS file. Choose DCS Version 2 to create a single, pre-separated EPS file in DCS version 2.0 format. You can use a DCS file to output color separations from programs that support this format.

- **Current Page:** Saves the current page, slide, sheet, or frame only. To save a range of pages, enter the starting and ending page numbers in the From and To boxes.
- **Preview:** Select a format to store a preview image in the EPS file. Canvas and other programs that support EPS previews will display the preview when the EPS file is placed in a document. The image format and color mode you select are applied to the preview image only.

Choose **None** for no preview, or choose a color mode to save a preview image. Preview images are saved in TIFF format. A preview will not appear in programs that support only WMF or EMF previews.

- **Use Compression:** Select this option to compress TIFF preview images. Some programs can display only non-compressed TIFF previews. If TIFF preview images do not appear correctly, try deselecting this option.
- **Image Compression:** Select a format for storing raster image data. Binary is the most compact non-compressed format. ASCII encodes raster data as text, the least compact format. Level 2 ASCII is somewhat more compact than ASCII format. RLE compresses binary data and makes the most compact EPS files. To save EPS files for Photoshop or Illustrator, use Binary format.
- **Color Mode for EPS format:** Select a color mode to apply to colors in the EPS file. The available modes correspond to RGB, CMYK, Grayscale, and Black & White modes for paint objects. Colors created with RGB, HSL, CMYK, or grayscale values will be converted to the selected mode in the EPS file. Spot colors defined in Canvas with the Spot Color option in the Color manager or a spot color library will be saved in the EPS file as spot colors, and also with color values in the selected mode. If you print color separations from an EPS file in another program, you can usually output process and spot color plates, or just process color plates, depending on whether you specify spot and process separations or process-only separations.
- **Color Mode for DCS format:** Select a color mode for the separations stored in the EPS file. Select CMYK to separate all colors, including spot colors, as process (CMYK) colors. Select CMYK + Spot to separate all colors, except spot colors, as process (CMYK) colors. Spot colors will not be converted to process and will be separated as spot colors.

When you use DCS Format and print color separations, the program you use simply outputs the color separation plates as defined in the DCS file; it does not apply its separation method or options to colors in the file. Therefore, if you want to be able to output process and spot color plates, you should select CMYK + Spot Color Mode when you use DCS Format to save illustrations in EPS files.

- **Transparency Rendering:** Select a method for SpriteLayer and SpriteEffects rendering into EPS format. These options are similar to the rendering options that are available when you print a document. Choose **Smallest Area**, **Complete Area**, or **Entire Document**. Smallest Area results in rendering the minimum area necessary to show transparency and SpriteEffects. Complete Area renders the minimum area, plus any object that touches the rendered area. This setting can prevent a slight color shift between rendered and non-rendered areas within an object. Entire Document renders everything in the document (or selection) as an image to be saved in the EPS file. If you choose **Don't Render Transparent Objects**, transparency and SpriteEffects won't be rendered.
- **Text Always in Front:** Select this option to always place text in front of other objects.
- **Rendering Resolution:** Select a resolution for rendering effects. In general, you should specify a resolution based on the publication requirements for images.
- **Embed Fonts:** Select this option to embed fonts in the file, so text can appear as intended if the required fonts aren't available.
- **Use Page Dimensions:** Select this option to save the full area of the document page, sheet, slide, or frame in the EPS file. If this option is not selected, the EPS graphic will be only as large as the saved objects.
- **Use Kerning Pairs:** Select this option to use kerning pairs.

## Converting EPS Objects

After you import an EPS file, choose options from the context menu to convert the object or view information about it.

You can view linking information if the file was imported as an EPSF reference. If the file was imported as an EPSF object, you can convert it to an EPSF reference. If it was imported as an EPSF object, you can create Canvas objects from it.

### To Use EPSF Object Commands:

Select the EPS graphic and right-click. In the context menu, choose one of the options described below.

- **Convert EPSF into Canvas Objects:** If you choose to create Canvas objects from an EPSF object, the EPSF object is replaced in the document by equivalent Canvas objects. Depending on the contents of the original EPS file, you might not be able to edit some objects as you expect after the conversion. For example, you would not be able to edit text if the EPS file contained outlines (paths) for text characters, rather than the characters themselves; you could use path-editing techniques to edit the objects.
- **Embed EPSF Into Document:** If an EPS graphic has been imported with the Place EPSF Reference option, you can use the context menu to convert the graphic from a linked EPS graphic to an EPS graphic that is placed in the document. The result is the same as importing an EPS file and selecting **Create EPSF Object**.
- **EPSF Info:** You can get information from an EPS graphic if it was imported with the Place EPSF Reference option. Canvas will display information on the location of the EPS file that is linked into the document. If the file can't be found in its original location, Canvas displays a message. To re-link the file, click **File**, and use the directory dialog box to select the EPS file. Then, click **OK** in the message box.

## Saving Web Graphics (GIF/JPEG)

For saving graphics in GIF and JPEG formats (the standard Web image formats), you have the choice of using the integrated dialog box (Web Images) or the individual GIF or JPEG dialog boxes.

### To Export or Save as GIF:

1. Do one of the following:
  - Choose **File | Save As**.
  - Choose **Image | Export**.
2. Select GIF as the file format.
3. Select GIF options in the GIF Export Options dialog box.

### To Export or Save as JPEG:

1. Do one of the following:
  - Choose **File | Save As**.
  - Choose **Image | Export**.

2. Select JPEG as the file format. Make your adjustments in the JPEG Export Options dialog box.
  - **GIF format:** GIF is the best format for graphics that contain a small number of colors, such as vector art with flat colors. GIF format supports Black & White, Grayscale, and Indexed color images, with 1 to 8 bits of color data for a maximum of 256 colors.
  - **JPEG format:** JPEG format provides compression of high resolution, full-color (24-bit) RGB images. JPEG is designed for efficient storage of continuous-tone images such as photographs. JPEG is an abbreviation of Joint Photographic Experts Group, a standards organization that promoted the format.

### To Save Graphics as Web Images:

1. Select the objects to save, or Canvas will save the current document page. Choose **File | Save As**.



You can use a wizard to save graphics for the Web. Select the images you want to save, and choose **File | Save to Web**.

2. In the directory dialog box, select **Web Images** in the file format pop-up menu. Type a name for the file and select the save location.
  - To save only the selected objects, click **Save Selection**.
3. Click **Save**.
4. If the Render Image dialog box opens, select rendering options and click **OK**.
5. In the Export Preview dialog box, select either format and use multiple preview panes to compare how the format and other settings will affect your images before saving.
6. Click **Export** to save the file.

### To Export Images in GIF or JPEG Format:

Exporting allows you to save selected images, but not entire documents. The difference between Save As and Export is that Save As will render objects or an entire document to create an image that can be saved. Export will save only a single paint object, without rendering.

1. Select a paint object to export.
2. Choose **Image | Export | Web Images**.
3. In the Export Preview dialog box, select either format and use multiple preview panes to compare how the format and other settings will affect your images before saving.
4. Click **Export** to save the file.
5. In the dialog box, type a name for the file and choose a location to save the file, and then click **Save**.

### Export Preview Options

The Export Preview dialog box shows one, two, or four previews of a graphic image when you choose Save As or Export and select GIF or JPEG file format. You can select settings for each preview image to compare how the file format, palette options, and other settings will affect the image you are saving.

A color tile shows the color you point to in a preview image. Two pairs of coordinates are displayed below the preview panes. One pair are the X,Y coordinates of the pointer. The other pair are the coordinates of the pixel at the upper-left corner of the preview panes.

## Preview Setup



Click a preview button to change the preview setup. You can select one preview, two previews (horizontal or vertical), or four previews.

One preview pane is active and has a highlighted border. Click a pane to make it active. The settings in the dialog box apply to the active preview. The settings in the dialog box can be different for each preview. When you select a preview, Canvas updates the dialog box to show the settings for the active preview.

All panes show the image at the same view location and zoom level. Drag on a preview image to move the view location.



Use the zoom menu to zoom in or out. Or, click the **Magnifying Glass** button, then click a preview image to zoom in. To zoom out, **Shift**-click a preview image.

Without selecting the Magnifying Glass button, you can zoom in or out by clicking in a preview image. Press **Ctrl** or **Ctrl+Shift** and click.

## Previewing the Current Settings

Each preview pane shows the original image. To view how the selected file format and other settings will affect the image, select the **Show Preview** option above a preview pane. Canvas will apply all the settings in the dialog box to the preview image. If you change a setting, Canvas will apply the new setting.

**Image file information:** When Show Preview is selected, the estimated file size and the number of colors in the image appear above the active preview pane. The first value is the estimated file size in kilobytes. The second value is the number of discrete colors that will be saved in a GIF file; the value is not shown for JPEG format.

## JPEG Options

To use JPEG format, select JPEG from the Format menu. Canvas applies the JPEG format and settings to the active preview pane.

- **Quality:** Enter a percentage value from 1-100%. Higher Quality values result in less compression and better retention of original image quality.
- **Smoothing:** Enter a smoothing value from 1 to 6. JPEG compression can cause color blocks to appear in an image. Smoothing softens the image to make color blocks less noticeable. Higher values produce more smoothing.
- **Progressive:** Select this option to create a JPEG file that Web browsers can display at increasing resolution as the image is loaded.
- **Downsampling:** This option can help improve compression. Downsampling reduces the image resolution by averaging color values while preserving luminosity details. Programs displaying the image will “upsample” to the original resolution, so greater compression is achieved without changing the display resolution of the image.
- **Optimized:** This option can help produce smaller file sizes. When Optimized is selected, some of the least important color information is discarded to produce more efficient compression.

## GIF Options

To use GIF format, select **GIF** from the Format menu. Canvas applies the GIF format and settings to the active preview pane.

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### Max colors

Use the menu or type in the box to specify the maximum number of colors to be used in the image. Fewer colors can result in a smaller file, but too few colors will degrade an image.

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<b>Palette</b>	<p>A palette is a set of colors used in an image. To be saved in GIF format, an image can contain no more than 256 colors. If the image contains more colors, the original colors are mapped to the colors in the palette that you choose.</p> <ul style="list-style-type: none"> <li>● <b>Adaptive:</b> Creates a palette that tries to match as close as possible all the colors in the image. This option is the best for preserving the original color range of an image.</li> <li>● <b>Web:</b> Uses a standard color palette supported by major Web browsers. The range of colors in the Web palette, however, can cause color shifts in images with many shades of a few colors.</li> <li>● <b>Uniform:</b> Uses a palette of colors that are uniformly distributed through the range of possible RGB colors.</li> <li>● <b>Exact:</b> Creates a palette from the actual colors in the image, if the image contains fewer than 256 colors. If the image contains more than 256 colors, Canvas uses the Adaptive option.</li> </ul> <p> To apply a custom or system color palette to a paint object before saving in GIF format, select the paint object and choose <b>Image   Mode   Indexed</b>. In the dialog box, select a palette option and click <b>OK</b>. To modify an Indexed mode paint object, choose <b>Image   Mode   Color Table</b>.</p>
<b>Optimized</b>	<p>Select this option to merge single pixels into similar colored areas to produce smaller file sizes. However, in images with fine lines or detail, this option can reduce image quality. This option is less effective when Dither is also selected and an image has a limited number of colors.</p>
<b>Dither</b>	<p>Select this option if you want Canvas to use dithering to simulate a greater range of colors. Dithering can make an image appear to have more colors than are in a limited color palette, but it can also make an image appear grainy or noisy. To control the amount of dithering, enter a percentage from 1 to 100 in the text box.</p>
<b>Interlaced</b>	<p>Select this checkbox to save the image as an interlaced GIF. Interlacing divides the image data for faster initial display in Web browsers that support interlaced GIF images; i.e., the image appears progressively on the Web page.</p>

## Selecting Transparent Colors

The Dropper tools in the Export Preview dialog box let you make colors in a GIF image transparent. Click in the color palette or the current preview image to select colors for transparency. When you select a color, it becomes highlighted in the grid.



Use the regular dropper to select one transparent color. If you click another color, it replaces the current transparent color.

Use the add/subtract dropper to select additional colors to be transparent. Each color you click becomes transparent. To restore a transparent color, click it again.

A checkerboard pattern appears in areas of the preview image that are transparent.

**Color palette:** The area below the GIF options shows the current color palette for the image. The palette changes when you change the Palette or Max Color option.

## Saving Settings

Save the current options in the Export Preview dialog box and then apply the same setup to other images.

To save the current options in the dialog box, choose **Save Setting** in the menu above the current preview pane. Type a name for the saved setting and click **OK**. This setting will be available in the menu above each preview pane.

## To Use a Saved Setting:

Select the **Show Preview** option above a preview pane and then select the saved setting in the menu.

## To Delete a Saved Setting:

Select the setting in the menu, and then choose **Delete Setting**. Canvas will ask you to confirm that you want to delete the setting.

## Importing Photoshop Files

When you open or import a Photoshop file that contains layers, Canvas imports the file's layers as separate objects and stacks them in the document on the current layer.

Layers that have transparency are imported with visibility masks. Canvas creates an alpha channel and a channel mask for a Photoshop layer mask. Canvas also imports alpha channels.

## Using Tag Image File Format (TIFF)

Tag Image File Format is a high resolution, raster image format. Canvas supports both RGB and CMYK TIFFs. Although TIFF is a common format, many TIFF variations exist. Different resolutions, color systems, previews, and compression schemes make the format flexible, but can cause compatibility problems.

 Canvas can read tiled TIFFs. A tiled TIFF is an image divided into smaller, rectangular portions.

When you save TIFF files, you have various options in the Export TIFF dialog box.

## TIFF Compression

Various compression options are available, depending on the mode of the image you are saving.

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### Compression

- **None:** Saves an image without compression (the most compatible format).
- **Group 3 and Group 4:** Are available to compress images that are in black-and-white mode.
- **LZW:** Can be applied to all image modes, except CMYK Color.
- **Deflate:** Applies a lossless compression to the image.
- **JPEG:** Applies a JPEG lossy compression to the image.
- **Adobe Deflate:** Reduces image size but does not affect image quality since it is a lossless compression.

---

### Resolution

Indicates the default resolution. Enter a value in the Horizontal and Vertical field, if necessary.

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## To Export as TIFF with Transparency:

Canvas supports transparency in TIFF images upon import and export. In Canvas, you can create transparency in images using either a clipping path, channel mask, or visibility mask.

1. Create the object and apply one of the aforementioned transparency techniques.



If you are using vector objects, the vector objects will be rendered before exporting.

2. Choose **File | Save As** or **Image | Export**.

## Saving as SVG

Scalable Vector Graphics (SVG) is a vector graphics language written in Extensible Markup Language (XML). This format enables two-dimensional images to be displayed in XML pages on the Web. With the SVG format, graphics are coded directly into an XML document.

In contrast to JPEG and GIF images on the Web, which are bitmapped and always remain a specified size, SVG images are scalable to the size of the viewing window and will adjust in size and resolution according to the window in which it is displayed.

### To Save as SVG:

1. Choose **File | Save As** and select SVG as the file format.
2. Click **Save** to open the SVG Options dialog box.



This dialog box is similar to the HTML Options dialog box. (See "HTML Options" on page 504.)

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#### General options

- **Create new folder:** Organizes files by placing them in a new folder in the specified location. The name that you enter when you are saving a SVG is used for the folder's name.
- **Put images in subfolder:** Creates a subfolder for the image files.
- **Separate pages**

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#### Image options

The HTML options dialog box offers identical choices for image export. (See "Image options" on page 505.)

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## Exporting as AVI

AVI is the abbreviation of Audio Video Interleave, which is the most common format for audio/video data on the Windows system. When opened, an AVI file plays in a similar fashion to an animated GIF file.

Canvas has the capability of saving certain Canvas files in AVI format. Canvas documents that contain frames, animations or presentations, can be saved as Audio Video Interleave. Even a document with a single frame can be saved in AVI format providing a default time for the single frame is set to 1 second.

When working with Animation documents, you set the timing via the Document Layout palette ("Setting Options in the Palette" on page 54). If you are creating a Presentation document, use the Slide Show palette to control timing. (See "Slide Show Palette" on page 514.)

### To Export as AVI:

1. Create your document in Canvas and choose **File | Save As**.
2. Select the AVI file format.
3. Click **Save**.
4. In the Save AVI Options dialog box, select one or more of the following:
  - **Auto Crop:** This feature optimizes the size of each frame and the document. The Auto Crop option will create the minimum size needed to accommodate all of the objects in the document.
  - **Antialiasing:** Objects from the Canvas document will be rendered with an overall softened effect.
  - **Quality:** This option affects the compression of the images. Move the slider bar to the right to lower the image quality or to the left to increase the compression, thus improving image quality.

## Using Text Files

Text is a standard format for files containing only ASCII (American Standard Code for Information Interchange) encoded characters.

Text format is available on nearly every computer platform; it's the "plain vanilla" format, the lowest common denominator for words and numbers. Text files don't include proprietary or application-specific character or formatting codes. Some punctuation marks, symbols, and all accented letters are non-ASCII characters that display incorrectly when used in text files. Still, ASCII text can be used to transfer text among a variety of applications, including text editors, word processors, and databases.

When you open a text file, Canvas creates one text object containing the file's contents, and assigns the default font and text formatting attributes to it. If the file contains more text than can fit in the Canvas workspace, Canvas truncates the text object and displays an overflow indicator. You can then flow the truncated text into other columns.

## Using Object Linking and Embedding

Object Linking and Embedding (OLE) lets you easily exchange graphics among programs. Since Canvas provides full OLE support, objects you exchange retain their full functionality and are editable with all the tools of the original application.

Windows programs provide various levels of OLE support. In OLE parlance, Canvas is a fully capable object and container application. Briefly, this means Canvas can transfer objects to and from other programs through OLE.

In the world of OLE, objects created in Canvas are identified as "Canvas Drawing" objects. If you use the Insert Object command in another application, you should be able to select "Canvas Drawing" as a type of object to insert.

## Inserting Objects into Canvas Documents

You can use three methods to insert objects in a Canvas document: the Clipboard, drag-and-drop, and the Insert Object command. The objects you insert can be either linked or embedded.

- **Clipboard:** When you copy Canvas objects to the Clipboard, Canvas places OLE formats, as well as lower-fidelity formats, on the Clipboard. When you paste into another program, that program receives the highest-fidelity format it can accept. If the other program is an OLE container, pasting creates an embedded OLE object.

When pasting into Canvas from other applications, a MetaObject container is created. The MetaObject is a Canvas "Container" for a system metafile (WMF/EMF). It will draw, print, and act like a normal Canvas object using the system to render it. This should preserve the fidelity of the metafile.

The MetaObject container method eliminates problems in scaling, positioning, and overall look. OLE and pasting as metafile will automatically create a MetaObject. To convert the MetaObject to a Canvas object, choose **Path | Convert to Paths**.

- **Drag-and-drop:** In Windows, you can drag objects from Canvas documents to almost any destination on the Desktop (including local and network folders) to create a "scrap" file containing the objects. You can also drag Canvas objects into other documents, and drag objects, such as scrap files and other program's objects, directly into Canvas documents. When you drag an object to another program, it creates an embedding.

You can copy an object when you drag it by pressing a modifier key. Normally, dragging moves the object. If you want to copy the object, rather than move it, **Ctrl**-drag the object to another document. This copies the object and creates an embedding.

- **Insert Object:** Choose **Edit | Insert Object** to open a dialog box in which you can choose any registered OLE object type to insert into a document. Create a new object or choose a file as the source of the embedded object.

## To Embed Objects:

When you embed an object in another document, use the original program's tools and commands to edit the object.

 Not all programs support OLE and can create embeddings.

1. Select the objects you want to embed in another document.
2. Choose **Edit | Copy** to put the selection on the Clipboard.
3. Switch to the document where you want to embed the selection and choose **Edit | Paste**. The object is embedded into the document.

## To Link Objects:

If you want an object to be updated when it changes in the original document, create a link to the object. The Canvas document from which you copy objects to be linked must have been saved before you copy the objects.

 Not all OLE programs support OLE linking.

1. Select the objects to link and choose **Edit | Copy**.
2. Switch to the document where you want to paste the linked object and choose **Edit | Paste Special**. In the dialog box, Canvas Drawing format is selected.
3. Click **Paste Link** to link the object.

## To Manage Linked Objects:

Use the Links command to check the source file of a linked object and repair a broken link if a source file has been moved.

1. Select a linked object in a document.
2. Choose **Edit | Links**. The Links dialog box displays the link type and update method. To change the update method, choose the Automatic or Manual option.
3. Use the buttons to update or change the linked object:
  - **To update the object from its source:** Click Update Now.
  - **To open the source document:** Click Open Source.
  - **To select a different source document:** Click Change Source.
  - **To remove the link so changes to the source do not affect the linked object:** Click Break Link.

## Differences Between Linking and Embedding

When you insert an object into a Canvas document, or insert an object from Canvas into another program's document, you create an association between the object and its application. Linking and embedding create different types of associations.

- **Linking:** When you link an object, the object remains in the file where it was created. Only a link (reference) to the source object winds up in the document, which makes linking an efficient method of storing commonly-used objects and files. Linking makes a dynamic connection between an object and all documents in which it appears. When you edit the object, changes are automatically

sent to linked instances of the object in all documents.

Since the object is linked by only a reference to another file, if any of the linked files change locations, the link will be disrupted. To move linked files without disrupting the references, you must move all linked files as well as the entire directory structure so that the relative locations of the files don't change.

When you edit a linked object, the object's application opens in a separate window. When you finish editing, close the application to return to the document containing the link.

- **Embedding:** When you embed an object in a document, the object itself (not just a reference) is copied into the document. Therefore, a document can be moved to another computer without losing the object.

## Inserting ActiveX Controls in Documents

ActiveX controls may include Microsoft Office Excel Charts, scroll bars, command buttons, option buttons, toggle buttons, etc. To set the properties for the ActiveX control, refer to the documentation for Visual Basic.

### To Insert an ActiveX Control:

1. Click the ActiveX icon. 
2. Select the control to be inserted. If the control is not in the list, select **Options** to open the Custom Controls dialog box.
3. Click **Add** to open the Insert Object dialog box.
4. Select the object or control to be added to the Custom Controls dialog box.
5. Click **OK** to return to the Custom Controls dialog box.

### To Remove a Control from the Custom Controls Dialog Box:

Select the control in the list and click the **Trash** icon.

## Exporting Files to Canvas Using the Canvas Print Driver

Another method for converting files to the Canvas format, is to open them in their native application, such as CorelDraw, and use the Print command. In the Print dialog box, select the Canvas print driver. Canvas converts the objects in the document and opens the document in Canvas.

### To Create a Canvas File Using the Print Command:

1. In your external application, open the document that you want to convert to Canvas.
2. Choose **File | Print**.
3. In the Print dialog box, select the Canvas Print Driver from the list of printers, and any other settings, such as a selection of pages.
4. Click **OK**.

The Canvas print driver creates a temporary postscript file, and then opens the file in Canvas.

# Chapter 3: Objects And Attributes

## Working with Objects

This section explains how to work with objects in Canvas. It tells you how to select objects with selection tools or the Find command. It describes common actions, including how to copy, group, lock, move, arrange, flip, and align objects, plus effects you can apply to all objects, including scaling, rotation, and skew. It also tells you how to use the object position data in the Object Specs palette.

### Types of Objects

An object is a distinct item such as a circle, an image, or a paragraph of text. There are different types of objects with unique properties, and some commands apply only to some types of objects. But objects in Canvas also share many properties. You can perform common operations, including selecting, moving, rotating, copying, and deleting, using the same methods for all types of objects.

The following object categories are used in Canvas:

- **Vector objects:** Geometric shapes such as lines, circles, rectangles, polygons, and smooth curves. Canvas defines them internally by formulas, and they print smoothly on all printers.
- **Paint objects:** Rectangular containers for pixel-based images, such as photos, screen captures, and scanned artwork. Each pixel that makes up an image has a color (or grayscale) value.
- **Text objects:** Containers for text that can be formatted at the character and paragraph levels. Text objects can be empty or contain up to a page of text, and they can be linked together.
- **Group objects:** Collections of objects that have been united with the Group command. A group object can be made from more than one type of original object.

### Selecting Objects

When you select an object, you distinguish it from other, unselected objects, so that when you choose a command or apply a color, Canvas knows to apply it to the selected object. In most cases, you select objects first, then apply a command or attribute. If you can't apply an attribute, or a command is not available, check to be sure you have correctly selected an object first.

Canvas provides several tools and commands for you to select objects. Use the most convenient method for each situation. The Selection tools are the primary object-selection tools. You can also use the Select All and Find commands from the Edit menu to select objects.

In some cases, you can select parts of objects; e.g., you can select an anchor point within a vector object, a word within a text object, and an image area within a paint object. Selection techniques for various types of objects are described in the drawing, text editing, and image editing sections of the manual.

### Selecting Objects with Selection Tools



**Selection tool:** Select this tool when you need to Select a single object. To select multiple objects, you can **Shift-click**.



**Direct Edit Selection tool:** This tool allows you to select all curve- edit points of an object in one step. Click this tool and then click on a vector object to place that object into Edit mode.

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**Direct Group Selection tool:** Using this tool, you may select individual objects within a group without the need to ungroup the object.



**Lasso Selection tool:** Select this tool and then encircle or draw a line around an object or series of objects. Doing this will select all of the objects that are touching the selection. You can also use this tool to select objects by simply drawing a line through them.



**Direct Edit Lasso tool:** You can quickly edit any path point of an object by enclosing it with this tool. This feature places the object or objects into Edit mode and highlights the edit points that fall inside the selection area drawn by the Direct Edit Lasso Tool. Likewise, you may also draw a line through an object to allow editing of a path point.

### To Select One Object:

1. Click a selection tool in the Toolbox.
2. Click an object.

### To Select Multiple Objects:

Do one of the following:

- Hold down **Shift**, and click each object you want to select.
- With the Selection tool, drag a selection box around objects to select them. Canvas selects all objects inside the selection box.

### To Select All Objects on a Single Layer:

Choose **Edit | Select All** to select every object in a single-layer document.



To select all objects on all visible layers in a multi-layer document, change the default selection setting in the Configuration Center. (See "Setting Preferences" on page 62.)

### To Hide a Selected Object:

Choose **Object | Hide Selected Objects**.



Locked objects cannot be hidden. If a locked object is selected, this menu option is disabled.

### To Show All Hidden Objects:

Choose **Object | Show All Hidden Objects**.

## Selection Methods

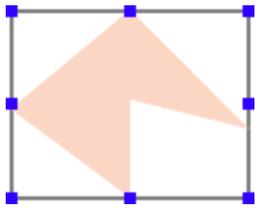
The following table gives you a quick description of all the methods for selecting objects.

To select	Do this
A single object	Click the object with a <b>Selection</b> tool.
Multiple objects	<b>Shift-click</b> each object with a <b>Selection</b> tool.
Objects using a selection box	Drag a box around the objects with a <b>Selection</b> tool.

To select	Do this
All objects touched by a selection box	With a selection tool, press <b>Ctrl</b> and drag out a box that touches the objects.
One object within a group object	Click the object with the <b>Direct Group Selection</b> tool (hollow arrow).
No objects (deselect all objects)	Click a <b>Selection</b> tool in a blank area, or press <b>Esc</b> .
All objects	Choose <b>Edit   Select All</b> .
The inverse of the current selection	Choose <b>Edit   Invert Selection</b> .
An object behind another object	<b>Tab-click</b> the object's location until it is selected.
Unfilled object	Click the object's border, or press <b>Tab</b> and click inside the object.
An object on a layer other than the current layer, or an object on a master page	<b>Tab-click</b> the object with a <b>Selection</b> tool.
All objects created by a particular tool	Select the tool, then choose <b>Edit   Select All</b> .
Objects based on their attributes	Choose <b>Edit   Find</b> .

## Selection Indicators

Canvas indicates that an object is selected by displaying the object's bounding box, a rectangle with solid blue squares, called handles, at each corner and side midpoint.



A bounding box with handles surrounds a selected object

The first object selected is called the key object. The key object is indicated with solid blue squares in the bounding box. If several objects are selected, the other selected objects have solid white squares in their respective bounding boxes. The key object may affect alignment and distribution of the other objects. (See "Aligning and Distributing Objects" on page 121.)

 When an object is selected, its bounding box is visible even if it has attributes (the same color as the background, for example) that make the object itself invisible. Also, a selected object's bounding box is visible even if it's covered by other objects.

When selected, Canvas displays the object type at the right end of the Status bar. When more than one object is selected, the Status bar shows the number of selected objects.

### To Change the Key Object:

The key object in a selection can be changed via the context menu.

### To Switch the Key Object with Multiple Objects Selected:

Select the objects and then right-click the object that you want to be the key object. Select **Make Key Object** in the context menu. Note that this change is only temporary.

## To Add the Key Object to a Selection:

Select one object, (by default it's the key object). Press **Shift** and right-click the object that you want to add to the selection but also designate as key object. Select **Make Key Object** in the context menu. The object becomes part of the selection as well as the key object.

## Editing Objects

All types of objects in Canvas can be easily modified. In general, you place an object in Edit mode to modify it.

Edit mode lets you use various features to edit each type of object; e.g., when a text object is in Edit mode, use word-processing features to select, cut, copy, paste, and edit text. When a vector object is in Edit mode, you can modify anchor points and segments to reshape its path. When a paint object is in Edit mode, you can use painting tools and commands to modify the image it contains.

Some other objects, including spirals, EasyShapes, objects that have transparency masks, and SpriteEffects, have special editing modes (besides their standard edit modes); e.g., if you place a vector object in Edit mode, you can edit the object's path. If the object also has a transparency mask, you can edit its path in Path Edit mode, or use the Sprite tool to edit its transparency mask in Mask Edit mode.

## To Place Objects in Edit Mode:

Select an object and choose **Object | Edit | Object** to place it in Object Edit mode or double-click the object.

## To Exit Edit Mode:

Press the **Esc** key.

## Selecting and Editing Objects with the Context Menu

Use the context menu to select an object or place an object in Edit mode. The context menu can make it easier to select and edit objects that are covered by other objects.

## To Display the Context Menu:

Right-click the object.

## To Select Objects Using the Context Menu:

1. When no objects are selected or in Edit mode, point to the object you want to select. If the object is hidden behind other objects, point to its location.
2. Choose **Select | Object Name** in the context menu. Canvas selects the object whose name you choose in the Select submenu. Choose a vector, text, paint, or group object.

## To Edit Objects Using the Context Menu:

1. When no objects are selected or in Edit mode, point to the object you want to edit. If the object is hidden behind other objects, point to its location.
2. Choose **Edit | Object Name** in the context menu. Canvas places the object whose name you choose in the Edit submenu into Edit mode. Choose a vector, text, or paint object.

## Selecting Objects Based on Their Properties

### To Select an Object Based on its Properties:

1. Choose **Edit | Find** to select objects by type and attributes.
2. Click the **Objects** tab to set up selection criteria.

### Find Palette Options Tab

<b>Type</b>	Choose an object type icon in the menu. Selecting text or paint objects makes Fill, Stroke, and Pen options unavailable.
<b>Fill</b>	Choose the fill ink in the menu. Only inks used in the document, plus process colors and white, appear in the menu.
<b>Pen</b>	Choose the pen in the menu.
<b>Stroke</b>	Choose the stroke in the menu. Only strokes used in the document appear in the menu.
<b>Object Name</b>	Type the name in the text box. Select <b>Object #</b> and type a number in the box to select an object by its number.
<b>SpriteLayers</b>	Use this option to select objects that have transparency effects.
<b>SpriteEffects</b>	Use this option to select objects (including lenses) that have SpriteEffects.
<b>Lens Objects</b>	Use this option to select objects that have been converted to lenses.
<b>Group Level</b>	Select a value from the menu if you wish to search in grouped objects.
<b>Search all visible layers</b>	To select objects in the current layer only, uncheck this option.
<b>Add result to selection</b>	Check to select additional objects without deselecting objects that are already selected.
<b>Use Selected Object's Attributes</b>	When an object is selected, select this option to enter the object's properties in the Objects tab.
<b>Grab Attributes</b>	Click to select objects based on the current settings.

### Using Selection Sets

Click the arrows to expand the palette to work with selection sets, which let you broaden a search.

Selection criteria symbols make up a selection set. The current selection set is boxed. Changing selection options updates this selection set. Click a set to make it the current selection set.

- **Or:** Click to create an empty selection set.
- **Copy:** Click to duplicate the current selection set.
- **Clear:** Click to delete the current selection set. With only one set, Clear is unavailable.

## Copying, Cutting, Pasting, and Deleting Objects

Once you select one or more objects, you can perform various basic editing functions. The following are the basic editing commands in the Edit menu:

Command	Result
<b>Copy</b>	Copies a selection to the Clipboard.
<b>Cut</b>	Removes a selection and places it on the Clipboard.
<b>Clear</b>	Removes a selection without changing the Clipboard.
<b>Duplicate</b>	Copies a selection into the same document without changing the Clipboard.
<b>Duplicate with Transform</b>	Creates copies of objects that have been skewed, rotated, or offset.
<b>Paste</b>	Places the Clipboard contents into the active document.
<b>Paste and Place</b>	Places the Clipboard contents into the active document with the upper-left corner at the point where you click.

## Copying Objects to the Clipboard

The Clipboard is a part of the system that temporarily stores selected objects when you choose the Copy or Cut command. The Clipboard stores the results of one editing action, (which can include multiple objects). Whatever is on the Clipboard is replaced by the next selection you place there, including a selection placed by using the Cut or Copy command in another application.

- You can bypass the Clipboard by using the Duplicate command to quickly copy a selected object in the same document without replacing the Clipboard contents.
- Using the Clear command or the Delete keyboard key does not replace the contents of the Clipboard.

When you paste objects into other programs, the Clipboard uses a format that the receiving program understands. However, special types of objects and special object attributes can be lost when pasting objects into other applications. If you can't transfer an object successfully using the Clipboard, consider using a compatible file format to import the object as a file into other programs.

## Using Cut, Copy, and Paste Commands

The Cut, Copy, and Paste commands let you make copies of objects using the Clipboard. Use Cut or Copy to place objects on the Clipboard, and then choose Paste to place copies in the same document, other open Canvas documents, and also into other programs.

You select one or more Canvas objects before choosing Cut or Copy. You can select text objects, paint objects, vector objects, specialized objects such as dimensions, and group objects. When you choose Cut or Copy, the selected items appear on the Clipboard.

- The Cut command removes selections from the document.
- The Copy command leaves selections in the document.

Using the Paste command to insert the Clipboard contents into a document does not erase the Clipboard. You can use Paste to insert the Clipboard contents as many times as you want. The Clipboard contents remain intact until you use the Copy or Cut command in any application to replace the Clipboard contents with a new selection.

## To Paste Copied Objects:

1. Select the objects that you want to copy.
2. Choose **Edit | Copy**. Canvas puts the selected objects on the Clipboard.
3. If you want to paste the copied selection into another document, switch to that document. You can switch to an open Canvas document by choosing its name at the bottom of the Window menu.
4. Choose **Edit | Paste**. Canvas pastes the Clipboard contents into the active document. Pasted objects appear selected in the center of the document window.

## To Replace a Selection with a Copied Object:

Choose **Edit | Paste** and **Replace Selection**.

The clipboard content is automatically sized to fit the dimensions of the object it replaces.

 You can set up the layout of your pages with image placeholders and replace these objects with relevant images later with the Paste and Replace Selection command.

## Options for Copying Objects

The Copy Options dialog box lets you select formats when you copy objects to the Clipboard. This command is useful when you want to copy a selection using a format that can be pasted into another program.

 These options have no effect when you paste selections in Canvas.

You can select the program into which you want to paste objects. Canvas selects the best format for copying the selection to the Clipboard. You can select common programs, such as Microsoft Word, Microsoft PowerPoint, and Microsoft Excel.

## To Use Copy Options:

1. Select the items to copy and choose **Edit | Copy Special | Copy Options**.
2. Select options in the dialog box.
3. Click **OK** and Canvas will copy the selection to the Clipboard.

## Copy Options

<b>Preset for</b>	Choose a program name. This sets up the dialog box so objects will be copied in the best format for pasting into the selected program. If the program you want to use is not listed, use the other options to select the format for copying objects to the Clipboard.
<b>Copy vector object(s)</b>	Uses the standard format to copy objects to the clipboard in Windows (WMF). In most cases, this option is the same as using the standard Copy command. WMF does not support transparency; transparent Canvas objects are not rendered and will appear opaque when pasted into other programs.
<b>Copy as image</b>	Copies objects to the Clipboard as images.
<b>Resolution</b>	Select a resolution option, or select Other and enter the desired resolution. This option preserves transparency

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effects among Canvas objects. However, most programs don't support transparency, so Canvas objects pasted into other programs won't appear transparent relative to objects in the other programs.

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**Anti-Alias** Softens the edges of objects copied to the Clipboard. Anti-Alias is available when you select **Copy as Image**.

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**Copy as 96 dpi** Select this checkbox to copy the object at 96 dpi.

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**Use Settings for Copy Command** Applies the dialog box settings to the Copy command. When you select this option, you don't have to choose **Edit | Copy Special | Copy Options** to use the same settings again.

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## Copy Special Commands

Several commands let you perform special operations for copying objects to the Clipboard. To view these commands, choose **Edit | Copy Special**.

### Copy as Image

When you want to copy an object, and then paste it into a document created in another application, use the Copy as Image command to enhance the printed appearance of the Canvas object you intend to paste. This procedure can smooth out jagged edges and help maintain the object's details.

#### To Use the Copy as Image Command:

1. Select the objects you want to copy.
2. Choose **Edit | Copy Special | Copy as Image**.  
Canvas places the selected objects on the Clipboard.
3. Use another application's Paste command to place the Clipboard contents into a document.

### Copy at 4X, Copy at 8X

Use the Copy at 4X command or Copy at 8X command to place vector objects on the Clipboard as objects at specific resolution levels. You might want to do this if you are pasting Canvas vector objects into another program and the objects appear jagged when printed. This can happen when a program prints Canvas vector objects at the low resolution of the screen display.



When copying and pasting within Canvas documents, these commands perform the same function as the standard Copy command. Using these commands is not recommended for copying paint objects, which are already at a specific resolution.

The Copy at 4X and Copy at 8X commands place selected objects on the Clipboard at specific resolution levels: "4X" indicates resolution 4 times greater than screen resolution and "8X" indicates resolution 8 times greater than screen resolution. 4X approximates the resolution of a 300 dpi printer; 8X approximates the resolution of a 600 dpi printer. Choose the resolution level based on the printing device you are going to use.

#### To Copy Vector Objects at Increased Resolution:

1. Select the objects to copy.
2. Choose **Edit | Copy Special | Copy At 4X** or **Edit | Copy Special | Copy at 8X**.  
Canvas places the selected objects on the Clipboard.
3. Paste the Clipboard contents into other applications.

## Copying Selections in Objects

Besides using Cut or Copy to place entire objects on the Clipboard, use these commands to place selected parts of Canvas objects on the Clipboard.

Cut or copy the following parts of objects:

- Text selections made by highlighting text in a text object.
- Image selections made by defining areas, ranges of colors, or loading alpha channels in a paint object.
- Segment selections made by selecting anchor points of vector objects in Path Edit mode.

## Pasting Selections and Pasting into Objects

When you paste a selection, the result depends on whether an object is in Edit mode at the time:

- Pasting with no object in Edit mode creates a new, separate object containing the selection.
- Pasting with an object in Edit mode usually pastes the selection into the object.

For example, if you copy a highlighted text selection, and then choose **Paste** when no object is in Edit mode, you create a new text object containing only the text you selected. If you choose **Paste** when a text object is in Edit mode, the pasted text appears at the insertion point in the text object. If you choose **Paste** when a paint object is in Edit mode, the selected text appears as a floating image selection in the paint object.

- **Pasting into text:** You can paste text into a text object in Edit mode. This lets you insert new text cut or copied from another object, and move text from one place to another while editing a text object.
- **Pasting pixels into images:** You can paste an image selection into a paint object in Edit mode. The pixels that you paste become a floating selection in the paint object.
- **Pasting objects into images:** You can paste a vector object or text into a paint object in Edit mode. Canvas converts the object into pixels pasted as a floating selection in the paint object.
- **Pasting and placing objects:** You can use the Paste and Place command to copy objects and position the copies anywhere in the document. Copy the objects to be pasted. Press **Ctrl** and choose **Edit | Paste and Place**. You must press the modifier key to make this command appear.

 To copy an object and paste it in the same position on a different page, you can do so by copying the object and then pressing **Shift** and choosing **Edit | Paste**.

## To Paste the Copy:

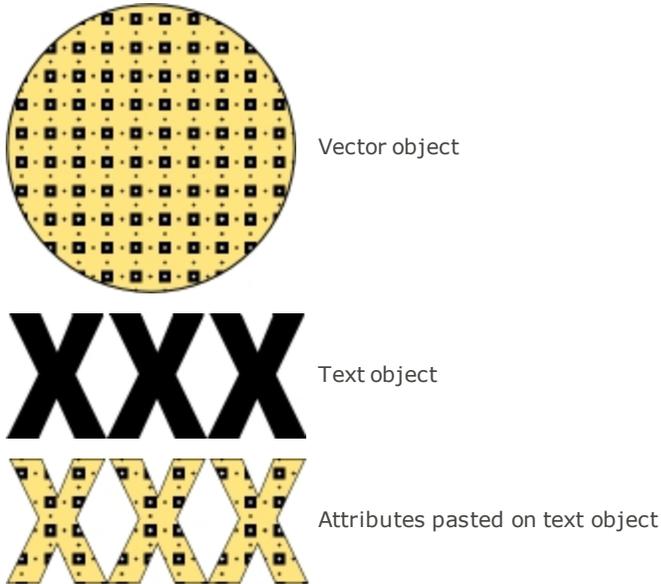
Do one of the following:

- Click to place the copy at full size.
- To set the dimensions of the copy, drag to create a bounding box to contain the selection.

## Transferring Object Attributes

Transfer attributes from one object to other objects using the Paste Attributes command. Transferring attributes can help you maintain consistency between objects.

You can transfer attributes from a source selection — an object or text that has been copied to the Clipboard — to a target selection, which is one or more objects selected in the document. Or, you can retain the source selection attributes as the current attributes — those attributes that you can apply to new objects.



Use Paste Attributes to transfer inks and stroke settings, object dimensions, effects, and text attributes.

Depending on the source selection and target selection, choose options listed in the Paste Attributes dialog box.

An option is available if the attribute was copied from the source selection and can be applied to the selected target objects. The exception to this rule is the Text Style option. The Text Style option is available whenever the source selection is text, even if the target objects are not. In this case, no Text Style attributes will be applied to the target selection, but the Text Style attributes will be retained as the current attributes and can be applied to new text objects.

### To Paste Attributes:

1. Select an object or text whose attributes you want to transfer.
  - If you select multiple objects, you can only paste the dimensions of a bounding rectangle encompassing all the objects.
  - If you select a group object, only attributes that apply to the entire group, including the bounding box size and transformations applied to the group object, will be available.
  - If you select a text object, only the attributes common to the entire object will be available.
2. Choose **Edit | Copy** to place the selection on the Clipboard.
3. Select the one or more target objects to receive the attributes. If no objects are selected, the source attributes will be retained as the current attributes and can be applied to new objects.

4. Choose **Edit | Paste Attributes**. In the Paste Attributes dialog box, select the attributes to paste. Options that appear dimmed were not available in the source selection or cannot be applied to the target selection.
5. Click **OK** to paste the attributes.

## Paste Attributes Options

<b>Pen ink</b>	Transfers the source selection's pen ink. You can transfer pen inks if the source selection is a vector object or text that has a pen ink, and the target objects are vector or text objects.
<b>Fill ink</b>	Transfers the source selection's fill ink. You can transfer fill inks if the source selection is a vector object or text that has a fill ink, and the target objects are vector or text objects.
<b>Stroke</b>	Transfers the source selection's stroke, including pen, dash, and arrow attributes. You can transfer strokes if the source selection is a vector object or text that has a stroke, and the target objects are vector or text objects.
<b>Dimensions</b>	<p>Transfers the dimensions of a rectangle "bounding box" that encompasses the source selection. You can transfer bounding box dimensions from any source object to any selected objects, but not to text selected within a text object. This makes all target objects the same size as the source.</p> <p>If the source object has been rotated or skewed, you can transfer its original dimensions by selecting Dimensions. To transfer its transformed dimensions, select <b>Transform</b>.</p>
<b>Transform</b>	Transfers rotation and skewing applied to the source selection's bounding box. You can transfer these effects to any selected objects.
<b>Transparency</b>	Transfers the transparency effects applied to the source selection.
<b>Text Style</b>	Transfers certain text attributes from a text source selection to a text target selection: font, type size, text style (bold, italic, and so on), leading, kerning, and justification. You can transfer text attributes when a particular attribute is uniform in the source selection; e.g., if different kerning values are applied to characters in the source text, kerning will not be available for transfer to the target text.
<b>SpriteEffects</b>	Transfers filters and adjustments that have been applied with the SpriteEffects palette from the source to the target objects.

## Making Multiple Copies

Use the Copy and Paste commands to make multiple copies of selected objects through the Clipboard. If you want more control over placement, number of copies, scaling or rotation, use the Duplicate and Replicate commands to make multiple copies.

- With a selection on the Clipboard, choose **Paste** to insert the selection in the center of the active document's current view. Repeat the Paste command to make multiple copies.
- The Duplicate command copies selections immediately and lets you space copies evenly. The Replicate command lets you scale, rotate, and offset multiple copies.

## Duplicating Selections

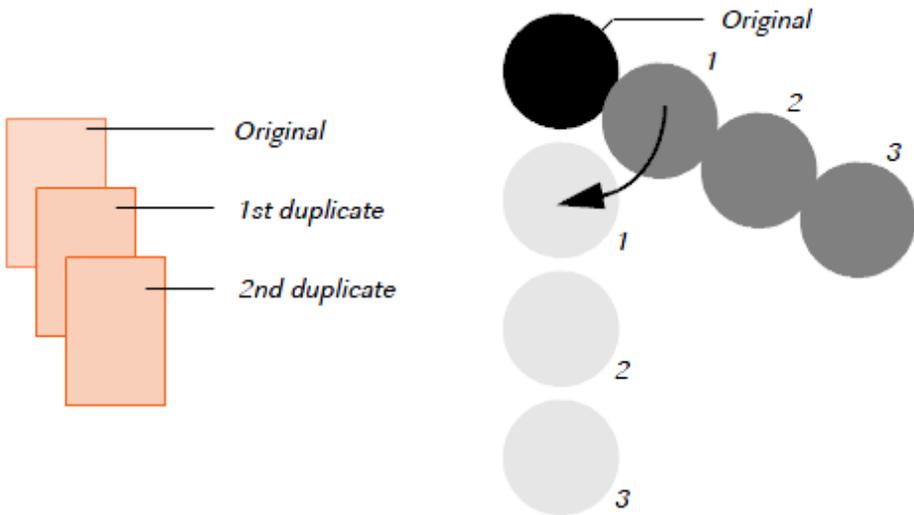
The Duplicate command quickly copies selected objects into the same document, without affecting the contents of the Clipboard.

The Duplicate command offsets copies a preset distance horizontally and vertically from the original. You can move the copy (without deselecting it) to adjust the offset distance and direction and then repeat the Duplicate command to make more evenly-spaced copies.

You can change the Duplicate command's preset offset values. (See "Setting Preferences" on page 62.)

### To Duplicate and Space Copies Evenly:

1. Select one or more vector, text, paint, or group objects to copy.
2. Choose **Edit | Duplicate**. Canvas duplicates the selection and offsets the copy a preset distance from the original.
3. The copy must remain selected as you drag it or use the keyboard arrow keys to move it into position. The new position establishes the offset distance and direction from the original selection.
4. Choose **Edit | Duplicate** again. Canvas creates the next copy using the offset defined from the original selection to the first copy. Repeat this step to create additional evenly-spaced copies.



Canvas offsets and stacks duplicates, placing the newest copy in front of the stack.

Duplicated objects are offset a preset amount (gray circles). By moving the first copy and repeating Duplicate, you can set a custom offset distance and direction (light gray circles).

### To Duplicate Selected Objects with Modifier Key:

You can duplicate an object by pressing a modifier key as you drag the object. When an object is selected, press a modifier key to duplicate and resize it as you drag a handle. In Freeform mode, you can press a modifier key to duplicate while rotating or skewing an object.

1. Select the objects you want to duplicate.
2. Press **Ctrl** as you drag the objects.

### To Make Multiple Copies While Dragging:

Select the objects you want to duplicate. Press **Ctrl+Alt** as you drag the objects.

### To Duplicate While Resizing:

1. Select an object to duplicate.
2. Begin to drag a handle on the object's bounding box to the size you want the duplicate to be.

3. As you drag, press and hold **Ctrl**. When you release the mouse button and the modifier key, the duplicate object appears in front of the original.

### To Duplicate While Rotating or Skewing:

1. Select an object and choose **Effects | Freeform** to put the object in Freeform mode.
2. Point to a handle and press **Ctrl** as you drag the handle.
  - **To rotate the object:** Drag one of the four corner handles.
  - **To skew the object horizontally:** Drag a horizontal skew handle to the left or right.
  - **To skew vertically:** Drag a vertical skew handle up or down.

The duplicated object rotates or skews depending on which handle you drag. You cannot rotate and skew the object at the same time. When you release the mouse, the duplicate is in front of the original.

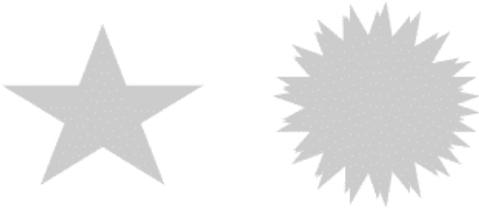
### Duplicate with Transform

You can now create duplicates of objects that have been skewed, rotated, or offset.

1. Select the original object.
2. Duplicate the object.
3. Select the duplicate and apply a transformation, such as rotation, to the duplicate object.
4. Choose **Edit | Duplicate with Transform**.

The duplicate object is then duplicated as well as transformed.

Remember that each time you choose **Edit | Duplicate with Transform**, the duplicate object is duplicated and transformed once again; e.g., duplicate an object and then rotate the duplicate by 20°. Choose **Duplicate with Transform** and the new duplicate is transformed by another 20°.



The multigon on the left was duplicated and then rotated 20°. Each time Duplicate with Transform was applied, the resulting duplicate would rotate an additional 20°. The final duplicate had a rotation of 200°.

### To Create Multiple Duplicates:

After you duplicate an object using a modifier key, make more copies with the same offset distance, angle of rotation, or skew factor.

1. Select the duplicated object.
2. Choose **Edit | Duplicate**. Canvas creates another duplicate and applies the same offset distance, angle of rotation, or skew factor.

### Scaling, Rotating, and Offsetting Copies

The Replicate command offers powerful capabilities for duplicating objects. Use the Replicate dialog box to set the number of copies and to rotate, scale, and position copies with one command.

## To Replicate a Selection:

1. Select one or more objects to copy and choose **Edit | Replicate**.
2. In the Replicate dialog box, specify the number of copies. Enter the scaling, rotation, and offset values you want to apply. For information on these settings, refer to the table below.
  - **To preview the replication:** Click **Apply**. Canvas draws the copies and the dialog box stays open. You can change settings and click **Apply** to preview the new settings.
  - **To cancel the replication:** Click **Cancel**. Canvas closes the Replicate dialog box and erases preview copies.
3. Click **OK** to copy the selection and close the Replicate dialog box. The original object is deselected and the copies are selected.

## Replicate Options

<b>Copies</b>	Enter the number of objects you want to create.
<b>Rotate</b>	To rotate each copy relative to the preceding object, select <b>Rotate</b> . Type the rotation amount from (minus) -359.0 to 359.0 degrees. The center of rotation is shown in the "Around" box by a hollow handle; click to select another handle as the rotation center.
<b>Scale by</b>	<p>To incrementally change the size of each copy, select <b>Scale by</b>. In the pop-up menu, choose <b>Percentage</b>, <b>Length</b>, or <b>Ratio</b>. In the text boxes, enter horizontal and vertical scaling factors.</p> <p>Percentage scales each copy by the specified percentages of the preceding object's dimensions. Enter whole numbers from 1% to 999%.</p> <p>Ratio lets you resize copies by fractional amounts. Canvas scales each copy to ratios of the previous object's horizontal and vertical dimensions.</p> <p>Type ratios with whole numbers from 1 to 999. The left number represents the copy; the right number represents the previous object. A 1/1 ratio maintains dimensions; 1/2 halves dimensions; 2/1 doubles dimensions.</p> <p>Length increases or decreases by a fixed amount each copy of the object using the values in the horizontal and vertical text boxes.</p>
	<b>Proportional</b> If selected, Canvas makes the vertical value in the Scale by or Offset area equal to the horizontal value.
<b>Offset</b>	Check this option to place copies a specified distance from the previous object. In the text boxes, enter the horizontal and vertical offset distance. Positive numbers offset copies up and right; negative numbers offset objects down and left.
<b>Flip</b>	Select to flip the replicated object.
	<b>Direction</b> Select which direction the replica will be flipped. <ul style="list-style-type: none"><li>● <b>Horizontally</b></li><li>● <b>Vertically</b></li><li>● <b>Both Axes</b></li></ul>
	<b>Every</b> Specify which position in a sequence of objects will be flipped.
<b>Object data</b>	Displays the selection's height and width. These values can't be edited.

## To Replicate and Position Objects:

You can replicate objects and then strategically position them according to specified X/Y coordinates.

## To Replicate and Position an Object:

Select an object and then choose **Edit | Replicate and Position**.

## Replicating and Positioning Options

<b>Coordinate space</b>	The Length radio button must be selected to position objects according to X/Y coordinates. To enable the Angular radio button, you must first configure your world with the GIS palette. (See "GIS Positioning Palette" on page 542.)
<b>Bounding box icon</b>	Canvas performs the positioning according to the selected handle. By default, the center handle is selected. Select another handle, if necessary.
<b>Coordinate table</b>	Enter the X/Y coordinates in the appropriate fields. The # column lists the replicates in sequence.
<b>Position original object</b>	If selected, the coordinates for the first replicate correspond to the original object; i.e., the original object will move to the coordinates entered for replicate #1.
<b>Menu icon</b>	Click to access the Paste and Load commands. <b>Paste:</b> Paste points that have been copied to the Clipboard. <b>Load:</b> Open .txt, .csv (comma delimited), and .prn (space delimited) files that contain points.

## Grouping and Ungrouping Objects

Use the Group command to unite objects that you want to keep together as one unit. You can group individual objects as well as already-grouped objects. When you no longer want to keep a group together, separate the original objects with the Ungroup command.

When you apply a command to a group object, the effect in most cases is the same as if you applied the command to each object in the group individually.

## To Group Objects:

1. Select the objects that you want to group.
2. Do one of the following:
  - Choose **Object | Group**.
  - In the Properties bar, click the **Group** button.

Canvas replaces the bounding boxes of the individual objects with a single bounding box.



After you group objects, you can select individual objects in the group with the Direct Selection tool.

## To Ungroup Objects:

1. Select one or more grouped objects that you want to separate.
2. Do one of the following:
  - Choose **Object | Ungroup**.
  - In the Properties bar, click the **Ungroup** button.

Canvas separates the group and leaves the individual objects selected. If any of these objects are group objects, you can ungroup them by choosing **Object | Ungroup** again.

## Grouping and Stacking Order

Grouping objects can change the stacking order of the objects relative to objects outside the group; e.g., you have three overlapping objects. If you group the front and back objects, the group moves to the back and the middle (not grouped) object becomes the front-most object.



The square is behind the triangle, which is behind the circle in the stacking order



After selecting the square and circle and grouping them, the group goes behind the triangle in the stacking order

## Moving Objects

Move objects by dragging them, using the Properties bar, or using the keyboard arrow keys. You can also use the Move command to specify a position change, and the Object Specs palette to specify exact coordinates.

When you drag an object, the Properties bar and Status bar shows the change in the object's X/Y position.

Make precise positioning easier by turning on the autogrid so that objects you drag snap to preset ruler increments. You can also place alignment guides that objects will snap to in a document.

## To Move an Object Using the Selection Tool:

Position the pointer on the object and drag. If you drag as soon as you press the mouse, an outline of the object follows the pointer. To see the entire object as you drag, pause after you press the mouse button, and then drag.

Press modifier keys as you drag objects to constrain movements and perform other functions.

---

### To

### Do this

**Constrain movement to 45° increments**

Press **Shift** while dragging

---

To	Do this
Copy objects by dragging	Press <b>Alt</b> while dragging
Leave a trail of object copies	Press <b>Ctrl + Alt</b> while dragging

### To Move Objects Using the Arrow Keys:

To move objects left, right, up, or down, press the corresponding arrow key. Use the modifier keys shown in the following table to move greater distances.

 You can change the default distances that keyboard keys move objects. (See "Setting Preferences" on page 62.)

To move objects	Do this
1 pixel to the left, right, up or down	Press an arrow key
10 pixels to the left, right, up or down	Press <b>Alt</b> and an arrow key
50 pixels to the left, right, up or down	Press <b>Ctrl</b> and an arrow key

### To Move Objects a Specified Distance:

Use the Move command to specify distance and direction.

 You can specify angular movement in 0.01° increments.

1. Select the objects and then choose **Object | Move**.
2. In the Move dialog box, enter values to move the object horizontally or vertically, or to change the angle. Use negative numbers to move up and to the left. Use positive numbers to move down and to the right.
3. Click **Apply** to preview or **OK** to implement the Move settings.

## Arranging Objects in the Stacking Order

Each object in a Canvas document is part of a stack of objects on the same layer. Each object has a position in the stack. Unless you rearrange objects, the newest object, created or pasted, is in front of the stack and the oldest object in the back.

Stacking order affects the appearance of objects when you view and print them. Like actual objects placed in a stack, the front object in the stack blocks objects behind it. An object's position in the stack also is a factor in alignment and combining operations.

Commands in the **Object | Arrange** menu let you change an object's position in the stack. Move objects to the front or back, and move objects one level at a time toward the front or back of the stack.

### To Change an Object's Position in the Stack:

Select the object and choose a command in the **Object | Arrange** menu.

Command	Result
<b>Bring to Front</b>	Moves selected objects to the front of the stack
<b>Send to Back</b>	Moves selected objects to the back of the stack
<b>Shuffle Up</b>	Moves selected objects one step toward the front
<b>Shuffle Down</b>	Moves selected objects one step toward the back

## Arranging Objects on Layers and Pages

Commands in the **Object | Arrange** menu let you move and copy selected objects to other layers on the same page and to layers on other pages.

 The destination layer for the objects cannot be locked.

### To Send or Copy Objects to Another Location:

1. Select the objects, and then do one of the following:
  - Choose **Object | Arrange | Send to Layers** to move objects to new locations.
  - Choose **Object | Arrange | Copy to Layers** to copy objects to new locations.
2. In the Layer Select dialog box, click one or more layers to designate them as the destination for the selected objects.
3. Click **Select**. Canvas copies or moves the selected objects to the destination layer or layers.

## Locking and Unlocking Objects

When you want to secure objects from unintentional changes, you can lock them. Once an object is locked, it can only be selected by Tab-clicking the object. However, if the **Canvas 6-style object locking** option in the Configuration Center is selected, you can select locked objects by clicking on them. Locked objects can be copied, but the copies won't be locked.

### To Lock or Unlock Objects:

1. Select the objects that you want to lock or unlock.
2. Choose **Object | Lock** or **Object | Unlock (Unlock All, if no objects are selected)**.

## How Commands Affect Locked Objects

If you apply the Align command to several selected objects, and one object is locked, the other objects align to the locked object.

If you group several objects and one of the objects is locked, all the objects are positioned behind the locked object in the stacking order.

## Aligning and Distributing Objects

In Canvas you can quickly and easily align or distribute selected objects from the Align menu, the Properties bar, or the Align palette.

### To Open the Align Palette:

Choose **Window | Palettes | Align...**

## To Align or Distribute Objects:

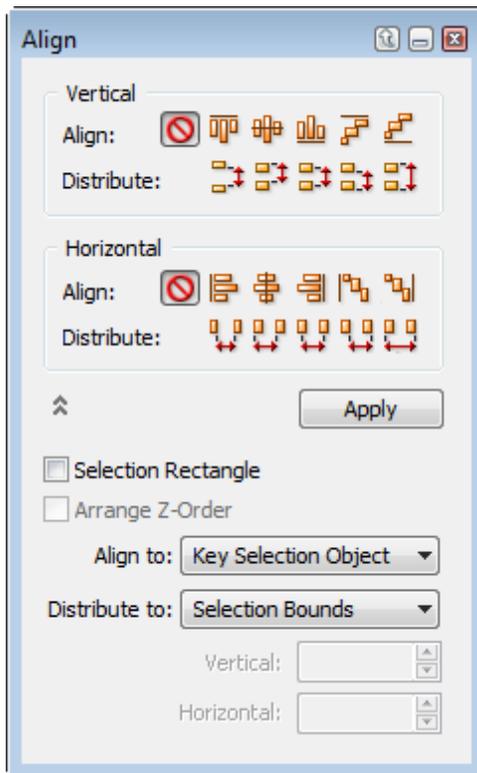
1. Select two or more objects.
2. Do one of the following:
  - Choose **Object | Align**, and select an alignment option.
  - In the Properties bar, select an alignment option.
  - In the Align palette, select an alignment or distribution option, then click **Apply**.

You can apply alignment and distribution options to vector objects, grouped objects, paint objects, and text objects. You can align and distribute objects in separate or combined operations. As the reference point for alignment and distribution, you can choose points on the objects or the document.

- **Aligning objects:** When aligning objects, Canvas lines up key points on the objects in relation to the key object. Choose left, right, top, bottom, or center alignment.
- **Distributing objects:** When distributing objects, Canvas spreads them out over a specified area and equalizes the space between the key points. Choose inside, top, center, bottom, and outside as methods for distribution; e.g., if you choose left edges for distribution, the left-most point in each object is an equal distance from the leftmost point in each of its neighbors.

If one of the objects you select for alignment is locked, other objects align relative to it. When distributing objects, Canvas may place all objects relative to the option selected in the Distribute to menu.

## Align Palette



---

**Vertical****Align:**

- None
- Top
- Center
- Bottom
- Edge to Edge (Top to Bottom)
- Edge to Edge (Bottom to Top)

**Distribute:**

- Inside
- Top
- Center
- Bottom
- Outside

---

**Horizontal****Align:**

- Left
- Center
- Right
- Edge to Edge (Top to Bottom)
- Edge to Edge (Bottom to Top)

**Distribute:**

- Inside
- Top
- Center
- Bottom
- Outside

---

**Selection Rectangle**

Select this option to ignore the stroke of the objects when aligning or distributing objects. Deselect the option to use the outside edge of objects' strokes.

---

**Arrange Z-Order**

This option is most applicable to distribution. When you select Arrange Z-Order, the command **Arrange | Bring to Front** is performed on each object. In the end, the objects are stacked on top of each other in the same order in which they were distributed. Results are most notable when the operation results in overlapping objects. Only available when either horizontal or vertical alignment/distribution is selected. Both cannot be selected. Horizontal and vertical sorting may differ and the result of rearranging would then not be clearly defined.

---

**Align to**

Choose a reference for alignment:

- Key Selection Object:** Aligns all the objects in relation to the key selection object. Key selection object does not move.
-

- 
- **Grid:** Aligns all objects to the grid. If no grid is defined, the objects don't move. The key selection object has no effect.
  - **Printable Area:** Aligns all objects with the edge of printable area. If no printable area is defined, the entire document is selected.
  - **Document:** To a specified location in the document. If you center an object in a multi-page illustration, portions can appear on multiple tiles.
- 

#### Distribute to

Choose a reference for distribution:

- **Selection Bounds:** Distributes all the objects over the area defined by current selection bounds. Key selection object may move.
  - **Printable Area:** Distributes all objects with the edge of printable area. If no printable area is defined, the entire document is selected.
  - **Document:** Distributes all objects over the entire area of the document. Key selection object may move.
  - **Fixed Amount:** Distributes all objects over a fixed distance. Key selection object doesn't move and remaining objects are positioned accordingly within that distance. Enter the amount in the Horizontal and Vertical fields below the Distribute to menu.
  - **Spacing:** Distributes all objects so the distance between each object is the amount indicated in the Vertical and Horizontal fields below the Distribute to menu. The key selection object doesn't move and the remaining objects are positioned accordingly. The amount of spacing may be a negative number.
- 

 When applying either horizontal or vertical edge-to-edge alignment, the order of the aligned objects depends on the order in which the objects were created; i.e., the object furthest to the left or at the very top in an edge-to-edge alignment was created first. Both Edge to Edge options have the same effect. They align all the remaining objects edge to edge with the key selection object.

## Rotating, Skewing, and Flipping Objects

You can rotate Canvas objects clockwise or counter-clockwise, flip them on one or both axes, and skew their bounding boxes. Rotate and skew around an object's center, or move the centerpoint to any location.

When you rotate an object, the object's bounding box also rotates. If you drag a selection handle of a rotated object, the bounding box changes shape in the rotated orientation, so you can resize an object without distorting its basic shape.

### To Remove Effects:

After you rotate, skew, or flip objects, you can return them to their original orientation and shape.

Select the objects and choose **Effects | Remove Effects**.

### To Return the Rotated Bounding Box to its Original Orientation:

Choose **Path | Convert to Paths**.

## Rotating and Skewing in Freeform Mode

When you put an object in Freeform mode, you can rotate and skew it by dragging special handles.

## To Put an Object in Freeform Mode:

Select the object and choose **Effects | Freeform**. Rotation and skewing handles and the object's centerpoint appear.

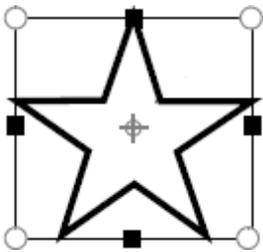
You can also put a selected object in Freeform mode by clicking it. This depends on a setting in the Configuration Center. (See "Setting Preferences" on page 62.)

## To End Freeform Mode:

Click away from the object, or press **Esc**.

## Rotating Objects in Freeform Mode

In Freeform mode, the circular handles at each corner of the bounding box are rotation handles. The circle and crosshair in the center of the object is the point around which the object rotates.



## To Rotate an Object in Freeform Mode:

Drag one of the four corner handles. An outline of the object rotates as you drag a handle.

## To Set the Center of Rotation:

Drag the centerpoint to a new location anywhere on the screen. To make the centerpoint snap to one of the handles or the center, press **Shift** as you drag.

## Rotating Objects

If you prefer to rotate objects a specified amount, use the following commands from the Effects menu:

- **Rotate Right:** Choose 90, 45, or 30°, or Other to open the Rotate dialog box and specify rotation options.
- **Rotate Left:** Choose 90, 45, or 30°, or Other to open the Rotate dialog box and specify rotation options.
- **Horizontalize:** The Horizontalize command rotates a selected object along a defined horizontal line. This command is useful when trying to straighten image objects.

## Rotate Options

<b>Direction</b>	Click the Clockwise or Anticlockwise button to set the direction of rotation.
<b>Center</b>	Set the center of rotation. By default the center of the object is selected.
<b>Angle</b>	Set the angle of rotation.
<b>Hard rotate for image</b>	Choose this option to render and rotate the background area of the image.
<b>Anti-alias image</b>	Select this option to have a smoother, better quality image.

## To Apply the Horizontalize Command:

1. Select the object.
2. Choose **Effects | Horizontalize**. The cursor changes to a crosshair.
3. Click the crosshair to establish the start point of the horizontal line.
4. Click the crosshair again to indicate the end point of the horizontal line.
5. In the Rotate dialog box, select a handle in the bounding box icon to define the center of rotation.
6. Enter the direction and angle of rotation.
7. Click **Apply** to see the effect and then **OK** to close the dialog box.

## Skewing Objects in Freeform Mode

When an object is in Freeform mode, slant its shape by dragging the horizontal and vertical skew handles. Skewing an object reshapes it by changing the relationship of the horizontal and vertical axes to the skew centerpoint.

Canvas skews objects around a centerpoint that you can position to achieve the desired effect. Drag the centerpoint to any position inside or outside the object. The location of the skew centerpoint changes the effect of dragging a skew handle on the object.

 You can also skew objects by clicking the **Skew** button in the Properties bar. Select a skew option, then enter a degree value in the field, and press **Enter**.

To position the centerpoint on one of the freeform handles or in the center of the object, **Shift-drag** the centerpoint to place it.

## To Skew an Object Horizontally:

Drag a horizontal skew handle to the left or right.

## To Skew Vertically:

Drag a vertical skew handle up or down.

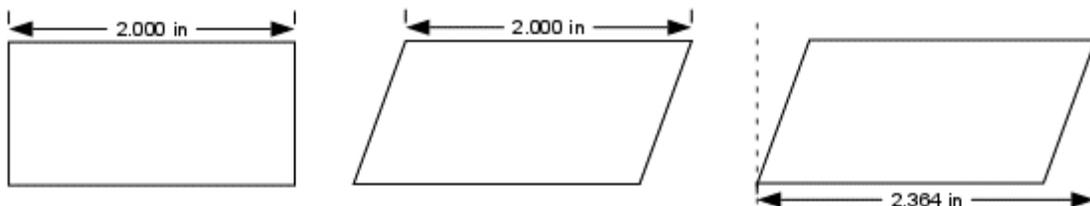
## Transformed Dimensions vs. Untransformed Dimensions

If you plan on transforming objects, you have the option of maintaining the object's original dimensions or allowing the object's dimensions to be altered after the transformation.

Click on the **Transform** icon in the Properties bar and select either **Transformed Dimensions** or **Untransformed Dimensions**.

If you select Transformed Dimensions, the object's original dimensions will be retained after being transformed.

If, however, you select Untransformed Dimensions, the object's dimensions will change when the transformation is applied.



In the example above, a 2" x 1" rectangle is horizontally skewed by 20°.

When Transformed Dimensions is applied, the rectangle maintains its original width when horizontally skewed.

When Untransformed Dimensions is used, the rectangle's width changes.

## Freeform Editing of Floating Image Selections

Use the Freeform command to place floating image selections in Freeform Edit mode. When you put an image selection in Freeform mode, rotate and skew it by dragging special handles.

### To Float a Copy of a Selection:

1. With a paint object in Edit mode, make a selection with the **Marquee** or **Lasso** tool. The selection can encompass the entire paint object.
2. Do one of the following:
  - Choose **Image | Select | Float**.
  - **Ctrl**-drag the selection. This moves the selection and puts it in Freeform mode.



You can also paste an object into an image in Edit mode. The object pastes into the image as a floating selection.

For more information on image selections, see "Working with Image Selections" on page 346.

### To Put a Floating Image Selection in Freeform Mode:

While a floating image selection is active, choose **Effects | Freeform**. Handles appear on the corners and sides of the floating selection.

### To Move a Selection in Freeform Mode:

Place the pointer inside of the selection. The pointer becomes an arrow head. Drag to move an outline of the selection.

### Rotating Selections in Freeform Mode

In Freeform mode, while the pointer is outside of the selection, the pointer is a curved line with an arrow at both ends. This is the rotation pointer.

Drag around the selection in the direction you want it to rotate. An outline of the selection rotates as you drag.



Press the **Shift** key to constrain the rotation to 15° increments.



Rotation pointer



Scale pointer

## Scaling Selections in Freeform Mode

You can scale a floating selection in Freeform mode by dragging the corner or side handles.

### To Scale a Selection:

Point to one of the handles at the edges of the selection. The pointer changes to a straight line with an arrow at each end. Drag any of the handles. The selection scales as you drag.

- If you drag a side handle, the scaling is constrained to the direction of the arrows in the pointer – the direction perpendicular to the handle side.
- If you drag a corner handle, the scaling is unconstrained unless you press the **Shift** key.
- Press the **Alt** key to mirror the scale on the opposite side of the selection.

## Skewing Selections in Freeform Mode

When a selection is in Freeform mode, you can slant its shape by dragging the side handles with the **Ctrl** key pressed. Skewing a selection reshapes it by changing the relationship of the sides of the selection.



Skew outline and Skew pointer

### To Skew a Selection:

Press the **Ctrl** key and move the pointer over one of the side handles. The pointer changes to an arrow head. Drag the handle to skew the selection freely.

- Press the **Shift** key to constrain the skew along the axis of the handle side.
- Press **Alt** to have the opposite side of the selection skew to maintain its relationship to the side you are skewing around the center of the selection.

The modifier keys can be combined to produce both skewing effects simultaneously.

### To End Freeform Editing:

Double-click inside the selection or press **Enter** twice. The floating selection is still active. Then double-click outside the paint object or press **Enter** twice to paste the pixels as defined by the floating selection into the image.

If you do not want to change your original image, press **Esc** to leave Freeform mode. Canvas makes no changes to the image.

### Rotating Objects with the Rotate Command

For precise rotations, use the Rotate command to rotate selected objects in 0.01° increments around a specified center of rotation. This command is useful if you need to rotate multiple objects an exact amount.



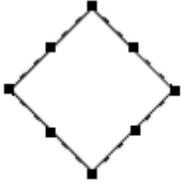
You can also rotate objects by clicking the Rotate button in the Properties bar. Select a rotate option, then enter a degree value in the field, and press **Enter**.

### To Rotate Objects:

1. Select the object you want to rotate.
2. Choose **Effects | Rotate Right/Left | Other** to open the Rotate dialog box.
3. In the Rotate dialog box, click the clockwise or counter-clockwise button to choose a rotation direction.
4. Enter the rotation angle in degrees in the Angle text box.
5. The Center edit box shows the center of rotation as a gray handle. To change it, click one of the black handles on the bounding box; the gray handle snaps to the new location.
6. Click **Apply** to preview the settings, or click **OK** to implement the settings and close the dialog box.

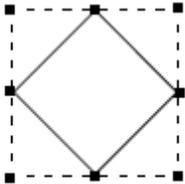
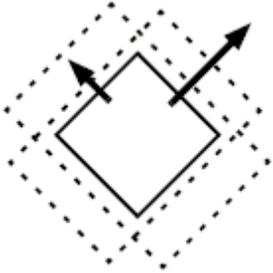
### Editing Rotated Objects

When you rotate an object, the object's bounding box also rotates, so you can reshape and resize the object in rotated space. If you drag a handle, the object's sides keep their rotated orientation. This prevents distortion of the original shape.



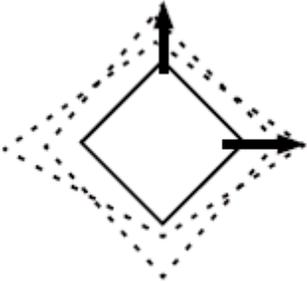
Rotated bounding box

The bounding box of a rotated square has the same orientation as the rotated object so the object maintains its rectangular shape, shown by the dotted lines, when you drag the bounding box handles.



Unrotated bounding box

If you choose **Convert to Paths**, Canvas re-oriens the bounding box of a rotated object so the object's rectangular shape distorts when you drag a handle on the bounding box, as shown by the dotted lines.



## Flipping Objects

Flip objects horizontally, vertically, and both horizontally and vertically, with the Flip commands. You can flip individual objects, multiple selected objects, or grouped objects. When you flip a group object, objects included in the group flip around the axes of the group's bounding box.



### To Flip a Selected Object from Top to Bottom:

Choose **Effects | Flip | Vertical**. The Vertical command flips the selection's vertical coordinates over its horizontal axis.

### To Flip a Selected Object from Left to Right:

Choose **Effects | Flip | Horizontal**. The Horizontal command flips the selection's horizontal coordinates over its vertical axis.

## To Flip a Selection Around Both Axes:

Choose **Effects | Flip | Both Axes**. Canvas flips the selection's horizontal coordinates over its vertical axis and its vertical coordinates over its horizontal axis.

## Scaling Objects

The Scale command provides several options for enlarging or reducing objects. Scale by a percentage or ratio, horizontally and vertically. You can also scale text and stroke weights when you scale objects.

### To Scale an Object:

1. Select one or more objects.
2. Choose **Object | Scale** to open the Scale dialog box.
3. Select the Scale options.
4. Do one of the following:
  - Click **Apply**. The object is scaled, but the dialog box remains open. If you want to change the options you can do so and click **Apply** again, or you can click **Cancel** to discard the changes and close the dialog box.
  - Click **OK**. The object is scaled, and the dialog box is closed.



You can also scale an entire document when you print it, without changing the objects in the document, by specifying a scaling factor in the Print dialog box.

## Scale Options

<b>Scale by</b>	Select a method to scale by: <ul style="list-style-type: none"><li>• <b>Percentage:</b> Specify vertical and horizontal percentages. Scaling an object 150% is the same as increasing the object's size by a factor of 1.5.</li><li>• <b>Ratio:</b> Specify horizontal and vertical scaling factors as ratios by entering numbers in each set of two boxes; e.g., to scale an object to one-third its original height, enter "1" in the first text box, and "3" in the second.</li></ul>
<b>Proportional</b>	Select this checkbox to scale an object vertically and horizontally by the same amount.
<b>Keep As Group</b>	Select this checkbox to retain the spacing between the selected items when they are scaled.
<b>Scaling</b>	Enter the percentage of horizontal and vertical scaling.
<b>Scale Pen</b>	Select this checkbox to maintain the proportion between an object's pen size and the overall size of the object.
<b>Scale Text</b>	If one of the selected objects contains text, select Scale Text to change the size of the characters. Otherwise, text remains the same size.

## Scaling Objects by Area/Perimeter

The Scale by Area/Perimeter command lets you scale simple path objects by area or perimeter.

## To Scale an Object:

1. Select a simple path object.
2. Do one of the following:
  - Choose **Object | Scale By Area/Perimeter**.
  - Click the **Scale By Area/Perimeter** icon in the Properties bar. 
3. Select the Scale options as described in the table below.
4. Do one of the following:
  - Click **Apply**. The object is scaled, but the dialog box remains open. If you want to change the options you can do so and click **Apply** again, or you can click **Cancel** to discard the changes and close the dialog box.
  - Click **OK**. The object is scaled, and the dialog box is closed.



You can also scale an entire document when you print it, without changing the objects in the document, by specifying a scaling factor in the Print dialog box.

## Scale by Area/Perimeter Options

<b>Scale by</b>	Select a method to scale by: <ul style="list-style-type: none"><li>• <b>Percentage:</b> Specify a percentage for scaling. Scaling an object 150% is the same as increasing the object's size by a factor of 1.5.</li><li>• <b>Absolute:</b> Specify an absolute value for scaling.</li></ul>
<b>Origin</b>	Set the origin of scaling. By default the origin is the center of the object.
<b>Area</b>	Scales the object by its area.
<b>Perimeter</b>	Scales the object by its perimeter.
<b>Scaling</b>	Enter the percentage of scaling or an absolute value. If you choose to scale by absolute value, you can select the unit of measure.
<b>Scale Pen</b>	Select this checkbox to maintain the proportion between an object's pen size and the overall size of the object.

## Using the Object Specs Palette

The Object Specs palette provides several important features for working with objects. It displays data for selected objects and lets you modify settings for selected objects.

The Object Specs palette contains the following tabs:

- **Data:** Create objects, and edit the size, position, and other data for a selected object.
- **Trap:** Set printing options, including overprinting and trapping for color separations.

## To Display the Object Specs Palette:

Choose **Object | Object Specs**. Change coordinates, dimensions, or other settings, and then click **Apply** to implement them.

## To Edit an Object:

Click on the **Data** tab to view and edit data for selected objects. The Data tab displays information for a selected object or group object. If you select a group object, you can change the group's size and coordinates, but not an individual object within the group.

 When more than one object is selected, the boxes on the Data tab are not available. You can't edit the position or dimensions of multiple selected objects.

1. On the Data tab, choose an object type from the Object Type drop-down.
2. Enter values for the object's size and position in the text boxes. The type of data you can enter depends on the object type.
3. Click **Apply**.

## Data Tab Settings

This tab includes object size and position data and related options. Additional options are shown for text objects. The text options let you change the shape of a text object or change the way text wraps in its bounding box.

<b>Object type</b>	For a selected object, shows the object type, usually an icon of the tool that created the object. To modify an object, select oval, rectangle, arc, line, or polygon.
<b>Data type</b>	Select the type of data to display. (See "Data Display Options" on page 134)  When an object is selected, change the values in the text boxes to resize or reposition the selected object. If Keep Proportions is checked, Canvas maintains the proportion of the object if you change either the height or width.
<b>Position data</b>	The type of data that appears in the boxes, and their labels, depends on the selected data display option. (See "Position Data" on page 134)
<b>Area</b>	Shown when Canvas can calculate the area occupied by a selected object's bounding box. When you select text, the horizontal insets text box replaces the Area text box.
<b>Perimeter</b>	Shown when Canvas can calculate the perimeter, or distance around, a selected object's bounding box. When you select text, the vertical insets text box replaces the Perim text box.
<b>Object #</b>	The object number assigned by Canvas.
<b>Name</b>	Type a name for the object.
<b>Keep Proportions</b>	Select this option to keep an object's height and width proportional when you are editing the object's dimensions.
<b>Apply</b>	Click to apply the current settings. The Apply button changes to Create when no object is selected and you choose an object type to create.

## Text Object Settings

<b>Insets</b>	Change the proportions of a text object's background. Type values, in pixels, in the text boxes to specify the horizontal and vertical size of the text object's background.
<b>Object shape</b>	Change the shape of the text object's background to a rectangle, round rectangle, oval, or diamond.

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<b>Caption</b>	Select or deselect to change the way text wraps in its bounding box. Text that is not captioned wraps to the next line based on the boundaries of the text's bounding box.  You can't use the Caption or Insets options with text that you created using the Path Text tool, or text that you converted to paths.
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## Data Display Options

Choose the data to display. Select Height/Width or Top/Bottom for all objects except lines. For lines, select Start/End, Delta V/H, or Length/Angle.

- **Height/Width:** Type values in the text boxes to specify the vertical and horizontal dimensions of the object.
- **Top/Bottom:** Type values in the text boxes to specify the position of the top, bottom, left, and right edges of the object, relative to the document rulers.
- **Start/End:** Type values in the text boxes to specify the position of the first and last endpoints of a line.
- **Delta V/H:** Type values in the text boxes to specify the position of the first endpoint, and the distance from the first endpoint to the last endpoint of the line.
- **Length/Angle:** Type values in the text boxes to specify the position of the first endpoint, and the length and angle of the line.

## Position Data

The type of data that is displayed depends on whether you choose Height/Width or Top/Bottom, Start/End, Delta V/H, or Length/Angle.

- **Left:** Type the horizontal distance from the ruler's zero point to the left edge of the object.
- **Top:** Type the vertical distance from the ruler's zero point to the top edge of the object.
- **Height:** Type the height of the object, relative to the top edge of the object.
- **Width:** Type the width of the object, relative to the left edge of the object.
- **Bottom:** Type the vertical distance from ruler's zero point to the bottom edge of the object.
- **Right:** Type the horizontal distance from the ruler's zero point to the right edge of the object.
- **St V:** Type a value to position the first endpoint of a line, relative to the vertical ruler's zero point.
- **St H:** Type a value to position the first endpoint of a line, relative to the horizontal ruler's zero point.
- **End V:** Type a value to position the last endpoint of a line, relative to the vertical ruler's zero point.
- **End H:** Type a value to position the last endpoint of a line, relative to the horizontal ruler's zero point.
- **Delta V:** Type a value to position the last endpoint of a line, relative (vertically) to the first endpoint of the line.
- **Delta H:** Type a value to position the last endpoint of a line, relative (horizontally) to the first endpoint of the line.
- **Length:** Type a value to specify the length of a line.
- **Angle:** Type a value to specify the angle of a line.
- **X:** Type a value to position a handle of a polygon, relative to the horizontal ruler's zero point.

- **Y:** Type a value to position a handle of a polygon, relative to the vertical ruler's zero point.
- **Start:** Type a value to specify the starting point of an arc in degrees.
- **Delta:** Type a value to specify the length of an arc segment in degrees.
- **Diag:** Type a value to specify the roundness of the corners of a rounded rectangle.

## Setting Print Properties for Objects

Click on the **Trap** tab of the Object Specs palette to view the overprinting and trapping options for color separations. Click **Apply** to apply the settings to selected objects.

## Overprinting in Color Separations

When you output color separations in Canvas, you can specify that an object should overprint, rather than knock out, objects behind it.

In color separations designed for commercial printing, a front object usually knocks out a hole where it overlaps other objects; however, you can apply the Overprint Object option to an object to prevent it from creating knockouts in objects behind it. This can compensate for registration problems on some printing presses.

For example, if you draw a cyan circle on a yellow background, Canvas knocks the circle out of the background in color separations so cyan and yellow don't mix in the circle. If you select the circle and use the Overprint Object option, the circle prints over a solid yellow background, and the cyan in the circle mixes with the background yellow, resulting in a green circle.

The effect of the Overprint Object option is not visible on screen. This effect is visible only in the printed output when you produce color separations. Verify the settings for a particular object by viewing the Trap tab in the Object Specs palette and then selecting the object.

Color mixing as described previously is not the primary reason for overprinting. It's more common for designers to overprint dark objects on lighter backgrounds as a way to prevent a gap from appearing between the colors if the press registration (alignment) isn't perfect.

### To Specify Overprinting for Objects:

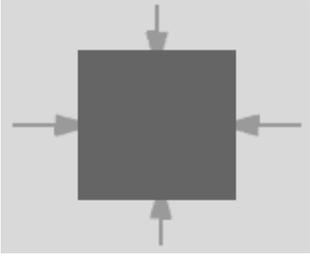
1. Select the vector or text objects to be overprinted.
2. Select the **Overprint Object** checkbox on the Trap tab.
3. Click **Apply**. The appearance of the selected objects does not change on screen, but the objects will be overprinted in color separations.

### To Remove Overprinting:

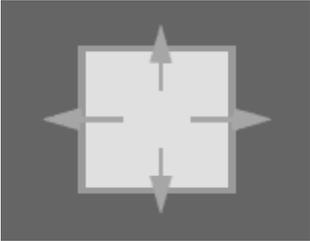
Select the objects and deselect the **Overprint Object** checkbox. Then click **Apply**.

## Trapping in Color Separations

When objects of different colors touch, there is the potential for an unsightly gap to appear between the colors if the piece isn't printed precisely aligned, or in register.



Choke trapping reduces the background knockout slightly to trap into a dark foreground object.



Spread trapping enlarges the stroke of a foreground object slightly to trap into a dark background object.

Trapping is a technique that purposely distorts the shapes of objects in color separations where different colors meet. The slight distortion creates tiny areas called traps where colors overlap. The trap areas can help avoid the appearance of gaps if the page is printed slightly out of register.

Before you use trapping in color separations, determine how likely it is that the piece will not be printed in register. Consider how beneficial it will be to distort the shape of some objects to compensate for possible misregistration; e.g., trapping type can ruin the appearance of the text, and probably isn't necessary.

## Trapping Choices

Canvas lets you specify two types of trapping, Choke and Spread.

- **Choke trapping:** Used to make light background colors trap to dark foreground objects. Canvas creates a choke trap by slightly reducing, ("choking") the knockout area in the light background object; e.g., if a dark blue "A" is printed on a pale yellow background with choke trapping applied to the "A," the "A" remains exactly the same, but the knockout area in the yellow background becomes a slightly smaller "A" shape. The result is that some of the yellow overlaps the edges of the dark blue "A."
- **Spread trapping:** Used to make light foreground objects trap into dark backgrounds. The trap is created by slightly enlarging the foreground object without changing the knockout in the background color; e.g., if a light circle is printed on a dark background with spread trapping applied to the circle, the circle expands slightly to overlap, or trap into, the circle knockout in the dark background.

## Trapping Limitations

Whenever possible, design illustrations to avoid certain trapping problems, and always discuss trapping with your service bureau and printer to avoid unnecessary expense and inferior results.

In Canvas, trapping is best applied to vector objects that use a solid pen stroke and solid pen ink color. The following limitations apply to trapping:

- Canvas will not create a choke trap for text.
- Canvas will not create a choke trap for a vector object that has no stroke or has a stroke that is not a solid pen stroke.

- Canvas will not create a choke trap for an object that has a gradient pen ink.
- Canvas will not create a spread trap for a paint object.

### To Specify Trapping for Objects:

1. Select the object you want to trap. In most cases, this will be a foreground object that touches a highly contrasting color.
2. Click the **Trap** tab.
3. Select the **Trap Object** checkbox, and then click the **Choke** or **Spread** radio button. (See "Trapping Choices" on page 136.)
4. Click **Apply** to set the trapping option for the selected object. No change is apparent in the object on screen, because the trap is created only when you print color separations.

### To Apply Trapping to Selected Text:

You can apply trapping options to text that you select within a text object using the Overprint and Spread options in the **Text | Style** menu.

### To Adjust the Trap Size:

Before printing color separations, specify the trap size. Select the **Separations** options in the Print dialog box to change the trap size value.

## Creating Attribute Styles

Illustrators and designers may often find themselves applying the same attributes to various vector objects within a layout. An attribute style is a set of attributes that you save and then apply to other objects. These styles help you maintain consistency and facilitate applying attributes.

If you want to use the same attributes for all vector objects, see "Setting Default Attributes" on page 138.

## Attribute Styles Palette

With the Attribute Styles palette, you can create attribute styles and edit saved attribute styles and then reapply them to objects, rather than editing each individual attribute. You can even share attribute styles with others.

### To Open the Attribute Styles Palette:

Choose **Window | Palettes | Attribute Styles**.

### To Create an Attribute Style:

1. Open the Attribute Styles palette.
2. Select an object on which you want to base a style.
3. Click the **Create** button.
4. In the Define Style dialog box, enter a name for the style.
5. Select all the attributes that will be included in the style.
6. Click **OK** to save the style.

### To Apply an Attribute Style:

1. Open the Attribute Styles palette.
2. Select the vector object to which you wish to apply the style.
3. Click on the style name in the palette to apply it.

### To Save Attribute Styles:

1. Open the palette menu and select **Save Styles**.
2. Enter a name for the file.
3. Select a folder.
4. Click **Save**.

### To Load or Append Attribute Styles:

1. Open the palette menu and select **Load** or **Append Styles**.
2. Navigate to the folder and select the file.
3. Click **Open**.

### To Modify an Attribute Style:



Press **Esc** twice to ensure that no object is selected.

1. Select the style in the Attributes palette.
2. Click the **Edit** icon.
3. In the Edit Style dialog box, modify the existing attributes. Selected checkboxes indicate an existing attribute.
4. Define and add other attributes by first selecting their checkboxes and then using the popup palettes.
5. Click **OK** when finished.

### To Delete an Attribute Style:



Press **Esc** twice to ensure that no object is selected.

1. Select the attribute style to be deleted.
2. Click the **Trash Can** icon.

## Setting Default Attributes

You can set default attributes for vector objects so that each time you create a new object, it uses the same attributes. For example, if you often draw objects with a standard 3pt blue pen stroke, you can set the default attributes for objects to use those settings.

The following types of objects use the default attributes:

- Rectangle
- Oval
- Cube
- EasyShapes
- Markup
- Dimensioning (excluding Area and Perimeter)

### To Set the Default Attributes:

1. Create a vector object that has the attributes you want to use as the default attributes.
2. Select the object.
3. Do one of the following:
  - Select **Object | Set Default Attributes**.
  - Right-click and select **Set Default Attributes** from the context menu.
  - Click the **Set Default Attributes** icon in the Toolbar. 

### Attaching Comments to Objects and Using Markup Tools

Use the Comments & Markup function to attach written notes called comments to any object in a Canvas document. This can be useful for individuals and coworkers who share documents. Anyone who works on a document can use the Markup tools and attach multiple comments to any object, including paint, vector, and text objects.

### Marking Up a Document

To facilitate group work or revision, Canvas has a complete palette of tools that you can use to mark up documents, the Markup & Redline tools. This functionality keeps the markups and comments with the original document, yet separate. Using the Markup tools doesn't alter the original document at all. Markups and comments can be easily created on another layer.

The Markup tools consist of the following tools:

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 **Markup Highlighter:** Creates a thick Bézier curve.

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 **Markup Pen:** Creates a freeform line.

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 **Circle Redline:** Creates an oval-shaped bounding box.

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 **Rectangle Redline:** Creates a rectangle bounding box.

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### To Use a Markup Tool:

1. Select the **Markup Pen** tool, **Markup Highlighter** tool, **Rectangle Redline** tool, or **Oval Redline** tool. The tool settings appear in the Properties bar.
2. Click-drag the crosshair where you want to create your markup and release the mouse.

- In the New Markup Comment dialog box, open the **Layer** menu and select one of the following:
  - Current Layer:** The markup object will be on the current layer.
  - Markup Layer:** This option creates another layer named Markup Layer. The markup object will be on this layer.
  - My Markup Layer:** This option creates another layer with the initial of the user. This information is retrieved from the User Info in the Configuration Center.
- Enter your comments, if any, in the field.
- Click **OK**. The markup object is selected and its settings appear in the Properties bar.

## Markup Properties

<b>Color</b>	Select a defined color ink from the menu for the pen stroke. You can also select an ink from the popup palette. To define color inks for the menu, click <b>Customize</b> . Name the ink to add it to the menu.   If an ink from the popup palette is selected, <b>Custom</b> appears in the menu.
<b>Pen Size</b>	Select a pen stroke width (only available for Markup Highlighter, Rectangle Redline, and Oval Redline tools).
<b>Opacity</b>	Adjust the transparency of the markup object.
<b>Use Tapered Stroke</b>	Gives the stroke tapered ends.
<b>Prompt For Comment</b>	By default, this checkbox is selected to enable the New Markup Comment dialog box. Deselect the option if you don't want the dialog box to appear when using these tools.   If you disable the New Markup Comment dialog box, you can use the text field in the Properties bar to enter your comment, if any.

 If you deselect **Always Display This Dialog**, the New Markup Comment dialog box doesn't appear when you create a markup. To enable this dialog box again, select the **Prompt For Comment** option in the Properties bar when a markup object is selected or created. Click the **Display Palette** button to open the Comments & Markup palette.

## To Attach Comments to Objects:

- Select an object.
- Choose **Object | Options | Comments & Markup...**
- In the Comments & Markup palette, click the **New** button.
- In the New Comment dialog box, type the comment text, then click **OK**.

The comment appears in the Comments & Markup palette.

A comment can contain up to 64 KB of text (about 65,500 characters). The text appears in a fixed size and typeface.

When you create comments, you can select, copy, cut, and paste text using the standard keyboard shortcuts. Spell checking, text formatting, and text colors cannot be applied to comments.

## Viewing and Editing Comments

When you open a document, you can view all comments attached to objects and markup objects.

 Be sure that **Show information tool tips** is selected in the Functionality Options page in the Configuration Center.

 You can edit comments that you create, but not those made by others.

When you select an object that has one or more comments attached to it, the object displays yellow selection handles. You can view comments by pointing to objects. When the pointer is on an object, the object's comments appear in a pop-up window.



Object with comments

### To View, Edit, and Delete Comments:

1. Choose **Object | Options | Comments & Markup**.

 If you select a markup object, click the **Display Palette** button in the Properties bar to open the Comments & Markup palette.

2. From the Author drop-down list, select one of the following:

- **An author's name:** Displays only that author's comments in the list. The scrolling list displays the first lines and the author's initials for each comment. The initials preceding comments are retrieved from the User Info in the Configuration Center.
- **All Authors:** Displays comments by all authors.

3. Click a comment to select it.

When you select a comment, Canvas selects the commented object or markup object in the document. Yellow selection handles appear around the object to indicate that the object has one or more comments.

4. Do one of the following:

- **View:** To view a selected comment, click **View**. The comment text appears in the View Comments dialog box. Select text and copy it to the Clipboard using standard keyboard shortcuts. You can edit your own comments in the View Comments dialog box, but you can't edit or remove others' comments.

When you view a comment that you can't edit, the dialog box appears grayed out.

If you changed a comment, click **OK** to save the changes or click **Cancel** to discard them and close the dialog box.

 If you select a markup object with an attached comment, you can view the comments in the Properties bar. You can edit your own comments in the Properties bar.

- **Remove:** Select a comment you created. Click **Remove** to delete the comment from the object and the Comments palette.

Comments remain attached to objects until you remove them. However, comments are not preserved by operations that convert objects to different forms. These operations include Knife, Combine, Extrude, Fractalize, Join, Make Composite, Convert to Paths, and Insert Picture.

- **Generate Text Objects:** Click this button to create text objects of any comments that are attached to objects or markup objects. In the Comment Attributes dialog box, select the options you want to use.

## Comment Attributes

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<b>Font</b>	<b>Name:</b> Select a font family. <b>Size:</b> Enter a value or use the scroll box. <b>Color:</b> Select a color ink for the text object. Adjust the attributes using the Bold, Italic, and Underlined options.
<b>Properties</b>	<b>Layer:</b> Open the menu and select an option. Current Layer places the text object on the current layer. Markup Layer places the text object on another layer named Markup Layer. My Markup Layer places the text object on another layer with the initial of the user. This information is retrieved from the User Info in the Configuration Center. <b>Author Name:</b> Select this checkbox if you want the author's name to appear beside the comment. <b>Max Line Length:</b> Enter a value or use the scroll box. The default is 2 inches. <b>Position:</b> The position is in relation to the commented object's bounding box. Select an anchor point.

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## Assigning and Modifying Custom Object Properties

Canvas contains the ability to attach specific user-definable data to any object. This information is stored with the objects and can be viewed or edited from within Canvas.

### Assigning Custom Object Properties

The Object Properties function allows you to assign specific information to each component of a complex object. The properties of an object can include information that will allow you to efficiently track cost, inventory, location, and availability. As a result, those who design and manufacture items such as fuel pumps, jet engines or other sophisticated components can better manage production workflow.

 If you are working with GIS vector files, such as Shapefiles or Tigerfiles, the attribute information is available in the Object Properties palette. Click on an object and its information appears.

Attaching information to an object does not affect the size or appearance of the item. All data remains attached to the object and may be edited at any time within Canvas. Therefore, if the object is shared or used in another project, then the properties of that object are carried over into the new project.

### To Open the Object Properties Palette:

Select a Canvas object and choose **Object | Object Properties**.

If the selected item does not have any properties assigned to it, then you will need to create some properties.

 If the object is grouped, then you will need to ungroup it. This allows you to select the various individual items to which you wish to assign a property.

## To Assign Properties to an Object:

1. From the Object Properties palette menu, (the arrow button on the lower right of the palette), select **Define Property**.
2. In the Define Properties dialog box, click the **New** button.
3. Select the options for the property as detailed in the table below.
4. When you have finished defining properties, click **OK** to close the dialog box.

Once created, the labels are listed in the Properties panel. At any time, you can access and edit your entries by clicking on any of the properties that are listed in the Properties panel.

## Define Properties Options

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<b>Label</b>	<p>In this field, you may enter the name of the property; e.g., Size, Weight, Location, Part Number, Tracking Code.</p> <p>You can also attach multiple labels to each object. Doing so allows you to identify the object by using one of the assigned labels.</p> <p>Next, select an option in the Type menu. This allows you to choose the search value for the object.</p>
<b>Type</b>	<p>The Type field has the following options: String, Number, Fixed List, Variable List, Boolean, Currency, or Date.</p> <p><b>String:</b> You can place just about anything that you want in this field. You can enter a format, however, it is only for informational purposes only. Entered values will not be validated based on their format.</p> <p><b>Number:</b> This option allows you to enter a numerical value for an object. To do so, you must use one of the following formats:</p> <ul style="list-style-type: none"><li>• Whole (e.g., 1)</li><li>• Whole with units (e.g., 1 kg)</li><li>• Decimal (e.g., 1.5)</li><li>• Decimal with Units (e.g., 5.1 kg)</li><li>• Fraction (e.g., 1/2)</li><li>• Fraction with Units (e.g., 1/2 kg)</li></ul> <p><b>Fixed List:</b> You can think of this as assigning a key word that can be used to search for items. Be certain to separate each word with a semicolon (;); e.g., "earth;wind;fire". After setting this property type, you should define a set of items that appear on the list of available values for the property. Enter the desired values in the Format field; e.g., you may enter values such as "Earth;Wind;Fire" in the Format field. These entries will then appear on the list in the Object Properties palette.</p> <p><b>Variable List:</b> This option is the same as a fixed list except that you can enter new values at the time of assignment to the object. After you define a set of values, you may want to add a new value to the set that appears in the Object Properties menu. To make these changes, you need only to enter a value in the Object Properties palette.</p>

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**Boolean:** This is used when the value will be Yes or No. You may change the value to True or False, Positive or Negative, 0 or 1, etc.

**Currency:** There are two format types for the currency property. They are Monetary Sign Leads (e.g., USD 100.00) and Monetary Sign Follows (e.g., 100.00 USD).

The default setting for the currency property is Monetary Sign Leads. This property is set in the same manner as the previously described numbers with units. You need only to enter a value and a monetary sign in the Value field to have a default monetary sign set. The sign that you enter will then become the default setting. It will be automatically added each time that you change a value.

If you enter a value and a monetary sign that differs from the default, then the change will be rejected. If the default sign was not defined, then you have to enter a number and a monetary sign each time that you change the value of the property. An advantage of not having a default monetary sign is that you are not constrained to the use of the default setting when entering a different sign.



A monetary sign must always be present in the value when working with currencies. If there is not a default setting, you must enter a number and the monetary sign.

**Date:** The Date property can be set in any of six different formats. They are grouped into two major format types:

- **Full Date formats:** This setting forces you to set a date which consists of a two-digit day, two-digit month, and four-digit year; e.g, for February, you must enter "02" instead of "2". Therefore, February 7th, 2001 could be entered as 02/07/2001.
- **Short Date formats:** Using this setting the date will consist of either a one-digit or two-digit day and a one-digit or two-digit month. A two-digit year will always be required. This means that zero ('0') will not be used as the first number for month or day; e.g., February should be represented as "2" (not as "02"); however, zero will be accepted as the first number of a year. This means that you may enter 2001 as "01". Therefore, February 7th, 2001 could be entered as 2/7/01.

Each of the previously discussed sets have three separate formats:

**month/day/year:** Represented in the palette as "03/29/1999" and "3/29/99" respectively

**day/month/year:** Represented in the palette as "29/03/1999" and "29/3/99" respectively

**year/month/day:** Represented in the palette as "1999/03/29" and "99/3/29" respectively

Once you choose a **Type** from the above options, you must establish the correct Format. The Format section provides details for each of the Type choices and its associated Format options.

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<b>Format</b>	Assigning a format depends on which of the previously mentioned types were selected.
<b>Value</b>	Allows you to enter a default value for an object.
<b>Prompt</b>	A message or other data that is entered here will be displayed whenever you place the pointer over the property name in the Object Properties palette.

---



To use this feature, select the **Show Information Tooltips** checkbox in the Functionality options in the Configuration Center.

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## To Define a Unit:

1. In the Define Properties dialog box, set the **Type** as "Number".
2. Set the Format to be one of those with units.
3. Enter a number followed by unit as the Value; e.g., "100 kg". The unit will become the default for that property.

This means that if you were to enter the setting of "100 cm", then "cm" will become your default setting. Therefore, when you enter a new value for the property in the Object Properties palette, you will only have to enter the number for that property. The unit will automatically be appended to reflect the unit "cm." If you enter both a number and a unit and the unit differs from the default, then the entry will be rejected.



If you do not specify a default unit for the property, then you will need to enter a number and a unit each time that you change the value. The advantage of not having a default unit is that you can enter a different unit without being constrained by the default setting.

4. Once you have completed entering all of the properties to the object, click **OK**. When the Object Properties palette is active, all assigned properties will appear in the palette whenever you select the object.

## Adding, Modifying, and Deleting Properties

You can modify, delete, or add new properties. Although it is possible to add a property to two or more selected objects, you can only delete or define properties while one object is selected.

## To Add a Property to an Object or Objects:

1. Open the Object Properties palette menu and select **Add Property**.



If you have Canvas GIS+, the palette menu contains additional options: Select by Property, Table View, Statistics, and Calculate Value.

2. In the Add Property dialog box, enter a name in the Name field. In the Object Properties Table View palette, a new column is created with this Name.
3. Select either **Text** or **Numeric** from the Type menu.
4. Enter the appropriate value in the Value field.



The Compute values and Expression feature are for users that have.

5. Select the Compute values checkbox if you want to create an expression.
6. Click the **Expression** button to open the Expression Builder dialog box. If you select Numeric, the result of the expression must be numeric as well.

## To Delete a Property:

1. Open the **Object Properties** palette.
2. Select the property in the palette.

3. Open the palette menu and choose **Delete Property**.

### To Create Common Properties for Objects:

When two or more objects are selected, the list of properties that are common for all of those objects is shown. Working with common properties is similar to working with a list of properties from one object.

1. Select two or more objects to which you want to assign common properties.
2. Open the palette menu and select **Add Property** to open the Add Property dialog box. (See "To Add a Property to an Object or Objects:" on page 145.)

### To Modify Object Properties:

1. Select an object that has already defined properties.
2. Open the Object Properties palette menu.
3. Select **Define Property** to open the Define Property dialog box. (See "Assigning Custom Object Properties" on page 142.)

### To Find All Objects That Share an Identical Property:

1. Select the property item in the Object Properties palette that objects share.
2. Click the **Find** button and all objects that contain that property item are selected.

### To Copy Property Items to Another Object:

1. Select the object whose properties you want to copy.
2. Click the **Copy** button.
3. Select the other object and click the **Paste** button. The objects now share identical properties.

## Viewing Object Properties

If you want to view an object's properties, you can use the Object Properties Table View palette to see all the properties in a table. This palette lets you view custom properties that you have assigned to an object as well as geometric properties, such as the width and height of the object, location information, pen weight and color, and fill color.

### To View Object Properties in a Table:

1. Choose **Object | Object Properties Table View**.
2. Click one of the following:
  - **All**: Displays both custom and geometric properties.
  - **Object Properties**: Displays any custom properties you have added to the object.
  - **Geometric Properties**: Displays the geometric properties of an object.
3. Do one of the following:
  - To show all the properties, click **Show All**.
  - To show just selected properties, select the properties you want to display, and click **Show Selected**.

## To Select Properties to View:

1. Choose **Customize** from the Object Properties Table View palette menu, (the arrow button).
2. In the Select Properties To Display dialog box, select the checkboxes for the properties you want to display.
3. Click the **Move First, Move Up, Move Down, and Move Last** buttons to change the order of the properties displayed.
4. Click **OK**.

## Saving Properties

Once you have displayed the properties for an object, you can choose to save that data to a text file.

## To Save the Displayed Properties:

1. Choose **Save** from the Object Properties Table View palette menu.
2. In the Save Object Properties dialog box, select the location where you want to save the file, type a file name, and click **Save**.

## Selecting Objects by Property

The Select by Property command lets you select objects according to property information. Create a query based on one or more selected properties and property values. For example, if you wanted to select objects with a width greater than 2, you could create the following query:

```
"Width" >= 2.0
```

## To Select Objects by Property:

1. Choose **Select by Property** from the Object Properties Table View palette menu.
2. In the Select by Property dialog box, create a query with the properties you want to use for selecting objects.
3. Click **OK**.

## To Save a Query:

1. In the **Select by Property** dialog box, create a query.
2. Choose **Save Query/Expression** in the Select by Property palette menu.
3. In the Save query/expression dialog box, select the location where you want to save the file, type a file name, and click **Save**.

## To Load a Saved Query:

1. Choose **Load Query/Expression** in the Select by Property palette menu.
2. In the Load query/expression dialog box, select the location where you saved the query file, select the file, and click **Open**.

## Select by Property Options

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<b>Method</b>	Select either <b>Create new selection, Add to selection, Remove from selection, or Select from selection</b> , depending on the desired outcome.
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<b>Query field</b>	The query will appear in this field. Use a combination of the Operator buttons, Property list, Property Value list, and Function Category list to create a query.
<b>Operator buttons</b>	These are the most common operators. Click the button and the operator is added to the Query field.
<b>Property list</b>	Double-click a property to add it to the Query field. The Property Value list loads the related property values.
<b>Property Value list</b>	After double-clicking an item in the Property list, select a value in the Property Value list. Double-click the value to add it to the Query field.
<b>Function Category</b>	This list contains the possible operators. Double-click an operator to add it to the Query field. To filter the operators, select a category of operator from the Function Category drop-down list.

## Statistics by Property

Use the Statistics by Property command to obtain the total number of objects on the current layer or within the current selection. The information is displayed in a histogram as well.

### To View Statistics by Property:

Choose **Statistics by Property** from the Object Properties Table View palette menu.

### Statistics by Property Dialog Box

<b>Scope</b>	Select the scope of the view: <ul style="list-style-type: none"> <li>● <b>Layer:</b> Displays statistics for objects on the current layer.</li> <li>● <b>Selection:</b> Displays statistics for objects that are currently selected.</li> <li>● <b>Table View:</b></li> </ul>
<b>Property</b>	Select an object property.
<b>Expression</b>	Click this button to open the Expression Builder dialog box to create a query.
<b>Statistics</b>	This section indicates the statistics for the selected property.
<b>Show StdDev</b>	Select this checkbox to show the standard deviation. The standard deviation appears as a dotted line.
<b>Show Mean</b>	Select this checkbox to show the average value for the selected property within the scope.
<b>Columns</b>	Select the number of columns to display in the histogram.
<b>Palette menu</b>	You can select one of the following options: <ul style="list-style-type: none"> <li>● <b>Copy statistics (as text):</b> Copies the statistics as text to the clipboard. You can then paste it into your document.</li> <li>● <b>Copy selected statistics value (as text):</b> Copies the selected value as text to the clipboard. You can then paste it into your document.</li> <li>● <b>Place histogram (as Canvas objects):</b> Places the histogram in the upper left corner of the layout area.</li> </ul>

## Calculating Values

You can calculate values for a custom property in the Object Properties Table View palette.

## To Calculate Values:

1. In the Object Properties Table View palette, click a column heading and choose **Calculate Values**.
2. In the Expression Builder dialog box, create an expression by selecting properties, a function category, and .
3. Click **OK**.

## Expression Builder

The Expression Builder dialog box, accessible from the palettes such as the Statistics by Property palette and the Calculate Values command from the Object Properties Table View palette, is very similar to the Select by Property dialog box. It lets you create expressions, similar to queries.

## Expression Builder Dialog Box

<b>Expression field</b>	The query will appear in this field. Use a combination of the Operator buttons, Property list, Property Value list, and Function Category list to create a query.
<b>Operator buttons</b>	These are the most common operators. Click the button and the operator is added to the Query field.
<b>Property list</b>	Double-click a property to add it to the Query field. The Property Value list loads the related property values.
<b>Property Value list</b>	After double-clicking an item in the Property list, select a value in the Property Value list. Double-click the value to add it to the Query field.
<b>Function Category</b>	This list contains the possible operators. Double-click an operator to add it to the Query field. To filter the operators, select a category of operator from the Function Category drop-down list.

## Adding Properties

You can add custom text or numerical properties to objects while you are viewing them in the Object Properties Table View palette using the Add Property command.

## To Add Properties:

1. Choose **Add Property** from the Object Properties Table View palette menu.
2. In the Add Property Dialog Box, select the **Add Property** options.
3. Click **OK**.

## Add Property Dialog Box

<b>Name</b>	Enter a name in this field. In the Object Properties Table View palette, a new column is created with this Name.
<b>Type</b>	Select either <b>Text</b> or <b>Numeric</b> for the type of property you want to add.
<b>Fixed Value</b>	Select this radio button to enter a fixed value for the property.
<b>Compute values</b>	Select this radio button if you want to create an expression. Click the <b>Expression</b> button to create an expression. If you select Numeric, the result of the expression must be numeric as well.
<b>From clipboard</b>	Select this radio button to add a value from the clipboard.

## To Delete a Property:

1. Choose **Edit Properties** from the Object Properties Table View palette menu.
2. In the Object Properties palette, select the property you want to delete.
3. Choose **Delete Property** from the palette menu.

## Object Properties Table View Palette Menu Options

The following options are available in the palette menu.

<b>Save</b>	Opens the Save object properties dialog box so you can save the properties in a TXT file.
<b>Copy</b>	Copies the properties currently in the palette. Paste the data in a spreadsheet or text program.
<b>Select by Property</b>	Opens the Select by Property dialog box.
<b>Clear selection</b>	Deselects all selected objects.
<b>Select All</b>	Selects any object whose properties appear in the palette.
<b>Switch selection</b>	Reverses the current selection; i.e., any selected objects are deselected and vice-versa.
<b>Fit view to selection</b>	Causes Canvas to magnify and center the selected objects.
<b>Add property</b>	Opens the Add Property dialog box.
<b>Edit properties</b>	Opens the Object Properties palette.
<b>Statistics by property</b>	Opens the Statistics by property dialog box.
<b>Customize</b>	Opens the Select Properties to display dialog box in which you can select the properties that you want to display.

## Inks: Colors and Patterns

Inks in Canvas are solid colors or multicolored patterns that you apply to vector and text objects. You can apply inks to the interiors and outlines of vector objects and text.

This section describes how to create and apply inks, from basic solid color inks to custom multicolored inks. It also explains how to define inks.

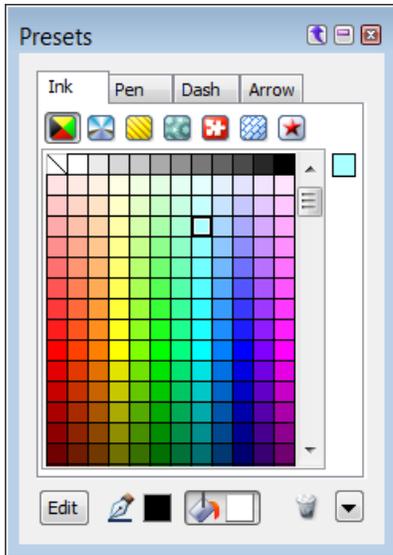
## Presets Palette

Use the Presets palette to apply inks, load inks, and delete inks.

## To Open the Presets Palette:

Do one of the following:

- Click one of the ink or stroke icons in the Toolbox, then drag the palette away from the Toolbox to float it.
- Choose **Window | Palettes | Presets**.



 To color the pen outline of an unselected object, **Shift + drag** a color from the Presets palette to the object.

## Presets Palette

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### Ink types

Select the type of ink you want to apply.

-  **Color:** Inks using solid colors.
-  **Gradient:** Inks with smooth blends between two or more colors.
-  **Hatches:** Inks with line patterns. Hatch inks can incorporate other pen and fill inks.
-  **Texture:** Inks with patterns of raster images. Texture inks can include other inks as backgrounds.
-  **Symbol:** Inks with patterns of vector objects, image objects, or text objects. Symbol inks can include any other ink as a background.
-  **Pattern:** Inks that are 72 dpi bitmap representations with a fixed size of 8 x 8 pixels.
-  **Favorites:** Drag inks here to add them to your favorites.

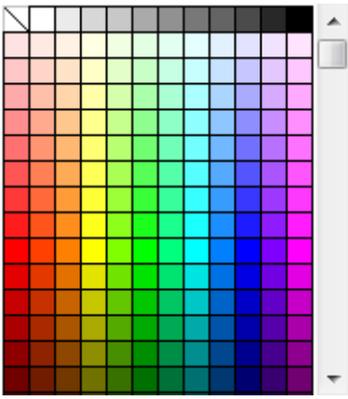
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### Preset inks

Select an ink in the grid. Use the scroll bars if all the preset inks aren't visible.

 Indicates no ink color

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<b>Edit</b>	Click to modify selected ink
<b>Pen ink</b>	Click to select pen inks for object outlines.
	
<b>Fill ink</b>	Click to select fill inks for the insides of objects.
	
<b>Trash can</b>	Drag inks here to delete them from the preset inks.
	
<b>Palette menu</b>	Click to access the Palette menu.
	
<b>Recently used inks</b>	Select a recently used ink from the column of inks on the right of the palette.

---

## Loading, Appending, Saving, and Clearing Inks

The Presets palette menu, located at the bottom-right corner of the palette, contains all the commands for you to load, append, save, or clear inks.

-  Commands correspond to the name of the current ink type.
- **Load:** Loads a stored ink palette to replace the current palette. Save the current palette if necessary.
  - **Append:** Adds inks from a palette file to the inks on the current tab.
  - **Save:** Saves the current ink palette as a palette file. Saved ink palettes can be shared with other Canvas users.
  - **Clear:** Removes the inks (except “no ink”) from the current ink palette. For color inks, Canvas restores black and white (CMYK) inks after clearing all the inks.

When you add or delete inks in the palette, the changes are recorded in a Canvas Settings file, not in the Canvas document, so the palette contents remain the same the next time you use Canvas.

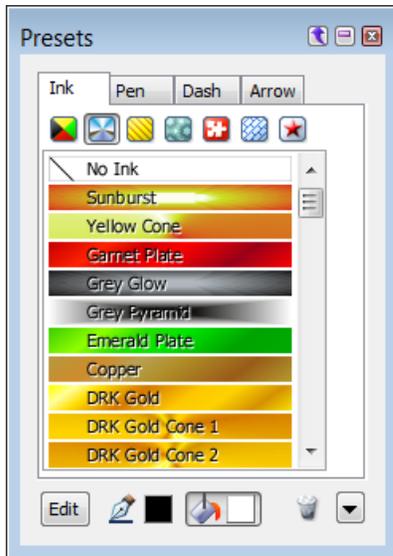
-  Canvas won't load or append inks that don't correspond to the current ink type.

## Identifying Inks

You can display color names that identify the inks that are stored in the Presets palette. This function affects all ink types in the palette. If an ink was not given a name, no name will appear.

You can also differentiate between RGB, CMYK, and spot colors when working with color inks by showing color icons.

If the color ink type is selected, the inks will indicate RGB, CMYK, or grayscale percentages. For gradient, hatch, symbol, pattern, and texture inks, a name is displayed.



### To Display Ink Names:

Open the **Inks** palette menu and choose **Display Color Names**.

### To Hide the Ink Names:

Open the **Inks** palette menu and deselect **Display Color Names**.

### To Identify Inks with Color Icons:

Color icons help you identify RGB, CMYK, and spot colors when working with the color inks.

 Selecting **Show Color Icons** only affects the appearance of the color inks in the Presets palette. The other inks are not affected.

### To Display Color Icons:

Select the color ink icon and open the palette menu. Choose **Show Color Icons**.

### To Hide the Color Icons:

Choose **Hide Color Icons** in the menu.

 RGB color

 CMYK color

 Spot color

The color inks can contain inks defined with RGB, CMYK, grayscale, and spot colors.

- The symbol for RGB color inks has tiny red and blue triangles and a green square. The symbol appears at the upper-left of RGB color cells.
- The symbol for spot color inks is a white triangle. The symbol appears at the lower-right of spot color cells. If the **Show Color Names** option is activated, no symbol appears for the spot color.
- No symbol appears on CMYK or Grayscale ink cells.

 When working with color inks, if the Ink tab contains only CMYK colors, no symbols appear when you choose **Show Color Icons**.

## Arranging Ink Cells

### To Rearrange Ink Cells in the Presets Palette:

Drag a cell within the palette and drop it where you want to place it.

### To Move Contiguous Ink Cells to a New Location:

Click the first ink cell and then **Shift+click** another cell. Canvas highlights all cells between the colors you click.

### To Select Non-Contiguous Cells:

**Ctrl+click** the cells you want to select. Drag the selected cells to a new location in the palette.

## Applying Preset Inks

### To Apply Inks to Existing Objects:

Select the objects and then choose pen and fill inks.

### To Change the Inks That Canvas Applies to New Vector and Text Objects:

Deselect all objects, then choose pen and fill inks. The ink icons in the toolbox show the current inks.

### To Remove an Ink from the Palette:

Drag the ink cell to the trash can.

Since pen inks are applied to the strokes of objects, the appearance of an object's pen ink is affected by the shape of the object's stroke. (See "How Inks Affect Strokes" on page 176.)

## Attributes Palette

Use the Attributes palette and its various ink managers to create your own inks. Each ink type has its own manager. Flip open the managers to create inks, adjust inks in objects, and change the Presets palette's inks.

### To Open the Attributes Palette:

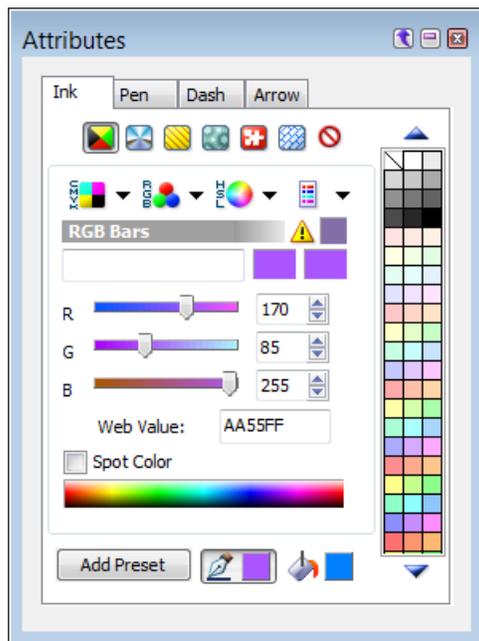
Do one of the following:

- In the Presets palette, click the **Edit** button.
- Choose **Window | Palettes | Attributes**.

## Ink Managers

Six icons are located at the top of the Inks managers, which you click to access the available ink types and their respective managers: color, gradient, hatch, texture, symbol, and pattern. The circular icon with a diagonal line represents “no ink”.

 Each ink type has its own manager so you create custom inks and add them to the Presets palette.



 If you select color as the ink type, you can access the RGB, CMYK, HSL, and Pantone color systems.

## Using the Ink Managers

Every ink manager shows a preview of the current ink. The preview changes as you modify the ink. If an object is selected, the ink is applied immediately. You can also drag the ink from the preview box to deselected objects.

### To Edit an Object’s Ink:

Click the **Pen Ink** icon or **Fill Ink** icon. Then select an object; its ink becomes the current ink in the manager. Modify the ink.

### To Make a New Ink:

Use the appropriate manager to customize the current ink.

Type a name in the text box to name it.

### To Add an Ink to the Presets Palette:

Click the **Add Preset** button.

### To Make an Ink the Current Ink:

Deselect any objects and click the **Pen Ink** icon or **Fill Ink** icon. Then select an ink in any of the managers.

## To Apply an Ink Fill to a Deselected Object:

Drag the color from the preview box to the object.

## To Apply an Ink Outline to a Deselected Object:

**Shift + drag** the color from the preview box to the object.

## Creating Color Inks

The Color Manager gives you the ability to maintain and manage color inks by providing access to RGB, CMYK, HSL, and Pantone models. A Color Spectrum Strip is also available for quick color pickup of any color supported by Canvas.

## Color Manager Controls

The Color Manager's controls depend on the selected color system and model. Some controls are common among the different color models.

<b>Current ink</b>	Shows the current ink.
<b>Last-applied ink</b>	Shows the last applied ink.
<b>Bars</b>	Use the sliders, or enter values in the text boxes, to specify color values. RGB values go from 0 to 255. CMYK values go from 0--- to 100%. HSL values go from 0 to 360° (hue) and 0 to 100% (saturation and lightness).
<b>Spot Color</b>	Select to set up a spot color. Type a color name in the text box. Spot colors print on separate plates when you make color separations.
<b>Tint Color</b>	Select the color to apply to the current color.
<b>Tint value</b>	Enter the percentage of tint to be applied.
<b>Swatchbook</b>	Shows colors made from 0-100% mixtures of two CMYK colors. To select a color, click in the swatchbook; the color values appear in the text boxes.  Select the two colors for the swatchbook. To add a third or fourth color, enter percentages in the C M Y K text boxes.
<b>Color wheel</b>	Click in the wheel or drag the selector to pick a color, or enter values in the HSL text boxes.
<b>Lightness</b>	Drag the slider or enter a number in the L text box to set the lightness for the entire color wheel.
<b>Gamut warning</b>	When the current color can't be printed with CMYK inks, a warning symbol and color box appear. Click the color box to replace the current color with the closest color that is within the CMYK gamut.  Gamut warnings appear only in RGB and HSL systems.
<b>PANTONE</b>	You can use commercial reference system colors for process and spot colors. Choose PANTONE in the pop-up menu in the Color manager. (See "PANTONE" on page 157.)  The PANTONE System includes hundreds of spot colors designed to be printed with special inks. You should select the correct color group for the paper stock on which the colors will be printed; e.g., the PANTONE CVC colors are calibrated for printing on coated paper stock. The PANTONE Pro-Sim colors are not spot colors. These colors are designed to be printed with standard process inks.

## Color Systems

Use the drop-down menus to access to the various color controls. This will allow you to select a color matching system and select colors that are needed for commercial printing.

### To Access the Color System Controls:

In the Attributes palette, click on a color system icon.



### To Define Colors in Canvas:

Use CMYK, RGB, and Grayscale color systems.

Colors displayed on a monitor can only approximate the appearance of printed colors. Be sure to discuss color reproduction with your commercial printer and obtain accurate proofs for color projects.

#### CMYK

The CMYK color system is used in four-color process printing. Define colors as mixtures of Cyan (C), Magenta (M), Yellow (Y), and Black (K) printing inks; e.g., to create green, mix cyan and yellow.

The CMYK system is appropriate for illustrations that will be separated for commercial printing.

#### RGB

The RGB color system is used in computer monitors. Define colors as mixtures of Red (R), Green (G), and Blue (B) light; e.g., to create purple, mix red and blue.

The RGB system is appropriate for graphics displayed on a monitor, such as presentations and Web pages.



Avoid RGB colors in documents intended for commercial printing. Canvas will convert RGB colors to CMYK colors if you output color separations.

#### Grayscale

The Grayscale model lets you define shades of gray. Grayscale colors are neutral when used with RGB or CMYK colors. In RGB Color images, grayscale colors are equal amounts of red, green, and blue. In image channels, Grayscale colors are pure gray. In vector objects, text, or CMYK Color images, Grayscale colors are percentages of black. In color separations, Grayscale colors appear as percentages of black.

#### HSL

The HSL models let you define RGB colors using Hue (H), Saturation (S), and Lightness (L) values. This way of defining colors is familiar to artists. HSL models let you adjust saturation and lightness, without changing a basic hue, such as red or green.

#### PANTONE

When you choose a PANTONE reference system color set, you can search for and select colors by name.

<b>Color name</b>	The selected color's name. Names of reference colors can't be changed.
<b>Color system</b>	Choose the reference system you want to use in the pop-up menu.
<b>Color list</b>	Click a color in the list to select it. Use the scroll bar to scroll the list.
<b>Current color preview</b>	Shows the current color.
<b>Page</b>	The page number of colors shown in the color list. Type a number to go to the page.
<b>Find</b>	Click to select a color by name. In the Find dialog box, type the color name or number and click <b>OK</b> . Canvas selects the color (if found) in the color list.
<b>Tint Value</b>	Not available for process colors. Enter a screen percentage to apply to the selected color. Use 100% for solid color and lower values for screens of the solid color.
<b>Spot Color option</b>	Available with the Pro-Sim and Process systems, this option lets you specify colors to use as spot colors in separations.

## Specifying Tints

Specify a tint color and amount in the CMYK or RGB system. Tinting with white screens the original color. The screen percentage is 100 minus the tint value; e.g., 80% white tint results in 20% of the original color.

For other tint colors, Canvas multiplies the tint values by the difference between the original and tint color values, and then adds the result to the original color values.



After creating a new ink, make sure you click the **Add Preset** button on the Attributes palette.

## To Create New Color Inks:

1. Choose a color system and model from the drop-down menu. (See "Color Systems" on page 157.)
2. Use the Color manager controls to change the ink's color values.
3. Click the left preview box to restore the original ink.
  - **To name the ink:** Type the name in the text box.
  - **To define it as a spot color:** Select the Spot Color box.
  - **To apply the ink to non-selected objects:** Drag it from the preview box to the objects.
  - **To add the ink to the Presets palette:** Click the **Add Preset** button on the Attributes palette. The new ink is added to the appropriate ink type; i.e., if you create a Pattern ink, the new ink is added to the Pattern type.

## Creating Blends of Color Inks

Select two color cells and create a blend of colors to add to the color inks tab of the Presets palette.

## To Blend Colors:

1. Select the **Ink** tab of the Presets palette.
2. Select color as the Ink type.

3. Click the ink cell that is to start the blend, then **Ctrl**-click the cell to end the blend.
4. Open the palette menu and choose **Blend**.
5. In the dialog box, enter the number of steps you want in the blend and then click **OK**. Canvas creates the blend and adds the new cells to the color inks at the end.

## The Color Editor

In Canvas, dialog boxes and palettes that let you choose colors have a color icon that opens a pop-up color palette. On the color palette there is a color editor icon so you can access the Color Editor dialog box to create a custom color.

### To Open the Color Editor:

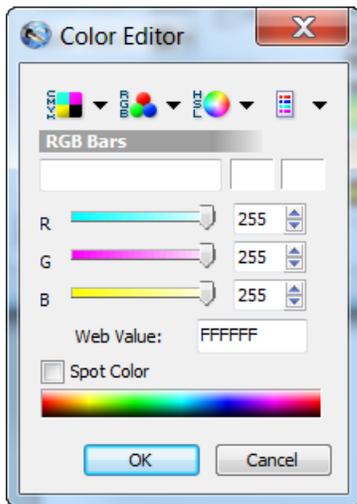
1. Click the **Color** icon to see the color palette. 
2. Click the **Color Editor** icon to open the Color Editor dialog box. 

The color icon appears in the following dialog boxes and palettes:

<b>Attributes (Ink)</b>	Color manager (CMYK Tints & RGB Tints only) Gradient manager Hatch manager (pen color pop-up only)
<b>Attributes (Pen)</b>	Neon manager Parallel manager
<b>Layers</b>	Layer Options dialog box
<b>Color calibration</b>	Gamut Warning dialog box
<b>Image editing</b>	Duotone Options dialog box New Channel dialog box Channel Options dialog box Create Image dialog box
<b>Effects</b>	Extrude palette

Click the Color icon to open a palette that has the color inks that are currently available in the Presets palette. Click the **Custom** icon to open the Color Editor dialog box.

## Color Editor Dialog Box



### To Create a Custom Color with the Color Editor Dialog Box:

1. Open the **Color Editor** dialog box. This dialog box is almost identical to the Color manager.



If you plan to export a document to another application in EPS format and make spot color separations, be sure the spot color names match exactly in both applications. Any variation will cause problems.

2. To use a different color model, click on the **Color Model** button and choose an option in the menu. Depending on the chosen option, the Color Editor shows a different set of controls. (See "Color Manager Controls" on page 156.)
3. Use the color controls to create a custom color.
4. To specify that you want the color you define to be a spot color, make sure you enter a name in the text box. Then select **Spot Color**.
5. When you have the color you want, click **OK**. The color appears in the Color icon.

## Working with Gradient Inks

A gradient is a gradual blending of colors. A gradient ink can blend two or more colors in a variety of styles. Like other inks, gradient inks can be applied as fill inks or pen inks to vector and text objects.

The appearance of a gradient ink depends on several factors. Gradients appear smooth on monitors that display millions of colors, but can appear coarse and dithered on monitors that display only 256 colors. The more extreme the difference in colors, the coarser a gradient can appear. When a gradient has large color transitions, it appears smoother in an object that is large enough to show all the transitions.

## Applying Gradient Inks

Canvas gives you the option of applying gradients directly from the Presets palette or using the Vector Gradient tool. When a gradient ink is applied via the Presets palette, the gradient effect is centered within the object. If you want non-centered effects, use the Vector Gradient tool.

## To Apply Gradient Inks from the Presets Palette:

Select the **Pen**  or **Fill ink**  icon on the Presets palette.

- If object is selected, click on the gradient ink cell. 
- If object is not selected, click on the gradient ink cell  and drag the ink to the object.

See "Applying Preset Inks" on page 154 for complete steps about applying inks.

## Gradient Styles

Style	Appearance and edit controls	Edit box
<b>Radial</b>	Colors sweep in a circle around the center. To move the center point, drag the open dot. To set the starting angle, drag the solid dot or enter the angle (0 to 360°) in the text box.	 
<b>Directional</b>	Linear gradient in which colors blend in the direction you specify. To set the gradient orientation, drag the solid dot, or enter an angle from 0 to 360° in the text box.	 
<b>Shape</b>	Gradient conforms to basic object shapes. To move the gradient center, drag the rectangle. To resize the center area that contains the end color, drag the solid handle and resize the rectangle.	 
<b>Rectangular</b>	Rectangular-shaped gradient. To move the gradient center, drag the rectangle. To resize the center area that contains the end color, drag the solid handle and resize the rectangle.	 
<b>Elliptical</b>	Elliptical-shaped gradient. To move the gradient center, drag the oval. To resize the center area that contains the end color, drag the solid dot and resize the oval.	 

## Vector Gradient Tool

The Vector Gradient tool applies the gradient ink that was used last or that has been defined as the default ink. The ink is applied either as a fill or pen ink according to the icon selected in the Presets palette.

There are two factors that affect the appearance of the object after using the Vector Gradient tool:

- Style of the gradient ink
- Manner of dragging the Vector Gradient tool

When using this tool, you're not limited to dragging directly inside the object. Drag inside or outside selected objects to achieve different effects; e.g., if you're applying a directional gradient, "stretch" the gradient by dragging across the object, starting and finishing outside the object. This technique places the start and end colors farther apart than if you drag a shorter distance within the object only.

 If the object already contains a gradient ink, the gradient ink will enter Edit mode when you click the object with the **Vector Gradient** tool.

## To Apply Gradients with the Vector Gradient Tool:

1. Select the **Vector Gradient** tool. 
2. If no objects are selected, choose an object.



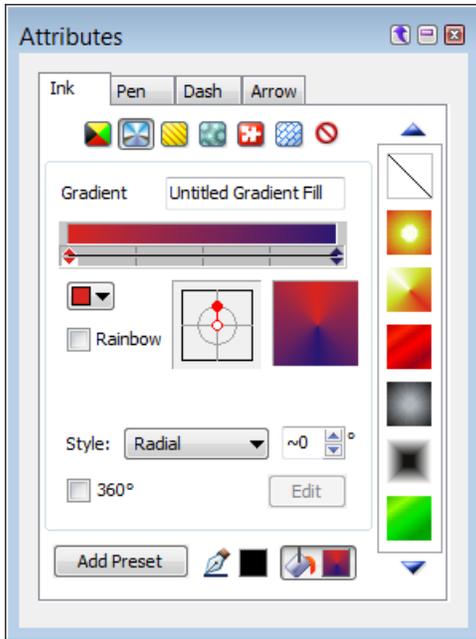
If using the tool on a single object, the object does not have to be selected before using the tool. For multiple objects, select all the objects before selecting the Vector Gradient tool. The gradient flows across the selected objects as if they were one object.

3. Drag in the object to position the gradient. As you drag, a vector indicates the gradient position. The gradient appears on the selected objects.

Vector gradient styles	Description
<b>Radial</b>	A line that sets the center and angle of the gradient. The place where you begin to drag is the center point of the gradient. The vector extends from and rotates around the center point. The angle of the line establishes the angle of the gradient. The length of the line does not effect the gradient.
<b>Directional</b>	A line that sets the angle and length of the gradient. The place where you begin to drag has the start color of the gradient. The vector line extends from and rotates around the start point as you drag away from it. The angle of the line establishes the angle. The place where you stop dragging sets the end color of the gradient.
<b>Shape</b>	A rectangle that sets the size and location of the end color of the gradient. The rectangle contains the end color. Drag diagonally from one corner of the rectangle to another. The rectangle expands or contracts as you drag away from or toward the starting point. When you finish dragging, the gradient conforms to the object's shape.
<b>Rectangular</b>	A rectangle that sets the size and shape of the gradient. The rectangle contains the end color of the gradient. Drag diagonally from one corner of the rectangle to another. The rectangle expands or contracts as you drag away from or toward the starting point.
<b>Elliptical</b>	An ellipse that sets the size and shape of the gradient. The ellipse contains the end color of the gradient. Drag diagonally from one corner of the ellipse's bounding box to another. The ellipse expands or contracts as you drag away from or toward the starting point.

## Creating Gradient Inks

Use the Gradient manager to create gradient inks and then add them to the Presets palette.



## To Create a Gradient Ink:

1. Select the **Pen**  or **Fill ink**  icon on the Presets palette.
2. Click the **Edit** button to open the Attributes palette.
3. Click the **Gradient** icon. 
4. Adjust the gradient options.
5. Click **Add Preset** to add the new gradient ink to the Presets palette.

## Gradient Options

### Color bar

The gradient color sequence appears in the bar. Each pointer below the bar represents a color and shows the color's relative position in the gradient. One pointer is always selected, and the pointer's color appears in the color icon.

The pointers at the ends of the bar represent the gradient start and end colors. These pointers can't be moved or deleted, but you can change their colors. Click a pointer to select it; a selected pointer appears highlighted.

To add an intermediate color, double-click in the bar and a new pointer appears that represents the color of the gradient where you clicked. You can drag intermediate pointers to adjust the color spacing, or delete a color, by dragging its pointer to either end of the bar.

Choose a color for a selected pointer from the pop-up palette. To select a custom color, use "The Color Editor" on page 159.

### Style

Choose a gradient style from the menu.

### Edit box

Drag handles in the box to adjust settings such as gradient shape, angle and center.

### Gradient preview

Shows the current gradient. The preview changes as you edit the gradient.

<b>Angle</b>	For Radial and Directional styles, enter the angle of the gradient axis, or drag the solid dot in the edit box to set the angle.
<b>360°</b>	When Radial is selected, select this checkbox to blend the gradient through 360° around the center. If this option isn't selected, the blend runs through 180° in both directions, creating a mirror image around the blend axis.  In addition, when 360° is selected, a button appears. Click the button to reverse the gradient direction.
<b>Rainbow</b>	Select this to add all hues on the color wheel between the colors you set in the gradient. Click a direction button to select a clockwise or counterclockwise path around the HSL color wheel, which sets the sequence of hues.
<b>Edit</b>	Click this button to place a gradient into Edit mode.
<b>Add Preset</b>	Click this button to add a new ink to the Presets palette.

## Modifying Gradients

There are various ways of modifying gradient inks.

### To Edit a Gradient Ink with the Gradient Manager:

1. Open the **Gradient** manager in the Attributes palette.
2. Select the object. The Gradient manager indicates the ink settings when the object is selected.
3. Click the **Edit** button in the Gradient manager to put the gradient ink into Edit mode. You can now change the direction or position of the gradient. Modifications appear in the object automatically.

### To Edit a Gradient Ink via a Context Menu:

1. Select an object that contains either a gradient fill or pen ink.
2. Right-click to open the menu.
3. Select either **Edit Frame Gradient** or **Edit Fill Gradient** depending on the use of the gradient ink. The gradient ink should enter Edit mode.
4. Make the desired changes in position and direction.
5. Right-click on the individual color nodes to open a color palette. The Gradient manager is also available for color changes.
6. Press **Esc** to exit Edit mode.

### To Edit a Gradient Ink with the Vector Gradient Tool:

1. Select an object that contains either a gradient fill or pen ink.
2. Click on the **Vector Gradient** tool. The gradient ink is in Edit mode.
3. Make the desired changes in position and direction.
4. Right-click on the individual color nodes to open a color palette. You can click on the **Custom** button to open the Color Editor. (See "Color Editor Dialog Box" on page 160.) The Gradient manager is also available for color changes.
5. Press **Esc** to exit Edit mode.

## Working with Hatch Inks

Hatch inks are patterns made of groups of lines. These inks are often used in illustrations to distinguish different materials in cross sections, machine diagrams, and maps.

Specify the number of line groups as well as the angle, offset, and origin of each group. Assign a pen size, color, and dash to each line group, and select a fill ink for the background of the hatch ink.

## Hatch Inks

Click on the **Hatch** icon  to open the hatch inks in the Presets palette. Use this palette to apply preset hatch inks to objects or store customized hatch inks that you create in the Hatch manager.

 If you create a new ink in the Hatch manager, click the **Add Preset** button to add it to the Presets palette.

## To Apply Hatch Inks:

Make sure you select either the **Pen**  or **Fill Ink**  icon on the Presets palette.

- If object is selected, click on the **Hatch Ink** cell .
- If object is not selected, click on the **Hatch Ink** cell  and drag the ink to the object.

See "Applying Preset Inks" on page 154 for complete steps about applying inks.

## Creating Hatch Inks

Use the Hatch manager in the Attributes palette to create hatch inks and then add them to the Presets palette.

## Hatch Manager

When you create a hatch ink, set the number of line groups and other attributes.

<b>Preview</b>	Click a line group in the preview box to select it. Tiny handles appear where the selected group meets the edge.
<b>Pen color</b>	Choose a color for the selected line group in the palette. Choose a preset color or define a custom color. See "The Color Editor" on page 159.
<b>Fill ink</b>	Select an ink to use as the hatch ink background.
<b>Dash</b>	Choose a dash pattern for the selected line group.
<b>Layer</b>	If the hatch ink has different layers, choose the layer from this menu.
<b>New</b>	Click this button to add a new layer. When a new layer is active, you can add another line group.
<b>Clear</b>	Click this button to delete the current layer.

## Modifying Hatch Inks

When you want to change an existing hatch ink, select the **Hatch Ink** and click the **Edit** button to open the Hatch manager in the Attributes palette.

## To Change the Background Color:

1. Click on the **Fill** icon  to open the pop-up Presets palette. This palette is identical to the Presets palette. Use any ink type that is currently available on the palette.
2. Select the new background ink.
3. Click the **Add Preset** button to add the modified ink to the hatch inks in the Presets palette.

## To Add or Modify a Line Group:

If you want to create a hatch ink that has crossing lines, the hatch ink will have to contain different layers. If the hatch ink contains only one line group, then one layer is sufficient.

- **To add a new line group:** Click the **New** button in the Hatch manager and then define the line.
- **To adjust a line group:** Select a layer from the Layer menu in the Hatch manager (if the hatch ink contains more than one line group), and then make any modifications in the Hatch manager. You can even add more line groups by adding layers.

A line group is selected when selection handles appear where the line group touches the Preview window. Once selected, the following line group attributes can be modified:

Attribute	Description
<b>Line group color</b>	Click on the <b>Pen</b> icon to open the pop-up color palette. Choose a preset color or define a custom color in the Color Editor dialog box. (See "Color Editor Dialog Box" on page 160.)
<b>Pen</b>	The width in points (1/72 inch) of each line in the selected line group. If a hatch ink overlaps the edges of an object, change the Pen value to make the width of the hatch lines smaller than the pen size of the object's stroke.
<b>Angle</b>	The angle in degrees of the selected line group relative to vertical. When you add a line group, the angle is initially 0 degrees.
<b>Offset</b>	The horizontal starting position of the line group, measured in points. Increasing this value moves the line group to the right.
<b>Origin</b>	The vertical starting position of the line group, measured in points from the top of the preview box. Increasing this value moves the line group downward.

## Working with Symbol Inks

In the Presets palette, click the Symbol Ink icon to open the Symbol Inks. You can use the preset Symbol Inks or create your own preset symbol inks from text, image, and vector objects. Use any of the Canvas drawing tools to create objects for a symbol ink.

## To Apply Symbol Inks:

1. In the **Presets** palette, select the **Pen**  or **Fill Ink**  icon.
2. Click the **Symbol** ink icon. 
3. Select a color.

4. Do one of the following:

- If an object is selected, click on the **Symbol Ink** cell. 
- If an object is not selected, click on the **Symbol Ink** cell  and drag the ink to the object.

See "Applying Preset Inks" on page 154 for complete steps about applying inks.

## To Create Symbol Inks:

1. In your Canvas document, create an object to use in your new Symbol Ink.



If you want to use more than one object or object type in the Symbol Ink, you must group the objects.

2. Deselect any objects in your Canvas document by pressing **Esc**.

3. In the Presets palette, click the **Symbol Ink** icon , and then the **Edit** button to open the Symbol manager.

4. Click the **Create** button.

5. Click the object in your document that you want to use in the Symbol Ink.

6. Adjust the settings for the Symbol Ink in the Symbol manager.

7. Click the **Add Preset** button to add the new symbol ink to the preset inks.

## Symbol Manager

Adjust the position and spacing of the objects and apply a backdrop ink.

<b>Symbol</b>	Enter a name for the new Symbol Ink.
<b>Preview</b>	Displays the Symbol Ink. Any changes you make are reflected in the Preview area.
<b>Preview zoom</b>	Click the left button to reduce or the right button to enlarge the preview.
<b>X/Y Spacing</b>	Sets the distance between objects as a percentage of the size of the original objects; e.g., a spacing value of 100% makes the distance between the objects equal to their size. X is horizontal distance and Y is vertical distance.
<b>Stagger</b>	A positive value offsets the even-numbered rows of objects horizontally relative to the odd-numbered rows. To keep all objects aligned, set Stagger to zero. To align alternating rows of objects, enter a higher Stagger value. To create a pattern in which the objects are spread out and objects in alternating rows are aligned with the gaps in the rows above, set the X Spacing and Stagger values to 100 percent.
<b>Scaling</b>	The percentage of the original object size for the Symbol Ink. A value of 100% maintains the original object size. To reduce the objects, enter a value smaller than 100%. To enlarge the objects, enter a value greater than 100%.
<b>Rotation</b>	The amount of rotation, specified in degrees, that Canvas applies to the original objects.
<b>Backdrop</b>	Select an ink in the pop-up menu. Select any ink, including a color, gradient, hatch, texture, and Symbol Ink. The ink you select appears behind the objects in the Symbol Ink.
<b>Align To Object</b>	Turn on this option to keep a Symbol Ink in the same position if the object moves. Turn it off to let overlapping objects share a Symbol Ink without a gap.

## Working with Texture Inks

A Texture Ink consists of image objects. Canvas assembles a Texture Ink by repeating the image in rows and columns, as if it were a grid of rectangular cells. You can control the spacing and staggering of the images in a Texture Ink.

If you enter spacing values that spread the images apart, you create gaps between the image cells. You can also include a background ink that will show through the gaps.

Click on the **Texture Ink** icon to open the Texture Inks. Use the Presets palette to apply preset texture inks to objects or store customized texture inks that you create in the Texture manager. (See "Texture Manager" on page 168)

### To Apply Texture Inks:

Make sure you select either the **Pen**  or **Fill Ink**  icon on the Presets palette.

- If object is selected, click on the **Texture Ink** cell. 
- If object is not selected, click on the **Texture Ink** cell  and drag the ink to the object.

See "Applying Preset Inks" on page 154 for complete steps about applying inks.

### To Create Texture Inks:

You can create a Texture Ink from any image object.

 If you create a new ink in the Symbol manager, click the **Add Preset** button to add it to the Presets palette.

1. Before creating a Texture Ink, deselect any objects by pressing **Esc**.
2. Open the Texture manager and click the **Create** button. A prompt appears when you move the cursor into the layout area.
3. Click on the image object that you will use in the Texture Ink.

 If you want to use text or vector objects in a texture ink, you must render them first. Also, if you want to use more than one image object, you must select them all or group them and then render them to create one image object.

4. Adjust the settings for the Texture Ink in the Texture manager. (See "Spacing" on page 168)
5. Click the **Add Preset** button to add it to the Texture Inks in the Presets palette.

## Texture Manager

When creating a Texture Ink, you can set the spacing and offset of image cells and choose a background ink.

<b>Preview</b>	Displays the Texture Ink. Any changes you make are reflected in the Preview area.
<b>Backdrop</b>	Choose a background ink in the pop-up palette. The ink appears only in gaps between the image cells.
<b>Preview zoom</b>	Click the <b>left</b> button to reduce or the <b>right</b> button to enlarge the preview.
<b>Spacing</b>	Enter the amount of space between cells as a percentage of the cell size. X Spacing is the space between columns; Y Spacing is the space between the rows of cells.
<b>Stagger</b>	Select the <b>horizontal</b> button (left) or <b>vertical</b> button (right) and enter the <b>distance</b> (as a percentage of cell

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size) to shift the cells.

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**Align To Object**

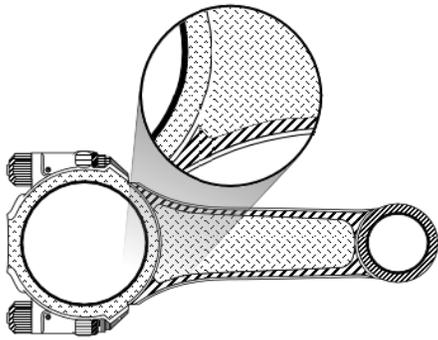
Turn on this option to keep a texture in the same position if the object moves. Turn it off to let overlapping objects share a texture without a gap.

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## Working with Pattern Inks

In technical illustrations, pattern inks are often used to provide a visual representation of the different components of a project. Canvas gives you the ability to create your own personal set of patterns.

All pattern inks are bicolor 72 dpi bitmap representations with a fixed size of 8 x 8 pixels. Apply pattern inks to text, vector, and image objects.



The use of patterns in a technical illustration

Click on the **Pattern Ink** icon to open the pattern inks. Use the Presets to apply preset pattern inks to objects or store customized pattern inks that you create in the Pattern manager. (See "Pattern Manager" on page 169.)

### To Apply Pattern Inks:

Make sure you select either the **Pen**   or **Fill Ink**   icon on the Presets palette.

 If you create a new ink in the Pattern manager, click the **Add Preset** button to add it to the Presets palette.

- If object is selected, click on the **Pattern Ink** cell. 
- If object is not selected, click on the **Pattern Ink** cell  and drag the ink to the object.

See "Applying Preset Inks" on page 154 for complete steps on applying inks.

### To Create or Pattern Inks:

All pattern inks are created or modified in the Pattern manager. You can access the Pattern manager via the Attributes palette when you click on the **Pattern Ink** icon.

## Pattern Manager

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**Pencil tool**

Color the cells within the Edit box.

**Move tool**

Click within the Edit box to see other parts of the pattern.

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<b>Switch Background and Foreground colors</b>	Click this button to switch the colors.
<b>Edit box</b>	Create and modify patterns in this box. Changes appear in the Preview box.
<b>Preview box</b>	Patterns are displayed in this box while being modified.
<b>Background and Foreground color</b>	Choose foreground and background colors from a color palette or create a custom color. (See "Color Editor Dialog Box" on page 160.)
<b>Grayscale slider</b>	Increase grayscale to use more foreground or decrease it to use more background.
<b>Add Preset</b>	Click this button to add the new ink to the Presets palette.

## Creating Favorite Inks

Favorite inks allows you to easily build and retain a set of often used inks, whether they are color, gradient, texture, hatch, pattern, or symbol. You can create and save multiple palettes. Also, you can share saved palettes with friends and co-workers for project consistency.

### To Add an Ink to the Favorites Inks:

1. If you wish to place an ink in the Favorite Inks (e.g., a Pattern ink), click on the **Pattern Ink** icon to view the Pattern inks palette.
2. Select the Pattern ink and then drag the ink cell to the **Favorite Inks** icon. The Pattern ink is now available on the Favorite inks palette. Once placed inside the Favorite Inks, you can then use this ink at any time. Once you have placed several inks in the Favorite inks, you should save the palette for future use.

### To Delete a Favorite Ink:

Select the ink cell and drag it to the Trash Can.

### To Save a Favorite Inks Palette:

1. Click on the **Favorite Inks** icon.
2. Open the Presets palette menu.
3. Select **Save Favorites Inks**.
4. Enter a file name and click **Save**.

## Loading, Appending, and Clearing Inks

You can load, and append inks for one ink type at a time in the Presets palette.

- **Load:** Loads inks from a palette file, replacing the ink type currently open in the Presets palette. In the dialog box, select a file and click **Open**.
- **Append:** Adds inks from a palette file to the ink type currently open in the Presets palette. In the dialog box, select a palette file and click **Open**.
- **Clear:** Removes the inks (except "no ink") from the current palette.

## Applying Inks to Objects

You can apply inks to two areas of vector objects and text:



**Pen ink**

Ink used for the strokes of objects and text characters.



**Fill ink**

Ink used for the interior of objects and text characters.

Objects can have different inks for a fill ink and a pen ink; e.g., a gradient fill and a pattern pen ink. In addition, you can apply inks to the backgrounds, outlines, and frame of text objects.

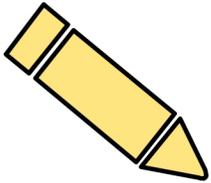


If an object has neither a pen ink nor a fill ink, the object is not visible.

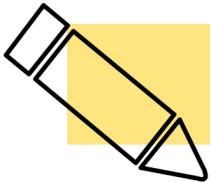
Remember that you don't apply inks to paint objects. Instead, use painting tools to paint in a paint object and give it color. (See "Painting and Image Editing" on page 284.)

### Applying Fill Inks to Open and Closed Paths

Whether a vector object path is open or closed affects the appearance of its fill ink. In a closed path, the ink completely fills the object's interior; in an open path, the ink fills inside the path as if the path were closed by a straight segment between its endpoints.



This object has a pen ink and a fill ink; both are basic color inks.



This object has a pen ink but no fill ink, so the rectangle in back is visible through it.



This path has a pen ink and no fill ink.



This path has a pen ink and a fill ink.



To quickly change the ink **fill** of an unselected object, drag a color tile from the Presets palette to the object. To change the ink **outline** of an unselected object, press the **Shift** key and drag a color tile from the Presets palette to the object.

### Default Inks

The default inks are the inks that Canvas applies to new vector objects you draw. The pen ink and fill ink icons in the Toolbox display the default inks. When you apply inks to existing objects, the current default inks do not change.

### To Change the Default Pen or Fill Ink:

1. Make sure no objects are selected in the document.
2. Click the **Pen Ink** or **Fill Ink** icon in the Toolbox.

3. Select an ink.

### To Set the Inks Used in the Selected Object as the Default Inks:

1. Select the object with the pen and fill inks you want to use as the defaults.
2. Click the **Set Default Attributes** icon found in the top icons toolbar.



### Using the Color Dropper

Use the Color Dropper tool to select and apply colors. The Color Dropper tool is located in the Toolbox. The Color Dropper can select colors from any object in a document.

Colors you select with the Color Dropper become the current foreground or background colors for painting and the current pen inks and fill inks for new vector objects.



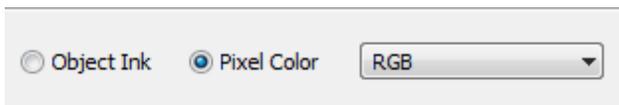
This tool helps keep color consistency within a document and is useful for photo retouching. It can also help identify colors from documents imported into Canvas.

### To Use the Color Dropper Tool:

1. Click the **Color Dropper** in the Toolbox. 
2. Click on the color in your document that you want to select.

### Color Dropper Modes

Select the **Color Dropper** tool to view the settings in the Properties bar. Select a mode. The mode remains set unless you change the setting in the Properties bar.



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#### Object Ink

In vector or text objects, the Color Dropper selects object inks —color, gradient, symbol, texture, pattern, and hatch inks. It does not take into account transfer modes or transparency effects.

If you click an object's stroke, you select its pen ink; if you click an object's interior, you select its fill ink. In the case of paint objects, which do not have inks, the color you click is selected as a color ink.

For example, if you click a gradient ink with the Color Dropper, it selects the gradient ink.



In paint objects, paint colors are selected, not colors you see due to transfer modes, channel masks, or other transparency effects; i.e., if you click a black area that is 50% transparent, you select solid black.

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**Pixel Color**

This mode works the same whether you click a paint, vector, or text object. The color of the pixel is selected. The Color manager in the Attributes palette indicates the color values.



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**Color Mode**

Select RGB, CMYK, or Grayscale. The Color Dropper converts any color you click to the selected color system. For best performance, choose the color system that matches the colors you are sampling; however, you may want to select a color system that differs from an image. You might do this to see the effect of a color conversion, such as RGB to CMYK for printing, for example.

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**To Select an Ink (Object Ink Mode):**

1. Click the **Color Dropper** tool in the Toolbox.
2. Select **Object Ink** for the mode in the Properties bar.
3. Do one of the following:
  - **To set the fill ink:** Click an ink to make it the current fill ink. You can click a pen ink or a fill ink; in either case, the ink you click becomes the current fill ink.
  - **To set the pen ink:** Right-click an ink to make it the current pen ink. You can click a pen ink or a fill ink; in either case, the ink you click becomes the current pen ink.

**To Select a Color (Pixel Color Mode):**

1. Click the **Color Dropper** tool in the Toolbox.
2. Select **Pixel Color** for the mode in the Properties bar.
3. Click a color to set the current fill ink color (vector and text objects) and background color (image objects). Right-click to set the current pen ink color (vector and text objects) and foreground color (image objects).

**To Select Colors Outside Canvas:**

With the Color Dropper selected, drag from the Canvas window to anywhere on screen. As long as you keep the mouse button pressed, the Color Dropper remains active; the ink icons in the Toolbox show you the colors the tool can select. Release the mouse button to select the color under the tip of the pointer.

- 💡 While editing an image with a painting tool, you can quickly switch to the **Color Dropper**. Press **Alt** to display the Color Dropper, and click to select a foreground color for painting.

The color you select becomes the current fill ink and background color. You can't use this method to select the pen color.

## To Apply Colors to Vector and Text Objects:

Do one or more of the following:

- To apply the current fill ink to the object, **Ctrl-click** a vector or text object.
- To apply the current pen ink to the object, **Ctrl-right-click** a vector or text object.



The Color Dropper mode does not affect the application of colors. You cannot apply colors to paint objects using the Color Dropper tool.

## Getting Inks from Vector and Text Objects

Canvas lets you add inks from vector objects and text objects to the Presets palette. If a text object contains both a text fill and a background fill, only the text fill will be added to the palette. You can also add the inks of multiple selected objects; however, the inks from group objects and macro objects cannot be added.

## To Add Inks from Objects to the Presets Palette:

1. Select either the pen ink or fill ink icon on the Presets palette, depending on the type of ink you want to add.
2. Drag the vector or text object onto the preset inks area of the appropriate ink type in the Presets palette; i.e., gradient inks only apply to the gradient ink type, hatch inks to the hatch ink type, etc.

## Replacing Ink Attributes

Canvas has a quick way to change all instances of a selected ink in a single document: the Replace Ink Attributes command. This function can be applied to pen and fill inks for both vector and text objects.

## To Replace an Ink:

1. Choose **Edit | Replace Ink Attributes**.
2. In the Replace Ink dialog box, select the ink that you want to replace.
3. From the Replace With menu, select a replacement ink.  
All the objects in the document using the selected ink are updated with the new ink.
4. Click **OK** to close the dialog box.

## Using the Attribute Dropper

You can use the Attribute Dropper to quickly copy the attributes of an object, such as stroke, pen, and fill ink, text style, transform, dimensions, transparency, and/or SpriteEffects, and paste them onto another object.

## To Copy the Attributes of an Object:

1. From the Miscellaneous section of the Toolbox, (click the Knife tool), select the **Attributes Dropper**. 
2. Click the object with the attributes you want to copy.
3. In the Properties bar, select the checkboxes of the attributes you want pasted, and deselect those you don't want pasted.

## To Paste Attributes onto Another Object:

1. Click the target object(s).
2. To change the source object and continue copying and pasting, press the **Select New Source Object** button in the Properties bar.

 When working with grouped objects, the Attribute Dropper will not copy the pen or fill inks. It will only copy and paste the grouped object's dimensions, transparency, and SpriteEffects.

 To copy the attributes of a grouped object, select the **Attribute Dropper**, then select **Group object as a whole** in the Properties bar. Then click the target object to paste the group's attributes.

 To paste the attributes of an object onto a grouped object, select the object and the **Attribute Dropper**. Then select **Group object as a whole** in the Properties bar. Click the target group to paste the object's attributes.

## Strokes: Outline Effects

When you create objects with drawing tools, Canvas applies a stroke to the objects according to attributes set in the Presets palette. A stroke is a line centered on the path of vector objects and the outlines of type. You can shape a stroke with standard and calligraphic pens, parallel lines, even neon tubes. You can also add dashes and arrowheads to strokes.

This section explains basic stroke settings, how to customize strokes, and how to apply strokes to objects and text.

### Types of Strokes

Canvas has five basic types of pen strokes, as well as arrows and dashes, which you can use to create unlimited variations.

#### Pen Strokes

The following types of strokes appear on Pen tab of the Presets palette.

	<b>Standard:</b> Strokes made of a single line. You can specify the width, type of line joins, and shape of end caps.	
	<b>Calligraphic:</b> Strokes that have a weight, width, and angle.	
	<b>Neon:</b> Strokes shaded like glowing tubes. You can specify width, colors, tube shape, line joins, and end caps.	
	<b>Parallel:</b> Strokes made of two or more lines. You can specify width, dashes, colors, and spacing.	
	<b>Symbol:</b> Strokes made of symbols.	

## Arrows and Dashes

Arrows and dashes can be applied to strokes for additional effects. Click on the **Dash** tab or **Arrow** tab in the Presets palette to apply these to a stroke.

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**Arrow:** You can use preset or custom arrowheads that appear at the endpoints of each path segment.



**Dash:** You can apply preset or custom dash sequences that divide solid strokes into solid and blank segments.

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## How Inks Affect Strokes

You define the colors that apply to strokes separately from the pen stroke settings. The pen ink (specified in the Presets palette) and the pen stroke settings together produce the appearance of an object's outline. The pen ink is the color (or pattern) that "paints" the object's stroke. Therefore, the object must have a visible pen ink for the stroke to be visible. Conversely, the object must have a stroke for the pen ink to be visible.

Some inks can make strokes invisible. If the pen ink is set to "no ink," the stroke won't be visible. Also, if the pen ink is set to white or a color that matches the background, the stroke could disappear against the background.

## Current Stroke

The Strokes icon in the Toolbox shows a sample of the current stroke, the stroke that Canvas applies to new vector objects you create. For example, if the current pen stroke is 3 points wide, new objects you draw will have a 3-pt pen stroke. Canvas does not apply the current stroke to text. (See "Applying Strokes to Text" on page 176.)



### To Change the Current Stroke:

1. Make sure no objects are selected in the document.
2. Click the **Stroke** icon in the Toolbox.
3. Select a stroke.

### To Change the Stroke for a Selected Object:

1. Select an object.
2. Click the **Stroke** icon in the Toolbox.
3. Select a stroke.



When you first install Canvas, the current stroke defaults to a 1-pt pen stroke without dashes or arrowheads.

## Applying Strokes to Text

You can apply strokes to text the same as to vector objects, in most cases. For information about selecting text objects and text characters, see "Formatting Text" on page 406 and "Formatting Text with the Properties Bar" on page 408.

When you first type or import text into a document, Canvas applies a black 1-point pen stroke to the text, but does not assign a fill ink. You can apply pen, parallel, and neon strokes to text. You can also apply dashes to text that has a pen or neon stroke. If you select a text object, Canvas applies a stroke to all the text it contains. If you select specific characters within a text object, Canvas applies the stroke to those characters only.



Calligraphic pen stroke



Neon stroke

 The appearance of a parallel stroke applied to text might not appear as you expect, especially on characters with hollow centers (such as "O" and "P") and characters with tight corners or paths that meet or cross (including "G" and "X").

Removing a neon or parallel stroke from text (by choosing "no stroke") does not remove the stroke entirely. Instead, the stroke reverts to a black 1-pt pen stroke.

## Applying Preset Strokes

Using presets can help you save time and ensure graphic consistency.

## Using the Presets Palette

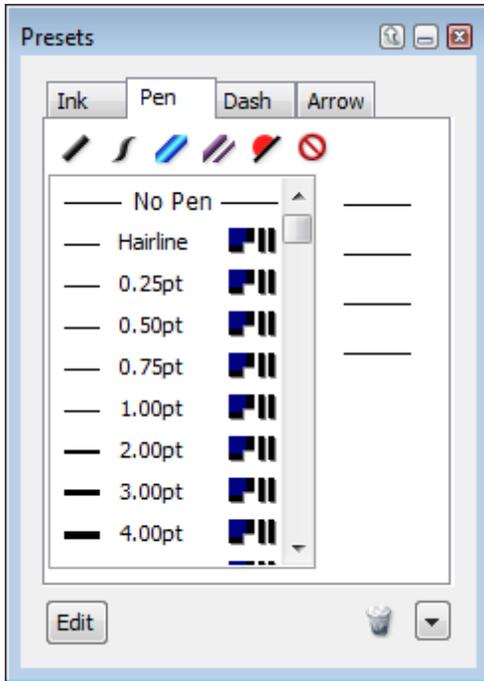
The Presets palette contains preset strokes and attributes that you can apply to objects and the current stroke. Use the Presets palette to apply strokes to objects and save strokes in files that you can later load into the palette.

### To Open the Presets Palette:

Do one of the following:

- Click the **Strokes** icon in the Toolbox. Drag the pop up palette away to see the full palette.
- Choose **Window | Palettes | Presets**.

A number of icons are located at the top of the Pen tab, which you click to access the available stroke types. The circular icon with a diagonal line represents "no stroke". For dashes and arrows, click on their respective tabs in the palette. See "Types of Strokes" on page 175.



## Deleting Strokes and Stroke Attributes

You can remove default and custom presets from the Presets palette. When you delete a preset, Canvas permanently removes it from the palette, unless you save it to disk and load it again. See "Saving and Loading Strokes Settings" on page 178.

### To Remove a Preset from the Presets Palette:

Select the stroke type or stroke attribute and drag it to the trash can icon. The trash can appears only when the Presets palette is floating or docked on the Docking bar.

### To Remove All Preset Strokes or Stroke Attributes:

1. Select the stroke type or stroke attribute in the Presets palette.
2. Open the palette menu and choose **Clear Palette Presets**.



If you delete all arrowheads from the palette, dimension objects will not have arrows.

## Saving and Loading Strokes Settings

You can save preset strokes, arrows, and dashes in files on disk, and load the presets into the Presets palette. You can use these strokes files to customize the Presets palette for particular projects or types of documents, and to exchange custom settings with other Canvas users.

Commands for saving and loading strokes files are in the Presets palette menu. The menu icon appears only when the Presets palette is separated from the Toolbox.

### To Save Strokes in a File:

Use the following procedure to save the presets from one stroke type or stroke attribute in the Presets palette to a file on disk.

1. Open the **Presets** palette.
2. Click the **Pen** tab and select the stroke type. Or click on the **Arrow** or **Dash** tab for a stroke attribute.
3. Open the palette menu and select **Save Presets**. The menu command will reflect the selected stroke type or stroke attribute.
4. In the dialog box, enter a name for the file, select a location on a disk, and click **Save**.

### To Load Strokes from a File:

Use the following procedure to load stroke types or stroke attributes that are stored in a file. When you load a file, you can either replace the strokes that are presently in the Presets palette or simply append the stroke types or stroke attributes to the current ones.

1. Open the **Presets** palette.
2. Click the **Pen** tab and select the stroke type. Or click on the **Arrow** or **Dash** tab for a stroke attribute.
3. Open the palette menu and select **Load Presets**. The menu command will reflect the selected stroke type or stroke attribute.
4. In the dialog box, navigate to the file and click **Open**.

### To Apply Preset Strokes to Objects:

Use the following general procedure to apply a preset stroke to one or more objects.

1. Select the objects for which you want to change strokes.
2. Click the **Strokes** icon in the Toolbox to open the Presets palette. The Pen tab will be selected automatically.
3. Select the stroke type.
4. Choose a stroke in the preset strokes list. If necessary, use the scroll bar or window resize button to view additional strokes. Canvas applies the stroke you choose to selected objects.

### To Make a Preset Stroke the Current Stroke:

Select a preset stroke as the current stroke to apply to new objects you create.

1. Deselect all objects in the current document. To deselect all objects, press **Esc** a few times.
2. Click the **Strokes** icon in the Toolbox to open the Presets palette. The Pen tab will be selected automatically.
3. Select the stroke type.
4. Choose a stroke in the preset strokes list. Use the scroll bar to view additional strokes. The Strokes icon in the Toolbox shows the current stroke.

## Using Standard Pen Strokes

The most common type of stroke is a standard pen stroke, a solid line of uniform width. This type of stroke is used for many situations, such as technical illustrations, flowcharts, callout lines, etc.

By default, the width of pen strokes is measured in points, (one point is 1/72 inch). Pen stroke widths from 1 to 16 points appear in the Pen tab of the Presets palette.

## To Change the Current Pen Stroke Width:

1. Deselect all objects.
2. Open the **Presets** palette and click on the **Pen** tab.
3. Select the standard stroke type.
4. Select the pen stroke width from the presets list.

## To Change the Pen Stroke Width of Specific Objects:

Select one or more objects, then select a new pen stroke from the presets list for standard strokes.

## To Change the Ink of a Pen Stroke:

The color of a pen stroke comes from the object's pen ink. The [pen ink](#) can be any of the available ink types; i.e., gradient, pattern, symbol, color, hatch, or texture.

1. Select one or more objects whose pen ink you want to change.
2. Click the **Pen Ink** icon in the Toolbox. The **Presets** palette pops open with the Ink tab selected. Drag this palette away from the Toolbox to keep the Presets palette open as you work.
3. Select an ink type on the Ink tab, such as color, gradient, hatch, symbol, pattern, or texture. (See "Inks: Colors and Patterns" on page 150.)

## 'Invisible' Inks

A pen ink is one or more colors that Canvas uses to apply color to pen strokes. The pen ink can be set to "no ink," or to a color that blends into the background, which renders a pen stroke invisible.

In some situations, you might want to set an object's pen ink to "no ink," rather than remove the object's stroke. This can be useful to temporarily hide the stroke without removing the dash, arrow, and other stroke settings, for example.

## To Set an Object's Pen Ink to "No Ink":

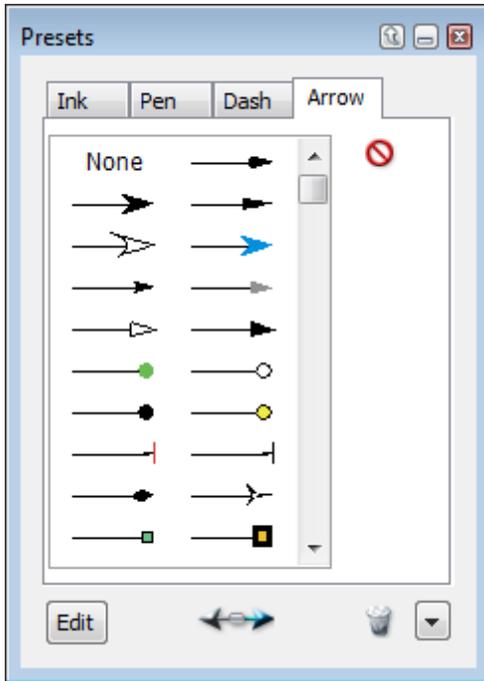
This procedure removes the pen ink and makes the stroke invisible.

1. Select the object and click the **Pen Ink** icon to open the Presets palette with the Ink tab selected.
2. Click on the **no ink** icon. 

## Adding Preset Arrows to Pen Strokes

You can add arrowheads to pen, parallel, and neon strokes. You can apply strokes with arrows to lines and open paths, such as those created with the Curve tool. Arrowheads can appear at one or both endpoints of a path.

You can also create custom arrowheads that you can add to the preset arrowheads. (See "Creating Custom Arrowheads" on page 193.)



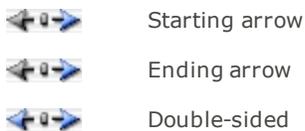
### To Add Arrows to Strokes:

Use the following procedure to apply arrows to objects or the current stroke:

1. Depending on how you want arrows to apply, do one of the following:
  - **To add an arrow to the current stroke:** Deselect all objects.
  - **To add arrows to specific objects' strokes:** Select the objects.
2. Click the **Arrow** icons in the Toolbox to open the popup Presets palette showing the different arrowheads available.

The Arrow icons in the Toolbox let you choose between starting, ending, and double-sided arrowheads.

- **To select a starting or ending arrowhead:** Click either side of the icon. The left or right arrow icon will be highlighted.
- **To select a double-sided arrowhead:** Click the round button in the middle. Both the left and right arrow icons are highlighted. The arrows in the scroll list preview the selected arrowhead.



### To Apply Different Arrowheads to Each End of a Stroke:

1. Select object to which you want to apply arrowheads.
2. Apply the first arrowhead by clicking on either the left or right **Arrow** icon in the Toolbox and selecting an arrowhead.
3. Then, **Shift**-click the other Arrow icon and select a different arrowhead. Now, both ends of the stroke should have different arrows.

## Adding Dashes to Strokes

You can add a variety of preset dash sequences to pen and neon strokes. You can apply a stroke with dashes to most objects, including lines, open and closed Bézier curves, polygons, rectangles, ovals, and stars.

Parallel line strokes can also include dashes. However, you select dashes for parallel lines when you customize the stroke in the Parallel stroke manager in the Attributes palette. (See "Customizing Parallel Line Strokes" on page 189.)

### To Add Dashes to Pen and Neon Strokes:

1. Depending on how you want dashes to apply, do one of the following:
  - **To apply dashes to the current stroke:** Deselect all objects.
  - **To apply dashes to an object that has a pen or neon stroke:** Select the object.
2. Click the **Strokes** icon in the Toolbox to open the Presets palette. Select the **Dash** tab.
3. Choose the dash sequence that you want in the list of presets.

## Removing Arrows, Dashes, and Strokes

You can remove a selected object's stroke, or set the current stroke to "no stroke," so you can create objects that have no stroke. An object that has no stroke has no visible outline. Objects drawn with the Line tool become invisible without a stroke; other objects are still visible if they have a visible fill ink.

You can also remove dashes and arrows from a stroke. Because arrows and dashes are attributes of strokes, you can remove them without removing the entire stroke.

Removing arrows, dashes, and strokes involves the same procedure as changing from one preset stroke to another.

### To Remove Arrows or Dashes:

You can use the following procedure to remove arrows from pen, parallel, and neon strokes, and to remove dashes from pen and neon strokes. For details about removing dashes from parallel strokes, see "Customizing Parallel Line Strokes" on page 189.

1. Depending on how you want to remove arrows or dashes, do one of the following:
  - **To remove stroke attributes from an object:** Select the object.
  - **To remove stroke attributes from the current stroke:** Deselect all objects.
2. Click the **Strokes** icon in the Toolbox to open the Presets palette. Choose the **Dash** or **Arrow** tab, depending on the attribute you want to remove.
3. Choose **no arrow** on the Arrow tab to remove arrows from a stroke. Choose **no dash** on the Dash tab to remove dashes.

### To Use "No Stroke" Settings:

Remove strokes entirely from objects, or use **no stroke** as the current setting for new objects.

1. Depending on how you want to remove strokes, do one of the following:
  - **To remove the stroke from an object:** Select the object.
  - **To make "no stroke" the current setting:** Deselect all objects.

2. Click the **Strokes** icon in the Toolbox and choose **no stroke** on the Pen tab.

## Applying Tapered Ends to Standard and Neon Strokes

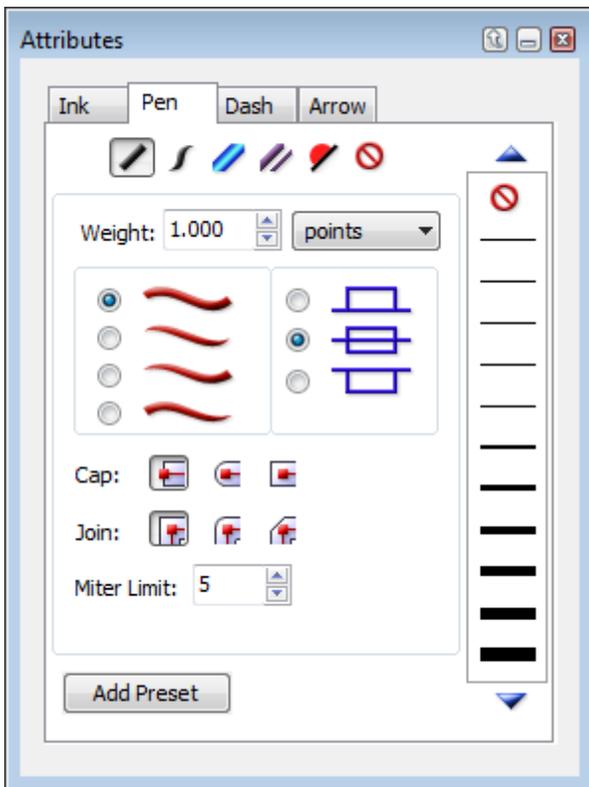
This option can be applied to standard pen strokes and neon strokes; however, it is best viewed when a pen setting is larger than 3.00 pt.



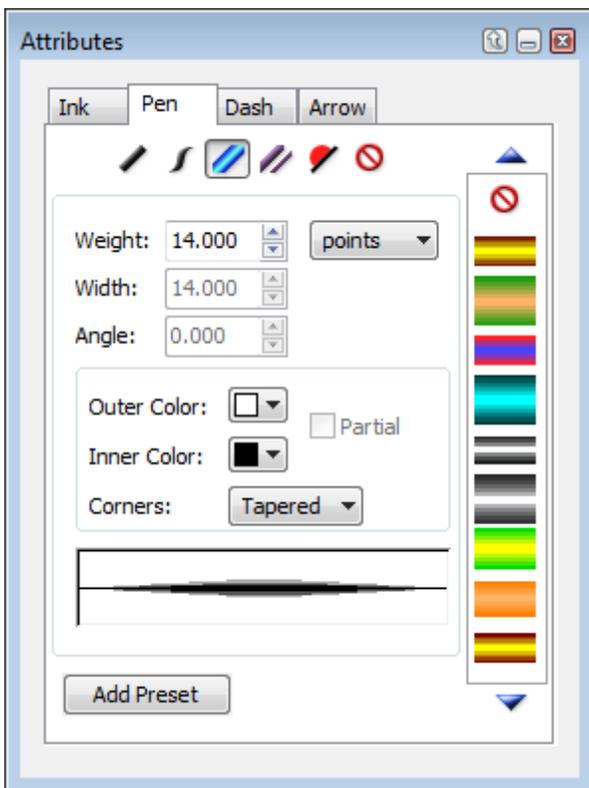
Neon stroke with tapered corners

### To Apply Tapered Ends to Strokes:

1. Depending on how you want to apply tapered ends, do one of the following:
  - **To add tapered ends to an object:** Select the object.
  - **To add tapered ends to the current stroke:** Deselect all objects.
2. Click on the **Strokes** icon in the Toolbox to open the Presets palette.
3. Click on the **Pen** tab and select either standard pen stroke or neon stroke.
4. Select a preset pen stroke and then click the **Edit** button to open the respective manager in the Attributes palette.



Use the Tapered End controls in the Standard Pen Stroke manager. Select from no taper, end-to-end taper, left taper, and right taper.



In the Neon Stroke manager, open the Corners menu and select Tapered. Both ends of the stroke will be tapered.

## Using Symbol Strokes

Canvas offers a number of preset symbol strokes which you can use as is, or customize. Or you can create your own custom symbol strokes using any of the symbols in the symbol library or using your own symbols. See "Customizing Strokes" on page 185.

### To Use a Symbol Stroke:

1. Click on the **Strokes** icon in the Toolbox to open the Presets palette.
2. Click on the **Pen** tab and click the symbol stroke icon.
3. Select a symbol stroke from the preset list.

## Customizing Strokes

You can customize strokes in the Attributes palette:

- Display the strokes settings of selected objects.
- Create custom pen, parallel, calligraphic, and neon strokes.
- Create custom arrowheads and dash sequences.
- Apply custom settings to objects or the current stroke.
- Store custom strokes as presets in the palette.

## Using the Attributes Palette

### To Open the Attributes Palette:

1. Do one of the following:
  - Click the **Stroke** icon in the Toolbox to open the Presets palette, then click the **Edit** button.
  - Choose **Window | Palettes | Attributes**.
2. Select the stroke type or stroke attribute that you want to define.

### To Use a Preset Stroke as the Basis for a Custom Setting:

1. In the Presets palette, select a stroke, then click the **Edit** button.
2. Select an object in your document.
3. In the Attributes palette, adjust the stroke settings.
4. If you want to save the custom settings as a preset, click the **Add Preset** button.

### To Add Custom Settings:

1. In the Attributes palette, specify the custom settings.
2. Click the **Add Preset** button.

The new stroke or stroke attribute is added to the appropriate stroke type or tab in the Presets palette.

## To Add Settings from an Object to the Palette:

1. Choose **Window | Palettes | Attributes**.

2. Select an object.

The respective stroke type manager or stroke attribute tab opens in the Attributes palette.

3. Click the **Add Preset** button.

When you end a Canvas session, the program stores the stroke type and attribute presets with the program. The same presets are available, whether you work with new documents, documents you created, or documents created by another Canvas user.

If you create a custom stroke and want to apply it to more than one object, and especially if you want to use it in a later work session, you should add the custom settings to the Presets palette.

## Customizing Standard and Calligraphic Strokes

If you want to create custom standard pen or calligraphic strokes, use the respective manager in the Attributes palette.

Standard pen strokes have a uniform weight, specified offset, and may have tapered ends. Calligraphic pen strokes have a separate width, weight, and angle setting. For both stroke types, you can define the line joins (bevel, miter, or round) and end caps (flat, round, or square).

For basic information about setting pen size, see "Using Standard Pen Strokes" on page 179.



You can choose another unit of measurement instead of points as the pen size unit using the unit menu in the Attributes palette.

## To Create a Standard Pen:

1. Click on the **Pen** tab of the Attributes palette.

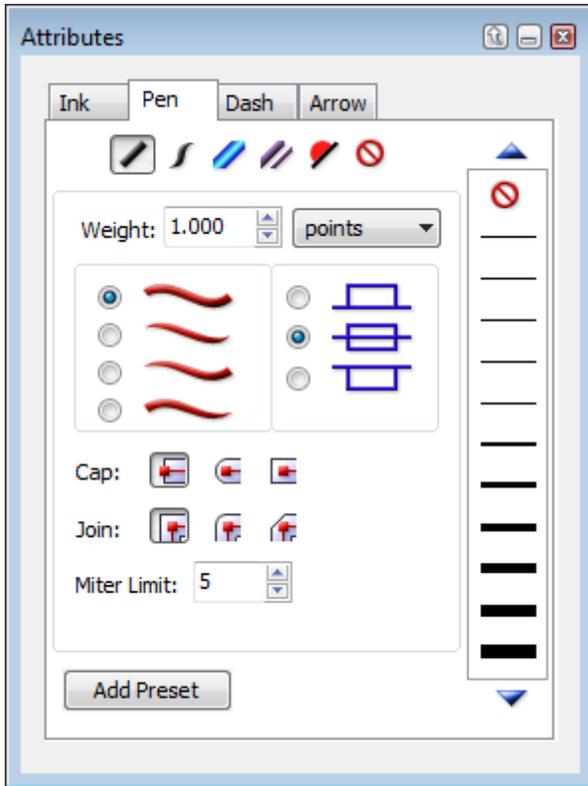
2. Select the standard pen stroke type to access its respective manager.

3. Use the standard stroke manager controls to define the new stroke.

4. Click the **Add Preset** button to add this new stroke to the Presets palette.

## Standard Pen Stroke Controls

Use these options to define standard strokes.



<b>Weight</b>	Enter the weight of the pen stroke. Strokes are normally defined in points but you can select another unit of measurement from the menu.
<b>Tapered End</b>	Select either no taper, end-to-end taper, left taper, or right taper.
<b>Offset</b>	Select above path, center of path, or below path.
<b>Cap</b>	Select an endcap: flat, round, or square.
<b>Join</b>	Select a line join style: miter, round, or bevel.
<b>Miter Limit</b>	This setting is measured in degrees. The miter limit indicates which corners are too tight to miter so Canvas will bevel them instead.

### To Create a Calligraphic Stroke:

1. Enter a value in the Weight field or drag the blue arrows in the edit box. The Weight refers to the thickness of the stroke.
2. Enter a value in the Width field or drag the red arrow in the edit box. The Width refers to the thinnest part of the stroke. The Width should differ from the Weight.
3. Enter a value (in degrees) in the **Angle** field. You can also adjust the angle by moving the blue arrows or red arrows in a circular motion. Typically, the angle is set to 45 degrees.
4. Select endcaps and line joins for the pen stroke. For an explanation of the various cap and join choices, see "Standard Pen Stroke Controls" on page 186.
5. Click **Add Preset** when you are completed.



Calligraphic pen stroke

## Choosing Line Joins and End Caps

For standard pen strokes and calligraphic strokes, you can specify the type of line joins and end caps. Line joins determine the appearance of two path segments that meet at a corner. End caps specify the shape of the endpoints of an open path.

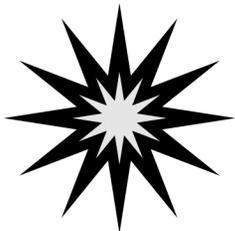
### Line Joins

Canvas has three types of line joins: miter, round, and bevel. For preset pen strokes, Canvas indicates the type of line join in the respective manager in the Attributes palette.

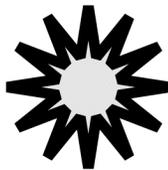
- **Miter:** Joins path segments with sharp corners that extend to a single point. When you choose miter joins, the Miter Limit field is enabled. Enter the miter limit in degrees (5, 10, 30, 60, or 90 degrees).

The miter limit setting tells Canvas which corners are too tight to miter; Canvas bevels these corners instead; i.e., if the miter limit is set to 10°, and two path segments join at an angle of 9°, Canvas bevels the corner rather than creating a miter join. The miter limit lets you prevent long, spiked corners that might result as a combination of a wide pen size and a small angle.

- **Round:** Smooths corners, so the joint is rounded instead of pointed or flat.
- **Bevel:** Squares off path segment corners, so that the joint appears flat rather than rounded or pointed.



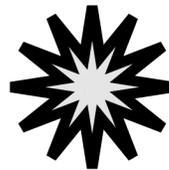
Miter join,  
miter limit = 10°



Bevel join



Round join



Miter join,  
miter limit = 20°

### End Caps

Canvas has three types of end caps. For preset pen strokes, Canvas indicates the type of end cap in the respective manager in the Attributes palette.

- **Flat:** The end of the stroke is flush and square with the end of an open path or dash. By default, end caps use this setting.
- **Round:** A semi-circular cap extends half the pen width beyond the endpoint of an open path or dash.
- **Square:** The stroke tip is square, similar to the Flat option, but extends half the line width beyond the endpoint, like the Round option.



Flush with endpoint



Rounded at endpoint

Square at endpoint

## Customizing Parallel Line Strokes

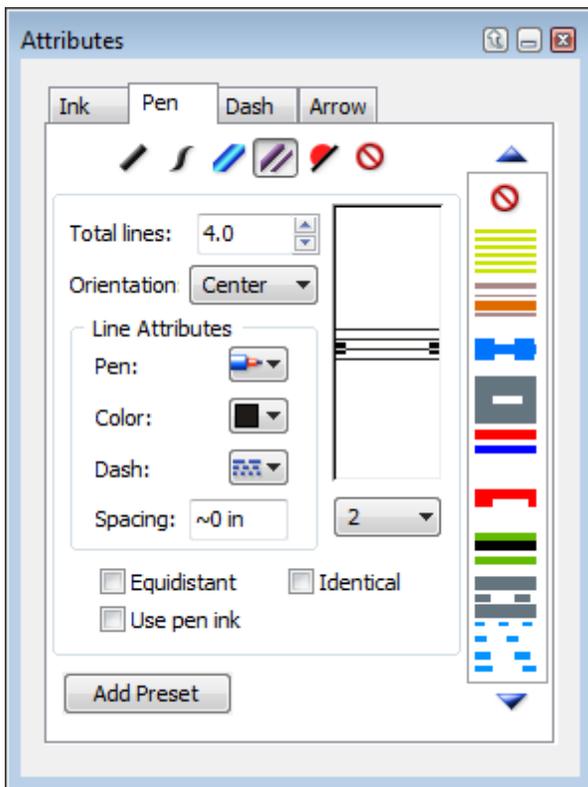
You can create custom parallel line strokes using the Parallel manager in the Attributes palette. Specify the number of lines, color, dash pattern, and pen size of each line, and line spacing.

### To Create Custom Parallel Line Strokes:

1. Open the Attributes palette, if necessary.
2. Click the **Pen** tab.
3. Select the Parallel line as the stroke type. The Parallel manager comes to the front.

### Parallel Manager

Use these controls to create parallel line pen strokes.



<b>Total lines</b>	Enter the number of parallel lines for the stroke. The minimum and maximum are 2 and 12, respectively.
<b>Orientation</b>	Specify the placement of parallel lines relative to the object's path. Choose <b>Center</b> , <b>Outside</b> , or <b>Inside</b> .
<b>Line Attributes</b>	Use these controls to define the appearance of the stroke.

- **Pen:** Select a pen width from the palette.
- **Color:** Select a color from the palette. You can also specify custom pen colors. (See "The Color Editor" on page 159.)
- **Dash:** Select a dash if you want the stroke to contain one.
- **Spacing:** Enter a number to specify the distance between the selected line and the one below it. For Line #1, this setting defines the space between this line and Line #2. Choose a number from the menu to edit the line. Line #1 corresponds to the bottom line. You can also click a line in the edit box to select it. The selected line is indicated with handles.

<b>Equidistant</b>	Turn on this option to apply the spacing setting for the selected line to all lines.
<b>Use pen ink</b>	Turn on this option to apply a color to the spaces between the parallel lines.
<b>Identical</b>	Turn on this option to give all parallel lines the same appearance (pen width, color, and dash).
<b>Add Preset</b>	Click the <b>Add Preset</b> button when you have finished defining the stroke.

## Customizing Neon Strokes

You can create custom neon strokes using the Neon manager in the Attributes palette. Specify the width, colors, line joins, and end caps as well as create uniform and calligraphic neon strokes.

 To make the stroke appear round, experiment with lighter inside colors and darker outside colors.

### To Create Custom Neon Strokes:

1. Open the Attributes palette and select the **Pen** tab.
2. Select the Neon pen stroke type.
3. Use the Neon manager to define either a standard pen stroke or calligraphic stroke.
4. Select colors for the neon stroke from the pop-up palettes. Canvas blends these colors to create the neon effect.

Big

Neon stroke with square corners

Big

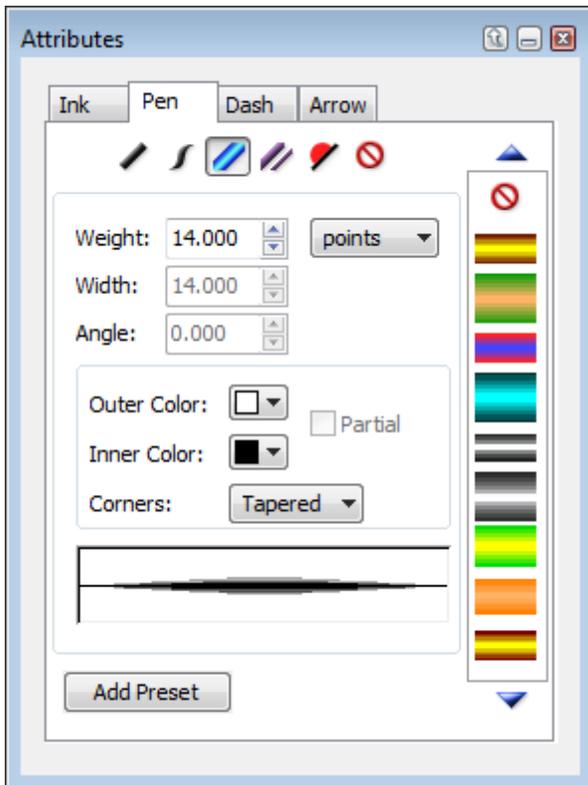
Neon stroke with tapered corners

# Big

Neon stroke with round corners

## Neon Manager

Use these options to define a Neon pen stroke.

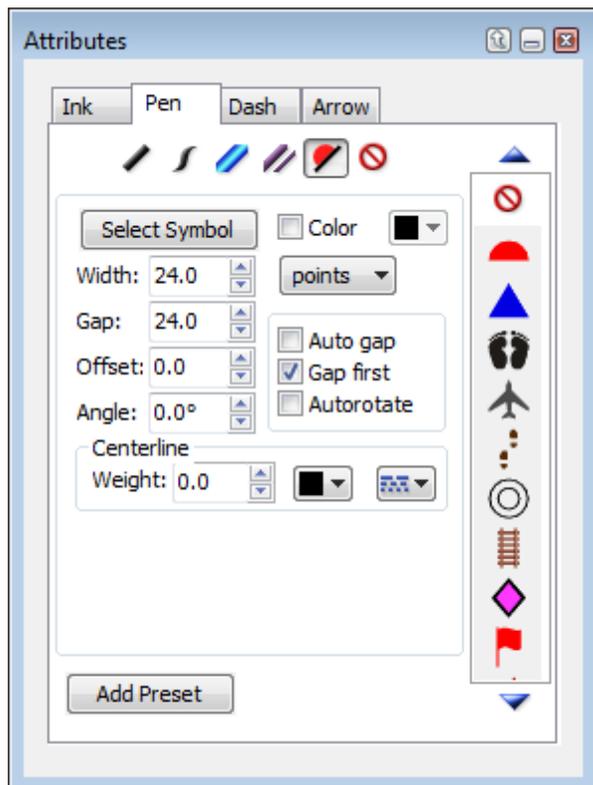


<b>Weight</b>	Enter a value in the Weight field. The Weight refers to the thickness of the stroke.
<b>Width</b>	Enter a value in the Width field. The Width refers to the thinnest part of the stroke. For a standard stroke, the Width is equal to the Weight. For a calligraphic effect, the Width should differ from the Weight.
<b>Angle</b>	Enter a value (in degrees) in the <b>Angle</b> field. For a calligraphic stroke, the angle is typically set to 45°.
<b>Outer Color</b>	Select the color for the exterior portion of the neon stroke.
<b>Partial</b>	Select this checkbox to give the stroke a gradient effect.
<b>Inner Color</b>	Select the color for the interior portion of the neon stroke.
<b>Corners</b>	Define the appearance of the stroke's corners: Round, Square, or Tapered.
<b>Add Preset</b>	Click the <b>Add Preset</b> button when you have finished defining the stroke.

## Customizing Symbol Strokes

You can create custom symbol strokes using the Symbol manager in the Attributes palette. Select a symbol, and specify the width, color, gap, offset, angle and centerline of the stroke.

### Symbol Manager



<b>Select Symbol</b>	Click the Select Symbol button to select a different symbol. By default, Canvas symbol files are located in: C:\Program Files\ACD Systems\Canvas <version number>\Symbols
<b>Color</b>	Select the color for the symbol stroke. This overrides the color of the symbol.
<b>Width</b>	Enter the width of the thinnest part of the stroke.
<b>Gap</b>	Enter the gap between symbols.
<b>Offset</b>	Enter the offset between symbols and the centerline. This can be a positive or negative value.   If you use a thick centerline, enter at least half the weight of the centerline as the amount of offset so that the symbols appear at the edge of the centerline.
<b>Angle</b>	Enter a value (in degrees) in the <b>Angle</b> field. "0" means no rotation, "180" means the symbol is flipped on both axes.
<b>Auto gap</b>	Select this checkbox if you want Canvas to automatically adjust the gap between the last and first symbols. For

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example, if you draw a circle object and you select this checkbox, Canvas adjusts the gaps between symbols, so that the gaps are consistent for all symbols on the path.

---

<b>Gap first</b>	Select this checkbox if you want to start the stroke with a gap.
<b>Autorotate</b>	Select this checkbox to automatically rotate the symbols based on the direction of the stroke.
<b>Centerline</b>	The centerline is the line that the symbols follow. If you want a line to appear, enter the weight, color and dash of the line. If you want the line to disappear, set the weight to 0 or the color to None.
<b>Add Preset</b>	Click the <b>Add Preset</b> button when you have finished defining the stroke.

---

## Creating Custom Arrowheads

You can create arrowheads using the Arrow manager in the Attributes palette. These arrowheads can be used as starting, ending, or double-sided arrowheads. Canvas has several preset arrowhead styles that you can use and edit, or you can use any vector, paint, or text object as an arrowhead.

### To Modify Classic Arrowheads:

1. Click on the **Arrow** tab of the [Attributes palette](#).
2. Select the arrow type (triangle, pie, diamond, circle, line, or custom) so you can access its respective manager.
3. Use the arrow manager controls to define the new arrow. You can even modify the arrow within the edit box.
4. Click the **Add Preset** button to add this new arrow to the Presets palette.

### Classic Arrow Options

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<b>Witness</b>	Adds an adjustable witness line to the end of the arrowhead.
<b>Hollow</b>	Removes the fill ink from the arrowhead.
<b>Angle</b>	Specifies the angle of the arrowhead. A larger angle creates a wider arrowhead.
<b>Full</b>	Draws the complete arrowhead.
<b>Magnification</b>	Use the Magnification controls to zoom in and out.
<b>Top</b>	Draws the top of the arrowhead.
<b>Bottom</b>	Draws the bottom of the arrowhead.
<b>Mimic Pen</b>	<b>Size:</b> Applies the pen width to the arrow. <b>Color:</b> Applies the pen ink to the arrow.
<b>Place on Segments</b>	Select this checkbox to add arrows to each segment of an object.
<b>Arrow controls</b>	Use these controls to select a right arrow, left arrow, or double-sided arrow. Click in the center for the double-sided option.

---



Some options in the Arrow manager do not apply to all types of arrowheads.

## Samples of Classic Arrowheads



## To Create a Custom Arrowhead:

1. In the [Attributes palette](#), on the Arrow tab, select **Custom** from the Type menu.
2. Select the Arrow settings you want to use.
3. Click the **Add Preset** button to add the custom arrow to the Presets palette.

## Custom Arrow Options

<b>Type</b>	Select Custom from the menu.
<b>Flip</b>	Click the buttons to flip the arrow horizontally and vertically.
<b>Create</b>	Click the Create button and the object appears in the edit box.
<b>Edit box</b>	Modify the arrowhead in this box. Drag the handles to resize the arrowhead. A horizontal line indicates the horizontal axis of the path's endpoint. A vertical line indicates the vertical axis of the path's endpoint.
<b>Mimic Pen</b>	<b>Size:</b> Applies the pen width to the arrow. <b>Color:</b> Applies the pen ink to the arrow.
<b>Place on Segments</b>	Select this checkbox to add arrows to each segment of an object.
<b>Arrow controls</b>	Use these controls to select a right arrow, left arrow, or double-sided arrow. Click in the center for the double-sided option.

## Customizing Dashes

Dashes are composed of alternating solid and blank segments. Using the Dash manager, you can customize the length of up to 13 segments to create new, complex dash sequences.



You can design dashes interactively using the edit window. To precisely set the length of each dash segment, you can also specify an exact length. The ruler in the Dash manager displays inches; however, you can enter dash lengths in any unit of measurement available.

Dashes in the Presets palette always appear as 1-point wide, black and white segments. However, when you apply these dashes to an object's pen, the black segments adopt the color and size of the pen, and the white segments become transparent.

## To Create a Dash:

1. Click on the **Dash** tab of the Attributes palette.
2. Use the dash manager controls to define the new dash.

3. Click the **Add Preset** button to the new dash to the Presets palette.

## Creating Custom Dashes

Use these options to create a custom dash for your stroke.

---

<b>Dash/Gap controls</b>	Enter the size of the dashes and gaps in points.
<b>Proportional</b>	Tells Canvas to scale the length of the segments to match the pen width of the object. The length of segments in the Dash manager are based on a 1-point line. Therefore, if the pen width is 6 points and Proportional is selected, Canvas multiplies the lengths by six.
<b>Preview box</b>	Displays a sample of the dash.
<b>Magnification</b>	Use the Magnification controls to zoom in and out. To zoom out, click the left button. To zoom in, click the right button. Select the <b>Magnification</b> checkbox to enable the Magnification area.
<b>Edit box</b>	Select a segment, indicated by a double-arrow.  Edit the segment by dragging the double-arrow.  The dash/gap length is indicated in the Length box.
<b>Length</b>	Enter a precise length for the selected segment in points.
<b>Segment</b>	Shows the selected segment's number (its order in the sequence) and its color. "Black" indicates it will use the pen ink. "White" means the segment will be transparent (a gap).

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# Chapter 4: Drawing And Vector Effects

## Drawing Basics

This section describes how to draw and resize vector objects. The Canvas drawing tools let you easily draw basic shapes — lines, rectangles, ovals, and arcs — and create precise squares, circles, and straight lines. Specialized tools let you draw grids, stars, polygons, concentric circles, cubes, and spirals.

### Drawing Basic Shapes

In Canvas you can quickly draw simple shapes using the following drawing tools:

-  Line
-  Rectangle
-  Oval

Each of these tools belongs to a tool palette containing additional similar drawing tools.

#### To Open a Tool Palette:

Click a tool in the Toolbox.

#### To Float a Tool Palette:

Press **Shift** and drag the tool palette away from the Toolbox.

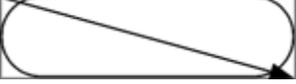
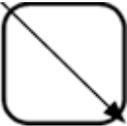
### Drawing Lines, Rectangles, Squares, Ovals, Circles, and Arcs

#### To Draw Simple Lines, Rectangles, Squares, Ovals, Circles, and Arcs:

1. Click one of the drawing tools in the Toolbox.
2. Click in your document and drag to draw the shape, (or press **Shift** and drag).

#### Drawing Shapes

<b>Lines</b>		Drag from the starting point to the end point in any direction	
<b>Lines at a 45° angle (horizontal, vertical, or diagonal)</b>		Press <b>Shift</b> and drag from the starting point to the end point	
<b>Rectangles</b>		Drag from one corner to the opposite corner	

<b>Squares</b>		Press <b>Shift</b> and drag from one corner to the opposite corner	
<b>Rounded rectangles</b>		Drag from one corner to the opposite corner	
<b>Rounded squares</b>		Press <b>Shift</b> and drag from one corner to the opposite corner	
<b>Ovals</b>		Drag from one corner to the opposite corner of the oval's bounding box	
<b>Circles</b>		Press <b>Shift</b> and drag from one corner to the opposite corner of the circle's bounding box	
<b>Arcs</b>		Drag from one corner to the opposite corner of the arc's bounding box	
<b>Circle-segment arcs</b>		Press <b>Shift</b> and drag from one corner to the opposite corner of the arc's bounding box	

 When you draw a vector object, Canvas applies the current ink and stroke settings. The inks and stroke icons in the Toolbox show a preview of the current settings. You can change these attributes before or after you draw an object. (See "Inks: Colors and Patterns" on page 150 and "Strokes: Outline Effects" on page 175.)

## Drawing Objects from the Center

You can draw many vector objects starting from the object's center, rather than an edge.

### To Draw an Object from the Center:

Position the cursor where you want the object's center to be, then press **Ctrl** and drag away from the center to draw the object.

 When you draw an object from the center, you can also press **Shift** at the same time if you want to also constrain the object's bounding box to a square. Use this technique to draw a perfect square or circle from the center outward.

## Drawing Circles

As well as drawing basic circles, you can draw circles by 3 points or by radius. The Circle 3 Points tool draws a circle through three points that you set. The Circle Radius tool draws a circle from a center point and a radius that you set. Both tools draw circles with the current fill ink, pen ink, and stroke.

The Circle Radius and Circle 3 Points tools are located in the Oval tool palette.

### To Draw Circles by 3 Points:

1. Select the **Circle 3 Points** tool. 
2. Click in the document to set a first point on the circle's circumference.
3. Move to a second point on the circle's circumference. A line indicates the chord from the first point as you move the pointer.
4. Click to set the second point.
5. Move to a third point on the circumference. A line indicates the chord from the second point, while the circle expands or contracts as you move the pointer.
6. Click to set the third point and complete the circle.

### To Draw Circles by Radius:

1. Select the **Circle Radius** tool. 
2. Click in the document to set the center of the circle.
3. Move to anywhere on the circumference of the circle. A line extends from the center and indicates the radius, while the circle expands or contracts as you move the pointer.
4. Click to set the circumference and complete the circle.

## Drawing Arcs

As well as drawing basic arcs, you can draw arcs by 3 points or by radius. The Arc 3 Points tool draws an arc through three points that you set. The Arc Radius tool draws an arc based on a center point and radius that you set. Both tools draw arcs with the current fill ink, pen ink, and stroke.

The Arc 3 Points and Arc Radius tools are located in the Oval tool palette.

### To Draw Arcs by 3 Points:

1. Select the **Arc 3 Points** tool. 
2. Click in the document to set one endpoint of the arc.
3. Move to the second endpoint of the arc. A line extends from the first endpoint.
4. Click to set the second endpoint.
5. Move to a point on the perimeter of the arc. A line indicates the chord from the second point, while the arc expands or contracts as

you move the pointer.

6. Click to set the perimeter point and finish the arc.

### To Draw Arcs by Radius:

1. Select the **Arc Radius** tool. 
2. Click in the document to set the center of the arc.
3. Move to one endpoint of the arc. A line extends from the center and indicates the arc's radius.
4. Click to set the endpoint.
5. Move to the second endpoint of the arc. An arc segment extends from the first endpoint and indicates the arc's length.
6. Click to set the second endpoint and finish the arc.

### To Change the Length of an Arc:

1. Select the arc. Round handles appear near the beginning and end of the arc segment.
2. To adjust the length of the arc, do one of the following:
  - To shorten the arc, drag the round handle back over the arc.
  - To lengthen the arc, drag the round handle to continue the arc segment.

You can also adjust the length of an arc by changing its Start angle and values in the Properties bar or Object Specs palette.

### To Change the Corner Radius of a Rounded Rectangle:

1. Select the rounded rectangle. A round handle appears near the lower-right corner of the rectangle.
2. Drag the handle to change the corner diameter.

You can also adjust the corner radius in the Properties bar or use the Diag setting in the Object Specs palette.

## Resizing and Reshaping Vector Objects

You can resize and reshape a vector object by changing the size and shape of the object's bounding box. You can also change the length of arc segments and the corner radius of rounded rectangles. These techniques are described in the following section.

You can also edit most vector objects by changing the anchor points and segments that form their paths. For information on these editing techniques, see "Editing Object Paths" on page 224.

### To Resize an Object's Bounding Box:

When you drag a handle on a vector object's bounding box, you change the height or width (or both) of the bounding box. This also changes the size (and possibly the shape) of the object; e.g., if you select a circle and drag a side handle to make the bounding box wider, the circle becomes an oval that is wider than it is tall.

1. Choose a selection tool.
  - Use the filled arrow to select a single object (including a group object).
  - Use the hollow arrow to select an individual object within a group object.

- Click the object to select it. Handles appear on the object's bounding box.
- Drag a handle, as described below, to resize the object.

To change	Do this
Height	Drag the top or bottom handle
Width	Drag a side handle
Height and width	Drag a corner handle
Height and width proportionally	Press <b>Shift</b> and drag a corner handle
Symmetrically (from center)	Press <b>Ctrl</b> and drag a handle
Symmetrically and proportionally	Press <b>Ctrl-Shift</b> and drag a corner handle

### Maintaining Object Proportions

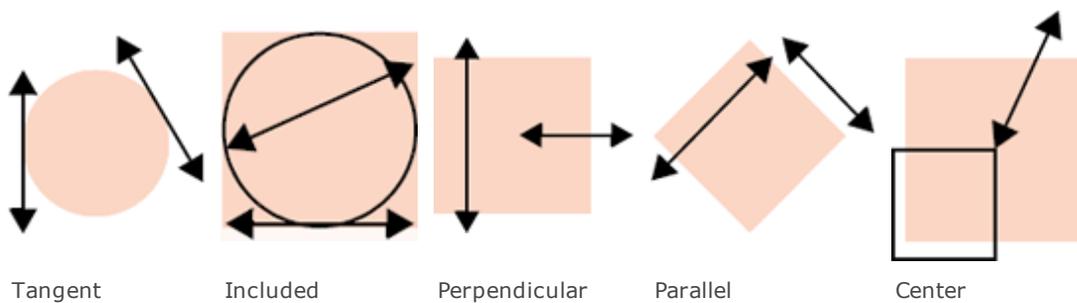
When you resize vector objects and want to maintain the object's height-to-width ratio, you have the following options:

- Press **Shift** and drag a corner handle to resize the object proportionally.
- Use the Scale command and select the **Proportional** option in the Scale dialog box. This keeps the vertical and horizontal scaling factor in the dialog box equal.
- Use the Scale control in the Properties bar. Click the **Scale** button and select **Scale Proportional**. Then enter a value in the width or height field.
- Use the Objects Specs command and select the **Keep Proportions** option in the Object Specs palette. Canvas keeps the object proportional if you change an object dimension in the Object Specs palette.

### Drawing with Snap Options

Snap options can help you draw objects in precise positions relative to other objects; e.g., use Snap options to draw lines that are parallel or perpendicular to other lines, to draw circles contained inside other objects, and to start drawing from the center points of objects. You can also draw guide lines that run to a vanishing point for illustrating perspective.

#### Objects Drawn with Snap Options



Snap options appear in the context menu, in a Snap submenu. You can select Snap options when you use the following tools: Line, Smart Lines, Oval, Circle 3 Points, Circle Radius, Rectangle, Rounded Rectangle, Arc, Arc 3 Points, Arc Radius, Curve, Polygon, Text, Spiral, Gridmaker, and Annotations.

Snap options are most useful when you draw with the Line tool. You can draw lines to be parallel, tangent, or perpendicular to other objects. You can also snap lines to start at the center of an object, and constrain lines to the interiors of objects.

Snap options (especially the Center and Included options) are also useful for drawing ovals, rectangles, and arcs. For these objects, some Snap options constrain the first point you draw; other Snap options constrain the start and end points when you draw an object.

## To Use Snap Options:

1. Select the **Line** tool or another tool. (The available tools are listed previously.)
2. Point to the object to which you want to snap. (To use the Vanishing Point option, skip this step; you do not need to point to an object.)
  - **To draw parallel to a line:** Place the pointer anywhere on the line.
  - **To draw parallel to a rectangle or polygon:** Point to the side to which you want to draw parallel.
  - **To draw perpendicular to an object:** Point to the side to which you want to draw perpendicular.
  - **To snap to the center of an object:** Place the pointer anywhere inside the object.
3. Right-click to open the context menu and choose an option (described below) in the Snap submenu.
4. If you chose Parallel or Perpendicular, a reference line appears. Move the mouse and then click to set the reference line.  
For the Parallel option, in the dialog box, accept or change the indicated offset from the object, and then click **OK** to continue.
5. Move the pointer to where you want to start drawing. Depending on the tool you are using, either drag to draw an object, or click to set the points of the object.

 Objects that should be two-dimensional might appear one-dimensional if you try to draw using certain Snap options; e.g., if you snap a rectangle to a line using the Included option, two opposite corners of the rectangle will snap to the line. If the line is vertical or horizontal, the rectangle will appear as a line.

## Snap Submenu Options

To choose a Snap option, make sure the pointer is on the object or the object side that you want to use as a reference, then open the context menu and choose an option in the Snap submenu.

- **Parallel:** Lets you set a reference line parallel to a line or the side of an object. After selecting this option, move the mouse to position the reference line, then click to set it. In the dialog box that appears, you can enter the distance you want the reference line to be offset from the object. Click **OK** to continue. Begin drawing and the object will snap to the reference line.
- **Perpendicular:** Lets you set a reference line perpendicular to a line or the side of an object. After selecting this option, move the mouse to position the reference line, then click to set it. Begin drawing and the object will snap to the reference line.
- **Tangent:** Lets you set a reference line tangent to a circle, an oval, or an arc. After selecting this option, move the mouse to position the reference line, then click to set it. Begin drawing and the object will snap to the reference line.
- **Included:** Snaps an object's start and end points to the outline of an object or to a line. For example, you can use this option to snap the bounding box of a circle to the inside of a rectangle.

- **Center:** Snaps the first point you draw to the center of an object or a line.
  - **Vanishing Point:** Snaps the first point of an object to the document's vanishing point. If you draw with the Line tool, the line will snap to the vanishing point and run to the location of the pointer when you begin dragging.
-  You can draw perspective lines with the Vanishing Point option, and make the lines into alignment guides with the **Object | Make Guide** command.

There is one global vanishing point in a document. The vanishing point is used by the commands in the **Effects | Perspective** submenu, as well as the **Snap | Vanishing Point** command. The default vanishing point is at ruler coordinates 0,0. You can use the **Effects | Perspective | Vanishing Point** command to apply perspective to selected objects and establish the vanishing point. Using the 1 Side and 2 Sides commands will also affect the location of the document's vanishing point.

## Drawing by Numbers

Several drawing tools give you the option of entering dimensions to draw objects precisely. This method can be easier than dragging the mouse and watching data in the Properties bar to draw objects to precise dimensions.

You can enter dimensions in the Properties bar when you use the Oval, Arc, Rectangle, Rounded Rectangle, Line, Annotations, Multigon, Concentric Circles, and Spiral tools. You can enter the X/Y coordinates, width, height, or other values, and then click **Create** in the Properties bar to draw the object. With these tools, you can still drag the mouse to draw interactively.

 You can also enter values in the Properties bar for some Path tools.

 You can also establish precise dimensions and locations for any object in a document with the Data tab in the Object Specs palette.

## To Draw Objects with the Properties Bar:

1. Select one of the previously mentioned tools. The related value fields appear in the Properties bar.

Start Angle	<input type="text" value="0.000°"/>	Radius X	<input type="text" value="2.000 in"/>	Center X	<input type="text" value="5.000 in"/>	<input type="button" value="Create"/>
Delta Angle	<input type="text" value="90.000°"/>	Radius Y	<input type="text" value="3.000 in"/>	Center Y	<input type="text" value="5.000 in"/>	

2. Select a reference point by clicking a handle in the bounding box icon; e.g., to center an oval where you clicked in a document, for example, click the center handle in the bounding box illustration.
3. Enter dimensions or other values in the Properties bar. (See "Drawing More Complicated Shapes" on page 203 for the related dimensions and values.)
  - **Ovals and rectangles:** Enter height and width values. For rounded rectangles, also enter the corner radius.
  - **Lines:** Enter the distance and angle from the point you clicked to the second point. Or, enter the horizontal (X) and vertical (Y) distance to the second point.
  - **Arcs:** Enter the width and height, the starting point in degrees, and the angular length of the arc.
4. Click **Create** to draw the object.

## Drawing More Complicated Shapes

Several specialized drawing tools let you quickly create complex shapes in Canvas. Drawing grids, stars, polygons, concentric circles, cubes, and spirals is as easy as drawing rectangles. The following tools create specialized vector objects.

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	<b>Concentric Circles:</b> Nested circles or ovals
	<b>Cube:</b> Square and rectangular boxes in isometric views
	<b>Gridmaker:</b> Rows and columns of boxes
	<b>Multigon:</b> Stars and complex polygons
	<b>Spiral:</b> Lines in spiral patterns
	<b>Registration Marks:</b> Registration marks around a graphic for which you intend to print separations
	<b>EasyShapes:</b> All kinds of shapes, including arrows, flow chart boxes, dialog balloons, symbols, and banners
	<b>Calendar:</b> Calendars
	<b>Smart Lines:</b> Connect objects with smart lines.

---

In most cases, you can treat these vector objects like all others. You can move them and resize their bounding boxes. They can be rotated, flipped, and scaled. You can apply strokes, pen inks and fill inks to them. However, most of these objects are compound objects, which means that they are made up of separate objects. Therefore, some inks and other effects appear differently when applied to these objects than to simple vector objects like rectangles and ovals.

Some of the specialized objects have unique editing features. For example, you can twirl the points of a star, star outline, or framed star by dragging special handles. You can also specify the number of points of a star, the number of rows and columns in a grid, the number of rings in concentric circles, and the number of revolutions in a spiral. You can draw a cube with or without a perspective effect. Methods for drawing and modifying all of the specialized objects appear with the individual tool descriptions that follow.

You can also convert most specialized vector objects to paths, which lets you edit the object anchor points and segments. (See "Converting Objects and Text to Paths" on page 238.)

## Drawing Concentric Circles

The Concentric Circles tool draws nested rings of ovals or circles. You can set the number and spacing of the rings before or after you draw concentric circles.

### To Use the Concentric Circles Tool:

1. Select the **Concentric Circles** tool. 
2. Drag to draw a bounding box that defines the size of the concentric circles object. A rectangular bounding box creates concentric ovals; a square bounding box creates true circles.
3. When you finish, the concentric circles object is selected.

### To Draw True Concentric Circles:

Press **Shift** to constrain the bounding box to a square when you drag the Concentric Circles tool.

### To Draw from the Center:

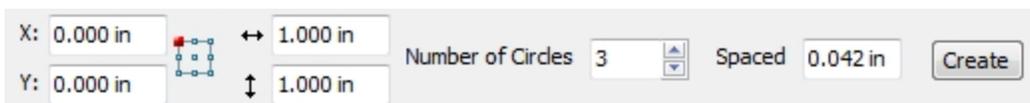
- Press **Ctrl** to draw from the center outward with the Concentric Circles tool.
- Press **Shift** also to draw perfect circles outward from the center.

### To Edit a Concentric Circles Object:

1. Select the Concentric Circles object.
2. In the Properties bar, adjust the settings, such as the number of rings and the spacing.
3. Press **Enter** to apply the settings to the object.

### To Configure the Concentric Circles Tool Before You Draw an Object:

1. Before you draw an object, select the **Concentric Circles** tool.
2. In the Properties bar, adjust the settings to configure the Concentric Circles tool.



## Drawing Cubes

The Cube tool draws 2D cubes.

### To Draw a Cube:

1. Select the **Cube** tool. 
2. Drag to draw the rectangular back face of the cube.
3. Release the mouse button when the back face of the cube is set as you want. An unanchored cube then follows the cursor.
4. Position the front face of the cube so it appears at the length and angle you want, and then click to anchor it.

 To constrain the faces of the cube to perfect squares, hold down the **Shift** key while drawing the back face.

### To Give the Cube a Perspective Effect by Enlarging the Front Face:

Hold down the **Alt** key before you anchor the cube.

### To Edit Cubes:

Do one or more of the following:

- To change the height or width of a cube, click the cube to select it, and then drag a corner handle.
- To reshape a cube by moving a side, double-click the cube to place it in Edit mode. A black circular handle appears on each of the six faces of the cube.

When you point to a handle, the outline flashes on the corresponding side of the cube. You can drag the handle to move that side. Click outside the cube to leave Edit mode.

## Drawing Spirals

The Spiral tool draws a smooth, spiraling curve. You can set the number of spiral turns before or after you draw a Spiral object.

### To Use the Spiral Tool:

1. Select the **Spiral** tool. 
2. Drag diagonally to specify the size of the spiral curve.

### To Create a Circular Spiral:

Press **Shift** and drag.

### To Configure the Spiral Tool:

1. Select the **Spiral** tool.
2. In the Properties bar, set the number of spirals and the spiral direction.

### To Change the Number of Spirals in an Object:

1. Select the **Spiral** object.
2. In the Properties bar, change the number of spirals and press **Enter**.

## Drawing Grids

The Gridmaker tool draws grids of rows and columns. Set the number of rows and columns before or after you draw a grid object.

### To Use the Gridmaker Tool:

1. Select the **Gridmaker** tool. 
2. Drag diagonally to define the grid's bounding box.

### To Create a Square Grid:

Press **Shift** and drag.

### To Configure the Gridmaker Tool:

1. Select the **Gridmaker** tool.
2. In the Properties bar, set the number of boxes comprising the grid as well as the cell size.

 If you set Boxes Across to 1, the grid has no vertical lines. If you set Boxes Down to 1, the grid has no horizontal lines.

### To Modify Grid Object:

1. Select the **Grid** object.
2. In the Properties bar, change the number of boxes or cell size and press **Enter**.

### To Separate a Grid into Lines:

Adjust the individual lines that comprise a grid by converting it to a path and then ungrouping it.

1. Select the Grid object.
2. Choose **Path | Convert to Paths**.
3. Choose **Object | Ungroup**. The grid object separates into individual lines.

## Drawing Multigon Shapes

Use the Multigon tool to draw all types of multi-sided objects, including triangles, hexagons, pentagons, octagons, stars, circular starbursts, and similar shapes. To set the number of sides and the style of a multigon, configure the Multigon tool before you draw.

### To Draw with the Multigon Tool:

1. Select the **Multigon** tool. 
2. Drag diagonally to define the multigon's bounding box.

### To Make the Bounding Box Square:

Press **Shift** and drag.

### To Configure the Multigon Tool:

1. Select the **Multigon** tool.
2. In the Properties bar, set the multigon options.
3. Press **Enter**.

## Multigon Options

The available options depend on the selected multigon style.

<b>Style</b>	Select the style of the multigon: <ul style="list-style-type: none"> <li>● <b>Frame:</b> No interior lines.</li> <li>● <b>Framed Star:</b> Combination of Frame and Star objects.</li> <li>● <b>Spoke:</b> No sides connecting the spoke points.</li> <li>● <b>Star:</b> Points connected by interior lines.</li> <li>● <b>Star Outline:</b> Multiple points with no interior lines.</li> <li>● <b>Wheel:</b> Combination of Frame and Spoke objects.</li> </ul>
<b>Points</b>	For stars, framed stars, and star outlines, enter the number of star points from 3 to 100. For other styles, enter the number of sides from 3 to 100.
<b>Smooth</b>	Turn this option on to smooth the object's angles.
<b>Inset Ratio</b>	Drag the slider to change the interior area of stars, framed stars, and star outlines.
<b>Pinwheel angle</b>	For stars, enter a value of more or less than 0 degrees to bend the points. Negative values bend the points counterclockwise.
<b>Presets</b>	Choose a preset style in the pop-up menu.

### To Save Multigon Presets:

1. Select the Multigon shape you want to save as a preset.
2. In the Properties bar, click the **Presets** menu, and select **Save shape**.
3. In the Save Shape dialog box, enter a name for the shape, then click **OK**.

### To Delete Multigon Presets:

1. Select the **Multigon** tool.
2. In the Properties bar, click the **Presets** menu, and select **Delete shape**.
3. In the Delete Shape dialog box, select the preset you want to delete, then click **OK**.

 When you save and delete styles, they remain saved or deleted whether you click **OK** or **Cancel** to close the Multigon dialog box.

### To Edit Star Multigon Objects:

You can edit Star Multigons (framed star, star, and star outline styles) to adjust the twirl and radius of the object's points. The following procedures do not apply to frames, spokes, or wheels.

1. Double-click the **Star Multigon** object to put it in Edit mode.  
An outer handle and inner handle appear on one point of the star.
2. Do one or more of the following:
  - **To change the length of the star points:** Drag the outer handle inward or outward from the center of the star.
  - **To twirl the points:** Drag the handle clockwise or counterclockwise.
  - **To change the position of the inner points:** Drag the inner handle inward or outward from the center.
3. Press **Esc** or double-click outside the object to exit Edit mode.

### Drawing Registration Marks Manually

Use the Registration Mark tool to manually draw registration marks around a graphic for which you intend to print separations. Use the Registration Mark tool when:

- The size of the graphic occupies the printable area, therefore preventing the print separation marks from appearing.
- You layout different graphics on a single sheet and plan to print each graphic individually.

### To Draw Registration Marks:

1. Select the **Registration Mark** tool. 
2. In the Properties bar, set the location, default size, and fill color of the registration mark, then click the **Create** button.  
This draws the first registration mark, and sets the defaults for registration marks in the current Canvas session.
3. Select the **Registration Mark** tool again, then click in your document to draw additional registration marks.



If you want to place a registration mark in a precise location, you can select the registration mark in your document, and set the X/Y coordinates in the Properties bar.

## Drawing Crop Marks

For print production, you can draw crop marks around specific objects in your document. This is useful when you want to control the exact placement of crop marks, or you want to output several illustrations with crop marks around each illustration on one page.

Crop marks are short vertical and horizontal lines that indicate the border where an illustration or page can be trimmed.

When you use the Crop Marks commands, Canvas draws the crop marks as vector lines on the current layer in the document. Each crop mark consists of two lines. You can select the lines and perform operations on them as you would other vector objects.

### To Place Crop Marks:

1. Select the objects you want to place crop marks around. You can select one or more objects of any type.
2. Choose **Object | Options | Crop Marks**.
3. In the Crop Marks dialog box, in the Outset box, enter the distance you want the crop boundary to be from the selection.
  - If one object is selected, the selection boundary is the object's bounding box.
  - If more than one object is selected, the selection boundary is the smallest rectangle that would enclose all the selected objects.
4. Select the **Use Registration Ink** option to assign Registration ink color to the crop marks.

Registration ink appears black, but it prints on all plates when you output color separations. This option should be selected if you want the crop marks to print on all plates.
5. Click **OK** to create the crop marks.

## Drawing Calendars

### To Use the Calendar Tool:

1. Define at least a 1-inch x 1-inch rectangle. 
2. Select the **Calendar** tool and the cursor changes to a crosshair.
3. Drag the crosshair to form at least a 1-inch x 1-inch rectangle and the Calendar dialog box opens so you can define your calendar.

### To Create a Calendar:

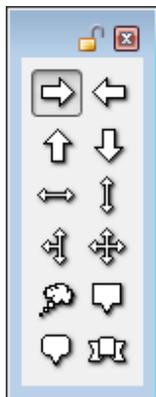
1. Enter the starting month and year. The default month is the current month and year.
2. Enter the ending month and year. The default month is the current month and year.
3. Enter the number of columns; e.g., if your calendar is for 8 months and you enter 4 in this field, your calendar would have 4 columns and 2 rows.



Select the **Include Lunar Phases** checkbox if you want lunar phases to appear on your calendar.

## Drawing EasyShapes

You can use EasyShapes to quickly add all kinds of shapes, including arrows, flowchart symbols, dialog balloons, symbols, and banners.



### To Use the EasyShapes Tool:

1. Select the **EasyShapes** tool. 
2. Select an **EasyShapes** tool from the palette. The cursor switches to a crosshair in the drawing area.
3. Drag the cursor in the drawing area. The new object appears with the current fill ink, pen ink, and stroke properties, and is selected.
4. If the **EasyShapes** tool you used is one that creates a preset text object, an insertion point appears inside the shape. Type the text. When you finish, press **Esc** to end text Edit mode.  
  
If the **EasyShapes** tool you used does not create a preset text object, Canvas will create a text object if you begin typing. When you finish typing, press **Esc**.
5. When you have finished using **EasyShapes**, press **Esc**.

 You can also create an **EasyShapes** by entering values in the X/Y and width/height fields in the Properties bar and then clicking the **Create** button. By default, the X/Y coordinates are set at 0,0.

## Connecting Objects with Smart Lines

Use Smart Lines to link one or more objects to a single object. Draw multiple Smart Lines between objects and link Smart Lines to other Smart Lines. Smart Lines change length and angle to maintain connection to the linked objects. Or use the Polygon and Smooth Polygon Smart Line tools to draw connecting polygon lines between objects.

-  Basic
-  Kinked
-  Smooth Kinked
-  Dogleg Connector

 Polygon

 Smooth Polygon

 Connection Point

### To Use a Smart Line Tool:

1. Select a **Smart Line** tool.
2. Drag from one object to another object. When you release the mouse button, Canvas creates the Smart Line.

### To Change Smart Line Type:

1. Select the **Smart Line** with the Selection tool. The Type menu appears in the Properties bar.
2. Choose another Smart Line type from the menu. The line changes immediately.

 You can quickly select and edit the attributes of smart lines without clicking each one individually. Select the type of Smart Line tool you want to edit from the Toolbox and press **Ctrl + A**.

### To Change the Position of Start and End Points:

1. Select the **Smart Line** with the Selection tool. The Properties bar displays the X/Y values coordinates for the start and end points.
2. Enter new values in these fields in the Properties bar and press **Enter**. The Smart Line shifts accordingly.
  - **Start Direction** : For Kinked Smart Lines, select either **Auto**, **Horizontal**, or **Vertical** to change the slope of the Start direction. For Dogleg connections, select either **Auto**, **Left Always**, or **Right Always** to change the direction of the dogleg portion.
  - **End Direction**: Select either **Auto**, **Horizontal**, or **Vertical** to change the slope of the End direction.
  - **Tab Length**: This value refers to the horizontal portion of a dogleg connection created with the Dogleg Connector tool. Enter a value in this field and press **Enter**. The angled portion of the connection does not change.

 If the Dogleg Connector or a Kinked or Smooth Kinked Smart Line is selected, the Properties bar contains additional information, which is not applicable to Basic Smart Lines.

### To Unsmooth a Smooth Kinked Smart Line:

Select the line and choose **Kinked** from the Type menu in the Properties bar.

### To Smooth a Kinked Smart Line:

Select the **Kinked Smart Line** and choose **Smooth Kinked** from the Type menu.

### To Use the Connection Point Tool:

This tool is used to move the anchor points of a vector object. You can also add and remove anchor points.

1. Select the **Connection Point** tool. The cursor changes to a crosshair.
2. Click on an existing vector object. The anchor points appear. When you place the crosshair on an anchor point, the anchor point is emphasized.

3. Click the crosshair on an anchor point and drag it to its new location. You cannot move an anchor point beyond an object's bounding box.
  - **To add an anchor point:** **Ctrl-click** the crosshair anywhere within the vector object.
  - **To remove an anchor point:** Press **Ctrl+Shift** and click the crosshair on the existing anchor point that you want to delete.

### To Use the Polygon or Smooth Polygon Smart Line Tool:

These tools are used to draw polygon lines between objects.

1. Select the **Polygon** or **Smooth Polygon Smart Line** tool. The cursor changes to a crosshair.
2. Click on an existing vector object. The anchor points appear.
3. Click the crosshair on an anchor point.
4. Click on a second object and click the crosshair on an anchor point.
5. Press **Esc** to exit Edit mode.

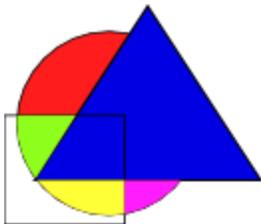
If you move one of the objects, the connecting polygon line retains the connections between the objects.

### Using the Smart Vector Fill Tool

With the Smart Vector Fill tool you can apply a fill to overlapping areas of vector objects. The tool creates a closed vector object which is equivalent to the area defined by multiple vector segments.

### To Use the Smart Vector Fill Tool:

1. Draw two or more vector objects with the objects overlapping.
2. Select the **Smart Vector Fill** tool from the Toolbox. 
3. In the Properties bar, select the **Attributes**, **Position**, and **Tolerance**.
4. Select a fill ink, or select a fill ink, pen ink, and stroke, depending on which attributes you selected in the Properties bar.
5. Click an overlapping area of the vector objects to create the vector fill object.



In this example, the triangle and rectangle overlap areas on the circle. The Smart Vector Fill tool has been used to create vector fill objects for the overlapping areas.

### To Select Different Overlapping Areas:

Arrange the objects by moving them forward or backward in relation to the other objects. Right-click an object and select **Arrange | Bring to Front**, **Send to Back**, **Shuffle Up**, or **Shuffle Down**.

## Smart Vector Fill Properties

---

### Attributes

- **Default Fill Ink:** Creates a vector object using the fill ink selected in the Toolbox.
- **Default Fill and Pen Ink, and Stroke:** Creates a vector object using the fill ink, pen ink, and stroke selected in the Toolbox.



If you want to use the Fill, Pen Ink, and Stroke option, you might want to set these attributes before you create your overlapping objects and use the Smart Vector Fill tool.

To set the attributes, create an object with these attributes first, and then click the **Set Default Attributes** button to make those attributes the default. The Smart Vector Fill tool uses these default attributes to create the fill in the overlapping areas you select.

---

### Position

- **Behind vector paths:** Creates a vector object behind the other vector segment objects.
  - **Above vector paths:** Creates a vector object in front of the other vector segment objects.
- 

### Tolerance

Select a level of tolerance. This value sets the threshold for how close vector segments need to be before an area is considered enclosed.

- **Exact:** Offers the lowest level of tolerance.
  - **Fine:** Offers a low level of tolerance.
  - **Loose:** Offers the highest level of tolerance.
- 

## Adding Annotations

You can use the annotations tools to add labels, callouts, or comments to your diagrams or illustrations, or to create simple flowcharts. The annotation tools can be found in the Toolbox with the Markup tools.



**Basic:** Adds a single annotation and points to a single object.



**Multiple Sources:** Adds a single annotation and points to one or more objects.



**Multiple Notes:** Adds multiple annotations and points to a single object.



**Flowchart:** Creates a simple flowchart.

---

When you draw in the Layout area with these tools, Canvas creates an object shape and connector lines. You can change the shape of the object or the type of connector line in the Properties bar. You can also edit the label (before you place the annotation), and modify the font and style of the text.

You can also modify the outline and fill of the flowchart shapes and connectors using the Pen and Fill inks in the Toolbox.



Before you add annotations to your illustration, consider whether you want to print the annotations. If you do not want to print them, you might consider creating a new layer for the annotations, which you could hide when you print the illustration.

### To Add a Basic Annotation:

1. Select the **Basic** annotation tool.
2. In the Layout area, click on the object you want the annotation to point to.
3. Move the cursor to place the annotation and click to release the tool.
4. Double-click the annotation text to edit it.

### To Add an Annotation with Multiple Sources:

1. Select the Multiple Sources annotation tool.
2. In the Layout area, click where you want to place the annotation.
3. Move the cursor to the first object you want the annotation to point to, then click.
4. Move the cursor to another object you want the annotation to point to, then click.
5. When you have finished pointing to objects, press **Esc** or double-click to release the tool.
6. Double-click the annotation text to edit it.

### To Add Multiple Annotations to a Single Source:

1. Select the Multiple Notes annotation tool.
2. In the Layout area, click on the object you want the annotations to point to.
3. Move the cursor to place the first annotation, then click.
4. Move the cursor to place another annotation, then click.
5. When you have finished adding annotations, press **Esc** or double-click to release the tool.
6. Double-click the annotation text to edit it.

### To Create a Simple Flowchart:

1. Select the Flowchart annotation tool.
2. In the Properties bar, click the **Shape** icon to open the Shape popup palette, then select a flowchart shape to start the flowchart.
3. In the Layout area, click to place the first flowchart shape.
4. In the Properties bar, click the **Shape** icon to select the next flowchart shape to add to the flowchart.
5. In the Layout area, click to place the second flowchart shape.
6. When you have finished adding flowchart shapes, press **Esc** or double-click to release the tool.
7. Double-click the annotation text to edit it.



For more complex flowcharts, use the Flowchart palette. See "Creating Flowcharts" on page 214.

## To Change the Shape of the Annotation Object:

1. Select the annotation object.
2. In the Properties bar, click the **Type** icon to open the Shape popup palette.
3. Select another object shape. The object shape changes immediately.

## To Edit the Text in an Annotation:

Do one of the following:

- If you have not placed the annotation, enter the text in the **Text** field in the Properties bar.
- If you have already placed your annotations, select the **Text** tool and click on the text in the object to enter Text Edit mode.

## Creating Flowcharts

In Canvas, you can use the Flowchart palette to create a flowchart using standard flowchart symbols and lines. You can adjust the pen, fill, dash, and arrow attributes of the lines, the amount of offset spacing between symbols, the size of the symbols, and the position of symbols relative to each other.

## To Create a Flowchart:

1. Choose **Window | Palettes | Flowchart**.
2. Drag a flowchart symbol into your document.
3. Add additional symbols, by doing one or more of the following:
  - Select a symbol in the Flowchart palette, and then click one of the red arrow direction buttons in the Create Controls section.
  - Select a symbol in the Flowchart palette, and then click one of the blue arrow direction buttons in the Branch Controls section.

## To Set the Default Attributes of Flowchart Lines:

In the Flowchart palette, set the **Smart Line Attributes** to control the Pen, Fill, Dash, and Arrow attributes.

 You can quickly select and edit the attributes of smart lines without clicking each one individually. Select the type of Smart Line tool you want to edit from the Toolbox and press **Ctrl + A**.

## To Set the Default Attributes of Flowchart Symbols:

1. Make sure that no objects are selected in the document.
2. In the Toolbox, set the Pen, Fill, Dash, and Arrow attributes.

## To Change the Attributes of Flowchart Lines or Symbols:

1. Select the flowchart lines or symbols in the document.
2. In the Toolbox, set the Pen, Fill, Dash, and Arrow attributes.

 As with any Canvas object, you can also change the size of the selected symbols, the opacity, and effects such as bevel and shadow. You can also align symbols, rotate them, or skew them.

## To Replace One Symbol with Another:

1. Select the symbol you want to replace in your document.
2. Select the replacement symbol in the Flowchart palette.
3. Click the **Replace** button.

## To Add Text to Symbols and Lines:

1. In the document, select the symbol or line that you want to add text to.
2. Select the **Selection tool** from the Toolbox. 
3. Type the text you want to add.

You can edit the text, change the font, size, color and other attributes as you would for any text you enter in Canvas.

## Flowchart Symbol Properties

Before you place a symbol from the Flowchart palette, be sure to review the symbol properties in the Properties bar.

<b>X and Y</b>	Displays the X and Y coordinates where the symbol will be placed by default.
<b>Reference point</b> 	Displays the reference point for the symbol. This is the point on the selected object (or its bounding box) that position data is based on. The reference point is also the fixed point used in an object's transformation.
<b>Width and Height</b>	Displays the height and width of the object.
<b>Preserve original proportions</b>	Uses the symbol's original proportions.
<b>Use original colors</b>	Uses the symbol's original colors. If you do not select this checkbox, the symbol uses the default attributes from the Toolbox.
<b>Create</b>	Click <b>Create</b> to place the selected symbol in the document.

## Flowchart Options

<b>Symbols</b>	Click and drag symbols into your document. You must place at least one symbol in your document before you can use the Create and Branch buttons.
<b>Create</b>	Select a symbol in your document, and then select a symbol in the palette and use the following buttons: <ul style="list-style-type: none"><li>● <b>Add Top:</b> Places the symbol above the symbol selected in the document.</li><li>● <b>Add Bottom:</b> Places the symbol below the symbol selected in the document.</li><li>● <b>Add Left:</b> Places the symbol to the left of the symbol selected in the document.</li><li>● <b>Add Right:</b> Places the symbol to the right of the symbol selected in the document.</li></ul>
<b>Branch</b>	Select a symbol in your document, and then select a symbol in the palette and use the following buttons to branch the chart: <ul style="list-style-type: none"><li>● <b>Branch Top:</b> Places two symbols above the symbol selected in the document.</li></ul>

- 
- **Branch Bottom:** Places two symbols below the symbol selected in the document.
  - **Branch Left:** Places two symbols left of the symbol selected in the document.
  - **Branch Right:** Places two symbols right of the symbol selected in the document.
- 

**Symbol Size** Enter the width and height of the symbols. Select the **Preserve original proportions** checkbox to retain the proportions of symbols when you resize them.

---

**Symbol Offset** Enter the amount of offset spacing between symbols:

- **Offset:** Defines the distance between one symbol and the next when you place symbols using the Create buttons.
- **Branch Offset:** Defines the distance between two symbols placed using the Branch buttons.

---

**Smart Line Attributes** Select the following attributes to apply to the flowchart lines:

- **Pen**
  - **Fill**
  - **Dash**
  - **Arrow**
- 

## Loading Additional Symbols

Canvas comes with a set of standard flowchart symbols, but if you have additional symbols you want to use, you can load them into the Flowchart palette. Any new symbols you add must be in the Canvas symbol file format (.CSY).

### To Load an Additional Set of Symbols:

1. Save the symbols you want to use in Canvas symbol format (.CSY) and note the location of the folder where you have saved them.  
The name of this folder is used as the name of the flowchart symbol set in Canvas.
2. Open the Flowchart palette. Choose **Window | Palettes | Flowchart**.
3. Choose **Load Flowchart Symbols** from the Flowchart palette menu.
4. In the Browse For Folder dialog box, select the folder where the symbols are located, and click **OK**.  
The new set of symbols are available from the drop-down list.



To delete a symbol, use a program such as Windows Explorer to delete the symbol, and then reload the set of symbols in the Flowchart palette to refresh the palette.

## Using Math Expression 2-D Plot Commands

In Canvas you can use Math Expressions to create a visual representation of an equation. The visual representation is created as a vector object that uses the current Pen and Fill inks. You can also apply any vector object effect as well as change the Pen and Fill inks. These objects can also be rendered and exported as images.

### To Open the Math Expression 2-D Cartesian Plot Dialog Box:

Choose **Path | Math Expression 2-D Plot | Cartesian**.

## To Open the Math Expression 2-D Polar Plot Dialog Box:

Choose **Path** | **Math Expression 2-D Plot** | **Polar**.

## To Use the Math Expression 2-D Plot Commands:

1. Define the mathematical equation using the Categories and Items scroll boxes.
2. Double-click an item to add it to the Expression field.



The lower portion of the dialog box indicates the correct syntax and shows an example of the expression.

3. Enter values in the range fields. The maximum range must be greater than the minimum range. You can also enter a value in the "1 Unit of" fields to set a scale.
4. Use the Steps menu to control the quality of the curve.
5. Click **OK** to create the visual representation.

## To Save an Expression:

1. Click on the menu icon and select **Save expression as**.
2. In the Save expression as dialog box, enter a name for the expression and click **OK**.



Saved expressions appear at the bottom of the menu list.

## To Load a Saved Expression:

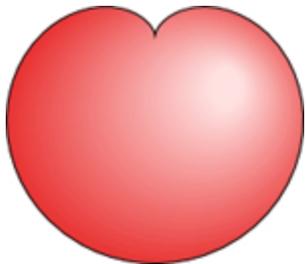
Click on the menu icon and select the expression's name from the list. The equation appears in the Expression field.

## To Delete a Saved Expression:

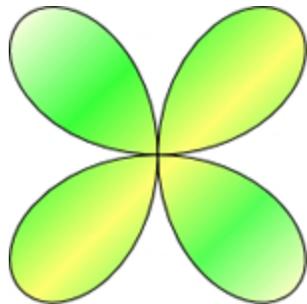
1. Click on the menu icon and select **Delete expression**.
2. In the Delete expression preset dialog box, select the expression you want to delete, and click **OK**.

## Examples

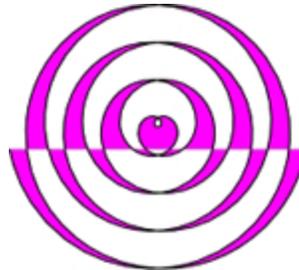
The following visual representations were created using the Math Expression 2-D Polar Plot dialog box.



Formula:  $r=1-\sin(\theta)$   
Expression:  $r=1-\sin(x)$

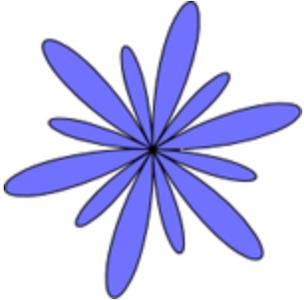


Formula:  $r=\sin(2\theta)$   
Expression:  $r=\sin(x)$



Formula:  $r=2\theta$   
Expression:  $r=2*x$

x: 0 - 6.29  
r: -10 - 10  
Counterclockwise  
1/1



Formula:  $r = \sin(6\theta) + \log(1.5)$   
Expression:  $r = \sin(6 * x) + \log(1.5)$   
x: 0 - 6.29  
r: -10 - 10  
Counterclockwise  
1/1

x: 0 - 6.29  
r: -10 - 10  
Counterclockwise  
1/1



Formula:  $r = \theta \sin^2(\theta)$   
Expression:  $r = x * (\sin(x))^2$   
x: 0 - 6.29  
r: -10 - 10  
Counterclockwise  
1/3

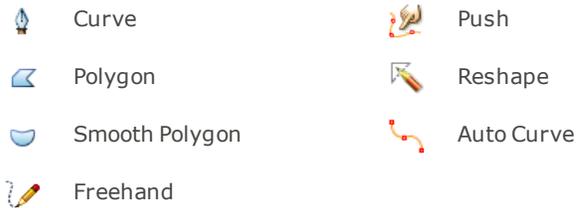
x: -31.4 - 31.4  
r: -50 - 50  
Counterclockwise  
1/40

## Drawing and Editing Paths

Path tools let you draw and edit vector object paths of any shape. This section explains how to draw paths, edit paths, and edit curves segments using the control points that define them.

### Drawing with the Path Tools

You can use the Curve, Polygon, Smooth Polygon, Freehand, and Auto Curve tools to draw vector objects as open or closed paths. When you use the Curve, Polygon, Smooth Polygon, and Auto Curve tools, you set anchor points to define path segments. With the Freehand tool, you simply drag to draw a path. The Reshape and Push tools let you edit paths.



The Polygon tool draws paths with straight segments. The Smooth Polygon tool draws paths with smooth line segments. The Curve and Auto Curve tools can draw paths with straight and curved segments. Paths drawn with the Freehand tool generally are made of curved segments based on the movement of the pointer.

When you draw with the Path tools, Canvas uses the current pen ink, fill ink, and stroke settings for the vector objects you create.

## Drawing Polygons

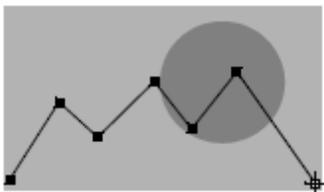
When you use the Polygon or Smooth Polygon tool to draw an object, you set anchor points that define a path of straight line segments or smooth line segments, respectively. You can later curve the straight segments, as with any path object. For editing information, see "Editing Object Paths" on page 224.

### To Draw Polygons:

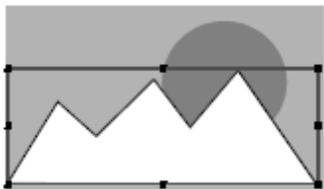
1. Select the **Polygon** tool or **Smooth Polygon** tool.
2. Click to set the first anchor point, shown as a small square.
3. Click where you want to place the second anchor point.
  - You can press the pointer to display the segment, drag to position it, and then release the mouse button.
  - To constrain placement of a segment to 45° intervals, press **Shift** while drawing the segment.
4. Repeat the last step to draw more segments.
  - 💡 To remove the last segment you drew, press the **Delete** key.
5. To complete the polygon:
  - For an open polygon, after you place the last anchor point, press **Esc** or double-click to place the last anchor point.
  - For a closed polygon, click the starting anchor point, and then press **Esc** or double-click the starting anchor point.



Click to place first point



Click additional points, double-click last point



Completed polygon (selected)



Polygon finished with solid black fill ink

## Smoothing Polygons with Straight Segments

If you created a path object with the Polygon tool, use the Smooth command to convert a straight-segment polygon to a path with smooth curves. You can smooth any paths made of straight segments, including rectangles and paths drawn with the Curve tool, as long as they have only straight segments. The Smooth command is a convenient way for those who haven't mastered curve drawing to create smooth shapes.



Polygon



Smoothed

 If you require that the polygon object have smooth curves, you should use the Smooth Polygon tool if you haven't yet created the object.

### To Smooth a Straight-Segment Polygon:

Select the polygon and choose **Path | Smooth**. Canvas converts the polygon's corner points into smooth points, which changes the path's straight line segments into curved segments. For more information about editing smooth points and curved segments, see "Reshaping Paths by Editing Anchor Points" on page 234.

Use the Unsmooth command to restore the straight segments of a polygon that was smoothed with the Smooth command. However, you can use Unsmooth only if the smoothed polygon wasn't edited after it was smoothed.

### To Unsmooth a Smoothed Polygon:

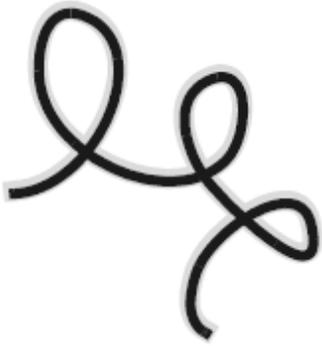
Select the **Smooth Polygon** and choose **Path | Unsmooth**. Canvas restores the polygon's straight line segments.

### To Draw a Polygon with Specific Lengths and Angles:

1. Select the **Polygon** tool from the Toolbox and click a point in the document.
2. In the Next Point section of the Properties bar, click the checkbox beside Length and enter a measurement into the field.
3. In the Angle field next to it, set an angle and direction.
4. To create a contiguous line segment using the set angle, select the **Delta** checkbox. This will make your angles based vertically on your point, and subsequently, on each preceding line segment. To achieve angles horizontally-based on the bottom of the document, leave the Delta checkbox unselected.
5. To create segments at alternating angles, select the **Alternate Angle** checkbox.
6. Click **Create** to draw your shape.

## Drawing Freehand Paths

You can draw objects with the Freehand tool by simply dragging the pointer. The Freehand tool creates paths with curved segments based on the movement of the pointer.



Paths drawn with the Freehand tool

As with any path object, you can later edit the path and reshape its segments. See "Editing Object Paths" on page 224.

### To Draw a Freehand Path:

1. Select the **Freehand** tool in the Path Tools toolbar.
2. Position the pointer where you want the path to begin. Drag to create a path.  
To create a closed path, release the mouse button when the pointer is on the starting point.

### To Set the Curve Tolerance:

You can tell Canvas to use relatively more or fewer anchor points to represent a curve.

1. Select the **Freehand** tool.
2. In the Properties bar, in the Set tolerance to box, type a **value** from 1 to 5, where a value of 5 tells Canvas to use as few anchor points as possible.

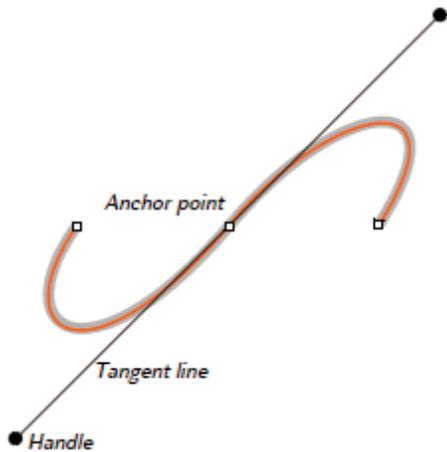
If you have difficulty drawing smooth curves with this tool, try lowering the speed setting for your mouse (or other pointing device). Refer to your system documentation for information on these settings.

## Drawing Curved Paths

The Curve tool is the most versatile of the path tools. You can use it to draw precise paths with straight and curved segments. When you draw curved segments, you place an anchor point and a tangent line at the start of each segment. The position and length of the tangent line controls the shape of the curved segment.

### Defining Curves

Anchor points determine where path segments start and end. Tangent lines at each anchor point control the shape of curve segments. A tangent line affects the adjacent segment.



The tangent line of a segment's other anchor point (not shown) also affects the segment's shape. You can also draw straight paths by clicking with the Curve tool, similar to the way you use the Polygon tool. (See "Drawing Polygons " on page 219.)

### To Draw a Path with Curved Segments:

1. Select the **Curve** tool.
2. Where you want the path to begin, do one of the following:
  - Click to set the anchor point and, before releasing the mouse button, drag to position its tangent line.
  - Click to set the anchor point without creating a tangent line.  
When you release the mouse button, the anchor point appears.
3. Where you want the segment to end, do one of the following:
  - Drag to simultaneously set an anchor point and position a tangent line.
  - Click to set the anchor point without creating a tangent line.  
This finishes the first curve segment.
4. Repeat the previous step to draw additional segments.
5. To complete the path, use one of the following options:
  - For an open path, after you place the last anchor point, press **Esc**. You can also double-click to place the last anchor point.
  - For a closed path, click the starting anchor point, and then press **Esc**. You can also double-click the starting anchor point.

### Shaping and Editing Segments as you Draw

As you draw with the **Curve** tool, you can use modifier keys to constrain and edit the path segments.

### To Place an Anchor Point at a 45° Interval Relative to the Previous One:

Press **Shift** as you set the second anchor point.

### To Create a Straight Segment:

Press **Ctrl** as you click to set the segment's endpoint.

## To Remove the Last Segment:

Press the **Delete** key. You can continue to remove segments in the reverse order you created them, until you delete the entire object.

## To Constrain a Tangent Line to 45° Increments:

Press **Shift** as you drag the tangent line.

## Drawing Auto Curves

The Auto Curve tool draws and edits curved paths. This tool makes it easy to draw smooth curves because it automatically curves path segments as you simply click or drag the mouse.

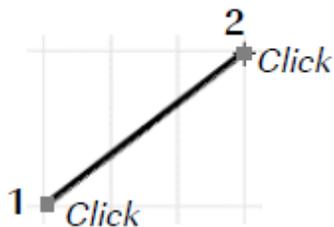
When you use the Auto Curve tool, you don't have to position tangent lines that control the shape of curves. Instead, you simply click to set anchor points and smooth curve segments appear. You can drag the mouse to see how the path will curve before you set each anchor point.

Like the other path tools, you can use the Auto Curve tool to draw new paths and to add segments to paths as you edit them.

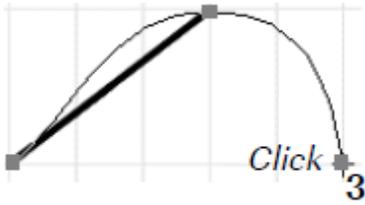
## To Use the Auto Curve Tool:

1. Select the **Auto Curve** tool. 
2. Click in the drawing area to set the beginning point of a path. If you are editing a path, click to set the path's next anchor point.
3. Move the mouse and click to set the second anchor point. A straight segment connects the first and second points. You can press **Shift** when you click to snap the first segment to a 45° angle.
4. To set the third anchor point, do one of the following:
  - Click to set the anchor point. This completes a smooth curve from the first anchor point to the new anchor point.
  - Hold down the mouse button and move the mouse to preview the curve. You can see the segments bend as you move the pointer. Release the mouse to set the new anchor point.
5. Repeat the previous step to continue adding anchor points to the path. You can also select other path tools (Curve, Polygon, Push, and Reshape) to continue adding segments to the path.
6. To finish drawing the path, do one of the following:
  - Press **Esc**.
  - Double-click to set the final anchor point. You must double-click on the starting point to complete a closed path.

When you finish drawing, the path object is selected. Canvas applies the current pen ink, fill ink, and stroke to the path. You can use path editing tools and techniques to modify the path.



With the Auto Curve tool, click to set anchor points 1 and 2 to start a path.



Click to set point 3. The first and second segments bend to form a smooth curve.



You can click to set more anchor points and draw additional curved segments. Press **Esc** to finish the path.



Path with pen and fill inks

## Editing Object Paths

Most vector objects in Canvas are paths. Whether you draw with Path tools (Curve, Freehand, Polygon, Smooth Polygon, Auto Curve) or other shape tools (Rectangle, Oval, Line, Arc), you create paths, and you can use the same path-editing techniques to modify them.

Of course, you can also change a path object by using handles on the bounding box when the object is selected. (See "To Resize an Object's Bounding Box:" on page 199.)

Canvas has two display modes you can use when you edit paths. You can display the fill inks, pen inks, and stroke on paths, or you can hide the attributes while you work in Path Edit mode.

### To Display Attributes on Paths:

Be sure that **Path | Live Curve Editing** is selected.

### To Hide Attributes in Path Edit Mode:

Select **Path | Live Curve Editing** again.

You can change the path-editing display at any time. To use the Live Curve Editing command, objects do not have to be selected or be in Path Edit mode.

## Editing Paths with the Reshape Tool

The Reshape tool provides an easy-to-use, interactive way to edit paths. Using the tool is as simple as dragging the mouse. The tool will reshape the parts of a path that you drag over.

### To Use the Reshape Tool:

1. Select an object to edit. To use the Reshape tool, one vector object can be selected or be in Path Edit mode.
2. Select the **Reshape** tool. 

3. Move the pointer close to the path and a reshape symbol (~) will appear at the pointer. The symbol indicates that you can drag to reshape the path.
4. Drag to draw a new segment in the shape you want. When you release the mouse, Canvas applies the segment you drew to the path.

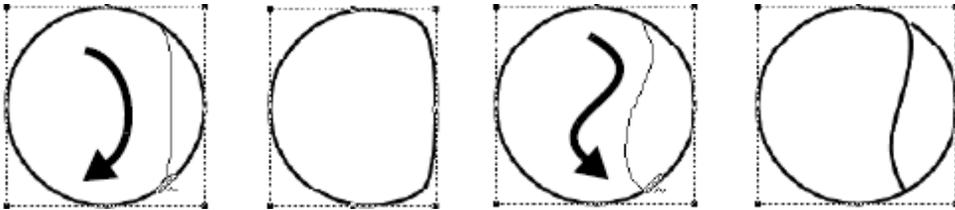
After you use the Reshape tool, the object remains selected or in Edit mode. Continue to use the Reshape tool to modify the path.

## Reshape Techniques

When you drag the Reshape tool, the direction that you drag affects the way the tool modifies the path.

If you drag in one direction and finish on the path, the tool will reshape the path to match the line that you draw.

If you finish dragging away from the path, the Reshape tool can create a new segment that opens a closed path. If you drag the tool on an open path, you can draw a new segment that closes the path. You can also drag the tool so it reshapes part of a path and removes the rest.



Dragging in one direction reshapes the circle

Changing direction adds a segment and opens the path

In general, if you drag in one direction along a path, the tool will change the shape of a segment without removing the rest of the path or opening the path. For example, if you follow the curve of a circle as you drag from the top toward the bottom, you can make the circle narrower. If you drag from one part of the circle and change direction, you can create a segment that changes the circle to an open path.

Experimenting with the Reshape tool is the best way to learn the various techniques you can use to modify paths.

## Editing Paths with the Push Tool

The Push tool provides an alternative way of editing paths. The tool lets you form curves without having to edit anchor points and tangent lines. The Push tool is useful for people who are not experts at editing paths and who want to simply drag on path segments to bend them into shape.

The Push tool bends a path where you push (drag) on it. Imagine that a rope is laid out straight on a table. If you push your finger against the middle of the rope, you form a curve at that point. Using the Push tool has a similar effect on a straight segment of a path.



Dragging a path with the Push tool bends the path. The Range setting controls the width of the effect.

You can adjust the range of the Push tool effect. A smaller range results in sharper bends, and a larger range results in smoother bends.

## To Use the Push Tool:

1. Select an object to edit. One vector object can be selected or be in Path Edit mode.
2. Select the **Push** tool. 
3. If you want to change the Range of the Push tool, enter a **value** in the text box in the Properties bar.
4. Drag on the path where you want to push a segment into a curve shape. When you release the mouse, Canvas reshapes the path.

After you use the Push tool, the object remains selected or in Edit mode. Continue to use the Push tool to modify the path.

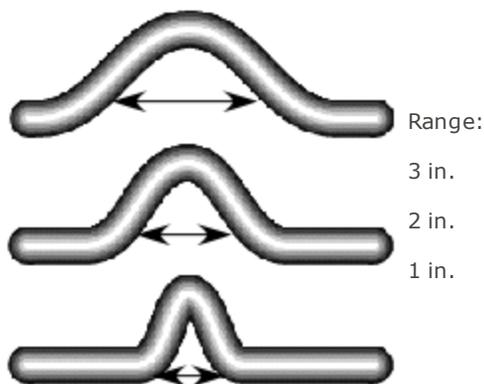
## To Change the Range of the Push Tool:

Use the **Range** settings in the Properties bar when the tool is selected. The Range value is expressed in the rulers' measurement units.

## To Specify the Range Value:

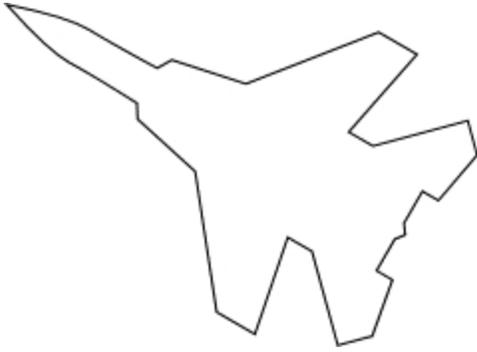
Enter a **value** in the Range text box. You can type an abbreviation for the measurement units following the range value; e.g., to set the Range to 10 picas when the ruler units are inches, enter **10p** in the text box.

Depending on the Range setting, editing a path with the Push tool can add or remove anchor point from the path; e.g., when the Range value is low, the Push tool is likely to add anchor points where you push a path. However, when the range is high and a path is not straight, the Push tool can smooth out a part of the path, which can result in fewer anchor points.

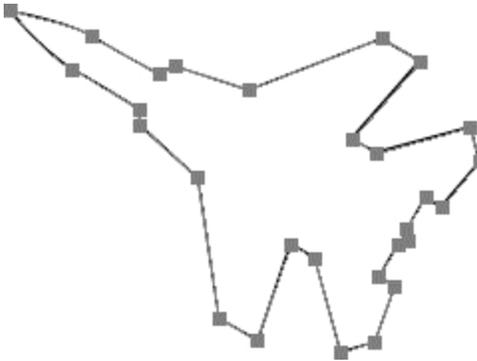


## Working with Objects in Edit Mode

To edit points and segments of a path, place the path object in Edit mode. In Edit mode, a path's anchor points appear as small squares along the path. Every path has at least two anchor points.



Object path drawn with Curve tool



Object in Edit mode, with anchor points visible

When an object is in Edit mode, you can select one or more anchor points. You can even select anchor points and segments on more than one object at once, as long as the objects are in Edit mode.

### To Place an Object in Edit Mode:

Do one of the following to place a path object in Edit mode:

- Select the object with the **Direct edit selection** tool. 
- Double-click the object with the **Selection** tool. 
- Select the object and choose **Path | Edit Path** or choose **Object | Edit | Object**.
- Select the **Selection** tool after placing an anchor point while you are drawing a path.

### To Place Multiple Objects in Edit Mode:

Place two or more objects in Edit mode by selecting them with the Direct edit lasso selection tool or by selecting them with the Selection tool and then choosing **Path | Edit Path**.

### To Return from Edit Mode:

When you finish editing an object, click outside the object with either the Direct edit selection tool or Direct edit lasso selection tool. You can also double-click outside the object with the Selection tool. In addition, you can press the **Esc** key to leave Edit mode.

### To Edit Special Vector Objects:

Some Canvas drawing tools create specialized objects. When you double-click one of these objects to place it in Edit mode, Canvas displays special editing handles or configuration options, rather than the anchor points and segments of a regular path object.

The tools that create special vector objects are the Concentric Circles, Cube, Polygon, Grid Maker, Multigon, or Spiral. Also, when you modify objects with the Envelope or Extrude commands, Canvas creates specialized objects.

If you want to use path-editing techniques to modify these objects, convert them to paths. This usually produces a group of objects. After you ungroup these objects, you have regular paths that can be edited using the techniques that follow. You can also convert text characters to paths so that you can edit the shapes of individual characters. (See "Converting Objects and Text to Paths" on page 238.)

## Editing Paths with the Context Menu

When a path is in Edit mode, use the context menu to quickly add, delete, and change anchor points and tangent lines. To see this menu, right-click with at least one object in Path Edit mode. The available options vary depending on the location of the pointer. Each option is described next.

- **Delete Point:** Available when the pointer is on an anchor point and appears as a crosshair. Removes the anchor point from the path, and connects the adjacent anchor points with a new segment.
- **Cusp:** Available when the pointer is on a tangent line handle or an anchor point. On anchor points, this option deletes the point's tangent lines. On tangent line handles, this option makes the path either smooth or cornered at the anchor point. To be smooth, the anchor point must have both sides of a tangent line. When smooth, the halves of the tangent line are always 180° from each other and rotate around the anchor point like a propeller. When the anchor point is a corner, the tangent line segments can move independently around the anchor point, like the hands of a clock.
- **Smooth:** Available when two or more points of an object are selected. You can smooth any paths made of straight segments.
- **Fillet:** Available when the pointer is on a corner point (with less than two tangent lines between two segments). Fillet creates a radius corner between the two segments. When you choose Fillet, in the dialog box, enter a **radius value** in the text box and click **OK**. The larger the radius value, the larger the curved segment. A message appears if the radius value is too large for the angle of the segments.
- **Add Point:** Available when the pointer is on a path segment and appears as a gray arrowhead. Inserts an anchor point with a tangent line where you click.
- **Break:** Available when the pointer is a gray arrowhead on a path. Splits the path segment at that location, and adds anchor points to the ends of the resulting segments.
- **Join:** Available when you select two anchor points that are not connected. Connects the selected points with a straight segment.
- **Delete Handle:** Available when the pointer is on a tangent line handle and appears as a crosshair. Removes the handle and the effects of the tangent line on the path. (See "To Delete Tangent Lines:" on page 236.)
- **Add Handle:** Available when the pointer is on an anchor point and there are fewer than two tangent line segments at the anchor point. Adds one or two tangent line segment to the anchor point. (See "To Add a Tangent Line:" on page 236.)
- **Straighten:** Available when the pointer is on a path segment and appears as a gray arrowhead. Makes the path segment straight by removing tangent lines from the segment's anchor points.
- **Enable Symmetrical Drag:** Available when an object is in Path Edit mode. You can easily create a symmetrical design from a circle, rectangle, or a complex group of objects. (See "To Symmetrically Resize Path Points:" on page 240.)

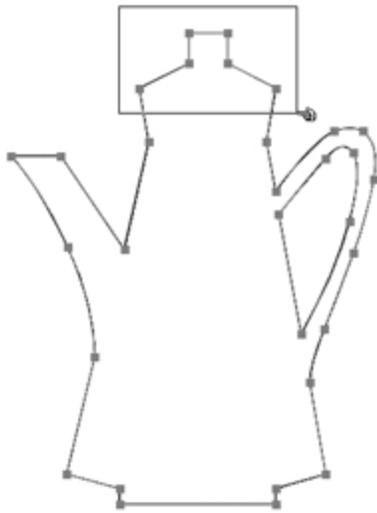
## Selecting Anchor Points and Segments

When you edit paths, you need to select particular anchor points or segments before you can delete, move, or reshape them. Before you can select anchor points and segments, a path object must be in Edit mode. (See "To Place an Object in Edit Mode:" on page 227.)

When a path is in Edit mode and you point to an anchor point with a Selection tool, the pointer becomes a crosshair. When you point to a segment, the pointer becomes a gray arrowhead. The Selection tools are explained in "Selecting Objects with Selection Tools" on page 104.

When an anchor point is selected, the Properties bar displays settings for angle and length. You can even add/delete handles or adjust the point to smooth or cusp.

You can select points in more than one path. When you move any selected point, all points in the selection move the same way. (If all the points in a path are selected and you drag one, the entire path moves.) This also works for segments belonging to separate paths.



Use the Selection tool to select multiple anchor points.

### To Select Anchor Points and Segments:

With the path object in Edit mode, click an anchor point or segment to select it. To select multiple points or segments, use either the **Direct edit selection** tool or the **Selection** tool to drag a selection box around them or **Shift-click** each point or segment.

### To Select All Anchor Points:

With the path object in Edit mode, choose **Edit | Select All**.

### To Select Parts of Separate Paths:

Place the paths in Edit mode, and **Shift-click** the point or segments.

### To Inverse a Selection:

Choose **Edit | Invert Selection**. The other points are selected and the current one is deselected.

When an anchor point is selected, it changes from a solid to hollow square. If the anchor point has tangent lines, they appear when the anchor point is selected. All tangent lines that affect the segments that touch the selected anchor point also appear. When you select a segment, the anchor point at each end is selected.

## Adding and Deleting Points and Segments

If a segment's anchor points are too far apart for you to adjust the shape as needed, add more. If you create or add more anchor points than you need, delete unnecessary ones.

Keep in mind that the more points on a path, the more complex and system resource-intensive it becomes. In particular, too many anchor points can cause printing problems. It's best to use the fewest possible anchor points placed as far apart as possible to create a path.

### To Add an Anchor Point:

With an object in Edit mode, **right**-click a segment to which you want to add an anchor point. In the path Context menu, choose **Add Point**. You can also **Ctrl**-click a segment to add a point.

### To Delete an Anchor Point:

With an object in Edit mode, **right**-click the point you want to delete. In the path Context menu that appears, choose **Delete Point**. You can also **Ctrl+Shift**-click a point to delete it, or select points and press the **Delete** key.

### To Delete a Segment:

Select the anchor points at each end and press the **Delete** key. Deleting a segment of a closed path does not open the path; the remaining segments are joined and the path remains closed.

### To Add Segments to an Open Path:

Add segments to the end of an open path using the Curve tool or Polygon tool.



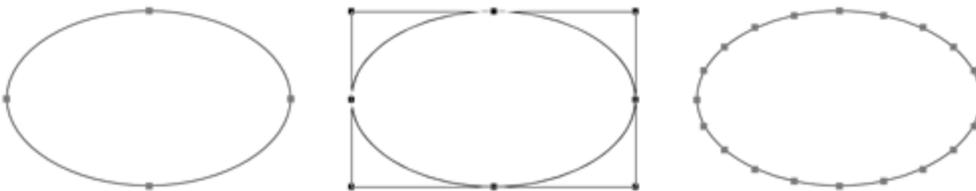
If you create the open path with the Smooth Polygon tool, use the **Smooth Polygon** tool to add segments.

1. With the object in Edit mode, select the endpoint where you want to add a segment.
2. Select the **Curve** tool (to add straight or curved segments) or **Polygon** tool (to add straight segments).
3. Click to add a straight segment beyond the selected endpoint. With the Curve tool, add a curved segment by clicking the mouse to establish the new anchor point and then dragging to position the tangent line.
4. To add additional segments, repeat the previous step. When you finish, press **Esc** to leave Edit mode.

### To Add Points to a Curve:

Often technical illustrators need to quickly add more editing points to a Bézier curve.

1. Select the object.
2. Choose **Path | Add Points**.
3. In the Add Points dialog box, enter the number of points that you wish to add to the object.
4. Click **OK** to accept your choice.



## Closing and Opening Paths

A closed path is one that starts and ends at the same anchor point. An open path has separate starting and ending points. You can close an open path by letting Canvas create a new segment to join the path's two endpoints. Open a closed path by breaking the path.

## To Close an Open Path:

With the path in Edit mode and the Curve or Polygon tool selected, click one of the **endpoints**. Canvas closes the path by connecting the endpoints with a new segment. If the adjacent segments are curved, the new segment follows the curve.

## To Break a Closed Path:

With the object in Edit mode, **right-click** an anchor point or segment to open the path Context menu. In the menu, choose **Break**; Canvas inserts segment end points to open the object at that location.

## Using the Scissors Tool to Open and Divide Paths

Use the **Scissors** tool to open a closed path and divide a path into two objects. Splitting a path opens the path at the point where the scissors clip the path.

### To Use the Scissors Tool:

1. Select the **Scissors** tool. The pointer changes to a pair of scissors. 
2. Point to the path where you want to split it. (You don't need to select the object first.) The pointer becomes a crosshair when it is on a point or segment that can be split.
3. Click the path when the crosshair is displayed. Canvas adds two endpoints where you click the path, and the path opens.
4. If the path is closed and you want to split it into two paths, click the path again where you want to split it.

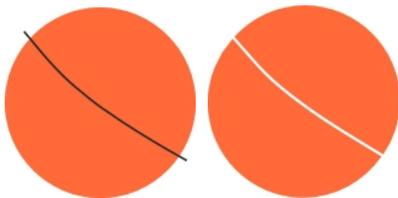
## Dividing Objects with the Knife Tool

Divide vector objects into separate pieces using the Knife tool. When you drag the Knife tool, it draws a cutting path. If the cutting path divides an object into two parts, the result is two new objects. If the cutting path crosses itself, the area inside the path becomes a new object.

The Knife is similar to the Scissors tool; both tools divide vector objects. The Scissors tool divides an object with a straight line between the two points that you click. The Knife tool slices objects along a freeform cutting path. Therefore, use the Knife tool to cut curved edges.

Use the Knife tool on open and closed vector objects. If you slice one or more open paths, the resulting objects are open paths.

If you slice an open path that crosses itself, the path separates where it crosses itself and where you slice it.



### To Use the Knife Tool:

1. Select the **Knife** tool. 
2. Drag in the document to draw a cutting path that intersects the objects you want to divide. The cutting path must intersect at least two points on an object's perimeter.
  - **Constraining the path:** To constrain the path of the Knife tool to 45° increments, press **Shift** as you drag. Release the Shift key to drag freely.

- **Partial cuts:** If you stop dragging before the cutting path intersects a second point on an object's perimeter, the cutting path appears but the object stays intact. To use this cutting path to divide the object, drag a second cutting path so it intersects the perimeter of the object and the first cutting path. Or, you can intersect the cutting path with other cutting paths to create a closed shape. The part of the object that falls within the closed shape becomes a separate object.
- **Cutting holes:** Cut out pieces of a vector object by dragging inside the object and creating a closed path. The parts of the object that fall within the closed cutting path become separate objects. To create a closed cutting path, the path must cross itself.
- **Gradient inks:** If an object's fill ink is a gradient, and the style is Radial, Directional, Rectangular, or Elliptical, the gradient remains intact across the separated objects. However, if the gradient style is Shape, the gradient fills each divided object separately.

### To Configure the Knife Tool:

Use the settings in the Properties bar.

- **Cut Only Selected Objects:** Select this option to make the Knife tool slice only vector objects that are selected and intersected by the cutting path. This setting can prevent unintentional changes to nearby objects.
- **Cut All Objects:** Select this option to make the Knife tool slice any vector objects that the cutting path intersects, whether the objects are selected or not.

### Cropping Vector and Image Objects

Canvas contains a Page Crop tool that can be used to crop several objects at once. This tool can be used on both image and vector objects.



If some vector objects contain `SpriteEffects`, you should render those objects before applying the Page Crop tool.

Any objects that are outside of the cropping rectangle will be deleted after completing the crop. After applying the Page Crop tool, images remain paint objects. Vector objects, however, become Bézier curves. The pen stroke, if any, becomes a composite object.



You cannot crop text objects or images to which a soft rotate effect has been applied. If you plan on using or editing the original file in the future, ensure that you save a copy of the file before applying the Page Crop tool.

### To Use the Page Crop Tool:

1. Select the **Page Crop** tool. The cursor changes to a crosshair. 
2. Drag the crosshair diagonally across the objects to form a cropping rectangle.
3. Move the cropping rectangle, if necessary. Place the cursor on the border of the cropping rectangle and a hand appears.
4. Resize the cropping rectangle, if necessary.
5. Place the cursor within the cropping rectangle and click to complete the crop.

### Periodic Waveforms

In Canvas, you can easily add a sine wave, sawtooth wave, or square wave to a Bézier or polygon segment that is in Curve Edit mode.

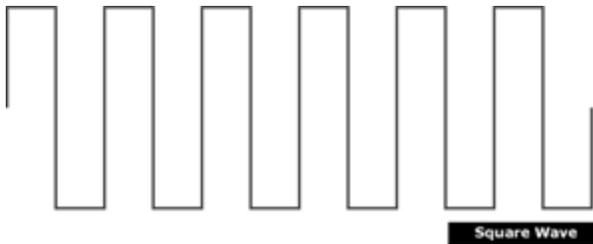
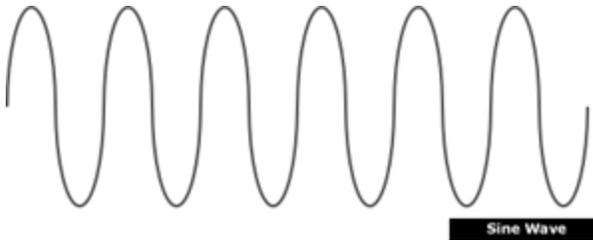


This command can be applied to one segment at a time.

### To Create a Waveform:

1. Ensure that the Bézier curve or polygon is in Curve Edit mode.
2. **Right**-click on the path segment to access the context menu.
3. Select one of the wave options: **Insert Sine Wave**, **Insert Square Wave**, or **Insert Sawtooth Wave**.
4. In the Wave Configuration dialog box, enter a **value** for the frequency in the # Cycles field.
5. Enter a **value** for the Amplitude.
6. Click **OK**.

### Waveform Examples



### Joining Two Paths

Use the **Join** command to create one path from two separate, open path objects.



Remember that the object must have an open path. If the object's path is closed, you must break it. (See "Editing Paths with the Context Menu" on page 228.)

## To Join Two Paths:

Select the two open path objects that you want to join. Choose **Path | Join**. Canvas connects the two paths by extending the existing segments or creating a new segment.

## To Join Paths at Selected Endpoints:

Canvas, by default, joins paths at the closest endpoints; however, you can select which endpoints to join.

1. Place an open object or multiple open objects in Edit mode.
2. Click an endpoint you want to join to another path. The endpoint becomes hollow to indicate that it is selected.



You can also draw a selection box around the object's endpoints with either the Selection tool or Direct edit selection tool.

3. **Shift**-click another endpoint. The endpoint also becomes hollow to indicate that it is selected.
4. Choose **Path | Join** or **right**-click one of the selected points. In the context menu, choose **Join**.

## Moving Anchor Points and Segments

With a path in Edit mode, you can move points and segments to alter the shape of the path.

Drag an anchor point or segment to move it. You can also press the keyboard arrow keys to move selected points and segments. Moving reshapes the segments you drag or the segments attached to the points that you move.



Pressing **Shift** while dragging points or segments will constrain their movement to 45° intervals.

When you begin to drag a segment, the anchor points display their tangent lines. You can control the movement of the tangent lines by using modifier keys when you drag the segment.

- **Expand or contract curves:** Press **Tab** and drag a segment to change the length of its tangent lines without changing their angles. This is the way that segments could be reshaped (without pressing Tab) in Canvas 3.5 and earlier versions.
- **Reshape adjacent segments:** To reshape a segment and adjacent segments together (if they are joined with smooth anchor points), press **Alt** and drag the segment.

## Reshaping Paths by Editing Anchor Points

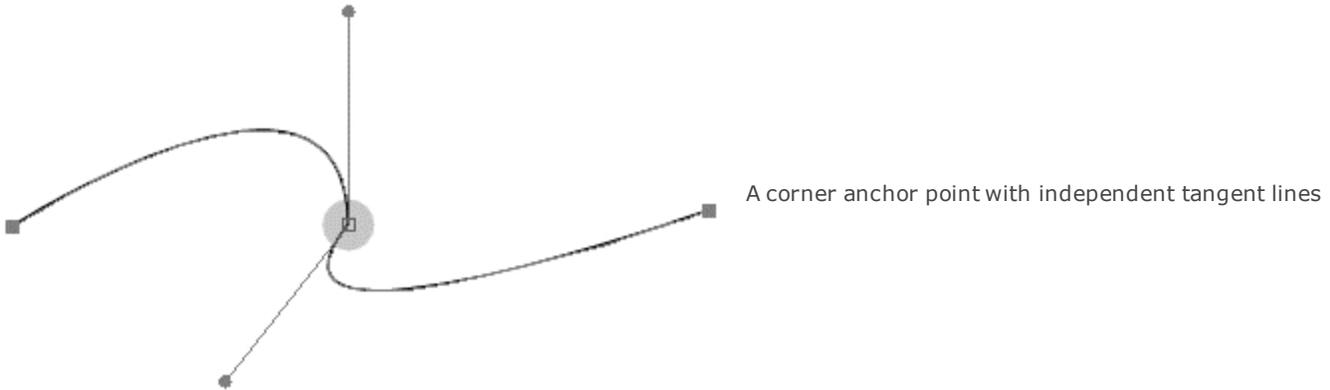
A path can contain two kinds of anchor points: smooth points and corner points.

- **Smooth point:** An anchor point that connects two curve segments where the curve flows smoothly through the anchor point without a sharp change in direction. Circles and sine waves are examples of paths that have only smooth anchor points.
- **Corner point:** An anchor point where the path makes a sharp turn at the anchor point. Corner points can connect two straight segments, two curved segments, or one curved and one straight segment.

## Tangent Lines

All smooth points, and some corner points, have tangent lines passing through them. Canvas displays the tangent lines when a point is selected.

A corner point can have one, two, or no tangent lines. When you select a corner anchor point with two tangent lines, each tangent line can move independently.

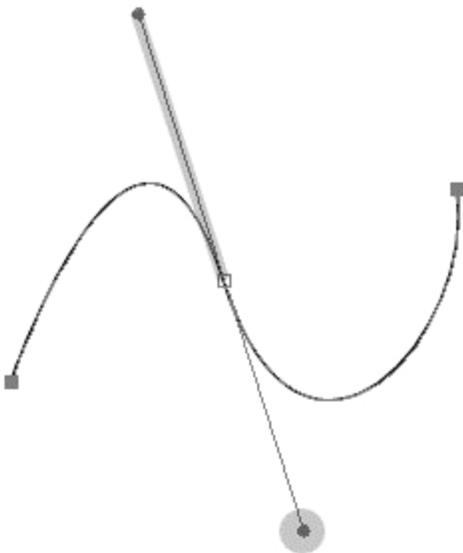


When you create paths with only straight segments, the anchor points are corner points. When you draw curved paths with the Curve, Freehand, or Auto Curve tools, the anchor points are smooth points. Adding anchor points to curved segments produces smooth points.

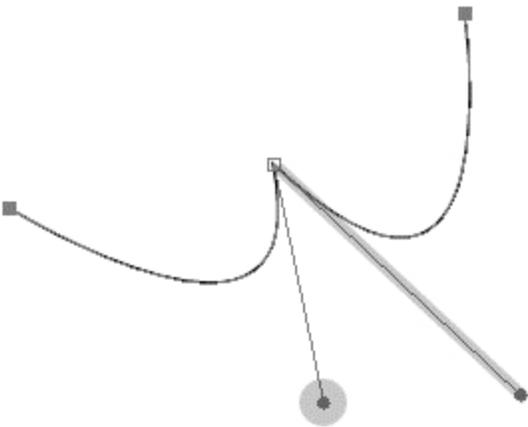
### To Change a Smooth Point to a Corner Point:

You can edit, reshape, and resize two adjoining curve segments independently by converting their smooth anchor point to a corner point.

1. With the object in Edit mode, click the anchor point to reveal its tangent lines.
2. Press **Tab** and drag one of the handles to move one of the tangent lines. The tangent line pivots at the anchor point and affects only one side of the anchor point.



**Tab-click** a corner point's handle to snap the other tangent line into alignment and smooth the path



### To Change a Corner Point to a Smooth Point:

To smooth out a sharp turn in curved segments, change the corner point between them to a smooth point.

 The corner point must have two tangent lines for this procedure. If it has fewer than two, first add tangent lines to the point.

1. With the object in Edit mode, click the anchor point to display its tangent lines.
2. **Tab**-click the handle of the tangent line you want to keep in place; the other tangent line snaps into alignment.

### Adding and Removing Tangent Lines

An anchor point can have as many as two tangent line segments. Corner points can have one, two, or no tangent lines, and smooth points must have two. You can quickly convert a smooth point to a corner point by deleting one of its tangent lines. Also, to convert a corner point with one or no tangent lines to a smooth point, you must add tangent lines.

#### To Add a Tangent Line:

1. In Path Edit mode, select an anchor point with one or no tangent lines. The anchor point cannot be an endpoint with one tangent line, because endpoints can have only one tangent line.
2. Press **Tab** and drag away from the anchor point to place a new tangent line segment. You can also right-click and choose **Add Handle** in the context menu. As you do this, the new tangent line begins altering the segment based on how you drag to position the tangent line.
3. Repeat the previous step to add a second tangent line.

#### To Delete Tangent Lines:

1. In Edit mode, click an anchor point to display its tangent lines.
2. Depending on how you want to edit the anchor point, do one of the following:
  - **To delete one tangent line:** Right-click the tangent line handle and choose **Delete Handle** in the context menu. You must use this method for anchor points with only one tangent line, and to delete one of two tangent lines attached to an anchor point.

- **To delete an endpoint's tangent line:** You can also **Tab-click** the anchor point.
- **To simultaneously delete both tangent lines of an anchor point:** **Tab**-click the point.

## Straightening Curve Segments

Straighten a curved segment by selecting it and using the Straighten command in the context menu. This command deletes the tangent line (s) that curve the segment.

### To Straighten a Segment:

1. With the object in Edit mode, right-click the curved segment that you want to straighten.
2. Choose **Straighten** in the context menu.

## Reshaping Curve Segments

To adjust the shape of a curve, in addition to moving points and segments along the path itself, you can adjust the tangent lines that control the curve. The angle of the tangent line affects the curve shape, while the length of the tangent line affects the size of the segment.

At a smooth anchor point, adjusting the angle of a tangent line affects the curves on both sides of the anchor point. At a corner anchor point, you can reshape the segments on each side independently. (See "Reshaping Paths by Editing Anchor Points" on page 234.)

### To Reshape a Curved Segment:

1. With the object in Edit mode, click one of the segment's anchor points to display its tangent lines.
2. Drag the handle of the tangent line to change the shape of the associated curve. In the case of a smooth point, the tangent line affects both adjacent curve segments.

## Path Editing Shortcuts

To do this	Shortcut
Add an anchor point	<b>Ctrl-click</b> path
Delete an anchor point	<b>Ctrl+Shift-click</b> anchor point
Change the length of the tangent lines on both sides of a smooth anchor point at the same time	<b>Ctrl-drag</b> tangent line handle
Constrain tangent line to 45-degree increments	<b>Shift-drag</b> tangent line handle
Move tangent line segment independently (change anchor point from smooth to cusp)	<b>Tab-drag</b> tangent line handle
Align tangent line segments (change corner point with two tangent lines to smooth point)	<b>Tab-drag</b> tangent line handle
Add tangent line to an anchor point	<b>Tab-drag</b> an anchor point
Delete an anchor point's tangent lines	<b>Tab-click</b> the anchor point or endpoint
Close an open path	<b>Alt-click</b> an endpoint
Reshape a segment without changing the tangent line angles	Press <b>Tab</b> and drag the segment
Reshape A segment and adjacent segments	Press <b>Alt</b> and drag a segment

## Converting Objects and Text to Paths

Some vector objects have specialized properties and unique edit modes instead of the standard Path Edit mode; e.g., you cannot directly edit the path segments of dynamic objects, concentric circles, grids, multigons, spirals, and objects modified by the Envelope or Extrude commands; however, you can convert these objects to paths so you can edit them the same as any other vector object.

If you create paths from a specialized vector object, the new shape does not have the same unique editing capabilities as the original; e.g., if you convert a Multigon star object to paths, you can no longer use the edit handles that let you adjust the depth and twirl of the points. Similarly, placed dynamic objects are no longer linked to their parent objects in the Symbol Library palette after you convert them to paths.

You can also convert text so you can reshape characters as vector objects. This has the benefit of making the characters independent of their fonts; the font is no longer required to view and print the characters properly. However, once you convert text to paths, you can no longer perform text operations, such as editing, spell-checking, and formatting, on the text. Also, characters with "holes" in them (such as a, b, d, e, g, o, p, r, and q) are converted to composite paths, which cannot be extruded.

### To Convert an Object to Paths:

1. Select the object you want to convert.
2. Choose **Path | Convert to Paths**. Canvas converts the object to one or more paths.

### To Convert Objects to Simple Paths:

This operation facilitates the rapid conversion of vector objects into a simple path. Now any Canvas object or a group of objects can be converted into simple paths. At the same time, these objects will maintain their Canvas inks settings and stroke types.

The Convert to Simple Paths command breaks down everything Convert to path does not. It also breaks down strokes and inks to simple, yet editable, Bézier paths and polygons.

1. First select the object.
2. Choose **Path | Convert to Simple Paths**.
3. After completing this operation, choose **Object | Ungroup**.

At this point, all high level drawing features that are contained in the object are reduced to individually editable polygon and Bézier objects.

## Outlining Path Stroke

An illustrator may find it necessary to outline a path stroke when working with logos, intricate artwork, or traced images, etc., especially if the illustrations will be resized.

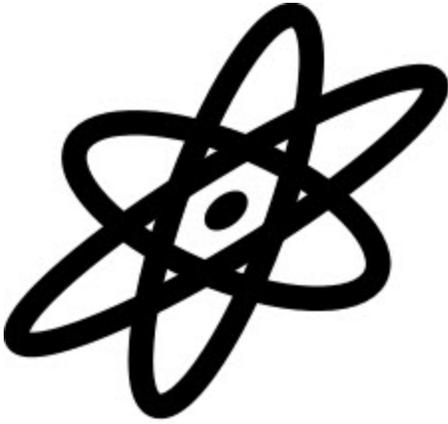


Illustration with a 6-point stroke resized to be 50% smaller

Even when reduced, the object maintains stroke size

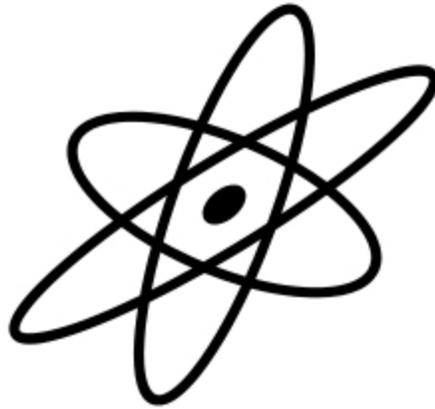


Illustration with a converted stroke resized by 50%

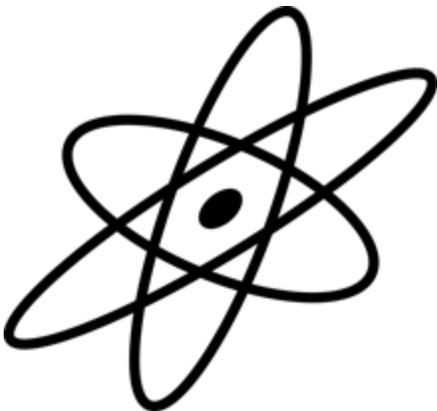
After conversion, the stroke size is no longer a factor when reducing objects

### To Outline a Path Stroke:

Select the vector object and choose **Path | Outline Path Stroke**.



You can apply this command to more than one selected vector object or even a grouped object.



Original illustration

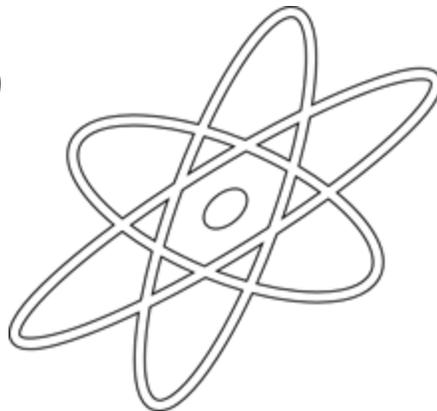


Illustration with outlined path stroke

### To Ungroup Objects Made of Multiple Paths:

When you convert multiple objects, characters, or specialized vector objects to paths, Canvas creates a separate path for each shape and groups them.

Choose **Object | Ungroup** to separate them.

For example, if you convert a five-letter word to paths, the resulting object is a group of five paths. To edit just one of the five paths, first choose **Object | Ungroup**. Or, use the **Direct Selection** tool to select one path without ungrouping.

## Making and Breaking Composite Paths

Create openings in a filled path by incorporating multiple paths into a single, composite path. Areas between the paths and areas where the paths intersect are transparent.

### To Create a Composite Path from Multiple Paths:

Select the paths you want to make into a composite path. Choose **Object | Make Composite** or click the **Make Composite** button in the Properties bar.

### To Separate a Composite Path:

Select the composite path and choose **Object | Break Composite** or click the Break Composite button in the Properties bar.

### To Symmetrically Resize Path Points:

When using the Symmetrical Drag feature, you can easily create a symmetrical design from a circle, rectangle, or a complex group of objects.

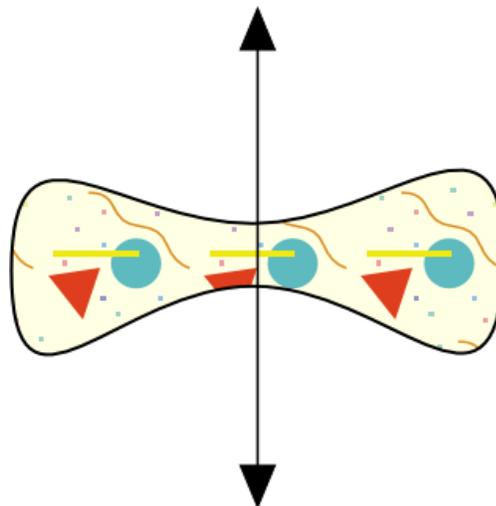
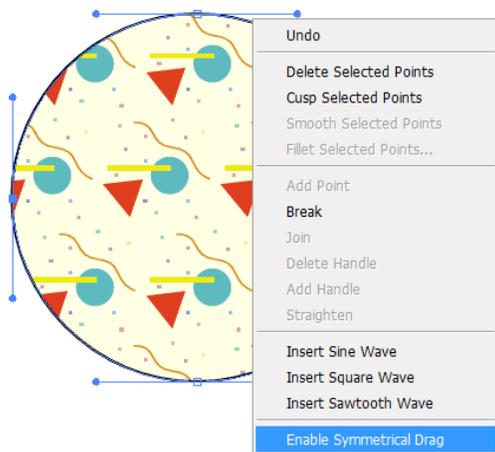
1. Select an object and place it into Path Edit mode.
2. Right-click to open the context menu.



You also have the ability to select all of the control points, and drag. Doing so will allow you to quickly resize the object while retaining proper object constraints.

3. Choose **Enable Symmetrical Drag**.
4. Release the mouse and select any of the object's control points.
5. Drag to create a new shape for the object.

When you drag the selected control points, notice that the shape is resized from the center of the object.



Dragging will resize the object

## Simplifying Vector Paths

The Reduce Points command lets you simplify vector paths by reducing the number of anchor points in the path.

Simplifying is a good practice when paths you import or create have a very high number of anchor points. These paths can cause slow printing or printer errors, especially when memory is limited. If you have problems printing a complex vector path, try simplifying it.

Use the Reduce Points command when one vector object is in Path Edit mode, or when one or more vector objects are selected.

Reduce Points works with objects created with the Curve, Auto Curve, Freehand, Smooth Polygon, and Polygon tools. You can apply it to objects created with other tools if you use the **Path | Convert to Paths** command to convert the objects to vector paths.

Reduce Points is not available when specialized vector objects (Concentric Circles, Smart Shapes, Multigons, and similar objects) are selected or in Edit mode. These objects must be converted to paths to simplify them.

### To Use the Reduce Points Command:

1. Select one or more vector objects, or place one object in Path Edit mode (select it and choose **Object | Edit**). In Edit mode, you can select three or more anchor points and apply **Reduce Points**.
2. Choose **Path | Reduce Points**.
3. In the dialog box, drag the slider to set the relative number of anchor points to use for the path.
  - **Loose:** Leaves fewer points in the path by tracing the original path more smoothly.
  - **Tight:** Removes fewer points by tracing the original more closely. When more points are removed, the change in the path can be greater.
4. Click **OK** to modify the path.

## Converting Polygons to Bézier Objects

The Fit Bézier command changes a polygon to a Bézier curve path. This command can be applied to a single selected polygon that is not in Edit mode. Fit Bézier is useful when you want to use handles attached to smooth anchor points to “bend” straight path segments into curves. Using Fit Bézier adds handles to all the corner points (which do not have handles) that define a polygon.

Using this command can have varied results, depending on the settings you use. You can convert a polygon without changing its shape. Or, use the command to smooth the straight segments of a polygon into gentle curves.

### To Use the Fit Bézier Command:

1. Select a polygon (open or closed).

A polygon can be created with the Polygon tool, Smooth Polygon tool, or Curve tool if the path has only corner points, not smooth points. Objects created with the Rectangle tool or Line tool can be converted to polygons with the **Path | Convert to Paths** command.
2. Choose **Path | Fit Bézier**.
3. In the dialog box, use these the sliders to adjust the following conversion settings:
  - **Loose-Tight:** Controls how closely the modified path will conform to the original path. Tight results in little deviation from the original path. Loose allows the modified path to be smoother and deviate farther from the original.

- **Round-Sharp**: Controls how many corners will become rounded in the modified path. Sharp preserves corners where segments meet at acute angles. Round allows all corners to become rounded.

These settings can interact and produce similar results at different slider positions; e.g., setting one slider at Tight and the other at Round can produce a path that closely matches the original, but with all corners being rounded. Setting one slider at Loose and the other at Sharp can result in a path that overall is smoother, but which has some corners that are not smoothed at all.

4. Click **OK** when you're done. Canvas modifies the object based on the settings you specified.

## Joining Open Vector Objects

The Smart Join function lets you join two or more open vector objects together to become a single object.

### To Join Objects Together:

1. Select the open vector objects you want to join by holding down the **Shift** key and clicking objects.  
If you do not select any objects, the command will be applied to all open objects in the document.
2. Choose **Path | Smart Join**.
3. Select the Smart Join options, as described below.
4. Do one of the following:
  - Click **Apply**. The objects are joined according to the Smart Join options, but the dialog box remains open. If you want to change the options you can do so and click **Apply** again, or you can click **Cancel** to discard the changes and close the dialog box.
  - Click **OK**. The objects are joined according to the Smart Join options, and the dialog box is closed.

### Smart Join Options

<b>Max distance between 2 points</b>	Select the maximum distance allowed between two points in order to join them. For example, if you set the maximum distance to 3 pt, end points whose distance between two given lines are within 3 points will be joined.
<b>Max segment at crossed point</b>	Select the maximum length of a segment from the point where the two crossed lines join. Unnecessary segments extended from this point are trimmed.
<b>Source Line Attributes</b>	Select the types of line attributes for lines that can be joined: <ul style="list-style-type: none"> <li>● <b>Polygons only</b>: Allow joins between polygons only. This includes lines.</li> <li>● <b>Beziers only</b>: Allow joins between beziers only. This includes arcs.</li> <li>● <b>Both</b>: Allow joins between beziers and polygons, or a combination of the two types.</li> <li>● <b>Matched Stroke</b>: Select this checkbox to only join lines with the same stroke. This includes dashes.</li> <li>● <b>Matched Pen Color</b>: Select this checkbox to only join lines with the same pen color.</li> </ul>
<b>Result Line Attributes</b>	Select the line attributes to be applied to the joined object: <ul style="list-style-type: none"> <li>● <b>Most Front</b>: Use the line attributes of the front-most object.</li> <li>● <b>Most Behind</b>: Use the line attributes of the rear-most object.</li> </ul>
<b>Merge Joined Objects</b>	To leave joined points disconnected, deselect this checkbox.

## Exporting and Importing Geometric Data

Canvas lets you export numerical data about a geometric object to a text file. You can also import geometric data from a text file or from a .CSV file.

### Exporting Geometric Data

#### To Export Geometric Data:

1. Open a Canvas document that contains simple, geometric vector objects.
2. Choose **Path | Geometric Export**.
3. In the Geometric Export Options dialog, select the options you want to use.
4. Click **OK**.
5. In the Geometric Export dialog box, select the location where you want to save the file, type a file name, and click **Save**.

#### Geometric Export Options

<b>File Coordinates System</b>	Displays the current coordinates.
<b>File Coordinates Unit</b>	Displays the current document unit.
<b>Delimiter Option</b>	Select a delimiter option.
<b>Object Type to Export</b>	Select the type of object you want to export.   Objects that are not simple vector objects, such as Rounded Rectangles, Smooth Polygons, Concentric Circles, Spirals, EasyShapes, Multigons, and Smart Lines should be converted to paths and/or ungrouped. Otherwise, such objects are not exported.
<b>Add a header line to describe export settings</b>	Select this checkbox to add a line at the top of the file describing the export settings.
<b>Field Data</b>	This section displays the data types that are available to be exported. If the Write column has a Yes, the data type will be exported. By default, all the data types are set to Yes.  If you do not want to export a type of data, click in the Write column to change the data type to No.   At least one data type must be set to Yes in order to export geometric data.
<b>Save as default</b>	If you want to save these settings as your default settings for exporting geometric data, select this checkbox.

## Importing Geometric Data

### To Import Geometric Data:

1. Open the Canvas document you want to import the geometric data into.
2. Choose **Path | Geometric Import**.
3. In the Geometric Import Options dialog, select the options you want to use.
4. Click **OK**.

### Geometric Import Options

<b>File</b>	Select a .TXT or .CSV file to import.
<b>File Coordinates System</b>	Select the document coordinate system.
<b>File Coordinates Unit</b>	Select the document unit.
<b>Delimiter Option</b>	Select a delimiter option.
<b>Object Type to Import</b>	Select the type of object you want to import.
<b>Import data starting from line (skip header)</b>	If the first line or more of the file you are importing contains information describing the export settings, set this to the line number where the geometric data begins. If there is no header information, leave this as the default.
<b>Pen Unit</b>	If you want to import Pen Weight, select a pen unit from the drop-down list.
<b>Field Data</b>	<p>This section displays the data types that are available to be imported. If the Read column has a Yes, the data type will be imported. By default, all the data types are set to Yes.</p> <p>If you do not want to import a type of data, click in the Read column to change the data type to No.</p> <p>If you want to change a field number, click in the Field # column.</p> <p> At least one data type must be set to Yes in order to import geometric data.</p>

## Editing Views of 3D Objects

In Canvas, you can place a 2D view of a 3D object in your document. After you've placed the object, you can edit the view, adjusting the orientation, rotation, zoom, and lighting of the object.

 This feature works best with the latest video card drivers. If an object is slow to load, consider updating your video card driver.

### To Place a 2D View of a 3D Object:

1. Select the **3D View** tool from the Toolbox. 
2. Drag and define a rectangular area where the view of the 3D object will be placed.

3. In the AutoCAD 3D File Import dialog box, click the **Browse** button, select the 3D DWG or DXF file you want to place, then click **Open**.
4. Click **OK**.

A 2D view of the object is placed in the document. By default, the object is cached at a resolution of 300 ppi to optimize redrawing.

 You can change the resolution of the cached image. Select the object, then enter the resolution in the Res text box in the Properties bar. You can also choose to not cache the object by deselecting the **Cache Object** checkbox.

### To Modify the View of the 3D Object:

1. Double-click the 3D object in your Canvas document.
2. In the 3D View Editor dialog box, use the **View**, **Rotation Angles**, and **Lighting** tools to modify the view of the object.
3. Click **OK**.

### 3D View Editor Dialog Box

<b>View Controls</b>	<p>Adjust the orientation, rotation, and zoom of the object.</p> <ul style="list-style-type: none"> <li>● <b>Magnifying glass:</b> Select this tool, then click on the preview image to zoom in. To zoom out, click the tool, then right-click the preview image.</li> <li>● <b>Hand tool:</b> Select this tool, then drag the preview to change the part of the image that is displayed in the view.</li> <li>● <b>Free rotation:</b> Drag the preview image through any angle.</li> <li>● <b>X-axis rotation:</b> Drag the preview image along the X axis.</li> <li>● <b>Y-axis rotation:</b> Drag the preview image along the Y axis.</li> <li>● <b>Z-axis rotation:</b> Drag the preview image along the Z axis.</li> <li>● <b>Step rotation:</b> Activated when the X-axis, Y-axis, or Z-axis rotation icon is selected. Set the step of rotation that will be applied with the Down and Up icons.</li> <li>● <b>Zoom controls:</b> Zoom in or out using the zoom icons, or enter a specific level of zoom.</li> <li>● <b>Revert:</b> Click this button to revert the transform (rotation, positioning, and zoom) of the viewed object to the state it was in before you opened the 3D View Editor.</li> <li>● <b>Reset:</b> Click this button to reset the transform of the viewed object to the default setting in the original file.</li> </ul>
<b>Rotation Angles</b>	<p>Use the Rotation Angles to set the degree of rotation precisely.</p>
<b>Lighting</b>	<p>Select the <b>Lighting</b> checkbox to adjust the lighting.</p> <ul style="list-style-type: none"> <li>● <b>Light color:</b> Set a color of the light source by dragging R, G, and B sliders or entering in numerical values, or select a color by clicking on the color spectrum bar with the color picker mouse pointer.</li> <li>● <b>Light source:</b> Enter X, Y, and Z coordinates to set the position of the light source. Also, you can drag the light source handle in the Preview window to set X and Y positions intuitively.</li> <li>● <b>Back/Front slider:</b> Drag the slider to set the depth of the light source along the Z axis (0 – 100).</li> <li>● <b>Light intensity:</b> Drag the slider to adjust the overall brightness of the light source.</li> </ul>

- 
- **Ambient light color:** Set the color of the ambient light. The default color is white.
- 

**Wireframe** Displays the preview image in wireframe.

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**Background** Select the background color of the image. By default the color comes from the original file, or it's set to black.



Only opaque, solid colors can be used. ie. Transparent is not a valid background color.

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## Precision Drawing and Dimensioning

This section describes precision drawing tools and techniques that can help you create scale drawings, floor plans, architectural designs, and other types of technical drawings. This section explains how to:

- Display size information as you draw.
- Set up the scale for scale drawings.
- Add dimension objects to illustrations.
- Use Smart Mouse to align objects.

Some of the techniques described elsewhere in this book also apply to precision drawing. For information on document setup and using rulers, see "Document Setup" on page 41.

### Setting Up a Document's Measurement Scale

Canvas offers a variety of options for creating scale drawings. You can use the Add unit feature to define a new unit of measurement for a particular document or redefine an existing unit. (See "Adding and Modifying Units of Measurement" on page 46.) You can also set up a ruler to control the scale of an entire document as well as customize scale settings for individual dimension objects. (See "Setting Up Rulers" on page 45.) Other settings affect the format of measurement and position data.

The following settings affect the measurement of objects in a document:

- **Rulers:** Set up a document's overall drawing scale using the Ruler manager and document scale. The document scale affects all object measurements, including those made with the Dimensioning tools. The document scale also affects data in the Properties bar and Object Specs palette. (See "Setting Up Rulers" on page 45 and "Set Document Scale" on page 49.)
- **Number Form:** A setting in the Ruler manager affects the format of data in the Properties bar and other displays. This option controls the precision of data and the number format (decimal or fractions). (See "To Set Up Rulers:" on page 46.)
- **Dimensions:** You can customize individual dimension objects with the Dimensioning controls in the Properties bar.

### Floating Point Technology

Projects in the scientific, engineering, medical, and biotechnology industries demand the highest levels of precision.

When working with very small units of measure, errors can occur since no human system of numeration can give a unique representation to every real number because there are simply too many of them.

To meet the demand for increased decimal precision, the Institute of Electrical and Electronics Engineers (IEEE) has produced a standard for binary floating point arithmetic (IEEE 754-1985). This standard specifies how single-precision (32 bit) and double-precision (64 bit) floating point numbers are to be represented, as well as how arithmetic should be carried out on them. An application that supports this

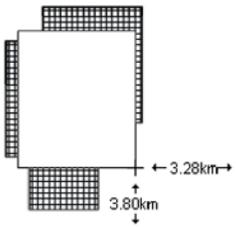
technology will generate a floating point number; i.e., the decimal point literally "floats," and, therefore, achieves a more precise fractional result.

Without installed support for the floating point standard the computations within a computer design environment will generate only a close approximation of a requested command. Although these calculations may generate satisfactory results for most purposes, the demands that exist within the science, engineering, medical, and other related professions dictate that only extremely accurate results be used within projects.

Canvas' drawing engine fully supports the IEEE floating point standard.

## Displaying Dimensions as You Draw

Canvas can display the horizontal and vertical dimensions of an object as you draw it. The Show Size command makes dimensions (in scale) appear at the pointer as you drag with any drawing tool. These dimensions do not remain in the document.



When Show Size is active, Canvas displays the scaled size of the object as you draw.

## To Display Dimensions When You Use Drawing Tools:

Choose **Layout | Display | Show Size**. When you select a drawing tool and drag the pointer in an illustration, the object's vertical and horizontal measurements appear at the pointer.



The Show Size option can also be toggled in the Display Options manager in the Configuration Center.

## To Turn Off the Dimensions Display:

Choose **Layout | Display | Hide Size**.

## Using the Dimensioning Tools

You can easily add formatted dimensions to documents with the Dimensioning tools. These tools can measure horizontal, vertical, oblique and perpendicular distances; measure diameter, radius, angle, area, and perimeter; and mark the centers of arcs and ovals.

The dimensioning tools are grouped in a single palette. (See "Tool Palettes" on page 8.) The Linear, Chain, and Baseline tools allow you to create horizontal, vertical, or oblique dimensions, depending on the position of the cursor upon creation.

In addition, when using the Chain and Baseline Dimensioning tools, you define the first two points as you would for a Linear dimension. Then, just click on every point you want to add to the dimension, and the tool creates the dimension object automatically. The result of using the Chain or Baseline Dimensioning tool is one single object. The current limit for Chain Dimensions is 16.



Baseline dimensions are a series of measurements made from a common starting point. Chain dimensions are a series of measurements in a row.

Create dimension objects that conform to industry standards, including ANSI, DIN and JIS. You can also customize the standard settings — the size of lines, gaps, text, and tolerances—and then save these settings as new standards. (See "Using Industry Standards for Dimension Objects" on page 252.)

## Dimensioning Procedures

Dimensioning tool	Prompts	Procedure
 <b>Linear (Horizontal, Oblique, and Vertical)</b>	Click 1st Point, Click 2nd Point	Click the start point for the measurement, then click the end point and anchor the dimension object.
 <b>Baseline and Chain (Horizontal, Oblique, and Vertical)</b>	Click 1st Point, Click Next Point	Click the start point and then click the end point for the first measurement; anchor the first part of the dimension object. Click the next measurement point and anchor the next part of the dimension object. Continue until finished, then press <b>Esc</b> .
 <b>Angle</b>	Click 1st Line, Click 2nd Line	Click the start point for the angular measurement, then click the end point.
 <b>Perpendicular</b>	Click Line, Click Point	Click the line to measure from, then click a point anywhere to take a perpendicular measurement from the line to the point.
 <b>Object Side</b>	Click Object Side	Click the side of the object to be measured.
 <b>Radius, Diameter, and Center</b>	Click Arc/Ellipse	Click anywhere on the arc or ellipse and then anchor the dimension object.
 <b>Area and Perimeter</b>	Click Object	Click anywhere on the object to be measured and then anchor the dimension object.

### To Use the Linear Dimensioning Tool:

1. Select the **Linear Dimensioning** tool. When you move the cursor into the drawing area, a prompt appears.
2. Define the first two points of the dimension as indicated by the prompt. Depending on the cursor's position, the type of dimension changes according to the mouse movement.
3. Click the third time to create the dimension object.

## To Use the Chain and Baseline Dimensioning Tools:

1. Select either the **Chain** or **Baseline Dimensioning** tool. When you move the cursor into the drawing area, a prompt appears.
2. Define the first two points of the dimension as indicated by the prompt. Depending on the cursor's position, the type of dimension changes according to the mouse movement.
3. Click the third time to create the first dimension.
4. Click on other points to add them to the dimension object.

## Types of Dimensioning Tools and Measurements

Use the dimensioning tools to add measurements to illustrations. Different tools let you create different types of dimension objects.

Baseline and chain dimensioning tools create a single dimension object. Baseline dimensions contain several measurements from a common starting point. Chain dimensions are a series of measurements.

- Vertical
- Oblique
- Radius
- Diameter
- Vertical Baseline
- Oblique (with aligned text)
- Vertical Chain
- Angle
- Horizontal

## Using the Dimensioning Settings

You can customize the measurement units, scale, arrow position, tolerance text, and other settings for dimension objects. Use the Dimensioning settings in the Properties bar. These settings are available when you select a Dimensioning tool or have selected a dimension object. Depending on the selected Dimensioning tool or object, the Properties bar will display various settings.

## Dimensioning Settings

<b>Prefix</b>	Select a prefix from the menu. The available prefixes depend on the Dimensioning tool used. You can also enter a customized prefix.
<b>Value</b>	Indicates the size of the dimension object. You can change the text value of the dimension object by entering a value in this field. The actual object size does not change. If you want to change the actual size of the dimension object, select the <b>Allow Change Size</b> checkbox. Click <b>Reset Value</b> to recalculate the measurement.
<b>Units</b>	Select a unit of measurement from the menu. If you have several dimension objects in a document, each dimension object can use its own unit of measurement. Use the document unit or a different unit of

	measurement from the menu. Selecting a different unit of measurement overrides the document unit for that dimension object.
<b>Postfix</b>	Enter a message that is to follow the value; e.g., 10.2 cm R, where "R" is the Postfix, indicating a radius of 10.2 cm.
<b>Tolerance</b>	Add a tolerance to the end of the measure. "None" is the default, which means nothing is added; however, you can choose to add Bilateral tolerance " $\pm$ value" or Unilateral tolerance "+ value - value".  Bilateral prints the tolerance amount with " $\pm$ " and the dimension text. Unilateral tolerance prints both tolerance amounts and the dimension text.
<b>Arrows</b>	This controls the placement of the arrows. Select either <b>Inside</b> , <b>Outside</b> , <b>None</b> , or <b>Auto</b> (default). (See "Style and Text Display Settings" on page 252.)
<b>Witness Lines</b>	This controls the length of witness lines. Select either <b>None</b> , <b>Short</b> , or <b>Long</b> .
<b>Precision</b>	You can choose from no decimals to six decimals, or even use fractions. Each dimension object can have a different precision.
<b>Scale</b>	Define the scale for the dimension object. If you select Define custom scale, the Custom scale dialog box opens. Each dimension object can have its own scale. The dimension object scale is independent of the document scale.
<b>Leaders</b>	This controls the placement of the leaders. Select either <b>None</b> , <b>Left</b> , <b>Right</b> , or <b>Auto</b> (default).
<b>Display Units</b>	Select this checkbox to make the unit of measurement appear in the dimension object.
<b>Separate Thousands</b>	Select this checkbox if you want to have a comma separator for digit grouping.
<b>Outside Lines Only</b>	Select this checkbox to keep the dimension object outside of the object. This option applies to Radius and Diameter objects.
<b>Use Secondary Units</b>	Select this checkbox if you want your dimensioning object to display two different units of measurement; e.g., inches and centimeters (cm). Choose the secondary unit of measurement from the menu.
<b>Text Display</b>	This controls the placement of the dimension text. (See "Text Display" on page 251.)
<b>Standard</b>	Select a dimensioning standard from the menu: ANSI, BS-380, DIN, ISO, or JIS. The Standard refers to the length of lines, size of tolerance text, placement of the text, placement of the arrows, etc.
<b>Add</b>	Click this button to add a custom dimension standard. (See "New Standard Definition" on page 252.)
<b>Edit</b>	Click this button to modify a dimension standard. (See "New Standard Definition" on page 252.)
<b>Remove</b>	Click this button to remove the selected dimension standard. (See "To Delete a Custom Standard:" on page 253.)

### To Change the Properties of Existing Dimension Objects:

1. Select the dimension object. The settings appear in the Properties bar.



The Properties bar must be displayed to view the Dimensioning settings. If not open, choose **Window | Show Properties Bar**.

2. Make any adjustments with the settings.

 You can change the properties of multiple selected dimension objects as long as the dimension objects are of the same type.

### To Change the Settings for Dimensioning Tools:

1. Select the **Dimensioning** tool. The settings appear in the Properties bar.
2. Make any adjustments to the tool settings and then create the dimension object. (See "Dimensioning Settings" on page 249.)

### Attributes of Dimension Objects

When you are using a dimensioning tool, the pen ink of the dimension object appears black with a 1-pt stroke; however, once you complete the object, the pen ink switches to the current ink and stroke settings. By default, the dimension text is 10 pt and uses Arial. In addition, the current stroke color is applied to the dimension text.

You can change the current ink, stroke, and text settings for new dimension objects, and you can change these settings for existing dimension objects.

### To Change the Appearance of a Dimension Object:

Select the object and use the Presets palette to select ink color, pen size, and arrows for the dimension object.

 Dimension objects can still display arrows if all the preset arrows have been deleted from the Arrow tab in the Presets palette.

### To Change Attributes for New Dimension Objects:

Make sure that no objects are selected in the document, and then use the Presets palettes to change the current stroke and ink settings for new objects and text.

### To Change the Text Attributes of a Dimension Object:

The Properties bar allows you quick access to text formatting options for various dimension objects.

 You can scroll the Properties bar if all the options are not visible. Arrows appear on the left and right indicating that other options are available.

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<b>Text Display</b>	Refers to the placement of dimension text in relation to the object.
<b>Horizontal</b>	Text is aligned horizontally in the dimension object.
<b>Aligned</b>	Text is aligned with the angle of the dimension arrows.
<b>Above</b>	Text runs above the dimension arrows.
<b>Below</b>	Text runs below the dimension arrows.
<b>Font &amp; Size</b>	Select a new font and font size for the text from the menus.
<b>Style</b>	Click the buttons to apply a style to the text (Bold, Italic, Underline, and Frame).

---

 You can also change the font, size, and styles by using the Text menu or Type palette.

---

## Style and Text Display Settings

Use the following style options in the Properties bar to customize the appearance of dimension objects.

<b>Text Always Centered</b>	Select this option to keep the text between the arrows. Must be off to drag dimension text outside the witness lines.
<b>Frame Text</b>	Turn this option on to frame the dimension text.
<b>Use Fill Color for Text</b>	Select this checkbox if you want the dimension text to use the fill color rather than frame color of the object.

## Linking Dimensions to Measured Objects

Since dimension objects aren't attached to the objects they measure, dimensions do not change when you resize objects you have measured. However, you can group a dimension object and the object that it measures. When you do this and then resize the object, the dimension changes accordingly.

### To Group an Object and a Dimension Object:

Select the dimension object and the measured object and choose **Object | Group**.

## Using Industry Standards for Dimension Objects

If you want to use industry standard settings for dimension objects, open the Standards menu in the Properties bar. Select a dimensioning standard from the menu: ANSI, BS-380, DIN, ISO, or JIS. The Standard refers to the length of lines, size of tolerance text, placement of the text, placement of the arrows, etc.

Choose from five standard measurement systems:

- **ANSI:** American National Standards Institute
- **DIN:** Deutsches Institut für Normung
- **BS-380:** British Standards Institute
- **ISO:** International Organization for Standardization
- **JIS:** Japanese Industrial Standard

### To Add a Custom Standard Definition:

1. Click the **Add** button.
2. In the New Standard Definition dialog box, use the controls to create and define dimensioning standards. (See "New Standard Definition" on page 252.)

## New Standard Definition

Once defined, custom standards appear in the Standard menu in the Properties bar.

<b>Standard Name</b>	Enter a name for the new standard.
<b>Units</b>	Select the unit of measurement that you want to use for all settings in the dialog box.

<b>Extension</b>	Set the length of the witness lines' extensions and the center line extension.
<b>Gap</b>	Set the size of the gap between the witness lines and measurement points on objects; the gap between the center extension and center point mark; and the gap between the dimension text and dimension arrows.
<b>Length</b>	Set the length of the arrow lines (applies only when arrows are outside the witness lines); the length of center extension lines' leader characters; and the length of the center extension line.
<b>Tolerance Scale</b>	The size of tolerance text and space between tolerance text, as a percentage of the dimension text size and spacing.

### To Edit a Standard Definition:

1. Select a dimensioning standard from the menu.
2. Click the **Edit** button.
3. In the Edit Standard Definition dialog box, edit the settings.

### To Delete a Custom Standard:

1. Open the **Standards** menu.
2. Select the custom standard definition to be removed.
3. Click the **Remove** button.

## Using Smart Mouse for Precise Alignment

Smart Mouse is a drawing aid that can help the cursor precisely snap to a point on another object when you are drawing. Snap constraints like Smart Mouse are particularly useful when creating technical illustrations or documents in which micron-precision is paramount since it can snap the pointer to the corners, edges, and other points of objects.

 Smart Mouse cannot be used at the same time as Snap to Grid. To turn off Snap To Grid by choosing **Layout | Grids and Guides | Snap to Grids**. If there is no checkmark, the option is already turned off. If Snap To Grid is on, the pointer will snap to the grid and not to active Smart Mouse constraints.

### To Open the Smart Mouse Palette:

To open the Smart Mouse palette, do one of the following:

- Choose **Window | Palettes | Smart Mouse & Guides...**
- Choose **Layout | Smart Mouse & Guides | Show Palette...**
- Press **Ctrl+Alt+[**.

### To Turn on the Smart Mouse:

To turn on the Smart Mouse, do one of the following:

- Choose **Layout | Smart Mouse & Guides | Smart Mouse On**.
- Press **F9** to toggle Smart Mouse on or off.

- Check the **Smart Mouse On** checkbox in the Smart Mouse and Guides palette.

Customize the following Snapping settings:

<b>Show snapping type indicators</b>	Select the snapping type indicators you would like to display as you hover over the object. <b>Indicator only:</b> Displays a circle in the color shown. Click the color palette to choose another color. <b>With Symbols:</b> Displays the symbol of the snapping type selected. <b>With Names:</b> Displays the name of the snapping type. Click the color palette to choose another color.
<b>Snapping radius</b>	Specifies the number of pixels the mouse pointer will be away from an object before snapping points can be detected. If you release the object as soon as the indicator appears, the object will snap to the detected point.

## Types of Smart Mouse Constraints

The Smart Mouse tool has 8 types of constraints for your use. The constraints make the pointer (and objects that you draw or drag) snap to corners or centers of objects. The pointer will even snap to divisions, such as the midpoints of line segments, edges of vector objects, four quadrant points, tangent lines, perpendicular lines, and intersections.

 The most effective use of the Smart Mouse Constraints is to activate as few snapping types as possible to achieve your desired operation.

Select one of the following snapping types:

### Smart Mouse Constraints

Snapping Type	Smart Mouse Snaps Pointer to
<b>Anchor point of vector object</b>	Any starting or ending point of path (line or curve) segments, including quadrant points.
<b>Center</b>	The center of a line or object.
<b>Division of line segment</b>	Path segments as divided by the value in the number field. e.g.) With a value of 4, the pointer will snap to each 1/4 point of a path segment.
<b>Edge</b>	Any edge or path of a vector object.
<b>Quadrant</b>	The four points of a circle, oval, or arc: 0°, 90°, 180°, and 270°.
<b>Tangent</b>	The edge of a circle, oval, arc, or Bezier curve that a line will touch, but not intersect.
<b>Perpendicular</b>	The 90° angle of a line segment.
<b>Intersection</b>	The geometric intersection of path segments.

 By default, Smart Mouse will only detect snapping points on your current layer. If you want Smart Mouse to detect snapping points across all layers, select the **Select Across Layers** checkbox in the Properties bar.

## Using Virtual Guides for Precise Vector Placement

Virtual guides are designed to make it easy to establish angles and distances. Once you have enabled virtual guides, you can click anywhere in the work space and see guide lines at angles you specify.

### To Open the Smart Mouse & Guides Palette and Activate Virtual Guides:

1. To open the Smart Mouse & Guides palette and customize the settings, do one of the following:
  - Choose **Window | Palettes | Smart Mouse & Guides...**
  - Choose **Layout | Smart Mouse & Guides | Show Palette...**
  - Press **Ctrl+Alt+[**.
2. Click the **Guides** tab.
3. Select the **Virtual Guides On** checkbox.
4. Configure the settings as described in the table below.

### To Toggle Virtual Guides On and Off:

Do one of the following:

- Choose **Layout | Smart Mouse & Guides | Virtual Guide On**.
- Press **F10**.

## Virtual Guide Options

<b>Virtual Guides On</b>	Select this checkbox to activate the Guides settings. Click the color palette to choose another color.
<b>Show Angle</b>	When this option is selected, angles display as part of the virtual guide. To add angles that your mouse pointer will snap to, see the To Add an Angle for Use as a Virtual Guide section below.
<b>Show Distance</b>	When this option is selected, the distance between your mouse pointer and the original anchor point is displayed. <b>Length:</b> This option provides two points on the virtual guide line at the specified distance away from each other. e.g.) If you set the Length field to 2 inches, a point will display on the virtual guide line followed by a second point 2 inches from the first.
<b>Sensitivity</b>	Set the distance that the mouse pointer can be from an anchor point before it displays a guide.
<b>Angular</b>	Select this checkbox to turn on the angles in the boxes below for use as virtual guides. To activate or deactivate specific angles, select or deselect their respective checkboxes. The display in between the angle checkboxes indicates the angles that are active, and the red line indicates zero degrees.
<b>With this checkbox enabled,</b>	<b>do the following:</b>
<b>Perpendicular</b>	With the Line tool, click on an existing line and draw outward until the guide indicates that it is perpendicular.

<b>Tangent</b>	With the Line tool, drag from a point on a circle or oval's path toward a potential tangent. The guide will indicate when you have hit the tangent.
<b>Extension of a line segment</b>	With the Line tool, hover over an existing line to easily draw an extension of it or another line segment in line with it.
<b>Parallel</b>	While drawing a line, move the mouse pointer over an existing line to establish a source for your parallel line. Then move your mouse pointer until the guides indicate that it is in the parallel position.

 The most effective use of the virtual guide types is to activate as few as possible to achieve your desired operation.

### To Add an Angle for Use as a Virtual Guide:

1. On the Guides tab of the Smart Mouse & Guides dialog box, click the **Add** button.
2. In the Add Angle dialog, enter the angle you want to add in the Angle field.
3. If you would like to add a supplementary angle  $180^\circ$  from the angle you entered, enable the **Also add supplementary angle** checkbox.
4. Click **OK**.

### To Delete an Angle:

1. On the Guides tab of the Smart Mouse & Guides dialog box, select the angle you would like to delete from the list.
2. Click **Delete**.

### Controlling Angle Orientation:

By default, the angles available are based on a clock-like angle control. This means that zero degrees is indicated by the vertical red line and all additional angles exist relative to that line. To change the orientation of the angles, do the following:

1. Choose **File | Configuration Center | Measurements | Ruler**.
2. Under Angles, choose **Euclidean**. The red line indicating zero degrees is now horizontal and all additional angles exist relative to this position.

### Object Path Editor

This function allows you to view and edit the X/Y coordinates of each individual point of a basic vector object, polygon, or Bézier curve.

 Basic vector objects are rectangles, lines, ovals, and arcs.

### To View the Points of a Single Object:

1. Select the object.
2. Open the Object Path Editor palette by choosing **Path | Object Path Editor...** The individual points are listed in the left column with their corresponding X/Y coordinates in the middle and right columns.

 If you have the GIS+, you can select the **Angular Units** in the palette menu to view the points' coordinates in angular units as opposed to the X/Y position.

### To View the Points of Multiple Objects:

1. Press **Shift** and double-click each object to place it in Edit mode.
2. Open the Object Path Editor (**Object | Object Path Editor**). The Curve menu is now active.
3. Select the curve whose points you want to appear. The curve number in the menu is according to the stacking order. The individual points are listed in the left column with their corresponding X/Y coordinates in the middle and right columns.

### To Edit X/Y Coordinates:

1. Click in the X or Y field of the point to be modified.
2. Enter the new coordinate.
3. Press **Enter**.

### To Copy X/Y Coordinates:

1. Select the object.
2. Open the menu of the Object Path Editor palette.
3. Select **Copy**.
4. Paste the coordinates in the other application.

### To Paste as Polygon or Bézier:

With the Object Path Editor, you can create a polygon or Bézier curve with point values copied from a spread sheet or tab-delimited file.

1. Copy the point values in the spreadsheet or tab-delimited file.
2. Open the menu of the Object Path Editor palette.
3. Select either **Paste As Polygon** or **Paste As Bézier**.

### To Load Polygon or Bézier:

With the Object Path Editor, you can create a polygon or Bézier curve with point values found in a .txt, .csv, or .prn file.

1. Open the menu of the Object Path Editor palette.
2. Select either **Load Polygon** or **Load Bézier**.
3. Navigate to the file and click **Open**.

### To Save a Path:

1. Open the menu of the Object Path Editor palette.
2. Select **Save Path**.

3. Enter a name for the file in the dialog box and navigate to the folder. You can use .txt, .csv, or .prn format.
4. Click **Save**.

### To Insert Points:

With the Object Path Editor, you can insert points within a path.

1. Place an object into Edit mode.
2. Select an anchor point.
3. Open the Object Path Editor palette menu.
4. Select **Insert Point**.
5. In the Insert New Point dialog box, enter the X/Y coordinates for the new point.
6. Click **OK**.

## Vector Effects

Canvas has several special effects that let you develop complex illustrations from basic objects. You can apply the effects described in this section to any vector object; some can be applied to text objects, too. (See "Type Effects" on page 444.) These commands help save time by quickly generating new objects and letting you easily modify the appearance of existing objects.

As you apply effects to objects, keep in mind that some of these operations are system memory-intensive and might significantly increase the resource and storage requirements of a document.

### Perspective Effects

Commands in the **Path | Perspective** menu can be used to modify vector objects. The 1 Side, 2 Sides, and Vanishing Point commands let you slant the bounding boxes of vector objects to align with vanishing points. By applying these commands, you can make vector objects appear to be drawn in perspective views.

### About the Vanishing Point

The Perspective commands apply perspective effects based on a vanishing point. There is one global vanishing point in a Canvas document. When you use the 1 Side or 2 Sides commands, you set the vanishing point by dragging a control handle. When you use the Vanishing Point command, you can set the vanishing point by clicking in the document or entering coordinates.

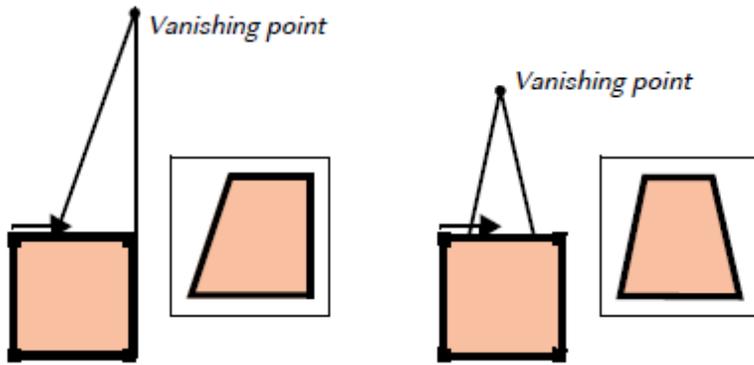
### Using the 1 Side and 2 Sides Commands

The 1 Side and 2 Sides commands let you apply perspective effects to vector objects by dragging control handles. To use these commands, select a single vector object or a group of vector objects. These commands are not available if multiple objects are selected, or if a paint or text object is selected.

### To Apply Perspective with 1 Side or 2 Sides:

1. Select a vector object or a group of vector objects.
2. In the **Path | Perspective** menu, choose **1 Side** or **2 Sides**.

3. Control handles appear at the corners of the bounding box of the selected object. Drag any of the handles to apply the perspective effect. As you drag a handle, guide lines indicate the position of the vanishing point, which extend beyond the current view.
  - If you choose 1 Side, the side of the object's bounding box where you drag a handle will slant to a vanishing point. You can adjust the object's sides independently.
  - If you choose 2 Sides, as you drag a handle, the opposite sides of the object's bounding box will slant equally toward a vanishing point located along the object's vertical or horizontal center axis.
  - When the pointer is on a control handle, a four-arrow symbol indicates that you can drag horizontally or vertically. To change directions, point to a control handle until the four-arrow symbol appears again.
4. When you finish, press **Esc** to deselect the object.



1 Side perspective

2 Sides perspective

## Using the Vanishing Point Command

The Vanishing Point command applies a perspective effect to one or more vector objects. The command slants the bounding boxes of selected vector objects so the objects appear in perspective based on a vanishing point that you select.

The Vanishing Point command is available when vector objects or groups of vector objects are selected. The command is not available if a paint or text object is selected.

### To Apply Perspective Using a Vanishing Point:

1. Select one or more vector objects or groups of vector objects.
2. Choose **Path | Perspective | Vanishing Point**.
3. In the dialog box, change the coordinates to move the vanishing point, or click in the document to set the vanishing point.
  - **To enter coordinates:** Type coordinate values in the text boxes. Coordinates are based on the document's rulers.
  - **To set the vanishing point visually:** Click **Choose**. Move the pointer and click to set the vanishing point. The coordinates of the point you click appear in the text boxes.
  - **To restore the previous vanishing point coordinates:** Click **Reset**.
4. Click **OK** to apply the perspective effect.



The **Effects | Remove Effects** command will not remove perspective effects that have been applied to objects.

## Offsetting Paths

Use the Offset Path command to create new objects that follow the path of a vector object.

 Composite objects created by the Concentric Circles, Spiral, Cube, Gridmaker, or Multigon tools cannot be offset.

An offset object's path follows the inside or outside of the original object's path. Specify the offset distance and the number of objects to create. You can offset one vector object at a time.

### To Offset an Object:

1. Select a vector object and choose **Effects | Offset Path**.
2. In the Offset Path dialog box, type the offset distance in the Distance box. In the Copies box, type the number of copies to make.
3. Click **OK** to create the offset objects.

Canvas applies the current inks and stroke to offset objects. (See "Inks: Colors and Patterns" on page 150 and "Strokes: Outline Effects" on page 175.) The new objects appear in front of the original if they are smaller; otherwise, they appear behind it.

The direction of the offset depends on whether you type a positive or negative Distance value.

When you offset an object that has an open path, type a negative value to offset the new object to the inside of the curve. Type a positive value to offset the new object to the outside of the curve.

When you offset an object that has a closed path, type a negative number to offset the new object to the inside of the original path. Type a positive number to offset the new object to the outside of the original path.

An offset object can differ in shape from the original object, if a large offset distance makes the path cross itself to follow narrow angles or tight curves of the original object.

## Using Clipping Paths

A clipping path is a special object that creates a frame or window on an object. You can use text objects and vector objects as clipping paths.

You can apply a clipping path to one or more objects. The clipping path frames the objects to which it is applied. Anything inside the clipping path remains visible, while anything outside the path is hidden, or "clipped."

If you apply an oval clipping path to a photo, for example, the photo is visible inside the oval, while any part of the photo outside the oval is not visible.

Since clipping paths are vector objects, clipping effects print smoothly at maximum resolution on any printer, including PostScript and non-PostScript devices.

Clipping paths create hard-edged effects. Clipping paths are often used to "cut" photos and illustrations into shapes such as circles or curves. Use text as a clipping path to create the effect of text characters filled with photos or other graphics. (See "Using Text as Clipping Paths" on page 452.)

If you want to create feathered or graduated clipping effects, use vector transparency masks and channel masks instead of clipping paths. (See "SpriteLayer Effects" on page 469.)

## To Apply a Clipping Path:

1. Position a text or vector object in front of the objects to be clipped. (Select an object and choose **Object | Arrange | Bring to Front** to put the clipping object in front of other objects.)
2. Select both the clipping object and objects to be clipped.
3. Choose **Object | Clipping Path | Make** to clip the selected objects.

If you want to use a special object, (such as a star created by the Multigon tool), as a clipping path, the object must be converted to a vector path first. Select the object and choose **Path | Convert to Paths**.

 If a selected object can't be used as a clipping path, the **Clipping Path | Make** command is not available.

## To Hide Clipping Paths:

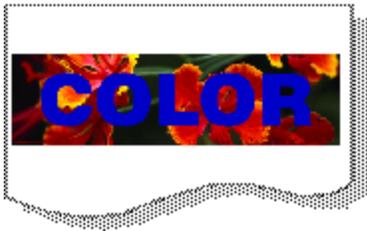
Choose **Object | Clipping Path | Hide**. Canvas makes the strokes of all clipping paths invisible.

## To Show Clipping Paths:

Choose **Object | Clipping Path | Show**. Canvas shows the clipping paths with a 1-point black stroke.

## To Remove a Clipping Path:

Select the clipping path or a clipped object and choose **Object | Clipping Path | Release**. Canvas restores the clipped objects to full view, and the clipping path object appears with its original attributes.



Text in front of paint object



Text clipping path

## Editing Clipping Paths

After applying a clipping path, you can move it and the clipped objects independently. Dragging the clipping path frames a different part of the clipped objects. Dragging a clipped object changes its position inside the frame of the clipping path.

You can apply several effects to a clipping path. Select the clipping path and choose **Effects | Freeform** to display handles that you can drag to skew and rotate the clipping path. You can also apply the Fractalize, Rotate, and Flip commands to a selected clipping path.

You can reshape a clipping path in several ways. Select a clipping path and drag its handles to change the size or shape of its bounding box. To reshape a vector object path, double-click it, or select it and press **Ctrl+E**. With the path in Edit mode, use path-editing techniques to move, add, or delete anchor points. When you finish editing, press **Esc** to reapply the clipping path.

### To Edit a Text Clipping Path:

Use the Text tool or double-click the text to put it in Edit mode. You can insert and delete characters in Edit mode. When you finish, press **Esc** to reapply the clipping path.

### To Change the Formatting of a Text Clipping Path:

Select the clipping path and use the Text menu or the Type palette to change its font, style, size, or other attributes. When a text clipping path is selected, you can use the Spell Check Selection command to check its spelling.

Because clipping paths are special objects, they do not display the pen inks, fill inks, or strokes of their original objects. Canvas displays clipping paths with 1-point black strokes, (which the **Clipping Path | Hide** command makes invisible).

If you select a clipping path and change its inks or stroke, Canvas applies the attributes to the object, but the attributes aren't visible unless you use the Release command to convert the clipping path back into a vector or text object.

## Combining Objects

The Combine command in Canvas allows you to create new objects from the intersection of two or more vector objects. You can outline the overlapping objects, delete all except the overlapping area, subtract the overlapping area, and perform other combinations.

### Combine Effects

To access the Combine menu, select more than one vector object. To use a combine method, each selected object must overlap at least one other selected object.

### To Combine Objects:

1. Select two or more objects that you want to combine.
2. Open the Combine menu or use the Combine palette (**Effects | Combine**).
3. Select a combine method and the effect immediately happens.

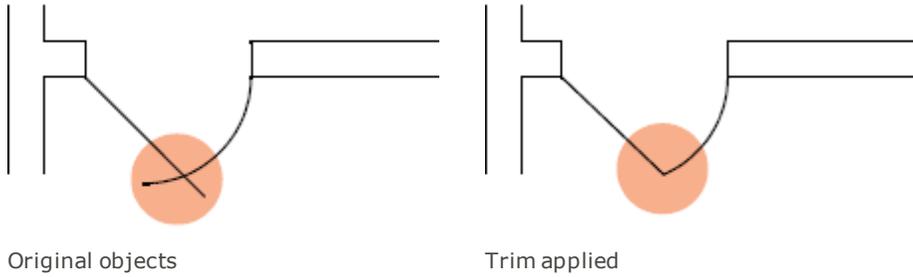
### Selecting a Combine Method

The Combine menu contains various methods for combining objects. Some methods require that the paths of overlapping objects intersect for the effect to be visible or work properly. In addition, some methods work only with closed vector objects, and not with lines and open curves.

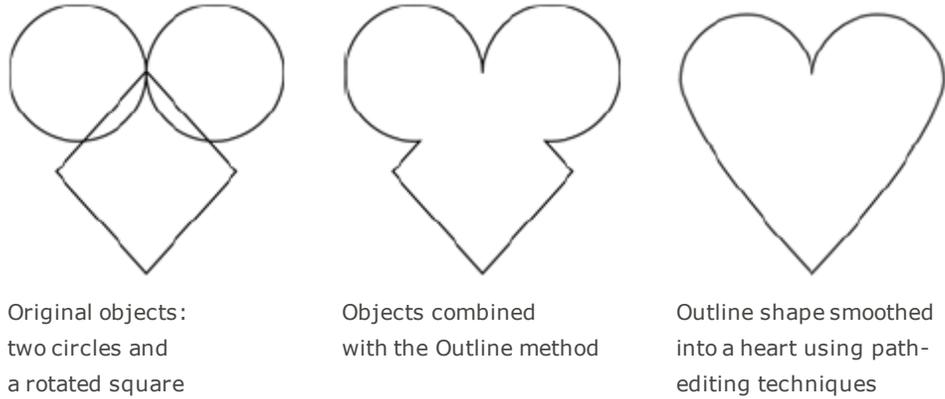
- **Trim:** Trims intersecting lines or arcs by shortening them until they meet at a vertex. You can trim a line to a line, an arc to an arc, or an arc to a line. In each case, Canvas trims the shorter segments of the intersecting lines and arcs. Trimmed lines and arcs remain separate and retain their attributes.

Trim also trims lines or arcs where they intersect closed vector objects. The vector objects do not change.

If Canvas can't trim the selected objects, a message tells you that the operation requires at least one open path.

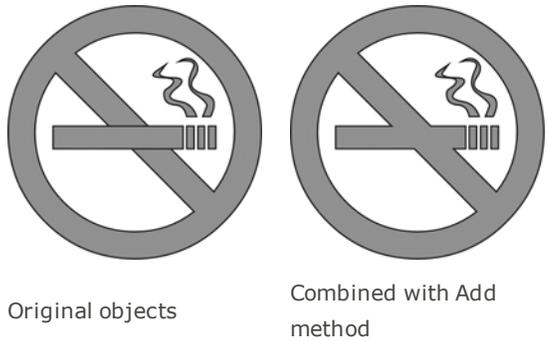


• **Outline:** Creates one path around the selected objects and fills the interior of the new shape with the ink of the front object.

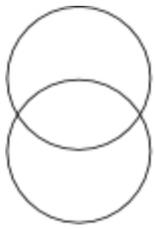


• **Add:** Joins two objects where they overlap to create a compound path, and fills the new shape with the ink of the front object. Compound paths can include multiple closed shapes that have holes in them, unlike objects created with the Outline option.

With the Add method, Canvas merges the cigarette to the prohibited symbol to create a no smoking sign.



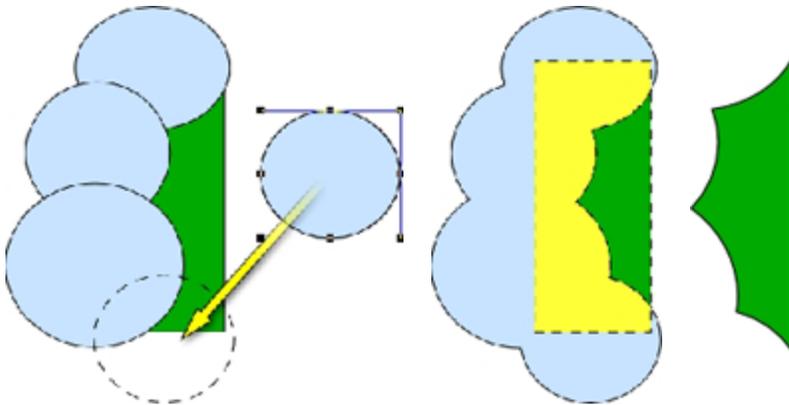
• **Intersect:** Creates a new object from the intersection of all selected objects and fills the new object with the ink of the front object. All selected objects must be closed paths and share a common area.



The Intersect method helps you create some useful, basic shapes. Here, the intersection of two circles (highlighted) results in an eye shape.

- **Punch:** Removes the area where selected objects intersect and fills the new object with the ink of the front object. If you select more than two objects, Canvas starts with the back object and continues forward through the stacking order.
- **Subtract Front:** Removes from the back object the areas of overlapping objects in front. The back object retains its ink attributes.

Create a quick illustration of a holly leaf by combining a group of circles with a rectangle and then applying the Subtract Front command to that selected group of objects.



Create and group objects

With objects selected, choose Subtract Front. Finished object

- **Subtract Back:** Removes from the front object the areas of overlapping objects behind it. The front object retains its ink attributes.
- **Crop:** Removes areas of objects that are not behind the top object.



Oval used to crop a vector drawing of an airplane



A symbol-filled oval provides a background

- **Divide:** Creates new objects where selected objects overlap. This option lets you use lines to “cut” other objects in pieces.
- **Slice:** Cuts the path of an object where it intersects with objects in front of it in the stacking order. The slice method results in two closed paths; e.g., slicing a circle in half with a line produces two closed semicircles.

- **Mix:** Creates new objects where selected objects overlap, similar to the Divide option. However, Canvas fills overlapping areas with a new color (the original colors must be solid). To determine the new color, Canvas compares the CMYK values of all the overlapping objects and uses the highest value of each color. (If you are using RGB colors, Canvas first converts the colors to CMYK.) For example:

	<b>Cyan</b>	<b>Magenta</b>	<b>Yellow</b>	<b>Black</b>
<b>Color 1</b>	50	30	25	5
<b>Color 2</b>	25	40	20	0
<b>New Color</b>	50	40	25	5

- **Transparency:** Creates new objects where selected objects overlap, and fills overlapping areas with a new RGB color (the original colors must be solid). However, transparency lets you specify the level of transparency. When you select the Transparency option, enter a percentage in the text box that appears; 100% is completely transparent, and zero is opaque.



Using the Transparency method, the artist created the illusion that you can see through the cover of the CD case. You can see the bottom of the case through the cover.

-  If multiple overlapping objects are grouped, Canvas treats the group as a single object and doesn't apply the transparency or mix effect within the group.

## Blending Objects

Using the Blend effect, create gradual transitions in shape, color, and stroke width between two or more objects. Canvas generates a series of objects (from back-to-front through the stacking order) that appear to transform one object into another.

-  Canvas can blend solid color inks only. If you blend objects with hatches, symbols, textures, or gradients, Canvas generates the blend objects but doesn't fill them with an ink.

Artists often use blends to create highlights and shadows in vector drawings that provide the illusion of roundness and lighting. In addition, use blends to copy and evenly distribute objects around shapes to create borders.

### To Blend Objects:

1. Select two or more vector objects.
2. Choose **Effects | Blend**.
3. Configure the settings.
4. Click **Apply**.

## Blend Object Options

<b># of shapes</b>	The number of objects Canvas creates for the blend. Higher numbers result in smoother blends.
<b>Rainbow colors</b>	Creates a rainbow-like blend of colors between objects. This introduces more color variations than a standard blend, which uses only combinations of the original colors. When you turn on this option, two buttons appear; choose a clockwise or counter-clockwise path around the color wheel.
<b>Bind to a path</b>	Select to use the path of an object (not in the current selection) to arrange blend objects. Click <b>Apply</b> and then you have to choose a path. Click the object to which you want to bind the blend objects.
<b>Point to point</b>	Available when blending two objects. This option lets you rotate blend objects, creating the illusion that one object is twisting into another. When you click <b>Apply</b> , Canvas prompts you to Choose 1st Point; click an anchor point on one object. Canvas then prompts you to Choose 2nd Point; click an anchor point on the other object. To reverse the blend direction, <b>Ctrl-click</b> when you choose the two points.
<b>Dynamic</b>	Lets you use the Direct Selection tool (hollow arrow) to accelerate, decelerate, expand, contract, and redirect the blend after Canvas creates it. Dynamic blends aren't available for specialized objects, such as multigons, spirals, concentric circles, and grids.

## Using Blends for Dimensional Effects

By specifying a high number of blend objects, you can create gradual transitions between shapes and colors. With the appropriate settings, colors seem to fade and mix into each other, and the blend objects do not appear as distinct objects. This effect is often used to add realistic highlights and shadows to objects so they appear three-dimensional.

When configuring the blend settings, remember that the size of the final output affects the number of shapes required to make the blend appear smooth. For large posters, you might need to use a lot of shapes, but fewer shapes are required for small illustrations.

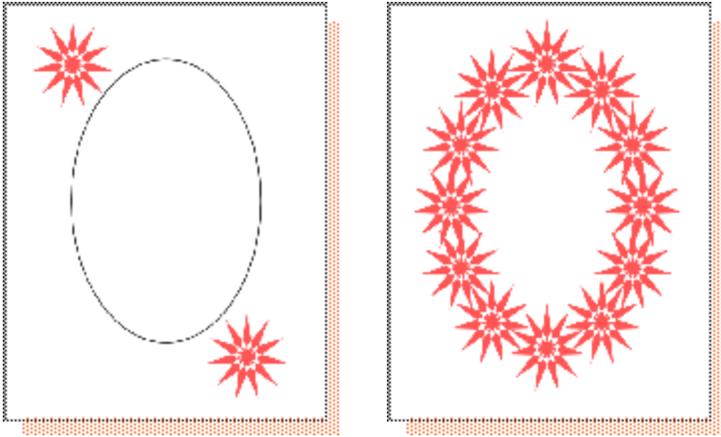


To ensure that blended objects have the same number of anchor points, copy an object, edit its shape, and blend between these objects.

In addition, objects that you blend must have the same number of anchor points for the blend to appear smooth. Canvas uses the anchor points to calculate the steps and shapes in a blend; an inconsistent number of anchor points can cause unwanted twists and distortions.

## Using Blends to Create Patterns

Although blends are often used to create gradual, smooth transitions between shapes and colors, you can also use the Blend command to create and evenly space a pattern across a layout. By specifying a low number of shapes and widely spacing the front and back objects, you can make each blend object a distinct object. This effect can be useful for creating borders and other patterns.

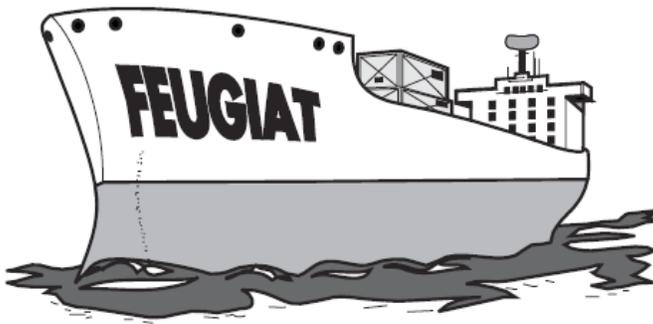


The artist created this border by first creating a flower-like multigon, copying it, and drawing an oval. To distribute the flowers evenly around the oval, the artist selected the two multigons, turned on the Bind to a path option in the Blend palette, specified a relatively low number of shapes (10) for the blend, and chose the oval as the binding path.

## Enveloping Objects

The Envelope command lets you distort shapes and text, as if an illustration was drawn on a rubber sheet and then stretched.

When an object is in Envelope Edit mode, its bounding box acts like the rubber sheet. Canvas includes several envelope styles that offer various handles you can use to stretch an object's bounding box. Using this effect, you can create new shapes, add a sense of motion to an illustration, arrange text so it appears to be painted on a three-dimensional object, or distort an image. (See "Envelope Effect" on page 384.)



The Envelope command distorted the type to match the contour of the ship's hull

## Using Envelope Templates

Canvas has several envelope templates that you use to instantly distort shapes. The silhouettes in the template scroll list show the distortion created by each template. In addition, you can create your own envelope templates. After you apply the envelope effect to an object, you can acquire the shape of the envelope as a template.

### To Apply an Envelope Template:

1. Select a vector object.
2. Choose **Effects** | **Envelope** to open the Envelope palette.

3. In the palette, choose **Template** in the menu.
4. Select a preview shape in the scroll list to select it, and click **Apply**.

### To Save an Envelope as a Template:

To store an object's envelope as a template, you must first use the envelope effect on the object. (See "To Apply an Envelope Effect:" on page 268.) You can't acquire a standard vector shape, such as a circle, unless you first apply the envelope effect.

1. Select an object that has been edited using the envelope effect. The object cannot be in Envelope Edit mode.
2. Choose **Effects | Envelope** to open the Envelope palette.
3. In the menu, choose **Template**.
4. Click **Acquire**; a preview of the envelope shape appears in the scroll box.

### To Delete an Envelope Template:

1. In the Envelope palette, choose **Template** in the menu.
2. Click a preview shape in the scroll box to select it, and click **Delete**.

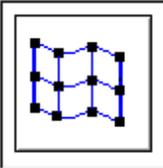
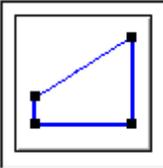
## Using Envelope Styles

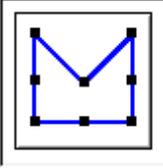
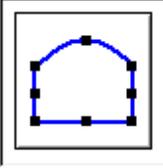
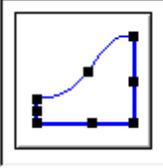
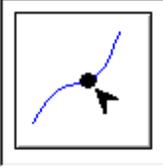
In addition to envelope templates, Canvas has six envelope styles that let you edit shapes in different ways. Each style moves and changes the bounding box in a particular way. See "Envelope Styles and Editing Options" on page 268 for information on the attributes of each style.

### To Apply an Envelope Effect:

1. Select a vector object.
2. Choose **Effects | Envelope** to open the Envelope palette.
3. Choose an envelope style in the menu and click **Apply**.
4. Drag the envelope handles that appear on the bounding box of the object to edit the shape.

## Envelope Styles and Editing Options

Example	Style	Number of handles	Envelope behavior
	Warp	Enter the number of horizontal and vertical handles in the text boxes.	Each handle behaves like a path anchor point and can move in any direction.
	Distort	Four	Each side of the envelope edit box is a straight line; handles can move in all directions. This style is useful for creating perspective.

Example	Style	Number of handles	Envelope behavior
	Straight Line	Eight	All handles are connected by straight lines. Corner handles are constrained to right-angle movements; side handles can move in all directions.
	Single Cusp	Eight	Side handles form convex or concave curves between corner handles. Side handles can move in any direction; corner handles are constrained to right-angle movements.
	Double Cusp	Eight	Side handles form S-shaped curves between corner handles. Side handles can move in any direction; corner handles are constrained to right-angle movements.
	Bézier	Eight	All handles behave like smooth anchor points and can move in any direction.

## Extruding Objects

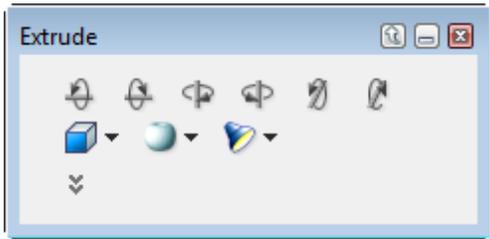
The Extrude command lets you create objects that appear to have three dimensions. Extrude vector and text objects in parallel style, and vector objects in circular and semi-circular (“sweep”) style.

You can rotate and scale extruded objects in three-dimensional space. You can set the placement, intensity, and color of a simulated light source for shading extruded objects. Solid color fill inks can be applied to extruded objects. Strokes and other inks are not supported.

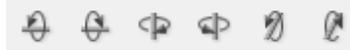
### To Extrude an Object:

1. Select an object for the extrusion you want to create:
  - For parallel extrusion, select a text or vector object, or a group object containing one or both types of objects.
  - For circular or sweep extrusion, select a vector object.
2. Choose **Effects** | **Extrude** to display the Extrude palette.
3. Select a preset or custom extrusion setting:
  - **Using presets:** From the preset extrusion palettes, select an extrusion icon to extrude the selected object. The icons show the angle and position of the extruded object. Canvas uses a default extrusion depth for parallel extrusions, and a default Steps setting for circular extrusions.
  - **Using custom settings:** Click the arrow to expand the palette. Choose an extrusion style, lighting color, and other options. Click **Apply** to extrude the selected object.

4. If you select Circular or Sweep style, an extrusion axis appears. (See "Completing a Circular or Sweep Extrusion" on page 270.)



Extrusion palette



Rotate buttons



Parallel presets



Circular presets



Lighting presets

### Completing a Circular or Sweep Extrusion

When you set up a circular or sweep extrusion, specify the number of steps you want Canvas to use. The more steps, the smoother and less "blocky" the extrusion appears.

#### To Specify the Number of Steps for a Circular or Sweep Extrusion:

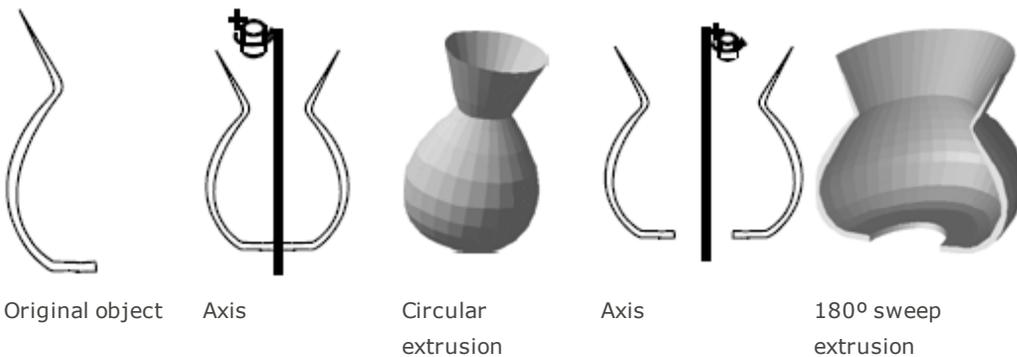
In the Extrude palette, enter a number between six and 60 in the "# of Steps" text box.

After you apply a circular or sweep extrusion to an object using the expanded Extrude palette, you need to set the extrusion axis, which is represented by a black bar. A mirror image of the selected object shows the extrusion at 180°.

#### To Set the Extrusion Axis:

Drag the black bar right, left, up, or down, depending on the direction you want to extrude. The mirror image of the object moves as you drag the axis. Press **Enter** or double-click to complete the extrusion.

### Circular and Sweep Extrusions



Original object

Axis

Circular extrusion

Axis

180° sweep extrusion

## Extrusion Options

Use palettes of extrusion and lighting presets in the Extrusion palette to modify extruded objects. If you expand the Extrude palette, you can use options to control lighting and rotation of extrusions. You can set these options before you extrude an object, or to edit an extruded object.

- Before extruding a selected object, set up the options you want and click **Apply** to extrude the object.
- After extruding an object, double-click it, change the settings you want, and click **Apply** to apply the settings.

You can control the color and position of the light source to change the shading of extruded objects. Canvas uses shades of gray to create highlights and shadows. Canvas then mixes the highlights and shadows with the color of the light source and fill color of the object.

## Extrusion Styles

In the expanded Extrude palette, select the extrusion style from the pop-up menu.

- **Parallel:** Adds depth to an object, as though the shape were cut out of a slab of clay. You can create parallel extrusions with text objects and vector objects.
- **Circular:** Extrudes a shape in a circular path. You can set the diameter of the extrusion path and number of steps (6-60) in the extrusion. You can apply circular extrusions to vector objects, but not text.
- **Sweep:** Extrudes a shape along a circular path, and lets you specify the number of degrees (10 to 360) to extrude. You can also set the diameter of the extrusion path and the number of steps (6-60) in the extrusion. You can apply sweep extrusions to vector objects, but not text.

## Extrude Options

<b>Extrusion style</b>	Select an extrusion style. For Sweep style, also enter the angular length, from 10° to 360°.
<b># of Steps</b>	For Circular or Sweep style, number of steps controls the number of facets on the surface of the extrusion. Enter a value from 6 to 60.
<b>Light color</b>	Choose a light source color from the palette.
<b>Back/Front</b>	Drag the slider to specify the depth of the light source in 3D space (along the Z axis).
<b>Intensity</b>	Drag the slider to adjust the overall brightness of the light source. Drag the handle to set the horizontal (X) and vertical (Y) position of the light source and preview the effect.
<b>Light Source</b>	Use the handle and Back/Front slider, or enter X, Y, and Z coordinates to set the position of the light source.
<b>Ambient Light</b>	Drag the slider to adjust the highlight and shadow contrast.
<b>Rotation Angles</b>	Enter X, Y, and Z values in degrees to rotate the extruded object in 3D space.

## Extruding Objects

When you drag a handle, Canvas extrudes the object outward, along the corresponding axis; i.e., dragging a handle to the right extrudes the object to the right and left simultaneously.

## Editing Extruded Objects

Immediately after you extrude an object, the object is in Extrusion Edit mode. In Edit mode, Canvas displays three axes, representing the three dimensions. Each axis has a handle, and when you roll the pointer over a handle, it changes to an extrusion pointer. Otherwise, the pointer appears as a rotation pointer.

When an extruded object is selected or in Edit mode, the extrusion options are available in the Extruded palette as well as in the Properties bar.

### To Exit Extrusion Edit Mode:

Double-click outside the object or press **Esc**.

### To Change the Shape of Extruded Objects:

When an extruded object is not in Edit mode, you can resize and reshape it like other two-dimensional vector objects:

- Drag a handle on the bounding box to resize the object.
- Place the object in Freeform mode to skew the object.
- Use the Scale command or Properties bar to resize the object.

In addition to these two-dimensional editing functions, extruded objects have unique, three-dimensional properties. When an object is in extrusion edit mode, you can make it thicker, wider, or taller, and Canvas redraws the object to account for lighting changes.

### To Change the Color of Extruded Objects:

When you extrude a vector object, Canvas uses combinations of a solid-color fill ink, shades of gray, and the light-source color to create a three-dimensional appearance.

In the Extrude palette or the Properties bar, apply solid fill inks and change the color of the light source.

When you change colors, Canvas redraws the object to show the interaction of the new colors with the object's shape and shading.

### To Rotate Extruded Objects:

You can rotate extruded objects in several ways:

- Click the rotation buttons on the Extrude palette or Properties bar.
- Enter values in the Rotation Angles text boxes in the expanded Extrude palette.
- Rotate and scale extruded objects interactively.

To rotate and scale an extruded object, the object can either be selected or in Extrusion Edit mode.

### To Place an Extruded Object in Edit Mode:

Double-click the extruded object with the Selection tool.

### To Rotate an Extruded Object Interactively:

When you first apply the Extrude effect, the object might appear flat if it is facing you (with the Z axis pointing directly at you).

1. Rotate an edge of the object toward you.
2. With the rotation pointer, drag a side in the direction you want to rotate the object.  
As you drag, Canvas displays a circle to show the space in which the object can rotate.
3. Drag inside the circle to rotate the object in all three dimensions.
4. Drag outside the circle to rotate the object on the plane that is facing you.

You can also rotate an extruded object in two dimensions, like other vector objects, choosing **Effects | Rotate** or **Freeform**. The object can't be in Extrusion Edit mode to use these commands. When you use the Rotate and Freeform commands, Canvas does not reapply lighting effects as with three-dimensional rotation; i.e., the light source appears to move with the object, instead of remaining in the same place as the object rotates.

## Colorizing Objects

Use the Colorize command to tint vector objects with solid color fill or pen inks when you want to mix two colors, or shade one color with another. Doing this in the Presets palette can be complicated, since you have to create a custom color and set the correct values to approximate a two-color mixture. The Colorize command lets you simply select two colors and choose the percentage of each.

### To Colorize a Vector Object:

1. Select at least one vector object that has a solid color fill or [pen ink](#). Colorize has no effect on gradient, hatch, texture, and symbol inks.
2. Choose **Effects | Colorize**.
3. In the Colorize dialog box, turn on the **Fill** and **Stroke** options to colorize both, or select the one ink you want to colorize.
4. In the pop-up color palettes, select the colors you want to add to the inks of the selected objects.
5. Use the sliders or enter a percentage in the text boxes to set the amount of color to mix with the object's color.
6. Turn on **Preview** to see the effect or click **OK** to colorize the object.

## How Colorization Works

Canvas uses the specified percentages to determine the new color values for the selected object. For each color value (e.g., Red, Green, and Blue in the RGB color model), Canvas finds the difference between the tint and the original color. Then, Canvas multiplies the differences by the percentage you specify, and adds these values to the original color values.

### Colorization Calculations

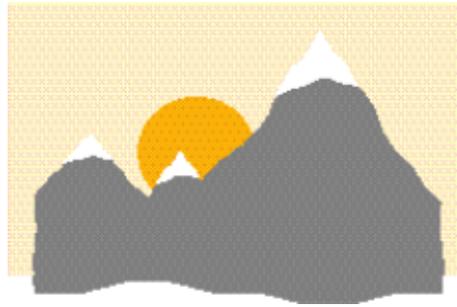
An object's color has a red value of 40%. To tint 50% with a color that has a red value of 100%, Canvas calculates a new red value of 70%. The same calculations apply to the green and blue values for an RGB color.

## Fractalizing Objects

Fractals are mathematical transformations that simulate the irregularities and patterns in natural shapes, such as coastlines and mountain ranges. When you fractalize a vector object, its outline becomes jagged. You can use the Fractalize command to add a fractal effect to any vector object except dimension objects and Smart Lines.



Vector objects



Fractalized mountains

### To Fractalize an Object:

1. Select at least one object and choose **Effects | Fractalize**.
2. Enter the **Wiggle** and **Density** values, and choose **Curves** or **Polygon** fractals.
3. Click **Apply** to preview the effect. Click **OK** to apply the effect and close the dialog box.

### Fractalize Options

<b>Wiggle</b>	The amount a fractalized path can deviate from the original path. Enter a number between 0 and 20; higher numbers increase the amount of wiggle.
<b>Density</b>	The smoothness of the fractalized path. Enter a number between 0 and 5. Higher values increase the number of anchor points Canvas add to the path. Lower densities result in sharper angles.
<b>Curves or Polygon</b>	Polygon fractals can be jagged and use many anchor points, while curves fractals are smoother and require fewer additional anchor points.

 Canvas fractalizes objects by adding several anchor points to an object's path. High wiggle and density settings and polygon fractals can add numerous anchor points, which require more memory to print. Lower settings and curves fractals can help to conserve system resources and eliminate problems you might have while printing.

### Creating Shadows for Objects

The Shadow command lets you apply two types of offset ("drop") shadows to selected objects. Use the command to apply a shadow made of vector objects or an image. Canvas places the shadow directly behind the selected object in the stacking order.

You can edit shadow objects independently from the objects they are shadowing. Skew them to create oblique shadows and use filters to change their appearance. The original object and shadow are not grouped, so editing or moving one doesn't affect the other.



Vector and image type shadows with different offsets

You can apply shadow effects to any vector or text object except dimension objects and Smart Lines. If you apply a vector shadow to a group of objects, Canvas groups the shadow objects and places the shadow behind the original group. If you apply a shadow to a paint object, Canvas creates a shadow of the paint object's bounding box.

### To Create an Offset Shadow:

1. Select an object and choose **Effects | Shadow**.
2. In the Shadow dialog box, set the shadow options. (See "Shadow Options" on page 275.)
3. Click **Apply** to see the effect. To accept the settings and close the dialog box, click **OK**.

### Shadow Options

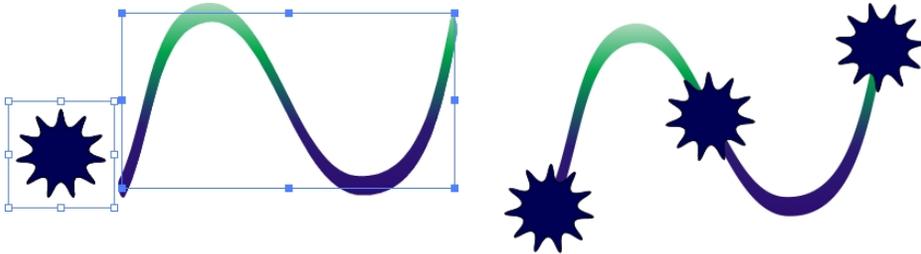
<b>Shadow type</b>	Select <b>Object</b> to create a vector object shadow. Select <b>Image</b> to create a paint object shadow. A vector shadow has a hard edge and can be edited like any vector object. An image shadow can be softened using the Gaussian Blur option and can be edited like any paint object.
<b>Shadow color</b>	Select the color to apply to the shadow object from the color palette.
<b>Offset</b>	Specify the location of the shadow relative to the original object. Enter the distance and angular direction to offset the shadow in the first text boxes, or enter the horizontal and vertical distances to offset the shadow in the second text boxes.
<b>Image options</b>	These options are available when Image is selected. Specify the amount of blur in the Gaussian Blur box. Select the color mode of the paint object from the Mode menu. Set the image resolution in the Res box. To apply anti-aliasing, select an option from the menu.
<b>Size</b>	The value shows the amount of memory required for the paint object based on the current Image Options settings.

### Binding Objects to Path

The Bind to Path command is used to bind and align vector objects to a selected path.



If you create your object before you create the path, any irregular object must first be converted to paths (**Path | Convert to Paths**) before choosing **Effects | Bind to Path**. This method applies to objects created with the Multigon, Polygon, Spiral, Concentric Circles, and Cube tools.



### To Bind an Object to a Path:

1. First create the path to which you are going to bind an object.
2. Then create the object and then select both.
3. Choose **Effects | Bind to Path** to open the Bind to Path dialog box.
  - Enter number of copies of objects.
  - Choose alignment of Top, Centers, or Bottom of path.
  - Rotate Objects to Path. When checked, the object will rotate based on the direction of the path.
4. Click the **OK** button to accept.

## Dynamic Objects and Clipart

You can speed up many projects by taking advantage of reusable dynamic objects and ready-made illustrations. This section describes how to use the Symbol Library.

### Working with the Symbol Library Palette

The Symbol Library palette comes stocked with a range of symbols you can use in your Canvas documents, or you can create your own symbols and add them to the Symbol Library. You can create symbols from any vector, text, group, or paint object. If you change the symbol in the palette, all the copies in the document will also change. For example, if you add a logo to the Symbol Library, and the logo is updated, you can simply replace the logo in the Symbol Library, and all instances of the logo in your document are updated.

### To Open the Symbol Library Palette:

Choose **Window | Palettes | Symbol Library**.

### Preview Size

You can preview the symbols in one of three sizes:

- **Small:** 72 x 72 px
- **Medium:** 108 x 108 px

- **Large:** 144 x 144 px

### To Change the Symbol Preview Size:

1. Click the **Symbol Library** palette menu button.
2. Select **Toggle Preview Size**.

### Symbol Library Options

#### To Set the Symbol Library Options:

1. Click the **Symbol Library** palette menu button.
2. Select **Symbol Library Options**.

#### Replace Options

Select the options for replacing an element with a symbol:

- **Preserve source object size:** Preserves the size of the object you are replacing with a symbol.
- **Preserve aspect ratio of placed symbol:** Preserves the aspect ratio of the symbol, regardless of the size of the object you are replacing.

#### Directory Paths of My Symbols

This section lists the directory paths of the folders in the Symbol Library palette, including the default path to the folder where your My Symbols are located.

- **Add Path:** Click this button to add a directory path to symbols located on your computer.
- **Delete Path:** Click this button to delete a selected directory path.

### Symbol Properties

Before you place a symbol from the Symbol Library palette, be sure to review the symbol properties in the Properties bar.

<b>X and Y</b>	Displays the X and Y coordinates where the symbol will be placed by default.
<b>Reference point</b> 	Displays the reference point for the symbol. This is the point on the selected object (or its bounding box) that position data is based on. The reference point is also the fixed point used in an object's transformation.
<b>Width and Height</b>	Displays the height and width of the object.
<b>Original size</b>	Uses the symbol's original size.
<b>Use original color</b>	Uses the symbol's original color. If you do not select this checkbox, the symbol uses the default attributes from the Toolbox.
<b>Preserve original proportions</b>	Uses the symbol's original proportions.
<b>Create</b>	Click Create to place the selected symbol in the document.

## Placing Symbols

### To Place Symbols:

1. Select the symbol in the Symbol Library palette.
2. Move the cursor into the layout area. The cursor changes to a place pointer.
3. Do one of the following:
  - To place the symbol at its original size, click in the layout area where you want to place the upper left corner of the symbol.
  - To scale the symbol while you place it, drag the pointer to set the bounding box size. Canvas scales the symbol to fit the bounding box.



To constrain the proportions as you drag the point to set the bounding box, press **Shift** while scaling.

## Searching for and Replacing Symbols

### To Search for a Symbol in the Symbol Library:

1. In the Symbol Library palette, type a search term in the search box.
2. Click the **Search** icon. 

### To Search for a Symbol in Your Document:

1. Right-click the symbol in the Symbol Library palette.
2. Choose **Search** and **Select**.  
Canvas searches your document and selects every instance of the symbol.

### To Replace a Symbol:

1. Select the symbol you want to replace in the document.
2. Select the replacement symbol in the Symbol Library palette.
3. Click **Replace**. The symbol in the document is replaced with the symbol selected in the Symbol Library palette.

## Managing and Organizing Symbols and Categories

### To Create a New Category:

1. Select an existing category in the My Symbols section of the Symbol Library palette.
2. Right-click the category and select **Create Category**.
3. In the Add Category dialog box, type a name for the category, then click **OK**.

### To Rename a Category:

1. Double-click a category in the My Symbols section of the Symbol Library palette.
2. Type a new name for the category.

### To Remove a Category:

1. In the Symbol Library palette, click the **Symbol Library** palette menu button.
2. Select **Symbol Library Options**.
3. Select the category you want to remove.
4. Click **Delete Path**.
5. Click **OK**.

The path to the category is removed, so the category will no longer appear in the Symbol Library palette. However the folder and any symbols in it are not deleted. If you want to show this category again, you can re-add the path to the category. If you no longer need the category or symbols, you can delete the folder and symbols in Windows Explorer.

### To Delete a Symbol:

You can delete symbols from the My Symbols section of the Symbol Library.

1. In the Symbol Library palette, select the symbol you want to delete.
2. Right-click and select **Delete**.



To select more than one symbol, hold down the **Shift** key while you click one or more symbols.

### To Add a Set of Symbols to the Symbol Library:

If you have an existing set of symbols you want to add to the Symbol Library, you can simply add the directory path to the Symbol Library Options dialog box.

1. In the Symbol Library palette, click the **Symbol Library** palette menu button.
2. Select **Symbol Library Options**.
3. Click **Add Path**, browse for the folder containing your set of symbols, and then click **OK**.
4. Click **OK** to close the Symbol Library Options dialog box.

Canvas creates a new category corresponding to the folder name of the directory you selected.

### To Move a Symbol to Another Category:

Drag the symbol from the Preview area to the name of the new category.

### To Add Keywords:

1. In the Symbol Library palette, select the symbols you want to add keywords to.
2. Right-click one of the selected symbols, and select **Add Keywords**.
3. In the Add Keywords dialog box, type the keywords, then click **OK**.

### To Delete Keywords:

1. In the Symbol Library palette, select the symbols you want to delete keywords from.
2. Right-click one of the selected symbols, and select **Delete All Keywords**.

3. Click **Yes**.

## Creating New Symbols

You can create your own symbols from a single vector object, a group of vector objects, or a composite object. Text is converted to a path when an object is saved as a symbol.



Save your new symbols in the My Symbols folder so that they are available in the Symbol Library palette. If you prefer to create a new folder for your symbols, you can add the path to the folder in the Symbol Library Options dialog box so that you can see the symbols in the Symbol Library palette.

### To Create a Symbol:

1. Create a vector object, group of vector objects, or composite object in Canvas.
2. Select **Object | Export as Symbol**.
3. In the Browse For Folder dialog box, select a location for the symbol, and click **OK**.
4. In the Name Symbol dialog box, do one of the following:
  - If you want Canvas to automatically name the symbol for you, select the **Automatic Naming** checkbox, and enter a **Prefix** and **Keyword**.
  - If you want to create a name for the symbol yourself, deselect the **Automatic Naming** checkbox, and type the **Name** in the Name field.
5. Click **OK**.



If you want to add a new symbol to an existing category under My Symbols, you can simply drag an object from your Canvas document to the category in the Symbol Library palette. In the Name Symbol dialog box, enter a name or use automatic naming, and enter any keywords you want to add to the symbol.

## Modifying Preinstalled Symbols

Canvas comes with hundreds of pre-installed symbols, many of which do not contain any fill. Because they don't contain any fill, if you try to apply a fill ink from the Toolbox, nothing happens. However, if you place the symbol in your document and ungroup the objects in the symbol, you can then add a fill ink.

### To Modify a Preinstalled Symbol:

1. Select the symbol in the Symbol Library palette.
2. Click in your document to place the symbol.
3. In the Properties bar, click the **Ungroup** button.
4. Select one or more objects in the symbol that you want to edit.
5. If the symbol contains objects stacked on top of each other, arrange the objects in an appropriate stacking order. Select an object, then choose **Object | Arrange | Bring to Front** or **Send to Back**.
6. To modify the Pen Ink, select the objects you want to edit, then select a pen ink in the Toolbox.

7. To modify the Fill Ink, select the objects you want to edit, then do one of the following:
  - Select a fill ink in the Toolbox.
  - Apply a fill ink with the Smart Vector Fill tool.
8. When you have finished editing the symbol objects, select all the objects, and click the **Group** button in the Properties bar.
9. If you want to save the edited symbol, select **Object | Export As Symbol**, select a location for the symbol, enter a name, and then click **OK**.

### To Place the Modified Symbol:

1. Select the symbol in the Symbol Library palette.
2. In the Properties bar, select the Use original color checkbox.
3. Click in your document to place the symbol.

## Converting Macro Files to Symbols

If you have used previous versions of Canvas (versions 3.5 to 11), you might have a set of legacy Canvas Macro files. You can convert these Macro files (.MCR) to the new Symbol file format (.CSY) so that you can use them in the Symbol Library.

Save your new symbols in the My Symbols folder so that they are available in the Symbol Library palette. If you prefer to create a new folder for your symbols, you can add the path to the folder in the Symbol Library Options dialog box so that you can see the symbols in the Symbol Library palette.

### To Convert Macro Files to the New Symbol Format:

1. Choose **Object | Convert Macro File**.
2. In the Select a Macro File dialog box, select the file you want to convert, then click **Open**.
3. In the Convert Macro File dialog box, do one or more of the following:
  - If you want to add a prefix to the filenames of the symbols contained in the Macro file, enter the prefix.
  - If you want to add a keyword to the symbols, enter a keyword.
4. Click **Export**.
5. In the Browse For Folder dialog box, select a location for the symbols, and click **OK**.

A message is displayed when the file has been successfully converted.
6. Click **OK**.

## Displaying Data in Charts

Make your data more comprehensible by displaying the information in a chart. Use bars, lines, bubbles, points, pie charts and more to represent your data and communicate visually with color.

## Create Charts

Charts are visually appealing and make it easy for us to see patterns, comparisons, and trends in data. For instance, rather than having to analyze a long list of worksheet numbers, you can see at a glance what categories are producing the biggest impact, or how a variety of elements compare.

### To Create a Chart:

1. Choose **Object | Create Chart...** The Chart Options dialog box opens displaying sample data.
2. In the Data tab, press **Ctrl + A** and then click the clear selection button to delete all of the sample data.



3. Do one of the following:
  - Enter data into the data cells. The first row and column default to chart labels.
  - Import data by clicking the **File Open** icon. Browse to and select your data set (CSV or TXT format).
  - Copy data from a spreadsheet and paste into data cells.
4. Click the **Format Cells** button to set number display preferences.



5. Click the **General**, **Text**, and **Series** tabs to fine-tune the appearance of your chart.
6. Click **OK** once you have finished editing your chart. Double-click your chart at anytime to display the Chart Options dialog box.



The Chart Options dialog box can also be opened by clicking the Chart icon  found in the toolbar.

### Notes on Importing CSV (Comma Separated Values File) and TXT File Formats

- Every row (with the exception of the last) should end in a carriage Return.
- With the exception of labels, numerical values of thousands should not contain commas (,).
- With the exception of labels, characters are imported as follows:

Character	Example (in CSV or TXT file)	Result (in Chart)
-	-1.00	-1.00
()	(1.00)	-1.00
%	1.00 %	0.01 (1 divided by 100)
\$	\$1.00	0
\$( )	\$(1.00)	0 (any string is imported as zero)
or	1.00 or 2.00	1.00 2.00

 Pie charts are generated counter-clockwise from the 1st data cell. To reverse the order, sort your data using a spreadsheet program and copy and paste the data back into the Chart Options dialog box.

 You can save your settings as a preset by clicking the **Set as Preset** button.

# Chapter 5: Painting And Image Editing

## Painting and Image Editing

Canvas provides a full palette of painting tools, including the digital equivalents of markers, airbrushes, and paintbrushes, plus tools for creating effects like neon and blends. The Painting tools palette also provides tools to select, retouch, color-correct, and clone images. (See "Tool Palettes" on page 8.) This section explains how to use these painting tools, choose image modes, and convert objects into images.

### Paint Objects and Images

A paint object is a Canvas object that contains an image. Paint objects are always rectangular and the same size as the images they contain. Images are pictures defined by pixels. A scanned photo, TIFF, or Photoshop (.PSD) file, and pictures you paint in Canvas are all images composed of pixels. Each pixel in an image is a solid color. Pixels can also be semi-transparent or completely clear. You can adjust the color, opacity, and transparency of pixels by using painting tools and commands.

### About Paint Objects and Images in Canvas

You can perform common object operations, including move, copy, and duplicate, on paint objects. For details, see "Working with Objects" on page 104. Or you can create images entirely in Canvas by making a new paint object that you can paint in, or creating an image from vector or text objects, as described in this section.

You can import images into Canvas documents using the following methods:

- Place an existing image in a document using the Place, Paste, or Import commands. See "Placing Documents" on page 27 and "Importing and Exporting Images" on page 86.
- Scan a photo using the Acquire command. See "Using Scanners to Acquire Images" on page 313.

### Creating Paint Objects

You can make new paint objects containing blank images or convert objects into images by rendering them. You can also scan images directly into a Canvas document. (See "Importing Images" on page 86 and "Using Scanners to Acquire Images" on page 313.)

### Using the Paint Object Creator Tool

The Paint Object Creator tool creates blank paint objects that you can use as a painting canvas. In the Properties bar, you can select settings for image mode, resolution, and background to be applied to new paint objects you create with the Paint Object Creator tool or any painting tool (except the Crop tool).

### To Select Settings for New Paint Objects:

1. Select the **Paint Object Creator** tool from the Toolbox. 
2. In the Properties bar, select the settings you want to use for paint objects.

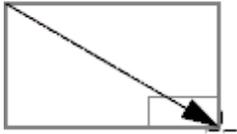
---

<b>Image mode</b>	Choose an image mode in the menu. The image mode controls the number of colors that can be stored in an image. (See "Image Modes for Canvas Paint Objects" on page 304.)
<b>Resolution</b>	Enter a value from 1 to 2,540 pixels per inch and press <b>Enter</b> .
<b>Background</b>	Choose the background color for the paint object: <b>Opaque</b> or <b>Transparent</b> .

---

## To Create a Blank Paint Object:

1. Select the **Paint Object Creator tool** from the Toolbox. 
2. Drag diagonally in the document to create a rectangular paint object.  
A blank paint object appears in Edit mode. You can now use the painting tools to paint on the paint object.
3. When you have finished with the paint object, press **Esc** to exit Edit mode.



Drag the Paint Object Creator tool to create a blank paint object



A paint object in Edit mode, indicated by crop marks at each corner.



If the Auto Create checkbox is selected in the Properties bar for a painting tool, only the Paint Object Creator tool can be used to create blank paint objects. If the Auto Create checkbox is not selected, you can use any painting tool (except Crop) to create blank paint objects.

## To Constrain the Height and Width of a Paint Object:

Do one of the following:

- To constrain the height and width proportionally, press **Shift** as you drag with the Paint Object Creator tool.
- To constrain the height and width symmetrically from the center, press **Ctrl** as you drag with the Paint Object Creator tool.
- To constrain the height and width proportionally and symmetrically, press **Ctrl+Shift** as you drag with the Paint Object Creator tool.

## Using the Create Command

The Create command creates new paint objects using the mode, size, resolution, and transparency settings that you specify. Use the Create command to create paint objects that are opaque or transparent. (See "Create Image Options" on page 286.)

## To Create a Paint Object:

1. With no objects selected, choose **Image | Area | Create**.
2. In the Create Image dialog box, set the image mode, type of background, background color (for an opaque image), size, and resolution of the image.
3. Click **OK**. The new paint object appears in the center of the view and is selected.

## Setting Paint Object Dimensions

When you use the Create command, you can set the dimensions of a paint object using relative or absolute values, depending on what you choose in the menus next to the Width and Height text boxes. If you choose pixels to set the dimensions of the paint object, the size of the object is relative to its resolution; higher resolution makes pixels smaller, so the resulting object is smaller at the same width and height values. If you choose inches, centimeters, picas, or points, enter absolute values for the paint object's dimensions.

## Create Image Options

The Create Image dialog box has options for new images.

<b>File Size</b>	The amount of memory required by the paint object, based on resolution, size, and mode. Black & White mode requires the least memory; CMYK Color requires the most.
<b>Mode</b>	Choose an image mode. (See "Image Modes for Canvas Paint Objects" on page 304.)
<b>Background</b>	Choose <b>Transparent</b> or <b>Opaque</b> . For Opaque, you can select a color from the color palette.  Transparent creates a clear background for the image. When you choose this option, the color palette is not available.
<b>Width and Height</b>	Enter the object's width and height. In the adjacent menus, choose pixels or a unit of measurement.
<b>Res</b>	Enter the image resolution. Choose pixels per inch or pixels per centimeter in the adjacent menu.
<b>Auto</b>	Click <b>Auto</b> to calculate the resolution based on halftone screen frequency and image quality.

## To Create a Paint Object with the Properties Bar:

1. Select the **Paint Object Creator** tool. 
2. In the Properties bar, enter the dimensions and resolution of the paint object.
3. Select the mode and background.
4. Specify the X/Y coordinates for the new paint object.
5. Click **Create**.

## Working with Painting Tools

Apply color, make selections, edit, retouch, color-correct, and clone images with Painting tools. For some tools, you can adjust opacity, pressure, exposure, or other settings. See the specific tool entries in this section for details. These tools are located in the Painting tools palette.

 Paint Brush

 Blur

 Pencil

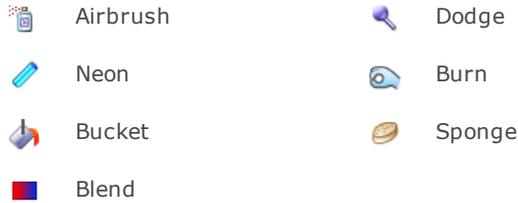
 Sharpen

 Eraser

 Rubber Stamp

 Marker

 Smudge



These tools can be used to place paint objects into Paint Edit mode. Point to a selected paint object with a painting tool, the pointer becomes a hand. Click the cursor on the paint object to enter Edit mode.

### To Use a Painting Tool:

1. Double-click on a paint object to place it in Edit mode.
2. Select a foreground or background color for painting. (See "Selecting Colors for Painting" on page 296.)
3. Select a brush shape in the Brushes palette located in the Properties bar. You can also choose a mode or other option for most tools.



You can start dragging outside an image; a tool's effect begins when the pointer is inside the image.

4. Click in the image to apply a spot of color, or drag to paint a brush stroke, depending on the tool.



To constrain a brush stroke to horizontal or vertical, press **Shift** as you drag.



Selected paint object



Paint object in Edit mode

## Paint Tool Options

### Painting Opacity

Painting opacity affects the intensity of painting. Adjust this setting in the Properties bar for the following painting tools: Eraser, Marker, Paintbrush, Bucket, Blend, and Rubber Stamp.



For the other painting tools, Opacity is replaced by either Pressure, Glow, or Exposure.

Painting opacity can be set from 1 to 100%. Higher opacity makes the color more opaque. Lower opacity makes color appear more transparent. Painting opacity works with painting modes. (See "Painting Modes" on page 297.) If you use the Paintbrush tool to apply black

at 100% opacity in Normal mode, black replaces the original color wherever you paint. At 50% opacity, the strength of the black is reduced, so it mixes with the underlying color. If you also use a different painting mode, the strength of the mode's effect is reduced.

 To quickly change the opacity setting, you can press a number key; "1" equals 10%, "2" equals 20%, "3" equals 30%, etc. "0" equals a setting of 100%.

### To Set Painting Opacity:

1. Select a painting tool that uses the opacity setting.
2. Move the Opacity slider or enter a percentage in the text box.

Canvas remembers each tool's painting opacity setting; e.g., if you use the Blend tool at 30% opacity and then use the Paintbrush tool at 100% opacity, the setting changes back to 30% when you select the Blend tool again.

 The Opacity slider in the Brushes palette affects subsequent brush strokes by the current painting tool only. It is not the same as the Opacity slider in the Toolbox and the Transparency palette, which are linked and control overall opacity of selected objects.

### Fade Settings

The following tools have Fade settings: Paintbrush, Airbrush, Blur, Dodge, Burn, Eraser, Marker, Sponge, Smudge, Sharpen, and Rubber Stamp.

Select the options you want to use in the Fade area. In the Fade within field, enter the distance in which Canvas will complete the fade.

### To Gradually Diminish the Brush Size as You Drag:

Select the **Size** checkbox.

### To Fade the Color to Transparent:

Select the **Opacity** checkbox. Depending on the selected tool, the checkbox may be labeled as Pressure or Exposure.

### Pressure Sensitive Settings

If you are using a pressure-sensitive, plug-in device, such as a Wacom™ tablet, the Pressure Varies options are located within the Image/Multimedia managers in the Configuration Center.

### To Access the Pressure Varies Options:

Double-click on the tool icon in the Toolbox to open the tool settings in the Configuration Center. You need to use a pressure-sensitive, plug-in device, such as a Wacom™ tablet. Use these options to make a pressure-sensitive stylus.

### Painting with the Paintbrush Tool

The Paintbrush tool applies the foreground color. Apply a soft (anti-aliased) brush stroke by choosing a soft-edged brush in the Properties bar or Brushes palette. Use the settings in the Properties bar to configure this tool.

### Spraying Soft Strokes with the Airbrush Tool

The Airbrush tool applies the foreground color with a very soft (anti-aliased) stroke. The Airbrush tool paints as long as you press the mouse. The Pressure setting in the Properties bar and Brushes palette controls how fast the Airbrush applies color. Use the settings in the Properties bar to configure this tool.

## Painting with the Marker Tool

The Marker tool paints with the foreground color, applying a hard-edged stroke. Use the options in the Properties bar to configure the Marker tool.

## Painting Individual Pixels with the Pencil Tool

Use the Pencil tool to apply the foreground color to a single pixel or create a one-pixel, freehand line. If the pixel already uses the foreground color, the Pencil applies the background color instead. You can use the Pencil tool for precise image editing at high magnifications. (See "Fat Bits" on page 299.)

### To Paint a Straight Line:

**Shift-drag** the Pencil to confine the line to 90° angles.

## Painting Two-Toned “Neon” Strokes

Use the Neon tool to paint a neon-tube stroke, with the foreground color inside and the background color outside. Use the Glow setting in the Properties bar and Brushes palette to adjust the color ratio. Painting modes are not available with the Neon tool.

## Filling Areas with Color

Use the Bucket tool to pour color on an image. The Bucket applies the background color where you click. You can adjust its tolerance so the color covers adjacent pixels of the same color only, or adjacent pixels of similar colors.

### Tolerance

The Tolerance setting is located in the Properties bar.

### To Affect Only Identically-Colored Pixels:

Type 0 in the Tolerance text box.

### To Affect More Pixels:

Type a larger number.

### To Soften the Edge of the Filled Area:

Turn on **Anti-Aliased**.

## Painting in the Background Color with the Eraser Tool

Paint with the background color using the Eraser tool. If a paint object has a visibility mask, the Eraser clears the pixels it touches, revealing a clear background. If the paint object does not have a visibility mask, the Eraser applies the background color.



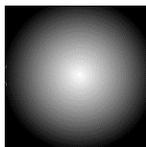
Opacity and paint mode options are not available with the Eraser.

## Painting with the Blend Tool

Paint a blend of colors in an image with the Blend tool. The default behavior (Foreground To Background) creates a blend of the foreground and background colors. This tool is very useful for creating blends from black to white in channels, to make selection masks that fade gradually from full selection to no selection.



Linear blend



Radial blend

Set the style and behavior using the settings in the Properties bar.

### To Create a Linear Blend:

Enter a **Skew** value and select a Behavior. Drag in the direction of the blend. **Shift-drag** to confine the blend's direction to a 90° or 45° angle.

### To Create a Radial Blend:

Enter both a **Skew** and **Offset** value. Drag from the center of the image.

## Blend Options

<b>Style</b>	Choose <b>Radial</b> or <b>Linear</b> .
<b>Skew</b>	To set the midpoint between blend colors, enter a number from 13 to 87. The default is 50.
<b>Offset</b>	For Radial style, enter a value to set the percentage of starting color in the blend. To use more of the starting color in the blend, enter a number from 50 to 100.
<b>Behavior</b>	Choose a blending method. Foreground and Background refer to the current colors in the Toolbox. Transparent options fade from the foreground color to transparency. Spectrum blends create rainbow blends in a clockwise or counter-clockwise direction around the color wheel.

Example of a blend used to vignette a photograph. The following Blend options were used:

Radial-style blend

Behavior = Transparent to Foreground

(Foreground color white)

Offset = 10

Skew = 70



## Copying Areas with the Rubber Stamp Tool

Make a copy (“clone”) of an image area with the Rubber Stamp tool. This tool is very useful for retouching scanned photographs, removing lines and scratches, as well as hiding seams when compositing images. Use the settings in the Properties bar to configure the Rubber Stamp tool.

### Cloning Styles

The effect of dragging the Rubber Stamp tool in an image depends on the option you choose in the Style menu in the Properties bar.

- **Clone (aligned)**: The first time you drag the Rubber Stamp tool in the image after setting the reference point, Canvas establishes a fixed direction and distance from the reference point to the pointer. The Rubber Stamp tool copies any area of the image that is this distance and direction from the pointer.
- **Clone (non-aligned)**: Dragging the Rubber Stamp tool always begins copying the image from the same reference point.
- **Impressionist**: This option smears pixels to create an impressionistic effect. You don’t need to set a reference point to use this effect.

### To Use the Rubber Stamp Tool:

 Rubber Stamp pointer with **Alt** pressed

 Rubber Stamp pointer without modifier key

1. Configure the tool using the settings in the Properties bar.
2. **Alt-click** in the image to set the reference point for sampling an image area.
3. Drag in the image to paint a copy of the sampled area around the reference point.



Clone (aligned option)



Clone (Non-aligned option)

## Smudging Colors

With the Smudge tool, pull color from one area of an image and drag it into adjacent areas. Use the settings in the Properties bar to configure the tool.

### To Use the Smudge Tool:

1. Configure the tool using the settings in the Properties bar.
  - Select a brush size and shape from the Brushes palette. (See "Selecting Brushes and Painting Options" on page 294.)
  - Adjust the Pressure setting. A setting of 1 affects the image slightly; 85 drags the color through many pixels.
2. Drag the **Smudge** tool in the image area you want to edit.

### To Smudge the Foreground Color into the Image:

Choose the **Finger Painting** option.

## Lightening ('Dodge') Areas

The Dodge tool lightens specific areas of an image. Use the settings in the Properties bar to configure the tool.

### To Use the Dodge Tool:

1. Configure the tool using the settings in the Properties bar.
  - Select a brush size and shape from the Brushes palette. (See "Selecting Brushes and Painting Options" on page 294.)
  - Adjust the Exposure setting. Increasing the Exposure increases the lightening effect of the tool. Decreasing the setting decreases the effect.

- Choose **Shadows**, **Midtones**, or **Highlights** from the Mode menu. The Dodge tool lightens pixels that fall within the selected range only.
2. Drag the **Dodge** tool in the image area you want to edit.

## Darkening ('Burn') Areas

Darken specific areas of an image by dragging the Burn tool over the pixels you want to darken. The tool's effect can be controlled by your selection of brush and adjustment of the tool's Fade setting. Use the settings in the Properties bar to configure the tool.

### To Use the Burn Tool:

1. Configure the tool using the settings in the Properties bar.
  - Select a brush size and shape from the Brushes palette. (See "Selecting Brushes and Painting Options" on page 294.)
  - Adjust the Exposure setting. Increasing the Exposure increases the darkening effect of the tool. Decreasing the setting decreases the effect.
  - Choose **Shadows**, **Midtones**, or **Highlights** from the Mode menu. The Burn tool darkens pixels that fall within the selected range only.
2. Drag the **Burn** tool in the image area you want to edit.

## Blurring Areas

Soften specific areas in an image with the Blur tool. The Blur tool decreases the contrast between pixels the tool drags over. Use the settings in the Properties bar to configure the tool.

Select the **Blur** tool and click a paint object to put the image in Edit mode, if necessary.

### To Use the Blur Tool:

1. Configure the tool using the settings in the Properties bar.
  - Select a brush size and shape from the Brushes palette. (See "Selecting Brushes and Painting Options" on page 294.)
  - Adjust the Pressure setting. A setting of 1 affects the image slightly; 85 softens the image greatly.
  - Choose **Normal**, **Darken**, or **Lighten** from the Mode menu. The Blur tool darkens pixels that fall within the selected range only.
2. Drag the **Blur** tool in the image area you want to edit. Canvas applies the effect to pixels touched by the tool.

## Sharpening Areas

Increase the contrast between specific pixels in an image with the Sharpen tool. Use the settings in the Properties bar to configure the tool.

### To Use the Sharpen Tool:

1. Configure the tool using the settings in the Properties bar.
  - Select a brush size and shape from the Brushes palette. (See "Selecting Brushes and Painting Options" on page 294.)
  - Adjust the Pressure setting. A setting of 1 affects the image slightly; 85 dramatically sharpens the image.

- Choose **Normal**, **Darken**, or **Lighten** from the Mode menu.
2. Drag the **Sharpen** tool in the image area you want to edit. Canvas applies the sharpening effect to pixels touched by the tool.

## Saturating and Desaturating Colors

With the Sponge tool, add or remove gray content from specific areas of an image. Use the settings in the Properties bar to configure the tool.

### To Use the Sponge Tool:

1. Configure the tool using the settings in the Properties bar.
  - Select a brush size and shape from the Brushes palette. (See "Selecting Brushes and Painting Options" on page 294.)
  - Adjust the Pressure setting. Increase the pressure to increase the effect.
  - Choose **Saturate** or **Desaturate** in the Mode menu. Saturate removes gray; desaturate increases the amount of gray.
2. Drag the **Sponge** tool over the image area you want to edit.

## Selecting Brushes and Painting Options

The Properties bar contains the Brush icon as well as other options for painting and image editing. The Opacity slider lets you adjust opacity for painting. The Mode menu lets you choose painting modes to control color application and target tonal ranges. Open the Brushes palette to select preset brushes and create new brushes.

 The Brushes palette contains the same painting options as the Properties bar; e.g., the Opacity slider, painting modes, etc.

 The Brush icon appears in the Properties bar when one of the following Painting tools is selected: Eraser, Paintbrush, Marker, Airbrush, Neon, Rubber Stamp, Smudge, Blur, Sharpen, Dodge, Burn, Sponge.

## Brush Icon

Use the Brush icon to adjust current brush settings or to open the Brush palette and select another brush.

### To Modify Brush Settings:

You must select a Painting tool, such as the Paintbrush or Pencil tool, so the Brush icon is active in the Properties bar. You can edit any brush shape. For brush shapes created from selections, you can change only the spacing.

1. Click on the **Brush** icon in the Properties bar to open the Brush Options dialog box.
2. Make any adjustments to the current brush's settings. (See "New Brush Options" on page 295.) You can also add the brush to the Brushes palette by clicking the button located in the upper right corner.

 You do not have to add the brush to the Brushes palette to be able to use it; however, if you plan on using a brush more than once, we recommend that you add it to the palette.

3. Begin painting with the modified brush.

## To Select Brushes from the Brushes Palette:

1. Click on the arrow that is next to the Brush icon and the Brushes palette pops out.



You can drag the Brushes palette off the Properties bar. The Brushes palette has commands for creating brushes, saving brushes to a file, loading brush files, and deleting unused brushes.

2. Click on a brush shape and begin painting.

While painting, use the context menu to change brushes and select painting options. (See [To Access the Context Menu.](#))

## Brushes Palette Menu

Use the Brushes palette menu to create new brushes, save brushes in files, modify existing brushes, and delete brushes.

You can add custom brushes to the list of preset brushes in the palette. When you exit Canvas, it stores the brush presets. The same set of brushes are available whether you work with new documents, documents you created, or documents created by another Canvas user.

## To Create a New Brush:

1. Open the Brushes palette menu and choose **New Brush**.
2. In the New Brush dialog box, adjust the settings for the brush as described below.
3. Click **OK** after entering the settings you want. The new brush shape appears in the Brushes palette.

## New Brush Options

Create brush shapes by specifying diameter, hardness, spacing, roundness, and angle. These same options are available in the Brush Options dialog box.

<b>Diameter</b>	Enter the diameter in pixels of the new brush.
<b>Hardness</b>	Enter a percentage to tell Canvas how much of the brush shape is solid.
<b>Spacing</b>	This percentage sets the amount of brush overlap when you drag a painting tool. Turn off Spacing to make the brush velocity-sensitive, so it skips pixels when dragged fast.
<b>Roundness</b>	Enter 1 to 100. To create a circle, enter 100.
<b>Angle</b>	Enter a number to rotate the brush shape.
<b>Brush tip</b>	Drag to change Roundness. Drag to change the Angle.
<b>Preview</b>	Preview of the brush shape.

## To Define a Brush Shape with a Selection:

You can make a new brush shape from a selection in an image. This lets you create non-elliptical brush shapes.

1. Select all or part of an image. (See "Selecting Pixels in Images" on page 339.)
2. Choose **Define Brush** in the menu. The selection becomes a brush in the Brushes palette. Canvas uses the shape and lightness values of the selection to define the brush. Brush shapes do not contain color.

### To Delete Brushes from the Palette:

You can permanently remove brush shapes from the Brushes palette. If you think you might want to use the brush shape again, you should first store it in a brushes file so at a later time you can load it back into the palette.

1. Select the brush you want to delete.
2. Choose **Delete Brush** in the menu. You can also **Alt-click** a brush in the palette to delete it.

### To Save Brushes in a File:

You can save brushes in a file. Saving brushes to disk lets you customize the Brushes palette for particular projects or exchange brushes with other Canvas users. The file format that Canvas uses to save brushes on disk is also compatible with the file format used by the Photoshop image-editing program for saving brushes.

1. In the Brushes palette, add or remove brushes until you have the collection you want to save.
2. Choose **Save Brushes** in the menu.
3. In the directory dialog box, type a name for the brushes file, select a location, and click **OK**.

### To Load or Append Brushes from a File:

When you load brushes, you can replace the current set of brushes with the file or append the brushes to the current palette.

1. Choose one of the following commands in the menu:
  - **To replace the current brushes with the file:** Choose **Load Brushes**.
  - **To add the brushes in the file to the current palette:** Choose **Append Brushes**.
2. In the directory dialog box, locate the brushes file you want to open and click **OK**.

## Selecting Colors for Painting

Painting tools use the foreground or background color, or both. In the Toolbox, instead of a pen ink icon for the foreground, a brush icon appears when you select a painting tool. The brush icon shows the foreground color, and the bucket icon shows the background color.



You can use any solid color for painting, including multicolored inks, such as gradients, symbols, textures, pattern, or hatch inks. Also, if you choose a spot color and edit pixels with a painting tool, Canvas converts the spot color to the image color mode; i.e., RGB, CMYK, etc. (See "Image Modes for Canvas Paint Objects" on page 304.)

- 💡 You can arrange paint objects in a document with vector and text objects that use spot colors, but only the vector and text objects will produce spot color separations.

### To Swap the Foreground and Background Colors:

Press the **X** key while using a painting tool.

### To Set the Foreground Color to Black and Background Color to White:

Press the **C** key.

## To Select a Color for Painting:

1. Click the foreground or background color icon in the Toolbox.
2. In the Presets palette, on the Ink tab, click on an ink type and select a color.

 You can also create new colors by using the various Inks managers located in the Attributes palette. (See "Creating Color Inks" on page 156.)

## Picking Colors with the Color Dropper Tool

Use the Color Dropper tool to pick up color from an image or object. The color you select becomes the current background or foreground color that you can use for painting and drawing. (See "Using the Color Dropper" on page 172.)

While in Image Edit mode, select the Color Dropper by pressing **Alt**; however, you won't be able to pick the background color.

## To Select the Background Color from a Paint Object:

1. Select the **Color Dropper** tool from the Toolbox. 
2. Click a color in the paint object or image.

The background color changes in the Toolbox.

## To Select the Foreground Color from a Paint Object:

1. Select the **Color Dropper** tool from the Toolbox. 
2. Right-click a color in the paint object or image.

The foreground color changes in the Toolbox.

## Painting Modes

Use various painting modes when you paint and edit images. Painting modes can create special effects and let you control color mixing and the tonal range affected by painting.

The Mode menu is in the Properties bar and Brushes palette when you use the following tools: Marker, Paintbrush, Airbrush, Bucket, Blend, Blur, Sharpen, and Rubber Stamp. Painting modes that are available for most painting tools are listed here.

## To Choose a Painting Mode:

1. Select a painting tool.
2. Open the Mode menu and select a mode.

 Not all modes are available for all painting tools.

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Mode	Function
Normal	The default painting mode applies color to all pixels uniformly. When the painting opacity is 100%, the applied color replaces the original color. If you paint in a Black & White or Indexed image, Normal mode is labeled Threshold.

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<b>Mode</b>	<b>Function</b>
<b>Dissolve</b>	This mode applies color with a random diffused pattern within the brush shape. The effect is similar to drawing with chalk. The diffused effect is stronger when the painting opacity is less than 100%.
<b>Multiply</b>	Darkens all pixels by multiplying the value of the applied color and the underlying color. Painting with darker colors intensifies the effect. Painting with black results in black; painting with white does not affect the original color. When you apply a color with multiple strokes in the same area, the strokes become darker, similar to the effect of making multiple strokes on paper with an ink marker.
<b>Screen</b>	The Screen mode is the opposite of Multiply mode. Screen mode lightens all pixels by multiplying the inverse values of the applied color and the underlying color. Painting with lighter colors intensifies the effect. Painting with black does not affect the original image; painting with white results in white.
<b>Overlay</b>	Applies color without destroying the underlying shadows and highlights. Overlay mode blends the applied color with the underlying color; the amount of blending depends on the lightness of the underlying color.
<b>Soft Light</b>	Lightens or darkens underlying colors depending on the lightness value of the applied color. If the lightness of the applied color is less than 50% gray, painting lightens the image. If the lightness of the applied color is greater than 50% gray, painting darkens the image. Painting with white or black has the most intense effect, but does not completely replace the underlying color.
<b>Hard Light</b>	Paints in Multiply or Screen mode, depending on the applied color's lightness value. This mode is similar to Soft Light. However, painting with black produces black; painting with white produces white.
<b>Darken</b>	Compares the underlying color and the applied color, and the result is whichever color is darker. In other words, pixels in the image will be painted if the paint color is darker, while pixels that are darker than the paint color will remain unpainted.
<b>Lighten</b>	The Lighten mode is the opposite of Darken mode. Lighten compares the underlying color and the applied color, and the result is whichever color is lighter. In other words, pixels in the image will be painted if the paint color is lighter; pixels that are lighter than the paint color will remain unpainted.
<b>Difference</b>	Compares the brightness of the original and applied colors, subtracts the brightness value of the darker pixel from the lighter one, and applies that value to the original image.
<b>Hue</b>	Applies the hue of the paint color without changing the brightness and saturation of the underlying image.
<b>Saturation</b>	Changes the saturation of the area painted to match the saturation of the applied color, without changing the hue or luminance values. Applying gray does not affect the original image.
<b>Color</b>	Changes the hue and saturation of the painted area to the hue and saturation of the applied color, without affecting the shadow, highlights, or midtones of the original image.
<b>Luminosity</b>	Changes the lightness of the underlying color to the lightness of the applied color, without affecting the hue or saturation of the image.

## Painting Context Menu

When working with a painting tool, use the context menu to gain quick access to common commands. The commands that are available vary, depending on the selected painting tool and whether there is a selection in the image.



The context menu contains some common commands that are available from the Menu bar.

## To Access the Context Menu:

1. Select a paint object.
2. Right-click the selected paint object.
3. Choose a command when the menu opens. Canvas applies the command and hides the menu.

## Context Menu Options

The following commands are available in the painting context menu:

Command	Use
<b>Next Brush</b>	Selects the brush shape in the Brushes palette to the right of the current brush.
<b>Previous Brush</b>	Selects the brush shape in the Brushes palette to the left of the current brush.
<b>First Brush</b>	Selects the brush at the upper-left of the palette.
<b>Last Brush</b>	Selects the brush at the lower-right of the palette.
<b>Standard Pointer</b>	Displays the icon of the selected painting tool, which is the default pointer. (See "Pointer Display" on page 299.)
<b>Precise Pointer</b>	Changes the pointer to a crosshair. The intersection of the crosshair is the center of the current brush. (See "Pointer Display" on page 299.)
<b>Brush Size Pointer</b>	Changes the pointer to an outline of the current brush. (See "Pointer Display" on page 299.)
<b>Show/Hide Fat Bits</b>	Displays/hides pixels as individual tiles in a grid at high magnifications. (See "Fat Bits" on page 299.)
<b>Show/Hide Transparency Preview</b>	Displays or hides transparent sections of an image while in Edit mode.

## Pointer Display

The default pointer for painting is a symbol of the selected painting tool. Change the pointer to a crosshair or the current brush size. All painting tools use the pointer you select, not just the current painting tool. To change the pointer, choose an option in the context menu.

 Changing the pointer using the context menu is the same as changing the pointer in the Painting manager located in the Configuration Center.

## Fat Bits

When you choose Show Fat Bits, the resolution and magnification affect the display. Fat Bits are visible when the magnification-to-resolution ratio is about eight to one; e.g., if the image resolution is 72 ppi, fat bits appear at 600% magnification and higher. If the image resolution is 144 ppi, fat bits appear at 1,200% magnification.

## To Show Fat Bits:

Press the **Plus** key or choose **Show Fat Bits** in the context menu to display pixels as individual tiles in a grid.

## To Hide Fat Bits:

Press the **Plus** key or choose **Hide Fat Bits** in the context menu to display pixels without the grid of individual tiles.

## Adding Visibility Masks to Images

In a paint object that has a visibility mask, you can erase or delete pixels to reveal a clear background; e.g., you can erase at the edge of an image to create faded or torn edges. You can delete or move selections to create transparent areas. If a paint object does not have a visibility mask, areas where you drag the Eraser tool and selections you delete or move, become filled with the current background color and are opaque, not transparent.

When you create paint objects with painting tools or the Render or Create commands, you can select an option to include visibility masks.



White areas of the fish image  
erased to a clear background

### To Add a Visibility Mask:

1. Select a paint object that does not have a visibility mask.
2. Choose **Image | Add Visibility Mask**. This command is not available if a Duotone, Indexed, or Multichannel image is selected.

Adding a visibility mask does not change the appearance of a paint object; e.g., white pixels do not become transparent. When a paint object has a visibility mask, you can select **Preserve Visibility** in the Channels palette. When this option is selected, Canvas protects clear areas from the effects of painting and image editing.

### To Create a Transparent Background:

1. Select the image object.
2. Click the **Fill Ink** icon in the Toolbox.
3. Select **Null Ink**. A visibility mask is applied to the object, and the white pixels become transparent.

### Paint Object Backgrounds

You can create a paint object in which the image “background” is transparent or opaque.

An opaque paint object contains opaque pixels. If the pixels are white and the paint object is on a white background, you won’t notice that the image is opaque. Still, the rectangular paint object will block objects behind it.

A transparent paint object can have a clear background that does not block other objects.

Painting in an opaque image is like painting on a wall. Painting in a transparent image is like painting on a window.



A rectangle and text are blocked by an opaque paint object in front



A transparent background lets objects show through it

## Rendering Objects and Images

Rendering converts objects into paint objects. For example, you can use the Render command to create a paint object from text, and then use the Airbrush tool to paint highlights on the image of the text.

You can create paint objects by rendering selected vector objects, text objects, and group objects. You can render a paint object to create a new paint object that has different characteristics than the original.

 Rendering is also referred to as “rasterizing” because the process produces a raster image — an image composed of pixels arranged in a grid. All paint objects in Canvas contain raster, or pixel-based, images.

When you use the Render command, you can create a transparency mask or visibility mask for the resulting paint object.

When you render a vector object, it’s a good idea to select a visibility mask if you want to isolate an object against a clear background.

### To Render Objects:

1. Select one or more objects and choose **Image | Area | Render**. If you select multiple objects, they will be rendered as one paint object.

The Render Image dialog box lets you specify resolution and other settings for the resulting paint object, as described in the Render Image Settings table below.

2. Click **OK** to render the selection.

Canvas creates a paint object containing an image of the original objects. The paint object appears in front. The Render command does not change the original selected objects.

### To See the Original Objects:

Drag the paint object away.

## Pasting into Images

You can render objects by copying them to the Clipboard and then pasting them into paint objects in Edit mode. When an image is in Edit mode and you paste into it, the Clipboard content is rendered and appears as a selection in the image.



Anti-aliasing blurs edges while rendering to make the edges of text characters and vector objects appear smoother in the resulting image.

If you select the "Anti-aliased Clipboard" option in the Configuration Center, Canvas anti-aliases vector and text objects that you paste into paint objects.

## Rendering Exported Files

If necessary, Canvas renders selected objects or an entire document when you use the Save As command to export to a raster file format; e.g., if you select vector objects, and then save in GIF format, Canvas renders the selected objects because GIF files store raster images.

When Canvas is saving a file, some options might not be available in the Render Image dialog box because the file format doesn't support them.

## Render Image Settings

Specify image mode, resolution, and other settings in the Render Image dialog box.

<b>Dimensions</b>	Displays the width and height of the paint object Canvas will create.  Choose the measurement for the Width and Height values in the Dimension area; inches, centimeters (cm), points, or picas.
<b>Mode</b>	Choose the color mode for the resulting image: Black & White, Grayscale, Indexed Color, RGB Color, CMYK Color, or LAB Color.
<b>Width and Height</b>	Enter the pixel dimensions for the paint object. When you change a value, Canvas adjusts the others to maintain the size and proportions of the original objects.
<b>Res</b>	Choose pixels per inch or pixels per centimeter in the pop-up menu. The value shown after "Size" is the amount of data in the image, based on the mode, resolution, and dimensions.
<b>Interpolation</b>	Select the interpolation method you would like to use. <ul style="list-style-type: none"><li>• <b>Bilinear</b>: Displays tiling or "jaggies" when resizing an image.</li><li>• <b>Triangle</b>: Produces good results for image reduction and enlargement, but displays sharp transition lines.</li><li>• <b>Bicubic</b>: Produces good results with photo-realistic images and images that are irregular or complex. This method uses interpolation to minimize the raggedness normally associated with image expansion.</li><li>• <b>Bell</b>: Smooths the image.</li><li>• <b>BSpline</b>: Produces smooth transitions, but may cause excessive blurring.</li><li>• <b>Lanczos</b>: Produces the sharpest images, but may also introduce some ringing artifacts.</li><li>• <b>Mitchell</b>: Produces smooth transitions when enlarging photo-realistic images. This filter is a good compromise between the ringing effect of Lanczos and the blurring of other filters.</li></ul>
<b>Anti-Alias</b>	Blurs edges while rendering to make the edges of text characters and vector objects appear smoother in the resulting image. Choose Fine, Medium, or Coarse in the pop-up menu.  Coarse uses 16 shades for anti-aliasing and is the fastest option. Medium uses 64 shades for anti-aliasing. Fine uses 256 shades for anti-aliasing. Fine produces the softest edges and is the slowest option.

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<b>Mask</b>	<p>Select this option if you want the resulting paint object to have a visibility mask or a channel mask. Then choose the type of mask.</p> <p>Transparency creates a channel mask. The channel mask is based on the silhouette of the rendered objects. In other words, if there are spaces between the objects, the channel mask will create transparent spaces.</p> <p>Visibility creates a visibility mask in the paint object. The result is a clear background in areas not covered by objects.</p> <p>If you do not select Mask, areas not filled by rendered objects within the paint object's bounding rectangle will be white and opaque. If you select Mask and either Transparency or Visibility, areas that are not filled by rendered objects will be transparent.</p>
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## Rendering with the Camera Tool

You can use the Camera tool to create a paint object from any area in a document. The Camera tool renders the area you select. You can set the resolution, color mode, and other options for the rendered image. Using the Camera tool is like taking a snapshot of the screen. You simply use the Camera tool to select a rectangular area for rendering. You can include all types of objects and parts of objects in the rendering, without selecting the objects first.

The Camera tool is useful whenever you need to convert objects to an image, such as for creating Web graphics. The Camera tool functions like the **Image | Area | Render** command. The Camera tool lets you control the exact area to be rendered, while the Render command renders a rectangular area that includes all selected objects.

### To Render with the Camera Tool:

1. Select the **Camera** tool. 
2. Drag to draw a rectangle around the area you want to render. View the dimensions and coordinates of the rectangle in the Status bar. A bounding box with handles appears around the area you selected.
3. Adjust the box to select exactly the area you want to render by using the controls in the Properties bar or manually changing the shape and size with the handles.
4. Enter values in the fields to change the position and size of the bounding box. Select a resolution or render at screen resolution. Drag the handles to manually reposition or resize the bounding box.
5. Click the **Accept** button or click inside the area.
6. In the Render Image dialog box, select the options you want to use, and then click **OK** to render the selected area. After you click **OK** in the Render Image dialog box, a paint object containing the rendered image appear on top of the area you selected.

## Using Vector and Text Tools in Paint Objects

After placing a paint object in Edit mode, use vector tools and the Text tool to add shapes and type to an image.

When you draw or type text within a paint object in Edit mode, Canvas rasterizes the objects according to the image mode and resolution of the paint object, and makes a floating selection in the image.

When you type within a paint object in Edit mode, you can modify the font, size, and style of the type before Canvas rasterizes it.

## To Set Anti-Aliasing for Objects Placed in Images:

You can set a preference so Canvas softens the edges of objects you draw in an image or paste into an image from the Clipboard.

1. Choose **File | Configuration Center** and select the Painting manager in the General settings.
2. Set the preferences you want to apply to objects placed in images and click **OK**.
  - **To soften selections pasted from the Clipboard:** Select **Anti-Aliased Clipboard**.
  - **To soften objects or type created in paint objects in Edit mode:** Select **Anti-Aliased Canvas Objects**.

## To Draw Objects within Images:

Use any of the drawing tools in a paint object in Edit mode to "paint" shapes. When you finish drawing the shape, Canvas rasterizes it, based on its shape and colors.

1. Place the paint object in Edit mode, if necessary, and select a drawing tool.
2. Select ink and stroke settings. (See "Inks: Colors and Patterns" on page 150 and "Strokes: Outline Effects" on page 175.)
3. Draw in the paint object with the selected tool. (See "Drawing Basics" on page 196.) The object you draw becomes a floating selection and you can change its opacity, set the mode, or apply filters. (See "Changing the Opacity of Floating Selections" on page 349 and "Image Filters and Effects" on page 362.)
4. Press **Esc** twice when you finish editing the selection to make the selection part of the image.
5. Press **Esc** once more to exit Edit mode and select the image.

## To Set Type within Images:

Type text in a paint object in Edit mode and then modify the attributes before Canvas converts the type to a floating selection.

 Use the Text menu, Type palette, or Properties bar to set typographic attributes.

1. Place the paint object in Edit mode, if necessary, and select the **Text** tool. **T**
2. Click the **I-beam** pointer in the image and type the text, which appears in a white box.
3. Press **Esc** to make the text a floating selection. You can change the opacity, set the mode, and apply filters to the selection. (See "Changing the Opacity of Floating Selections" on page 349 and "Image Filters and Effects" on page 362.)
4. Press **Esc** twice to make the type selection part of the image.
5. Press **Esc** again to exit Edit mode and select the image.

## Image Modes for Canvas Paint Objects

In Canvas, image modes define the color model and number of colors that can be used in images. When you create a new paint object in Canvas, you select an image mode: Black & White, Grayscale, RGB Color, CMYK Color, or LAB Color. When you select a paint object, Canvas displays the image mode in the Properties bar.

 The image mode also appears in the Status bar if Object Details has been selected to appear in an information field.

## How Image Modes Affect Image Filters

Filters produce different results depending on the image mode. When you paint, the opacity setting of a brush acts differently on images in different modes. For the most predictable results with filters and paint tools, use RGB color mode.

Posterizing a LAB image introduces color to light areas.



Original

RGB image posterized 4 levels

LAB image posterized 4 levels

## How Canvas Assigns Image Modes

When you import an image from another source either by opening, placing, or pasting an image file, Canvas assigns an image mode based on the number of colors and the color model used in the image.

The following table shows the image modes that Canvas assigns when you import images in some common image formats.

Imported format	Assigned image mode
<b>TIFF</b>	RGB Color, CMYK Color, or Grayscale
<b>BMP</b>	256-color image: Indexed 24-bit image: RGB Color
<b>MacPaint</b>	Black & White
<b>Photoshop</b>	Same as original image mode

## Changing Image Modes

You might want to change modes so you can use certain features, or reduce memory requirements; e.g., you might want to convert an Indexed image to RGB to apply image filters. You might want to convert an RGB image to Grayscale mode to save memory when a document is printed without color.



You can access the Image Mode menu on the Properties bar or by choosing **Image | Mode**.

## To Change Image Modes:

1. Select one or more paint objects.
2. Select the image mode from the Image Mode menu in the Properties bar.

Some modes are available only if the object's current mode is compatible; e.g., Black & White mode and Duotone mode are available only when Grayscale paint objects are selected.

If the mode you choose does not support an image's full color range, a message asks you to confirm the change. Click **OK** to proceed.

If you choose Duotone mode or Indexed mode, select options in a dialog box and then click **OK** to complete the conversion. (See "Duotone Image Mode" on page 310 and "Indexed Image Mode" on page 307.)

## Black and White Image Mode

Black & White image mode is used for scanned line art and black-and-white ("bitmap") images, which contain only black and white pixels. Images in Black & White mode require the least amount of memory and disk space.

## To Convert to Black and White Mode:

Grayscale mode images and Multichannel mode images are the only images you can directly convert to Black & White mode. If an image is not Grayscale, convert it to Grayscale mode first if you want to convert it to Black & White mode.

1. Select the paint objects and use the Image Mode menu on the Properties bar or choose **Image | Mode | Black & White**. The Select Halftone Method dialog box lets you choose a conversion option.
2. Select one of the following:
  - **Pattern Dither:** Canvas "screens" the image, rendering its tones as patterns of tiny dots, using a fixed pattern similar to a traditional halftone screen
  - **Diffusion Dither:** Canvas "screens" the image, rendering its tones as patterns of tiny dots, using a process that creates a random pattern effect.
  - **Threshold:** Canvas converts the image to a high-contrast, black-and-white image. Pixels of lightness values from 0 to 128 become black, and pixels of lightness values from 129 to 255 become white.
3. Click **OK**.



When you paste a selection into a Black & White image, Canvas uses diffusion dither on the selection.

## Grayscale Image Mode

Grayscale mode is appropriate for images scanned from black & white photographs or when the image will never be printed in color. In Grayscale mode, pixels use 256 brightness levels to represent a range of shades from pure black to pure white. Grayscale uses 8 bits per pixel and requires less memory than most color modes.

If you convert a color image to Grayscale mode, Canvas discards all color information.

## Indexed Image Mode

Indexed color mode uses a palette of 256 colors for images. Since this mode stores fewer colors, it requires significantly less memory than RGB and CMYK color modes, both of which support millions of colors. Smaller memory requirements make Indexed mode especially useful for images used on Web pages.

An Indexed image includes a color table, or palette, of colors used in the image. When you convert an existing image to Indexed mode, you can specify the number of colors from the image to include in the color table.

Most image filters, effects, and opacity controls aren't available to be applied to Indexed images, except the Offset and De-Interlace filters, as well as some third-party plug-in filters.

### To Convert an Existing Image to Indexed Mode:

1. Select the paint objects and choose **Indexed** from the Image Mode menu.
2. In the Indexed Color dialog box, choose an option in the Indexed Color dialog box for the color table.

Depending on which method you select, the Colors area in the dialog box displays information about how the color table is computed.

<b>Exact</b>	Creates a color table from the colors in the image, if the image contains 256 colors or less; otherwise, this option isn't available. The Colors area displays the number of colors in the selected image.
<b>Uniform/ System</b>	Creates a color table based on the operating system's palette of 256 colors (System), or a subset of these colors (Uniform). The Colors area displays the number of colors in the operating system's palette; if you choose Uniform, a pop-up menu that lets you select 8, 27, 64, 125, 216, or 256 colors appears.
<b>Adaptive</b>	Creates a color table from the most frequently used colors in the image. The Colors area displays a text box that lets you enter a number of colors from 2 to 256.
<b>Custom</b>	Lets you create a color table, load, and save color table files. The Colors area displays "Custom colors".
<b>Previous</b>	Applies the last color table used in the Indexed Color dialog box during the current Canvas session. The Colors area displays the number of colors in the last color table created by the Indexed Color dialog box during the current Canvas session.

3. Choose a color-distribution option in the Dither area:

<b>None</b>	Changes colors to their closest equivalent in the selected color table without dithering.
<b>Pattern</b>	Approximates colors not in the palette by arranging palette color in geometric patterns (available for Uniform/System method only).
<b>Diffusion</b>	Approximates non-palette colors by randomly dithering available colors; creates the most natural effect.

4. Click **OK** after choosing the settings you want.



If you select the Custom option, the Color Table dialog box appears.

## To Create a Custom Color Table for Indexed Images:

1. Select "Custom" in the Indexed Color dialog box. (See "Indexed Image Mode" on page 307.)



If the image is already Indexed, choose **Image | Mode | Color Table** to open the Color Table dialog box.

2. Click **OK**.
3. In the Color Table dialog box, edit the settings.

You can edit individual colors in the palette, create a blend of colors, and select from several preset color palettes, including System and Grayscale palettes. In addition, palettes can be saved or loaded.

In the Color Table dialog box, a grid of 256 color swatches appears; each swatch represents one color in the palette. By default, the Custom option appears in the Table menu, and the color swatches show the last palette used in the dialog box.

The Table menu lets you choose among preset color tables:

<b>Black Body</b>	A range of sunset-like colors.
<b>Grayscale</b>	A ramp from pure black to pure white.
<b>Macintosh System</b>	The palette of colors supported by Macintosh.
<b>Spectrum</b>	A set of rainbow colors.
<b>Web Browser</b>	A set of 216 colors that can be displayed without dithering by nearly all Web browsers. This option is also referred to as a "browser safe" palette.
<b>Windows System</b>	The palette of colors supported by Windows.

You can also create a custom color table.

## Saving and Loading Color Tables

By using the Load and Save options in the Color Table dialog box, you can save color tables to your hard disk or load a saved color table file into the Color Table dialog box.

### To Load a Custom Color Table:

1. Click **Load** in the Color Table dialog box.
2. In the Load Settings dialog box, browse to the color table file you want to load, and then click **Open**. Canvas replaces the current palette in the Color Table dialog box with the new palette, and its name appears in the Table menu.

### To Save a Custom Color Table:

1. Click **Save** in the Color Table dialog box.
2. In the Save Settings dialog box, enter a name for the table in the File name field. Before you type the file name, Canvas adds the extension .ACT in the field. Keep this extension when naming the file.

3. Specify a location on your hard disk to save the color table, and then click **Save**. Canvas saves the color table.



Save your custom color tables in a central location on the corporate network and share them with co-workers.

### To Customize Individual Colors:

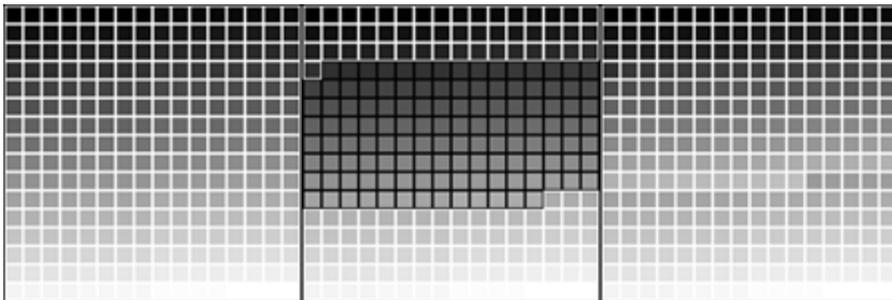
After choosing a color table, you can customize individual colors in it using a color picker dialog box.

1. Click a color swatch to open a color picker dialog box.
2. In the color picker, select a color to replace the selected swatch in the palette, and then click **OK**.

### To Customize a Color Table by Blending Colors:

Canvas lets you create blends of selected swatches in the color table. When you do this, the first and last swatches you select don't affect the final blend in the color table. How the blend appears in the color table is determined by the two colors you choose in the Color Picker in step 2 of this procedure.

1. Drag across multiple color swatches to select them, (the more you select, the more gradual the blend will be). Selected color swatches appear highlighted with a black border, and then the color picker dialog box opens.



2. In the color picker, choose the first color, and then click **OK**. The color picker remains open; choose the second color, and then click **OK**. Canvas fills the selected color swatches in the Color Table dialog box with a ramp of the two colors.

## RGB Color Image Mode

RGB color mode is used most often when working with high-quality full-color images, such as those from color scanners and digitized photographs stored on CD-ROM.

RGB color mode is the most reliable mode to use for images you want to modify with painting tools and filters. However, the full range of RGB colors exceeds the range that commercial printing can reproduce, so you should be aware of the limitations of the printing method that will be used. Also, an RGB color image is device dependent, which means that the same RGB values can look different when displayed on different monitors.

In RGB color mode, each pixel has a red, green, and blue component. Each component, referred to as a color channel, has 256 intensity levels. The combination of the intensity value in each channel creates each pixel's color.



Remember that RGB is used for images on the Web and CMYK is used for print.

## CMYK Color Image Mode

CMYK color mode is based on the four color inks used in commercial printing (and by some desktop printers): cyan, magenta, yellow, and black. Some color scanners can produce CMYK images.

In a CMYK color image, each pixel has a cyan, magenta, yellow, and black component. Each of these color channels has 256 intensity levels. The combination of the intensity value in each channel creates each pixel's color. Because monitors are RGB devices, they can't display CMYK colors directly. However, Canvas attempts to display CMYK images as they will appear when printed.

## LAB Color Image Mode

The Commission Internationale d'Eclairage (CIE) developed the LAB color mode as an international color standard to overcome the device dependency of the RGB and CMYK modes. In a LAB color mode image in Canvas, each pixel has one lightness and two color components. The Lightness (L) channel has 256 levels of intensity. The two color channels, labeled A and B, provide a color range from red to green and yellow to blue, respectively.

Some companies sell collections of images in LAB color mode. Editing LAB color mode images with some filters or painting tools can have interesting and unpredictable effects.

## Duotone Image Mode

In traditional graphics arts reproduction, a "duotone" is a grayscale image printed with black and an additional color. Canvas lets you create duotone images, as well as "monotone," "tritone," and "quadtone" images (printed with one, three, or four colors, respectively).

 The term "Duotone" refers to the Duotone image mode, not just to images printed with two inks. In Duotone mode, an image can be printed as a monotone, duotone, tritone, or quadtone.

Printing images as duotones can add interest and increase the tonal range reproduced from grayscale photographs, without the additional expense of printing full-color images. The duotone effect can be subtle or striking, depending on the color used and the amount added to the image. In any case, the additional colors are used to reproduce the gray values in the image, rather than to reproduce specific colors.

To create a monotone, duotone, tritone, or quadtone in Canvas, you must convert a Grayscale image to Duotone mode. Unlike other image modes, once an image is converted to Duotone mode, you cannot work with individual image channels. Instead, you can adjust curves for each color "channel" in the Duotone Options dialog box.

### To Create a Duotone Image:

1. Select paint object and choose **Grayscale** from the Image Mode menu to convert to Grayscale mode.

 You can also select image modes by choosing **Image | Mode**.

2. Click **OK** when Canvas prompts to discard color information. Then, choose **Duotone** from the Image Mode menu.
3. Choose **Monotone**, **Duotone**, **Tritone**, or **Quadtone** from the Type menu in the Duotone Options dialog box. Depending on the Type setting, the Ink 1, Ink 2, Ink 3, and Ink 4 Curve boxes, color menus, and text boxes become available.

 If you plan to export a duotone image to another graphics or page layout program, be sure the color names exactly match the color names in the other application. Otherwise, you might produce more color separations than necessary.

4. Choose ink colors by clicking the color palette icons and selecting colors in the palettes. You must have already added the desired colors to the Presets palette for them to be available in the pop-up palette.
  - For a monotone image, choose a single color in the Ink 1 area. For a traditional duotone, leave “Process Black” as Ink 1, and choose a second color in the Ink 2 area. For tritones and quadtones, choose additional colors for Ink 3 and Ink 4.
  - Canvas puts the name of the selected ink in the text box.
  - To use process colors: Type the appropriate name (“Process Cyan,” “Process Black,” “Process Magenta,” or “Process Yellow,”) so colors appear on the correct plates. If you leave the text box blank, Canvas prompts you to enter a name for the ink.
  - Specify ink colors in descending order of lightness value; i.e., darker color inks should appear at the top, and lighter color inks should appear at the bottom of the dialog box.
  - Assign only solid spot colors or individual process colors for duotones. If you assign a color ink made from CMYK components, Canvas treats it like a spot color and prints only one plate for the color when you output color separations.
5. If necessary, click the curve boxes to adjust curves for each ink color. In the Duotone Curves dialog box, drag the curve to adjust it, or enter values in the text boxes to map input values to the desired output values, and then click **OK**.
6. Click **OK** to apply the Duotone Options dialog box settings.

## Duotone Options

You can select and change the following ink settings for images in Duotone mode.

<b>Type</b>	Choose <b>Monotone</b> , <b>Duotone</b> , <b>Tritone</b> , or <b>Quadtone</b> .
<b>Inks</b>	Click the palette icons and select colors in the palettes for each ink. Type process and spot color names in the text boxes.
<b>Overprint Colors</b>	Click to adjust the screen display of the Duotone inks. Because the appearance of spot-color combinations can't be predicted within Canvas, you can do this if you have an accurate printed reference for the colors you select. Overprint Colors settings do not affect color separations, but will change the appearance of color composites printed on desktop color printers. In the Overprint Colors dialog box, click the color squares to open a color selector dialog box. Choose the color you want to represent the ink combination on screen and then click <b>OK</b> .

### To Adjust Duotone Images:

After you convert an image to Duotone mode, reopen the Duotone Options dialog box to adjust the color curves, change ink colors, as well as use the Load and Save options.

### To Change Duotone Options:

1. Select the paint object you want to adjust and choose **Image | Mode | Duotone Inks**.
2. Adjust the settings in the Duotone Options dialog box and click **OK** to implement the new settings.

### To Load and Save Duotone Information:

Use the Load and Save buttons in the Duotone Options dialog box to work with files of duotone options information. Canvas uses a file format compatible with the duotone options files used by the Photoshop image-editing program, so you can load files saved from Photoshop, and files saved by Canvas can be loaded into Photoshop.

- Click **Save** to save the duotone options settings. In the directory dialog box, type a file name and click **OK** or **Save**.
- Click **Load** to use settings from a saved duotone options file. In the directory dialog box, select a duotone options file and click **Open**. Canvas will apply the ink and curve settings saved in the file to the Duotone Options dialog box.

## Multichannel Image Mode

Multichannel image mode lets you work with multiple channels of grayscale information for a grayscale image. In multichannel mode, each channel contains lightness values as in other image modes, but the values do not relate to color components.

When you convert an image to Multichannel mode, the image data does not change; e.g., if you convert an RGB Color mode image to Multichannel mode, the Red, Green, and Blue channels retain the same pixel information, but the channels no longer represent color pixels. The channels in Multichannel mode are labeled numerically (#1, #2, and so on) in the Channels palette.

The Multichannel mode is not available if you select a paint object containing an image in Black & White image mode.

## Removing Red Eye

Canvas includes an image editing tool that you can use to correct red eye in digital images.

## What is Red Eye?

Red eye is a photographic phenomenon caused by light reflecting off the interior surface of the eye, which produces a red glare within the eye.

In the Toolbox, click the Paintbrush tool.  Under the Paintbrush tool, select the **Red Eye Reduction** tool and the tool options appear on the Properties bar. 

## Red Eye Reduction Options

<b>Method</b>	Select a either the <b>Automatic</b> or <b>Manual</b> Selection method.
<b>Intensity</b>	Drag the slider or enter a percentage to set the intensity.
<b>Mode</b>	Select one of the following : <ul style="list-style-type: none"> <li>• <b>Darken:</b> Compares the underlying color and the applied eye color, and the result is whichever color is darker.</li> <li>• <b>Hue:</b> Applies the hue of the eye color without changing the brightness and saturation.</li> <li>• <b>Color:</b> Changes the hue and saturation of the painted area to the hue and saturation of the applied color, without affecting the shadow, highlights, or midtones of the original image.</li> </ul>
<b>Feather Radius</b>	Enter a value to blend the edge of the adjusted eye.
<b>Eye Color</b>	Select an eye color from this menu.

### To Use the Red Eye Reduction Tool with Automatic Selection Method:

1. With the Automatic Selection method, you can correct the red eye effect in two ways:
  - Click the cursor within the red area of the eye.
  - Click-drag the cursor to form a rectangle over the eye area.
2. Place the image into Paint Edit mode.
3. Magnify the eye area that needs to be retouched, if necessary.
4. Select the **Red Eye Reduction** tool. 
5. Select the **Automatic Selection** radio button in the Properties bar.
6. Choose an intensity, feather radius, mode, and eye color.
7. Correct the red eye effect by clicking the red area or drawing a rectangle over the red eye.

### To Use the Red Eye Reduction Tool with Manual Selection Method:

1. Place the image into Paint Edit mode.
2. Magnify the eye area that needs to be retouched, if necessary.
3. Select the **Red Eye Reduction** tool. 
4. Select the **Manual Selection** radio button in the Properties bar.
5. Choose an intensity, feather radius, mode, and eye color.
6. Correct the red eye effect by clicking and dragging to form an oval over the red eye.

## Scanning, Sizing and Tracing Images

This section focuses on acquiring and sizing images. You will learn how to scan images into Canvas documents, change the image size and resolution, and auto-trace images to create vector objects from them. This section also describes some basics techniques to improve scanned images and photographs.

### Using Scanners to Acquire Images

You can scan images directly into Canvas documents using most types of desktop scanners. Canvas supports scanners that are compatible with the TWAIN standard.

### Using TWAIN-Compatible Scanners

Scanner manufacturers created the TWAIN interface to standardize interaction between scanners and computer software. Scanners that comply with the TWAIN standard provide a “source manager” file, which translates scanner information into data that Canvas can use. You must install the TWAIN scanner software on your system before you can select the scanner and scan images in Canvas.

If you aren't sure whether a scanner is TWAIN-compatible, consult the scanner documentation or contact the manufacturer.

## To Select a TWAIN Scanner:

1. Choose **Image | TWAIN Import | Select Scanner**. In the Select Source dialog box, a scrolling list contains the names of all TWAIN scanners for which Canvas can locate a data source.
2. Select the scanner you want to use and click **OK**. The Select Source dialog box closes and the scanner you selected becomes the active scanner.

## To Acquire Images Using a TWAIN Scanner:

1. When you scan an image, it appears in the active Canvas document. Open an existing document or choose **File | New** to create a new document.
2. Choose **Image | TWAIN Import | Acquire Image**.
3. In the dialog box, select the options you want to use.
  - Click **Prescan** to view a preview of the image. You can verify that the image is aligned and completely visible and reposition it if necessary.
  - Depending on the available options, you can adjust scaling and brightness of the image.
4. Click **Scan** to begin scanning. When the scanner finishes, the scanned image appears in the active Canvas document.

## Choosing a Scanning Resolution

Digital images are composed of square pixels, and pixel size is a major factor affecting image quality. The resolution of an image is expressed as the number of pixels per (linear) inch (ppi), or pixels per centimeter. Smaller pixels result in higher image resolution, which generally indicates better image quality. With scanned images, the resolution is also a measure of how much information has been captured from the original artwork.

At relatively low resolution, such as 75 ppi, lines, edges, and character shapes in an image can appear jagged.

Use the following questions to help you decide an appropriate resolution when you scan images.

- **Are you scanning line art or text?:** Line art, such as pen and ink drawings, and high-contrast images with sharp edges or type, should be scanned at the highest resolution possible. Text scans that will be processed with character-recognition software should also be scanned at high resolution for accurate translation.
- **What halftone screen frequency will be used for printing?:** For continuous-tone images (photographs), a common rule of thumb is to scan at a resolution of 1.5 or at most 2 times the screen frequency. For example, for offset printing on newsprint at a screen frequency of 85 lines per inch (lpi), an image should be scanned at 128 to 170 ppi. For images printed at 133 lpi, scanning resolution should be 200 to 266 ppi.



Because resizing tends to blur an image, you can use the Unsharp Mask filter to sharpen it. For more information, see "Sharpen Filters" on page 336.

Talk with service bureaus and commercial printers about the screen frequency used for your projects. With this information, you can let Canvas calculate the optimal resolution for an image. ("Resampling and Sharpening Images" on page 322.)

- **Will the final image be smaller or larger than the original?:** If you need to enlarge the image, you should scan it at a higher resolution to retain the most information when you resize it. If you will reduce the size of the image, you can scan it at a lower resolution.

## About Digital Images and Resolution

Digital images, also known as raster and paint images, are composed of tiny square pixels.

The number of pixels that fit in a linear inch or centimeter is the image resolution. The resolution indicates how much information is in the image, independent of the resolution used to display the image on screen or to print it.

Low-resolution images have larger pixels and look more jagged than high-resolution images. However, while high-resolution images look smoother, they also require more memory and disk space.

## Changing Image Size

You can use several methods to resize or scale paint objects and the images they contain.

Keep in mind that altering the size or resolution of a paint object can degrade the quality of an image. Canvas uses interpolation to estimate pixel values when necessary, but this can result in loss of sharpness or detail when large scaling factors are applied.

The best way to avoid image degradation is to avoid changing image size or resolution.



You can also remove effects via the Undos palette or by using the keyboard command: **Ctrl+Z**.

- If an image is too big for a particular layout, consider cropping the image, rather than resizing or scaling it to fit.
- If a photographic image requires higher resolution, try re-scanning the original at a higher resolution, rather than increasing the resolution in Canvas.

If you resize, skew, or rotate a paint object, you can restore the original shape and resolution by choosing **Effects | Remove Effects**.

## Stretching Images with the Mouse

You can change the size of a paint object by clicking on it with the Selection tool and dragging a selection handle. Stretching an image non-proportionately also stretches the pixels, which can cause unwanted distortion to the image.

## Scaling Images Using the Scale Command

Change the size of a paint object by selecting it and choosing **Object | Scale**. The Scale command lets you maintain the object's proportions or distort an image by scaling it in one direction. Using the Scale command does not add or remove pixels from an image. For information on using Scale, see "Scaling Objects" on page 131.

## Using the Crop Command to Change Image Size

Use the Crop command to adjust the overall size of an image.

- When you enlarge an image, Canvas adds white pixels.
- When you reduce an image, Canvas crops out pixels and discards the image data.

## To Crop an Image:

1. Select a paint object (not in Edit mode) and choose **Image | Area | Crop**. A dialog box displays the current size, width, and height.
2. Under New Size, enter the size you want the image to be. Use percent, pixel, inch, centimeter, point, or pica values.

3. Click a square in the Placement grid to set the position of the resulting image; e.g., to crop the image from the right side and bottom, click the upper-left square in the Placement grid. To expand the image on all sides, click the center square.
4. Click **OK** to resize the image. If you are reducing the image area, Canvas warns you it will delete pixels; click **OK** to proceed.

## Using the Crop & Scale Menu

Canvas features a Crop & Scale menu that you can easily access via the Properties bar when an image object is selected.

When you choose a cropping size from the Crop & Scale menu and apply it to a selected image, a cropping rectangle appears on the image, just as if you were using the Crop tool. Click inside this rectangle and Canvas crops your image.

## Cropping Options

Canvas can crop an image in three ways: Soft Crop, Hard Crop, as well as Crop and Scale. The cropping options also appear in the Properties bar after clicking the Crop tool on an image.

- **Hard Crop:** Extra pixels are permanently removed.
- **Soft Crop:** Extra pixels are temporarily hidden. When the image is in Edit mode, you can see the hidden pixels.
- **Crop & Scale:** When applied, a hard crop is performed and the resulting image is scaled proportionally.

Apply a cropping size from the Crop & Scale menu to a selected image and various cropping options appear in the Properties bar.

## Crop and Scale Options

<b>Width/Height</b>	Width and height of cropping rectangle in pixels.
<b>Final Size</b>	Width and height of cropping rectangle in current ruler units.
<b>Hard &amp; soft crop options</b>	Select either radio button to perform a permanent or temporary crop. The cropped image is not scaled with these options.
<b>Crop &amp; Scale</b>	Select this radio button to permanently crop and scale an image. After cropping, the image is scaled proportionally. With the Crop & Scale option, you can also define the DPI of the image by entering a value in the New DPI field.

## To Apply a Crop Command:

1. Select the image object. The image should not be in Paint Edit mode.



The center of the cropping rectangle is indicated by a square icon.

2. In the Properties bar, click the Crop & Scale drop-down list and select a preset crop size or **Custom**. You cannot manually resize the cropping rectangle when using a preset crop size. You have to select another crop size from the menu. Select **Custom** to be able to resize the cropping rectangle.
3. Move the cropping rectangle, if necessary. Place the cursor on the border of the cropping rectangle and a hand appears.
4. Place the cursor within the cropping rectangle and click to complete the crop.

## Using the Trim or Trim to Path Command

The Trim command lets you remove same-color pixels that are near the edge of the image area. This feature is useful for removing unwanted white space or other borders that are not part of the main image, e.g., you scan a photo that doesn't fill the entire scanner area, and there is a white border around the photo. The Trim command identifies the edges of the image, determines which pixels around the border match, and deletes the unwanted border.

 Canvas alerts you if the image can't be trimmed because a border can't be found.

### To Trim an Image:

1. Select one or more paint objects to trim.
2. Then choose **Image | Area | Trim** to remove the border.

The Trim to Path command lets you trim an image with a vector or text object. Unlike a clipping path, which "hides" anything outside the path, the Trim to Path command deletes any part of the image that is outside the path. The result is a single image object, rather than an image and vector object as is the case with clipping paths. (See "Using Clipping Paths" on page 260.)

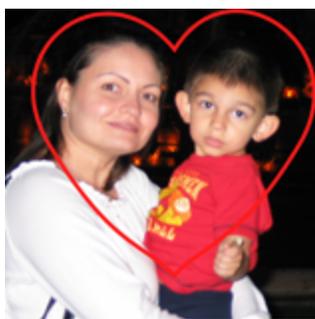
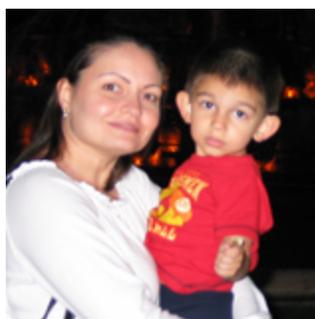
### To Trim an Image to Path:

1. Position a text or vector object (trimming object) in front of the image to be trimmed.

 The trimming object cannot be larger than the image. If a part of the path doesn't touch the image, an error occurs.

2. If necessary, select the text or vector object and choose **Object | Arrange | Bring to Front** to put it in front of the image object.
3. Select both the trimming object and image.
4. Choose **Image | Trim to Path**.

 You can even use special objects, such as Concentric Circles, Spirals, Multigons, and Cubes to trim an image.



We want to create a uniquely shaped image from this original photo.

In this example, a heart-shaped Bézier curve is used as a trimming object. Place the trimming object in front of the image. Select both objects and choose **Image | Trim to Path**.

The result is a single heart-shaped image.

## Using the Crop Tool to Change Image Size

Use the Crop tool to select a rectangular part of an image and hide the rest, which is called a “soft crop.” When you edit a soft-cropped image, the cropped area reappears while the image is in Edit mode. When you finish editing, Canvas re-crops the image.

You can also use the Crop tool to “hard-crop” an image, which adds or removes pixels, as an alternative to using the **Area | Crop** command.

### To Perform a Soft Crop:

1. Select the **Crop** tool from the Toolbox. 
2. Right-click and select **Soft Crop Image**.

### To Perform a Hard Crop:

1. Select the **Crop** tool from the Toolbox. 
2. Right-click and select **Hard Crop Image**.

## Crop Icons



Soft crop pointer indicates cropping will be temporary.



Hard crop pointer indicates cropping will be permanent.



A gavel appears in crop mode when the pointer is in the image. Click to complete the crop.



A hand appears in crop mode when you point to a side of the cropping rectangle. Drag to move the rectangle.



This symbol appears if the pointer is outside the image in crop mode.

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### To Crop without Deleting Pixels:

1. Select the **Crop** tool and point to the image you want to crop.
2. Click the image with the crop pointer. Canvas displays a rectangle with hollow handles. This cropping rectangle defines the outside edges of the image after cropping.
3. Position the cropping rectangle to frame the part of the image that you want to keep.
  - Drag a corner handle to resize the cropping rectangle.
  - Drag a side to move the cropping rectangle. The pointer changes to a hand when you point to a side.
4. Press **Esc** to crop the image, or click in the image. Canvas hides the part of the image outside the cropping rectangle.

### To Restore a Cropped Image:

You can select a paint object and choose **Effects | Remove Effects** to remove a soft crop. Or, use the following procedure:

1. Click the image with the Crop tool. Canvas displays the full image area and the cropping rectangle.
2. Drag the corner handles outward so the entire image is inside the cropping rectangle, and then press **Esc**, or click in the image.

## Cropping an Image

Adjust the cropping rectangle with the Crop tool by dragging a handle. Enclose the area you want to keep, and then press **Esc** to hide the cropped part of the image.



## To Remove Pixels When Cropping an Image:

In hard-crop mode, the Crop tool discards pixels that are outside the cropping rectangle.

 Quickly crop or expand a paint object using the Selection tool. Select the paint object (don't put it in Edit mode), then **Ctrl**-drag a handle to crop or add pixels to the image. When you drag, the cropping rectangle and handles appear. When you release the mouse, Canvas applies a hard crop.

1. Select the **Crop** tool and **Ctrl**-click the image you want to crop. Canvas displays a cropping rectangle around the boundary of the image.
2. Position the cropping rectangle so it frames the part of the image you want to keep.
  - Drag a handle to resize the cropping rectangle.
  - To move the cropping rectangle, point to any side, and the pointer changes to a hand. Drag the cropping rectangle to reposition it.
3. Press **Esc** or click in the image to complete the crop.

## To Add Pixels with the Crop Tool:

1. Select the **Crop** tool and point to the image you want to crop.

 If the paint object you crop is an Indexed mode object, the color of the added pixels is the last color in the color table associated with the image, which often is black.

2. **Alt**-click the image you want to enlarge. Canvas displays a cropping rectangle with hollow square handles at the corners.

3. Drag the handles of the cropping rectangle to enlarge it.
4. Press **Esc** or click in the image to complete the crop.

### Adding a White Border

When you press a modifier key and click with the **Crop** tool, you can expand a paint object. This adds a white border to an RGB Color or CMYK Color image.

### To Quickly Crop an Image with the Selection Tool:

1. When a paint object is selected (not in Edit mode), point to a handle, and then press **Ctrl** and drag the handle. When you drag, a cropping rectangle appears.
2. Drag inward to crop (cut away) part of the object. Drag outward to add pixels and expand the object. Release the mouse to complete the operation.

### To Constrain the Cropping Rectangle as You Drag:

Do one or more of the following:

- To constrain the height and width of the cropping rectangle proportionally: Release the **Ctrl** key, and then press Shift while dragging.
- To constrain the height and width of the cropping rectangle symmetrically from the center: Release the **Ctrl** key and then press it again while dragging.
- To constrain the height and width of the cropping rectangle both proportionally and symmetrically: Release the **Ctrl** key and then press **Ctrl+Shift** while dragging.

## Changing Resolution

Change the resolution of paint objects in two ways:

- If you do not want to change an object's size, resample the image. Resampling merges or divides pixels.
- If you want to preserve all the data in an image, change the object's resolution and allow its size to change.

Decreasing resolution ("down sampling") decreases file size by discarding data, which can result in lost detail; however, it's common to reduce resolution in some situations.

-  For Web pages and other applications where images are displayed on a monitor, 72 ppi is the standard resolution.

Rarely, an image is resampled to increase resolution. This should be avoided because additional pixels are created by estimating their color values, which does not improve an image.

The Resolution dialog box has compact and expanded states. In its compact state, you can easily change the resolution of multiple paint objects without needing to specify additional options. (See "Image Resolution Settings" on page 320.)

## Image Resolution Settings

Specify the resolution, width, and height for a selected paint object when the Image Resolution dialog box is expanded. Expand the dialog box when a single paint object is selected; if multiple objects are selected, they must match in size and resolution.

Depending on the options you select, certain settings in the dialog box can't be changed. A bracket and chain icon indicate settings that are linked and fixed.

- **Preserve Data:** Prevents resampling, or interpolation, when resolution or size changes. Selecting Preserve Data also selects Preserve Proportions, so width and height change only in proportion to each other.

Preserve Data means image resolution and size are relative; changing the resolution will change the object size, and changing the size will change the image resolution.

If you select Pixels in the Width and Height menus, you cannot change these values, because the number of pixels cannot change when Preserve Data is selected.

- **Width and Height:** Specify a size for the paint object by entering values in these text boxes. Select measurement units in the adjacent menus.

The width and height boxes show the size a paint object will become if you change the resolution when Preserve Data is selected.

- **Preserve Proportions:** This option links the Width and Height values so that changing one value changes the other and maintains the original proportions of the paint object. Selecting Preserve Data also selects this option. If you want to stretch a paint object in only one direction, deselect Preserve Proportions.

 When more than one paint object is selected (unless the objects are the same size and resolution), the button that displays additional options in the Resolution dialog box is not available.

### To Change Resolution by Resampling:

This procedure reduces resolution of paint objects for use on a Web page or in a presentation.

1. Select one or more paint objects. These objects can vary in size and resolution.
2. Choose **Image | Area | Resolution**. The Image Resolution dialog box appears in its compact state.
3. Select pixels per inch or pixels per centimeter and enter the resolution value in the text box.
4. Click **OK**. Canvas changes the resolution of the selected objects, which remain the same size.

### To Change Resolution without Resampling:

Use this procedure to change the resolution of paint objects without resampling. This changes the size of objects while preserving the image data.

If you reduce resolution, paint objects become larger because the individual pixels are larger. If you increase resolution, paint objects become smaller because the individual pixels are smaller.

1. Select one or more paint objects and choose **Image | Area | Resolution**.
2. In the Image Resolution dialog box, select **Preserve Data**.
3. Enter the desired resolution in the text box and click **OK**. Canvas changes the resolution of the selected paint objects.

### To Calculate Resolution:

If only one object is selected, you can calculate an appropriate resolution based on a halftone screen frequency.

1. Click **Auto** in the Image Resolution dialog box.
2. Enter the screen frequency and choose **Draft**, **Good**, or **Best**. Canvas calculates the resolution by multiplying the screen frequency by 1 (draft), 1.5 (good), or 2 (best).
3. Click **OK** to enter the calculated resolution in the Image Resolution dialog box.

## Resampling and Sharpening Images

Resizing and resampling causes images to appear softer. However, you can apply the Unsharp Mask filter to bring soft images back into focus. For more information, see [To Apply the Unsharp Mask Filter](#).

## To Specify How Canvas Approximates New Pixels:

When increasing image resolution, Canvas uses one of two methods to calculate color values for the pixels it adds to an image. To change the method, use the Interpolation control in the Configuration Center.

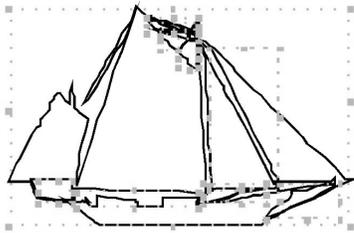
1. Choose **File | Configuration Center**. Select the **Painting manager** in the General settings.
2. Select an option under Interpolation and click **OK**. For more information, see "Setting Preferences" on page 62.

## Auto-Tracing Images

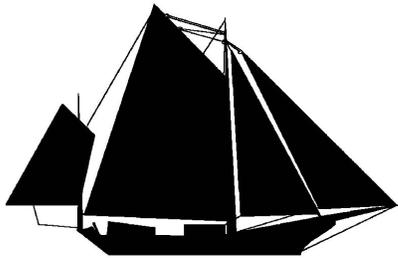
You can use the Auto Trace command to create vector objects from an image. The Auto Trace command traces an entire image or any channel of an image and is available when a paint object is selected. Auto-tracing is much faster than tracing an image by hand with the Polygon or Curve tool, although you might need to edit the resulting vector paths. When Canvas performs an auto-trace, the original image is not changed. When the tracing is complete, you can move the vector objects away from the image.

 Canvas auto-traces high-resolution images better than low-resolution images. Auto-tracing an image with a resolution lower than 300 ppi can produce jagged paths.

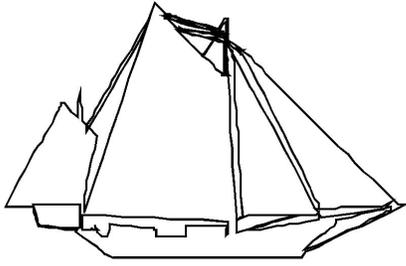
Canvas traces an image with curves or straight path segments. Auto-tracing usually produces several paths that follow various sections of the image. After tracing, group and edit the resulting paths.



Selection handles (highlighted) surround the objects produced by auto-tracing the sailboat image



Original scan at 600 ppi resolution



Paths created with the Auto Trace command

## To Auto-Trace an Image:

1. Select a paint object to trace and choose **Image | Auto Trace**.
2. In the Auto Trace dialog box, choose either all channels or a specific color channel to trace from the Channel menu. The options also depend on the type of image.
3. Select other settings to use for tracing.
4. Then click **OK** to trace the selected paint object.

## Auto Trace Settings

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### Input

The Input section contains information about the image being traced.

**Channels:** Depending on the image type, you can select All Channels or a specific color Channel from the menu. If the image contains only one color channel, like grayscale or black & white, the Channel option and menu is disabled.

**Blur:** Use the slider to apply a blur radius to the input image. Blurring removes noise.

**Threshold:** This slider is only enabled when the input image is grayscale or color and the output result is black & white. The threshold, in this case, modifies the intermediate black & white image used to create the vector (traced) objects.

**Resolution:** This slider adjusts the resolution of the input image. The input image can be traced at its original resolution or at an adjusted one.

The Intermediate Preview indicates the image used for tracing after applying the blur or threshold changes, if applicable.

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### Output

Output section

**Mode:** Select either **Black & White**, **Grayscale**, or **Color** for the output tracing.

**Trace:** Select either **Fill**, **Stroke**, or **Fill+Stroke**. The Fill option creates filled outlines. The Stroke option is only available when the mode is set to Black & White. Stroke means that centerlines with an approximate width are created rather than outlines. With the Fill+Stroke option, a mixture of filled vector objects and strokes is made. Strokes are created depending on the values for Max Stroke Width and Min Stroke Length.

**Ignore area less than:** This option works as a despeckle filter. If isolated pixels or groups of pixels exist in the input image, they will be ignored, instead of creating vector objects from them.

**Gray Levels:** This slider is only enabled when the output is gray or color. When the output is gray, the level

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value defines the number of gray levels in the intermediate preview and in resulting vector object. When the output is color, the slider controls how well the details in the image are distinguished. A high value provides better distinction.

**Optimize curves:** This option reduces the number of points in the curve, without drastically affecting the shape. Optimize is disabled if Make polygons is enabled.

**Make polygons:** Select this option to create polygons rather than Bézier curves.

The Output preview displays a portion of the resulting vector objects.

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## Image Adjustment and Correction

You can adjust images in Canvas using built-in filters and third-party plug-ins. For example, you can use the Levels filter to adjust image highlights and shadows, and sharpen scanned photos with the Unsharp Mask filter.

This section describes the commands you can use to adjust image color and brightness. It also describes commands for sharpening, softening, and refining images.

### Applying Image Editing Commands

You can apply most image editing commands to a single paint object if it's selected or in Edit mode. You can also apply most commands to multiple selected paint objects. You can set image modes, apply filters, and adjust settings for multiple paint objects at the same time.

In most cases, a command affects an active selection, or an entire image if nothing is selected in Edit mode.

 When you apply an image-editing command to more than one selected paint object, you can't use the Preview option if the dialog box has it. Preview is available when a single image is in Edit mode.

You can apply a command by choosing **Image | Adjust** or by using the Adjust menu located in the Properties bar.

The following summarizes how image-editing commands can be applied.

- Mode commands let you set the image mode for one or more selected paint objects.
- You can convert multiple objects to image proxies.
- Crop command and the Proxy Info command can't be applied to multiple objects.
- Resolution command sets the resolution for one or more selected objects.
- Trim command trims one or more selected paint objects.
- You can apply filters to one or more selected paint objects. If a single paint object is in Edit mode, a filter applies to the entire image or an active selection.
- Image Measurement command can be applied to paint objects that are selected or in Edit mode.
- Many commands in the Adjust menu can be used to uniformly adjust one or more selected paint objects, or a paint object in Edit mode.

## Working with Image-Adjustment Dialog Boxes

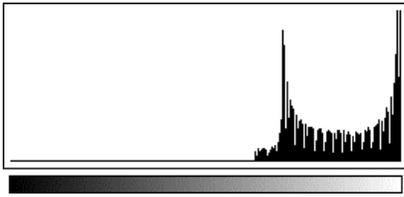
Some dialog boxes for image-editing commands include histograms and preview options to help you achieve the effect you want.

### Using the Preview Option

Most dialog boxes for image-adjustment commands include a Preview checkbox. Select the **Preview** option to see how settings affect the image. Preview is available only when a single paint object is in Edit mode.

### Understanding Histograms

A histogram plots the relative number of pixels in each brightness level in an image.



In the above, shorter bars on the left indicate that the image doesn't contain large areas of very dark pixels. Higher bars toward the right of the graph show that the image contains large areas of medium and very bright pixels.

### To View an Image's Histogram at Any Time:

With an image selected or in Edit mode, choose **Image | Histogram**.

## Consolidating Colors

The Threshold and Posterize commands let you consolidate color values in an image or selection. Besides producing interesting effects with these commands, you can use them in alpha channels to help isolate areas within an image.

If you select an area within an image, Canvas applies the adjustment only to that area. Otherwise, Canvas adjusts the selected paint objects.

### Setting a Brightness Threshold

Use the Threshold command to convert any image to black and white. The Threshold command compares each pixel's brightness value to a threshold value that you set. It changes brighter pixels to white and darker pixels to black. The threshold setting is based on a scale of brightness values from 0 (black) to 255 (white). You can't use the Threshold command on images in Black & White or Indexed mode.

For example, if you set a threshold value of 128, pixels that are brighter than medium gray become white, while pixels darker than medium gray become black.

### To Map an Image to Black and White:

1. Select one or more paint objects to adjust all the images. You can select an area in one image in Edit mode to adjust the selected area only. If you don't make a selection, the entire image is affected.
2. Choose **Image | Adjust | Threshold**.
3. Enter the threshold value by dragging the slider or typing a number in the text box. If you want Canvas to convert half the pixels to

black and half to white, click **Auto**.

4. Click **OK** after entering the setting you want.

To isolate selections, apply the **Threshold** command in conjunction with the High Pass filter to an image in an alpha channel. (See "Isolating Areas Using the High Pass Filter" on page 378.)

## Creating High Contrast Posterized Images

You can condense the brightness variations in an image with the Posterize command. If you apply the Posterize command to a photograph, it creates a high-contrast image by compressing hundreds of brightness levels into only a few. You set the number of brightness levels you want to retain, and Canvas reduces each color channel to that number of values.



Original RGB image



Posterize 8 levels



Posterize 4 levels



Posterize 2 levels

The Posterize command's effect depends on the mode of the image you posterize; e.g., if you apply the Posterize command with a setting of 2 levels to a grayscale-mode image, the image becomes black and white. If you apply the same setting to an RGB-mode image (even if it contains only grays), the command converts each pixel's red, green, and blue value to either zero or full color, reducing the image to eight colors — red, green, blue, red-green, red-blue, blue-green, black, and white.



You can't use the Posterize command on images in Black & White or Indexed mode.

## To Posterize an Image:

1. Select one or more paint objects to posterize all the images. You can select an area in one image in Edit mode to posterize the selected area only. If you don't make a selection, the entire image is affected.
2. Choose **Image | Adjust | Posterize**.
3. Enter a level from 2 to 255. Higher numbers produce subtle effects. Lower numbers produce high-contrast images.
4. Click **OK** after you enter the Levels setting.

## Changing Color and Contrast

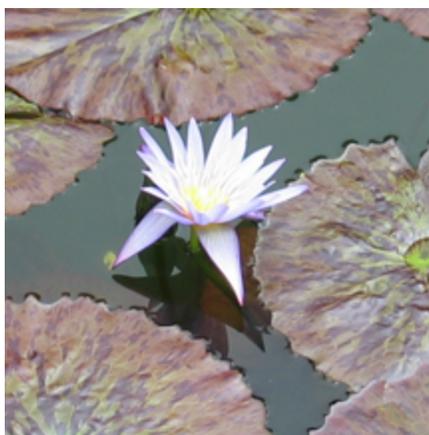
You can use the Invert, Desaturate, and Brightness/Contrast commands to create special effects and correct lightness levels in images. These commands apply changes equally to all color values.

If you select an area of an image, Canvas applies the command to that area only. Otherwise, Canvas applies the command to the entire image in a paint object.

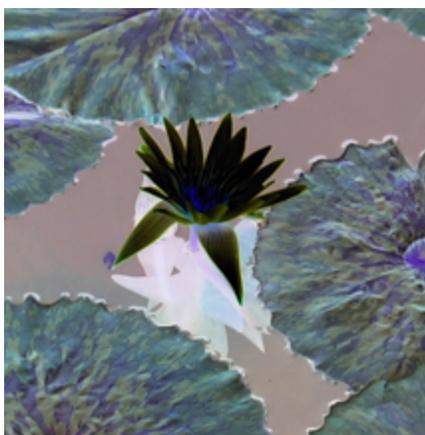
## Inverting Colors in Images

You can use the Invert command to reverse the colors in an image, as in a photographic negative. The command converts each pixel's color to its opposite hue in the color spectrum. It does this by inverting the brightness value of each pixel in each color channel.

For example, if a pixel is pure red, its brightness levels are 255, 0, 0 in RGB mode. When inverted, this pixel's brightness values become 0, 255, 255, changing it to pure blue-green, its opposite in hue.



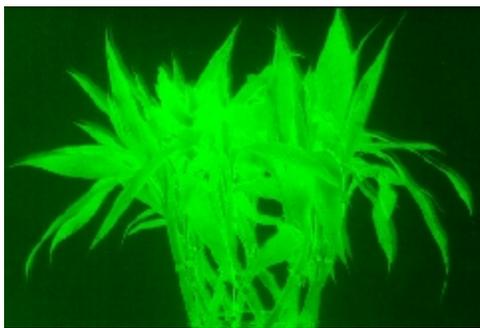
Original RGB



Inverted RGB



Green channel selected



Inverted Green channel

The Invert command can be particularly useful in channel editing, as colored pixels can denote either masked or selected areas.

### To Invert an Image:

1. Select one or more paint objects to invert all the images. You can select an area in one image in Edit mode to invert the selected area only. If you don't make a selection, the entire image in Edit mode is affected.



You can't use the Invert command on images in Indexed mode.

2. Choose **Image | Adjust | Invert**.

### Desaturating Image Colors

You can use the Desaturate command to remove color from images completely, while retaining the relative brightness levels of shadows, midtones, and highlights. The command converts an entire image to shades of gray without changing the image mode.

### To Desaturate an Image:

1. Select one or more paint objects to desaturate all the images. You can select an area in one image in Edit mode to desaturate the selected area only. If you don't make a selection, the entire image in Edit mode is affected. This command works with paint objects in RGB Color mode, CMYK Color mode, and LAB Color mode.
2. Choose **Image | Adjust | Desaturate**, or select **Desaturate** from the Adjust menu in the Properties bar.

### Adjusting Brightness and Contrast

You can adjust the brightness and contrast of an entire image or specific channels with the Brightness/Contrast command. Brightness refers to the lightness of an image. Contrast is the difference in brightness between two pixels.

Because the Brightness/Contrast command adjusts all pixels equally, you should avoid using it to lighten an image that appears too dark, because the image can lose shadow detail.

### To Preserve Shadows or Highlights When Adjusting the Brightness of an Image:

Use the Levels or Curves commands. (See "Levels" on page 329 and "Adjusting Brightness Curves" on page 330.)

### To Use the Brightness/Contrast Command:

1. Select one or more paint objects to adjust all the images. You can select an area in one image in Edit mode to adjust the selected area only. If you don't make a selection, the entire image in Edit mode is affected. This command doesn't work with paint objects in Black & White mode or Indexed mode.
2. Choose **Image | Adjust | Brightness/Contrast** or select **Brightness/Contrast** from the Adjust menu in the Properties bar.
3. Enter a Brightness value from -100 to 100. Higher values can wash out midtones and shadows. Lower values can dull highlights.
4. Enter a Contrast value from -100 to 100. Increasing contrast moves the color values of pixels to the extremes of the brightness spectrum. Decreasing contrast moves color values toward medium gray.
5. After entering the settings you want, click **OK**.

## Color Balance

The Color Balance command lets you adjust color in shadows, midtones, and highlights. You can use it with paint objects in CMYK Color or RGB Color modes.

### To Use the Color Balance Command:

1. Select one or more paint objects to adjust all the images. You can select an area in one image in Edit mode to adjust the selected area only. If you don't make a selection, the entire image in Edit mode is affected.
2. Choose **Image | Adjust | Color Balance**.
3. Click **Shadows**, **Midtones**, or **Highlights** to select the tonal range you want to adjust. You can set the color levels independently for each tonal range.
4. Drag a slider toward a color label to increase the amount of that color. The letters indicate the primary color values: Cyan, Red, Magenta, Green, Yellow, and Blue.  
  
When you increase the amount of a color, you also reduce its inverse, which is the color labeled at the other end of the slider.
5. Click **Preview** to preview the color adjustments. Preview is only available if a single paint object is in Edit mode.
6. Click **OK** to apply the settings.

## Levels

You can adjust the brightness of shadows, highlights, or midtones by using the Levels command. Brightness values range from 0 (black) to 255 (white). For colored pixels, brightness is the brightness value in each color channel.

The Levels command works with all image modes except Black & White and Indexed.

### To Adjust Levels:

1. Select a paint object to adjust. You can select an area in the image to adjust the selected area only.
2. Choose **Image | Adjust | Levels**.
3. Select a channel or combination of channels in the pop-up menu. The Levels command will affect only the specified channels.
4. Do one or more of the following:
  - **Lighten highlights:** Enter a positive number less than 255 in the right Input Levels box, or drag the white slider under the histogram. Canvas assigns the maximum output level to all pixels on the right of the slider.
  - **Lighten shadows:** Enter a positive number in the left Output Levels box, or drag the black slider under Output Levels to increase the minimum output level. This value becomes the darkest value allowed in the image.
  - **Darken highlights:** Enter a positive number less than 255 in the right Output Levels box, or drag the white slider under Output Levels to set the maximum output value. This is the brightest value allowed in the image. You can darken highlights in one color channel to bring brighter colors back into the printable color range.
  - **Darken shadows:** Enter a number greater than zero in the left Input Levels box, or drag the black slider under the histogram. Canvas assigns the minimum output level to all pixels on the left of the slider.

- **Adjust midtones:** Enter a value in the center Input Levels box or drag the gray slider under the histogram. To lighten midtones, enter a value from 1.01 to 9.99 or drag the slider to the left. All pixels on the right of the slider will be brighter than medium gray. To darken midtones, enter a value from 0.1 to 1.00 or drag the slider to the right. All pixels on the left of the slider will be darker than medium gray.

5. Click **OK**.

## Saving and Loading Levels Settings

You can save Levels settings on disk to use again. For example, after correcting a scanned photo, you can save the settings and use them to correct other images scanned from the same source.

### To Save Levels Settings:

1. In the Levels dialog box, click **Save**.
2. In the dialog box, type a name for the settings file, select a location, and click **Save**.

### To Load Previously-Saved Levels:

1. In the Levels dialog box, click **Load**.
2. In the dialog box, locate the settings file you want to open, and click **Open**.

## Levels Dialog Box

Use the Levels dialog box to control different aspects of brightness levels.

<b>Channel</b>	Choose an individual color channel or the composite channel.
<b>Input Levels</b>	Type values in the Input Levels boxes or drag the slider under the histogram to set the minimum input level, midtone ratio, and maximum input levels.
<b>Output Levels</b>	Type values in the Output Levels boxes or drag the sliders to set the minimum and maximum output levels.
<b>Histogram</b>	The histogram graphs brightness levels for the selected channel.
<b>Auto</b>	Click <b>Auto</b> for Canvas to map the darkest values in the selection to black and the lightest value to white.
<b>Eyedroppers</b>	Click the <b>Set White Point</b> eyedropper tool. Click in the image to pick the values you want to assign to the lightest area in the image. Click the <b>Set Black Point</b> eyedropper tool. Click in the image to pick the values you want to assign to the darkest area in the image.

## Adjusting Brightness Curves

You can adjust the tonal range of an image with the Curves command. Unlike the Levels command, which can set the minimum, maximum, and median values, Curves adjusts the entire range of values. It lets you map input values to output values according to a line ("curve") on a graph. Curves provides the most control over the tonal range of an image.

This command is not available when a paint object in Black & White mode or Indexed mode is selected.

In the Curves dialog box, brightness values range from 0 (black) to 255 (white), or 0 percent (white) to 100 percent (black). To switch between these scales, click the grayscale bar under the graph.

A typical setting is a gentle S-curve (or inverted S-curve, depending on the scale you use), which adds contrast to an image without appearing too harsh.

## Curves Dialog Box

The graph shows how Canvas maps input brightness values to output values. Select **Preview** to see the effect on the image.

<b>Channel</b>	Choose a channel to adjust.
<b>Grayscale ramp</b>	The grayscale ramp shows the lightness scale, either 0-255 (dark to light) or 0-100 percent (light to dark). Click the <b>ramp</b> to reverse the scale and the curve.
<b>Input and Output</b>	Type brightness values in the Input and Output boxes. Or, drag the pointer (circled) to specify brightness values.
<b>Icon</b>	Click this <b>icon</b> and drag a point on the curve to reshape the curve. Click the curve to add up to 19 control points. Drag points off the curve to delete them.  To draw a disconnected segment, click this <b>icon</b> and drag in the graph.
<b>Pencil</b>	With the pencil selected, click to smooth the curve.

### To Adjust Brightness Curves:

1. Select one paint object to adjust. The paint object can be in Edit mode. You can select an area in the image. If you don't make a selection, the entire image is affected.
2. Choose **Image | Adjust | Curves**.



To redraw the curve completely, or to create sharp changes in brightness for a tonal range, click the pencil and draw a new curve or segment.

3. In the Channel pop-up menu, select the composite channel or an individual channel to adjust. To adjust multiple channels, select the channels in the Channels palette first.
4. To change the shape of the existing curve, make sure the curve button at the bottom-left is selected.
  - Click points that you want to keep the same.
  - Drag points on the curve that you want to change. Or, enter values in the Input and Output boxes. For example, to keep midtones the same, click the center of the curve, then drag other areas of the curve. To adjust midtones without affecting highlights and shadows, click the quarter and three-quarter points of the curve, and drag the middle.
5. If you draw disjointed segments with the pencil, you can click **Smooth** to create one continuous curve.
6. Click **OK** to apply the current settings to the image.

### Saving and Loading Curves Dialog Box Settings

You can save Curves dialog box settings to use again; e.g., after correcting the brightness curve for a particular Photo CD image, you can save these settings and later apply them to other images from the same source.

#### To Save Curves Settings:

In the Curves dialog box, click **Save**. In the directory dialog box, type a name for the settings file, select a location, and click **Save**.

#### To Load Curves Settings:

In the Curves dialog box, click **Load**. In the directory dialog box, locate the settings file and click **Open**.

## Hue/Saturation

You can modify the tint and purity of specific colors with the Hue/Saturation command. In terms of image editing, saturation refers to the amount of gray in colors.

The Hue/Saturation dialog box varies slightly depending on the color mode. For RGB Color and CMYK Color images, you can modify red, yellow, green, cyan, blue, or magenta color ranges. For LAB mode images, you can modify blue, magenta, yellow, or green color ranges.

The Hue/Saturation command is available when you work with CMYK, RGB, or LAB Color mode images. Before choosing the Hue/Saturation command, make the composite channel active. For more information, see "Activating Channels" on page 357.

### Hue/Saturation Dialog Box

<b>Color</b>	Choose the color to adjust. Click Master to affect all colors.
<b>Hue, Saturation, Lightness</b>	Enter numbers in the text boxes or drag the sliders to adjust hue, saturation, and lightness.
<b>Color Wheel</b>	The color wheel illustrates changes made in the settings.
<b>Colorize</b>	Select the Colorize checkbox to add the same hue to the entire image.

#### To Adjust the Hue of a Color Range:

1. Select a paint object to adjust. You can select an area in the image to adjust the selected area only.
2. Choose **Image | Adjust | Hue/Saturation**.
3. On the left of the dialog box, click the color range to adjust, or click Master to affect all colors equally.
4. To change the selected color, enter the amount of the color shift, from -180 to 180°, in the Hue text box. Negative values indicate a counter-clockwise shift around the color wheel; positive values indicate a clockwise shift; e.g., with the Master option selected, setting Hue to 60 changes red to magenta, magenta to blue, blue to cyan, and so on.
5. Click **OK** to apply the current settings to the image.

#### To Adjust the Saturation of a Color Range:

1. Select a paint object to adjust. You can select an area in the image to adjust the selected area only.
2. Choose **Image | Adjust | Hue/Saturation**.
3. Click the option button of the color you want to adjust, or click the **Master** option button to affect all colors equally.
4. Enter a value from -100 to 100 in the Saturation text box or drag the slider. Positive values decrease the amount of gray in the selected colors. Negative values increase the amount of gray.
5. Click **OK** to apply the current settings to the image.

#### To Adjust the Brightness of a Color Range:

1. Select a paint object to adjust. You can select an area in the image to adjust the selected area only.
2. Choose **Image | Adjust | Hue/Saturation**.
3. Choose a specific color range or choose Master to affect all colors equally.

4. Enter a value from -100 to 100 in the Lightness text box or drag the slider. Positive values increase the amount of white in the color range. Negative values decrease the amount of white.
5. Click **OK** to apply the current settings to the image.

For more control of brightness adjustments, use the **Levels** or **Curves** command. (See "Levels" on page 329 and "Adjusting Brightness Curves" on page 330.)

### To Colorize an Image:

Use the Colorize option in the Hue/Saturation dialog box to tint an image. This applies the same hue and saturation to all pixels that are not 100% black or white. The Colorize option does not affect the lightness levels of pixels.

1. Select a paint object. You can select an area in the image to adjust only the selection.
2. Choose **Image | Adjust | Hue/Saturation**.
3. Select the **Colorize** option.
4. Enter a value from -180° to 180° in the Hue text box. Positive values shift counter-clockwise around the color wheel, negative values shift clockwise around the color wheel. For example, Hue 120 creates a green-toned image.
5. Enter a value in the Saturation text box or drag the slider.
6. After entering the settings you want, click **OK**.

### Color Equalization

You can graphically adjust the saturation of different color ranges with the Color Equalization command. You can add or remove gray from various color ranges in images in RGB Color mode, CMYK Color mode, and LAB Color mode.

### To Use the Color Equalization Command:

1. Select a paint object to adjust. You can select an area in the image to adjust only the selected area.
2. Choose **Image | Adjust | Color Equalization**.
3. Drag the handles in the window to change the saturation of color ranges. To increase saturation, drag upward. To decrease saturation, drag downward.
4. Click **Saturate** to increase the saturation of all colors. To decrease the saturation of all colors, click **Desaturate**. Click **Normalize** to return all colors to their original saturation.
5. Click **OK** to apply the settings.

### Blur Filters

Blur filters soften images by decreasing contrast between neighboring pixels. These commands work with all image modes except Indexed and Black & White.

Apply the Blur filters by choosing **Image | Filter | Blur** or by using the Filters menu in the Properties bar.

### To Use Blur and Blur More:

Blur slightly modifies an image. Blur More is about four times stronger than Blur. Both commands work with all image modes except Black & White and Indexed.

1. Select one or more paint objects to blur. You can select an area in one image to blur the selected area only.
2. Choose **Image | Filter | Blur | Blur** or **Blur More**.

## Gaussian and Average Blur

Create a softening effect by using the Gaussian Blur or Average blur filters. Their effects are similar, but the Gaussian Blur filter creates a more diffused effect than the Average blur filter.

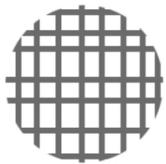
The Gaussian Blur filter changes the color value of each pixel by applying a weighted average based on the color values of pixels within a specified distance. Color values at the edge of the specified distance influence the final color value less than closer pixels.

The Average filter determines the new color value for each pixel by equally averaging all color values within the specified radius.

### To Apply Gaussian Blur or Average Blur:

1. Select one or more paint objects to blur. You can select an area in one image to blur the selected area only.
2. Choose **Image | Filter | Blur | Gaussian Blur** or **Average**.
3. Specify a radius value from 0.1 to 250.0 in the Gaussian Blur dialog box, or 1 to 16 in the Average dialog box. Smaller radius values produce more subtle effects than larger ones.
4. Click **OK**.

Depending on the size of the radius, applying a Gaussian or Average blur can take longer than other Blur filters.



Blur



Blur More



Average



Gaussian

## Motion Blur

The Motion Blur filter can create the effect of linear movement. You can specify the direction and magnitude of the effect. This command works with all image modes except Black & White, Indexed, and Duotone.

### To Apply Motion Blur:

1. Select one or more paint objects to blur. You can select an area in one image to blur the selected area only.
2. Choose **Image | Filter | Blur | Motion Blur**. Adjust the settings in the Motion Blur dialog box, and then click **OK** to apply the filter and close the dialog box.



Original



Motion Blur: Direction = -7, Distance = 162, Phase = -63

### Motion Blur Dialog Box

<b>Direction</b>	Establishes the angle of the blur and the object "movement." Enter a value from -90 to 90 degrees. You can drag the slider or drag the solid dot inside the circle to set the Direction value. A value of 0 degrees creates a horizontal blur; 90 degrees creates a vertical blur.
<b>Distance</b>	The magnitude of the blur. Enter a number from 1 to 999, or drag the slider to set the Distance. A lower number creates less blurring.
<b>Phase</b>	Establishes the apparent direction of movement by creating a blurred trail that follows the object. Enter a number from -100 to 100 or drag the slider to set the Phase. Negative numbers create apparent movement up and to the right. Positive numbers create apparent movement down and to the left.
<b>Preview</b>	Displays the effect of the current settings.

### Radial Blur

The Radial Blur filter can create the effect of circular movement in an image. This command works with all image modes except Black & White, Indexed, and Duotone.

#### To Apply Radial Blur:

1. Select one or more paint objects to blur. You can select an area in one image to blur the selected area only.
2. Choose **Image | Filter | Blur | Radial Blur**. Adjust the settings in the dialog box, and then click **OK** to apply the filter.

### Radial Blur Dialog Box

<b>Spin</b>	Controls the magnitude of the apparent rotation in the image. Type a number from 1 to 100 or drag the slider to set the value. Or, drag the solid area inside the circle. Drag clockwise to simulate slower rotation; drag counterclockwise to simulate faster rotation and produce more blurring.
<b>Quality</b>	Higher quality creates a smoother image but takes more time. The quality differences become more pronounced when the image is enlarged or printed on standard size paper.  Select <b>Draft</b> for the fastest redraw. Select <b>Good</b> for average redraw speed and quality. Select <b>Best</b> when image quality is most important.

<b>Centering options</b>	These options let you set the rotation origin. Center In Image sets the origin at the center of the image. Center in Selection sets the origin at the center of a selection. "Offset from Center in Pixels" lets you type values to offset the origin from the center of the image or selection. Type vertical and horizontal offset amounts in pixels in the text boxes. Negative horizontal offsets move the center to the left. Negative vertical offsets move the center up. Positive horizontal offsets move the center to the right. Positive vertical offsets move the center down.
<b>Preview</b>	Displays the effect of the current settings.

## Zoom Blur

The Zoom Blur filter can create the effect of movement in an image, as if the scene were moving rapidly toward or away from the observer. The filter blurs along an axis perpendicular to the image. You can specify the depth, direction, and smoothness of the blur effect. This command works with all image modes except Black & White, Indexed, and Duotone.

### To Apply Zoom Blur:

1. Select one or more paint objects to blur. You can select an area in one image to blur the selected area only.
2. Choose **Image | Filter | Blur | Zoom Blur**. Adjust the settings in the dialog box, and then click **OK** to apply the filter.

### Zoom Blur Dialog Box

<b>Span</b>	Sets the depth, (length) of the zoom effect. Type a number from 1 to 100 or drag the slider to set the value. A larger number simulates a greater zoom depth and a more blurred effect.
<b>Zoom In/Out</b>	Establishes the direction of the blur effect toward or away from the viewer. Type a number from -100 to 100 or drag the slider to set the value. Negative numbers make the image appear to move closer; positive numbers make the image appear to move away.
<b>Smoothness</b>	Controls the quality of the transition of the blur effect. Type a number from 1 to 10 or drag the slider to set the value. A smaller number creates a smoother blur with fine color blending.
<b>Centering options</b>	These options let you set the zoom origin. Center In Image sets the origin at the center of the image. Center in Selection sets the origin at the center of a selection. "Offset from Center in Pixels" lets you type values to offset the origin from the center of the image or selection. Type vertical and horizontal offset amounts in pixels in the text boxes. Negative horizontal offsets move the center to the left. Negative vertical offsets move the center up. Positive horizontal offsets move the center to the right. Positive vertical offsets move the center down.
<b>Preview</b>	Displays the effect of the current settings.

## Sharpen Filters

Sharpen filters increase the contrast between adjacent pixels, which can make an image appear more distinct. These commands work with all image modes except Black & White, Indexed, and Duotone.



Although the Sharpen and Blur filters have opposite effects, they do not negate each other. To reverse the effects of a Sharpen filter, choose **Edit | Undo**.

- **Sharpen filter:** Modifies an image slightly. The effect of the Sharpen More filter is about four times greater.
- **Sharpen Edges filter:** Affects only high-contrast areas.
- **Unsharp Mask filter:** Provides additional control over the sharpening effect.

### To Sharpen an Image:

1. Select one or more paint objects to sharpen. You can select an area in one image to sharpen the selected area only.
2. Choose **Image | Filter | Sharpen**, and then choose a filter.



Original



Sharpen More  
applied 5 times



Sharpen Edges  
applied 8 times



Unsharp Mask  
Amount = 113  
Radius = 4.5  
Threshold = 0

### To Apply the Unsharp Mask Filter:

1. Select one or more paint objects to sharpen. Select an area in an image to sharpen the selected area only.
2. Choose **Image | Filter | Sharpen | Unsharp Mask**.
3. Enter 1 to 500% for Amount. Enter less than 100 percent to sharpen the image slightly.
4. Enter 0.1 to 250 pixels for Radius. This is the size of the area used to determine new color values for the original pixels. Smaller values focus the sharpening effect on high-contrast edges.
5. Enter 0 to 255 levels for Threshold. Enter 0 to filter all pixels. Enter a larger value to filter only high-contrast edges.
6. Click **OK** to apply the filter.

### Adding and Removing Noise

In images, "noise" refers to randomly-colored pixels. Noise can be good or bad; e.g., you can apply noise to computer-generated graphics to make them appear more photographic. You can also use a filter that removes noise to minimize the appearance of tiny scratches or other artifacts present in the source material or introduced during digitizing. Noise commands work with all image modes except Black & White and Indexed.

### To Add Noise to Selections:

1. Select one or more paint objects to adjust. Select an area in one image to adjust the selected area only.
2. Choose **Image | Filter | Noise | Add Noise**.
3. Enter 1 to 999 for Amount to specify how far the color of the noise can vary from the original color.

4. Choose the **Uniform** or **Gaussian** distribution option:
  - **Uniform**: To apply colors randomly picked within the Amount specified. Canvas evenly distributes the color of the noise across a range of colors. This option gives the smoothest effect.
  - **Gaussian**: If you want the noise to favor lighter and darker colors within the specified range. This option creates a more pronounced effect than Uniform.
5. Select **Monochromatic** if you want to add noise of different brightness levels of the original color.
6. Click **OK** to apply the noise settings.

## Removing Noise from Selections

You can remove noise from an image or selection using the Median, Despeckle, or Dust & Scratches filters. The Median filter removes noise by averaging the color of pixels. The Despeckle and Dust & Scratches filters remove noise by selectively blurring regions of the selection.

### To Use the Median Filter:

On a pixel-by-pixel basis, the Median filter applies the median color value of all pixels within the specified radius. Although the filter ignores extreme values in its computations, higher radius values can still wash out an image.

1. Select one or more paint objects to adjust. You can select an area in one image to adjust the selected area only.
2. Choose **Image | Filter | Noise | Median**.
3. Type a value from 1 to 16 in the Radius text box, or drag the slider. Smaller radius values produce subtler effects.
4. Click **OK**.

### To Use the Despeckle Filter:

The Despeckle filter can remove defects such as dust and other speckling in images. The filter blends pixels with the lightness values of neighboring pixels. It's a good idea to select areas that need correction before applying the filter.

1. Select an area in an image to adjust. If you don't make a selection, the entire image is affected.
2. Choose **Image | Filter | Noise | Despeckle**.
3. Drag the slider or type a number in the text box to set the Threshold value. Higher values produce greater blending of pixels.

### To Reduce Dust and Scratch Marks:

The Dust and Scratches filter can remove dust specks by replacing a pixel's value with a median value. The filter does not change a pixel's value unless the absolute value of the difference of its gray value and the median gray value of its neighborhood is greater than the Threshold. Larger numbers of pixels are replaced by the median value when the Threshold is low. The practical effect of this is that larger pixels regions (larger "specks") are reduced or removed with a lower Threshold. Therefore, you can use the Threshold to control the size of the artifacts you want to remove.

1. Select an area to adjust in an image. If you don't make a selection, the entire object is affected.
2. Choose **Image | Filter | Noise | Dust & Scratches**.
3. Enter a value from 1 to 16 in the Radius text box. Smaller radius values produce a subtler effect than larger ones.
4. Type a value from 0 to 255 in the Threshold text box. After entering the settings you want, click **OK**.

## Smoothing Video Images

Because video images contain two interlaced pictures, you can sometimes see a slight banding effect in images acquired from video-recording devices. You can correct this by using the De-Interlace filter and then applying the Unsharp Mask filter. De-Interlace works with all image modes except Black & White.

### To Smooth Video Images:

1. Select one or more paint objects to adjust. You can select an area in one image to de-interlace the selected area only.
2. Choose **Image | Filter | Video | De-Interlace**.
3. Click **Odd fields** or **Even fields** to select bands to eliminate.
4. Choose a replacement method for the eliminated pixels:
  - **Duplication:** To fill the area by inserting a copy of an adjacent band.
  - **Interpolation:** To fill the area by inserting intermediate color values based on the color values of neighboring pixels. This option creates a smoother, more accurate fill than Duplication.
5. After entering the settings you want, click **OK**.

## Selections and Channels

Canvas gives you several ways to select pixels in an image. When you select groups of pixels by area or color, you can use painting tools, filters, and special effects to modify the selected pixels without affecting the parts of the image that are not selected.

This section describes how to make selections in images, save selections in alpha channels, work with color and alpha channels, and create channel masks, which can make parts of images transparent.

### Selecting Pixels in Images

When a paint object is in Edit mode, any filters, commands, and painting tools that you apply can affect the entire image. When you have selected pixels in the image, the effect of a tool, filter, or other adjustment is confined to the selected pixels.

You can select areas in an image using painting tools or menu commands. For example, you can make rectangular selections by dragging the Marquee tool in an image, and you can use the Color Range command to select groups of pixels based on color similarity.



A dashed border outlines the selected area in a photograph

## Selection Borders

The selected pixels in an image are referred to collectively as a selection. When you make a selection, Canvas surrounds the selected pixels with a moving dashed border. You can hide and display the border without affecting the selection.

### To Hide the Border:

Choose **Image | Select | Hide Edges**.

### To Display the Selection Border:

Choose **Image | Select | Show Edges**.

## Deselecting an Image Selection

When you use a selection tool in normal mode, making a new selection replaces any existing selection in an image.

### To Deselect Pixels without Making a New Selection:

Choose **Image | Select | None**. You can also press **Esc** to deselect a selection. If a selection is floating, pressing Esc once defloats the selection; pressing Esc again deselects all pixels.

## Selecting All Pixels in an Image

You can apply painting tools and filters to an entire image without first making a selection. But you can also select all the pixels in an image when you want to work with them as a selection.

### To Select All Pixels, with a Paint Object in Edit Mode:

Choose **Image | Select | All**. A selection border appears around the entire image.

## Using Pixel Selection Tools

Use the Marquee, Oval Marquee, Row Selection, Column Selection, and Lasso tools to select areas in images. In the Painting tools (click the Paintbrush tool), select the Marquee tool to access the Pixel Selection tools.



The Marquee tool selects rectangular areas. The Oval Marquee tool selects oval areas. The Column Selection tool selects a single vertical column of pixels. The Row Selection tool selects a single horizontal row of pixels. The Lasso tools selects odd-shaped areas.

The Marquee, Oval Marquee, Row Selection, and Column Selection tools are located in a tool palette within the Painting tool palette. The Lasso tools are separate icons in the Painting tool palette.

These selection tools let you select any part of an image, from one pixel to all the pixels in the image. By using modifier keys with these tools, you can add to and subtract from selections, and select the overlapping area of two selections.

By subtracting a circle from a larger circle, for example, you can make a ring-shaped selection with an unselected area inside. See "Modifying Selections" on page 349.

## To Select Rectangular or Oval Areas:

1. Place the paint object into Edit mode.
2. Select the **Marquee** tool or the **Oval Marquee** tool.
3. Drag diagonally in the image; a selection rectangle or oval expands as you drag away from the starting point. When you release the mouse button, a dashed border outlines the selected area.

## To Make a Square Selection:

If no selection exists, press **Shift** and drag the Marquee tool in an image. If a selection exists in the image, pressing Shift adds to the selection.

## To Make a Circular Selection:

If no selection exists, press **Shift** and drag the Oval Marquee tool in an image. If a selection exists in the image, pressing Shift adds to the selection.

## To Expand a Selection Marquee from the Center:

If no selection exists, press **Ctrl** and drag the Marquee or Oval Marquee tool. You can press **Ctrl+Shift** to constrain the selection marquee and expand it from the center.

## To Select Single Rows or Columns:

1. Select the **Row Selection** tool or the **Column Selection** tool. If the paint object isn't in Edit mode, click it.
2. Click a single pixel to select all pixels in the same row or column in the image. A dashed border outlines the selected row or column. Or, press and hold the mouse button to see a selection outline, and move the pointer to position the selection outline. Release the mouse button to set the selection, and a dashed border outlines the selected row or column.

When working in high-resolution images, you can zoom to 400% magnification or higher to see the pixels you want to select.

## To Select Areas with the Lasso Tools:



Lasso tools

1. Place the paint object into Edit mode.
2. Select either **Lasso** tool.
3. Drag in the image to outline a selection. Canvas connects the starting and ending points with a straight line. A dashed border outlines the selected areas.

## Lasso Options

To set options before using the Lasso tools, use the settings in the Properties bar.

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### Feather Radius

To soften the edge of selections made with the Lasso tool, enter the feather range in pixels in the Feather Radius box.

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### Anti-Aliased

To slightly soften the edge of selection made with the Lasso tool, select the Anti-Aliased checkbox.

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### Omit Color

To keep pixels that match the current background color from being selected by the Lasso tool, select the **Omit Color** checkbox and then choose **Background Color**. Select **Click Point** to omit the color where you first click with the Lasso tool.

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## Modifying Selections

After you make a selection using any selection technique, you can use modifier keys to alter the selection with the Marquee, Oval Marquee, Row Selection, Column Selection, and Lasso tools.

### To Add to a Selection:

Press **Shift** when you use a selection tool. A "+" symbol indicates that the tool will add the new selection to the existing selection.

### To Subtract from a Selection:

Press **Ctrl** when you use a selection tool. A "-" symbol indicates that the tool will subtract the new selection from the existing selection.

### To Select Part of a Selection:

Press **Shift+Ctrl** when you use a selection tool. An "x" symbol indicates that the area you select in the existing selection will remain selected. If none of the new selection is part of the existing selection, Canvas deselects all pixels.

You can also use Shift or Ctrl to constrain a selection when you add, subtract, or intersect a selection. To do this, press the keys to add, subtract, or intersect and begin dragging. While still pressing the mouse button, release the keys and then press the constraint keys and continue dragging.

## Selecting Areas Based on Color

You can use the Wand tool and the Color Range command to select pixels in an image according to color.

### To Select a Contiguous Area of Similarly Colored Pixels:

Use the **Wand** tool.

### To Select All Pixels of a Particular Color:

Use the **Color Range** command.

### To Use the Wand Tool:

1. Select the **Wand** tool.   
Point to the object you want to edit. If the paint object is not in Edit mode, the pointer becomes a hand. Click the object to put the image in Edit mode. The pointer becomes a wand.
2. Click the color area you want to select.
  - **To add to a selection:** **Shift**-click the Wand in the image. The pointer displays a '+' to show that it adds to the current selection.
  - **To subtract from a selection:** **Ctrl**-click the Wand in the image. The pointer displays a wand with a '-' to show that it subtracts from the current selection.
  - **To inverse a selection:** Choose **Image | Select | Inverse** or **Edit | Invert Selection**.

### To Adjust the Tolerance of the Wand Tool:

You can broaden or narrow the range of colors the Wand tool selects by adjusting its tolerance; e.g., a tolerance of zero selects pixels that exactly match the color of the pixel you click.

## To Configure the Wand Tool:

Use the settings in the Properties bar. In the Tolerance field, enter a tolerance value from zero to 255. The Select throughout image option lets you select the chosen color in the entire image. To smooth the edges of the selection, turn on the Anti-Aliased option.

## Selecting a Color Range

You can use the Color Range command to select all areas of similar color in an image. The command creates a grayscale selection mask similar to an alpha channel.

You can use the Load and Save buttons in the dialog box to work with color range selection files. The file format that Canvas uses for these files is compatible with Photoshop Color Range files. On Windows, these files use the extension AXT.

## To Select a Color Range Interactively:

1. With a paint object in Edit mode, choose **Image | Select | Color Range**.
2. In the Color Range dialog box, choose **Sampled Colors** in the Select menu.
3. Adjust the **Fuzziness** setting. To select pixels of exactly the same color, set the **Fuzziness** to zero. Increase the **Fuzziness** to widen the range of colors to be selected.
4. Click a color in the preview image in the dialog box. Canvas selects a range of similarly colored pixels, depending on the Fuzziness setting.
  - To add colors to the selection, click the '+' dropper icon, then click a color in the image in the dialog box.
  - To subtract colors from the selection, click the '-' dropper icon, then click in the image in the dialog box.
5. To view the selected pixels, click the **Selection** option. Gray areas indicate pixels that the Color Range command selects at a reduced opacity. Filters and painting tools affect these areas to a lesser degree than areas that are 100 percent selected. Click **OK** to apply the selection to the image.

## Color Range Options

Use this dialog box to select image areas based on color.

<b>Select</b>	In the menu, choose the color (red, green, blue, cyan, magenta, yellow), or tonal range (shadows, midtones, highlights) you want to select.  To select a color interactively by clicking in the preview window, choose <b>Sampled Colors</b> .
<b>Fuzziness</b>	When using the Sampled Colors option, enter a low value to select a narrow color range; enter a higher value to select a wider range.
<b>Selection</b>	Choose <b>Selection</b> to preview the selection, with white representing selected pixels, in the preview window.
<b>Image</b>	Choose <b>Image</b> to see the actual image so you can sample colors with the dropper.
<b>Dropper</b>	With Sampled Colors chosen, click the dropper in the preview window to select colors. Use the '+' dropper to add to the selection; use the '-' dropper to subtract from it.
<b>Selection Preview</b>	Choose an option to preview the selection in the image itself, (or choose <b>None</b> for no preview). Grayscale shows the selection as it would appear in a channel, with white for selected pixels and black showing non-selected areas.  The Matte and Mask options show the original colors in selected areas. In non-selected areas, Black Matte shows black, White matte shows white, and Mask shows transparent red.

## Selecting Unselected Areas

Use the **Inverse** command to simultaneously select all pixels not in the current selection while deselecting the current selection.

### To Select Areas Not Included in the Current Selection:

Choose **Image | Select | Inverse**.



A moving dashed edge surrounds the background, a selected area



When the selection is inverted, the cup and its contents are selected

## Expanding Selections with Grow and Similar

The Grow and Similar commands let you expand selections to include similar colors in an image. These commands compare the colors outside a selection to the colors in the selection. Colors that are in a specified range of similar colors are added to the selection.

 The range of colors selected by Grow and Similar is based on the Tolerance setting in the Wand dialog box.

The Grow command selects similar colors that are adjacent to the current selection. The Similar command selects similar colors throughout the image.

 The Grow and Similar commands are available for all image modes except Black & White.

### To Use the Grow Command:

1. Ensure the image is in Image Edit mode.

 To select similar colors throughout an image, you can also use the Select throughout image checkbox in the Wand dialog box.

2. Select the **Wand** tool and click it on the area that you want to select.
3. Choose **Image | Select | Grow** and similar colors that are adjacent to the current selection will be selected.

### To Use the Similar Command:

1. Ensure the image is in Image Edit mode.
2. Select the **Wand** tool and click it on the area that you want to select.
3. Choose **Image | Select | Similar** and similar colors throughout the image will be selected.



Original image



Image after tapping Magic Wand on the indicated area and choosing **Image | Select | Grow**



Image after choosing **Image | Select | Similar**

You can repeat the Grow and Similar commands to continue expanding a selection. As more colors are added to the selection, more colors are in the range of colors similar to the selection. Therefore, even though the Tolerance doesn't change, repeating Grow or Similar can expand a selection incrementally.

Grow and Similar can help you isolate elements in an image, such as dark objects against a light background. Select part of one dark object with the Marquee tool. Choose **Grow** to expand the selection to the entire object. Choose **Similar** to expand the selection to all similar colors in the image.

### Converting Paths to Selections

You can use vector objects and text to make selections in images. The Path to Selection command makes a selection in an image from the shape of a vector, text, or group object.

With this command, you can outline irregular areas in images with drawing tools to make selections. You can make selections shaped like starbursts and other complex shapes that are easy to create with drawing tools. You can make selections from text characters without first converting the text to paths.

The area selected by a vector or text object depends on whether the object has a visible fill ink and stroke.

- A filled object will select the area covered by the fill. If the object also has a visible stroke, the selection will include the area covered by the stroke.
- An unfilled object will select the area covered by just the stroke of the object.
- An object without a visible fill or stroke will not select anything.

The type of fill ink or pen ink applied to an object is not significant for the selection it will make. However, the shape of the stroke is significant. A visible pen, dash, parallel, or neon stroke will affect the shape of the resulting selection. Also, the end caps, line joins, and arrows applied to a stroke will affect the selection.

### To Convert a Path to a Selection:

1. Draw or position a vector or text object on a paint object where you want to make a selection.



If you want to preserve the vector or text object, make a copy of it; the object will be deleted when it is converted to a selection.

2. Select both the vector object and the paint object.
3. Choose **Image | Path to Selection**.
4. The vector or text object is replaced by a selection. The paint object is in Edit mode and the selection is outlined by a dashed border.

### Converting Objects to Paths

Most objects drawn with vector tools are paths that can be used to create selections in images. However, some objects must be converted to paths first.

If an object does not create a selection when you choose Path to Selection, you might need to convert the object to a path by selecting the object and choosing **Path | Convert to Paths**.

### Working with Image Selections

After you make a selection, you can clear it, soften its edges, make it floating, move it, and change its opacity.

### Clearing and Copying a Selection

You can replace the pixels in a selection with the current background color by pressing the **Delete** key, or by choosing **Edit | Cut**. (The Cut command also transfers the selection to the Clipboard.) Canvas replaces the selected pixels with the color currently displayed in the background color icon. Keep in mind that "deleting" a selection doesn't leave a hole or transparent area in the paint object, unless the paint object has a visibility mask, as described later in this section.



If you want Canvas to recall a selection, be sure to save it before leaving Edit mode. See "Saving and Loading Selections in Channels" on page 351.

To place a copy of a selection on the Clipboard without clearing the area in the original image, choose **Edit | Copy**. When a selection has been placed on the Clipboard, you can paste it into another paint object in Edit mode, where it will become a floating selection, or paste it into the document to create a new paint object.

## Feathering the Edges of a Selection

You can feather (soften) the edges of a selection so that it blends more naturally into the original image. Use the Feather command to soften the hard edge of a selection and spread the selection over a larger area.

### To Feather the Edges of a Selection:

1. With a paint object in Edit mode, make a selection and choose **Image | Select | Feather**.
2. In the Feather dialog box, enter the number of pixels to feather the selection in the Radius text box. The larger the Radius value, the more Canvas softens the selection edge.
3. Click **OK** to feather the selection.

## Pasting into Selections

The Paste Into command pastes the Clipboard contents into a selection in an image. This includes a selection in an image channel or a channel mask attached to an object.

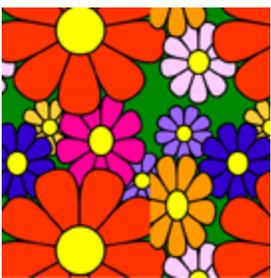
The Paste Into command pastes anything that you copy to the Clipboard, including a vector, text, or paint object, an image selection, or a segment of a vector object.

You can use Paste Into to composite images and create effects that would otherwise be difficult to produce. For example, to simulate a picture on a television screen in a photograph, you can select the screen area and paste an image into the selection. You can move the pasted image within the selection to adjust the area that you see.

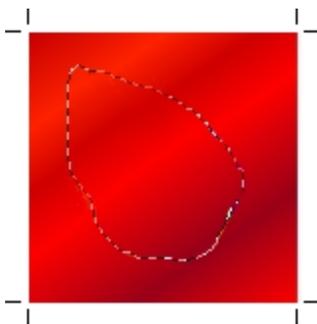
You can paste transparent objects into opaque images, or opaque objects into transparent images. The background of the image determines the opacity of the pasted selection.

### To Paste into a Selection:

1. Place an object or selection on the Clipboard by choosing **Edit | Copy** or **Edit | Cut**.
2. Make a selection in an image (or a channel mask), and choose **Edit | Paste Into**. The Clipboard contents appear in the selection.
3. You can drag the pasted item or press the arrow keys on the keyboard to move it, to display the areas you want to see. When you finish adjusting the selection, deselect it to merge it into the image.



Object with a symbol fill ink



Feathered selection



Object pasted into selection

## Floating and Moving Selections

You can move and manipulate a selection without affecting the original image by making it a floating selection.

 To float a selection and fill behind it with the background color, hold down **Alt** and choose **Image | Select | Float**.

When a selection is floating, it sits on an invisible plane above the original image. When you type text in an image, or paste an object from the Clipboard, Canvas makes the text or pasted item a floating selection.

Moving a selection that is part of the original image creates a floating selection, but also leaves behind an area filled with the background color.

### To Float a Copy of a Selection:

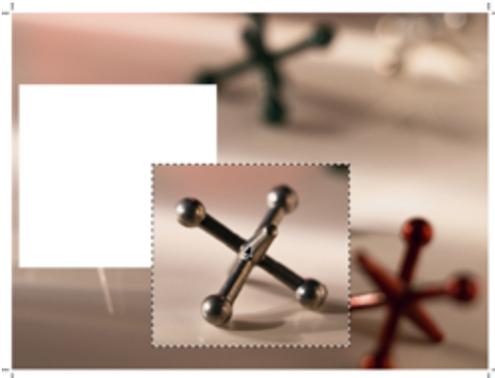
Make a selection in an image and choose **Image | Select | Float**.

### Deselecting and Defloating Selections

Deselecting a floating selection makes it part of the original image.

### To Deselect a Floating Selection:

Press **Esc** twice or choose **Image | Select | None**.



Dragging a selection floats it and leaves an area filled with the current background color.

### To Make the Floating Selection Part of the Image While Retaining the Selection:

Press **Esc** or choose **Image | Select | Defloat**.

### Moving Selections

To move a selection, you can press the keyboard arrow keys or drag the selection with the Marquee, Lasso, or Wand tools. If a selection is not floating, it becomes floating when you move it.

 Remote Move tool

To keep the pointer from interfering with your view of a small selection, select the **Remote Move** tool in the Painting tool palette and drag it anywhere in the drawing area. Canvas moves the selection in the direction you move the pointer.

## Changing the Opacity of Floating Selections

You can change the opacity of a floating selection and make the pixels behind it partially visible. You can also change the mode to produce different effects.



You cannot make selections partially transparent in Indexed or Black & White image modes.

### To Change the Opacity of Floating Selections:

1. With a paint object in Edit mode, select part of the image.
2. Click on the Background color icon in the Toolbox.
3. Select a color to use behind the floating selection. This color will start to appear when you make the selection transparent.
  - **To use the Floating Opacity slider in the Channels palette to lighten a floating selection** : Fill behind the selection with white or a light color.
4. Hold down the **Ctrl** key and choose **Image | Select | Float**. Canvas floats the selection and fills behind it with the background color.
5. Choose **Image | Show Channels** to open the Channels palette. Set the Floating Opacity value to less than 100 percent to make the selection become transparent and reveal the background color behind the selection.
6. To change the mode, choose a new mode from the Mode menu.

## Modifying Selections

You can use the Expand, Contract, Smooth, and Border commands to modify selections in images.

These commands make it easy to fine-tune a selection by expanding or contracting the selection border by a specified number of pixels, or by adding or subtracting pixels based on color.

### Expanding a Selection

You can expand a selection by adding a specified number of pixels to the selection border.

#### To Modify an Active Selection:

Choose **Image | Select | Modify | Expand**. Type a value in the Radius text box and click **OK**. Canvas adds the specified area to the selection.

### Contracting a Selection

You can shrink a selection by subtracting a specified number of pixels from the selection border.

#### To Modify an Active Selection:

Choose **Image | Select | Modify | Contract**. Type a value in the text box and then click **OK**. Canvas subtracts the specified area from the selection and the dashed border contracts.

## Smoothing a Selection

The Smooth command is useful after you have made a color-based selection that has left stray pixels inside or outside of the selected area. The Smooth command includes or eliminates the stray pixels to even out the selection. The value you type in the text box determines which

pixels will be included or excluded in the selection at the border.

### To Modify an Active Selection:

Choose **Image | Select | Modify | Smooth**. Type a value in the text box and then click **OK**. Canvas adds or subtracts pixels to the perimeter of the selection based on the radius number of pixels you specified.

### Bordering a Selection

After you define a selection, you can select the area at the border of the selection by specifying an offset in pixels from the selection edge.

### To Modify an Active Selection:

Choose **Image | Select | Modify | Border**. Type a value in the text box and click **OK**. Two dashed borders indicate the selected border.

Once you make a selection, you can use the Grow command or the Similar command to expand the selection to include similar colors.

## Creating Objects from Selections

You can make new paint objects from image selections with the New Image from Selection command. This command converts a selection in an image into a new paint object in the same position on the image you are editing. This can be useful for "layering" image compositions.

The result of New Image from Selection is similar to moving a selection to a transparent "layer," a procedure used in some image editing programs. In Canvas you can use separate transparent paint objects to create "layered" image compositions.



This operation doesn't affect the Clipboard contents.

### To Create a Paint Object from a Selection:

With a selection in an image, **choose New Image from Selection** in the context menu. To display the context menu, right-click within the selection.

## New Images from Selections and Floating Selections

When you choose New Image from Selection, Canvas removes the selection from the image or deselects the selection in the image. The selection appears as a new paint object in the same location.

Whether a selection is removed from an image depends on whether the selection is floating. The opacity of the resulting object also differs for floating and non-floating selections.

If a selection is not floating, Canvas deselects it but otherwise doesn't change the original image when you create an object from the selection. The selected pixels keep their original opacity in the new object.

If a selection is floating, Canvas removes the selection. The effect is the same as deleting a selection: the background color replaces the selected pixels, or, if the object has a visibility mask, a clear background replaces the selected pixels. In the new object, the pixels are opaque, regardless of their original opacity.

## Clear Backgrounds in New Paint Objects

A paint object created from a selection always has a clear, rather than opaque background, and a visibility mask.

Paint objects are rectangular. If a selection is not rectangular, Canvas places the selection on a clear background. This is why creating a paint object from a selection is like transferring the selection to a clear overlay on the original image.

If you select Preserve Visibility in the Channels palette, a visibility mask preserves the transparency of all pixels in the image. You can paint or use filters without affecting clear areas.

If Preserve Visibility is not selected, you can erase to a clear background and affect all pixels by painting and editing.

## Converting Selections to Paths

Canvas can trace a selection in an image to create a path (vector object) from the selection border. The Selection to Path command traces the active image selection border using the settings you specify. This is useful if you want to convert a selection border to a vector object that can be used as a clipping path, for example.

The accuracy of a path made from a selection depends on the settings you specify and the complexity of the selection border. A very complex selection border can result in a path with hundreds of anchor points, which can cause problems in printing and other operations.

Paths created from selections have no fill ink, black pen ink, and the current stroke setting.

### To Convert a Selection to a Path:

1. Make a selection in an image.
2. Choose **Image | Selection to Path**.
3. Choose the settings you want and click **OK**. The selection in the image is deselected and a new vector object (or group of vector objects) appears in front of the paint object.

## Selection to Path Options

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<b>Mask Set Threshold</b>	<p>If a selection edge is feathered, this value defines the edge of the selection for tracing based on selection mask opacity. Enter a value from 1 (nearly transparent) to 255 (opaque). These values correspond to the lightness of pixels for a selection saved as a mask in a channel.</p> <p>Pixels in the selection mask that are more opaque (lighter) than the threshold value are treated as opaque and part of the selection. Pixels that are less opaque (darker) than the threshold value are treated as transparent and outside the selection. At a threshold of 1, the entire feathered edge will be part of the selection. At 255, only the completely opaque part of the selection will be included.</p> <p>If a selection is not feathered, this value has no effect.</p>
<b>Curves/Polygons</b>	<p>Choose <b>Curves</b> to create paths with smooth anchor points and curve segments as appropriate. Choose <b>Polygons</b> to create paths with straight segments only. The Curves option can result in smoother paths with fewer anchor points when the selection border has curves.</p>
<b>Loose /Tight</b>	<p>Drag the slider to set the tolerance for tracing irregularities in the selection border. Loose follows the selection border less precisely (more smoothly) and creates fewer anchor points. Tight follows the selection border more precisely (less smoothly) and creates more anchor points.</p>
<b>Round /Sharp</b>	<p>Drag the slider to set the tolerance for tracing corners in the selection border. Round creates rounder corners, Sharp creates sharper corners.</p>

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## Saving and Loading Selections in Channels

When you have made a selection in an image, you can create an alpha channel from the selection. An alpha channel preserves the shape and opacity of a selection, so you can use it to make the same selection in the image again.

You can think of an alpha channel as a mask that selects some areas and protects other areas from painting and image editing. Because alpha channels make precise selections of varying intensities, alpha channels let you control which areas in an image will be affected by painting tools and filters, and the intensity of the effects.

When you view an alpha channel, you see a grayscale image. When the channel is made from a selection, it contains white areas representing fully selected pixels, black areas representing unselected pixels, and gray areas representing pixels that are partially selected, with the gray lightness values corresponding to the selection opacity.



This section describes how to save a selection in a channel, and how to load a channel to make a selection in an image, using dialog boxes. You can also use shortcuts in the Channels palette, as described under "Channels Palette Options" on page 354.

### To Save a Selection in a Channel:

1. With an active selection in an image, choose **Image | Select | Save**.
2. In the Operation area of the Save Selection dialog box, select **New Channel** and click **OK**.

You can also click the **Selection** button in the Channels palette to save the current selection in a new channel.

### To Load a Selection from a Channel:

1. With a paint object in Edit mode, choose **Image | Select | Load**.
2. In the Load Selection dialog box, choose a channel name in the Channel pop-up menu. To invert the selection, click **Invert**.
3. Choose an option in the Operation area and click **OK**.

Option	Result
<b>New Selection</b>	Removes any current selections and creates a new selection
<b>Add to Selection</b>	Preserves the current selection and selects additional pixels based on the channel
<b>Subtract from Selection</b>	Removes pixels from the current selection based on the channel
<b>Intersect with Selection</b>	Creates a new selection composed of pixels that appear in both the current selection and the channel you are loading

## Preserving Channels in Exported Images

Canvas image channels are compatible with the alpha channels used in other image-editing programs, including Adobe Photoshop. However, you must use the correct procedure to preserve alpha channels when you export an image into Photoshop format.

If you want to export an image into Photoshop format and preserve the image's alpha channels, be sure to choose **Image | Export**, rather than the Save As command.

If you use the Save As command and choose Photoshop format, the resulting file will not contain the alpha channels associated with the image.

### To Export an Image with Alpha Channels:

1. Select the paint object in the Canvas document.
2. Choose **Image | Export | Photoshop**.
3. In the dialog box, specify a location to save the file, type a file name, and click **Save** to export the selected image as a Photoshop file.

## Understanding Image Channels

Canvas uses up to 24 channels to store the digital information that makes up the image in a paint object.

There are three types of channels: color or image channels, alpha channels, and channel masks. All images have at least one channel. An image can also contain one or more alpha channels and a single channel mask, if you create them.

The Channels palette displays the channels of an image. Whenever an image is in Edit mode, you can use the Channels palette to select and edit channels.

### To Display the Channels Palette:

Choose **Image | Show Channels**.

Vector objects and text objects do not have color or image channels. However, you can create a channel mask for any object. If an object has a channel mask, you can place the channel mask in Edit mode, and use the Channels palette to work with the channel mask and create alpha channels. Alpha channels are stored with an object as long as the object has a channel mask.

## Color Channels

Images in RGB Color, CMYK Color, and LAB Color mode have separate color channels. A color channel stores one component of the image; e.g., in CMYK Color mode, the Magenta channel stores the magenta parts of the image. This channel contains the image that would appear on the magenta plate if you output color separations.

A paint object's image mode determines the number of color channels. RGB Color images have Red, Green, and Blue color channels. CMYK Color images have Cyan, Magenta, Yellow, and Black channels. LAB Color images have Lightness, A, and B channels.

In the Channels palette, a composite channel appears above the color channels. The composite channel represents the complete image — the composite of the image's color channels. The composite channel is labeled RGB, CMYK, or LAB, depending on the image mode.

Other image modes do not have separate color channels. Images in Black & White, Duotone, Indexed, and Grayscale mode have a single image channel.

## Alpha Channels

Alpha channels are channels you can use to store and edit selections in any image. Because alpha channels are used for image selections, they are also referred to as "selection masks."

After you make a selection in an image, you can save the selection in an alpha channel. Later, you can load the channel to make the same selection.

An alpha channel is a grayscale channel that is the same size and resolution as the paint object in which it is stored. Pixels in alpha channels can range in lightness from 0 (black) to 255 (white). The lightness levels of pixels in an alpha channel correspond to a range of selection levels.

Black pixels in an alpha channel correspond to masked, or non-selected, pixels in an image. White pixels correspond to selected pixels. Gray pixels correspond to various levels of selection, with lighter grays corresponding to greater selection than darker grays.

 If you want black pixels to correspond to selected, rather than masked pixels, click **Selected Area** in the New Channel or Channel Options dialog box.

## Using the Channels Palette

The Channels palette displays the channels contained in a paint object when the paint object is in Edit mode. The palette also displays the channels contained in any object that has a channel mask when you edit the mask.

You can use the palette to create, duplicate, and delete channels; to change channel options; and to make selections by loading channels.

### To Open the Channels Palette:

Choose **Image | Show Channels**.

- **Composite channel:** Select the first channel in the palette to make all color channels visible and active. Paint objects in CMYK Color, RGB Color, and LAB Color modes have composite channels. The channel is labeled "CMYK" for a CMYK Color image, "RGB" for an RGB Color image, and "LAB" for a LAB Color image.
- Paint objects in Indexed, Grayscale, Black & White, and Duotone modes have single channels. A vector object that has a channel mask has an "object channel."
- **Color channels:** Color channels appear below the composite channel in the Channels palette. Color channels store the color data in an image. The image mode determines the number of color channels. CMYK Color images have Cyan, Magenta, Yellow, and Black color channels. RGB Color images have Red, Green, and Blue color channels. LAB Color images have "A" and "B" color channels and a Lightness channel. Multichannel images have numbered channels that contain grayscale pixels only.
- **Alpha channels:** Alpha channels contain grayscale pixels which can represent a selection. You can use alpha channels to create channel masks. Any paint object can have alpha channels. However, paint objects in Black & White mode must have a channel mask before they can contain alpha channels.

## Channel Mask

A special channel you can add to any object, a channel mask contains grayscale pixels that represent transparency. Drag a color or alpha channel to the channel mask slot to create a channel mask. You can drag a channel mask into the channel list to create a new alpha channel.

### Viewing Previews in the Channels Palette

To view previews in the Channels palette, choose **Palette Options** in the palette's pop-up menu. Click the size of the preview you want to display, or click **None**. Click **OK** to close the dialog box.

### Channels Palette Options

Use the Channels palette to work with channels when a paint object is in Edit mode.

Active channels are shaded. Editing affects the active channels only. To make a channel active, click the channel name.

---

<b>Composite channel</b>	Select this channel to make all color channels visible and active.
<b>Color channels</b>	Color channels appear below composite channels.

---

<b>Alpha channels</b>	Alpha channels contain grayscale pixels which represent a selection.
<b>Channel mask</b>	A special channel you can add to any object, a channel mask contains grayscale pixels that represent transparency.
<b>Floating Opacity</b>	If a selection is floating, drag the slider to change the opacity of the selection.
<b>Mode</b>	If a selection is floating, select a mode from the menu. The default mode is Normal.
<b>Preserve Visibility</b>	Select this option to preserve the transparency of clear and partially transparent pixels when you edit an image.
<b>Eye icon</b>	An eye indicates that a channel is visible. If a channel is not visible, click or drag in the column to make it visible.
<b>New icon</b>	Click to make a new alpha channel with default settings. Drag an alpha channel here to duplicate it.
<b>Save icon</b>	Click to save the current selection in an alpha channel. Drag a channel here to make a selection in the image from the channel.
<b>Trash icon</b>	Drag channels to the trash to delete them. You cannot delete color channels.

## Channel Palette Pop-Up Menu

The following commands appear in the Channel palette's menu.

- **Palette Options:** Lets you select the channel preview size.
- **New Channel:** Creates a new alpha channel and lets you select channel options.
- **Duplicate Channel:** Creates a new alpha channel from a single active color or alpha channel. This command isn't available if a composite channel or more than one channel is active.
- **Delete Channel:** Deletes the active alpha channel. You can't delete color channels or a composite channel.
- **Channel Options:** Lets you specify options for the active channel. You can change the name, mask tint color, and opacity of an alpha channel. You also can double-click a channel to set options for it.

## Working with Alpha Channels

### To Add to the Current Selection:

**Shift-drag** a channel to the button.

### To Subtract from the Current Selection:

**Ctrl-drag** a channel to the button.

### To Select the Intersection of a Channel and the Current Selection:

Press **Ctrl+Shift** and drag a channel to the button.



Original image



Alpha channel;  
white indicates  
selected area



Alpha channel  
loaded as  
selection  
(in color)



Applied blend  
affects selected  
area only

## Creating and Deleting Channels

You can create and delete channels in the Channels palette. Open the Channels palette by choosing **Image | Show Channels**.

### To Create an Alpha Channel:

1. With a paint object in Edit mode, choose **New Channel** in the Channels palette menu.
2. In the New Channel dialog box, select options for the new channel and click **OK**. (See [To Specify Channel Options](#).)

### Deleting Alpha Channels

Although Canvas can store up to 24 channels in an image, you might want to delete unnecessary ones to save memory and disk space. You can delete alpha channels and channel masks, but you cannot delete color channels.

### To Delete an Alpha Channel:

With an object in Image Edit mode, drag the alpha channel you want to delete to the trash can icon at the bottom of the Channels palette.

## Customizing Alpha Channels

You can change an alpha channel's name, color indication, and mask tint opacity in the Channel Options dialog box. By default, Canvas numbers alpha channels, sets the mask tint opacity to 50%, and assigns a mask color.

 Canvas provides the mask color and opacity settings in the Channel Options dialog box as visual aids only. These settings do not affect the original image or channel.

### To Specify Channel Options:

1. With a paint object in Edit mode, choose **Image | Show Channels** to open the Channels palette.
2. Click an alpha channel and select **Channel Options** in the pop-up menu, or double-click the channel you want to edit to open the Channel Options dialog box.
3. Enter a new name in the Name field to rename the channel.
  - **Color Indicates:** These options control whether white or black pixels in the channel will select pixels in the image when you load the channel. If you want white pixels in the channel to indicate selected pixels, choose **Masked Area**. If you choose **Selected Area**, the normal operation of the channel will be inverted, so that black pixels in the channel will select pixels when the channel is loaded. If you use this option, keep in mind that the channel will make selections that are the inverse of normal

channel selections.

- **To change the mask tint color for the channel:** Select a color from the Color pop-up menu. Canvas displays the tint when an alpha channel and at least one other channel are visible.
- **To change the opacity of the tint color:** Enter a value from 1 to 100% in the Opacity text box.

4. Click **OK** after entering the settings you want.

## Activating Channels

### To Edit a Channel:

Click the channel name in the Channels palette to make it active. Canvas uses shading to indicate that a channel is active.

- You can make more than one channel active by **Shift-clicking** the names of the channels in the palette.
- To make a channel visible but not active, click the left column to make an eye icon appear.
- You can make more than one channel visible by dragging in the left column in the Channels palette.



Painting tools and filters affect active channels only.

### To Make All Color Channels in an Image Both Visible and Active:

Click the composite channel in the Channels palette. The composite channel always appears first at the top of the Channels palette.

## Editing an Alpha Channel

You can apply painting tools, filters, and effects to the image in an alpha channel. By editing the image, you can adjust what the channel will select when you load it as a selection.



Canvas displays a shaded mask representing an alpha channel when the alpha channel and the composite channel are visible

1. With an image in Edit mode, choose **Image | Show Channels**.
2. Create a new channel to use as a selection mask by doing one of the following:
  - If you have a selection in the image that you want to customize by editing in a channel, use the **Save** command to create a channel from the selection. (See [To Save a Selection in a Channel](#).)

- To start with a “blank” alpha channel, use the **New Channel** command. Be sure to choose the **Masked Area** option under Color Indicates in the New Channel dialog box.
3. In the Channels palette, click the new channel to activate it. The channel appears shaded in the palette and the image changes to show only the channel. Now click in the left column of the first (composite) channel. The original image appears with a transparent colored “mask” on the image. The color mask indicates the areas that will be masked — not selected — by the channel.
  4. Use painting tools or filters to edit the image in the channel. The changes you make affect the active channel only.
  5. Load the channel by choosing **Image | Select | Load** to make a selection with the channel.
  6. Choose the channel name in the pop-up menu and then click **OK**.

## Channel Masks

Channel masks apply transparency effects to objects, including paint objects, vector objects, text objects, and group objects. A channel mask creates transparency in proportion to the luminance of its image.

A channel mask is a grayscale image channel. Black pixels in a channel mask produce 100% transparency in corresponding areas of the masked object. White pixels in a channel mask produce 0% transparency in the masked object. Gray pixels in a channel mask produce partial transparency in the masked object. Darker grays produce greater transparency than lighter grays.

Channel masks are powerful because they let you use painting and image-editing techniques to create transparency effects, and because a channel mask can be applied to any type of object. An object’s channel mask is the same size as its bounding box. You can detach or delete an object’s channel mask to eliminate the transparency effect.

## Creating Channel Masks

Use the mouse, New Channel Mask command, Sprite tool, Transparency palette, or Channels palette to make channel masks.

### To Create a Channel Mask:

Do one of the following:

- **Ctrl+double-click** the object to be masked.
- Select the object to be masked and choose **Object | Transparency | New Channel Mask**.
- Click on the object with the Sprite tool.
- Select the object to be masked. In the Transparency palette, choose **Channel** in the Mask menu.
- Canvas creates the channel mask and puts the new mask in Edit mode.
- If the object is a paint object, Canvas creates a channel mask with the same resolution as the paint object.
- If the object is a vector, text, or group object, the New Mask dialog box opens. Type the resolution you want for the channel mask and click **OK**. Canvas creates the channel mask with the specified resolution.

### To Use the Channels Palette:

You can create a channel mask for a paint object from an existing alpha channel or color channel.

With a paint object in Edit mode, drag an alpha channel into the channel mask slot in the Channels palette. If the slot already contains a channel mask, the channel you drag there replaces the existing channel mask.

## Editing Channel Masks

You can edit an object's channel mask to change the transparency effects it produces. Generally, you can do anything that you can when editing a color channel, alpha channel, or grayscale image: use painting tools, filters, and image-adjustment commands, make selections, and paste selections into a channel mask.

### To Edit a Channel Mask:

Do any of the following to place a channel mask in Edit mode:

- **Ctrl+double-click** the masked object.
- Select the masked object and choose **Object | SpriteLayers | Edit Channel Mask**.
- Select the masked object and click **Edit** in the Transparency palette.

An eye symbol in the Channels palette appears to the left of a channel that is visible. The eye symbol disappears if a channel is hidden.

When you edit a channel mask, the top channel in the palette represents the object itself. For a typical paint object this channel is labeled with the image mode, such as RGB or CMYK. For other objects, the first channel is labeled "Object". (See "Transparency Masks" on page 472.)

The channel mask of an object in Edit mode is shown in the Channel Mask slot, which is below the channel list.

### To View the Channel Mask Only:

Click the eye symbol next to the object or composite channel at the top of the channel list. This hides the object channel so only the channel mask is visible.

### To Hide the Channel Mask:

Click the eye symbol next to the channel mask. This hides the effect of the channel mask on the object.

At least one channel, either the composite/object channel or the channel mask, must be visible. If only one is visible, you can't hide it by clicking its eye symbol.

### To Display a Hidden Channel:

Click to the left of the channel to restore the eye symbol.

 When you edit paint objects you can edit pixels in the images by selecting channels in the Channels palette. However, when you edit other objects, you can't select the "object" channel. You can show or hide the object channel, but you can edit pixels only in the channel mask.

When you finish editing a channel mask, press **Esc** to leave Edit mode.

## Detaching and Deleting Channel Masks

If an object has a channel mask, the channel mask controls the transparency of the object. You might want to detach or delete the channel mask to eliminate the transparency effects from the object.

When you delete a channel mask, it no longer exists in the document. When you detach a channel mask, it appears in the document as a separate grayscale paint object.

## To Detach a Channel Mask:

Select the masked object. Choose **Object | SpriteLayers | Detach Mask**.

When you detach a channel mask, Canvas removes the channel mask from the object and places it in the document as a separate grayscale paint object. If the channel mask was detached from a vector object, the resulting paint object will contain any alpha channels that were contained in the vector object.

## To Delete a Channel Mask:

1. Select the masked object.
2. In the Transparency palette, choose **None** in the Mask pop-up menu.

 Deleting the channel mask of a vector, text, or group object also deletes any alpha channels that were contained in the object. Also, if you ungroup a group object that has a channel mask, Canvas deletes the channel mask.

You can delete a paint object's channel mask when the paint object is in Edit mode by dragging the channel mask to the Trash can icon at the bottom of the Channels palette.

## Transparency Effects with Channel Masks

Channel masks let you add transparency to images without altering them permanently. A channel mask creates transparency without changing any pixels in an image. You can remove a channel mask to eliminate the transparency effect at any time.

## To Make an Image Transparent:

To make parts of an image transparent—to eliminate the background in a photograph, for example—you can create a channel mask from a selection. This procedure explains how to transfer a selection into a channel mask to make selected areas transparent.

1. Choose **Image | Show Channels** to open the Channels palette. Double-click the paint object to put it into Edit mode. You can use various techniques to select the areas you want to be transparent:
  - You can click the Wand tool to select similar colors throughout the image. If a photograph has a colored background, for example, click the background to select it. You can also use the Color Range command to make a selection.
  - To soften the edges of the selection, you can use the **Image | Select | Feather** command.
2. Click the **Selection** button in the Channels palette to save the selection in a new alpha channel. In the alpha channel, white pixels correspond to the selection. (A partial selection produces gray pixels in the channel). Black pixels in the channel correspond to unselected areas of the image. To create transparent areas from the selection, you need to invert the channel.
3. Press **Esc** to deselect the selection in the image. Then, click the alpha channel in the Channels palette to make it active.
4. Choose **Image | Adjust | Invert**. This reverses the white and black areas in the channel.
5. Drag the alpha channel into the Channel Mask slot in the Channels palette. Black areas in the channel mask produce transparent areas in the image. White areas in the channel mask produce opaque areas in the image.
6. Press **Esc** to exit Image Edit mode. The selection you made is now transparent. If you place the paint object on a background in your document, the background will be visible through the transparent areas of the image.

## To Create a Transparency Fade:

Create a transparent fade effect using a channel mask. This procedure explains how to create a blend in an alpha channel, and then create a channel mask to make an image fade to transparency.

1. Choose **Image | Show Channels** to open the Channels palette. Double-click a paint object to put it in Edit mode.
2. Click the **New Channel** button in the Channels palette. A new alpha channel appears in the palette. Click the channel to make it active.
3. Select the **Blend** tool. With the foreground color set to white and the background color set to black, drag vertically from top to bottom in the channel. This creates a blend from white to black.
  - You can change the distance that you drag the Blend tool in the channel to adjust the length and position of the fade to transparency.
  - You might need to use the Blend settings in the Properties bar to select the Linear option for the Blend tool before you create the blend in the alpha channel. You can also set other options for the Blend tool to fine-tune blends.
4. Drag the alpha channel into the channel mask slot in the Channels palette. White pixels at the top of the channel produce opaque areas. Black pixels produce completely transparent areas. Gray pixels in the channel mask correspond with partially transparent areas in the image.

## To Create a Channel Mask by Rendering:

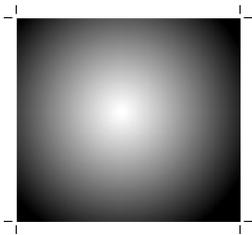
Canvas can create a channel mask when you render a vector, group, paint, or text object.

To create the mask, choose the **Mask** and **Transparency** options in the Render dialog box. Canvas will create a channel mask that makes blank areas around and inside the objects transparent.

When you make a new paint object by pasting a non-rectangular selection copied from an image, Canvas makes a channel mask to hide white pixels surrounding the selection.



Original



Channel mask from  
alpha channel



Vignette

## Preserving Transparency in Images

Select the **Preserve Visibility** checkbox in the Channels palette to preserve transparency when you paint or apply filters to an image. The Preserve Visibility checkbox is available when you edit a paint object that has a visibility mask. A paint object has a visibility mask if it was created with a transparent background, or if you applied a visibility mask with the Add Visibility Mask command.

If a paint object has an opaque background, the Preserve Visibility checkbox is disabled.

## To Preserve Transparency While Editing an Image:

When a paint object is in Edit mode, select **Preserve Visibility** in the Channels palette. When selected, you can paint and edit the image without affecting clear areas or reducing the transparency of partially transparent pixels.

The Preserve Visibility option affects all aspects of image editing. When Preserve Visibility is selected, pasted selections do not affect clear areas. Also, a pasted selection will match the transparency of the existing pixels when you defloat the selection.

 If an image is completely clear (contains no colored pixels), you cannot alter the image when Preserve Visibility is selected.

You must deselect Preserve Visibility to paint in clear areas of an image. Then, if you want to edit the painted areas, select **Preserve Visibility** again.

For example, you can deselect Preserve Visibility and paint airbrush strokes in a clear image. Then, select **Preserve Visibility** and you can paint over the airbrush strokes to change their color, without losing the soft edge or “spilling” color into clear areas.

When Preserve Visibility is selected and you use the Eraser tool, pixels you “erase” are painted with the current background color; they are not erased to clear. Also, when you use any painting tool to apply color, you cannot make pixels more or less transparent. This is why you cannot apply any color in clear areas when Preserve Visibility is selected.

When you select Preserve Visibility, you can paint and apply filters to modify pixels that are less than 100% transparent. You can change the hue, saturation, and intensity of pixels but can't change their transparency.

## To Paint or Apply Filters to an Entire Image:

Deselect **Preserve Visibility**. This turns off the visibility mask and lets painting tools and filters affect the entire image.

## Image Filters and Effects

Canvas provides commands that you can use to transform images for a variety of effects. These commands can be used to alter entire images or only selected areas, as well as image channels.

The commands in the **Image | Filter** menu are often called “filters” because they “filter” images or selections pixel-by-pixel. This section explains how to use these filters as well as other commands in the Image menu.

 The Filters menu is also located in the Properties bar for quick access to image effects.

## Applying Effect Filters

You can use the Render, Stylize, and Offset filters to transform images. The Render filters apply forms or textures to an image. The Stylize filters apply a conceptual effect to an image. Stylize filters include Emboss, Trace Contour, and Solarize. The Offset filter shifts the pixels within an image.

## Rendering Clouds

You can apply texture to areas in an image, such as skies or walls, by applying the Clouds filter. The Clouds filter renders soft swirls of color using the foreground and background colors.



Image with translucent clouds



The Clouds filter completely replaces the original image or selection.

### To Apply the Clouds Filter to an Image:

1. Select one or more paint objects to adjust all the images. You can select an area in one image in Edit mode to adjust the selected area only. If you don't make a selection, the entire image in Edit mode is affected. This filter doesn't work with paint objects in Black & White mode, and Indexed mode.
2. Choose **Image | Filter | Render | Clouds** or use the Filter menu located in the Properties bar.

### To Applying the Clouds Filter to Selections:

1. With a paint object in Edit mode, choose **Image | Show Channels** to open the Channels palette.
2. Select a color channel that shows the most contrast.
3. Drag the selected channel to the new channel button to create a copy of the channel. The channel copy is in black and white.
4. Select the channel copy in the Channels palette and double-click to open the Channel Options dialog box.
5. Enter a name for the channel copy in the dialog box.
6. With the painting tools, apply white to the areas where clouds are to appear. Apply black to the area where clouds won't appear.
7. Select the composite channel to make it active.
8. Choose **Image | Select | Load**. Select the channel copy that you edited. The white area appears as a selection.
9. Select your background and foreground colors in the Inks palette. The colors you select determine the cloud color.
10. Choose **Image | Filter | Render | Clouds** to affect the selected area.



Original image



Color channel selected



Painted channel copy



Composite channel with channel loaded



Final image

## Rendering a Color Wheel

Fill a selection with a radial blend of colors by choosing **Image | Filter | Render | Wheel**. The rendered effect looks like the color wheel preview in the Hue/Saturation dialog box. The Wheel filter works with paint objects in RGB Color and CMYK Color.

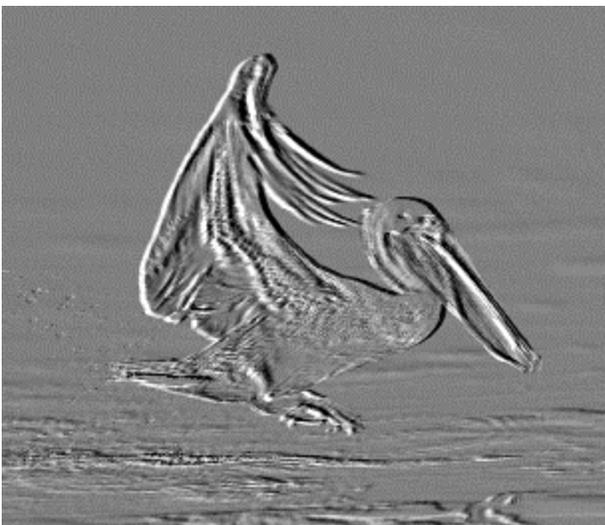
Unless you make a selection in the image, the Wheel filter replaces the entire image. If you want to apply a translucent wheel effect, follow the steps for the procedure for Applying the Clouds Filter to Selections detailed above, but in the seventh step, choose the **Wheel** command.

## Embossing an Image

Make an image appear raised with the Emboss filter. This filter converts low-contrast areas to gray and accentuates high-contrast areas with color (or black and white if the image is Grayscale mode) according to the placement of a theoretical light source. The Emboss filter doesn't work with paint objects in Black & White mode, and Indexed mode.



Original (converted to grayscale)



Embossed Angle = 15 Height = 3, Amount = 110

### To Apply the Emboss Filter:

1. Select one or more paint objects to emboss. To apply the emboss filter to a limited area in one image, select the area.
2. Choose **Image | Filter | Stylize | Emboss** or use the Filter menu in the Properties bar.
3. Enter an **Angle** from 0 to 360. An angle of 0 is straight right with higher numbers going counter-clockwise.
4. Enter a **Height** from 1 to 32 pixels to set the height of the effect.
5. Enter a **Number** from 1 to 500 in the Amount text box. To retain more color along high-contrast borders, increase this value.

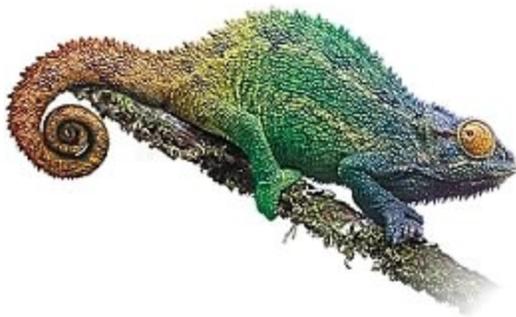
### Solarizing Images

Create surrealistic effects in an image by applying the Solarize filter. The Solarize filter mimics a photographic darkroom procedure that exposes film to light during development.

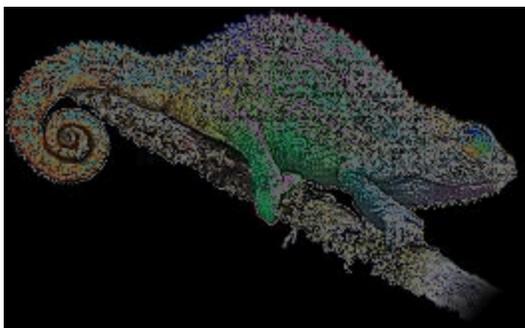
Solarize CMYK Color, RGB Color and Grayscale mode images. If you make a selection, Canvas filters only selected pixels.

### To Solarize an Image:

1. Select one or more paint objects to solarize. To apply the Solarize filter to a limited area in one image, select the area.
2. Choose **Image | Filter | Stylize | Solarize** or use the Filter menu in the Properties bar.



Original



Solarized

### Outlining Areas Based on Color Value

With the Trace Contour filter, you can outline image areas that border a particular color. This filter makes color outlines if you are working with a color image, and black outlines if you are working with a Grayscale mode image. This command doesn't work with paint objects in Black & White mode, and Indexed mode.

## To Use the Trace Contour Filter:

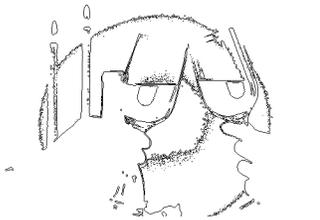
1. Select one or more paint objects to adjust all the images. You can select an area in one image in Edit mode to adjust the selected area only. If you don't make a selection, the entire image in Edit mode is affected.
2. Choose **Image | Filter | Stylize | Trace Contour** or use the Filter menu in the Properties bar.
3. Enter a Level value from 0 to 255. The Trace Contour filter uses this color brightness value to determine the areas to trace.
4. Select **Upper** or **Lower** in the Edge area. To outline areas with higher brightness levels than the one specified, choose **Upper**. Choose **Lower** to outline areas with lower brightness levels.
5. To see the effect of the settings, turn on **Preview**. When the settings are correct, click **OK**.



Original



Level = 169  
Edge = Lower



Level = 169  
Edge = Upper

## Offsetting Selections

You can shift an image area with the Offset filter. Canvas fills the vacated area with color, duplicated pixels, or parts of the offset area.



Original



Set to Background



Repeat Edge Pixels



Wrap Around

## To Offset Image Areas:

1. With an image in Edit mode, select an image area.
2. Choose **Image | Filter | Other | Offset** or use the Filter menu in the Properties bar.
3. Enter horizontal and vertical offset amounts in pixels. Positive values result in offsets to the right and down; use negative numbers (preceded by a minus sign) to offset up and left.
4. Choose an option under Undefined Areas.
  - **Set to Background:** Fills area with the background color.
  - **Repeat Edge Pixels:** Duplicates edge pixels until they fill the area vacated by the offset.
  - **Wrap Around:** Moves pixels cut off by the offset into the vacated area.
5. Turn on **Preview** to see the effect of the settings.
6. Click **OK** when the settings are correct.

## Ripple Effects

With the Ripple filter, create the impression of ripples in an image, like the ripples made by dropping a stone into smooth water. By varying the controls in the Ripple dialog box, produce a range of effects in an image, from slight rippling to extreme distortion.

## To Apply the Ripple Filter:

1. Select a paint object. To limit the effect to a particular area, select the area where you want to apply the filter. If you don't make a selection, the filter affects the entire image.
2. Choose **Image | Filter | Other | Ripple** or use the Filter menu in the Properties bar.
3. Adjust the settings in the Ripple dialog box, and then click **OK** to apply the settings and close the dialog box.

## Ripple Settings

Adjust the following settings in the Ripple dialog box.

<b>Spin</b>	The Spin value controls the effect of swirling the image around its center point. Type a number from -100 to 100 or drag the slider to set the amount and direction of spin. Positive numbers generate a clockwise spin; negative numbers generate a counter-clockwise spin. Larger values (positive or negative) increase the amount of swirling. If Spin is zero, the filter creates no ripples in the image and none of the other controls produces an effect.
<b>Frequency</b>	The Frequency value affects the number of "waves" created in the image. Enter a number from 0 to 50. A high number creates more small waves; a low number creates fewer large waves.
<b>Clustering</b>	The Clustering option can create interesting interference patterns in combination with some Frequency values. In general, Frequency values of 15 to 50 and Spin values of 25 and higher are most effective. Enter a Clustering value of 0 to 30. The higher the Clustering value, the more interference ripples appear between the main waves.
<b>Wave Decay</b>	The Wave Decay value softens the effect of the Frequency setting by dampening or stretching the waves away

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from the center of the image. The closer a wave is to the center of the image, the less it is stretched. Wave Decay creates the impression of blending the waves farthest from the center of the disturbance, especially when Include Corners is selected.

Enter a Wave Decay value of 0 to 100. The higher the value, the more the waves appear stretched toward the edge of the image.

---

**High Frequency**

The High Frequency option causes an approximate doubling of the effect of the Frequency setting.

---

**Bullseye Mode**

Selecting Bullseye Mode leaves rings of unchanged original image area between the wave distortions. This creates a pattern of concentric rings like those surrounding a bullseye. This mode can provide a means of integrating a recognizable version of the image with its distortion.

---

**Include Corners**

This option spreads the filter's effects to the corners of an image or selection. If Include Corners is not selected, the effects are confined to a circular area at the center of the image or selection.

---

**Preview**

Select **Preview** to see the effects of the current settings before applying the filter to the image.

---

## Ripple Examples



Original



Ripple filter applied in area selected with the Wand tool



Original



Spin = 20  
Frequency = 10  
Clustering = 0  
Wave Decay = 10



Same settings (above) with Bullseye Mode

## Twirl Effects

The Twirl filter twists an image around its center to create interesting spiral distortions.

### To Apply the Twirl Filter:

1. Select a paint object. To limit the effect to a particular area, select the area where you want to apply the filter. If you don't make a selection, the filter affects the entire image.
2. Choose **Image | Filter | Other | Twirl**. Adjust the Angle settings in the Twirl dialog box. The Angle value specifies the direction and extent of the effect. Type a number in the box or drag the slider to set the Angle value. Higher numbers (positive or negative) create more twists around the center. A positive number twirls clockwise. A negative number twirls counter-clockwise. Select **No Anti-Alias** to turn off smoothing of edges in the image.
3. Select **Preview** to see the effects of the current settings before applying the filter to the image.
4. Click **OK** to apply the settings and close the dialog box.



Original



Twirl Angle 90



Twirl Angle 180

## Spherical Distortion

The Spherize filter can distort an image to simulate a reflection on a curved surface.

### To Apply the Spherize Filter:

1. Select a paint object. Make a selection to limit the effect to an area. If you don't make a selection, the filter affects the entire image.
2. Choose **Image | Filter | Other | Spherize** or use the Filter menu in the Properties bar.
3. Adjust the settings in the dialog box and click **OK** to apply the filter.



Original paint object



Spherize: Amount = 5



Vignette option selected

## Spherize Options

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<b>Amount</b>	The extent of the distortion. Type a number from 1 to 10 or drag the slider. A higher number simulates a stronger curve.
<b>Projection Mode</b>	The shape of the distortion. Select <b>Spherical/Ellipsoid</b> to simulate reflection on a spherical surface like a

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globe. Select **Cylindrical** to simulate reflection on a cylinder, such as a can. Select **Horizontal** to make cylindrical distortion horizontal. Select **Vertical** to make cylindrical distortion vertical. Select **Hyperboloid** to simulate reflection on a concave hyperboloid surface.

---

**Vignette** Isolates the shape of a spherical distortion from the rest of the image. If the image has a visibility mask, the areas of the image that fall outside of the distorted area will be transparent. If the image does not have a visibility mask, the areas are filled with the current background color. Use this option when Spherical/Ellipsoid is selected.

---

**No Anti-Alias** Turns off smoothing of edges in the image. Deselect this option for a smoother effect.

---

**Preview** Displays the current effect before you apply the filter.

---

## Artistic Effects

The artistic filters, Crystallize, Lens Flare, Oil Painting, and Stained Glass, can be applied to images, text, and vector objects.

For images, access the filters by choosing **Image | Filter | Artistic** or use the Filter menu in the Properties bar. For text and vector objects, choose **Object | SpriteEffects | Add Effect | Artistic**. (See "Using SpriteEffects" on page 457.)

## Crystallize

This filter applies a crystal-like appearance to a selected image.



Before Crystallize filter



After Crystallize filter is applied

## Crystallize Dialog Box

<b>Crystal Size</b>	The size and saturation of the crystals can be adjusted numerically or by moving the appropriate slider bar.
<b>Crystal Saturation</b>	The color of the background will influence the appearance of your image.
<b>Use White Background</b>	By default, the background is set to black. You have the option to set the background to white. You may do this by checking the <b>Use White Background</b> checkbox.
<b>Anti-alias Crystals</b>	Select the <b>Anti-alias Crystals</b> option for Web graphics.

## Lens Flare

This filter mimics the appearance of a well-known photographic effect. It is caused by reflections of light that may occur inside the camera lens. A flare can often naturally appear as a source of light in a photographic scene or on a highly reflective object.



Before Lens Flare



After Lens Flare

## Lens Flare Dialog Box

<b>Light Source Position</b>	The flare may be adjusted by using your mouse to move the flare highlight in the preview window.
<b>X and Y</b>	The flare may also be moved by entering numerical values in the X or Y coordinates box.
<b>Zoom</b>	Adjust the slider or numerical values to adjust the zoom.
<b>Light Intensity</b>	Adjust the slider or numerical values to adjust the light intensity.

## Oil Painting

Use the Oil Painting filter to give an object the appearance of hand-painted artwork.



Before Oil Painting



After Oil Painting filter

## Oil Painting Dialog Box

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<b>Brush Size</b>	Adjust the size of the brush effect by moving the slider bar. You also have the option to enter a numerical value in the brush size field.
<b>Preview</b>	If you wish to preview the effects of the filter, then select the <b>Preview</b> checkbox.

---

## Stained Glass

This filter applies a stained-glass appearance to an object.



Before Stained Glass



After Stained Glass filter

## Stained Glass

<b>Tile Size</b>	Adjust the effect of the filter by moving the Tile Size slider or by changing the numerical value in the field.
<b>Tile Shape</b>	Select either square or hexagon tile shapes.
<b>Anti-Alias</b>	If your work is for the Web, select the <b>Anti-alias Tiles</b> option.
<b>Border Thickness</b>	Adjust the size and the thickness of the space that separates each piece of "stained glass".

## Bevel

Use the Bevel filter to give any 2D image a 3D appearance. If you are creating Web buttons and want to give the buttons a raised appearance, apply the Bevel filter.

When working with images, you can access the Bevel filter dialog by choosing **Image | Filter | Stylize | Bevel**. For vector or text objects, choose **Object | SpriteEffects | Add Effect | Stylize | Bevel**. (See "Using SpriteEffects" on page 457.)

 For images, ensure you apply a visibility mask to the area of the image to which you'll apply the effect. (See "Adding Visibility Masks to Images" on page 300.) If the image has a transparency mask, select the area to be beveled with either the Wand tool or Marquee tools.



## Bevel Dialog Box

<b>Direction</b>	Direction of the light source can be entered by a numeric value, slider bar, or preview handle.
<b>Elevation</b>	Elevation of light source can be entered by a numeric value or slider bar.
<b>Brightness</b>	Brightness of light source can be entered by a numeric value or slider bar.
<b>Bevel Width</b>	Bevel width can be entered by a numeric value or slider bar.
<b>Edge Smoothness</b>	Edge Smoothness can be entered by a numeric value or slider bar.
<b>Corner Smoothness</b>	Corner Smoothness can be entered by a numeric value or slider bar.

## Using the High Pass, Maximum, and Minimum Filters

This section describes how you can create selections in alpha channels and resize bright areas in color channels. Isolate areas in an image using the High Pass filter and Threshold command. You can use the Maximum and Minimum filters to spread color areas you might need to trap for commercial printing.

### Isolating Areas Using the High Pass Filter

The High Pass filter isolates high contrast edges in an image by removing low contrast detail. The filter makes pixels located in low contrast areas gray. In color images, the High Pass filter outlines high contrast edges in color. Otherwise, it outlines these edges in dark gray. This command doesn't work with paint objects in Black & White mode, and Indexed mode.

### To Apply the High Pass Filter:

1. Select one or more paint objects to adjust all the images. Select an area in one image in Edit mode to adjust the selected area only. If you don't make a selection, the entire image in Edit mode is affected.
2. Choose **Image | Filter | Other | High Pass** or use the Filter menu in the Properties bar.
3. Enter a radius from 0.1 to 250.0 pixels.

### To Retain More of the Original Image Surrounding High Contrast Edges:

Enter a high number. If you enter a low number, the filter makes more of the image gray.

### To Isolate Images with the High Pass Filter:

1. With an image in Edit mode, choose **Image | Select | All**. Then choose **Edit | Copy**.
2. Choose **Image | Show Channels**.
3. Create a new alpha channel by clicking the button in the lower-left corner of the Channels palette.
4. Select the new alpha channel and choose **Edit | Paste**.
5. Choose **Image | Filter | Other | High Pass** and enter a radius value. Click **OK**.
6. Choose **Image | Adjust | Threshold**. Adjust the threshold until you outline the areas you want. Click **OK**.
7. Paint areas white to include them in the selection. Fill the rest of the image with black.
8. Click the composite channel. Choose **Image | Select | Load** to load the alpha channel and select an area.
9. In the example, the final image was finished by choosing **Image | Select | Load** with Inverse selected.
10. Then, choose **Image | Filter | Blur | Gaussian Blur** to apply a Gaussian blur of 3.0 pixels.



Original Image



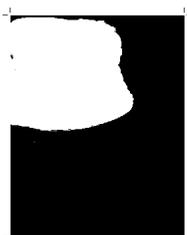
High Pass filter



Threshold filter



Editing with Paint tools



Finished alpha channel



Isolated subject

## Maximizing and Minimizing Bright Areas in an Image

Increase or decrease light areas in an image with the Maximum and Minimum filters. The Maximum filter adds light to shadows. The Minimum filter shrinks light areas.

 To apply a choke or spread to an image manually, use the Maximum or Minimum filters in a color channel.

When you apply these filters, Canvas compares each pixel to its neighbors within the radius you specify, then replaces it with the lightest or darkest pixel in the group. This command doesn't work with paint objects in Black & White mode, and Indexed mode.

### To Use the Minimum and Maximum Filters:

1. Select one or more paint objects to adjust all the images. You can select an area in one image in Edit mode to adjust the selected area only. If you don't make a selection, the entire image in Edit mode is affected.
2. Choose **Image | Filter | Other | Maximum** and enter a radius from 1 to 16 pixels to maximize the light areas in an image.
3. Choose **Image | Filter | Other | Minimum** and enter a radius from 1 to 16 pixels to minimize the light areas in an image.
4. Select **Preview** to check the settings and then click **OK**.



Original



Maximum 6 pixels



Minimum 6 pixels

## Filling Selections with Color

The Fill command lets you quickly and uniformly fill a selection with the foreground or background color, black, white, or gray. In addition, select an opacity level and transfer mode for application of the color.

### To Fill a Selection with a Color:

1. With an area of an image selected, choose **Image | Filter | Other | Fill** or use the Filter menu in the Properties bar.
2. In the Fill dialog box, choose a fill option from the Use pop-up menu. To make the color appear transparent, set the Opacity level to less than 100%. To use a mode effect, choose an option in the Mode pop-up menu.
3. Click **OK** to fill the selection.

## Creating Custom Image Filters

You can create your own special-effect and image-correcting filters using the Custom command. You can also save custom filters and use them in future Canvas documents.

Filters work with an image one pixel at a time. Using a mathematical formula and the color values of pixels within a specified radius, filters assign each pixel a new color value. In a custom filter, you supply the numbers the filter uses to calculate the new color values.

The same filter can produce different effects in other images. To get the most out of custom filters, spend time experimenting.



Original



Blurred image



Embossed image

	100	-100	100	
	-100	85	-100	
	100	-100	100	

Scale :  Offset :

Custom filter

	45	-45	45	
	-60	50	-75	
	45	-45	45	

Scale :  Offset :

Custom filter

### To Use Custom Filters:

1. Select one or more paint objects to adjust all the images. You can select an area in one image in Edit mode to adjust the selected area only. If you don't make a selection, the entire image in Edit mode is affected. This command doesn't work with paint objects in Black & White mode, and Indexed mode.
2. Choose **Image | Filter | Other | Custom**.
3. In the Custom dialog box, type values from -999 to 999 in the boxes in the grid. Canvas ignores blank boxes.
4. Enter a **Scale value** from 1 to 9,999. To retain the general appearance of the original image, the scale should equal the sum of the entries in the configuration grid. For example:

Grid entries	Sum	Scale
2 2 1 -1 -1 3	$2+2+1-1-1+3=6$	6
-1574-328	$-15+7+4-3+2+8=3$	3

5. Enter an **Offset value** from -9,999 to 9,999. Positive values increase the brightness of the final outcome while negative values decrease the brightness.
6. Turn on the **Preview** option to check the filter effect. When the settings are correct, click **OK**.

### To Save a Custom Filter:

In the Custom dialog box, enter the filter settings and click **Save**. Enter a name and location for the filter and click **Save**.

### To Load a Custom Filter:

In the Custom dialog box, click **Load**. In the directory dialog box, select the filter file and click **Open**.

## Rotating Images

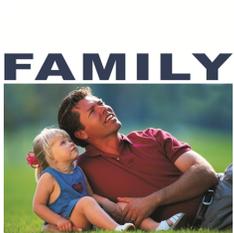
Canvas gives you the ability of applying a soft rotate or hard rotate to your images. A soft rotate is sufficient if you do not need to export the images to another format; however, if you plan on exporting your images and need them to remain rotated, then you should apply a hard rotate. A hard rotate not only rotates the image but also adds white pixels to the bounding box. Soft rotate does not add pixels.

### Anti-Aliasing for Rotated Bitmaps

Sometimes bitmap images can lose their clarity when they are rotated. The anti-aliasing for rotated bitmaps feature addresses this issue. If you're rotating a bitmap and select Hard rotate for image in the Rotate dialog box, the Anti-alias image checkbox becomes available. The anti-aliasing option results in a smoother, better quality image.

### To Hard Rotate an Image with the Rotate Dialog Box:

1. Choose **Effects | Rotate Right** or **Rotate Left | Other**.
2. Make sure you select **Hard rotate for image** to enable Anti-alias image.



Original bitmap before rotation.



Original bitmap after rotation with Anti-aliasing off.



Bitmaps will not attain a pixelated appearance after rotation if Anti-aliasing is on.

### To Quickly Rotate Images at Multiples of 90°:

1. Select the image.
2. Click on the **Rotate** button in the Properties bar.
3. Select a hard rotate option in the menu and enter a value of 90° (or a multiple) in the field and press **Enter**.

## Distorting Images

Canvas features an image effect that you can use to warp an image so it fits the bounding box of a vector object.

## Shape Effect

To use this effect, you must first select an image and vector object.

### To Apply the Shape Effect:

Select an image and a vector object and choose **Image | Image Warp | Shape**.



The Shape command is not available if more than one image or vector object is selected.

## Shape Effect Controls

---

<b>Control points</b>	Click to add control points to both the source and target. Every source point must have a corresponding target point. At least 3 points must be defined to enable the Create button.  Control points are saved in relative position to object, so if you drag or scale an object, the points will be scaled correspondingly. Save the document after change the control points configuration. When exiting the session, current point configuration is automatically saved.
<b>Segment points</b>	Click to add segments to both the source and target. Every source segment must have a corresponding target segment.
<b>Curve points</b>	Click to add curve segments to both the source and target. Every source curve must have a corresponding target curve.
<b>End curve points</b>	Click to complete the curve.
<b>Select all points</b>	Click to select all control points.
<b>Delete</b>	Delete has two functions: delete current curve, if you are creating a curve, or delete selection, if any.
<b>Save</b>	Click this button to save the control points within the source and target.
<b>Reload</b>	Click this button to reload the saved points.
<b>Pixel resampling</b>	Select a resampling method.  <b>Nearest neighbor:</b> Will remove some pixel information from your target image; however, if used, this setting will be the fastest.  <b>Bilinear:</b> Will use a bilinear interpolation algorithm during downsampling.  <b>Biquadratic:</b> Estimates the color at a pixel in the destination image by an average of 9 pixels surrounding the closest corresponding pixel in the source image.  <b>Bicubic:</b> Estimates the colour at a pixel in the destination image by an average of 16 pixels surrounding the closest corresponding pixel in the source image.

---

---

**Polygonal:** Every source pixel is mapped to a polygon in the target.

**Auto:** Canvas selects the most appropriate method for resampling.

---

**Show Names** Select this checkbox if you want to see labels. Use the Size menu to adjust the size of control points.

---

**Shape** Select either **Circle** or **Square** for the control point shape.

---

**Opacity** Adjust the transparency of the created object.

---

**Source & Target colors** Select a color from the palettes to distinguish the source and target. By default, the source is red and the target is green.

---

**Create** Click this button to perform the effect.

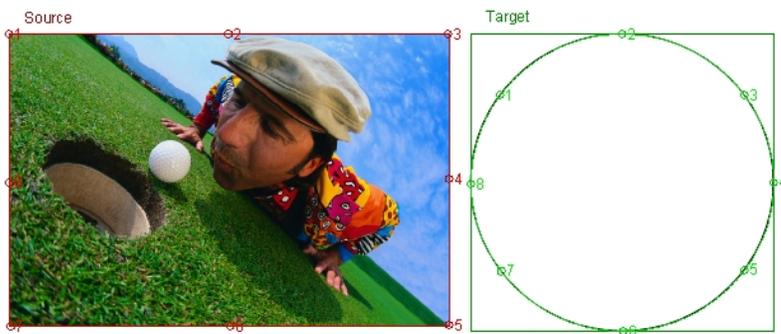
---

**Delete** Click this button to delete the created object.

---

**Exit** Click this button to leave the warp effect before or after clicking Create.

---



The image is the Source and the vector object is the Target.

Each Source control point has a matching Target control point.

If the vector object contains a fill ink, the fill will be removed after the effect is applied.

## Envelope Effect

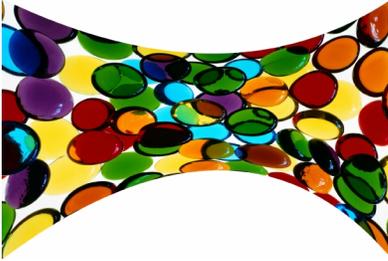
The Envelope command lets you distort image objects, as if an image was drawn on a rubber sheet and then stretched.

When an image object is in Envelope Edit mode, its bounding box acts like the rubber sheet. Canvas includes several envelope styles that offer various handles you can use to manipulate an object's bounding box.

To learn about the envelope styles and their respective uses, see "Enveloping Objects" on page 267.



Original image



Enveloped image

## Combining Image Channels

The Calculate Image command lets you combine channels to create selection masks for effects like embossing text in an image. By adding, subtracting, and multiplying channels, you can also enhance shadows and highlights. The Calculate Image command combines corresponding pixels from two channels by the method you choose. You can place the result in a new or existing channel.

 As shown in "Examples of Calculate Blending Options" on page 386, you can also copy an image and paste it into a new alpha channel of Source 1. Then use the **Calculate Image** command to combine Source 1 and the new alpha channel (Source 2).

### To Combine Channels:

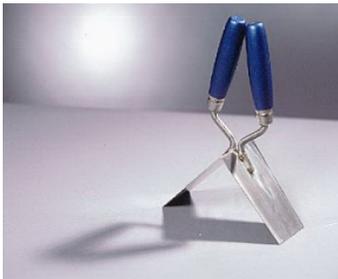
1. With an image in Edit mode, choose **Image | Calculate**.
2. Choose the first channel in the Source 1 menu. If you want to invert the channel, select **Invert**. For more information, see "Inverting Colors in Images" on page 327.
3. In the Source 2 menu, choose the channel you want to combine with the Source 1 channel. If you want to invert the channel, select **Invert**.
4. In the Blending area, choose an option in the Use menu. See "Descriptions of Calculate Blending Options" on page 385.
5. Enter an opacity from 0 to 100 percent for Source 1. Other options are available for some Blending methods.
6. If you want to mask Source 1, select **Mask** in the Blending area and choose a channel in the menu. To invert the mask, select **Invert** in the Blending area.
7. Choose the name of a destination channel or choose **New** in the Result menu. If you select an existing channel, Canvas replaces the channel with the results of the Calculate Image operation.
8. Click **OK** to calculate the channel using the current settings.

### Descriptions of Calculate Blending Options

You can select various blending methods in the Calculate Image dialog box.

<b>Normal</b>	Places Source 1 over Source 2 at the specified opacity. 100 percent opacity replaces Source 2 with Source 1.
<b>Multiply</b>	Creates a darker channel than the source channels. Black areas in either source create black areas in the resulting channel. White areas do not affect the result.
<b>Screen</b>	Creates a lighter channel than the source channels. White areas in either source create white areas in the resulting channel. Black areas do not affect the result.
<b>Overlay</b>	Places Source 1 over Source 2 without destroying the shadows or highlights of Source 2.
<b>Soft Light</b>	Lightens or darkens pixels in Source 2 depending on the brightness value of the corresponding pixels in Source 1. Pixels in Source 1 that are lighter than 50% black lighten Source 2. Pixels in Source 1 that are darker than 50% black darken Source 2.
<b>Hard Light</b>	Lightens or darkens pixels in Source 2 depending on the brightness value of the corresponding pixels in Source 1. Hard Light works similarly to Soft Light. However, black in Source 1 produces black in the resulting channel and white produces white.
<b>Darken</b>	Replaces pixels in Source 2 with the corresponding pixels in Source 1, if the pixels in Source 1 are darker.
<b>Lighten</b>	Replaces pixels in Source 2 with the corresponding pixels in Source 1, if the pixels in Source 1 are lighter.
<b>Add</b>	<p>Creates a lighter channel than the source channels. Add is similar to Screen but usually produces a higher-contrast image.</p> <p>If you select the Add option, you can enter a Scale value from 1 to 2 with a precision of three decimal places. To calculate the average brightness value of two channels, choose Add and enter a Scale of 2.</p> <p>You can brighten or darken the resulting channel by specifying an Offset value. To lighten the overall image, enter an offset from 1 to 255. To darken the image, enter an offset from -1 to -255.</p>
<b>Subtract</b>	<p>Creates a darker channel than the source channels. Subtract is similar to Multiply. However, corresponding pixels of the same color produce black in the resulting channel.</p> <p>If you select the Subtract option, you can enter a Scale value from 1 to 2 with a precision of three decimal places.</p> <p>You can brighten or darken the resulting channel by specifying an Offset value. To lighten the overall image, enter an offset from 1 to 255. To darken the image, enter an offset from -1 to -255.</p>
<b>Difference</b>	Compares the color value of each pixel in Source 1 with the corresponding pixel in Source 2, subtracts the darker value from the lighter, and then uses this difference in the resulting channel.

### Examples of Calculate Blending Options





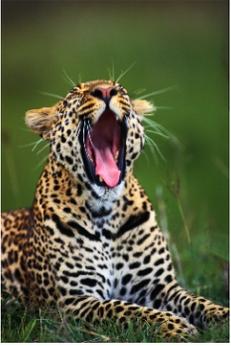
## Image Proxies

Proxies are low-resolution images you can use in Canvas documents. A proxy is a placeholder that is linked to an original image. The original high-resolution image is stored in a Canvas Image File on disk.

### Using Proxies

Proxies can significantly reduce the time required to redraw the screen while you work. Also, a Canvas document that contains proxies requires much less disk storage space than one containing high-resolution images (although the space required to store the document and the linked image files is approximately the same as for the document containing high-resolution images).

 Proxies are most useful for conserving time and memory when you use large, high-resolution color images in documents.



A high-resolution image stored in a Canvas Image File on disk.



A low-resolution proxy replaces the image in a Canvas document. The proxy is linked to the Canvas Image File.

## Replacing an Image with a Proxy

The procedure described in this section lets you replace an image contained in a Canvas document with a low-resolution proxy. When you do this, Canvas exports the original image to a Canvas Image File, and links the Canvas Image File to the proxy.

If you later double-click the proxy for editing, Canvas loads the original image from the Canvas Image File. You can edit the original image as you would any other Canvas paint object. When you leave Image Editing mode, Canvas stores the changes in the Canvas Image File and then displays the proxy again.

### To Create a Proxy Linked to an Image File:

1. In the Canvas document, select the image object you want to replace with a proxy.
2. Choose **Image | Proxy | Make Proxy**.
3. In the dialog box, select a file type and location to save the file.
4. Type a name for the image file that Canvas will create.
5. Click **Save**.
6. In the Make Proxy dialog box, type a value in the "Make...Times Smaller" box. The larger this number, the lower the proxy resolution and the less memory required by the proxy in the document. The value must be from 1 to 1,000.
7. Click **OK**. Canvas replaces the image with a proxy and creates a file containing the original image on disk. The proxy is linked to the image file on disk.

If you click Cancel, Canvas closes the dialog box without replacing the original image, placing the proxy, or storing the image file on disk.

## Make Proxy Dialog Box

You use the Make Proxy dialog box to create proxies linked to Canvas Image Files.

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<b>Original</b>	Width and height of the image.  Size of the Canvas Image File you are about to create.  Resolution of the image.
<b>Proxy</b>	Memory required by the proxy. The memory required changes if you enter values in the "Make...times smaller" text box.  Type the proxy reduction factor in this text box. The larger this value, the lower the proxy resolution and the less memory required by the proxy.  Location of the file on disk.  Click <b>File</b> to change the location that Canvas will store the Canvas Image File.

---

Click **OK** to replace the image with the proxy and create the Canvas Image file.

## Final Output with Proxies and Linked Image Files

To produce final high-resolution output from a document, you may need to copy the Canvas document from your disk to another storage media, such as a Zip disk. When you copy a document that contains image proxies, you need to copy the linked high resolution image file also, to be able to print the high resolution images.

Make sure when you copy the documents to another disk, that you maintain the original folder structure. It is a good idea to open the Canvas document that you copied, and check that the links have not been broken. (See [To Verify Proxy Links.](#))

You can also replace a proxy with its linked image to eliminate the need to copy the image file. To learn how to do this, see [Editing Proxies.](#)

## To Create a Proxy by Acquiring a File:

You can use the Import command to create a proxy that is linked to a TIFF, JPEG, or CVI file.

You can edit acquired proxies the same as other proxy images. However, some changes you might make, such as adding image channels, are not supported by JPEG or TIFF files.

1. To acquire an image from a file, choose **Image | Import** and choose a file format in the Import dialog box.
2. In the Import dialog box, select the **Acquire As Proxy** option. Select the image files to import and click **Import**.
3. In the Proxy Info dialog box, type the proxy resolution in the "Make...Times Smaller" box. The larger the number, the lower the resolution of the proxy image in the document.
4. Click **OK**. Canvas places the proxy images in the document.

## Editing Proxies

When you place a proxy object in Image Edit mode, Canvas loads and displays the linked image file in place of the proxy. If the original image has changed, you see the changes.

Changes you make in Image Edit mode are saved in the linked image file on disk when you exit Image Edit mode. Canvas then displays an updated proxy.

Editing an image linked to a proxy is the same as editing any image in Canvas; you can use painting tools and commands to alter pixels in the original image.



Paint object in Image Edit mode

## Object Editing

Changes you make to a proxy when you do not edit the pixels in the image are object-level edits. You can skew and scale proxies like other objects. Skewing, scaling, and other object-level editing do not affect the image file to which the proxy is linked.

## Displaying Proxy Information

When you select a proxy object, the information area of the Status bar displays the data for the image file to which the proxy is linked in italic type.

### To Display Information on the Proxy Object:

Choose **Image | Proxy | Proxy Info**. The Proxy Info dialog box displays the dimensions and resolution of the proxy object and the location of the linked original image on disk.

## Removing Proxies

### To Remove a Proxy Object without Replacing it with an Original Image:

Select the proxy object and press the **Delete** key, or use the **Cut** or **Clear** commands in the Edit menu.

### To Replace a Proxy with its Linked Image:

1. Select the proxy you want to replace.
2. Choose **Image | Proxy | Unlink Proxy**. Canvas asks if you are sure you want to remove the link between the image file and the proxy.
3. Click **OK** to replace the proxy and remove the link to the image file.

## Maintaining Proxies

If someone changes the name or location of an image file that is linked to one or more proxies, Canvas alerts you that the file could not be found when you try to edit, unlink, or update any of the proxies.

You can check proxies in a document at any time to verify that the links are valid. If Canvas detects unlinked proxies, you can re-link them to existing image files.

 You should always verify the proxy links in a document before final output. If you produce final high-resolution output from a document with unlinked or broken proxy objects, the associated images will not print correctly.

## To Verify Proxy Links:

Choose **Image | Proxy | Check Proxies**.

If Canvas finds an unlinked proxy, it displays selection handles around the proxy and centers it in the document window. Canvas displays a message telling you that the proxy has a problem because the image file could not be found.

 When it finds an unlinked proxy, Canvas displays the proxy's name, if you have assigned a name to the proxy object. You can do this by typing a name in the Name field on the Data tab in the Object Specs palette (**Object | Object Specs**).

When Canvas tells you that a proxy has a problem, you should follow the procedure, To Re-Link a Proxy, detailed below. If a proxy does not have a valid link to an image file, Canvas prints the low-resolution proxy when you print the document.

If all proxies in the document have valid links to image files, Canvas displays the message: "No problems found." Canvas also displays this message if the document contains no proxies.

## To Re-Link a Proxy:

If you are using the Check Proxies command and Canvas finds an unlinked proxy, you can link the proxy to an image file.

1. After Canvas identifies an unlinked proxy, click **Fix** in the message box.
2. In the Proxy Info dialog box, do one of the following:
  - Click **OK** to skip the proxy and continues checking other proxies.
  - Click **Cancel** to end the check.
3. Click **File** in the Proxy Info dialog box.
4. In the dialog box, select an image file to link to the proxy, and then click **Open**. Canvas returns to the Proxy Info dialog box, which shows the path to the linked image file.
5. Click **OK**. Canvas closes the Proxy Info dialog box and continues to check for unlinked proxies.
6. If Canvas finds another unlinked proxy in the current document, Canvas again selects the unlinked proxy and displays a message that the proxy has a problem. Repeat the procedure from Step 1 above to re-link unlinked proxies that Canvas selects.

When Canvas doesn't find any unlinked proxies, it ends the Check Proxies procedure and returns to the document.

## To Change the File Linked to a Proxy:

Use the following procedure to link a proxy to a different image file.

1. Select the proxy object.
2. Choose **Image | Proxy | Proxy Info**.
3. In the Proxy Info dialog box, click **File**.

4. In the dialog box, select the image file you want linked to the proxy and click **Open**.
5. In the Proxy Info dialog box, review the new path and the name of the linked image file, then click **OK**.

## Updating Proxies

Use the Update Proxies command to update all proxies in a document so they match the image data in their linked image file.

### To Update All Proxies in the Active Document:

Choose **Image | Proxy | Update Proxies**.

### To Update a Specific Proxy:

Select the proxy object you want to update and choose **Image | Proxy | Update Proxy**.

## Exporting Canvas Image Files

You can export any image from a Canvas document to create a Canvas Image File on disk. You can then create proxies linked to the Canvas Image File.

This procedure creates a Canvas Image File, but does not link the image file to the document, or replace the image with a proxy in the document.

### To Export an Image to a Canvas Image File:

1. Select the paint object in the document and choose **Image | Export | Canvas Image File**.
2. In the dialog box, select a location and type a name for the image file, and then click **Save**. Canvas creates a Canvas Image File.

# Chapter 6: Text And Typography

## Text Entry and Layout

You can create text, text layouts, and flow text from column to column. This section describes how to use the Text tool and Format Brush, how to create an empty text object, how to create and manipulate text in columns, and more.

### Typing Text in a Document

Canvas has a full range of text and typography features that let you integrate text with illustrations and images. You can enter, format, edit, and arrange text in Canvas. You can also import text files and use Object Linking and Embedding (OLE) to place text in documents. To help you edit and proof text, Canvas provides spell-checking and text-searching tools.

Depending on the circumstance, use either the Text tool or Vertical Text tool to type text into a document.

The Vertical Text tool is designed for Japanese and other languages with vertical text. For information on the Vertical Text tool and other features for working with two-byte languages, see "Tools and Options for Two-Byte and Vertical Text" on page 396. Remember that the Vertical Text tool does not appear unless the Enable two-byte script checkbox is selected on the Type page of the Text manager in the Configuration Center. (See "Setting Preferences" on page 62.)

### Text Objects

All text in a Canvas document is contained in objects called text objects. Text objects can contain a single character or line of text, or thousands of words, sentences, and paragraphs.



Dimension objects contain dimension text. (See "Using the Dimensioning Tools" on page 247.)

### Text Tools

The **Text tool** palette contains the tools you use to create text objects and edit text.

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	<b>Text:</b> Use the Text tool to create text objects and edit text.
	<b>Text Object:</b> Use the Text Object tool to draw fixed text objects for page layouts.
	<b>Text Link:</b> Use the Text Link tool to link text objects to create text flows.
	<b>Text Unlink:</b> Use the Text Unlink tool to break text object links.
	<b>Link Info:</b> Use the Link Info tool to check text flows in a document. The tool displays arrows showing the flow of text among linked text objects.
	<b>Text Path:</b> Use the Path Text tool to type text along a vector path.
	<b>Text Form Field:</b> Use the Text Form Field tool to create form text boxes.
	<b>Text Section:</b> Use the Text Section tool to create sections and columns in the text.

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**Text Format Brush**: Use the Text Format Brush tool to copy a text format and apply it to other text.



**Vertical Text**: Use the Vertical Text tool to create text objects and edit text when you are using a double-byte language.



**Vertical Text Object**: Use the Vertical Text Object tool to draw fixed text objects for page layouts when you are using a double-byte language.

## Using the Text Tool

Use the Text tool to create new text objects, type text into a document, and edit text.

When you create text objects with the Text tool, you can choose whether or not to set the column width before typing.

- If you set the column width before typing, text wraps to the next line when it reaches the right boundary of the text object.
- If you don't set the column width before typing, the right margin expands indefinitely to accommodate the amount of text you type. This is called a "caption" text object.

Whether you should set the column width before or after typing depends on the amount of text you want to type. For short labels and callouts, you might find it easier to simply type and let Canvas adjust the right margin. However, for paragraphs or newsletter columns, it is probably easier to set the column width before typing.



You can change the size of the text object by selecting it and dragging a selection handle.

## To Type Text with the Text Tool:

1. Select the **Text tool** from the Toolbox. **T**
2. Do one of the following to set the location and type the text:
  - **To enter one line of text**: Click in the document. An insertion point appears where you click. Begin typing and the right margin extends to fit the line of text that you type.
  - **To define a text column**: Drag diagonally to create a rectangular text object. The object's width matters, but not its length. Canvas contracts or expands the length to accommodate the text you type. An insertion point appears at the top of the object. Begin typing, and when you reach the right margin, Canvas wraps the text to the next line.
3. Press **Esc** to exit Text Editing mode when you finish typing. The text object remains selected.
4. Press **Esc** to deselect the text object or select another object. You can also click outside the object.

## Attributes of New Text

When you type text, Canvas applies the current attributes and the current type format settings to the characters you type. For more information about changing ink and stroke attributes, see "Text Inks and Strokes" on page 444.

- **Type formatting**: Canvas applies the current settings for the font, style, type size, justification (alignment), leading, and kerning to the characters you type. These settings are selected from the Text menu, the Properties bar, or with the controls in the Type palette. (See "Applying Text Formats" on page 407.)
- **Fill inks**: Canvas applies the current fill ink, if it's a solid color fill ink, to the text characters.



If the current fill ink is a gradient, hatch, symbol, or texture, Canvas applies 100% black to the text characters.

- **Pen inks:** The pen ink for text you type is always 100% black, and is not visible until you apply a pen stroke to the text.
- **Strokes:** Canvas applies no stroke to text characters you type. This means that no outline appears on the characters, and the pen ink applied to the text is not visible because the pen ink appears only when an object or text has a visible stroke.

## Using the Text Format Brush

Use the Text Format Brush to copy text attributes, such as font, font style, fill ink, pen ink, as well as pen stroke, so that you can apply them to other text. This tool does not copy frame ink, frame stroke, or background ink. To apply these items to text, see [To Apply a Background Ink](#), [To Apply a Frame Stroke](#), and [To Apply a Frame Ink](#).

### To Copy and Apply Text Attributes:

1. Select the **Text Format Brush** tool.   
The cursor changes to an eyedropper.
2. Click on a text object to copy the text attributes.
3. Then, click on the text object to which you want to apply the text attributes.

If you want to apply the text attributes to a single character or group of characters, drag across the character or characters until they are all selected. When you release the mouse, the text attributes will be applied.

## Creating Text Layouts

Use the Text Object tool to place text objects, or columns, in page layouts. Text objects created with this tool keep their width and length, unlike text objects made with the Text tool, which shrink and expand in length to fit the amount of text you type. The Text Object tool is especially useful for designing templates and master pages, because you can set up text columns and add type later.

If you enter text into a text object created with the Text Object tool, and there is more text than will fit in the column, an overflow indicator appears at the bottom of the text object. (See "Flowing Overset Text into New Text Columns" on page 402.)



To hide the bounding boxes of text objects, choose **Layout | Display | Hide Text Boxes**. To show them again, choose **Layout | Display | Show Text Boxes**.



The Text Object tool doesn't select text or place a text object in Edit mode. For these operations, use the Text tool. (See "Using the Text Tool" on page 394.)

### To Create an Empty Text Object:

1. Select the **Text Object** tool.   
When you move into the document window, the pointer is an I-beam with an arrow.
2. Drag to set the width and length of a rectangular text object.
3. Canvas deselects the Text Object tool and either selects the Selection tool or Text tool.

4. Double-click in the text object to select the Text tool. The new text object is in Edit mode with an insertion point at the top of the column.

You can begin typing in the new text object immediately. Press **Esc** to exit Text Editing mode and select the text object. Press **Esc** to deselect the text object.

## Positioning Text Objects

Arrange text objects the same way you arrange other types of objects. Drag text objects with the mouse, resize them by dragging a selection handle, "nudge" text objects with keyboard arrow keys, and set coordinates and dimensions in the Properties bar.

## Tools and Options for Two-Byte and Vertical Text

A special preference, Enable two-byte script, appears in the Type manager of the Configuration Center if your system is capable of using two-byte languages. (See "Preferences for Two-Byte Text Entry" on page 80.) Depending on the amount of text in your documents, activating the two-byte text preference might slow down text editing.



You must quit and restart Canvas to activate or deactivate the two-byte text preference.

For Windows 7, Vista, and XP, the operating system supports almost any language setting, including Japanese.

When you activate the two-byte text preference, Canvas selects the metric measurement system by default. Select another system for measurement units by choosing **Layout | Rulers**. (See "Setting Up Rulers" on page 45.) The "two-byte" preference also can make available several tools and options that let you create vertical text objects (with or without two-byte fonts), and use an entry window for typing two-byte characters. These tools and options are described in this section.

## Available Two-Byte Text Tools and Options

When the two-byte preference is active, the following items appear:

- The Vertical Text tool appears in the Toolbox.
- The Vertical Text Object tool appears in the Toolbox.
- "Vertical" options appear in the Column Guides dialog box and the Type palette.
- The Inline tab appears in the Configuration Center.

## Using Vertical Text Tool

The Vertical Text tool types text in vertical columns that flow from top to bottom and right to left. Create vertical columns of text in languages that use vertical text, or when you work on a publication in which text runs across a page.

To create empty text objects, such as for a document template, to contain vertical text, use the Vertical Text Object tool. (See "Using Vertical Text Object Tool" on page 397.)



If the Vertical Text tool isn't available because the two-byte text preference isn't selected, you can get the same effect by rotating text 90° by choosing **Effects | Rotate**.

## To Type Vertical Text Directly:

1. Select the **Vertical Text** tool.   
The pointer changes to a horizontal I-beam.
2. Click in the document to place the text insertion point, and then begin typing. Since the text will flow from top to bottom, Canvas expands the bottom of the column to fit the longest line you type.
3. Press **Esc** to exit Text Edit mode.

## To Define a Column for Vertical Text:

1. Select the **Vertical Text** tool.  The pointer changes to a horizontal I-beam, indicating that text will flow from top to bottom.
2. Drag the I-beam to set the size of the column, and then begin typing. As you type, text characters run from top to bottom. When the text reaches the bottom edge of the column, it wraps back to the top and onto the next line to the left.
3. Press **Esc** to exit Text Edit mode.

## Using Vertical Text Object Tool

The Vertical Text Object tool lets you create empty text blocks for vertical text. Text objects created with the Vertical Text Object tool maintain their width and length.

## To Create Text Objects for Vertical Text:

1. Select the **Vertical Text Object** tool.   
The pointer changes to a horizontal I-beam indicating that text will flow from top to bottom.
2. Drag to define the width and length of the text object. Then drag in other locations to create more text objects, or begin typing in the new text object.
3. Press **Esc** to exit Text Edit mode.

## Options for Vertical Text and Columns

A checkbox labeled Vertical appears in two places: the Column Guides dialog box and Type palette.



The Vertical options described in this section are not related to the "Vertical" command that changes the alignment of text bound to a path.

In the Column Guides dialog box, create column guides for vertical text in Publication documents. In the Type palette, specify horizontal or vertical orientation for text objects.

## To Use Vertical Text Column Guides:

1. Choose **Layout | Column Guides**.
2. In the Column guides dialog box, select the **Vertical** checkbox. The column guide buttons at the top of the dialog box change to vertical orientation.

3. Use the preset column buttons or the other options to specify guides for the number of columns that you want to use.
  - **To use preset column guides:** Click one of the buttons. The first three buttons are for 1, 2, and 3 text columns respectively. The last two buttons are for 2 columns with a wide and narrow column.
  - **To set up guides for any number of columns from 1 to 12:** Use the **Number of columns** text box.
4. Click **OK** to create guides for the specified number of columns.

### To Use the Vertical Option for Text Objects:

Use the Vertical option in the Type palette to set up the Text tool for vertical text and to orient text objects to contain vertical text.

 When you set the Text tool to create vertical text, lines of text that you type are vertical, with text flowing from top to bottom and lines running from right to left. This is the same as the orientation of text within an existing text object when you apply the Vertical option.

1. Open the Type palette by double-clicking the Text tool, or choosing **Text | Type**.
2. Do one of the following to set up the Text tool, or to change the orientation of existing text objects:
  - **To change the default operation of the Text tool:** Make sure that no objects are selected in the document.
  - **To change existing text objects:** Select the text objects.
3. Select the Vertical checkbox in the Type palette and then click **Apply** to apply the current settings. Canvas applies the vertical option to the selected text objects or to the Text tool.

### To Change Text Orientation to Horizontal in an Object:

1. Open the **Type** palette.
2. Select a text object containing vertical text.
3. Deselect the Vertical checkbox and then click **Apply**.

### To Use Vertical Text in Publication Layouts:

1. Choose **Layout | Column Guides** and choose the number of columns you want to use.
2. Use the **Vertical Text Object** tool to click between column guides to create a text column sized to fit the column guides.

The column extends from the point you click to the left margin of the page. If the column guides are outside the printable area, the column text remains inside the printable area. (See "Using Vertical Text Object Tool" on page 397.)

## Creating Column Layouts

A section is a rectangular area that arranges text in columns. A section is made of column guides, which are non-printing lines that define the text columns and gutters (spaces between columns).

Sections make it easy to arrange and modify text in columns. You can place one or more sections on a page. After you place text in a section, you can change the number or the size of the columns in the section and Canvas will adjust the text to fit.

To create text columns in a document, you could manually arrange separate text objects; however, the Section tool and column guides automate text layout. This section describes how to work with the Section tool and Column Guides to create text layouts.



A 3-column section

## Creating Columns

Create column layouts with the Section tool or Column Guides command (**Layout | Column Guides**). Use the Section tool to place multiple sections at specified locations on one or more pages. Use the Column Guides command to define sections or change settings for existing sections.

Whether you create or modify sections with the Section tool or Column Guides command, the Column Guides dialog box is the control center for configuring sections.

When you create a section, the section's column guides appear on a guide layer in the document. By default, guide layers are non-printing and have a bright blue override color. Use the Document Layout palette to change the override color or make a guide layer printable. (See "Guide Layers" on page 61.)

When you add text to a section, Canvas creates a text object in each column in the section. The text objects are placed on the current layer.

## Column Guides Dialog Box

<b>Section Name</b>	Canvas applies a default name when you create a section. Type a new name in the text box to change a section's name.
<b>Section options menu</b>	Delete sections, fit sections to a page, or fit sections to the top half or bottom half of a page. Choose an option from the menu.
<b>Apply</b>	Depending on the layout, choose from <b>This Page</b> , <b>All Pages</b> , <b>All Left Pages</b> , <b>Left Page</b> , <b>Right Page</b> , or <b>All Right Pages</b> .
<b>Preset column guides</b>	Select 1, 2, or 3 columns of equal width, or 2 columns with a wider column on the left or right.
<b>Number of columns</b>	Specify the number of columns; it overrides the preset column guides. Type the number of columns. The maximum number depends on the width of a section.
<b>Equal widths</b>	This option makes the column widths equal to the value in the Column box, and makes the gutter widths equal to the value in the Gutter box. Deselect this option to set the width of a specific column.
<b>Fixed widths</b>	This option prevents changes to the width of the columns.
<b>Fixed gutters</b>	This option prevents changes to the width of the column gutters.  If both Fixed Gutters and Fixed Widths are selected, you can't drag the column guides in a section to adjust the widths of columns or gutters.
<b>Vertical</b>	This option appears if "Enable two-byte script" is selected in the Configuration Center. It creates vertical

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columns for text in a section.

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**Text Flow**

To change the direction of the text flow, click the button that indicates left to right (the arrow points right) or right to left (the arrow points left).

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**Size**

If Equal Widths is not selected, set widths for columns and gutters.

**Column #:** Select the column by number. The widths of the selected column and gutter appear below. Columns are numbered from left to right.

**Column:** Enter the width of the column specified in the Column # menu. If you select a preset column option, the Column value can't be changed unless Equal Widths is deselected first.

**Gutter:** Enter the width of the gutter.

---

### To Create Sections with the Column Guides Command:

1. Go to the page where you want to place a new section and choose **Layout | Column Guides**.
2. In the Column Guides dialog box, select a preset column arrangement or define custom columns. In the Apply To menu, choose where to place the new section.
3. Click **OK** to create a new section with the current settings.

If the document contains no sections, Canvas creates one or more new sections, according to the Apply To setting.

### To Create a Section with the Section Tool:

1. Select the **Section** tool.   
The cursor changes to a crosshair.
2. Drag the crosshair in the document.
3. In the Column Guides dialog box, select options for the section. Select preset column guides or specify a custom setup. (See "Column Guides Dialog Box" on page 399.)
4. Click **OK** to create a new section with the current settings.

### Modifying Sections with the Section Tool

Use the **Section** tool to move, resize, and modify sections.

#### To Move a Section:

Drag it with the Section tool. When you move a section, text objects contained in the section move with the section.



Unlike vector, paint, and text objects, you can't use the Selection tool to modify a section.

#### To Resize a Section:

Do one or more of the following:

- **To change the width of a section:** Drag one of its sides.
- **To change the height of a section:** Drag the top or bottom border of the section. To change both dimensions at once, drag a corner of the section.
- **To adjust the width of columns in a section:** Use the Section tool to drag column guides. The Fixed Widths and Fixed Gutters options in the Column Guides dialog box limit how sections can be resized. If both options are selected, you can't drag the sides, columns, or gutters to resize a section; you can drag the top or bottom to make it longer or shorter.

## Modifying Sections

To change the settings of a section, double-click the section with the Section tool to open the Column Guides dialog box. Change the settings in the dialog box and click **OK** to apply the settings to the section.

### To Delete a Section:

Double-click the section with the Section tool to open the Column Guides dialog box. Open the Section Options menu and select **Delete Section**. Click **Yes** in the confirmation message box.

## Applying Section Settings Throughout a Document

The Apply To setting controls how Canvas applies the column guides settings. When you click **OK**, Canvas modifies matching sections and creates new sections as necessary, depending on the setting selected in the Apply To menu.

### Apply To Menu Options

- **This Page:** Applies the settings to the current page only. In a Publication with facing pages, it applies the settings to both (left and right) current pages.
- **All Pages:** Applies the settings to all pages in the document.
- **All Left Pages:** Applies the settings to all left-hand pages in a Publication with facing pages.
- **Left Page:** Applies the settings to the current left-hand page in a Publication with facing pages.
- **Right Page:** Applies the settings to the current right-hand page in a Publication with facing pages.
- **All Right Pages:** Applies the settings to all right-hand pages in a Publication with facing pages.

## Displaying Column Guides

You can display or hide all the section column guides in a document.

### To Show Column Guides:

Choose **Layout | Display | Show Guides** when column guides are not displayed.

### To Hide Column Guides:

Choose **Layout | Display | Hide Guides** when column guides are displayed.

## Typing Text in a Section

Use the Text tool to type text in a column in a section.

## To Type Text in a Section:

1. Select the **Text** tool **T** and click at the top of the first column in the section. An insertion point appears in the column at the height where you clicked. Canvas creates linked text objects in the section when you click in the section with the Text tool.
2. Begin typing. Text will wrap to the next line when it reaches the column edge. If you continue typing to the end of the column, text will flow to the next column in the section.

If a section has multiple columns, you can skip one or more columns by clicking in the section where you want the text flow to begin.

## Flowing Overset Text into New Text Columns

You can flow text when all the text won't fit in a text object. An indicator tells you when an object has overset text. If you select a text object and drag a handle to reduce its size so all the text does not fit, the overset indicator appears. You can flow text between as many columns as you want.

## To Flow Text into the Next Column:

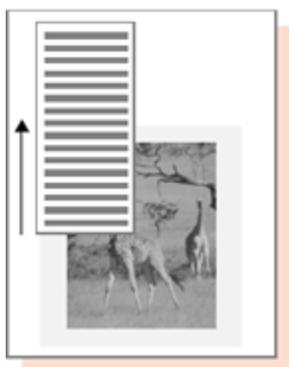
1. Click the flow symbol to change the pointer to a text flow pointer.
2. Click or drag the pointer to create a new column for the overset text.

## To Flow Text into a Column with the Same Margins as the Original Column:

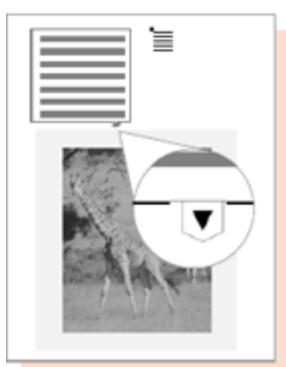
Click the text flow pointer where you want the upper-left corner of the new column to appear.

## To Flow Text into a Column with Different Margins Than the Original Column:

Drag the text flow pointer to specify the column width.



Resizing a text column can result in overset text



If you click the flow symbol, the text flow pointer appears



Clicking with the flow pointer creates a new column the same size as the original, and flows the overset text into it.

A plus sign replaces the overset sign on the first column, indicating that text flows to another column.

## Flowing Text from Column to Column

Create text flows so that text runs from one text object to another. You can flow text to a new text object when the text won't all fit in an existing text object; the term "overset text" is used to refer to the text that doesn't fit in a text object or column.

You can also link empty text objects to create a preset text flow when you create templates for page layouts.

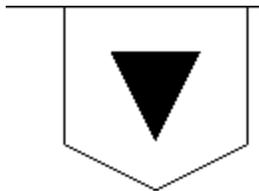
## Flowing Overset Text to a New Object

If you reduce the size of a text object, or change the text formatting, and all the text no longer fits in the text object, you can create another text object to hold the overset text. Doing this creates a link between the first and second text object, as shown in "Flowing overset text into new text columns," above.

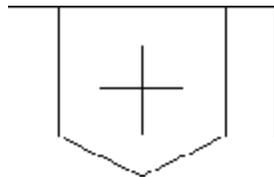
## Defining Text Flow Bars and Flow Symbols

A text flow bar is a solid line with a flow symbol. Text flow bars appear at the bottom of text objects when they contain overset text or are part of text flows. The flow symbol indicates the flow condition.

- An arrow indicates that a text object contains overset text.
- A plus sign indicates that text flows to another text object.
- The last object in a text flow does not display a flow bar unless text is overset.



Text object has  
overset text



Text flows to another  
text object

## To Display Text Flow Bars:

Choose **Layout | Display | Show Text Flow Bars**. To hide text flow bars, choose **Layout | Display | Hide Text Flow Bars**.

## Linking Text Objects

After you create text objects with the Text tool or Text Object tool, use the Text Link tool to link the objects and create a text flow. When text you type or insert fills one object, it flows to the next linked text object. The linked text object can be on another page (in a Publication document) or another slide (in a Presentation document). You can link columns in a chain to create articles in a multi-page document such as a newsletter. The Text Link tool is especially useful for creating templates for publications.

 Text objects created with the Text tool expand as needed when text is added. However, if you use the Text Link tool to link objects created with the Text tool, the objects no longer expand or contract to hold the text. Instead, they remain a fixed length, the same as objects created with the Text Object tool.

## To Link Text Objects:

You can use this procedure to link an object containing text or an empty text object to other text objects.



If text boxes aren't visible, choose **Display | Show Text Boxes** in the Layout menu; this makes it easier to find and link empty text objects.

1. With the **Text**  or **Text Object**  tool, create at least two text objects.
2. Select the **Text Link** tool.   
The pointer displays the number "1".
3. Click the first text object, the object you want to flow from. The text link pointer changes to the number "2".
4. Click the next text object, the object you want to flow to. If you click anything but a text object, Canvas cancels the linking operation.
5. To link another text object to the chain, repeat the linking procedure; i.e., click the object text will flow from, and then click the object the text will flow to.
6. Press **Esc** when you finish.

## Unlinking Text Objects

Use the Text Unlink tool to break the links between text objects that have been linked into a text flow.

### To Unlink One Text Object from the Next Object in the Flow:

1. Select the **Text Unlink** tool. 
2. Click the first text object.

## Checking Text Flows

The Link Info tool lets you check text flows in a document. Use the tool to display arrows showing the flow of text among linked text objects.

### To Check a Text Flow:

1. Select the **Link Info** tool. 
2. Point to a text object. Press and hold down the mouse to display flow arrows.

If the text object is part of a linked text flow, arrows show the flow sequence. Flow arrows are displayed until you release the mouse button.

If the text object is not linked, no flow arrows appear.

A flow arrow starts at the lower-right corner of the first object in a flow, and points to the upper-left corner of the next object in the flow, and so on throughout the flow.

## Merging Text

If you are working with or creating a document with multiple text boxes, you have the option of merging them for easier use.

You can choose between three types of text merging:

- **Auto Merge on Page:** Canvas merges all of the text on the selected page. If you have a document with multiple pages, you will need to apply this setting on each page.

- **Auto Merge Selection:** Canvas merges all of the selected text objects, maintaining hard returns.
- **Merge Selection:** Canvas merges all of the selected text objects into a continuous flow of texts in a paragraph text object. (Does not maintain hard returns.)



If non-text objects are part of your selection, they will be ignored by text merging.

### To Automatically Merge All Text on the Page:

With the page you would like to merge text on open, choose **Text | Text Merging | Auto Merge on Page**.



If there are specific text objects you don't want to merge, select and group them, (**Ctrl + G**), as grouped text objects are skipped.

### To Automatically Merge All Selected Text Objects:

1. With the page you would like to merge text on open, select the text objects you would like merged.
2. Choose **Text | Text Merging | Auto Merge Selection** or **Merge Selection**.

## Text Form Field Tool

The Text Form Field tool is ideal for numerous types of forms and documents. This feature is designed to assist you when you need to perform repetitive text entry tasks.

To navigate inside a form, first create the Text Form boxes and then place them in the appropriate locations. After placement, you can quickly move the cursor to each Text Form box by using the Tab key. All text that is entered into the Text Form box may be formatted in the same manner as it is in the regular Text box.

The Tab order of the Text Form boxes may be arranged and edited using the features of the Document Layout palette. (See "Using the Document Layout Palette" on page 53.)

### To Use the Text Form Field Tool:

1. Create your form.
2. Select the **Text Form Field** tool. 
3. Click and drag in the document location to create Form Text boxes.
4. You may now jump to each form text object by pressing the **Tab** key. You may Tab in reverse order by pressing **Shift-Tab**.



To better track Form Text boxes, we suggest that you apply a name to each box. (See "Data Tab Settings" on page 133 for more information on naming objects in Canvas).

### To Convert a Regular Text Box to a Form Text Box:

1. Select the regular text box and then right-click to open the context menu.
2. Select **Convert** to Form Text.

### To Convert Form Text Objects to Normal Text:

Right-click the Form Text box, and select **Convert to Normal Text**.

## Formatting Text

You can control all aspects of text formatting in Canvas. This section explains how to specify font, font styles, type size, character position and scaling, kerning, letter and word spacing, and paragraph alignment and spacing. This section also explains how to select text for formatting and how to apply format settings.

You can also save format settings as named character and paragraph styles so you can use them again. (See "Working with Type Styles" on page 426.)

### Selecting Text and Objects

The following section is a review of some basic selection techniques used to format text.

#### To Select and Deselect Text Objects:

Select text objects the same way you select other objects in Canvas.

- **To select a single object:** Use a Selection tool to click the text object or drag a selection rectangle around the object.
- **To select multiple objects:** **Shift**-click text objects with a Selection tool. You can also drag a selection rectangle around all the objects you want to select.
- **To deselect one object:** Press **Shift** and click the object. Other objects remain selected.
- **To deselect all objects:** Press **Esc** or click an area of the screen where there are no objects.

#### To Select All Text Objects:

1. Select the **Text** tool from the Toolbox. **T**
2. Choose **Edit | Select All**.
  - **Illustration:** This procedure selects all text objects on the current layer.
  - **Publication:** This procedure selects all text objects on the current page or current two-page spread.
  - **Animation:** This procedure selects all text objects on the current layer of the current frame.
  - **Presentation:** This procedure selects all text objects on the current layer of the current slide.

#### To Select Text within a Text Object:

Before you can select specific characters, words, lines, or paragraphs, the text object must be in Edit mode.

1. To place an object in **Edit** mode, use one of these methods:
  - With a Selection tool, double-click the text object. The pointer becomes an I-beam and an insertion point appears in the text.
  - Select the **Text** tool. The pointer becomes an I-beam. Click the I-beam within the text. An insertion point appears.
  - For bound text only, click the **Path Text** tool. The Path Text tool is in the Text tools palette. (See "Tool Palettes" on page 8)
2. Use one of the following methods to highlight the text you want to select.

To	Do this
Select a continuous block of text	Drag the I-beam over text.
Select all text between the insertion point and another location	Press the <b>Shift</b> key and click where you want the selection to end.
Deselect text between the insertion point and another location within the selection	Press the <b>Shift</b> key and click within the highlighted text.
Select a word	Double-click the word with the I-beam pointer.
Select a line of text	Triple-click the line with the I-beam pointer.
Select all text in the text object	Choose <b>Edit   Select All</b> .
Deselect all highlighted text	Click anywhere in the text object or layout. Clicking outside the selected text object creates another text object at that location. Choosing another tool in the Toolbox ends Text Edit mode.

## Working with Linked Text Objects

When you link text objects so text flows from one column to another, you can select all of the text in the flow. This lets you apply formatting changes and text styles to all the text at once, even if the columns are on separate pages or slides.

For information on linking text objects, see "Flowing Text from Column to Column" on page 403.

### To Select All Text in a Flow:

1. Select the Text tool **T** and click one of the linked text objects to place the text object in Edit mode and set the insertion point in the text. You can also double-click a text object with the Selection tool to enter Edit mode.
2. Choose **Edit | Select All**. Canvas highlights all the text in the linked text objects.
3. Click outside any text object or press **Esc** to deselect the text.

 When text is highlighted, anything you type replaces the highlighted text. If you select a long text flow across several columns, and then type a single letter or press the **Spacebar**, all the highlighted text is erased. If this happens, choose **Edit | Undo** or **Window | Palettes | Undos**.

### To Apply Type Formatting to a Text Flow:

Once you select the text in a flow, you can apply formatting changes using the Properties bar, Type palette, or Text menu commands. Of course, changes that you make to selected text on other pages or slides will not be shown until you switch to the other pages or slides.

## Applying Text Formats

Canvas provides three ways to format text: the Properties bar, Text menu, and Type palette. The Type palette is also used when you create and save paragraph and character styles. (See "Working with Type Styles" on page 426.) The Type palette can be used to apply the paragraph and character styles.



You must apply or save the new settings before clicking the pointer anywhere outside the Type palette. If you don't, the settings will be lost.

When you use menu commands or the Properties bar to apply formatting, the settings you choose affect the document immediately. However, with the Type palette, the settings take effect when you click Apply. You do not have to click Apply before switching to another tab within the Type palette; Canvas remembers all changes and applies them simultaneously with one click.

### To Apply Character Formatting to Existing Text:

Select the characters you want to change. Choose the formatting you want to apply.

### To Apply Paragraph Formatting to Existing Text:

Select text in the paragraph you want to change, or place the insertion point anywhere in the paragraph. Choose the formatting you want to apply.

### To Establish Formatting for New Text Objects:

When you create a new text object, Canvas applies a preset format to text you type. You can define the preset format for new text objects. To establish or modify the preset, follow these steps:

1. Be sure you have not selected any text or text objects, and no text objects are in Edit mode. To deselect all objects, press **Esc** twice.
2. Use one of the methods to choose formatting options. If you use the Type palette, be sure to click the **Apply** button after making changes.

Canvas uses the specified settings to format new text objects that you create.

### To Change Formatting Before Typing New Text:

Set the format for text you are about to type without changing the preset format for new text objects.

1. Place the text object in Edit mode. (See "To Select Text within a Text Object:" on page 406.) The pointer should appear as an I-beam and an insertion point (a flashing vertical line) should appear in the text.
2. Place the insertion point by clicking the I-beam where you want the new formatting to begin.
3. Use one of the methods to choose formatting options. If you use the Type palette, be sure to click the **Apply** button after making changes.
4. Begin typing. The text appears with the chosen formatting. If you begin typing in the middle of a paragraph, only the new text has the new settings.

## Formatting Text with the Properties Bar

When using various tools to create or select text objects, the text formatting options appear in the Properties bar. Format your text using the Properties bar options in addition to the Type palette (**Text | Type**) and Text menu commands.

### Text Formatting Options

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<b>Font</b>	Select one from the menu. The font applies to selected text objects, highlighted text, or the next text you type.
<b>Size</b>	Select a size or enter one and press <b>Enter</b> . The size applies to selected text objects, highlighted text, or the

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	next text you type.
<b>Horizontal alignment</b>	Select left, center, right, or justify.
<b>Text attributes</b>	Use the pop-up palettes to apply a text fill ink, text pen ink, background ink, and text frame ink. For the text stroke and frame stroke, you can also assign a pen width.
<b>Leading</b>	Select an option or enter a value and press <b>Enter</b> .
<b>Scaling</b>	Specify percentages (horizontal & vertical) by which you want to scale the current type size.
<b>Space</b>	Insert spacing before or after a paragraph by entering values in the fields.
<b>Vertical alignment</b>	Select top, bottom, center, or justify.
<b>Text styles</b>	Click buttons to assign standard text styles.
<b>Tab</b>	Select left, right, center, decimal, or comma from the menu and then click in the ruler to set the tab. (See "Positioning Tabs" on page 413.)
<b>Kerning</b>	Select an option from the menu or enter a value and press <b>Enter</b> .

## Specifying Fonts

Select a font using any of the methods.



In Windows, the Font menu may also be set to display in single or multi-column mode.

### To Select a Font from the Text Menu:

1. Choose **Text | Font**. A checkmark appears next to the current font.
2. Choose a font from one of the sub-menus.

### The Fonts Palette

Use this palette to quickly view and apply fonts, font styles, as well as type size.

### To Open the Palette:

Choose **Window | Palettes | View Fonts**. Use the scroll bar to view the available fonts.

- **To select a font:** Click the font name in the list.
- **To apply appearance font styles:** Click the style buttons.
- **To change type size:** Enter a size in the field or select one from the menu.

### To Apply Font Styles Using the Type Palette:

1. Choose **Window | Palettes | Type**.
2. Click the **Character** tab to bring it to the front.
3. Click the **Style** buttons to change appearance styles.



Clicking the Plain button turns off all active appearance styles. Clicking an active appearance style button turns the style off.

4. Choose **Upper**, **Lower**, **Normal**, **Title**, or **Small Caps** in the Case menu.
5. Choose **Normal**, **Superscript**, or **Subscript** in the Baseline menu. If you are applying superscript or subscript, specify the distance from the baseline (in points) in the text box. Normal baseline always has an elevation of zero points.
6. Click **Apply** to implement the font style settings.

## Tips for Font Installation and Use

On Windows systems, Canvas uses fonts installed in the Fonts folder. You can access the Fonts folder via the Control Panel. Use the Install New Font command in the File menu to add fonts to your system. You can also drag and drop font files or font file shortcuts to the Fonts folder. To specify that you want to see only TrueType fonts in your programs, you can use the Options command in the Views menu.

Canvas can use fonts that are properly installed as described above. If fonts that you use in another application are not available in Canvas, that application probably stores its fonts in a different location and has its own font management capabilities.

## Guidelines for Choosing Fonts

There are three types of fonts widely available: PostScript, TrueType, and OpenType. You can't distinguish the three types in the Canvas menus; however, you should be aware of the different types of fonts you have, because each font is best suited for particular purposes.

- PostScript Type 1 fonts are the standard for image setting. PostScript produces high-quality printed text. For onscreen display, however, PostScript needs screen fonts. If the screen font for a particular point size is not installed, the text appears jagged onscreen. To compensate for this, you can use Adobe Type Manager (ATM) software. If a screen font is unavailable, ATM uses the PostScript printer font for both screen display and printing. In addition, ATM lets you print PostScript fonts to non-PostScript printers.
- TrueType fonts are suitable for most desktop publishing purposes when you are printing in-house. TrueType fonts produce good quality printed text, and the onscreen appearance closely resembles the printed output, even when the screen font is unavailable.
- OpenType fonts are the solution to font sharing across platforms. Canvas offers basic support for OpenType fonts, including vertical glyph substitutions in East-Asian fonts.

When typing in Canvas, all entered letters are not stored as Unicode characters, although they are exported as such in some of the export formats; e.g., HTML or SVG. However, the current script/code-page of the font is used (obtained from the system). Thus, the user can type in his regional alphabet if the user has the right font that supports it; e.g., Arial-CE for a Central European languages or MSMincho for Japanese.

## Specifying Type Size

Choose from standard type sizes using either the Properties bar, Text menu, Type palette, or Fonts palette. To reduce or increase a font size in 1-point increments, choose **Text | Size**. You can also increase/decrease text size in 1-point increments by using the keyboard commands **Ctrl+Shift+<** (Reduce) or **Ctrl+Shift+>** (Increase).

## To Set Type Size Using Menu Commands:

1. Choose **Text | Size**. A checkmark appears next to the current type size.
2. Choose one of the sizes in the submenu. The size setting applies immediately.

## Applying Font Styles

Font styles are different character types, such as bold, italic, or superscript, as well as capitalization modes.

 Styles can be chosen and applied with either the Properties bar, Text menu, or Type palette.

Font styles can be categorized into three groups: appearance, capitalization, and baseline position. You can apply multiple appearance styles to the same text; however, you are restricted to one each of capitalization and baseline styles.

## Appearance Styles

Appearance styles include plain, bold, italic, underline, outline, shadow, small caps, and strikethrough. Except for the Plain option, use as many of these appearances as you like on the same text. Depending on the typeface, using certain styles might not have the desired effect, and can even make text appear ugly when printed; e.g., applying bold to a heavy weight typeface can make characters look too thick. Similarly, applying italic to an already italicized font might exaggerate the slant of the characters.

 Applying the Plain setting removes other font styles that have been applied to revert text to its standard appearance.

## Capitalization Styles

Capitalization styles format text as uppercase, lowercase, or title (first letter of each word capitalized) styles. Apply one of these capitalization styles to the same text: Normal, Upper, Lower, and Title.

## Baseline Position

The baseline of text is the imaginary horizontal line on which characters sit. To position characters above (superscript) or below (subscript) the normal baseline, shift the baseline position.

Canvas does not change the type size of superscript and subscript text. Unless you reduce the type size of shifted text, the line size increases by the amount of the baseline shift. As a result, the line spacing might change, depending on the leading setting. If you don't want the line spacing to change, reduce the type size of shifted text by the same amount (or more) of the baseline shift, or you can specify leading in points. (See "Setting Line and Paragraph Spacing" on page 415.)

If you use the Style submenu to change baseline position, you can choose either Superscript or Subscript to shift text the baseline by roughly 27 to 33 percent of point size of the line; e.g., superscript text in a line of 12-point text appears 4.0 points above the normal baseline.

If you use the Character tab of the Type palette to change the baseline position, you can specify the exact distance (in points) of the text above or below the normal baseline.

## To Apply Font Styles Using Menu Commands:

1. Choose **Text | Style** to open the Style submenu. Checkmarks appear next to the active styles.
2. Choose the font style you want to apply. Choosing an active style turns off the style. Canvas implements the setting immediately.

## Specifying Spacing Between Characters

Kerning affects the amount of space to the right of one or more characters. Kerning options can be chosen and applied with either the Properties bar, Text menu, or Type palette. (See "Formatting Text with the Properties Bar" on page 408 and "Using the Type Palette" on page 414.)

Tighten kerning to place characters closer together, and loosen kerning to space characters farther apart. Apply kerning settings before typing, or change the kerning for one character, a selection of text, or an entire text object.

 Headlines often need manual kerning for visual balance.



Default kerning

Manual kerning

Canvas can also adjust letter and word spacing for paragraphs following minimum, maximum, and desired guidelines that you set. (See "Adjusting Letter and Word Spacing" on page 421.)

 Canvas does not apply kerning to text characters based on kerning pairs defined in a particular font. Kern individual characters by placing the insertion point and choosing **Text | Kerning** or using the Kerning controls in the Properties bar or on the Character tab of the Type palette.

In the Kerning submenu, you can choose a standard kerning amount: **Very Tight, Tight, Normal, Loose,** and **Very Loose**.

Kern characters in half-point increments using the Tighten and Loosen commands. Also, set a fine kerning amount using the Configure Fine Kern command. (See "To Set the Fine Kerning Amount:" on page 412.) Then, use the Tighten Fine and Loosen Fine commands to kern characters by that specified amount.

### To Select Kerning Amount:

Choose **Text | Kerning** and select one of the following options:

Option	Result
<b>Tight</b>	8% less space than normal between characters
<b>Very Tight</b>	14% less space than normal between characters
<b>Normal</b>	Default spacing
<b>Loose</b>	8% more space than normal between characters
<b>Very Loose</b>	14% more space than normal between characters
<b>Tighten</b>	Reduce kerning by 0.5 points. You cannot tighten kerning to less than the width of one character
<b>Loosen</b>	Increase kerning by 0.5 points
<b>Tighten Fine</b>	Reduce kerning by amount specified in the Kerning Specifications dialog box
<b>Loosen Fine</b>	Increase kerning by amount specified in the Kerning Specifications dialog box

### To Set the Fine Kerning Amount:

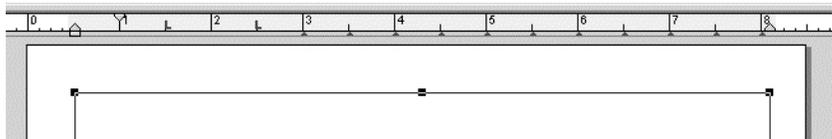
1. Choose **Text | Kerning | Configure Fine Kern**.
2. In the Kerning Specifications dialog box, specify the amount of kerning (in points) for the Tighten Fine and Loosen Fine commands to apply.
3. Click **OK**.

## Positioning Tabs

You can add tabs as well as adjust margins and indents in the document ruler while a text object is selected or you are in Text Edit mode. To indicate a selected text object or Text Edit mode, the ruler turns light blue. Margin icons and preset tabs appear as well.

 The document ruler shows tab positions for one selected object. You cannot set tabs for multiple selected text objects.

A new text object has tab stops at half-inch intervals beginning at the left border of the text object. You can move the insertion point to each of these tab positions by pressing the **Tab** key. In addition, you can edit a default tab by double-clicking it on the ruler.



When a text object is selected and the rulers are displayed, you can see the margins and tabs. The area within the margins turns a light blue.

Tabs can be moved within the ruler. Place the cursor on the tab. The cursor changes to , which indicates that you can move the tab in either direction.

### To Set Tabs:

Setting a tab moves the default tab stops to the right.

### To Reposition a Set Tab:

Drag the tab marker to a new position.

You have two ways to set a tab position:

- Select a tab definition from the Tab menu in the Properties bar and click in the ruler. A new tab applies to selected text objects, the current paragraph, or all highlighted paragraphs.
- Select a tab definition from the Tab menu in the Properties bar and click in the ruler. A new tab applies to selected text objects, the current paragraph, or all highlighted paragraphs.

### Tab Menu

- **Left:** The left edge of the text is flush with the tab position.
- **Center:** Text is centered around the tab position.
- **Right:** The right edge of text is flush with the tab position.
- **Decimal:** The first decimal (or period) in a string of text aligns directly under the tab position; e.g., if you align "123.45.678" to a decimal tab, the decimal between the "3" and "4" will fall under the tab position.
- **Comma:** The first comma in a string of text aligns directly under the tab position.

## To Edit a Defined Tab:

1. Double-click on the defined tab in the ruler.
2. In the Tab dialog box, define the tab using the **Type**, **Position**, and **Leader** controls.
3. Click **OK**.
  - **Position**: Specify the distance between the tab and the left border of the text object.
  - **Type**: Change the alignment setting of a tab by choosing one of these options.
  - **Leader Character**: Use a character to fill tabbed space. To adjust the spacing of the leader character, use kerning options. To specify a leader character, type a character in the text box.

## Setting Indents

Set the right and left indents of a selected text object by dragging the Right and Left Indent markers in the ruler.

- **To indent the first line of a paragraph**: Drag the **First Indent** marker to the desired position in the ruler.
- **To set the distance between the left border of a text object and the left margin of a paragraph**: Drag the **Left Indent** marker.
- **To set the distance between the right border of a text object and the right edge of a paragraph**: Drag the **Right Indent** marker.

## To Delete a Defined Tab:

1. Double-click on the defined tab in the ruler.
2. In the Tab dialog box, click the **Delete** button.
3. Then click **OK**.

You can also select the tab in the ruler and drag it off the ruler either up, down, left, or right.

## Using the Type Palette

### To Open the Type Palette:

1. Choose **Text | Type**.
2. Adjust the settings for **Character**, **Indents**, **Paragraph**, **Spacing**, and **Styles**.
3. Click **Apply**.

 When you adjust settings in the Type palette, the new settings don't take effect until you click Apply. Be sure that you don't click outside the palette before applying the settings, or they will be lost.

For information about creating and applying type styles, see "Working with Type Styles" on page 426.

## Horizontal and Vertical Text Scaling

Canvas provides independent control of horizontal and vertical scaling of text. Using this feature, you can stretch characters to create extended and condensed letterforms.

## To Scale an Entire Text Object:

Select the text object, press **Alt** and drag a selection handle. Depending on the direction of the drag, Canvas scales text horizontally or vertically.

## To Scale Characters Using the Type Palette:

1. Specify the vertical and horizontal scale of characters by entering percentages in the Scale boxes. Canvas applies these percentages to the point size displayed in the Size box.

To scale proportionately, enter the same percentage in both boxes.

2. Click **Apply**.

Canvas doesn't limit the percentage you can scale characters; however, extremely high and low settings can distort some fonts and make them unreadable. In addition, scaling requires significant amounts of memory for text display, which might cause performance problems for some systems.

## Applying Paragraph Formatting

In Canvas, you can control paragraph attributes, such as justification and leading. Paragraph attributes affect entire paragraphs, even if you select a single character, or place the insertion point anywhere in the paragraph. If you select text in multiple paragraphs, all the paragraphs will be affected.

Paragraph-level formatting includes leading and paragraph spacing, indents, tabs, alignment (justification), automatic letter and word spacing, and widow and orphan controls.

## Setting Line and Paragraph Spacing

Using the Text menu, Properties bar, or Type palette, adjust the spacing, or leading, between lines of text. You can also insert extra space before and after paragraphs using the Type palette.

Canvas provides two methods of specifying leading: ratio (or percentage) and point size.

- **Ratio and percentage leading:** Based on the normal leading of the largest type size in the preceding line. The normal leading is usually designed to be slightly larger than the point size of the type; e.g., a single line of 12-point text usually occupies about 15 points of vertical space when you specify 100% or Single Space leading. Therefore, double spaced, or 200%, leading for 12-point text increases the line spacing to about 30 points.
- **Leading specified in points:** Independent of the type size and normal leading of the typeface. The space from baseline to baseline is exactly the number of points specified, regardless of the size of the type. Using point size leading lets you maintain consistent line spacing, and fit text to specific space requirements; e.g., you have 10 lines of text, and exactly 120 points of vertical space to place the text. To make the text fit, set the leading to 12 points.

Choose **Text | Leading** to set Single,  $1\frac{1}{2}$ , or Double Space leading. You can also choose the **Tighten** or **Loosen** commands to fine-tune the current leading in 0.5-point increments. You can tighten and loosen the leading repeatedly, but the line spacing cannot be less than zero.



The text settings in the Properties bar provides the same options as the Leading submenu.

The Paragraph tab of the Type palette lets you adjust the leading by a specified percentage or point size. You can also add space between paragraphs by specifying additional spacing in points on the Paragraph tab of the Type palette.



A page of text with "after paragraph" spacing



A page of text that does not have paragraph spacing, but uses both "before" and "after paragraph" spacing for block quotes

### To Set Leading Using Menu Commands:

1. Choose **Text | Leading**. A checkmark appears next to the current leading setting.
2. Choose a standard leading in the submenu, or choose **Tighten** or **Loosen**. Canvas applies the setting immediately.

### To Set Leading in the Type Palette:

Click the **Paragraph** tab of the Type palette. After configuring the settings, click **Apply** to implement them.

<b>Line spacing</b>	<p><b>Percentage:</b> Set the leading using a percentage of the line size. enter an amount in the At box. A leading of 100% is the same as the Normal setting in the <b>Text   Leading</b> submenu. Double space is 200%, and 1.5 space is 150%.</p> <p><b>Points:</b> Set the leading in points. Enter an amount in the At box. Although each font's standard leading might be different, normal leading is generally between 110% and 125% of the largest type size on the line; therefore, for 10-point type, normal leading is approximately 12 points.</p>
<b>Before paragraph</b>	To insert space before the first line of a paragraph, specify the number of points in the Before paragraph box. This option does not apply to the first paragraph in a column.
<b>After paragraph</b>	To insert space after the last line of a paragraph, specify the number of points in the After paragraph box. Canvas inserts space after every paragraph, including the last paragraph in a column.



Force a line break without creating a new paragraph by pressing **Shift-Return**.

### To Control Line Breaks:

"Soft" returns are forced line breaks which do not create new paragraphs.

1. Place the insertion point where you want the soft return.
2. Press **Shift+Enter**. Text to the right of the soft return moves to the next line.
  - **To view soft return symbols:** Choose **Layout | Display | Show Text Invisibles**.
  - **To hide soft return symbols:** Choose **Layout | Display | Hide Text Invisibles**.

## Setting Indents

You can set the amount of space between the left and right borders of a text object and the edges of each paragraph using the Indents tab of the Type palette or the Properties bar. For text wrapped around an object, you can also use the Indents tab to set the distance between the edge of the object and the text.



Left 1 in.



Left 1 in., Right 1 in.



First line 1.5 in.,  
Left 1 in.



First line 1 in.,  
Left 1.5 in

 The Properties bar shows indent positions for one selected object at a time; therefore, you cannot use it to set indents for the preset format or for multiple selected objects.

### To Set Indents on the Type Palette:

1. Click the **Indent** tab of the Type palette.
2. Enter the indent settings.

3. Click **Apply** to implement the indent settings.

## Type Options

<b>Left</b>	To specify the distance between the left border of a text object and the left indent of a paragraph, enter the distance in the Left box.
<b>Right</b>	To specify the distance between the right border of a text object and the right indent of a paragraph, enter the distance in the Right box.
<b>First Line</b>	To specify a different indent for the first line of a paragraph, enter the distance in the First Line box. Canvas measures the first line indent from the left border of the bounding box.
<b>Object Wraps</b>	To specify the distance between an object and the edge of text wrapped around or inside that object, enter the number of points in the Object Wraps box.

## Paragraph Alignment

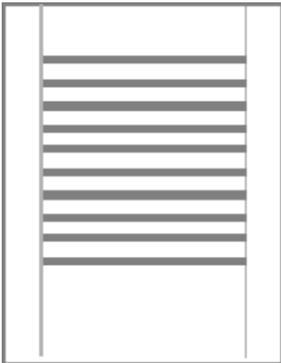
Canvas aligns text to the indents of a text object. Canvas has four alignment, or justification, settings: flush right, flush left, full (flush with both right and left indents), or centered. You can set alignment in either the **Text | Justification** submenu, Properties bar, or Paragraph tab of the Type palette.



Left-justified



Right-justified



Full-justified



Center-justified

 Full justification may create wide letter or word spacing, especially in narrow text columns. Other justification settings might appear too ragged on one or both sides.

 You can set letter and word spacing parameters to improve the appearance of text. (See "Adjusting Letter and Word Spacing" on page 421.)

### To Set Justification Using Menu Commands:

1. Choose **Text | Justification**. A checkmark appears next to the current justification setting.
2. Choose an alignment option in the submenu. Canvas applies the justification setting immediately.

### To Set Justification Using the Text Settings in Properties Bar:

1. Drag the **Text** tool in the layout area or select a text object to make the text settings appear in the Properties bar.
2. Click a justification button. Canvas applies the justification setting immediately.

### To Set Justification Using the Type Palette:

1. Open the **Type** palette and click the **Paragraph** tab to bring it to the front.
2. Click a **Justification** button.
3. Click **Apply** to implement the justification setting.

## Using Vertical Justification

Canvas can align text relative to the top and bottom borders of text objects. Canvas has four vertical justification, or alignment, settings: Top, Bottom, Vertical Full, and Vertical Center. Vertical justification applies to an entire text object. Top vertical justification is the default setting for new text objects. Copying or duplicating text objects preserves their vertical justification settings; however, if you copy a text selection and paste it into another object, the text follows the vertical justification of the text object in which you paste it.

### To Change the Vertical Justification:

1. Select one or more text objects.
2. Choose **Text | Justification**.
3. Choose a vertical justification setting. A checkmark appears next to the selected setting.

 There must be space in the text object to use vertical justification, not including space created by empty paragraphs. The text objects must be created with the Text Object tool, not the Text tool.

## Vertical Justification Settings

- **Top:** Sets all lines of type starting from the top of a text object. This is the traditional vertical alignment for text objects; e.g., if a text object contains three lines of type, they appear at the top of the text object. Spacing between lines is controlled by the Line Spacing, Before Paragraph, and After Paragraph settings of the text.

- **Vertical Center:** Sets all lines of type so they are spaced evenly above and below the vertical center of a text object. If a text object contains three lines of type, for example, the lines appear at the center of the text object. Spacing between lines is controlled by the Line Spacing, Before Paragraph, and After Paragraph settings of the text.
- **Bottom:** Sets all lines of type at the bottom of the text object. If a text object contains three lines of type, for example, the lines appear at the bottom of the text object. Spacing between lines is controlled by the Line Spacing, Before Paragraph, and After Paragraph settings of the text.
- **Vertical Full:** Sets all lines of type so they are evenly spaced between the top and bottom borders of the text object. If a text object contains three lines of type, for example, one line appears at the top, one appears at the center, and one appears at the bottom of the text object. Because it distributes type from the top to the bottom of a text object, Vertical Full justification can cause very wide spacing between lines if a large text object contains a little text. You can drag a handle at the top or bottom of a text object to adjust its height and alter the spacing between lines of text.



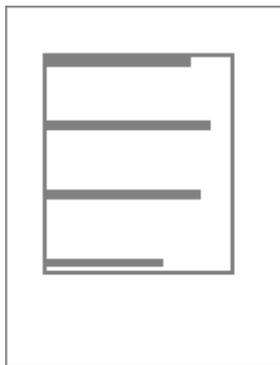
Top



Vertical Center



Bottom



Vertical Full

## Paragraph Rules

Paragraph rules are horizontal lines that Canvas draws above a paragraph, below a paragraph, or both. You can select pen type, dash, color, length, and offset for paragraph rules.

**Anum 2000**  
**2BXL**

## To Apply Paragraph Rules:

1. Place the insertion point or make a selection in the paragraph. You can highlight multiple paragraphs to select them.
2. Choose **Text | Rules**.
3. In the Paragraph Rules dialog box, select **Rule Above** or **Rule Below**. You can select either or both options. The options for Rule Above and Rule Below can be set independently.
4. Select rule options, then click **Apply** to preview the rules.
5. Click **OK** to apply the rules and close the dialog box.



The Paragraph Rules command is not available unless a text object is in Edit mode.

## Paragraph Rules Options

<b>Rule Above and Rule Below</b>	Draws rules above or below selected paragraphs. Both can be selected. The size, placement, and attributes of rules are based on the settings in the dialog box. If a paragraph has rules and you clear the checkboxes, Canvas removes the rules.
<b>Length</b>	Use the menu to choose an option for the length of paragraph rules.
<b>Indents</b>	Sets the rule length based on the values in the From Left and From Right boxes. These values set the distances from the ends of the rules to the right and left borders of the text object (independent of paragraph indents).
<b>Text</b>	Makes the rule length equal to the first line (for rules above) or last line (for rules below) of a paragraph. The From Left and From Right options are not available when the Text option is selected.
<b>Offset</b>	Enter a value in points to space the rule away from the adjacent line of text. The position for rules above is measured from the descenders of the last line of the previous paragraph. For rules below, the position is measured from the descenders of the last line of the current paragraph. You can enter a minimum value of -10 points to move the rule closer to the text. You can enter a maximum value of 72 points to move the rule away from the text.
<b>Pen</b>	Select a stroke for the rule from the Pen pop-up palette. You can select a solid pen, neon, or parallel stroke.
<b>Dash</b>	To apply a dash to the rule, select a dash style from the Dash pop-up palette.
<b>Color</b>	Select a color for the rule from the Color pop-up palette.

## Adjusting Letter and Word Spacing

Depending on the type of justification you choose, you might want to adjust letter and word spacing to reduce raggedness or eliminate unusual spacing; e.g., left-justified paragraphs might appear too ragged on the right edge, and full-justified paragraphs might have large spaces between characters and words.

You can specify a minimum line width for a paragraph to reduce raggedness. In addition, Canvas has letter — and word — spacing parameters to let you specify minimum, maximum, and desired spacing guidelines.

## To Adjust Letter and Word Spacing:

1. Depending on how you want the letter and word spacing settings to apply, do one of the following:
  - **To change existing text:** Select the paragraphs or text objects. To set spacing for only one paragraph, place the insertion point anywhere in the paragraph.
  - **To set the spacing before typing a new paragraph:** Place the insertion point at the beginning of the paragraph.
  - **To apply the spacing settings to the preset format:** Deselect all objects.
2. Open the Type palette by choosing **Text | Type**.
3. Click the Paragraph tab to bring it to the front, if necessary.
4. Depending on the type of justification applied to the text, use the following options on the Paragraph tab:
  - **For right-, left-, and center-justified text:** To set the Minimum line widths, enter a percentage in the text box. The percentage tells Canvas to adjust letter and word spacing so that each line is at least as wide as specified; e.g., if you create a two-inch wide, left-justified paragraph and set the minimum line width to 75%, Canvas adjusts the spacing so that each line is at least 1.5 inches wide. Only the last line in a paragraph is unaffected by the "Minimum line widths" setting.
  - **For full-justified text:** To tell Canvas when the last line of a paragraph is wide enough to be justified (flush with both right and left margins), enter a percentage in the Justify Last Line Within box; e.g., you create a two-inch wide, full-justified paragraph and tell Canvas to justify the last line within 75%. If the last line is less than 1.5 inches wide, Canvas does not justify the line. However, if the last line is wider than 1.5 inches, Canvas justifies the line.
5. To set letter and word spacing parameters, click the **Spacing** tab to bring it to the front, if necessary. Set the minimum, desired, and maximum spacing in the Letter and Word areas. Specify each setting as a percentage of the current spacing. The desired spacing must be greater than the minimum and less than the maximum. The maximum spacing cannot be less than the minimum. Canvas will try to adjust spacing to the desired percentage, but might not be able to depending on minimum line width and justification settings. In these cases, Canvas will then try to adjust the spacing within the minimum and maximum percentages you specify. However, if the minimum and maximum spacing parameters are still in conflict with minimum line width or full justification settings, Canvas will ignore the spacing parameters.

 If you applied kerning to characters within the selection, Canvas adjusts the spacing as a percentage of the kerning.

To change the spacing of a paragraph by a set amount, you can set the minimum, desired, and maximum percentages to the same value. This has a similar effect to kerning the entire paragraph.
6. Click **Apply** to implement the settings.

## Specifying Text Flow Options

You can set text flow options to avoid leaving just a few lines at the top or bottom of a column of flowed text. The term widow describes the first line of a paragraph that appears at the bottom of a column, and orphan refers to the last line of a paragraph that appears at the top of a column. Canvas can prevent widows and orphans in a text flow by moving the page or column break higher and sending lines to the next page or column. In addition, you can specify that all lines in a paragraph stay together, or that certain pairs of paragraphs always remain together in the same column.

To modify a column break in a particular paragraph, keep all lines in a paragraph together, or keep two paragraphs together, you should change the text flow settings for the specific paragraph only. In most cases, you won't want these settings to apply to every column break.

 Although you can specify widow and orphan settings for individual paragraphs, you should apply these settings to entire objects. This way, as you edit and move paragraphs, the location of the column break can change without causing widows and orphans.

## To Prevent Widows and Orphans:

Open the **Type** palette and click the **Spacing** tab. Configure the widows and orphans settings.

### Widow and Orphan Settings

Use the Paragraph area of the Spacing tab to configure widows and orphans protection properties. If an **X** appears in a checkbox, that feature is active.

Click **Apply** to implement the text flow settings.

<b>Widow</b>	Turn on to activate widow protection. Specify the minimum number of lines that can appear in the last paragraph of a column.
<b>Orphan</b>	Turn on to activate orphan protection. Specify the minimum number of lines that can appear at the top of a column in a linked flow.
<b>Keep all lines</b>	To prevent Canvas from inserting a column break in a paragraph, turn on this option. This prevents widows and orphans, but might leave a lot of blank space at the bottom of a column.
<b>Keep with next</b>	To prevent two paragraphs from being separated by a column break, turn on this option. This option is useful for keeping a one-line paragraph, such as a heading, together with its section.

## Setting Drop Caps

Drop caps are large characters that extend below the normal baseline of the first line of an opening paragraph. Canvas indents the text below the first line to make room for the drop caps. You can format drop caps for any selected paragraphs.

**C**anvas is the only cross-platform program that seamlessly integrates professional-level image editing, page layout, Web graphics, and presentation features into a single creative application.

## To Create a Drop Cap:

1. Choose **Text | Type**.
2. Click the **Indents** tab to bring it to the front.
3. Depending on how you want the drop cap to apply, do one of the following:

To apply to	Do this
<b>First paragraph in a text object</b>	Select the object or place the insertion point anywhere in the first paragraph.
<b>All other paragraphs</b>	Place the insertion point in a paragraph, or select a paragraph. You can also select multiple consecutive paragraphs.
<b>A new paragraph you are about to type</b>	Place the insertion point at the beginning of the paragraph.
<b>The preset format</b>	Deselect all objects. Canvas will apply drop caps to the first paragraph of all new text objects you create with the Text tool.

4. Configure the drop cap options described below.
5. Click **Apply**.

## Drop Cap Settings

<b>Lines</b>	Specify the number of lines you want the drop caps to occupy. This determines the vertical height of the drop cap.
<b>Characters</b>	Specify the number of characters to enlarge for drop caps. Canvas always applies this setting beginning with the first character in a paragraph.

## Inserting Headers and Footers

You can add header and footer text objects using commands in the **Text | Insert** menu. Headers and footers are special text objects that can contain codes for the current date, current time, and page number, in addition to text you type. Canvas updates the date, time, and page number codes each time it redraws the screen.

In Publication documents, Canvas inserts headers at the top of the publication layout area (above the page margins) and footers at the bottom of the publication layout area (below the page margins). In other documents, Canvas places the header in the upper left corner of the page and the footer in the lower left corner.

Both types of objects initially span the width of the page, but you can resize and move them just like other text objects.



You can't add headers and footers in Edit mode, press **Esc** to end text editing.

### To Insert Header and Footer Text Objects:

Choose **Text | Insert | Header** or **Text | Insert | Footer**. Canvas creates the text object, and places it in Edit mode.

## Inserting Dates, Times, and Page Numbers

Insert date, time, and page number codes in header and footer text objects. Canvas will update the values for these codes each time it redraws the screen, unless the Date Stamp and Time Stamp commands are used. Canvas uses the date and time as set in the operating system.



Refer to your system documentation for information on setting the current date and time.

You can insert the current date and time in text objects, (see "Text Objects" on page 393); however, Canvas does not update this text since it is "stamped" into the document as regular text. You can change page number (symbol \$P) and total page count (symbol \$T) displayed by adding a simple formula to them.

You can apply text formatting or Type Styles, (see "Working with Type Styles" on page 426), to the date, time, and page codes; e.g., change fonts, type sizes, and justification, as you would apply formatting to normal text with the Text menu, Properties bar, or Type palette.

When entering the formula, remember the following:

- The formula can contain only "+" and "-" as operators or numbers. Do not use spaces between the characters.
- The formula may be of any length, but it must be in a formula format.

### To Insert the Date, Time, or Page Number:

With a header or footer object in Edit mode, choose **Text | Insert**. (See "Date and Time Commands" on page 425 and "Page Numbering Commands" on page 425.)

### Date and Time Commands

To insert	In this type of object	Do this
Updating date code	Header or footer	Choose <b>Insert   Date</b> , or type $d$
Date stamp	Any text object	Choose <b>Insert   Date Stamp</b>
Updating time code	Header or footer	Choose <b>Insert   Time</b> , or type $e$
Time stamp	Any text object	Choose <b>Insert   Time Stamp</b>

### Page Numbering Commands

To insert	In this type of object	Do this
Current page number	Header or footer (page count is static in normal text objects)	Choose <b>Text   Insert   Page #</b> , or type $p$
Total page count	Header or footer (page count is static in normal text objects)	Choose <b>Text   Insert   Total Page #</b> , or type $t$
Page # of total pages e.g., Page 2 of 8	Header or footer (page count is static in normal text objects)	Choose <b>Text   Insert   Page # of Total Page #</b> , or type Page \$P of \$T
Page -# of total pages e.g., Page -2 of 4	Header or footer (page count is static in normal text objects)	Choose <b>Text   Insert   Page #+4-8 of Total Page #+4-8</b> , or type Page \$P+4-8 of \$T+4-8

 If you unintentionally place spaces between the page numbers and operators, the page numbering will create errors; e.g., the formula Page \$P+4 -8 of \$T+4 -8 would appear as Page 6 -8 of 12 -8.

## Working with Type Styles

Define text formatting settings and save them as character and paragraph type styles using the Styles tab in the Type palette. Canvas stores type styles with documents. When you open a document, Canvas loads the associated styles so you can apply them; however, Canvas also gives you the option of saving defined styles in a file which can be shared with others. (See "Saving and Loading Type Styles" on page 428.)

 Before you start defining type styles, see "Formatting Text" on page 406 to learn about fonts, font styles, etc.

Type styles make it easy to apply formats and maintain consistency throughout a document. Base styles on each other to form a "family" of styles, so that styles inherit the character and paragraph attributes of a parent style. Organizing styles in this manner makes global style changes a simple matter of changing the parent style.

### To Open the Type Palette:

Choose **Text | Type** or double-click the **Text** tool. 

### Creating New Type Styles

You can create two kinds of styles, character and paragraph. Use a paragraph style for an entire paragraph of text. Use a character style for a character, word, phrase, or part of a paragraph. After establishing character and paragraph styles, apply them to your text.

#### Paragraph style attributes:

- Leading
- Indents
- Justification
- Drop caps
- Letter and word spacing
- Text flow settings
- Character attributes and colors

#### Character style attributes:

- Font
- Type size
- Font style
- Capitalization style
- Baseline position

- Kerning
- Colors

### To Create a New Style:

1. Choose **Text | Type**.
2. In the Type palette, choose the paragraph and character formatting you want to use for the new style.
3. Click the **Styles** tab to bring it to the front.
  - **Example:** Displays a sample of text with the current formatting settings applied.
  - **Description:** Lists the current character or paragraph attributes. The C and ¶ icons toggle between descriptions of character and paragraph attributes.
4. Click **Create**.
5. In the Create Type Style dialog box, enter a name for the new style.
6. Click the **Character** or **Paragraph** icon.
7. Select any additional settings.
8. Click **Save**.

### To Create a Style Based on Already Formatted Text:

1. Place the insertion point in the text that contains the formatting you want to use to create the style.
2. Choose **Text | Type**.
3. Click the **Styles** tab.
4. Click **Create**.
5. In the Create Type Style dialog box, enter a name for the new style.
6. Click the **Character** or **Paragraph** icon.
7. Select any additional settings.
8. Click **Save**.

### Create Type Style Dialog Box

<b>Character or Paragraph</b>	Click a button to specify what kind of style you want to create.
<b>Based on</b>	If there are existing styles, choose a style name on which to base the new style. To disable this feature, choose <b>None</b> . (See "Using Style Families" on page 428.)
<b>Include</b>	Select the attributes to save as part of the style. You can include ink settings (fill and stroke attributes that have been applied to existing text) in character and paragraph styles. These inks don't affect the current inks for vector objects.

---

For paragraph styles, you can also include font attributes and tab settings.

If a text selection has a frame or background ink, you can't include these attributes in a style. In addition, when text doesn't have a stroke, you can't include strokes in a style.

---

<b>Style name</b>	Type a name for the style.
-------------------	----------------------------

---

## Using Style Families

When you base a style on an existing style, the new style "inherits" the attributes of the parent style. When the parent style changes, Canvas also updates all related styles. In addition to inherited attributes, the style possesses its own attributes, which you specify.



A style's own attributes always take precedence over attributes inherited from the parent style.

You create a style, Body2, based on a parent style, Body1. The fonts are the same, but the type sizes are different. Body2 uses 10 point type, while Body1 uses 12 point. If you change the font for the parent style, the font also changes for Body2. However, if the point size changes for the parent style, Body2 does not change, because Body2's own attributes take precedence. To make Body2 always use the same point size as Body1, you must set the point sizes equal, base Body2 on Body1, and save the style again.

In addition, if you later change Body2's font, this style will no longer inherit fonts from the parent style. Body2's font will override Body1's font setting.

Careful planning will save you from time-consuming corrections when basing styles on each other. In some cases, changing a parent style's attributes may cause unwanted changes throughout the style family; e.g., if you base ten styles on Body1, and later decide that you want Body1 (but not the whole family of styles) to be double spaced, you must first change the leading for Body1, then remove the leading setting from each of the other ten styles.

## Saving and Loading Type Styles

You can save type styles to files and then load them into other documents. This feature helps maintain consistency between documents, and lets you share type styles with other Canvas users.

### To Save a Type Style to Disk:

1. Click the **Type** palette menu button on the Styles tab.
2. Choose **Save style**.
3. In the Save As dialog box, type a file name and specify a location to save the file.
4. Click **Save**.

### To Load a Type Style:

1. Click the **Type** palette menu button on the Styles tab.
2. Choose **Load style**.
3. In the Open dialog box, locate and select the styles file.
4. Click **Open**.

## Copying Type Styles Between Documents

Another way to transfer type styles from one document to another is to copy text that uses the style and paste the text into a different document. Canvas transfers the style with the text. When you save the document, Canvas also stores the transferred style.

A type style based on another style cannot inherit attributes across documents; e.g., Body2 is based on a parent style, Body1, and you copy only Body2 to a new document. Body2 in the new document no longer inherits attributes from Body1, which is still in the original document.

However, if you copy both Body1 and Body2 to a new document, the relationship is preserved, and Body2 will inherit attributes from its parent style.

If you happen to paste a style that already exists in the other document, Canvas modifies the name of the pasted style to avoid overriding type styles; e.g., a style named "Body 2" could become "Body 2 -2" when pasted in the new document.

## Using Type Styles

Once you've created your document's type styles, you can start applying them, modifying their attributes, and deleting them from the document. All these processes are done with the Type palette.

## Applying Type Styles

You can apply type styles with the Type palette. Applying type styles with the Type palette is similar to applying individual character or paragraph formats; however, instead of configuring settings on each of the tabs in the palette, simply choose style names from the menu on the Type palette.

The menu displays the current type style name. The C and ¶ icons indicate if the style is a character or paragraph style, or both. If "+++" appears to the right of a style name, the style has been modified but not saved. If you choose a style in the menu when "+++" appears next to the current style, you will lose the modifications to the style. Therefore, if you want to use the settings again, you must save the modified style with a new name before applying other styles.

### To Apply a Style to Selected Text or Text Objects with Type Palette:

1. Select the text or text objects to which you want to apply a style.
2. Choose a style in the menu on the Type palette.
3. Click **Apply**.

If the text you selected already had a style applied, Canvas replaces the style with the style you choose. In addition, if you apply a paragraph style with font attributes to highlighted text, the font attributes affect the selection only, and the paragraph attributes affect the entire paragraph.

### To Use a Type Style as the Current Format Setting:

1. Deselect all text objects by pressing **Esc**, if necessary.
2. Choose a style in the menu on the Type palette.
3. Click **Apply**. Canvas formats new text objects with the specified style.

## Tips on Using Type Styles

By putting some forethought into the purpose and design of type styles, you ensure that you are using this feature effectively. This planning will be especially useful when editing styles and documents, allowing you to make a few modifications that update entire

documents.

Design a template. If several people need to use the styles, save the styles in a template document. This way, everyone uses a common source for the styles.

Create a "normal" type style. This will make it easy to revert formatted text to a basic style. When you apply the normal style, it will have the effect of removing or overriding other styles.

Name styles by their function; e.g., a heading style might consist of boldface type. Rather than name this style "Bold," name it "Heading," or something that similarly describes its usage. This will make it easier to remember when to use which style.

Always apply a style. If you use styles in documents, use them throughout. If you apply styles only sometimes, you will encounter difficulties maintaining consistency and performing global style changes.

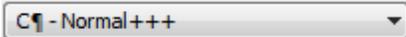
Create style families when possible. You might want to use the Based On feature. See "Creating New Type Styles" on page 426 to create style families for styles that share some attributes. This will make global changes easier. See "Using Style Families" on page 428, for more information.

## Modifying Type Styles

You can change the attributes of a type style and save the style with the same name. When you change a style's attributes, all styles in the family automatically inherit the new shared attributes.

### To Modify a Type Style:

1. Choose the style you want to edit from the menu.
2. Change the style's attributes. Canvas displays "+++ " after the style name to indicate that changes were made to the style.



3. Click the **Styles** tab and click **Create**.

The current style name is in the Based On menu and Style Name box. To replace the style, do not change these settings.



The options in the Include area change for Character and Paragraph styles.

4. In the Create Type Style dialog box, select the checkboxes of the attributes that you want to include.
5. Click **Save**. Confirm that you want to replace the existing style with the new style. Click **OK**.

## Deleting Type Styles

To minimize confusion when choosing styles to apply, delete type styles you no longer use. Text using a deleted type style retains its formatting, but no longer has a named style.

### To Delete a Style:

1. Click **Delete** on the Styles tab of the Type palette.
2. In the Delete Type Style dialog box, choose the style to delete from the Name menu.
3. Click **OK**.

## Applying Character Formatting

Canvas gives you precise control over the appearance of each character. Set the font, type size, font style, kerning, capitalization style, scale, and baseline position using menu commands, Properties bar, or the Character tab of the Type palette.

Character attributes are applied by selecting the specific characters that you want to modify. Select any portion of text—from one character to entire text objects. (See "Selecting Text and Objects" on page 406.)

### To Set Character Attributes:

1. Choose **Text | Type**.
2. Click the **Character** tab.

The Character tab lets you control all character attributes. Some attributes, such as type face, type size, font style, baseline, and kerning, are also available in the Text menu or Properties bar.

### Type Palette Character Tab

<b>Font</b>	Choose a typeface in the menu.
<b>Size</b>	Choose a type size in the menu or type a number in the text box.
<b>Style</b>	Click a button to select a font style.
<b>Case</b>	Choose a capitalization style in the menu.
<b>Baseline</b>	Specify subscript or superscript settings to one hundredth of a point precision.
<b>Kerning</b>	Tighten and loosen kerning by hundredths of a point.
<b>Scaling</b>	Specify percentages by which you want to scale the current type size. Set individual horizontal and vertical scaling percentages.
<b>Locks</b>	To prevent accidental or unwanted changes to the type face, type size, or font style of specific text, you can set these locks. If you want to change locked text, you must first unlock the text.

## Preventing Changes to Character Attributes

On the Character tab in the Type palette, you can lock the current font, type size, and font style to prevent accidental changes. This feature is especially useful when several people are using the same Canvas document. In addition, you can also use this feature to selectively exempt sections of text from global formatting changes. Once you lock a setting, no one can change it without first unlocking it.

### To Lock Character Attributes:

1. Click the **Character** tab on the Type palette.
2. Change any font, size, or style attributes at this time.
3. Click the **Lock** button to the right of the attribute. 
4. Click **Apply**. Canvas first applies the new font attributes, then locks the new attributes.

## Text Editing and Proofing

You can insert, search, replace, move, delete, copy, and spell check text in Canvas documents. This section describes how to navigate through text for editing, make text selections, and use spelling tools and the Find feature for text search-and-replace.

### Text Edit Mode

To edit text, you must put a text object in Edit mode. In Edit mode, you can revise, delete, insert, and select specific text. Only one object is in Text Edit mode at a time.

### Entering Text Edit Mode

Put a text object in Edit mode with the Text tool or Selection tool. When a text object is in Edit mode, the text object becomes opaque, the selection handles disappear, and a flashing insertion point appears. Also, the Text tool becomes the active tool.

#### To Enter Edit Mode Using the Text Tool:

Select the **Text** tool  and click in a text object. An insertion point appears where you click, and you can begin typing or editing.

#### To Enter Edit Mode Using the Selection Tool:

With the Selection tool, double-click a text object. If you double-click on a word, the word becomes selected and is highlighted. The Text tool is selected, and you can begin typing or editing.

#### To Edit Text Bound to a Path:

With the **Path Text** tool or the **Text** tool, click the text. An insertion point appears in the bound text, and you can begin typing or editing.

#### To Leave Text Edit Mode:

Press **Esc** when you finish text editing. Canvas switches to the Selection tool from the Text tool. The text object you were editing is selected.

### Text Selection and Navigation

Move the insertion point and select characters, words, lines, and paragraphs using the mouse or keyboard.

The mouse lets you quickly select text or text objects and move the insertion point. However, if you work with a lot of text, you might find that the keyboard techniques let you move the insertion point more precisely to edit more quickly.

### Making Text Selections

Before you can cut, copy, move, delete, type over, or perform other operations on text characters, you need to select the text within a text object. You can select text when a text object is in Edit mode.

The phrases "selected text," "text selection," and "highlighted text" all refer to an active selection of characters within a text object. Selected text appears highlighted; the highlight color depends on your system's color settings.

Keep in mind that a text selection is not the same as a selected text object. When you select a text object, you can move, copy, delete, and perform other operations on the entire object. When you make a text selection, the editing actions will affect only the highlighted characters within the object.

### To Deselect All Highlighted Text:

Click anywhere in the text object or layout. Clicking outside the selected text object creates another text object at that location.

### Using the Keyboard for Text Editing

While editing text, use the key combinations listed in the following table to move the insertion point and select text.

#### Key Combinations for Text Editing

Press this key	and these keys	to do this in Edit mode
<b>None</b>	Up arrow, Down arrow, Right arrow, Left arrow	Move insertion point 1 space right or left
	Page Up, Page Down	Move insertion point 3 lines up at the left margin (Page Up) or down at the right margin (Page Down)
	Home, End	Move insertion point to the beginning (Home) or end (End) of the text object
<b>Ctrl</b>	Right arrow, Left arrow	Move insertion point to the next word end (Right arrow) or beginning (Left arrow)
	Up arrow, Down arrow	Move insertion point to the left margin of the line, or up 1 line at the left margin (Up arrow), or down 1 line to the left margin (Down arrow)
	Home, End	Move insertion point to beginning (Home) or end (End) of line
<b>Shift</b>	Right arrow, Left arrow	Extend selection 1 space right or left
	Up arrow, Down arrow	Extend selection 1 line up or down
	Page Up, Page Down	Extend selection 3 lines up or down
	Home, End	Extend selection to the beginning (Home) or end (End) of the text object
<b>Shift + Ctrl</b>	Right arrow, Left arrow	Extend the selection 1 word right or left
	Up arrow, Down arrow	Extend the selection to left margin (Up arrow) or right margin (Down arrow). From the margin, extend the selection to the other margin, or up or down 1 line
	Page Up, Page Down	Extend selection 3 lines up or down

### Using the Mouse for Text Editing

Using the mouse and modifier keys, you can quickly place the insertion point, select specific words, and select sections of text in Edit mode. For information on putting a text object in Edit mode, see "Text Edit Mode" on page 432.

#### Mouse Actions for Text Editing

To do this in text	Do this with the pointer
Select a continuous block of text	Drag over the text you want to select.

To do this in text	Do this with the pointer
<b>Select all text between the insertion point and another location</b>	Press the <b>Shift</b> key and click where you want the selection to end. Windows users can use the right mouse button like the Shift key (hold down the right button and click with the left).
<b>To deselect all highlighted text</b>	Click anywhere in the text object. (Clicking outside the text object creates a new text object at that location or puts another text object into Edit mode.)
<b>Deselect text between the insertion point and another location in the selection</b>	Press <b>Shift</b> and click in the highlighted text.
<b>Select a word</b>	Double-click the word.
<b>Select a line of text</b>	Triple-click the line.

## Copying, Pasting, Deleting, and Moving Text Selections

You can cut and copy a text selection, and then paste the selected text in the same document, in another Canvas document, or to and from a non-Canvas document using the Clipboard. Whether pasted text retains its formatting depends on the operating system and the source of the text.



To help you in editing text, display symbols for spaces, paragraph breaks, and tabs. Choose **Layout | Display | Show Text Invisibles**. To hide these symbols, choose **Layout | Display | Hide Text Invisibles**.

Text pasted from another application can be embedded into a Canvas document, using Object Linking and Embedding (OLE) to preserve its formatting. See "Embedded Text Objects and Editions Containing Text" on page 442.

If you copy and paste selected text (and not an entire text object) within Canvas, the text retains its character attributes, but it adopts the paragraph formatting of the surrounding text.

### To Copy and Paste Selected Text:

When you copy selected text, you can create a new text object or insert the text into an existing text object.

1. Select the text you want to copy.
2. Choose **Edit | Copy** to copy the selection to the Clipboard.
3. Depending how you want to paste the selection, do one of the following:
  - **To paste text into an existing text object:** Put the insertion point in the text where you want to paste the insertion.
  - **To paste text as a new text object:** Be sure no objects are in Text Edit mode by pressing **Esc**. You can set the width of the new text object by selecting the Text tool and dragging. Otherwise, text will be pasted in one long line that might extend off the screen. (See "Creating Text Layouts" on page 395.)
4. Choose **Edit | Paste** to insert the text from the Clipboard.

### To Cut Text:

1. Select the text you want to cut.
2. Choose **Edit | Cut**. The text is cut to the Clipboard and is ready to be pasted to another area.

## To Delete Text:

1. Select the text you want to delete.
2. Choose **Edit | Clear**, or press the **Delete** key.

## To Replace Selected Text:

Begin typing, or use the Paste command, to replace a text selection with the text you type or paste from the Clipboard. This saves the step of deleting the selected text.

## To Replace All Text in a Text Object:

Select a text object and begin typing. The text adopts the formatting of the replaced text. If multiple text objects are selected, the text you type replaces the text in the object that was created first.

## Changing Text Attributes

While a text object is selected, you can change the formatting of all the text it contains using the Text menu, Type palette, or Properties bar.

## Finding and Changing Text

Use the Text tab in the Find palette to search for specific text or characters in selected text objects and entire documents. You can replace or delete found text selections one at a time or all at once. (See "Text Search Options" on page 436.)

The Text tab also lets you search for text with specific font, size, and style attributes, and change the attributes of found text.

## To Find and Change Text:

1. Choose **Edit | Find** to open the Find palette. Click the **Text** tab to select it. To search for text, type the text in the Find box or select a special text character. Specify that you want to find only whole words or text matching the capitalization (case) of the Find text.
2. If you want to replace found text or characters, type the replacement text in the Change To box or select a special text character. When the Change To box contains at least one character (including a space), the Change All button is available.
3. Click **Find** to locate the first occurrence of the specified item. If one or more text objects are selected, Canvas searches the text contained in the first selected object. If no text objects are selected, Canvas searches the entire document.
4. If Canvas finds the specified item, it highlights the text or character in the document. Click **Find** to search for the next occurrence of the specified text. If the Change To box contains replacement text or a special character, the Change button is available. Click **Change** to replace the highlighted item with the Change To text or special character.
5. To continue searching, click **Find**. Repeat the previous step if Canvas finds another occurrence of the search item. When Canvas completes the operation, it displays a message. Click **OK** in the message box to continue.

 You can click Change All to replace all occurrences of the Find text or special character with the text in the Change To box, without first clicking Find.

## Finding and Changing Text Attributes

You can search for and change text attributes (whether or not you also search for specific text). The text attributes you can seek and change are font, type size, and text style.

## To Search for Text Attributes:

1. Click the arrow at the bottom-left corner of the Find palette.
2. In the Find Attributes section, select a font name from the font pop-up menu. Type a size (in points) or select a size from the size pop-up menu. Click the style buttons to set the styles you want.
3. In the Change Attributes To section, specify replacement attributes in the same way that you specify the Find attributes.
4. Click **Change** or **Change All** to replace the attributes specified in the Find Attributes section with the attributes specified in the Change Attributes To section. If you have also typed text in the Find box, the replacement text attributes can be applied only to text that matches the Find text.

Clicking the **Clear** button removes all settings in the Find Attributes and Change Attributes To areas.

## Text Search Options

The options on the Text tab in the Find palette let you specify criteria for text and character searching and replacement.

<b>Find</b>	Type the text or select the special character that you want to find. Leave this box blank to search for text attributes only.
<b>Change To</b>	If you want to replace found text or characters, enter replacement text or character (1) here. If you want to delete found text or characters, leave the Change To box empty.
<b>Whole Word</b>	Select <b>Whole Word</b> to specify that the Find text is an entire word; e.g., if you type "time" and select Whole Word, Canvas will not find "times," "untimely," or "timer."
<b>Match Case</b>	Select <b>Match Case</b> to include the capitalization of the Find text in the search criteria; e.g., if you type "Time" and select this option, Canvas will not find "TIME" or "time."
<b>Change</b>	If Canvas locates the specified text and attributes, it highlights the text in the document. Click <b>Change</b> to replace the highlighted text with the Change To text and to apply the replacement attributes specified in the Change Attributes To section.
<b>Change All</b>	Click to replace all occurrences of the text and attributes you specified with the replacement text and attributes. Canvas makes the changes without highlighting found text.
<b>Find button</b>	Click to search for the next occurrence of text specified in the Find text box and attributes specified in the Find Attributes area.
<b>Find Attributes</b>	The text attributes that you specify here tell Canvas what to search for.  Click to display Attributes options.  To search for a particular font, select the font name from the pop-up menu.  To search for a type size, enter the size or select the size from the pop-up menu.  To search for a type style, select a style button. You can select bold, italic, underline, outline, strikethrough, and shadow styles.
<b>Change Attributes To</b>	The text attributes that you specify here can be applied to text that matches the attributes specified in the Find Attributes area.  Select the font from the pop-up menu.

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Enter the replacement size (in points) or select the size from the pop-up menu.

Click style buttons to specify replacement styles. You can choose bold, italic, underline, outline, strikethrough, and shadow.

Clear. Click to delete all the settings from the Find Attributes and Change Attributes To areas.

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## Automatic Text Correction

Canvas can automatically fix typographical mistakes as you type. The Auto Correct manager lets you select several automatic correction options. It also lets you specify common misspellings, typing errors, and abbreviations that you want Canvas to replace as you type.

When any text replacement option is active, Canvas checks each word you type. It corrects or replaces text as appropriate once you press the Spacebar.

## Auto Correct Options

Use the options in the Auto Correct manager to specify corrections you want Canvas to make as you type. (See "Setting Preferences" on page 62.)

### To Set Up Automatic Correction:

1. Choose **Text | Spell Checker | Auto Correct**.
2. In the Auto Correct manager, select the replacement options to use.
3. Click **OK** to implement the current settings.

## Setting Up Text Replacement

Specify abbreviations, common misspellings, and other text that you want Canvas to replace as you type.

Use this feature to expand abbreviations for common phrases and long names that you type throughout a document: e.g., if you often type "Department of Agriculture," you can specify that the abbreviation "DA" be replaced by the full name.

### To Set Up Text Replacement:

1. Choose **Text | Spell Checker | Auto Correct**. In the Auto Correct manager, be sure **Replace Text as You Type** is selected.
2. In the Replace box, type text that you want to be replaced. In the With box, type the replacement text. Click **Add** to place the text in the scrolling list.
3. Repeat this procedure to specify more automatic replacements. Add as many items to the scrolling list as you want. When you finish, click **OK**.

 Auto Correct does not remove specified text from a document if you type nothing in the With box. Also, Auto Correct won't replace spaces with more or fewer spaces (such as replacing two spaces with one space); however, you can use the Text tab in the Find palette to find and replace spaces.

### To Remove Replacement Entries:

Select the entry in the scrolling list and click **Delete**.

## Automatic Spelling Correction

When you use the Spelling menu, (see [To Use the Spelling Pop-Up Menu](#)), to correct a misspelling, Canvas adds the item to the Auto Correction list. The misspelled word appears under Replace and the correction appears under With. If you make the same spelling mistake again and **Replace Text as You Type** is selected in the Auto Correct manager, Canvas corrects the error. If **Replace Text as You Type** is not selected, Canvas won't make these automatic corrections.

## Inserting Special Characters and Graphics in Text

Sometimes it is necessary to enter special typographic symbols into text. You can insert special characters using the command **Text | Insert** and the Character Map.

### To Insert a Symbol:

1. While in Text Edit mode, place the text I-beam at the location in which you wish to insert the symbol.
2. In the Properties bar, select a character from the Insert drop-down menu.

**Canvas©** is a After using the insert symbol command.

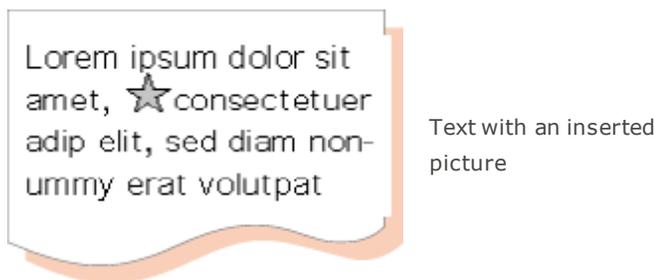
## Typographic Quotes

You can set a preference so Canvas inserts typographic ("curly") quotation marks in text you type. For more information, see "Setting Preferences" on page 62.

## Placing Graphics in Text Objects

Use the Insert Picture command to anchor graphics in a text object. This feature lets you use custom bullets, special illustrations for drop caps, and small logos within text. An inserted picture behaves like a text character.

- Inserted pictures move with the surrounding text.
- Indent and justification settings apply to inserted pictures.
- An inserted picture's baseline and kerning can be adjusted.
- An inserted picture rotates and skews with the surrounding text.



Some text formatting features do not apply to inserted pictures.

- If you scale the surrounding text, an inserted picture does not distort or scale with the text.
- Spread and Overprint commands do not affect inserted pictures.
- Strokes or inks applied to the text don't affect inserted pictures.
- Inserted pictures might not be imported from the Clipboard by other applications.

## Inserting a Picture into Text

The Insert Picture command is available when any object is on the Clipboard and the insertion point is in a text object.

When the insertion point is in a text object and you choose the Insert Picture command, Canvas inserts the contents of the Clipboard as a raster image into the text.

Since Canvas converts the Clipboard contents to a raster image when you use Insert Picture, you cannot edit objects that have been inserted into text; e.g., if you insert a multigon object into text, you can't use editing handles to reshape or scale it. If you insert text characters using the Insert Picture command, the inserted text characters are not editable.

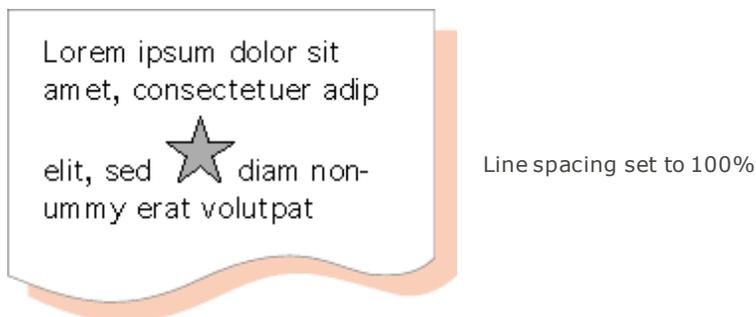
### To Use the Insert Picture Command:

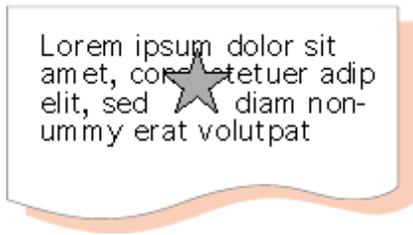
1. Select the object or objects that you want to insert into text.
2. Choose **Edit | Cut** or **Edit | Copy** to place the selection on the Clipboard. If you selected multiple objects, they become a single composite graphic when inserted into text.
3. Select the **Text** tool. **T**
4. Click in the text where you want to insert the graphic. An insertion point appears where you click.
5. Choose **Text | Insert Picture**. The Clipboard contents appear at the insertion point.

## How Inserted Pictures Affect Leading

When you use the Insert Picture command, the leading of the paragraph might change, depending on the Line spacing method:

- If the Line spacing is defined by Percentage, Canvas adjusts the Line spacing to fit the picture based on the defined percentage, if necessary.
- If the Line spacing is defined by Points, the spacing between lines stays the same, regardless of the size of the picture.





Line spacing set to 12 points

## Checking the Spelling of Text

Canvas can check the spelling of all text in a document, including text bound to a path by the Path Text tool or the Bind Text command. Canvas can check the spelling of specific words, selections and entire documents. Canvas can also check the spelling of words as you type. Canvas checks the spelling of text by looking up words in the Canvas Dictionary and the User Dictionary. The Canvas dictionary contains 100,000 words. You can add words to the User Dictionary to stop Canvas from marking unrecognized words that are spelled correctly.



The Canvas dictionary file can't be modified.

## Showing and Hiding Unrecognized Words

Canvas marks words that it can't find in either the Canvas Dictionary or the User Dictionary with a red wavy underline. Canvas can check spelling while you type or after you finish entering text.

When Show Spelling Errors is active, Canvas checks the spelling of a word after you type it and press the Spacebar, tab, or deselect the text object. Canvas marks an unrecognized word with a red wavy underline.

### To Mark Unrecognized Words:

Choose **Layout** | **Display** | **Show Spelling Errors**.

### To Not Mark Unrecognized Words:

Choose **Layout** | **Display** | **Hide Spelling Errors**.

## Using the Spelling Pop-Up Menu

While using the Text tool to edit text, you can choose suggested replacements for words marked as unrecognized.

The spelling pop-up menu lets you choose replacement words. You can also use the menu to add unrecognized words to the User Dictionary.

### To Use the Spelling Pop-Up Menu:

With a text object in Edit mode, point to a word that Canvas has marked as unrecognized. Right-click the word to open the spelling menu.

### To Replace an Unrecognized Word with a Suggested Word:

Choose the suggested word in the menu.

When you choose a replacement word in the Spelling menu, Canvas adds the unrecognized word and the replacement word to the Auto Correct manager. The unrecognized word appears in the Replace text box and the suggested word appears in the With text box.

- **Add Word:** To add an unrecognized word to the User Dictionary, choose **Add Word**. After you choose Add Word, Canvas adds the word to the User Dictionary and will recognize any future use of the word.
- **Ignore Word:** To ignore the spelling of the unrecognized word, click **Ignore Word**. If you choose Ignore Word, Canvas will ignore the word in any document until you quit Canvas.
- **Cancel:** To close the spelling menu without making any changes, choose **Cancel** or click outside the menu.

## Spell Checking a Selection or Document

Check the spelling of selected text, a selected text object, and an entire document using commands in the Spell Checker menu.

### To Limit the Spell Checking to Specific Text or Text Object:

Select the text or text object.

### To Spell Check an Entire Document:

You don't have to select anything.

### To Begin Spell Checking:

1. Choose **Text | Spell Checker | Spell Check Selection** (if you selected text or a text object), or **Text | Spell Checker | Spell Check Document**.

If Canvas finds an unrecognized word, the Spelling Checker dialog box appears. Canvas displays a message when the spell check is complete.

2. Click **OK** to close the message box.

 Canvas deselects any selected objects (but not text) when you use the Spell Check Selection or Spell Check Document commands.

## Spelling Checker

The Spelling Checker dialog box appears during spell checking of a selection or document if Canvas finds a word that isn't in its dictionaries.

<b>Word</b>	Canvas displays unrecognized words in context. You cannot edit the text in this box.
<b>Text box</b>	Type a new spelling in this text box or click the down-arrow to choose from the list of suggested spellings. The highlighted word in this box is the unrecognized word.
<b>Replace</b>	Click this button to replace the unrecognized word with the contents of the text box and continue to spell check the document.
<b>Add</b>	If Canvas doesn't recognize a word that is actually spelled correctly, add the word to the User Dictionary so that Canvas recognizes it in future documents. (See "Modifying the User Dictionary" on page 442.) After saving the word, Canvas continues to spell check.
<b>Ignore</b>	Allows an unrecognized word in the current document without adding the word to the dictionary. Canvas ignores all instances of the word until you close Canvas.
<b>Skip</b>	Allows the current instance of an unrecognized word, but Canvas alerts you the next time this word occurs.
<b>Cancel</b>	Interrupts the spell check and closes the dialog box.

## To Continue a Spell Check:

If you cancel a spell check, choose **Text | Spell Checker | Continue Spell Check** to pick up where you left off. Canvas remembers the words you chose to ignore.

## Modifying the User Dictionary

In addition to more than 100,000 words in the Canvas Dictionary, you can store an unlimited number of words in a personal user dictionary. (See "Setting Preferences" on page 62.)

### To Add Words to the User Dictionary:

1. Choose **Text | Spell Checker | Show Added Words**.
2. In the Added Words dialog box, type a new word to add.
3. Click the **Add** button. Words you add to the user dictionary appear in a scrolling list.
4. Click **OK**.

### To Delete Words in the User Dictionary:

1. Choose **Text | Spell Checker | Show Added Words**.
2. In the User Added Words dialog box, select a word and then click **Delete**.
3. Click **OK**.

## Importing Text from Other Applications

You can import text created in other applications into Canvas. This capability is especially useful if you are compiling documents from different applications into a Canvas layout; e.g., you might need to assemble a publication with contributions from several writers who each use different word processors.

Canvas supports several methods for importing text. You can open a text file, place a text file, paste text from the Clipboard into a Canvas document, and use OLE.

 The Import command is used to import raster images, not text.

Opening a text file with the Open command creates a new Canvas Publication document for the imported file. Placing, pasting, and embedding text inserts the text into the current document. For information on pasting text from the Clipboard, see "Copying, Pasting, Deleting, and Moving Text Selections" on page 434.

The formatting of imported text might differ from the formatting of the original text in its native application. Although some software products might have similar capabilities, the methods used can vary significantly. It might be necessary to reformat imported text using the typographic tools in Canvas.

## Embedded Text Objects and Editions Containing Text

In Windows, use Object Linking and Embedding (OLE) to insert text in a Canvas document with the Paste Special command.

However, Canvas treats embedded text objects and editions as objects, not text. You cannot apply effects, such as wraps or binds, to text in these objects. In addition, Canvas cannot spell check, or format this text. All formatting and effects must be performed in the original application or publisher. For more details and procedures, see "Using Object Linking and Embedding" on page 101.

## Placing Text in Documents

Place text by typing or pasting text from the Clipboard. You can also place text by choosing **File | Place**.



If you have difficulty opening or placing a text document because of the formatting, try converting the file to plain text before importing the file. Also, try copying and pasting the text you want to import. This removes formatting that Canvas doesn't understand.

To place text using the same margins as the original file, click the Place icon in the document. If the file you are importing contains text only (no images or objects), you can also drag the Place pointer to simultaneously import and set margins for the text. However, if the file you want to import has images or objects, dragging the Place icon scales the text, images, and objects as a group.

### To Place Text into Sections:

To create sections in a document, see "Creating Columns" on page 399. Use the Place command to place text from a text file into a section.

1. Select the **Text** tool **T** and click at the top of the first column in the section. An insertion point appears in the column at the height where you clicked.
2. Choose **File | Place**. Select the text file you want to place and click Place. The text from the text file appears in the section and flows from column to column.

If the final column in a section contains overset text, you can flow the text into another text object or section, or resize the section to contain the overset text. (See "Flowing Overset Text into New Text Columns" on page 402.)

### To Paste Text into a Section:

After you create a section, you can paste text from the Clipboard to create text columns. (See "Creating Columns" on page 399.)

1. Use the **Edit | Copy** command to place text on the Clipboard.
2. Select the **Text** tool **T** and click at the top of the first column in the section. An insertion point appears in the column at the height where you clicked.
3. Choose **Edit | Paste**. The text on the Clipboard appears in the section and flows from column to column.

If the final column in a section contains overset text, you can flow the text into another text object or section, or resize the section to contain the overset text. (See "Flowing Overset Text into New Text Columns" on page 402.)

## Exporting Text from Canvas Documents

Copy text from Canvas and paste it into other applications using the Clipboard. In addition, you can use the Canvas file filters to save selections and documents in other file formats. (See "File and Data Exchange" on page 84.) Keep in mind that if you save a document containing text and use a format that supports only raster images, Canvas rasterizes the text before saving the file, so you can't edit it in the saved file.

Also, several Canvas typographic capabilities aren't available in other applications; e.g., character inks and strokes, text typed on a path, and wrapped text are unlikely to convert reliably. In some cases, such as rotated text, the export filters might rasterize the characters, and you will not be able to edit them as text.

 Always save a copy in Canvas format of files you want to export, in case the file conversion doesn't give the results that you expected.

## To Export Text to Other File Formats:

1. Choose **File | Save As**.
2. In the Save as type menu, choose a file format. Type a name for the file, and then click **Save**.

 Canvas warns you that saving files in other formats might result in a loss of some information whenever you save using a format other than Canvas.

## Type Effects

This section explains how to apply various effects to type. In Canvas, you can wrap text inside objects, repel text from objects, bind text to the path of an object, and slant the margins of a text object.

### Text Inks and Strokes

You can apply fill inks, pen inks, strokes, frame inks, background inks, and frame strokes using the Fill Ink, Pen Ink, and Stroke icons in the Toolbox. You can also use the Properties bar that has icons and popout palettes that let you apply fill inks, frame inks, background inks, and frame strokes. (See "Formatting Text with the Properties Bar" on page 408.)

### Current Attributes

By using the icons in the Toolbox, you can set the pen ink, fill ink and stroke current attributes for text; however, you can't set frame inks, background inks, and frame strokes to be current attributes; i.e., you can't set a frame ink, background ink, or frame stroke that will be applied when you create new text objects. (See "Attributes of New Text" on page 394.)

 When you convert text to paths, Canvas keeps the pen ink, fill ink and stroke, but any background inks, frame inks, or frame strokes are removed.

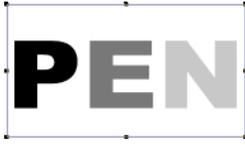
### Applying Inks and Strokes

You can apply the following attributes to one or more text objects, and to text selections.

---

<b>Fill ink</b>	An ink applied to the inside, as opposed to the outline, of the characters in a text object or text selection. You can also apply a fill ink with the Fill Ink icon in the Toolbox.
-----------------	---

---



---

**Background ink**

An ink applied to the background of a text object or a text selection.



---

**Outline ink**

An ink applied to the stroke of text characters. You can also apply a pen ink with the Pen Ink icon in the Toolbox.

---

**Frame ink**

An ink applied to the stroke on the bounding box of a text object, or a box around a text selection.

---

**Outline stroke**

The outline of text characters. You can also apply a stroke with the Stroke icon in the Toolbox.

---

**Frame stroke**

A stroke applied to the bounding box of the text object, or a box around a text selection. The frame ink appears on the frame stroke.



---

**To Apply a Fill Ink:**

1. Select a text object, text characters, or place the insertion point in existing text.
2. Click on the **Fill ink** icon in the Properties bar and select an ink from the popup palette. Or, select an ink from the Fill Ink palette in the Toolbox.

**To Apply a Background Ink:**

1. Select a text object or text characters.
2. Click on the **Background ink** icon in the Properties bar and select an ink from the popup palette.

If a text selection spans more than one line of text, the background ink appears separately on each line of text.

**To Apply an Outline Ink:**

1. Select a text object, text characters, or place the insertion point in existing text.
2. Click on the **Outline ink** icon in the Properties bar and select an ink from the popup palette.

**To Apply a Frame Ink:**

1. Select a text object or text characters.
2. Click on the **Frame ink** icon in the Properties bar and select an ink from the popup palette.

If a text selection spans more than one line of text, the ink appears on boxes around the selected characters on each line of text.

## To Apply an Outline Stroke:

1. Select a text object or text characters.
2. Click on the **Outline stroke** icon in the Properties bar and select a pen stroke from the popup palette.

## To Apply a Frame Stroke:

1. Select a text object or text characters.
2. Click on the **Frame stroke** icon in the Properties bar and select a pen stroke from the popup palette.

If a text selection spans more than one line of text, the stroke outlines the selection separately on each line of text.

## Wrapping and Repelling Text

Make text flow around or inside objects by using the **Text | Wrap** commands.

### Wrapping Text Inside an Object

When you wrap text inside a vector object, Canvas adjusts the text object's margins so that text fits within the shape of the vector object. A text object can be wrapped inside only one object at a time.

Canvas has two methods of wrapping text inside an object. Select an existing text object and a vector object and choose the **Text | Wrap | Inside Shape**. Also, select an existing vector object and simply begin typing; the text will stay inside the shape of the vector object.



You can also wrap text within the bounding box of a paint object with both methods.

If you wrap text inside an open vector object, such as an arc, the text wraps between the bounding box and the concave side of the arc. If you try to wrap text to a line or a narrow arc, the text will not be visible. If this occurs, choose **Text | Wrap | Remove Wrap** or choose **Edit | Undo** to make the text visible again.



Vector object with wrapped text

## To Wrap Existing Text Inside an Object:

1. Select a vector object and a text object.
2. Choose **Text | Wrap | Inside Shape**. Canvas places the text inside the object.

If there is more text than can fit inside the shape, Canvas inserts a column break in the text object and displays an overset symbol. Resize the object to fit the text or flow the excess text to another column. (See "Flowing Overset Text into New Text Columns" on page 402.)

## To Type New Text Inside an Object:

1. Activate the **Auto type into object preference**. (See "Setting Preferences" on page 62.)
2. Select a vector object.

3. Begin typing. Canvas adjusts margins so that text you type remains within the left and right borders of the object.

If the object is too small to contain all the text you type, the text object extends below the object. Resize the object to fit the text or resize the text object to fit the shape, and then flow any excess text to another column.



Center-justified text wrapped inside an oval

## Removing Wrap Effects

Restore text margins to the standard rectangular shape by choosing **Text | Wrap | Remove Wrap**.



To remove effects, also use the Undos palette or keyboard command: **Ctrl+Z**.

## To Remove a Wrap Effect:

Select a wrapped text object. Choose **Text | Wrap | Remove Wrap**.

## Repelling Text from Objects

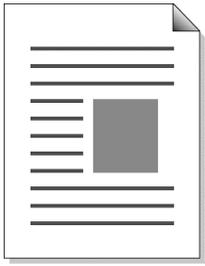
To make text flow around an object, apply a repel setting to the object. You also can set the amount of space between the object and text it repels.

An object with a repel setting repels all text. Move the object and it will repel text wherever you place it.

You can apply repel settings to objects before any text has been created or placed in a document. You can also apply a repel setting to a text object to make it repel the text in other text objects.

An object can repel text that is contained in text objects. A repel setting does not repel text that has been bound to a path with the Path Text tool or the Bind Text command.

## Examples of Repelled Text



One object  
repelling text



Two objects  
repelling text



Two objects  
repelling two columns of  
text

## To Make Objects Repel Text:

1. Select one or more objects that you want to repel text.
2. Choose **Text | Wrap | Repel**. Canvas applies the repel setting. The initial repel amount is zero points.

## To Set Repel Space:

Use this procedure to set the amount of space between an object and text that it repels.

1. Select the object that has a repel setting and choose **Text | Wrap | Repel Options**.
2. Enter a value from -30 to 30 points in the four boxes. These values specify the amount of space between the top, bottom, left, and right sides of the object and text that the object repels.



When entering values, you can use the Tab key to move between value fields.

3. Click **Apply** to view the effect of the current settings. Click **OK** to apply the settings and close the dialog box.

## To Remove a Repel Setting:

Select an object that you do not want to repel text. Choose **Text | Wrap | Remove Wrap**. Canvas removes the repel setting from the selected object.

## Binding Text to Vector Objects

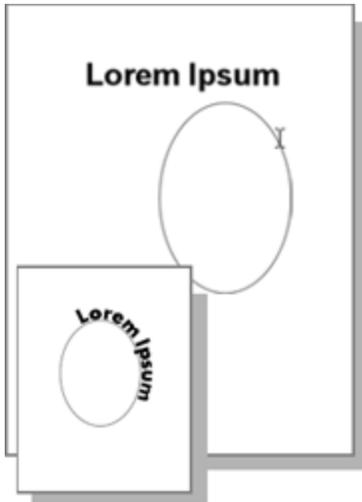
Bind the baseline of text to the path of most types of vector objects. Canvas adjusts the vertical orientation of each character to match the path.

Depending on how you want to bind text, you can choose **Effects | Bind Text** or the **Path Text** tool. The Bind Text command lets you bind existing text to an object, and the Path Text tool lets you type new text directly on the path of a selected object.

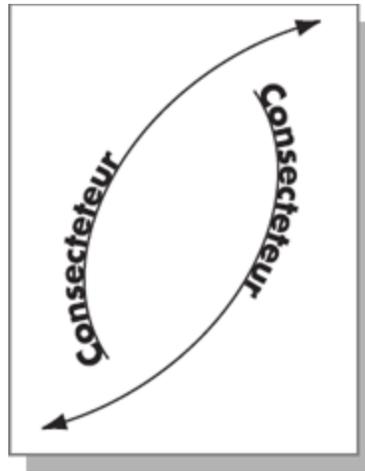
Canvas lets you bind multiple text objects to one vector object, but a text object can bind to only one vector object at a time. Also, you can bind only one text object to a vector object using the Path Text tool. To bind additional text objects to the same vector object after using the Path Text tool, you must create a separate text object and choose **Effects | Bind Text**.

## Position and Direction of Bound Text

Whether you use the Bind Text command or Path Text tool, the location where you click the pointer determines the alignment position.



This text is center-justified. The I-beam pointer (which appears after choosing the Bind Text command or the Path Text tool) determines where text binds. In the example, the pointer is clicked in the upper-right quadrant of the oval. The inset shows the bound text, centered around the point where the pointer was clicked.



For open-ended objects, such as arcs, bound text initially flows in the direction the object was drawn. In this example, the arrows indicate the direction the arcs were drawn. Text objects bound to these arcs follow the direction of the arcs.

### To Bind Existing Text Using a Menu Command:

1. Select a text object and vector object.
2. Choose **Effects | Bind Text**. When the pointer is on the edge of the selected object, the pointer becomes an I-beam.
3. Click to place the selected text on the path. Text aligns to the point where you click; e.g., if the text is center-justified, Canvas binds the text so that it is centered around the point you click.

### To Type on a Path Using the Path Text Tool:

1. Select the **Path Text** tool. 

When the pointer is on the edge of an object, the pointer becomes a crosshair.
2. Click where you want to start typing on the path. An insertion point appears.
3. Begin typing. The text aligns to the location where you placed the insertion point and follows the path of the object.

### Working with Bound Text

Once you bind text, you can change its starting position, alignment, baseline position, and flow direction. In addition, you can edit the shape and location of the vector object to which text is bound, and Canvas will fit the text to the new path.

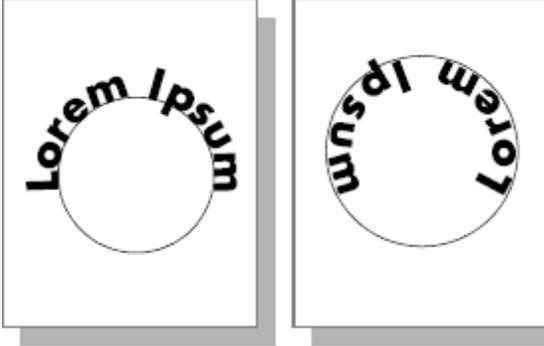
You can also edit bound text by selecting the Path Text tool and clicking the text object, or by double-clicking a bound text object with a Selection tool. However, text editing might be difficult and slow while the text is bound to an object; you might want to remove the text bind, make changes, and re-bind the text.

Bound text and its binding object move together, just like grouped objects. However, unlike grouped objects, you can select and change attributes (such as stroke and ink) individually for the text and the object.

### To Position and Align Bound Text:

Canvas has three Bind Position handles that you can drag to place text anywhere on, above, or below an object. The handles appear when you select a bound text object.

### Bind Position Handles

Handle	Description	Example
<b>Reverse Flow handle</b> 	Click to switch the vertical orientation of type relative to the object path and reverse the flow direction.	
<b>Alignment handle</b> 	Drag to specify the point where you want type to align. For example, center-justified text will center around the location of this handle.  Canvas spreads full-justified text along the entire path or object starting at the location of the handle.	 <p>Text is centered around the alignment handle</p>
<b>Baseline Shift handle</b> 	Drag to change the elevation of the baseline relative to the vector object.  Baseline Shift lets you insert space between bound type and the object.	

### Changing the Appearance of Bound Text

Once you bind text to a path using the Path Text tool or Bind Text command, use the context menu to change the orientation of the text characters relative to the path, and to make the path visible or invisible. The bound text commands appear in the context menu when a bound text object is selected.

## To Access the Context Menu:

Select an object with bound text and right-click. (See "Using Context-Sensitive Menus" on page 25.)

## Bound Text Commands

Command	Description
<b>Show Path/Hide Path</b>	Choose <b>Show Path</b> to make the path visible. Choose <b>Hide Path</b> to make the path invisible.
<b>Vertical Text</b>	Choose <b>Vertical Text</b> to keep the baseline of the text characters horizontal, rather than perpendicular to the path. This also keeps the vertical axis of each character vertical, rather than angled to follow a curved path. The Vertical Text command is available when the text is bound with the Tangent Text option.
<b>Tangent Text</b>	Choose <b>Tangent Text</b> to keep the baseline of the text characters tangent to the path, rather than horizontal. This angles the vertical axis of each character away from vertical as needed to follow the path. By default, Canvas uses the Tangent Text option when it first binds text to a path. The Tangent Text command is available in the context menu when the text is bound with the Vertical Text option.

## To Remove a Text Bind Effect:

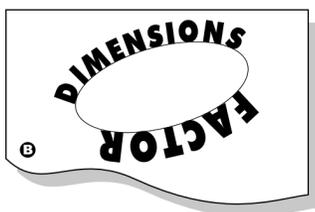
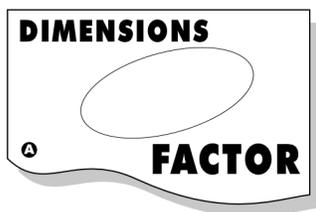
Select a bound text object and choose **Effects | Remove Effects**. Canvas straightens the text baseline and separates it from the vector object.

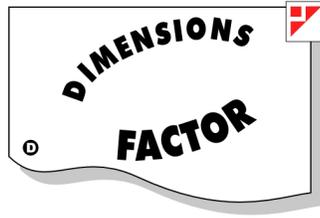
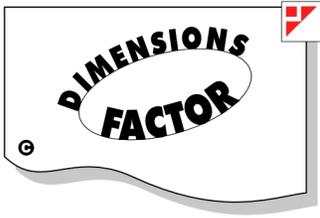
## Binding Text to a Circle

Create circular logos with text on top flowing clockwise and text on the bottom flowing counterclockwise. Achieve this effect by binding two text objects to a circle and using the Bind Position handles to arrange the text.

## To Create a Circular Logo:

1. Create a circular object using the Oval tool and then two text objects.
2. Use the **Path Text** tool to create and bind the first text object. Then create the second text object and bind it to the vector object by using the Bind Text command. One text object is bound to the top of the circle, the other to the bottom of the circle. Text initially flows clockwise.
3. Clicking the **Reverse Flow** handle makes "FACTOR" flow counter-clockwise inside the circle.
4. Dragging the **Baseline Shift** handle positions "FACTOR" outside the circle. Removing the circle completes the design.





## Using Text as Clipping Paths

Make a pattern, gradient, or image appear to span an entire selection, rather than begin and end within each character; e.g., instead of a gradient completing a blend pattern within each character of a word, make a gradient begin a blend in the first character and finish the blend in the last character.

In Canvas, you create these kinds of "continuous" fills using background objects and foreground text object clipping paths. The intersection of the background and foreground objects provides the appearance of a continuous fill. This method lets you use elaborate background designs, including paint objects, to fill characters. For more information, see "Using Clipping Paths" on page 260.

### To Use Text as a Clipping Path:

1. Position the text object in front of the object to be clipped, and then select both objects.
2. Choose **Object | Clipping Path | Make**.



Text object in front of image object



Clipping path appears filled with image object

## Applying Vector Effects to Type

Apply the following vector effects to text objects: Envelope, Extrude, Rotate, Freeform rotate and skew, Flip, Shadow, and Path editing.

Use effects to add dimension to text objects and create striking designs. This section describes briefly how to apply each of these effects. (See "Vector Effects" on page 258.)

### Before Applying Vector Effects to Type

Depending on the number and kind of effects you apply to text, you might not be able to edit the text afterwards; e.g., you can edit text after rotating and skewing, but if you also extrude the text, Canvas converts the text to vector objects. In addition, depending on the speed of your system, editing rotated and skewed text might be slow. Therefore, you might want to finish all text editing, formatting, and layout before applying effects.

## Freeform and Rotate Effects

In Canvas, you can place a text object in freeform mode and then drag any of the hollow selection handles of the bounding box to rotate and skew text. Choose **Effects | Rotate Right/Left | Other** to perform exact rotations.

### To Freeform Edit a Text Object:

Select a text object. Choose **Effects | Freeform**. Drag a circular selection handle to rotate the text object, or a square handle to skew the text.

### To Rotate a Text Object an Exact Amount:

Choose **Effects | Rotate | Other** to open the Rotate dialog box. Specify the degree and center of rotation. Click **Apply** to see the effect of the settings, or click **OK** to accept the settings.



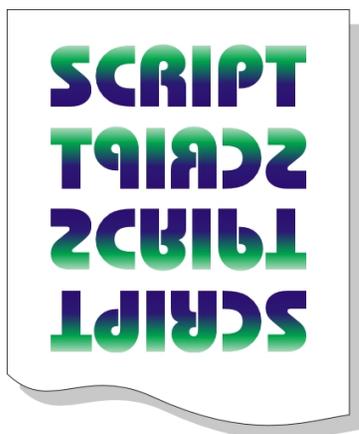
This design consists of rotated (black) and skewed (color) type. Each word was divided into two text objects, which were arranged to create the effect.

## Flipping Text

You can flip text horizontally, vertically, or both. Choose **Effects | Flip** to create mirror-image copies of text.

### To Flip Text:

Select the text objects. Depending on the direction you want to flip text, choose **Effects | Flip | Horizontal, Vertical, or Both Axes**. Canvas implements the setting immediately.



Original

Horizontal flip

Vertical flip

Both axes

## Shadow Effects

In Canvas, when you apply a shadow to text, the shadow is a separate object that you can color, edit, and apply effects to independently of the original text object. By applying the right combination of effects, you can achieve oblique shadows and other lighting effects.

Since Canvas creates a separate object for the shadow, changes to the original text object do not change the shadow. Finalize text before applying shadows to ensure that the text is the same for both objects.

### To Create a Shadow:

1. Select the text objects to which you want to apply shadows.
2. Choose **Effects | Shadow** to open the Shadow dialog box.
3. Specify Object or Image. Image activates the Image Options area.
4. Specify the offset amounts as well as a color for the shadow.
5. In the Image Options area, specify Gaussian Blur, mode, resolution, and anti-alias.
6. Canvas creates the shadows and arranges them behind the original text objects.

### Text Shadow Effects

Combine Canvas effects to create different types of shadows.

- An object shadow, slightly offset and shaded black.
- A black image shadow, slightly offset with Gaussian Blur.
- The shadow object was skewed to create an oblique shadow.

### Envelope Text Effects

Use the Envelope effect to warp and distort type to create new character forms and stretch text like rubber. When you apply this effect to a text object, you can drag selection handles to reshape text. Depending on the type of envelope, text stretches in different ways. Using this effect, add perspective to text or simulate stretching type around a 3-D object. (See "Enveloping Objects" on page 267 for more information about the Envelope effect.)

 You cannot edit text after applying an envelope effect. However, you can apply an extrusion to an enveloped object.

### To Edit the Envelope of a Text Object:

1. Select a text object and choose **Effects | Envelope**.
2. Choose a type of envelope effect in the pop-up menu and click **Apply**.
3. Drag the envelope handles to reshape the text.

### Extruding Text

Extrude text and add lighting effects to make text appear three-dimensional. As with vector objects, you can rotate and scale extruded text to change the apparent depth, size, and orientation. For text, you can only use the Parallel option in the Extrude palette.

 You cannot edit text after applying an envelope effect.

Canvas removes stroke and fill attributes before extruding text because they can interfere with the three-dimensional effect. Add color to extruded objects by choosing a fill ink from the Presets palette and a color for the light source in the Extrude palette. (See "Extruding Objects" on page 269 for more information about the Extrude effect.)



Extruded text with lighting effects

### To Extrude Text:

1. Select a text object and choose **Effects | Extrude** to open the Extrude palette.
2. Choose **Parallel** in the menu.
3. Configure the settings and click **Apply**.
4. Use the extrusion handles to shape and rotate the text.

### Converting Text to Paths

Canvas can create path outlines of characters so you can edit the shape of each character. Once you convert text to paths, Canvas treats the paths as objects. You cannot edit the objects as text, (change font type, type size, or run spell check, etc.).

### To Convert Text to Paths:

1. Select a text object and choose **Path | Convert to Paths**. If the text object contains multiple characters, Canvas creates a grouped object.
2. To ungroup the object and edit individual characters, choose **Object | Ungroup**. You can also use the Direct Selection tool to select individual objects without ungrouping.
3. Double-click an object to place it in Path Edit mode. To put several shapes in Path Edit mode at the same time, select multiple objects and choose **Path | Edit Path**.
4. Use path-editing techniques to change the object, and then press **Esc** to exit Edit mode.

### Typing Text on Paths

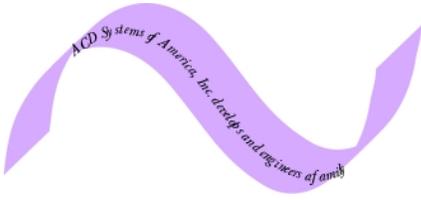
Use the Path Text tool to type text so it follows the path of a vector object, such as a circle, polygon, or open curve. You can also use the tool to create text that flows along multiple paths.

### To Type Text on a Path:

1. Select the **Path Text** tool.   
In the document window, the pointer is an arrow. The arrow changes to an I-beam when you point to a vector object path.
2. Click the path to set the insertion point. Begin typing and the text follows the vector path. You can type multiple lines of text. To

start a new line, press **Enter** at the end of the previous line.

3. When you finish typing, press **Esc**. The text object becomes selected.



Vector path

## Flowing Text

As you type text on a path, if you reach the end, you can flow text to another path. Click the overset symbol at the end of the text object. Then, click the next vector path at the point where you want the overset text to start flowing. Continue typing to enter additional text.

If you don't want to flow overset bound text, resize the path so that all the bound text can flow along it. If no text is overset, the overset symbol does not appear at the end of the text object.

## To Link Text to Another Path with the Text Link Tool:

1. Select the **Text Link** tool, and the pointer displays the number "1". 
2. Click the first text object, and the pointer changes to the number "2".
3. Click the object to which you want the text to flow.
4. Press **Esc** when you finish.

## Adjusting Text on a Path

See the section about adjusting bound text, starting with "Binding Text to Vector Objects" on page 448, for information on changing the text baseline, flipping the text, and adjusting the spacing between the text and the path.

# Chapter 7: Sprite Technology

## SpriteEffects

In Canvas, you could always modify objects with image-editing techniques — if you converted the objects to images; however, you lost the ability to edit vector paths and text. Also, applying filters and adjustments would change an image permanently. The Canvas SpriteEffects technology lets you apply image filters and adjustments to vector objects, images, text, and grouped objects.

You can apply effects temporarily, adjust effects settings, change the order of effects, and hide or remove effects individually. You don't have to use Undo or save intermediate versions to preserve an original illustration, since objects remain editable. You can still edit object paths, insert and delete text, as well as change inks and strokes.

When SpriteEffects are printed or exported to file formats outside of Canvas, the effects are rendered as images. This is like taking a snapshot of the objects and printing the resulting image. In your Canvas documents, the objects keep their original editing features.

Before SpriteEffects, commands such as Blur, Hue/Saturation, Invert, Emboss, Twirl, and many others could be applied to paint objects (images) only. SpriteEffects technology offers new power and flexibility for creative art, technical illustration, and graphics production.

### Introduction to SpriteEffects

SpriteEffects technology was introduced to allow for the easy creation and placement of fully-editable transparency effects to text, images, and vector objects within Canvas. Remember all SpriteEffects can be edited and reapplied at will at any time during the design process.

### Using SpriteEffects

There are two ways to use SpriteEffects:

- **Apply effects directly to objects:** Apply image effects and adjustment commands directly to vector, text, paint, and group objects. You could apply the Blur command to a text object, then use the Hue/Saturation command to highlight the text edges with color for example. When you apply effects directly, an entire object, including its fill ink, pen ink, and stroke, is affected.
- **Apply effects to lens objects:** Create a lens object from a vector or text object. Then, apply effects to the lens. The effects will appear on objects that are viewed through the lens. Lenses can magnify objects and view objects in other locations. If you move the viewpoint of a lens, whatever is behind the viewpoint will appear in the lens. If you move the lens, the viewpoint can remain fixed or move with the lens. See "Creating a Lens" on page 464.

### Applying an Effect

Because many types of filters and adjustments can be applied through SpriteEffects, general procedures are given here. You can locate specific information for effects commands by looking up the commands in the index. When a vector or text object is selected, the SpriteEffects icon and SpriteEffects menu appear in the Properties bar.

## To Apply an Effect:

1. Select an object or a lens.
2. Do one of the following:
  - In the Properties bar, select an effect from the SpriteEffects drop-down list.
  - Choose **Object | SpriteEffects | Add an Effect**, then select an effect.
  - In the SpriteEffects palette, click the New Effect icon, select an effect from the drop-down list, then click **OK**.
3. If a dialog box appears, select the settings you want to use, then click **OK**.



You can apply multiple effects by repeating this task as many times as necessary.

## Using Plug-In Filters with SpriteEffects

You can also use Plug-in filters with SpriteEffects. Plug-ins must be Adobe Photoshop 4.0. compatible and also support Photoshop Actions.

Plug-ins can be installed by copying them to the Plug-ins folder in the Canvas Tools folder. For information on settings and options for a plug-in, refer to the documentation from the manufacturer.



Effects commands in the **Image | Filter** and **Image | Adjust** submenus are available for traditional image editing. These commands are not available when other types of objects are selected.

## Using the SpriteEffects Palette

The SpriteEffects palette is the control center for applying effects, creating lenses, and editing effects on objects. All SpriteEffects features are available in the palette, except Attach and Detach, which are in the **Object | SpriteEffects** submenu. If an object is selected, its SpriteEffects settings are shown in the palette. When no object is selected, the controls in the palette are not available.

## To Display the SpriteEffects Palette:

Do one of the following:

- Choose **Window | Palettes | SpriteEffects**.
- In the Properties bar, click the SpriteEffects icon. 

You can keep the palette open while you work or dock it on the Docking bar.

## Using the Effects List

When you select an object that has effects, use the list at the top of the SpriteEffects palette to arrange the order of effects. You can also show or hide effects, and change the mask setting.

Effects that are applied to the selected object are listed in order of application, with the first effect at the top. If no effects appear in the list, the selected object has none, or more than one object (or no object) is selected.

## To Modify an Effect's Settings:

1. In the SpriteEffects palette, select the effect name.
2. Do one of the following:
  - Choose **Edit Effect Settings** from the palette menu.
  - Double-click the effect name in the Effects list.
3. Use the dialog box to adjust the settings for the effect.
4. Click **OK** to apply the current settings.

Some filter and adjustment commands, (including Blur, Desaturate, Invert, and Sharpen), do not have editable settings, so choosing Edit Effect Settings or double-clicking the effect does nothing.

## To Arrange Effects:

In the SpriteEffects palette, drag an effect up or down in the list to change the order in which effects are applied.

## To Show and Hide Effects:

1. Select the object whose effects you want to hide/show.
2. In the SpriteEffects palette, click the **eye** symbol to hide/show the effect. 

Hiding an effect temporarily removes the effect from the object. Showing an effect re-applies the effect to the selected object.

## To Duplicate or Remove Effects:

Use the SpriteEffects palette to duplicate or remove effects that have been applied to a selected object. Removing an effect deletes it from the Effects list.



If you just want to temporarily hide an effect, click the eye symbol in the Effects list.

1. Select the object whose effects you want to edit.
2. In the SpriteEffects palette, do any of the following:
  - **Duplicate Effect:** Select an effect in the list and choose **Duplicate Effect** in the palette menu.
  - **Delete Effect:** To remove an effect, select the effect in the list. Click the **trash can** or choose **Delete Effect** in the palette menu.
  - **Clear All Effects:** To remove all effects from the selected object, choose **Clear All Effects** in the palette menu.

## To Add Effects:

Each effect that you apply appears in the Effects list.



Select an object that has no effects, one that has effects, or a lens.

1. Select an object to which you want to apply effects.
2. In the SpriteEffects palette, click the **New Filter Effect** button or choose **New Effect** in the palette menu.

3. In the dialog box, select an effect command from the menu and click **OK**. If there are no options for the command, Canvas applies the effect.
4. If there are options for the command, a dialog box opens. Configure the options and click **OK**.

### To Save Effects:

You can save effects that have been applied to an object as a set. After saving an effects set, you can apply the set to other objects.

1. Open the SpriteEffects palette.
2. Select an object or lens that has effects you want to save.
3. Choose **Save Effects** from the SpriteEffects palette menu.
4. In the dialog box, enter a name and select a location to save the effects set.
5. Click **Save** to save the set in a file.

### To Apply Saved Effects:

1. Open the **SpriteEffects** palette.
2. Select the object you want to apply the effects set to. You can select an object with no effects, one that has effects, or a lens.
3. Do one of the following:
  - To replace the selected object's effects with the effects set: Choose **Load Effects** in the palette's menu.
  - To add the effects set to the effects on the selected object: Choose **Append Effects** in the palette's menu.
4. In the dialog box, select an effects set file and click **Open**. Canvas applies the effects to the selected object.

### Pasting Effects

You can use the Paste Attributes command to transfer effects from one object to another.

### To Paste SpriteEffects:

1. Copy an object that has effects to the Clipboard.
2. Select an object to which you want to transfer the effects.
3. Choose **Edit | Paste Attributes**.
4. In the Paste Attributes dialog box, select the **SpriteEffects** option and click **OK**. Canvas will apply the effects (except lens settings) to the selected object.

### Detaching and Attaching SpriteEffects

The Detach and Attach commands transfer filters and adjustments between objects and lenses.

- **Detach:** Removes effects from a selected object and applies the effects to a new lens that is the same size as the object's bounding box.
- **Attach:** Applies effects from a lens directly to an object. Attaching is a way to apply multiple effects to an object at once.



You can also use the Load Effects, Save Effects, and Append Effects commands in the SpriteEffects palette to transfer sets of effects.

### To Detach Effects:

1. Select an object (not a lens) that has effects.
2. Choose **Object | SpriteEffects | Detach**.
3. Canvas removes the object's effects and applies them to a new lens, which appears offset from the original object and is selected.

### To Attach Effects:

1. Select a lens object that has effects you want to apply, and a non-lens object to receive the effects. The objects do not have to be the same size or overlap and either one can be first in the stacking order.
2. Choose **Object | SpriteEffects | Attach**. Canvas applies the effects, except the lens properties, to the selected object. The original lens object is not changed.

## SpriteEffects Options

In the SpriteEffects palette, you can set the color mode, resolution, and anti-aliasing for the effects applied to a selected object. These options control how SpriteEffects are rendered for printing and export, as well as the display of SpriteEffects in Canvas.

When you change a setting, the change is applied immediately to the selected object.

### Mode

From the Mode menu, select the color mode to use for rendering SpriteEffects.

The Mode option is used for rendering all the effects applied to an object; e.g., if you choose Grayscale, the object and effects applied to it will appear in gray shades on screen and when the object is printed or exported.

Select a mode that is appropriate for the medium you use. RGB is best for Web graphics, screen display, and output to a film recorder. CMYK is appropriate for process-color printing and color separations for commercial printing. Grayscale is appropriate for black-and-white publishing.

None is available in the mode menu only when the selected object is a lens that has no effects applied to it; however, the lens can have a magnification value and remote viewpoint.

If you select None, the lens object is not rendered for printing or export. This can be more efficient and produce better output when a lens displays vector objects or high-resolution images. This option is useful if you use lenses without effects to show close-ups or call-outs of diagrams.

### Resolution

Enter the resolution in ppi for rendering SpriteEffects. A high resolution makes effects appear smoother; however, higher resolution requires more memory and slows down printing.

For Web graphics and screen display, 72 ppi is recommended. For office printing, 100 to 200 ppi is usually sufficient. For commercial printing, a range of 150 to 300 ppi is recommended for halftone images, depending on the paper and press requirements.

### Anti-Alias

Select this option if you want to smooth the edges of objects in the rendering of SpriteEffects.

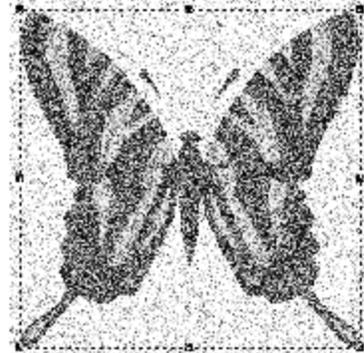
## Selections Masks

In the SpriteEffects palette, in the Effects list, a symbol to the left of each effect name shows the state of the selection mask for the effect. You can click the symbol to toggle the mask on (☑) and off (☐).

An active selection mask defines a selection for an effect. The selection will include objects, not empty space. The mask can preserve transparent areas, such as empty space in a group object, and space between text characters.

When the selection mask is on, the effect is based on the selection area. When the selection mask is off, the effect is based on the entire bounding box area; e.g., if you apply the Add Noise command to a circle, the selection includes only the circle, so the noise affects only the circle if the mask is on. If the mask is off, the noise appears in the entire bounding box area.

## Noise Applied to Vector Graphic



Mask on

Mask off

For a built-in effect, Canvas uses the best selection mask setting. For third-party effects, you might need to change the mask setting for the best results.

Blur effects usually require the selection mask to be off, so the blur can extend beyond the outline of an object. Other effects look best when they are based on a selection; e.g., a flame effect will cover an entire bounding box if the selection mask is off. If the mask is on, flames will rise from just the objects or text characters in the selection. This does not mean that flames can't rise above the selection, just that the effect will be based on the selection, not the entire bounding box.

When you edit the settings for an effect, Canvas displays a border on the selection, the same as the selection border that appears in images.

## Effects Area

When you apply effects to an object, Canvas defines a rectangular effects area. Usually, the effects area is slightly larger than the bounding box of the object to which the effects are applied. There is one effects area for all effects applied to an object. Canvas tries to keep the effects area as small as possible, without cropping out any visible objects. You can adjust the effects area using the SpriteEffects palette. The palette lets you set the effects area manually or automatically.

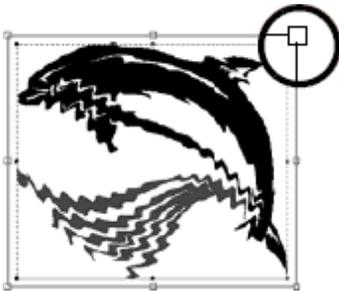
## Modifying the Effects Area

You might need to enlarge the effects area to see effects that extend beyond an object's edge; e.g., Motion Blur and plug-in effects like bevel, glow, and fire usually need to extend beyond an object's outline. Also, if text characters extend outside the text object border, an effect applied to the text could be cut off.

If you make the effects area smaller than an object's bounding box, the object and the effects will be cropped by the effects area border.

### To Size the Effects Area Automatically:

1. Select the object whose effects area you want to adjust.
2. In the SpriteEffects palette, click the **Smart-Crop** icon. 
3. Click **OK** when the prompt appears. Canvas estimates the correct size of the effects area and makes it as small as possible.



Effects area box

### To Size the Effects Area Manually:

Some effects need to extend far outside an object's bounding box. In these cases, the auto-size option might not extend the effects area far enough. If this happens, you can enlarge the effects area yourself.

1. Select the object whose effects area you want to adjust.
2. In the SpriteEffects palette, click the **Crop** icon.   
A box appears on the selected object. The box indicates the effects area and has hollow handles (the object's bounding box has solid handles).
3. Drag a handle to enlarge or reduce the effects area. When the box is the size you want, click inside it.

### To Size the Effects Area Precisely:

You can enter values to precisely size the effects area.

1. Select the object whose effects area you want to adjust.
2. In the SpriteEffects palette, choose **Size of Effects Area** from the palette menu.
3. In the Effect Dimensions dialog box, do one of the following:
  - Set the size of the effects area by entering the distance from the rulers' zero point to the left, top, right, and bottom sides of the effects area rectangle.
  - Click a button to enlarge () or reduce () the size of the effects area. When you click a button, the distance values in the text boxes show the new effects area size.
4. Click **OK** to apply the settings.

## Lens Effects

You can apply effects to a lens the same as you apply effects to other objects. Lens objects let you limit an effect to a particular region of an illustration, or they let you magnify an area when you want to show a detailed view. The default lens effect is normal (100%) magnification, but you can change this if you want to see a magnified view. You can also change the viewpoint of what is displayed in the lens. By default the viewpoint is the center of the lens. If you want to offset the lens from whatever is directly behind it, you can change the viewpoint.

## Creating a Lens

You can create a lens from any object (except a lens). If you want to preserve an object, make a copy and convert the copy to a lens. Fill inks are removed when vector or text objects are converted to lenses. The stroke on a lens is not affected by the effects applied to the lens.

### To Create a Lens Object:

1. Create an object to use as a lens. You can create a new object or copy an existing object.



Fill inks are removed when vector or text objects are converted to lenses.

2. Select the object you want to use as a lens.
3. Do one of the following:
  - In the Properties bar, click the **Make Lens** button.
  - Choose **Object | Convert to Lens**.
  - In the SpriteEffects palette, select the Lens checkbox.

The object becomes a lens and remains selected.

### To Copy a Lens Object:

1. Select the lens object to be copied.
2. Do one of the following:
  - Choose **Edit | Copy**, then **Edit | Paste**.
  - Choose **Edit | Duplicate**.

## Setting Lens Magnification

You can set the magnification level of a lens so objects appear magnified (or reduced) in the lens. The default lens effect is normal (100%) magnification. You can set the magnification level with or without other effects applied to a lens.



Basic lens

With the magnification set to 300% and its viewpoint set about 2 inches to the right, a lens made from a circle shows a detail view of an illustration.

Magnification affects the view through the lens to the lens viewpoint. If the default viewpoint (at the center of the lens) is used, the lens displays a magnified view of objects behind the lens. If the viewpoint has been moved, the lens shows a magnified view of objects behind the viewpoint. These options are available in the Properties bar, SpriteEffects palette or after you create a lens with the Object | Convert to Lens command.

When you change the magnification value, the lens view changes, unless the Frozen option is selected in the SpriteEffects palette. (See "Freezing a Lens" on page 468.)

### To Set Magnification:

1. Select the lens object.
2. Do one of the following:
  - In the Properties bar, enter the magnification value in the Lens Mag text box.
  - In the SpriteEffects palette, enter the magnification value in the Mag text box.

### Lens Object Settings (Properties Bar)

<b>Lens X/Y</b>	If <b>Absolute</b> is selected, these settings refer to the distance from the rulers' zero point to the viewpoint. If <b>Relative</b> is selected, these settings refer to the distance from the center of the lens to the viewpoint.
<b>Choose</b>	Click this button when you want to click in the document to set the viewpoint for a lens.
<b>Reset</b>	Click this button to reset the viewpoint to the center of the lens object.
<b>Absolute or Relative</b>	<b>Absolute</b> refers to the distance from the rulers' zero point to the viewpoint. <b>Relative</b> refers to the distance from the center of the lens to the viewpoint.
<b>Lens Mag</b>	Enter the magnification value in the text box.
<b>Advanced</b>	Click this button to open the SpriteEffects palette.

### Lens Options (SpriteEffects Palette)

<b>Lens</b>	Select the <b>Lens</b> checkbox to create a lens.
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<b>Mag</b>	Enter a magnification value.
<b>Frozen</b>	Freeze the lens view.
<b>Viewpoint</b>	Viewpoint settings: <ul style="list-style-type: none"> <li>● <b>Absolute:</b> Sets the viewpoint to an absolute position. If you move the lens object, the viewpoint does not change.</li> <li>● <b>Relative:</b> Sets the viewpoint to a position relative to the lens object. If you move the lens object, the viewpoint changes.</li> </ul>

## Setting a Lens Viewpoint

The viewpoint of a lens is a point in the document that appears in the lens. The default viewpoint is at the center of the lens, so the lens displays whatever is directly behind it. You can move the viewpoint of a lens to make any location appear in the lens, which is useful for displaying close-ups of illustrations. The center of a lens is focused on the lens viewpoint. If you move the viewpoint, the new location appears centered in the lens object. The viewpoint of a lens can be set anywhere on the same page, slide, sheet, or frame as the lens object. Lenses can display objects on all visible layers on the same page, sheet, slide, or frame. Lenses do not display objects on other pages, sheets, slides, or frames.

You can set a viewpoint visually by clicking in the document, or precisely, by entering values for the Absolute or Relative position.

### To Set a Viewpoint Visually:

1. Select the lens object.
2. In the Properties bar or SpriteEffects palette, select **Relative** or **Absolute**.
3. Click **Choose**.
4. Move the pointer in the document and click to set the viewpoint.

The area you click appears centered in the lens.

### To Set a Viewpoint Precisely:

1. Select the lens object.
2. In the Properties bar or SpriteEffects palette, select one of the following:
  - **Absolute:** Select Absolute and enter horizontal (X) and vertical (Y) distances from the rulers' zero point to the viewpoint; e.g., enter 0 in the X and Y boxes to set the viewpoint at the zero point. If you move the lens object, the viewpoint does not change.
  - **Relative:** Select Relative and enter horizontal (X) and vertical (Y) distances from the center of the lens to the viewpoint. Positive values move the viewpoint down and right of the lens center. Negative values move the viewpoint up and left of the lens center; e.g., to set the viewpoint 1 ruler unit left of the lens center, enter -1 (X) and 0 (Y). If you move the lens, the viewpoint changes.

### To Reset a Viewpoint:

1. Select the lens object.
2. In the SpriteEffects palette, click the **Reset** button to reset the viewpoint to the center of the lens object.

This resets the location values to 0, 0 if Relative is selected. If Absolute is selected, the location is measured from the rulers' zero point to the lens center.

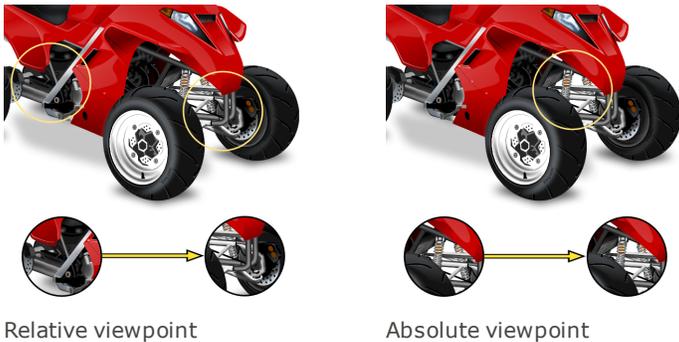
## Absolute and Relative Viewpoints

An absolute viewpoint is set at a specific location in a document and does not move. The lens shows the same absolute point no matter where the lens is placed on the page.

A relative viewpoint is set at a specific distance from the center of the lens. If you move the lens, the viewpoint moves the same distance and direction. When Frozen is selected, the view in the lens does not change; if you deselect the Frozen option, the view then changes to the current viewpoint.

### To Set the Relationship of the Viewpoint to a Lens Object:

In the SpriteEffects palette, select **Absolute** or **Relative**.



### To Create an Object at the Lens Viewpoint:

It is possible to create a vector object at the lens viewpoint.

 The shape of the vector object will be the same as the lens object.

1. Select the lens object and choose a viewpoint.
2. In the Properties bar, click the **Advanced** button.
3. In the SpriteEffects palette, select **Create Object at ViewPoint** from the palette menu.

You can modify the inks and strokes of the new object and also apply any vector effect.

## Lenses and Stacking Order

The view through a lens depends on the stacking order of the lens, as well as the position of the viewpoint.

Only objects that are behind a lens in the stacking order can be seen through the lens. A lens and its viewpoint are at the same level in the stacking order.

 Use the stacking order to change a lens view. Send a lens to the back of the stack so nothing appears in it. Bring it to the front so all the objects at the viewpoint appear in the lens.

Due to the stacking order, objects that you create after you create a lens cannot appear in the lens. Also, objects that you move to the front of the stack after you create a lens cannot appear in the lens.

You can use a lens to display layered views; e.g., you can draw a map and create a lens to show a close-up of an area. If you add text after you create the lens, the text is higher in the stacking order. The text will not appear in the lens close-up of the map.

## Freezing a Lens

Select the **Frozen** checkbox in the SpriteEffects palette to freeze the lens object's current view; i.e., the view won't change unless you deselect the Frozen checkbox. If you change the fill color of an object, the lens will not show the change. Deselect the Frozen checkbox and Canvas updates the lens view.

Selecting Frozen overrides a lens relative viewpoint; the lens will show the same view after being moved. If you deselect Frozen, the lens will display the new viewpoint location.

 The Frozen checkbox is only available if you select Grayscale, RGB, or CMYK from the Mode menu. If **None** is selected, the Frozen checkbox is not available.

Freezing a lens can avoid slow performance when you edit objects shown in a lens. When you finish editing, select the lens and deselect the Frozen checkbox to update the viewpoint.

### To Freeze a Lens:

1. Select the lens object.
2. In the SpriteEffects palette, select the Frozen checkbox.
3. Deselect the **Frozen** checkbox to show the new viewpoint.

## Sharing Documents with SpriteEffects

Since SpriteEffects are "live" effects that can be edited and updated, there are a few issues to consider if you plan to share documents that contain SpriteEffects.

Effects that are applied to an object need to be available to other Canvas users if they share the document and need to edit the effects. If you use only built-in Canvas effects, this is not a problem. If you use third-party plug-ins to apply effects, other users must have the same plug-ins installed. Without the plug-ins, they cannot edit effects applied in a Canvas document. (See "Using Plug-In Filters with SpriteEffects" on page 458.)

If you export a document using an image file format, the effects will be rendered into an image (as described below), and the effects plug-ins will no longer be needed. Rendering is necessary because other file formats do not support SpriteEffects on objects.

## Printing Effects

When you print from Canvas, preserving effects should not be a problem, as long as effects plug-ins are available in Canvas when the document is printed. Whether you print directly to an output device or to a PostScript file, Canvas renders effects before printing. This is true unless, in the Print dialog box, you set Transparency Rendering to "Don't Render Transparent Objects." When this option is selected, the only SpriteEffects that will be printed are lens objects that have no effects except magnification and viewpoints.

## Rendering Effects

Preserve the appearance of effects by rendering objects before sharing a Canvas document. Rendering converts SpriteEffects and objects into static images.

 Effects and objects are not editable after conversion to images.

You can use one of several methods to render SpriteEffects:

- Use the Camera tool to select an area of an illustration to render.
- Select objects that have effects, including lenses, and choose **Image | Area | Render**.
- Save a document in an image file format, such as BMP, GIF, JPEG, PCX, or TIFF. Canvas renders the document as an image before saving the file.

## SpriteLayer Effects

SpriteLayer effects let you apply transparency to objects and text. You can use SpriteLayer transparency to create collages, Web graphics, layered illustrations, “ghosted” text, vignettes, and texturing.

### Using the Transparency Palette

The Transparency palette is a control center for SpriteLayer effects. The palette includes controls and options for opacity, masks, transparency scope, and transfer modes.

In the Transparency palette, you can:

- Use the Opacity slider to set the opacity of a selected object. The effect is the same as using the Opacity slider in the Properties bar. (See “Opacity Effects” on page 470.)
  - Use the Scope options to control transparency effects in vector objects. (See “Controlling the Scope of Transparency Effects” on page 472.)
  - Change the transfer mode of a selected object using the Transfer Mode menu. (See “Using Transfer Modes” on page 482.)
  - Apply channel masks and vector masks using the Mask menu. (See “Transparency Masks” on page 472.)
-  The palette works with a single selected object. The controls in the palette are not available when more than one object is selected.

You can also quickly apply SpriteLayer effects by using the controls in the Properties bar.

### To Open the Transparency Palette:

Do one of the following:

- Choose **Window | Palettes | Transparency**.
- **Object | SpriteLayers | Show Palette**.

### Transparency Palette Options

Options for opacity, transfer mode, scope, and masks appear in the Transparency palette. When an object is selected, the Transparency palette displays the object’s opacity and transfer mode.

<b>Opacity</b>	Drag the slider or enter a percentage to set the opacity of a selected object.
<b>Scope</b>	Set the transparency scope for a selected vector object.
<b>Transfer Mode</b>	Select a transfer mode. This is the method for blending a color with the background color.
<b>Mask</b>	Click to show or hide the mask options.
<b>Edit</b>	When a selected object has a channel mask or vector mask, click <b>Edit</b> to edit the mask.
<b>Channel Editing View</b>	Choose <b>Channel</b> to create a channel mask. Choose a vector mask style to create a vector mask. If the object has a mask, the menu shows the type of mask. Choose <b>None</b> to remove the object's mask.  When a masked object is selected, mask options appear in this area.

## Opacity Effects

Opacity is a basic transparency effect that can be applied to any object.

When an object's opacity is less than 100%, the object appears partly transparent. You can reduce the opacity of a text object, for example, so a background image is visible through the type.



You use the Opacity slider to set the opacity of objects. The Opacity slider is available in the Properties bar and the Transparency palette. The slider in the Properties bar will set opacity for one or more selected objects. The slider in the Transparency palette is available only when a single object is selected.

Opacity affects the overall transparency of an object, so the Opacity slider is a master control for all transparency effects applied to an object.

For example, you can use a channel mask to make an oval vignette from a photograph. At the edge of the oval, the photograph becomes completely transparent. If you then reduce the opacity, the visible part of the image becomes partly transparent.

When an object's opacity is less than 100%, anything in the background, including the illustration area, can affect the object's appearance. The appearance of colors in an object can also be affected by the object's transfer mode. (See "Using Transfer Modes" on page 482.)

## Defining Opacity

"Transparency" and "opacity" are opposite terms that describe the ability to see through an object.

Greater transparency means it is easier to see through something; greater opacity means it is harder to see through it.

In percentages, 100% opacity equals 0% transparency. Those values describe objects you can't see through. 1% opacity equals 99% transparency. Those values describe almost completely clear objects.

All Canvas objects have an opacity. You can set opacity from 1% to 100% in 1% increments. The opacity of a new object is 100%. When you copy an object, the copies have the same opacity as the original object.

In this manual, the word “transparency” is often used as a general term for several related effects. The word “opacity” is used to refer to a specific effect and a specific property of objects.

In other words, an object’s “transparency” can result from various factors, including ink settings, the transfer mode, a channel mask, or another effect. An object’s “opacity,” on the other hand, is a specific setting controlled by the Opacity slider.



### To Set the Opacity of an Object:

You can use either the Opacity slider in the Properties bar or Transparency palette.

1. Select the object whose opacity you want to change.
2. Drag the **Opacity** slider to the left to decrease opacity; drag to the right to increase opacity. The opacity percentage appears at the right of the slider.

### To Set Opacity for Multiple Objects:

Use the Opacity slider in the Properties bar to set the opacity for more than one object. Each selected object will have the same opacity setting.

### To Adjust the Opacity of a Group Object:

Use the Opacity slider in the Properties bar or in the Transparency palette, since a selected group object is considered a single object. When a group object is selected, changing the opacity applies to the group as a whole. Objects that were opaque do not become transparent to other objects in the group if you reduce the opacity of the group object.

 If you ungroup an object, the group opacity setting is removed and the opacity of each separate object is restored.

Consider a group of three objects whose opacities are 30%, 60%, and 100%. If you set the opacity of the group object to 50%, the opacities of the individual objects will appear to be 15%, 30%, and 50% relative to the background. If you ungroup the objects, their opacities will be restored to 30%, 60%, and 100%.

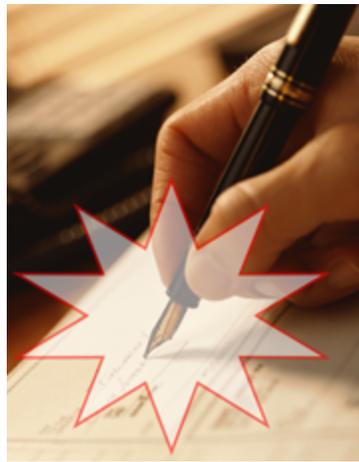
## Controlling the Scope of Transparency Effects

All vector objects have scope settings that control what parts of the objects are affected by transparency. The scope setting can limit transparency to an object's fill ink only, or it can apply transparency to the fill ink and the pen ink on the object's stroke. The scope setting controls all transparency effects applied to vector objects, including opacity, channel masks, vector masks, and transfer modes. Each vector object has a scope setting. Scope settings do not affect text objects, paint objects, or group objects. You can change the scope setting of a selected vector object by using the Scope controls in the Properties bar or the Transparency palette. (See "Using the Transparency Palette" on page 469.)

The scope setting can affect the time needed to print an object. When an object has a reduced opacity setting (but no other transparency effects) and the scope is Fill, Canvas can print the object on PostScript printers without rendering. If the scope is Fill & Stroke, Canvas renders the object and prints it as an image. An image usually contains more data than a vector object, so this can increase the time required to print an object.



Fill



Fill & Stroke

### To Set an Object's Transparency Scope:

1. Select a vector object.
2. Select a Scope option in the Properties bar or Transparency palette:
  - **To apply transparency effects to the entire object:** Select **Fill & Stroke**.
  - **To apply transparency effects to the object's fill ink only:** Select **Fill**.

## Transparency Masks

Transparency masks let you create complex transparency effects. You can use transparency masks with vector, paint, text, and group objects.

Channel masks and vector masks are the two types of transparency masks available. You can apply either mask type to vector, text, paint, and group objects.

 An object can have only one mask, but it can have a mask along with other effects such as opacity and transfer mode.

- **Channel mask:** Creates transparency based on a grayscale image. A channel mask is part of an object, the same way an image channel is part of a paint object. You can use painting tools and image-editing techniques in a channel mask.
- **Vector mask:** Creates transparency based on a vector gradient or the colors of a vector object. Vector masks can produce gradual transparency changes the same way that gradient inks produce gradual color changes. You can drag a tool to create radial, linear, elliptical, and rectangular vector masks, or you can use an object as a vector mask.

## Changing the Transparency Preview

When you edit paint objects or channel masks, Canvas previews transparency effects according to a preference setting. You can temporarily change the preview when you are in Channel Mask Edit mode.

When you edit a channel mask with no preview, a checkerboard pattern lets you focus on the transparent object. The checkerboard hides objects behind the transparent object, while showing the transparent areas in the object you are editing.

 In Total Preview mode, Canvas shows objects that are in front and in back of a paint object or channel mask you are editing.

### To Turn off the Transparency Preview:

Press the Asterisk (\*) key, or choose **Hide Transparency Preview** in the context menu.

### To Restore the Transparency Preview:

Choose **Show Transparency Preview** in the context menu. If you don't choose the command, Canvas restores the preview setting each time you leave Edit mode.

### To Set the Transparency Preview:

Choose **File | Configuration Center**. Open the Screen Rendering manager and select an option in the Transparency area. Click **Background Preview** to preview background objects only. Click **Total Preview** to preview background and foreground objects. Click **No Preview** to display transparent objects against a checkerboard pattern for editing.

 If you select the No Preview preference, you can't use the context menu to change the preview while you edit an object.

The preview preference affects what you see when you paint in a transparent paint object or edit any paint object. If objects are in front of the paint object, you can see the objects while editing if you select Total Preview. If you select Background Preview or No Preview, foreground objects are not displayed when you edit a paint object or a channel mask.

## Channel Masks

A channel mask is a special channel that defines transparency in an object. While channels are typically associated with paint objects, you can apply a channel mask to any type of object.



Vector Object



Channel mask



Transparency effect

Like an alpha channel in a paint object, a channel mask is basically a grayscale image. Channel masks can be edited using image-editing tools and techniques, similar to alpha channels.

You can think of a channel mask as a template for transparency. The channel mask is the same size as the masked object and is aligned with it. In the case of a paint object, the channel mask has the same resolution and number of pixels as the paint object.

Channel masks, like grayscale images, contain pixels that are assigned 256 possible lightness levels, or luminance values. Luminance values in a channel can range from 0 (black) to 255 (white).

In an alpha channel, luminance corresponds to selection intensity. In a channel mask, luminance values correspond to 256 levels of transparency, from 100% to 0% transparency, in the masked object. Black pixels (0 luminance) produce 100% transparency, while white pixels (255 luminance) produce 0% transparency.

Therefore, when you paint in a channel mask, painting with black produces clear areas and painting with white produces opaque areas in the masked object. Painting with gray produces partial transparency relative to the gray value, with darker grays producing greater transparency than lighter grays.

Black in a channel mask produces 100% transparency. A feathered edge produces partial transparency.



Channel mask and paint object



Masked object

Keep in mind that an object's appearance can be affected by its transfer mode, scope setting, and opacity, in addition to a channel mask. Changing the transfer mode can completely change the appearance of an object that has a channel mask. (See "Using Transfer Modes" on page 482.)

## Creating Channel Masks

You can create a blank channel mask, or create a channel mask from a paint object. You create a channel mask when you render objects. (See "Rendering Objects and Images" on page 301.)

You can use the Transparency palette, Sprite tool, or the Channels palette to create blank channel masks. (See "Channel Masks" on page 358 for more information about the Channels palette.) In the Transparency palette, the Mask menu shows "Channel" when a selected object has a channel mask.

### To Create a Channel Mask:

This procedure creates a blank channel mask for an object.



You can also choose **Object | SpriteLayers | New Channel Mask**.

1. Select a text, paint, vector, or group object to mask.
2. Select **Channel** from the Mask menu on the Transparency palette or press **Ctrl** and double-click the object.
  - If the object to be masked is not a paint object, a dialog box asks you to set the resolution of the mask. Enter a resolution from 1 to 2,540 ppi and click **OK**.
  - If the object is a paint object, the channel mask's resolution will be the same as the paint object's resolution.
3. The object appears in Channel Mask Edit mode, with the object visible and the channel mask selected. You can edit the channel mask with painting tools. (See "Editing Channel Masks" on page 476.)
4. Press **Esc** to leave Edit mode when you finish.

When you create a new channel mask, the channel is filled with white pixels. At this point, the channel mask produces no transparency because white pixels in the channel mask produce 0% transparency in the masked object. As you edit the channel, painting with gray produces partial transparency, and painting with black produces 100% transparency.

### To Create a Channel Mask with the Sprite Tool:

1. Use the Sprite tool to apply a channel mask to a text, vector, or image object.
2. Select the object to which you want to apply the mask.
3. Select the **Sprite** tool and click on the selected object.   
The object switches to Image Edit mode.
4. Once masked, apply transparency effects to the mask with Painting tools.

### To Set the Channel Mask Scope:

When you apply a channel mask to a vector object, the channel mask affects the vector object's fill ink or fill ink and stroke (pen ink). To change the effect, change the Scope option in the Properties bar or Transparency palette. (See "Controlling the Scope of Transparency Effects" on page 472.)

## Masking with a Paint Object

You can create a channel mask by attaching a paint object to another object. If you have an existing paint object that you want to use as a channel mask, it's quicker to use this procedure than to use the Channels palette to place the paint object in a channel mask.

### To Attach a Channel Mask:

1. Place a paint object to use as a mask in front of the object to be masked. The two objects do not have to overlap or touch, but the paint object must be in front of the other object in the stacking order.
2. Select both objects.
3. Choose **Object | SpriteLayers | Attach Mask**. Canvas creates a channel mask and both objects remain selected. The original paint object is not changed.

If the paint object and the object to be masked aren't the same size, Canvas scales the image of the paint object to fit the masked object.

A channel mask created from a paint object is the same as any channel mask. You can edit it the same as if you created a blank channel mask.

Like any other channel mask, a channel mask created from a paint object produces transparency relative to its gray values. If the channel mask is solid white, it creates no transparency; if it is solid black, it creates 100% transparency and makes the masked object invisible.

## Editing Channel Masks

You can use painting tools, filters, and image-editing commands to modify the effect of a channel mask.

### To Edit a Channel Mask:

Place the masked object in channel mask edit mode.

Editing a channel mask is similar to editing a channel in a paint object. You can paint in the channel mask with shades of gray. You can make selections with selection tools, commands, and alpha channels. You can apply image-adjustment commands and filters to the entire channel mask or to just the selected areas.

### Options for Channel Mask Editing

You can enter Channel Mask Edit mode using any of the following methods.

- **With the mouse:** Press **Ctrl** and double-click a masked object.



If the object doesn't have a channel mask, this creates a channel mask and puts the object in Channel Mask Edit mode.

- **In the Transparency palette:** Click the **Edit** button when a masked object is selected. This places an object with a channel mask in Channel Mask Edit mode. If the object has a vector mask, it places the vector mask in Edit mode.
- **In the Channels palette:** When a paint object is in Edit mode, click the channel mask to select it for editing. When any other object is in Channel Mask Edit mode, the channel mask is the only channel that can be selected.

### To Edit a Channel Mask:

1. Select the masked object.
2. Choose **Object | SpriteLayers | Edit Channel Mask**. The masked object appears in Channel Mask Edit mode.

In this mode, the channel mask is active and the object is also visible. You can paint in the channel or modify it to change the transparency of the underlying object.

3. Press **Esc** to leave Edit mode when you finish editing. The object remains selected.

## Selecting Views for Channel Mask Editing

You have a choice of view when you edit an object's channel mask. You can display the object and the channel mask together, which shows you the overall effect of the mask as you edit it. Or, you can hide the object to concentrate on the channel mask alone.

For information on selecting views with the Channels palette, see "Editing Channel Masks" on page 359.

## Selecting Views in the Transparency Palette

You can use the Transparency palette to change your view when you edit a channel mask. In Channel Mask Edit mode, two buttons let you select editing views. Click the triangle at the lower left to expand the palette if necessary to display the buttons.

### To View the Channel Mask Only:

In the Transparency palette, click **Channel Mask Only**. This is the same as hiding the "object channel" in the Channels palette.

### To View the Object and Channel Mask:

Click **Image and Channel Mask**. This is the same as making the "object channel" and the channel mask visible in the Channels palette.

### To Remove a Channel Mask:

Removing a channel mask from an object removes the transparency effect produced by the channel mask.

1. Select the masked object.
2. Choose **Object | SpriteLayers | Detach Mask**. Canvas removes the channel mask from the selected object.

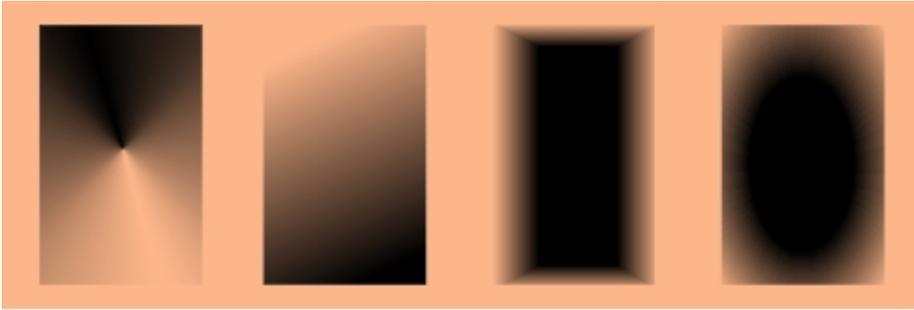
When you detach a channel mask, Canvas converts the channel mask to a paint object and places it in the document. The paint object includes the alpha channels from the masked object if it had alpha channels.

## Vector Masks

A vector mask creates a transparency effect based on a style of gradient ink, such as radial or rectangular. You can choose the style when you apply a vector mask, or you can apply an existing vector object as a vector mask.

A vector mask can be applied to any type of objects, including vector, paint, text, and group objects.

It's easy to apply vector masks. You can drag a vector transparency tool to apply radial, directional, elliptical, or rectangular style masks. If you want to use precise values for position and transparency levels, you can enter numbers in the Transparency palette. You can apply a mask quickly by selecting an object and choosing **Object | SpriteLayers** and selecting a vector mask style in the submenu.



### Vector mask styles

(Left to right) Radial, Directional, Rectangular, Elliptical

The styles of vector masks applied by the Vector Transparency tools are related to vector gradient styles. You can think of these tools as applying a hidden gradient to a masked object. The transparency effect is based on the hidden gradient; the transparency level is relative to the lightness of the gradient shading.

For example, a linear vector gradient blends colors along a straight axis. A directional vector mask fades from opaque to transparent along a linear axis. For linear vector gradients and directional vector masks, you can specify the length and angle of the axis.

The relationship between vector gradients and vector transparency masks can be seen if you detach a vector transparency mask. With a masked object selected, choose **Object | SpriteLayers | Detach Mask**. Canvas removes the vector mask and places it in the document as a separate vector object. If you examine this object, you see that it has a vector gradient. The gradient style is similar to the vector mask style. The vector gradient fades from black to white in the same way that the vector mask caused the masked object to fade from transparent to opaque.

The relationship between vector masks and vector gradients also works in reverse; use a vector gradient-filled object as a vector mask. (See "Masking with a Vector Object" on page 480.)

A vector mask is related to a vector gradient. If you detach a vector mask, you get an object with a gradient. The grays in the gradient correspond to transparency levels in a masked object.



Original object



Detached mask



Masked object

## Applying Vector Masks

You can apply a vector mask using the Vector Transparency tools. When an object is selected, you can drag one of these tools near or over the object to apply a transparency effect.

The Vector Transparency tools provide the easiest way to create transparency effects, such as vignettes, (images that appear in ovals and other shapes), as well as linear, radial, or rectangular fades.

You can use the Transparency palette to apply vector transparency effects. When you use the Transparency palette, you can specify values for the position and intensity of the effect.

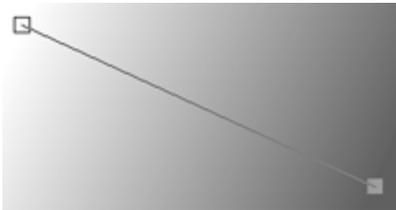
In the Transparency palette, the Mask menu shows the vector mask style when a selected object has a vector mask.

### To Create a Vector Mask:

1. Select a text, paint, vector, or group object to mask.
2. Select a **Vector Transparency** tool. These tools are in the Transparency tools palette. Select the tool for the style of vector mask you want to apply: Radial, Directional, Rectangular, or Elliptical.



3. Drag the tool near or over the selected object.



As you drag, a vector line or shape appears, which represents the position of the vector transparency effect.

4. To adjust the effect, drag a handle to reposition the transparency vector.
5. Press **Esc** to leave Edit mode.

### To Use the Transparency Palette:

You can use the Transparency palette to apply a vector mask. To open the Transparency palette, see "Using the Transparency Palette" on page 469.

1. Select an object to mask.
2. In the Transparency palette, choose a mask style in the Mask menu.



You can't select **Object** in the menu. To use an object as a vector mask, see "Masking with a Vector Object" on page 480.

3. To adjust the effect, drag the handles to reposition the transparency vector. When you finish, press **Esc** to leave Edit mode.

## To Set the Vector Mask Scope:

When you apply a vector mask to a vector object, the mask affects the vector object's fill ink or its fill ink and stroke (pen ink). To change the effect, change the Scope option in the Properties bar or Transparency palette. (See "Controlling the Scope of Transparency Effects" on page 472.)

## Masking with a Vector Object

Create a vector mask by attaching a vector object to another object. Like other vector masks, a vector mask created from a vector object produces transparency relative to its color values; e.g., if the vector object that you attach is solid white, it creates no transparency; if it is solid black, it creates 100% transparency, making the masked object invisible.

## To Attach a Vector Mask:

1. Place a vector object to use as a mask in front of the object to be masked. The two objects do not have to overlap or touch, but the vector object must be in front of the other object in the stacking order.
2. Select both objects.
3. Choose **Object | SpriteLayers | Attach Mask**. Canvas creates a vector mask and both objects remain selected. The original vector object is not changed.

If the vector object and the object to be masked aren't the same size, Canvas scales the vector object to fit the masked object.

## Editing Vector Masks

You can edit vector masks that have been applied with the Vector Transparency tools, and masks created by attaching gradient-filled vector objects. Editing lets you change the boundary of the opaque and transparent areas of a mask. You can also add nodes for finer control of transparency levels.

The handles correspond to the values in the Mask area in the Transparency palette. When you drag a handle, the values are updated to match the new position.

## To Edit a Vector Mask:

1. Select the object and click **Edit** in the Transparency palette. (See "Using the Transparency Palette" on page 469.) Or, select the **Vector Transparency** tool that was used to apply the mask.
2. Drag the vector mask editing handles to adjust the position and boundaries of the vector mask.
3. Press **Esc** when you finish editing.

## Editing Values in the Transparency Palette

Change values in the Transparency palette to make precise changes to a vector mask. When you change the mask settings, Canvas updates the mask handles to match the current position values.

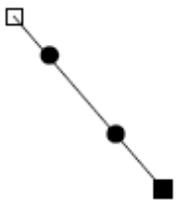
## To Edit a Vector Mask via the Transparency Palette:

1. Select the masked object and click **Edit** in the Transparency palette.
2. Change the following values to modify the effect of the vector mask.
  - **Transparency Start:** The transparency percentage at the edge of the vector effect. If this value is 100%, the object appears completely transparent beyond this point. When you first apply a mask in rectangular or elliptical style, this point is represented by the handle at the edge of the object.
  - **Transparency End:** The transparency percentage at the end of the vector effect. If this value is 0%, for example, the object is not transparent at this point. When you first apply a mask in the rectangular or elliptical style, this percentage corresponds to the area enclosed near the center of the object, which is 0% transparent. For radial style, the start point is the handle on the perimeter of the circle. The end is at an opposite point on the circle.
  - **Left:** The distance of the first handle from the left edge of the object, measured as a percentage of the object's width.
  - **Top:** The distance of the first handle from the top edge of the object, measured as a percentage of the object's height.
  - **Width:** The horizontal distance to the second handle from the first handle, measured as a percentage of the object's width.
  - **Height:** The vertical distance to the mask's second handle from the first handle, measured as a percentage of the object's height.

## Adding Nodes

The default handles that appear in Vector Mask Edit mode indicate the start and end points of the transparency gradient. For a directional mask (the most basic style), a hollow handle represents the point of 100% transparency, and the solid handle represents the point of 100% opacity.

When a vector mask is in Edit mode, you can add nodes to set additional opacity levels. The default mask has a start and end point, with a smooth transition from opacity to transparency between the start and end point. When you add nodes, set the opacity level at each node.

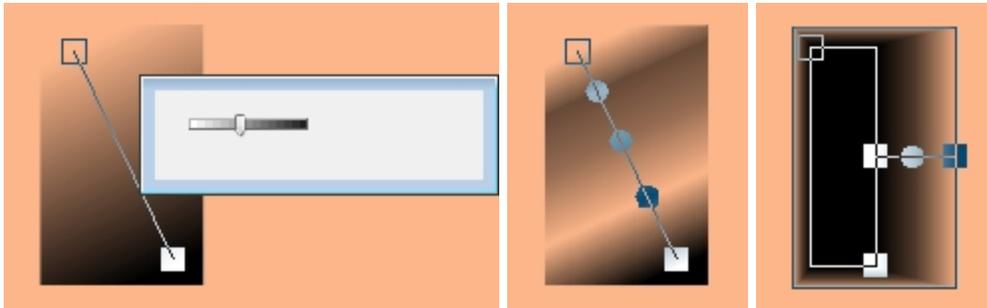


Nodes (small circles) let you set several opacity levels in a directional vector mask

## To Add a Node:

1. Select the masked object and then click the **Vector Transparency** tool for the mask style to enter Edit mode.
2. Point to the vector mask and right-click. An opacity slider appears.
3. Use the slider to set the opacity level of the new node; i.e., 100 makes the mask opaque at the node, whereas 0 makes the mask completely transparent at the node.
4. Select a value between 0 and 100 to make the mask semi-transparent at the node.

Use the pop-up opacity slider to set the opacity level of a node. You can add a series of nodes for additional control of a transparency mask.



Setting node opacity

Directional

Rectangular

When you edit rectangular or elliptical vector mask styles, add nodes to the horizontal vector that joins the inner box, (which represents the area of 100% opacity), to the object's bounding box. When you edit radial mask styles, you can add nodes to the circle, which represents the 360° sweep of the mask.

## Removing a Vector Mask

Removing a vector mask from an object removes the transparency effect produced by the mask.

1. Select the masked object.
2. Choose **Object | SpriteLayers | Detach Mask**. Canvas removes the vector mask from the selected object.

When you detach a vector mask, the former mask appears in the document as a separate vector object filled with a grayscale gradient.

## Vector Masks in Paint Edit Mode

If a paint object has a vector mask, Canvas temporarily represents the vector mask as a channel mask if you edit the paint object.

In Paint Edit mode, a temporary channel mask that represents the object's vector mask appears in the Channel Mask slot in the Channels palette. The temporary mask lets you see the effect of the vector mask as you edit the paint object.

If you click in the Channel Mask slot to try to select the temporary channel mask for editing, Canvas asks if you want to convert the vector mask to a channel mask.

- Click **Cancel** to return to editing the paint object without destroying the vector mask.
- Click **Yes** if you want Canvas to convert the vector mask to a channel mask that can be edited with painting tools. (See "Editing Channel Masks" on page 359.)

## Using Transfer Modes

All objects—vector objects, text objects, paint objects, and group objects—have transfer modes, which are like invisible filters that affect the appearance of colors. When objects overlap, the transfer mode of the front object can change the appearance of the back object.

Transfer modes work with transparency effects, including opacity and transparency masks; however, transfer modes can make objects appear to be transparent without reduced opacity or transparency masks; e.g., Multiply mode lets underlying colors show through an object. The default transfer mode is Normal; i.e., the colors of overlapping objects do not mix unless the front object is partially transparent.

In addition to interacting with background objects, transfer modes can interact with the document's white background. When an object's transfer mode is Screen, anything white replaces the object's color, so the document's white background can make the object seem to be invisible.



For vector objects, apply transfer modes to fill inks alone or to fill inks and strokes together.

## To Change an Object's Transfer Mode:

1. Select an object and choose a mode in the Transfer Mode menu in the Properties bar or Transparency palette.
2. For vector objects, select a **Scope** option for either the Fill or Fill & Stroke.

## Available Transfer Modes

The following descriptions are based on objects with RGB colors with no other transparency effects. Each mode is described in terms of the front object when the back object's transfer mode is Normal.

- **Normal:** Colors do not blend; the color of a front object hides the colors of all objects behind it.
- **Multiply:** Overlapping colors become darker. Black produces black. White has no effect, the same as if a white object were not visible. White text, for example, reveals the background.
- **Screen:** Overlapping colors are lightened. Objects with lighter colors increase the effect. White produces white. Black has no effect, the same as if a black object were not visible. Black text, for example, reveals the background.
- **Overlay:** A front object's color overlays colors in the background, while preserving highlights and shadows. White and black in the background are not affected.
- **Soft Light:** Underlying colors are lightened or darkened depending on the brightness of the front color. Colors in front that are lighter than 50% gray lighten the underlying object. Colors in front that are darker than 50% gray darken the underlying object.
- **Hard Light:** Underlying colors are lightened or darkened depending on the brightness value of the front color. Hard Light mode is similar to Soft Light. However, black in the front object produces black; white in the front object produces white.
- **Darken:** The color values of the front color replace the underlying color values if the front color value is darker than the back color value. Black in the background appears unchanged; the front color appears in place of white in the background.
- **Lighten:** The color values of the front color replace the underlying color values if the front color value is lighter than the back color value. White in the background appears unchanged; the front color appears in place of black in the background.
- **Difference:** The color value of the front and back colors are compared and the darker value is subtracted from the lighter value. If the front and back colors are identical, the result is black. If the front or back color is black, the other color does not change. If the front or back color is white, the other color is inverted.
- **Dodge:** Dodge mode compares the lightness values in each channel of the front and back colors, and uses the lighter value from each channel for the result color. However, black is not replaced by a lighter color. White in the front replaces all colors except black.
- **Burn:** Burn mode compares the lightness values in each channel of the front and back colors, and uses the darker value from each channel for the result color. However, white is not replaced by a darker color. Black in front replaces all colors except white.

## Color Modes

Canvas calculates transfer mode effects by applying formulas to color values. Canvas performs these calculations using RGB color values or CMYK color values.

For example, the formula for Multiply mode is Color 1 multiplied by Color 2. Canvas applies the formula separately to each value that defines a color. In the case of RGB colors, Canvas applies the formula separately to the red, green, and blue values. For CMYK colors, Canvas calculates the effect on cyan, magenta, yellow, and black values.

The significance of the color space calculation is that the effect you see on screen could appear completely different if the effect is printed in a different color space.

In particular, you must display transfer mode effects in CMYK if the document will be separated for printing with process (CMYK) colors. Otherwise, the color separations could produce colors that are completely different from the colors you see on screen.

For an example of this effect, draw several overlapping objects with different colors. Set the transfer mode of the front object to Difference. (See "Available Transfer Modes" on page 483.) Choose **Layout | Display Options**. In the Display Options manager, change the Mode from RGB to CMYK. Click **OK** to close the manager. To refresh the screen, press **F5**. You will probably see a significant change in colors when you switch from RGB to CMYK mode.



Select **Grayscale** from the menu to lessen the required memory if working on complex graphics or editing images. In Grayscale mode, your screen redraws faster than in CMYK or RGB.

## To Set the Color Mode for Screen Compositing:

1. Choose **Layout | Display Options**.
2. Select **Grayscale**, **RGB**, or **CMYK** in the Mode menu in the Display Options manager. Choose **RGB** for effects that will be displayed in RGB colors. Choose **CMYK** if you are using CMYK colors in a document that will be printed with process colors.

## Transparency and Printing

You can use transparency effects to create stunning images and complex illustrations. As with any graphic effects, however, images that appear perfect on screen can cause problems or produce unexpected results when you print a document. This section discusses some issues you should keep in mind to help ensure that your documents print successfully.

Canvas uses special techniques to print some transparency effects. Canvas can send an instruction to print an opaque rectangle, for example, to most printers; however, to print a transparent rectangle, Canvas usually converts the object to an image. This process is called rasterizing or rendering. Canvas then sends the image data to the printer.

In the Print dialog box, you can select options for printing objects and colors. The options can affect the time required to print a document, and how well colors match among objects.

## Output Resolution of Transparency Effects

You can specify an output resolution for a transparent object. If you don't specify the resolution, Canvas selects the resolution based on the following guidelines:

- If a transparent paint object overlaps other paint objects, Canvas rasterizes all the objects at the same resolution as the paint object that has the highest resolution.

- If a vector object is transparent or is behind a transparent object, Canvas rasterizes the vector object at the resolution specified for printing. You can set the resolution for printing in the Output Settings manager in the Configuration Center. (See "Setting Preferences" on page 62.)

### To Set the Output Resolution of an Object:

1. Select the object whose resolution you want to specify.
2. Choose **Object | SpriteLayers | Output Resolution** to open the Output Resolution dialog box.
3. Do one of the following:
  - Select the **Maximum Resolution** checkbox to specify that the object should be rendered at the maximum resolution of the output device.
  - Deselect the **Maximum Resolution** checkbox and enter the resolution you want Canvas to use. You can set the resolution from 1 to 2,540 dpi.
4. Click **OK**.

### To Set the Maximum Output Resolution:

You can specify a maximum resolution for Canvas output. The resolution you specify in the Output Settings manager affects output of all objects and rasterizing of transparency effects. This setting overrides settings you apply to objects with the Output Resolution command. (See "Setting Preferences" on page 62.)

# Chapter 8: Multimedia

## Designing for the Web

Canvas is an ideal tool for creating graphics and layouts for the World Wide Web. This section explores how to prepare graphics and documents for publishing on the Web or an Intranet. It includes information on hyperlinks, slices, animations, Web buttons, and exporting to PDF and Flash.

### About Hyperlinks and Hypertext

After you create illustrations and text for a Web page in Canvas, use the Link Manager palette to link items to other Web pages and resources on the Internet.

 An Internet address is referred to as a URL, an abbreviation of Uniform Resource Locator.

Graphics, such as buttons or images, that lead to other Web pages are called hyperlinks. Text that contains a hyperlink is sometimes called hypertext. Click a hyperlink on a Web page to jump to another page or a different site altogether. The Web browser searches the Internet for the address associated with the hyperlink.



Hyperlinked object



Hyperlinked image

[Home](#)  
[About Us](#)  
[Services](#)  
[Products](#)  
[Download](#)  
[Contact Info](#)

Hypertext

 To create invisible "hotspots," you can assign URLs to objects that don't have visible strokes or fill inks. This lets you designate any area of a Web page as a hyperlink.

You can make hyperlinks by assigning URLs to any page element, including the following:

- Vector objects, such as small illustrations.
- Image objects, including photos and painted images.
- Text selections and entire text objects.
- Buttons and animations.

 To prevent unintended changes, you can't assign URLs to objects on locked layers, pages, or slides. You must unlock these items prior to making changes.

## Using the Link Manager Palette

With the Link Manager palette, you can assign hyperlinks to page elements so they jump to files or Web pages on the Internet, a local hard drive, or an Intranet. In addition, you can create email links by using the `mailto:` command or define anchors with the Anchor function. You can also add hotspots to graphics for documents that you intend to export to PDF.

### To Open the Link Manager Palette:

Choose **Window** | **Palettes** | **Link Manager**.

## Link Manager Palette

<b>Link Manager menu</b>	Open this menu to define an anchor or select an anchor.
<b>Prefixes</b>	<p>Click the radio button to select a hyperlink protocol or command from the Link drop-down list.</p> <ul style="list-style-type: none"><li>• <b>http://www.</b> Hypertext Transfer Protocol. A Web address starts with <b>http</b>, followed by the Internet address, path, and name of a Web page; e.g., <b>http://www.acdsystems.com/English/index.htm</b></li><li>• <b>http://</b> Hypertext Transfer Protocol. A Web address starts with <b>http</b>, followed by the Internet address, path, and name of a Web page; e.g., <b>http://www.acdsystems.com/English/index.htm</b></li><li>• <b>file://</b> File. Let's you link to a file; e.g., <b>file://C:/Users/&lt;username&gt;/Documents/GettingStartedGuide.pdf</b></li><li>• <b>ftp://</b> File Transfer Protocol. A file's URL can start with <b>ftp</b> followed by the Internet address, path, and name of a file; e.g., <b>ftp://ftp.acdamerica.com/public/Guide.pdf</b></li><li>• <b>mailto:</b> An e-mail link starts with <b>mailto</b> followed by a username, @ symbol, and domain name; e.g., <b>mailto:support@acdsystems.com</b></li></ul>
<b>User defined</b>	Click the radio button to select a link from the Link drop-down list.
<b>Pages</b>	<p>Click the radio button to select a page or sheet from the Link drop-down list.</p> <ul style="list-style-type: none"><li>• <b>[first page]</b>: Jumps to the first page.</li><li>• <b>[last page]</b>: Jumps to the last page.</li><li>• <b>[previous page]</b>: Jumps to the page before the current page.</li><li>• <b>[next page]</b>: Jumps to the following page.</li><li>• <b>[page-top]</b>: Jumps to the top of the current page.</li><li>• <b>[page-bottom]</b>: Jumps to the bottom of the current page.</li><li>• <b>{Page #1}</b>: Jumps to the specified page, sheet, frame, or slide.</li></ul>
<b>Anchors</b>	Click the radio button to see select a defined anchor in the current document from the Link drop-down list.
<b>Link</b>	Depending on the radio button you selected above, the options available in the Link drop-down list will vary. Select one of the items in the list, enter a URL, or click the <b>Open File</b> button to select a file, and then click <b>Open</b> .



By default, files that do not have an htm extension do not appear in the file list. To link to Web pages, be sure to select files that have the htm extension.

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<b>Title</b>	Enter a descriptive title for the link. Once published online, when you hover over the link, the Title appears like a tool tip.
<b>Target</b>	<p>Decide how the link will appear in the browser window. The target is the frame in which the linked content will open.</p> <p>Select one of the following:</p> <ul style="list-style-type: none"><li>• <b>_top</b>: The linked document loads in the full browser window. All frames are removed.</li><li>• <b>_parent</b>: The linked document loads in the parent frame or parent window of the frame containing the link. If that frame is not nested, the linked document loads in the full browser window.</li><li>• <b>_self</b>: This is the default target. The linked document loads in the same frame or window as the link.</li><li>• <b>_blank</b>: The linked document opens in a new browser window. The current browser window is kept available.</li><li>• <b>_popup</b>: The linked document loads in a popup window. The Width and Height fields are available with this selection.</li><li>• <b>Relative paths</b>: Create hyperlinks to Web pages by typing relative paths, rather than complete URLs, in the Link Manager palette. Canvas specifies links this way when you select local files by using the Browse function in the Link Manager palette.</li></ul>
<b>Format text links with blue and underline</b>	<p>Select this checkbox to format linked text blue and underlined.</p> <p> When you remove a link, the text remains blue and underlined. It's recommended that you manually remove this formatting.</p>
<b>Hotspots for PDF Export only</b>	<p>Use the following options for documents that will be exported to PDF.</p> <ul style="list-style-type: none"><li>• <b>Select Hotspots</b>: Click to select hotspots in the document.</li><li>• <b>Show/Hide Hotspots</b>: Click to show or hide hotspots in the document.</li><li>• <b>Convert to Hotspot</b>: Click to convert the selected object to a hotspot.</li><li>• <b>Set Hotspot</b>: Click to create a hotspot over the selected object.</li></ul>
<b>Apply</b>	Click this button to apply the link to the selected element.
<b>Remove</b>	Select a link and click this button to delete the link.

---

## Creating Hyperlinks and Anchors

### To Assign a Hyperlink to an Element:

1. In your document, select the element that will contain the hyperlink. You can assign hyperlinks to elements such as text, or vector or image objects.
2. In the Link Manager palette, enter the hyperlink in the Link field, or click the **Open File** button to search for a file.
3. Add a short description in the Title field. This description appears when you hover over the link when your document is online.

4. Select the appropriate target frame.
5. Click the **Apply** button to assign the link.

 Hyperlinks are case-sensitive; i.e., if a domain or document name uses uppercase, use uppercase and vice-versa in the hyperlink.

 You can't assign a URL or action to objects on layers, pages, or slides that are locked.

### To Remove an Assigned Hyperlink:

1. In your document, select the element that has an assigned hyperlink that you want to remove. In the Link Manager palette, the hyperlink appears in the Link field.
2. Click the **Remove** button.

 When you remove a hyperlink from a piece of text, the blue underline formatting remains. You can manually update the text properties to remove this formatting.

### To Define an Anchor:

You can define anchors for various page elements, including text as well as vector and image objects.

1. In your document, select the object to which you want to assign the anchor.
2. In the Link Manager palette, select **Define Anchor** from the palette menu.
3. In the Anchors dialog box, enter a name for the anchor in the Define a new Anchor field.
4. Click **OK** to close the dialog box. The defined anchor will appear in the Link drop-down list in the Link Manager palette when the Anchors radio button is selected.

 If you redefine an anchor, make sure you select the **Replace existing anchor** checkbox. If it is deselected and you use the name of an existing anchor, a warning dialog box appears.

### To Create a Link to an Anchor:

1. In your document, select the element that will contain the link to the anchor.
2. In the Link Manager palette, click the **Anchors** radio button.
3. In the Link drop-down list, select the **anchor**.
4. Enter a title and select a **Target**.
5. Click the **Apply** button.

### To Remove an Anchor Link:

1. In your document, select the element that contains the link to the anchor. In the Link Manager palette, the hyperlink appears in the Link field.
2. Click the **Remove** button.

## To Create Links Between Pages:

After you link pages, you will want to export each page as a separate Web page. (See "HTML Options" on page 504.) Using this technique, you can easily convert a single Canvas document into a hyperlinked Web site.

 Use the Document Layout palette to assign meaningful names to pages before you create links to them using the Link Manager palette.

1. In your document, select the element that will contain the link.
2. In the Link Manager palette, click the **Pages** radio button.
3. In the Link drop-down list, select the page to which you want to link.
4. Enter a title and select a **Target**.



With page links, you would generally select **\_self** for the Target since internal links should open in the current window.

5. Click the **Apply** button.

## To Remove a Page Link:

1. In your document, select the element that contains the link to a page. In the Link Manager palette, the hyperlink appears in the Link field.
2. Click the **Remove** button.

 Canvas creates links among pages using file names rather than complete URLs. Therefore, when you create a series of linked Web pages from a Canvas document, be sure to keep the resulting files together in the same folder or directory on the Web server so the links among the pages function correctly.

## Invalid Characters in Page Names

Since some special characters are invalid in URLs, Canvas converts these characters if they are in a page or slide name that you select in the Link Manager palette.

If invalid characters appear in a page name, Canvas replaces the characters with underscores when Canvas assigns a URL. Invalid characters include a blank space and the following characters:

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### Invalid characters in assigned URLs

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!	&	[	` (grave accent)
@	*	]	
#	(	{	~
\$	)	}	<
%	+		>
^	=	tab	?

---

## Testing Hyperlinks or Commands

If you have attached hyperlinks or mail to commands to objects in your Canvas document, you can test or follow these links with the Hyperlink pointer.

### To Test a Hyperlink:

1. Select the **Hyperlink pointer** from the Toolbox. 
2. Move the cursor over an object that contains a hyperlink. The cursor changes to a hand.
3. Click the hand on the object and the associated program launches; e.g., Web browser, e-mail program.

## About File Locations and URLs

In most cases, Web files are created on one computer and transferred to a Web server that is connected to the Internet. You might create Web pages on your home or office computer, then transfer the files over a network or the Internet to a Web server.

Web pages often contain links to other Web pages on the same Web server. Because these links are based on the names and locations of the files on the Web server, changing file names or locations can break the links among the pages.

To successfully create hyperlinks among Web pages on your site, you should understand how to use relative directory paths, absolute directory paths, and Internet URL addresses.

- **Absolute paths:** An absolute path specifies a file's location starting at the top, or root, of the directory structure in which the file is stored; e.g., if a file named "Calendar.html" is stored in a folder named Events, inside a folder named Public, which is inside a folder named Home at the root of the hard drive, the path to the file is: /Home/Public/Events/Calendar.html
- **Relative paths:** A relative path specifies the location of a file relative to the location of another file in the same directory structure. Rather than starting at the root of the directory structure, a relative path starts at the location of one file or folder and lists the relative steps needed to get to the specified file. In a relative path, the symbol ../ (two periods and a slash) signifies a move up one step toward the root level in the directory structure.
- **Complete URLs:** Like an absolute path, a complete URL lists the directory path starting at the root to the location of a Web page on a server. In addition to the path and file name, a complete URL includes a protocol (http or ftp) and a domain name.

When you create hyperlinks, you can specify the target as a relative path or a complete URL.

- If the two pages are in the same folder or directory, the relative path is simply the name of the target file.
- A complete URL specifies the actual location of the file on a Web server on the Internet.

You can enter a relative path or a complete URL in the Link field. When you use the Browse button in the Link Manager palette, Canvas can enter a relative path or a complete URL.

## Creating PDF Hotspots

In Canvas you can create hotspot links for selected areas of a graphic. For example, if you wanted to use a graphic for navigation between the pages, you could add hotspots to the graphic so that users can jump from page to page in the PDF.

By default hotspots are not printed when you print a Canvas document, but you can choose to print them if you need to. To set a hotspot to printable or to delete a hotspot, you must unlock the hotspot object first.

 PDF documents only support rectangular hotspots, so when you export a Canvas document to PDF, all hotspots become rectangle objects.

### To Create a Hotspot:

1. In your document, do one of the following:
  - Select an object in the graphic.
  - Draw a rectangle over the area you want to set as a hotspot.
2. In the Link Manager palette, click one of the following:
  - **Set Hotspot:** Creates a new hotspot object over top of the existing object.
  - **Convert to Hotspot:** Replaces the existing object with a hotspot object.
3. Enter the **Link**, **Title**, and **Target**.
4. Click **Apply**.



You might choose to create a separate layer for hotspot objects as a way of organizing them.

### To Remove a Hotspot Link:

1. Select the hotspot object.
2. In the Link Manager palette, click **Remove**.

The hotspot link is deleted, but the hotspot object remains so that you can enter a new hotspot link.

### To Delete a Hotspot:

1. Select the hotspot object.
2. Choose **Object | Unlock**.
3. Press the **Delete** key.

The hotspot object and link are deleted.

### To Print Hotspots:

1. Select the hotspots you want to print.
2. Choose **Object | Unlock**.
3. Choose **Window | Palettes | Document Layout**.
4. In the Document Layout palette, set the hotspot objects to Printable. See "Using the Document Layout Palette" on page 53.

### Pixel Mode

The Pixel Mode setting allows users to view graphics at 72 ppi before they are rendered. At the same time, all of your graphics will remain fully editable. Pixel Mode also prevents pixel shifting, which sometimes occurs when objects are exported to the Web.

## To Turn on Pixel Mode:

See "Display Options" on page 65.

## Creating Slices

Professional Web designers will confirm that a fast download time versus a slow one can spell the difference between commercial success and failure. A visitor may quickly lose patience and hit the dreaded Back button if forced to wait too long for a Web page to load. Slicing large images into small, faster-loading pieces is one of the Web design tricks most often used.

A slice is a rectangular area of an image that becomes a cell in an HTML table. The HTML table is then exported to be placed onto a Web page.

 You can import the table into an HTML editor for further editing.

We suggest that you preview your work in a browser to ensure that your document will appear correctly. Also, remember that an image may appear differently when it is viewed on other platforms.

 Slice Creator

 Slice Selector

The tools that you need to use are the Slice Creator and the Slice Selector. The creation and manipulation of slices can only be accomplished when either of these two tools are activated.

The slicing tools let you optimize and export any Canvas object for use on the Web. In addition, you can assign a URL to a specific slice. (See "About Hyperlinks and Hypertext" on page 486.)

If you are new to slicing, then you need to know that Canvas contains default settings that allow you to quickly perform the slicing function. In other words, you may immediately begin slicing an image and Canvas will assign default settings; however, so that you can achieve the optimal results, we suggest that you review Slicer Preferences. (See "Slicer Preferences" on page 493.)

By using the Slicer Preferences prior to exporting an HTML table, you can efficiently manage your slices and significantly reduce the likelihood of potential problems. The procedure for properly setting up the export of your slices into an HTML table is detailed later in this section.

## Slicer Preferences

Double-click the Slice Creator icon or Slice Selector icon to open the Slicer Preferences in the Configuration Center.

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### General options

**Name template:** Assign a name to the slice template. This default name is shared by all of the slices. The name specified here must always use one of the formatting marks (either "# " for numbers or "&" for a letter). If these marks aren't used, then the application automatically adds a (#) to the end of the name. Other formatting keywords, such as [document] and [page] or a combination of these keywords, could be used together with the formatting marks. Additional naming information will be provided later in this section. A default name is automatically applied to a template if you don't enter one; however, if a Web page is going to have more than one HTML table (which will contain a sliced image), then it's a good idea to assign a unique template name before exporting the slices.

**Split preference:** Choose a way of splitting overlapped slices. By default, slices are split without any

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preference. In that case, Canvas automatically designates where or how to split an overlapping slice.

You may edit the default by selecting either vertical or horizontal as your choice. The Splitting preference remains in effect for all overlapping slices.



Changing this preference affects all existing (overlapping) slices, but not those that are hard-split using the Split command.

---

## Default image options

### Image format:

- **Automatic:** Canvas chooses the file format for images. (See "How Images are Handled" on page 505.)
- **JPEG or GIF:** Select either option to save all images in one format or the other.

### JPEG Quality:

- **Best:** least compression (100% quality).
- **Fine:** 90% quality.
- **Good:** 75% quality.
- **Draft:** most compression (50% quality).

**Anti-aliasing:** Smooths the edges of rendered vector objects and text objects.

- **Finest:** Uses up to 256 shades between each pair of colors. Images with more than 256 colors should be saved in JPEG format to preserve the full range of shades. If necessary, Canvas uses JPEG format if you select the Automatic Image Format option.
- **Fine:** Uses 64 shades per pair of colors. Medium uses 16 shades per color pair. Coarse uses four shades per color pair.
- **None:** No anti-aliasing.

Select **Save these settings as the default** to make these settings your default slicer preferences.

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## Using the Slice Creator

The Slice Creator tool gives you the ability to actually create a rectangular (horizontal or vertical) Slice box; i.e., you can define the area of the object that is to be sliced.



Select the Slice Creator icon. Slice Creator cursor appears as a (+) plus sign. At this point, manually slice each desired area by clicking and dragging your mouse over the image.

The Slice box contains a yellow transparent fill and has a red outline.

All slices are automatically created inside a Slice layer. Specifically, this means that no matter which layer you were originally working in, the Slice operation will take place inside its own layer.

We suggest that you refer to the Document Layout palette during the first few times that you create slice. (See "Using the Document Layout Palette" on page 53.) Doing so will better illustrate how your slices are handled by Canvas.

When creating a new slice, the cursor will automatically snap to an existing slice or a grid (in that order). (See "Drawing Grids" on page 205 to learn how to create a grid).

Another way to ensure precision is to create and place alignment guides around and over the object. If you are unfamiliar with this process, then we suggest that you read "Using Alignment Guides" on page 50.

Snapping to an existing slice is absolute. The cursor automatically snaps to a grid within a 3-pixel range of an existing slice.



Other Canvas operations are not allowed during the Slice Creator mode. You can only create slices.

## To Slice an Image:

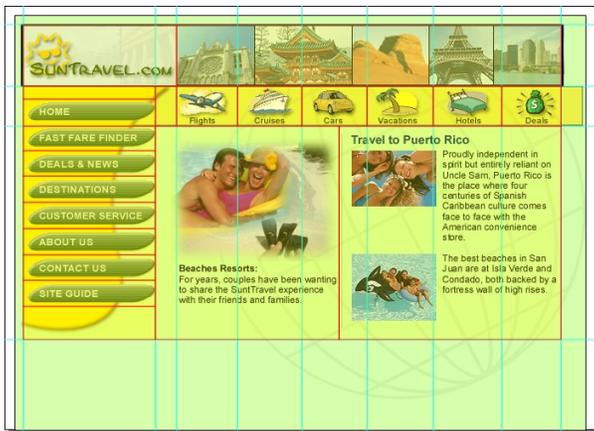
1. Click on the **Slice Creator** icon.



The cursor turns into a (+) sign when the Slice Creator function is active.

2. Then, click and drag over the section of the image to be sliced.

Each yellow-shaded box represents a sliced area.



## Using the Slice Selector

Once you have sliced the image, you may need to edit and move it. To do this, select the **Slice Selector** tool.



The Slice Selector tool allows you to select, move, resize, copy, or delete the slice. You also have the option to both Undo and Redo any of the previously mentioned procedures.



Slices can't be rotated or skewed. Additional slice-related commands are available through a context menu. (See "Slice Operations Context Menu" on page 497.)

## To View Slice Properties:

1. Select the slice with the **Slice Selector** tool.
2. Right-click to open the context menu.

3. Select **Properties** to open the dialog box.



Certain slice properties are available in the Properties bar when a slice is selected.

## Slice Properties

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### Change slice's index to

Change the index of any selected slice. This function could be necessary if the index is part of the slice's name when using either the '#' or '&' formatting symbol. It is available only if one slice has been selected.

First select the Change slices index to box. Enter either a number or choose one of the existing indices available in the menu.

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### Naming

**Slice name:** Enter the name of the slice or choose one of the values from the menu. [current] indicates that the name won't be changed. [default] means the default name is used. [document] is the current document's name. This keyword can be combined with the [page] keyword and with (&) or (#) formatting marks or with other text. Names like [document]\_[page]\_slice\_## are legal and may be used. [page] represents the current page name. This keyword can be combined with the [document] keyword and with (&) or (#) formatting marks.

# denotes the index of the slice. By using this setting, the index will be formatted as a number. More than one of these marks may be used; e.g., if you type "Image\_####" and the index of the image is 7, then the name of the image would be "Image\_007." Otherwise, if only one mark is used, then the name would be "Image\_7." This mark (or a set of them) can be used only once in the name and it is mutually exclusive when using the (&) as a formatting mark.

& represents the index of the slice, but it is formatted as a letter. More than one of these marks may be used to format a text designation that contains more than one letter; e.g., if you type "Image\_&&&" and the index of the image is 7, then the name of the image is "Image\_aag." Otherwise, if only one mark is used, then the name would be "Image\_g." This mark (or a set of them) can be used only once in the name and it is mutually exclusive when using the (#) as a formatting mark.



If more than one slice is selected, then a name with either (#) or (&) formatting mark is required since each slice must have a unique name.

Use ASCII characters only and ensure that the name doesn't contain a space between the characters.

**Alt text:** assigned alternative text won't take effect until it is exported to HTML. Some browsers display alternative text by default while the image is being downloaded. Alt text may have up to 64 characters and does not have to be in ASCII format.

**Image title:** A title will take effect only if it is exported to HTML. By default, a browser will display the title as either a tool tip or on the status bar when you move the cursor above the image. The image title message may contain up to 64 characters. These characters do not necessarily need to be in ASCII format.

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### Image Options

Setting mode

**Default options:** The slice(s) will share the Slicer's default setting.

**Optimized:** When checked, the standard dialog for image optimization will show up. You can set any

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combination of image parameters. After you close the dialog, a summary of the settings will be displayed along with a small button. Clicking the button will reopen the optimizing dialog. For more information on how to optimize an image's parameters, see "Saving Web Graphics (GIF/JPEG)" on page 95.



Although it is possible to select a transparent color (or colors) when optimizing GIFs, such settings will be lost after returning to the Slice Preferences dialog.

**Simple setting:** Using this mode, you can choose the desired options for anti-aliasing, image format, and JPEG output quality.

Anti-aliasing, Image format and JPEG quality image options are the same as the ones that appear in "HTML Options" on page 504.

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## Slice Operations Context Menu

The context menu can only be accessed if the Slice Selector tool is selected. Some of the commands are available only if they are relevant to the context of the current situation.

### To Open the Slice Operations Context Menu:

Right-click the **Slice Selector** tool on a slice.

- **Select this slice:** selects the slice at the cursor's current position.
- **Deselect this slice:** Deselects a slice if it is the only one selected.
- **Remove from selection:** Removes the slice at the cursor position from the selection set.
- **Select/Deselect all slices:** Selects or deselects all slice objects.
- **Delete slice(s):** Deletes all currently selected slices.
- **Divide slice:** Allows you to divide a slice horizontally and/or vertically into smaller slices. When choosing this command, the Slice divider dialog box appears with two options.

## Slice Divider Dialog Box

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### Horizontally

Specifies how many horizontal portions in which the slice will be divided. To prevent horizontal division of the slice, a value of 1 can be specified.

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### Vertically

Specifies how many vertical portions in which the slice will be divided. To prevent vertical division of the slice, a value of 1 can be specified.



Using this method, a slice that overlaps another slice cannot be divided.

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- **Split slice:** Splits all selected slices that are overlapped by other slices. Slices are sliced along the soft slice-lines. This operation separates the image into individual slices. These slices will have the parent slice's parameters by default, but the parameters can be modified.

- **Export slice:** Exports slices as images. It can also create an HTML file with a table that will contain all of your image slices. (See "Exporting Slices" on page 498.)
- **Arrangement commands:** Will arrange selected slices in a certain order: Shuffle Up, Shuffle Down, Bring to Front, Bring to Back. (See "Arranging Objects in the Stacking Order" on page 120.)

## Exporting Slices

Once you have finished slicing your work, you can export the images (GIFs or JPEGs). You can also create an HTML file with a table that contains all of the images. The options to perform these functions are available in the Slicer Export Options dialog box.

### Slicer Export Options

To open this dialog box, select **Export Slices** from the Slice Operations menu.

<b>Replace existing images</b>	Selecting this item automatically replaces existing images that have the same file name and location. If deselected, a dialog box will warn you when a slice is about to be replaced.
<b>HTML Export options</b>	Creates an HTML file that will contain the images to be exported. The file will contain one table that will link with all of the images. These settings can affect how the HTML table will be designed.
<b>Render empty slices</b>	If checked, all empty spaces (within the rectangle that determines the boundary of all of the selected slices) will be rendered. If not checked, the cell in the table will appear to be empty. For rendering the empty slices, default image options will be used.
<b>Use spacing GIFs</b>	When working with complex tables, it may be necessary to use a one-pixel wide transparent GIF image as a spacer. These spacers force a Web browser to accurately display a complex HTML table. Choose a predefined name or enter your own spacer name with only HTML-safe characters.
<b>Images to subfolder</b>	Allows you to name a subfolder to which all images will be exported. If not checked, then images will be created in the same folder where the HTML file is being exported. The name of the subfolder should contain HTML-safe characters only.
<b>Text encoding</b>	<p>If activated, all text (i.e., alternative texts and image titles) will be encoded using the specified encoding. Also, the information about which encoding is used will be declared in the HTML file's header. Western (ISO) is best used for the western Latin alphabet. Unicode (UTF-8) is best used for other alphabets (central European, Cyrillic, Asian) or mixed alphabets.</p> <p>If no encoding is required, then all of the text is exported as is. Only invalid characters are encoded so that the HTML output will always be valid.</p>
<b>Force default image options</b>	<p>If this option is turned on, then the individual image parameters will be overwritten by the Slicer's default options. This image setting is temporary and will not affect parameters of individual slices.</p> <p>See "HTML Options" on page 504 for the image options, which are Image format, JPEG quality, and Anti-aliasing.</p>

## Assigning URLs to Slices

Selected individual slices or groups of slices can be assigned a URL by using the Link Manager palette. Choose **Object | Options | Link Manager** to open the palette. The process is the same as assigning a URL to an ordinary object; however, the slice or slices must be selected with the Slice Selector. (See "Using the Link Manager Palette" on page 487.)

## Using Web Buttons

If you plan to export your Canvas document to the Web, you may want to add some interactive elements such as Dynamic Web buttons. Web buttons can lead visitors to another page within a site or link to a different URL altogether.

The Web Button tool opens the Web Buttons palette and places buttons in documents. 

## Understanding the Button States

These buttons are called dynamic because they change their behavior, or state, according to the user's actions. Dynamic Web buttons have a total of 3 states:

State	Explanation	Example
Up	This is the default, or normal, state of the button. The mouse is not over the button area.	
Over	This is the state when the mouse is moved over the button area.	
Down	This is the state when the mouse clicks the button area.	

When you create a button, you can use a separate object or image for each of the button's states.

 Dynamic Web buttons may also be referred to as rollovers.

 All vector or text objects to be used as Web buttons must have a pen ink and fill ink. Objects that have the pen and fill inks set to **none** can't be dragged into the Web Buttons palette.

## Web Buttons Palette

Double-click the **Web Button** tool to open the Web Buttons palette.

<b>Button state boxes</b>	Drag the images, text objects, or vector objects into each state's respective box. Remember that the Up state is the default state.
<b>Preview box</b>	If you've defined all 3 states, you'll see the Over state when the mouse passes over the box. Click the mouse on the box to see the Down state.
<b>Storage box</b>	Drag the defined button from the Preview box to this box. (See To Store a Web Button detailed below.)
<b>Web Buttons palette menu</b>	Open this menu to load, append, save, or clear buttons. (See "Saving and Clearing Web Buttons" on page 501 and "Loading and Appending Web Buttons" on page 501.)

## To Create a Web Button:

 You can drag objects into the boxes in any order.

- Drag the object for the Up state into the Up box.
- Drag the object for the Over state into the Over box.
- Drag the object for the Down state into the Down box.

### To Store a Web Button:

Drag the completed button from the Preview box to the Storage box.

### To Delete a Web Button:

Drag the button you want to delete to the trash can icon in the palette.

### To Modify a Web Button's State:

Drag the object from the Up, Over, or Down box into the document. Modify the object and drag it back into its respective box. Store the updated button and place a copy in your document.



You can't edit a button's attributes, such as pen ink, fill ink, and stroke.

### To Test Web Buttons:

Before storing a new button, test it in the Web Buttons palette. (See "Web Buttons Palette" on page 499.) As indicated previously, the Up state is the default state. (See "Understanding the Button States" on page 499.) Move the cursor over the Preview box to see the Over state and then click to see the Down state.

If you've already placed the Web button but want to see their appearance before exporting to HTML, use the Play feature on the Web Buttons palette.



Don't work in Canvas while play mode is active. Click **End Play Mode** before starting other work.

Click the **Start Play Mode** button and the placed Web buttons go into play mode. Move the cursor over the buttons and click them to see the 3 states. When you finish, click **End Play Mode**.

### To Place Web Buttons in a Document:

Use this procedure to place Web buttons in a Canvas document.



If you want to place multiple copies of the same button, use this procedure once, and then see To Place Additional Web Buttons detailed below.

1. In the Storage box, select the button that you want to place. The selected button appears in the Preview box.
2. Move the cursor into the document area. The cursor changes to a placement icon.
3. Do one of the following to place the button:
  - Click to place the button.
  - To scale the button, drag to create a bounding rectangle.



When the Web Buttons palette is closed, you can use the Web Button tool to place the last selected button.

### To Place Additional Web Buttons:

To place copies of the same button, use the Web button tool again or select the first button and choose **Edit | Duplicate** to create duplicates.

### To Resize Web Buttons:

Select the placed Web button and drag a handle to resize its bounding rectangle.

### To Attach a URL to a Web Button:

Use the Link Manager palette to link buttons to other HTML files or URLs. (See "Using the Link Manager Palette" on page 487.)

## Saving and Clearing Web Buttons

When you save a Web button in the palette, it's available in all Canvas documents.



Save the Web buttons on the network so your co-workers can use them as well.

### To Save Buttons:

1. In the palette's menu, choose **Save Buttons**.
2. Select a directory in which to save the file.
3. Enter a name for the file and click **Save**.

### To Remove All Buttons from the Web Buttons Palette:

Choose **Clear Buttons** from the palette's pop-up menu.

## Loading and Appending Web Buttons

When you load a Web button file, the buttons currently in the palette are replaced by the button file. If you don't want to lose the current buttons, you should save the current buttons in a button file. (See To Save Buttons detailed above.)

When you append a button file, the current buttons are not replaced. Instead, the buttons in the file are added to the end of the palette.

### To Replace All Buttons in the Palette with Those in a Button File:

Choose **Load Buttons** in the menu. Select a button file and click **Open**.

### To Add Buttons to the Palette:

Choose **Append Buttons** from the menu. Select a button file and click **Open**.

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### See Also:

- [Using the Link Manager Palette](#)

## Working with Animated GIFs

Animations are an attractive visual element that can be added to a Web site. The flexibility in Canvas allows you to create animated GIFs.

## Creating Animations

Create animated GIFs in Canvas by assembling images within an Animation document and then saving the file as an animated GIF. This animation format is extremely popular among Web designers since it is supported by nearly all Web browsers.

Animation documents consist of a series of frames, with each frame being a still image. Displaying frames in quick succession creates the illusion of motion.

 The more frames per second (fps), the smoother the motion appears.

Use the Document Layout palette to arrange the frame sequence and set their individual duration. (See "Using the Document Layout Palette" on page 53.)

## All About Onion Skinning

In Animation documents, you can display more than one frame at a time. Onion skinning is the term for displaying multiple frames as if they are on tracing paper. Onion-skinning is useful for positioning objects across frames of an animation.

The onion-skinning icon is located on the Document Layout palette. (See "Using the Document Layout Palette" on page 53.) Click this icon to open the menu.



- **No Onion Skinning:** Shows just the current frame.
- **Next Frame:** Displays the current frame and the frame after the current frame.
- **Previous Frame:** Displays the current frame and the frame before the current frame.
- **Next & Previous:** Displays the current frame and one frame before and after the current frame.
- **Custom:** Choose this option to display any number of frames adjacent to the current frame. Enter the number of frames to display.

When onion-skinning is active, names of the displayed frames are tinted in the layout list.

## Exporting an Animated GIF

Once you've created your animation, it is time to export it as an animated GIF.

 You should save your file first in Canvas format (.CVX).

### To Save as Animated GIF:

1. Choose **File | Save As**.
2. Select **GIF Animated** as the file type.
3. Enter a name for the file.
4. Click **Save**.
5. In the Animated GIF Options dialog box, select the animated GIF options.

## Animated GIF Options

<b>Transparent Background</b>	Makes the background transparent.
<b>Auto Crop</b>	Optimizes the size of each frame and the document. The Auto Crop feature will create the minimum size needed to accommodate all of the objects in the document.
<b>Interlaced</b>	The image will load into a browser a little bit at a time. Activating this feature creates the effect of improving an image over a slow connection.
<b>Anti-aliasing</b>	Objects from the Canvas document will be rendered with an overall softened effect.
<b>Individual Palette Per Frame</b>	If selected, each GIF frame will contain its own palette. This will create a larger GIF image; however, this setting is suggested if you are creating complex and colorful animations. If this option is not checked, then all frames will have a common palette. The color palette maximum is 256 colors.
<b>Erase Previous Frame</b>	Each frame will be erased and the area will be restored to the background before the next frame is displayed during playback.
<b>Optimize frames</b>	This feature minimizes the size of a file that will be created. We recommend this setting if you are working with colorful GIFs or pictures. The Optimize frame setting has no effect on simple graphics, like rectangles, ovals etc.
<b>Differential frames</b>	This option searches for the smallest frame possible in the set that contains all of the changes from a previous frame. After the search, it creates a new rectangle which becomes the new frame.   If the Erase Previous Frame option is checked, then this particular option will be unavailable. For more information on using animated GIF options, see "Working with Animated GIFs" on page 501.
<b>Infinite Loop</b>	Activating this option will cause your animation to run (loop) continuously.   You may specify the number of times that your animation will run. To do this, simply enter the number of times to "loop" your animation in the Times box.

## Creating Web pages from Canvas Documents

Any document that you create in Canvas can be exported for the Web in a matter of seconds. To export a document as one or more Web pages, save the document in HTML format.

Canvas does not support opening and editing of HTML Web pages; therefore, always save your documents in Canvas format (.CVX) before you export Web pages. Saving in Canvas format means you can edit the original and export again in HTML.

### To Save a Document in HTML Format:

1. Open the Canvas document that you want to save as one or more Web pages, and then choose **File | Save As**.
2. In the directory dialog box, select **HTML** file format.
3. Select a location to save the files, enter a file name, and click **Save**.
4. In the HTML Options dialog box, select options for saving the Web pages. (See "HTML Options" on page 504.)
5. Click **OK** to save them.

## HTML Options

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### General options

**Create new folder:** Organizes files for a Web page by placing them in a new folder in the specified location. The name that you enter when you are saving a Web page is used for the folder's name.

**Put images in subfolder:** Creates a subfolder for the image files.

**Separate pages:** Available for multi-page Canvas documents; creates a Web page from each page. Page names will become the file names. If you do not select this option, then Canvas exports all pages as one HTML file.

**Generate navigation file:** If you select Separate pages, you may wish to activate this option; generates navigation aids placed on the top and left side of each Web page. These links are created from the index name of each Web page.

**Use external style:** Select this option to create an external style sheet for Web pages that you are saving. An external style sheet can make it easier to edit styles manually and can also reduce the size of individual HTML files because the complete style information is not included in each Web page file.



Not available if Table Layout is active since Table Layout doesn't use global CSS definition.

**File format:** Two types available: HTML 4 and XHTML 1, with only a few differences between them. XHTML documents differ in the document's header and have some additional tags in the data stream (such as end-tags for image objects).

**Layout mode:** Three modes are available for both file formats.

- **Table Layout:** Allows all Canvas objects to be organized into cells of an HTML table. All overlapping objects are rendered and exported as bitmaps. Although table mode may produce less efficient HTML output, it is accepted by all major browsers.
- **CSS2 (Cascading Style Sheet):** Graphics and text objects will be positioned using the "absolute position" property (defined by the CSS2 specification). In this mode, objects can overlap each other without the need for you to render them. Some browsers have problems dealing with CSS2 format. Only Internet Explorer 4.x + (as well as AOL 4+) and Netscape Navigator 6.x can support CSS2 layout without problems.



CSS properties are also used in the Table Layout but only for text formatting not for positioning.

- **Table Layout Centered:** HTML output is the same as the standard "Table Layout"; however, table is centered in a browser.

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### Text options

**Render Text:** Rendering converts text objects to images to ensure that text appears the same on the Web. Rendered text can't be selected as text on a Web page.

- **Automatically:** Canvas decides when to render text.
  - **Always**
  - **Never:** Preserve all text as text objects.
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<b>Image options</b>	<p><b>Image format:</b></p> <ul style="list-style-type: none"> <li>• <b>Automatic:</b> Canvas chooses the file format for images. (See "How Images are Handled" on page 505.)</li> <li>• <b>JPEG or GIF:</b> Select either option to save all images in one format or the other.</li> </ul> <p><b>JPEG quality:</b> Four JPEG quality levels are available:</p> <ul style="list-style-type: none"> <li>• <b>Best:</b> Least compression (100% quality).</li> <li>• <b>Fine:</b> 90% quality.</li> <li>• <b>Good:</b> 75% quality.</li> <li>• <b>Draft:</b> Most compression (50% quality).</li> </ul> <p><b>Anti-aliasing:</b> Smooths the edges of rendered vector objects and text objects.</p> <ul style="list-style-type: none"> <li>• <b>Finest:</b> Uses up to 256 shades between each pair of colors. Images with more than 256 colors should be saved in JPEG format to preserve the full range of shades. If necessary, Canvas uses JPEG format if you select the Automatic Image Format option.</li> <li>• <b>Fine:</b> Uses 64 shades per pair of colors. Medium uses 16 shades per color pair. Coarse uses four shades per color pair.</li> <li>• <b>Medium</b></li> <li>• <b>Coarse</b></li> <li>• <b>None:</b> No anti-aliasing.</li> </ul> <p>Select Save this setting as default to save the current settings in the dialog box for all documents. Otherwise, Canvas saves the settings for the current document only.</p>
<b>Save these settings as default</b>	If you have never selected the save settings option, clicking Default will switch the dialog box settings to the Canvas default.

## Metatags

When Canvas creates an HTML file from a document, it uses metatags in the HTML file header to include data entered in the document Properties dialog box. This data includes information such as Title, Subject Keywords, Author, and Category from the fields on the Summary tab in the Document Properties dialog box.

### To Add Metatags to a Document:

Choose **File | Properties** and click the Summary tab. Enter any keywords in the fields.

## How Images are Handled

Canvas uses compression and color reduction to optimize images for faster display on Web pages. All graphic objects are exported as RGB images in GIF or JPEG format. You can choose the image format or allow Canvas to decide this option for you. (See Image Options described in the table above.)

When you select Automatic from the Image format menu, Canvas exports RGB Color and CMYK Color images as RGB (24-bit) images using JPEG compression. Indexed mode images, which use a maximum of 8 bits of color information per pixel, are exported in GIF format. Black and White images are exported as Indexed images (8-bit). Canvas exports Grayscale images as Indexed images (8-bit) or JPEG-compressed RGB images, using the format that it determines will produce the best results.

## How Slices are Exported

If slices are available in the Canvas document at the time of HTML export, then Canvas will design the document layout to conform to the slices. Canvas will also accept an individual slice's setting when it renders and names the images. (See "Exporting Slices" on page 498 and "Slicer Export Options" on page 498.)



Slices are used only when Table Layout is activated.

## How Animated GIFs and Web Buttons are Handled

When exporting animated GIFs, one GIF file will be produced for each animated GIF.

Regarding Web buttons, one image for each Web button's state will be exported. This group of images will be linked together using JavaScripting.

You cannot overlap these objects in Table Layout mode. If that happens, then an Animated GIF or Web button will be rendered and exported as a simple image. You can overlap the objects in CSS Layout mode only.

## EXIF Extension (JPEG)

EXIF is the abbreviation for Exchangeable Image File, a format that is a standard for storing interchange information in digital images using JPEG compression. Almost all new digital cameras use the EXIF annotation, storing information on the image such as shutter speed, exposure compensation, F number, what metering system was used, if a flash was used, ISO number, date and time the image was taken, whitebalance, auxiliary lenses that were used, and resolution.

Canvas allows digital photographers quick and easy access to most of the information that is attached to these images. After being imported into Canvas, the attached data may be viewed by choosing **Image | DCS information (EXIF)**. This command is disabled if the image does not contain EXIF data.

You can also view the EXIF data via a context menu. Select the image and right-click to open the menu. This command will not appear if the JPEG file does not contain EXIF data.



An option to include or remove EXIF data when exporting JPEG images has also been included in the Export Preview.

The EXIF option is available from the Export Preview window. If an image does not contain EXIF data, then the option is grayed out as shown in this example.

## Using the Save to Web Command

The easiest way to create Web pages in Canvas is to save a Canvas document using the Save to Web command.



Prior to exporting your document as an HTML file, we recommend that you make certain to save your original project as a Canvas file. You can then edit the original Canvas document if you want to make changes at a later date.

### To Save a Web Site Using Save to Web:

1. Choose **File | Save to Web** to open the Save to Web dialog box, which contains controls for range, as well as image and html export.

2. Select the export range by enabling an option in the What to save section.
3. Select either Auto, GIF, or JPEG for the image export in the Format for saving images section.
4. Open the HTML output method menu and select either HTML 4 with Table Layout or CSS2 Layout.
5. Select an anti-aliasing method to smooth the edges of objects that Canvas renders for export. Coarse uses the least number of colors and Finest uses the most.

## Exporting as a Flash File

Canvas provides compatibility for designing Web content to be used in a Flash®-enabled Web site. As a result, all Canvas documents can be saved in the .SWF format.

### To Save a Flash File:

1. After completing your document, choose **File | Save As**.
2. In the Save As dialog box, select the **Macromedia Flash (.SWF)** option. Click the **Save** button.

## Flash Options Dialog Box

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### General options

**Export mode:** Choose between **SWF Player** or **SWF Editor**.

- **SWF Player:** Creates an .SWF file for use in Macromedia Flash player or a Flash-enabled Web browser.
- **SWF Editor:** Generates the .SWF file for import into Macromedia Flash.



Exporting an .SWF file for use in an .SWF player doesn't automatically mean that the file can't be imported into a .SWF editor or vice-versa. However, to reduce possible problems, we suggest that you export your Canvas file using a mode that matches your specific Flash export needs.

**Page export:** This feature allows you to have the option to save a multipage document either as a single multiframe .SWF file or as a set of individual .SWF files:

- **Individual files:** Allows a multi-page Canvas document to be exported as separated SWF files. One will be created for each page in a Canvas document.
- **File with frames:** Enables a multi-page Canvas document to be exported as a single multiframe .SWF file.

**Accurate strokes (slower):** Enables exporting graphics that contain either calligraphic strokes or strokes that use texture, gradient, or hatch patterns.



This option may make the export process slower.

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### Image options

This feature allows you to choose an image format that will be applied to the original Canvas file when exported as an .SWF file.

**Image format:**

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- **JPEG:** Produces well compressed images. Loss of data may have an impact on image quality.
  - **LossLess:** Does not affect the quality, but the compression ratio is usually lower than using .JPEG.

**JPEG quality:** This option is only available if the lossy (JPEG) compression has been selected. Four JPEG quality levels are available:

- **Best:** 100% of quality is preserved
- **Fine:** 90% of quality is preserved
- **Good:** 75% of quality is preserved
- **Draft:** 50% of quality is preserved

Best should be chosen if a detailed image is desired and file size is not a concern. Draft can be selected if you need a small file for transmission and image quality is not an issue. Usually the Fine quality option provides the optimal quality-to-size ratio.

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**Save these settings as default**

Select this option if you wish to save these settings as the default for all subsequent SWF files.

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## Exporting as PDF

You can export Canvas documents to the Portable Document File (PDF) format. Canvas has the ability to apply security settings and embed fonts, and halftone settings. A specific color mode is also available so that it may be applied to all PDF objects. Also, the whole file can be compressed by the PDF export filter.

### To Export to PDF:

1. Choose **File | Save As**.
2. Select **PDF - Adobe® Acrobat®** files as the format.
3. Enter a name for the file and click **Save**.
4. In the PDF Options dialog box, select the PDF Export Options as described below.

## PDF Export Options Dialog Box

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<b>Compatibility</b>	Select the version of Adobe Acrobat that you want your output file to be compatible with.
<b>General</b>	<b>Color Mode</b> Select a <a href="#">color space</a> : <ul style="list-style-type: none"><li>• <b>RGB</b></li><li>• <b>CMYK</b></li><li>• <b>Grayscale</b></li></ul>
<b>Image Compression</b>	Select the <b>Lossless (zip)</b> or a <b>Lossy (JPEG Best, Fine, Good, Draft)</b> compression standard.
<b>Rendering Area</b>	Any transparency, SpriteEffects, or objects must be rendered upon export. Specify whether to render the smallest or complete area.
<b>Max</b>	Choose the resolution for rendering.

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<b>Resolution</b>		
<b>Downsample image objects above Max Resolution</b>	Select a strategy for handling how image objects above the Max Resolution will be downsampled from the <b>Downsample method</b> drop-down menu:	<ul style="list-style-type: none"> <li><input type="radio"/> <b>Nearest Neighbor</b></li> <li><input type="radio"/> <b>Bilinear</b></li> <li><input type="radio"/> <b>Bicubic</b></li> <li><input type="radio"/> <b>Box</b></li> <li><input type="radio"/> <b>Triangle</b></li> <li><input type="radio"/> <b>Bell</b></li> <li><input type="radio"/> <b>B-Spline</b></li> <li><input type="radio"/> <b>Lanczos</b></li> <li><input type="radio"/> <b>Mitchell</b></li> </ul>
<b>Export Layers (PDF 1.5)</b>	Select this option to render objects with transparency on each layer separately.	
<b>Export current page only</b>	This option is available when your document has more than one page. Select this option to only export the current page.	
<b>Render the entire page</b>	Select this option to render the entire page.	
<b>Security</b>	<b>Require password to open document</b>	Select this checkbox to enable security for your document. Enter text in the following fields: <ul style="list-style-type: none"> <li><input type="radio"/> <b>Enter password</b></li> <li><input type="radio"/> <b>Confirm password</b></li> </ul>
	<b>Use password to set restrictions</b>	Select this checkbox to enable the use of your password for defining the following permission levels: <ul style="list-style-type: none"> <li><input type="radio"/> <b>Printing allowed:</b> Select the printing resolution from the drop-down menu.</li> <li><input type="radio"/> <b>Changes allowed:</b> Select the kind of changes you would like to allow from the drop-down menu.</li> <li><input type="radio"/> <b>Enable copying of content</b></li> <li><input type="radio"/> <b>Enable text access for accessibility:</b> Select this option to enable screen reader devices to access the text in order to allow visually impaired users to use assistive technology and to read the PDF document aloud.</li> </ul>
<b>Fonts</b>	<b>Do not embed font subsets</b>	Select this option to disable embedding font subsets.
	<b>Embed all font subsets</b>	Select this option to embed subsets of all TrueType and PostScript (Type1) fonts.
	<b>Embed all font subsets except standard PS</b>	Select this option to embed only the fonts that are not standard postscript fonts.

	<b>fonts</b>	
	<b>Embed all font subsets except these</b>	Select this option if you want exclude specific fonts from being embedded. Select the fonts.
	<b>Embed none but these font subsets</b>	Select this option to specify which fonts should be embedded. Click the <b>Add fonts</b> button if you don't find the font in the list. In the Available fonts dialog box, select the fonts that you want to add to the list. Click the <b>Remove fonts</b> button to de-select specific fonts.
<b>Advanced</b>	<b>Do not compress text and vector data</b>	Text and vector objects will be compressed unless this option is enabled.
	<b>Export non-printable objects</b>	Select this option to export objects that cannot be printed.
	<b>Apply 7-bit ASCII encoding</b>	If activated, all binary data is filtered through an ASCII filter, which converts a file so it can pass through a data channel that supports 7-bit data only, (e.g., e-mail servers). ASCII encoding increases data size to an approximate ratio of 5 to 4.
	<b>Exact character positioning</b>	Each character of a text object is positioned individually to achieve maximal precision. This choice produces a slightly larger PDF file. However, if precise text layout is required, this option is correct. If this option is deselected, the PDF export filter tries to merge together as many characters as possible to form whole words and lines of text. This way, it is easier to work with text if the user decides to modify the PDF file later when imported back in Canvas.
	<b>Specify halftone settings</b>	Select halftone information to store inside the PDF. If no settings are specified, custom halftone information is not applied to the document. The halftone settings of the output device are not used when printing the PDF. (See "Exporting as PDF" on page 508.) <ul style="list-style-type: none"> <li>• <b>Shape:</b> Specifies the shape of the halftone dots. Each shape is defined by a simple function, as is described in the PDF (and PostScript) documentation.</li> <li>• <b>LPI/Angle:</b> Specifies the halftone grid. Lines Per Inch (LPI) defines the density of the grid, while Angle defines orientation of the grid.</li> </ul>
	<b>Export object properties</b>	Select this option to export any object properties included with objects.
	<b>Export scale data for measuring (PDF 1.6)</b>	This option is only available if a document is scaled. When selected, the document's scale ratio and unit will be exported to PDF. <p> In order to utilize this option, you must select Acrobat 7.0 or later from the Compatibility option.</p>
	<b>Export geospatial reference (PDF 1.7)</b>	When exporting a GIS-enabled document to PDF, select this option to include the measurement dictionary and geospatial reference in the output. <p> In order to utilize this option, you must select Acrobat 9.0 or later from the Compatibility option.</p>

## Security Settings

When exporting to PDF, you can set one password for opening the document and an additional password for permissions and restrictions for various features such as printing and copying. These passwords are independent of each other.

If you want to define a password to open the document, select the **Require password to open document** checkbox and define the password.



Anyone who needs to open the PDF must have this password.

If you want to establish permissions for various options, select the **Use password to set restrictions** checkbox and define a second password. Then configure the options that the user is able to perform; i.e., printing, commenting.



If an option is not selected, the user cannot perform this action.

## Embedding Font Subsets

The creation of subsets means that only characters used in the document are embedded.

This setting ensures the safe electronic transfer of a document between different platforms, machines, or offices. However, embedding the fonts could dramatically increase the size of the resulting PDF document.

## Transparency Settings

These settings decide how colors of a transparent object are rendered.

### Rendering Area

Specify which area of a transparent object is rendered.

- **Smallest:** Only objects that contain a transparency are rendered. This option can be safely used if there are objects using only one color space on the page. It can also be used if the transparent objects don't interfere with other color objects.
- **Complete:** Renders transparent objects and all of the objects that touch them. We suggest this setting when the transparent objects interfere with other non-transparent objects that use different color modes.

### Color Mode

This option specifies the color space used when rendering transparent areas.

### Transition Effects

Canvas can embed presentation slide transition effects within PDF files. Since a one-to-one conversion between Canvas transition effects and those available within Acrobat don't always exist, the export filter maps effects that don't correlate directly.



See the Adobe® Acrobat® documentation for more information on Acrobat transition effects.

Effects that are the same or almost the same:

<b>Canvas</b>	<b>Acrobat</b>
NO DISSOLVE	Replace (i.e. 'no effect')
SLIDES	Wipe
VENETIAN BLINDS	Blinds
HORIZON	Split (horizontally)
DOORS	Split (vertically)
SHRINK BOX	Box (closing)
GROW BOX	Box (opening)
DISSOLVE	Dissolve

Similar effects:

<b>Canvas</b>	<b>Acrobat</b>
SWITCHER	Wipe
STRETCH OUT	Split (horizontally)
IRIS IN	Box (closing)
IRIS OUT	Box (opening)
CORNERS	Box (opening)
JAIL BARS	Blinds (vertical)
CHECKERS	Glitter (0 degrees)
CASCADE	Glitter (270 degrees)
CROSS CUT	Glitter (315 degrees)

Other effects:

<b>Canvas</b>	<b>Acrobat</b>
CLOCK	Dissolve
BUBBLES	Dissolve
SPEED BOX	Dissolve
STAR BURST	Dissolve

## Timing

In Canvas, the duration of an effect can be set on a scale that goes from 'min' to 'max'. That settings will be used in a PDF as a time that goes from 0.5 seconds up to 4.0 seconds.

Since there is no option for setting the length of time an individual slide will stay visible during a slide show, a default time of 15 seconds will be used; i.e., if the user doesn't go to the next slide, the next slide will come up automatically after 15 seconds.

## Hypertext Links and URLs

The PDF Export filter supports all links that have been set through the Link Manager. (See "Using the Link Manager Palette" on page 487.) Links to individual pages of a multi-page document will result in the creation of hypertext links within the PDF. Links to external HTML or PDF files are also supported.

It should be noted that PDF supports rectangular (orthogonal) hot-spots only; i.e., if a URL is assigned to a rotated text object, the bounding box of the text will be defined as the hot-spot area. This should not be a problem if there is just one such link on a page. However, be aware that if more than one rotated text (or other non-rectangular objects) with a URL are used on a page, their bounding boxes may intersect. This may cause links that are located beneath another's bounding area to not work as expected.

## Default Bookmarks of a Multi-Page Document

When exported, a document containing more than one page will link to each individual page of the document. Names of each page are used as titles for the bookmarks. Because they are exported as Unicode text each title may contain any letter that is supported by your current locale.

## Using Multiple Master PostScript Fonts

The PDF Export filter can't embed Multiple Master fonts. If a Multiple Master font is used in a document, the PDF filter exports all standard properties of the font; however, it will not embed the actual data of the font, regardless of the current setting in the PDF Export dialog box.

## Exporting as WEBP

You can export Canvas documents to as a WebP format. WebP was developed by Google© to allow lossless and lossy compression for images being uploaded to the web. This format is useful as it allows you to save bandwidth by utilizing a smaller file size, potentially without sacrificing image quality.

### To Export to WEBP:

1. Choose **File | Save As**.
2. In the Save As dialog box, select **WEBP - Google WebP Image** as the format from the Save as type drop-down menu.
3. Enter a name for the file and click **Save**.
4. If rendering is required before saving, the Render Image dialog box is displayed. If you would like to preserve transparency, select the **Mask** checkbox. Configure the options and click **OK**.
5. In the WebP Export Options dialog box, select the WebP options as described below.

## WEBP Options

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<b>Compression</b>	<input type="radio"/> <b>Lossless:</b> Select this option to compress without losing any data. <input type="radio"/> <b>Lossy:</b> Select this option to compress into a smaller file size. You may lose some data.
<b>Optimized for</b>	Select which output type to optimize for: <input type="radio"/> <b>Default</b> <input type="radio"/> <b>Picture</b> <input type="radio"/> <b>Photo</b> <input type="radio"/> <b>Drawing</b>

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- **Icon**
  - **Text**
- 

**Quality** Select your RGB channels quality type. Compression increases the closer you set the slider to Draft. This allows for a smaller file size, though also reduce the quality.

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**Alpha channel compression** This option is available if you selected the Mask checkbox in the Render Image dialog box. The Alpha channel compression checkbox will compress the mask and reduce the overall file size.

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**Alpha channel quality** Select your alpha channel quality type. Compression increases the closer you set the slider to Draft. This allows for a smaller file size, though also reduces the quality.

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## Presentations

You can create Canvas presentations that can be played by other Canvas users or self-running slide shows.

### Creating Slide Shows

When creating a presentation in Canvas, you can save the presentation in two ways:

- **Canvas file (.CVX)**: If you save it as a .CVX file, the presentation can be opened by another Canvas user.
- **Canvas Slide Show (.EXE)**: An .EXE file is a self-running application that can only be executed on a Windows platform. You don't need Canvas to run this file. (See [To Play the Slide Show \(.EXE\)](#).)

 Remember to first save your presentation as a Canvas file so you can make changes to the original file and view the presentation on either platform.

### To Create a Slide Show:

1. Choose **File | New** and select **Presentation** as the Type of Document.
2. Use the Document Layout palette to add slides, layers, and specify various options that affect how the slide show is played. (See "Using the Document Layout Palette" on page 53 and "Slide Options" on page 516.)
3. Open the Slide Show palette by choosing **Layout | Slide Show**. (See "Slide Show Palette" on page 514.)

### Slide Show Palette

You'll need to access the Slide Show palette if you want to build a slide show or view a slide show. Choose **Layout | Slide Show** to open the palette. This is a floating palette that can be kept open to create, configure, and play slide shows.

### Slide Show Palette Options

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**Fit to screen** Reduces or enlarges the document's slides so they fit within the screen area of the system used to play the slide show. Canvas calculates a scaling factor based on the size of the system's monitor and the resolution setting.

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<b>Loop</b>	Causes the slide show to play continuously until you interrupt it. When Canvas reaches the end of the document, it begins the slide show from the first slide.
<b>Show Pointer</b>	Displays a pointer on screen during playback. Enable this option and select the pointer from the pop-up menu. You can control the pointer with the mouse during the slide show, so you can indicate important items in the presentation.
<b>Advance Every _ Seconds</b>	Makes the slide show self-running by advancing from one slide to another after a specified interval, without any intervention from the operator. Enter the number of seconds in the text box. The exact timing between slides depends on the speed of the system used for playback and the complexity of the illustrations.
<b>Progressive Build</b>	The Progressive Build option in this palette will allow you to play a self-running slide show either layer by layer or slide by slide. While playing your self-running show, you also have the option to control the progression of each slide in the show. (See <a href="#">To Play the Side Show (.EXE).</a> )
<b>Anti-Aliased Play Quality</b>	Select this option to anti-alias (smooth) vector and text objects during playback. If you select "Vector Quality: Anti Aliased" in the Configuration Center, Canvas will anti-alias objects in your documents except when playing slide shows.
<b>Build Slide Show</b>	Opens the Save As dialog box. Enter the name of the document in the file name field. Ensure that the (.EXE) extension is kept.

 Another way to begin this process is to choose **File | Save As**. If you choose this method, then your presentation will use the options that have been set in the Slide Show palette.

## Adding Speaker Notes

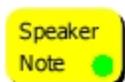
If you are presenting a slide show, speaker notes can help you remember important points of discussion. You can also create these notes for your audience. Each slide can have its own set of speaker notes.

 To create a slide show and have access to the Slide Show palette, ensure that you select **Presentation** as the document type.

 To view the speaker notes while showing the slide show, your presentation must be in .CVX format. You must also select **Show Speaker Notes** in the Slide Show palette.

## To Create Speaker Notes:

1. Select the **Speaker Notes** tool.   
The cursor changes to a crosshair.
2. Click the crosshair in the slide area. A Speaker Notes object appears with a gray circle that indicates that no notes have been entered.
3. Double-click on the **Speaker Note** graphic to open the Speaker Note dialog box.



4. Enter the text in the dialog box and click **OK** when you have finished. The circle turns green indicating that the Speaker Note contains text.

 You can also enter text in the field that appears in the Properties bar when the Speaker Notes tool is selected. Click **Create**. The Speaker Notes object appears in the upper left corner of the layout area.

You can update or delete the text at any time by selecting the Speaker Notes object and updating the text in the field that appears in the Properties bar. Click in the layout area to deselect the Speaker Notes object. The text is updated.

 If you delete the Speaker Notes object, any text that it contains will be deleted.

### To Play a Slide Show That Contains Speaker Notes:

1. Choose **Layout | Slide Show** to open the Slide Show palette.
2. Deselect the **Fit to screen** checkbox. If this option is selected, the Speaker Notes will not be visible.
3. Click the **Play** button. The slide show appears on the left side of the screen and the Speaker Notes on the right side.

### Displaying a Slide Show on Two Monitors

In order to use this function, you must have the necessary hardware to support two monitors. Refer to your system documentation.

If using two monitors, Canvas displays the slide show on the full screen of the primary monitor. The slide show and speaker notes are shown in normal view on the secondary monitor.

 If you do not know which monitor is primary and secondary, use the Display Options in the Control Panel.

### Slide Options

In the Options dialog box, you can define slide properties such as names and transitions. To access the Options dialog box, open the Document Layout palette (**Layout | Document Layout**). Then open the palette menu and select **Options**.

### To Set Slide Transitions:

You can set transitions for the current slide or multiple slides. To apply a transition effect to multiple slides, select the slides in the Document Layout palette and open the Options dialog box as previously explained.

1. To use a transition effect (such as Dissolve or Iris In), select **Transition to next slide**. If you do not select this option, the slides simply appear in sequence.
2. Select a transition effect in the pop-up menu. If there are options for the transition effect, the Options button is available. Click the button to open the Transition Options dialog box.
3. In the Transition Options dialog box, drag the slider to adjust the transition speed from Min (slowest) to Max (fastest). Select a **Direction** (if available) and then click **OK** to return to the Options dialog box.
4. To preview the transition effect, click **Try**.
5. Click **OK** in the Options dialog box to apply the settings to the selected slides.

Once you have finished setting your options, you are ready to save your presentation as either a Canvas file (.CVX) or Canvas Slide Show (.EXE).



Remember to first save your presentation as a Canvas file so you can make changes to the original file and view the presentation on either platform.

6. Choose **File | Save As** to open the Save As dialog box.
7. Enter a name in the File Name field.
8. Select either **.CVX** or **Canvas Slide Show (.EXE)** for the file format.
9. Click **Save**.

## Viewing Slide Shows

Canvas Presentations that are saved as Canvas files (.CVX) can be viewed within Canvas. When you play a Canvas Presentation, Canvas displays the document's slides in order, using the specified transition timing and effects.

A presentation slide show can be set to automatic mode, in which the slide show plays once and stops or repeats continuously. Slide changes also can be controlled by an operator. Canvas can show slides using a time interval that you specify, or you can control the pace by clicking the mouse to switch to the next slide whenever you are ready.

### To Play a Slide Show in Canvas (.CVX):

1. Choose **File | Open** and find the Canvas Presentation document (.CVX).
2. Choose **Layout | Slide Show** to view the Slide Show palette.
3. Click **Play** on the palette. If **Advance Every \_ Seconds** is selected, Canvas changes slides at the specified interval. Otherwise, click to change slides. **Ctrl-click** to go back one slide.
4. To stop the slide show, right-click.

 While playing a Slide Show within Canvas, you may view each layer in reverse order. To do this, you must press **Ctrl+Shift** and click the mouse.

### To Play the Slide Show (.EXE):

If the slide show was saved as an .EXE file, you can view it as a self-running application on a Windows platform.

1. To run the program, locate the application (.EXE).
2. Then double-click the icon or right-click and select **Open** from the context menu. The slide show will open.
3. Now right-click on the screen to access the Slide Player menu. This gives you various options for playing back your slide show using your mouse and keyboard.
  - **Quit:** Exits the slide show.
  - **Next Slide:** Advances to the next slide.
  - **Previous Slide:** Goes back one slide.

- **First Slide:** Goes to the beginning of the slide show.
- **Last Slide:** Goes to the end of the slide show.
- **Toggle Playing:** Alternates between playing the slide show or pausing the slide show.
- **Toggle Full Screen:** Alternates between a full-screen presentation and a window-sized presentation.



To view the slides in reverse order, **Ctrl-click** the mouse. To advance the viewing of the show, **Alt-click** the mouse.

## Slide Show Menu Bar

If you choose to view a window-sized presentation, at the top of the window is a menu bar that basically has the same functions as the Slide Player menu, except for the Slide Show Properties and Thumbnails option.



Click on the **Slide Show Properties** button to open the Slide Show Properties dialog box. Use these options to control how the slide show is presented.



If you want the slide show to loop while playing, you must select both **Play in loop** and **Auto advance every \_ sec** and enter a number in the field. Otherwise, you'll have to click the mouse to advance the slides.

# Chapter 9: Seismic Data

## Seismic Data

The global energy marketplace is a continually transforming one where sometimes change is the only thing that remains constant. In order to stay at the forefront, companies have to keep up with the latest technologies and develop the best strategies. Not only is this the case for oil and gas companies, but also for the companies that provide services and products to this specific industry.

In the oil and gas industry, seismic data is the primary type of data used by geophysicists. Analysis of seismic data gives earth scientists and data specialists their first clues as to the whereabouts of valuable resource locations. Generally, petrotechnical applications export seismic data in CGM format, which is a two-dimensional graphic data that contains either vector objects or both vector and image objects. The Canvas support for CGM files as well as other capabilities allow for significant increases in company productivity and workflow.

## Importing CGM Files

With Canvas, you can open, modify, and save CGM files created in other applications. CGM file properties, including WebCGM tags are retained, and can be viewed in the Object Properties palette.

### To Import CGM Files:

1. Choose **File | Open**.
2. Select the CGM file you want to open, then click **Open**.
3. Select the CGM Import Options.
4. Click **OK**.

### CGM Import Options

<b>CGM Options</b>	<b>Import Background:</b> Imports the background. <b>Import With Layers:</b> Retains the layers in the file. <b>CALS Compliant:</b> Retains CALS compliance. <b>Offset To (0,0):</b> Places the image at the top left of the page. <b>Retain Bitonal Images:</b> Retain the foreground and background of bitonal images.
<b>Scale Input</b>	<b>Automatic to One Page:</b> Scales the incoming file to fit the page. <b>%:</b> Select a percentage for scaling the incoming file.
<b>Object Clipping</b>	<b>Clip Only If Necessary:</b> This option eliminates clipping rectangles if they do not clip any of the objects assigned to them. Those objects are contained entirely within the clipping area and checking this option will allow Canvas to redraw much faster; however, if any object stripped of the clipping rectangles is moved outside that area, they will not be clipped because the clipping rectangle has been removed when setting this option. Be careful with this option if you want to move objects in the document. <b>Hard Clipping:</b> This option eliminates objects that are not visible as a result of clipping.

<b>Render Options</b>	<p><b>Render Document:</b> Select this option to change the color mode or resolution of the file.</p> <p><b>Color Mode:</b> Select a color mode.</p> <p><b>Pixels/in:</b> Select a resolution in pixels per inch.</p>
<b>Seismic Options</b>	<p><b>Import Only Raw Seismic Data:</b> Select this option to import only the seismograph samples. The subsequent trace objects will not have any wiggles or background images, only those samples. Later, using the Seismic Traces palette, you can create wiggles or background image from those samples. If this option is not selected, the wiggles and/or background image will be created on import in accordance to settings included in the CGM file.</p> <p><b>Interpolation:</b> Select one of the following:</p> <ul style="list-style-type: none"> <li>● <b>Default:</b> Defined in PIP file.</li> <li>● <b>Off Always:</b> No color interpolation.</li> <li>● <b>1D Always:</b> Displays the background in baseline direction only.</li> <li>● <b>2D Always:</b> Displays the lines in biaxial interpolation.</li> </ul>
<b>Advanced Management</b>	<p><b>Collect Lines:</b> Select this option to collect lines.</p> <p><b>Skip Degenerate Objects:</b> Select this option to skip degenerate objects.</p>
<b>Font Match</b>	<p>Click this button to open the CGM Font Matching dialog box. The fonts to be substituted appear in the Original Font column. Select a substitute font from the drop-down list and click <b>OK</b>.</p>

After you have modified the CGM file, you can then export the file. See "Working with CGM Files" on page 90.

## Seismic Traces Palette

Geologists and earth scientists often have to use seismic files in their studies and various reports. The Seismic Traces palette was designed to allow professionals to examine traces in imported CGM files.

To perform any operations on Seismic Trace objects they must be selected. If Seismic Trace objects are grouped, they have to be ungrouped.

### To Open the Seismic Traces Palette:

Choose **Window | Palettes | Seismic Traces**.

 If a trace does not contain seismic data, no wiggle or background image creating can be performed on the trace. Such a trace might be imported from a CGM file with a background image already created; however, if the user erases that background image using the Purge button, it is only possible to recreate the background image via the Undo command. Refrain from performing background image operations on traces that do not contain seismic data.

## Control Panel

The following icons are used to control the display or convey information regarding seismic traces:



Click this icon to display wiggles; click again to hide wiggles



Click this icon to display background image; click again to hide background image



Click this icon to adjust wiggle display accuracy



Click this icon to select all trace objects on current page



Icon indicating that all selected traces have seismic data



Icon indicating that only some of the selected traces have seismic data



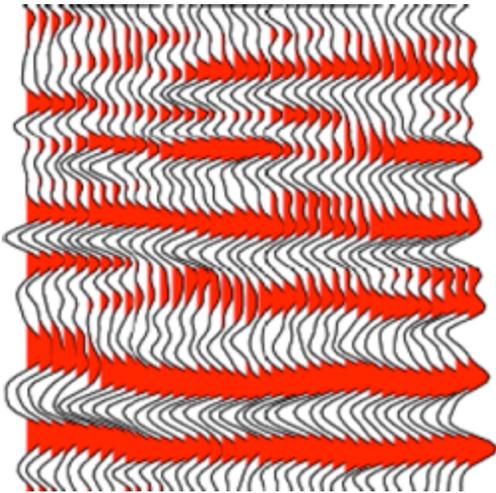
Icon indicating that none of the selected traces have seismic data

## Wiggle Options

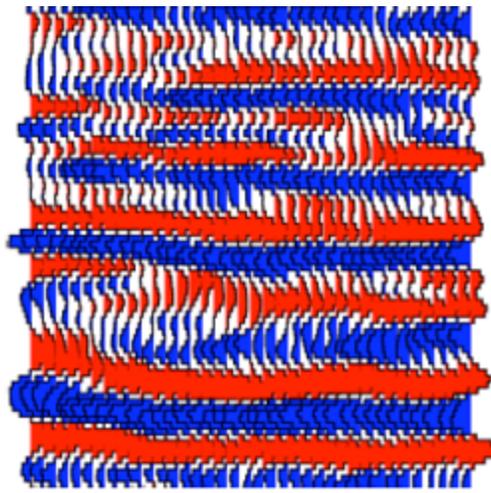
The Seismic Traces palette offers a range of ways to visualize wiggles. The Wiggle options section contains the following controls:

- **Lobes:** For both positive and negative lobes, you can hide them, reverse them, and assign them a color.
- **Wiggle resampling:** Select a resampling method from the menu, Current, Linear approximation, or Replicate points. If you don't want to change the resampling method when changing other Wiggle options, select **Current** in the Wiggle resampling menu.

Click **Apply** to apply any changes to the selected traces. Click **Purge** to purge all wiggles.

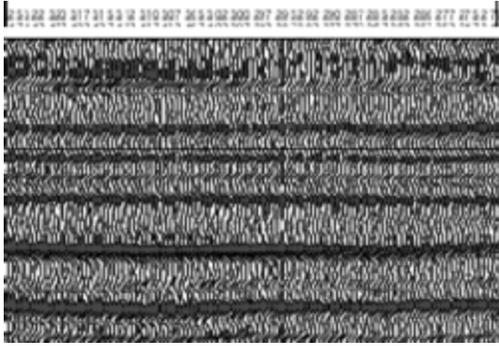


Group of traces in their original representation (linear approximation)

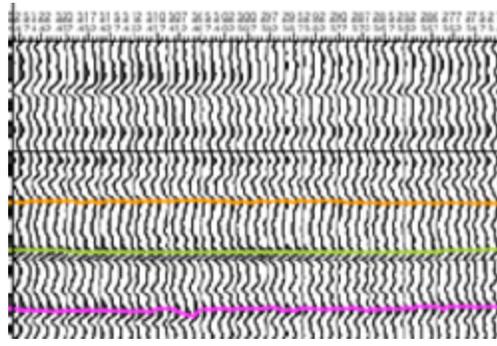


After changing colors and resampling method (replicate points)

To help better display dense plots Canvas can try to adjust accuracy with which to display wiggles. This will lower the exactness of the display but will help creating a clearer picture. The adjusted accuracy feature is triggered (if selected) when the magnification is below 100%.



Dense plot displayed without adjusted accuracy (at zoom 50%)



Same fragment with adjusted accuracy(at zoom 50%)

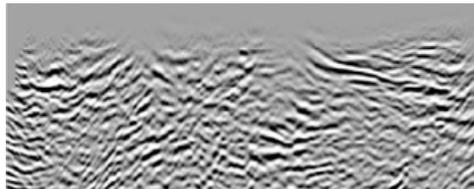
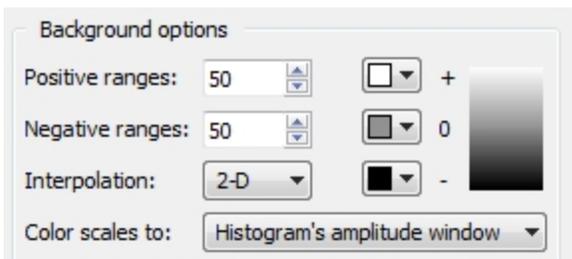
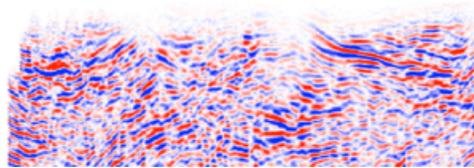
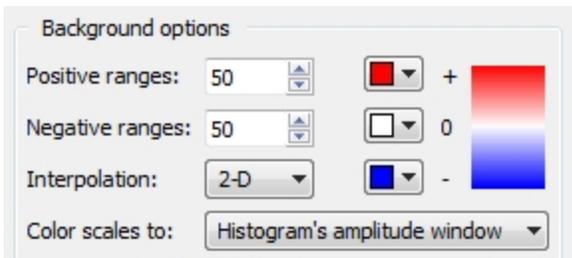
## Background Options

Another way of visualizing seismic data can be accomplished by creating a background image in which color is directly derived from the data. The image representation of the data is created by assigning colors to maximum, minimum, and 0 value of the data. All other data values fall in positive (between maximum value and 0) and negative (between 0 and minimum value) ranges, number of which is set by the user. The same is done with the color space between colors assigned to maximum, minimum, and 0 values. Each range of values is then assigned a color that will represent the range in the image. Colors can be later interpolated between neighboring traces to create a smoother image.

A color legend can also be created. The number of notches on the legend can be set by entering values in the Positive steps and Negative steps fields. The maximum number of notches is 20.

Click **Apply** to create a new image from data contained in selected traces using current options. Click **Purge** to erase the image already created for the selected traces.

The following images show image representation of the same fragment of data using different color ranges.



If the majority of the data is concentrated within a narrow range of values as compared to the full data range between maximum and minimum data values, the image created will appear blank since the data will be assigned only a few colors from the available spectrum. If this occurs, you can obtain the histogram of data contained in the traces and then set a window of values within which image colors will be scaled. All values falling outside this window will be assigned a minimum or maximum color.

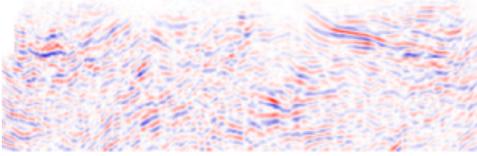
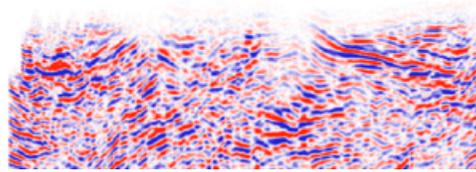
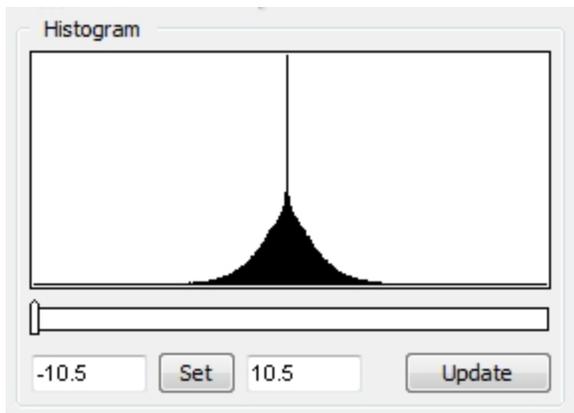


Image created with colors scaled to full data range

To address this problem, you should obtain the histogram of the data by selecting traces and clicking the Update button. Then, you set a window of values by entering a window of values and then clicking **Set**. You would then select Histogram's amplitude window from the Color scales to menu. Click **Apply**.



You can also set the limits by dragging sliders beneath the histogram. In the image to the left, the window limits have been set at -10.5 and 10.5. The resulting image will look much more vivid.

# Chapter 10: Visualization And Analysis

## Data Acquisition, Visualization and Analysis

Canvas has the ability to accurately measure, analyze, and export digital images that may contain up to 32 bits per channel of data.

Specialized imaging instrumentation within the medical, geological, and other related scientific industries often creates image or data files that may contain more than 16 bits of data per grayscale channel. Canvas now combines its professionally engineered technology core with a number of new interface improvements that target the need to study and analyze this information.

### Working with DICOM Images

Commonly used in medical imaging, DICOM (DIC) files can be imported into Canvas for further study. Combine the DICOM import filter with the Canvas tools, various image filters and adjustments along with its slide show capabilities to create dynamic medical presentations. You can even export your findings to HTML.

### DICOM Import Options

A DICOM file may consist of one or many images. Canvas can read DICOM files as follows:

- RGB images are imported as RGB and grayscale are imported as grayscale.
- Indexed images are converted to RGB.
- Depending on the image's range, it will be converted to 8 bit, 16 bit, 32 bit, or 64 bit images.

### To Import DICOM Files:

1. Choose **File | Open, File | Place**, or **Image | Import**.
2. In the DICOM Import Options dialog box, select one or more of the following:
  - **Distribute among layers**: Select this option to place each image on a separate layer in the same document.
  - **Stack together**: Select this option to place the images on top of each other.
  - **Create spreadsheet**: Select this option to create a matrix of the various images. Define the number of rows and columns.
  - **Create animation/slide show**: Select this option if you want to create a presentation or export as an AVI file.
  - **File Version**: Select either Default, DICOM v.3, or DICOM v.2 (NEMA).
  - **Image Structure**: Select either Default, Little Endian, or Big Endian.
  - **Window Center/Width**: This option allows you to adjust the level settings of the image so you can optimize image contrast upon import for improved image analysis. Select **None** from the menu if you want no level setting adjustment. Select **Default** to use the values within the image itself. Select **New Preset** to create a user-defined setting.



If you try to open or place more than one image, the Frame Alignment options are enabled.

### To Create a User-Defined Setting:

Enter values in the Center and Width fields. Click **Save** and enter a name in the dialog box.



When creating settings, try to use a name that relates to its use.

## To Apply a User-Defined Setting:

Open the menu and select the setting and then click **OK**.

## RAW File Format

RAW format is a flexible file format for transferring documents between different applications and computer platforms. It is basically an import/export format rather than a storage format.

A RAW file has no predefined format, not even for image width and height, palettes, etc. RAW format consists of a stream of bytes describing the color information in the file.

## Exporting RAW Files

You have two options when exporting to RAW format: binary (.raw) or text (.txt).

### To Export to RAW Format (Binary):

1. Choose **File | Save As**.
2. Select RAW Image (binary) as the format.
3. Click **Save**.
4. In the Raw Image Export Options (binary) dialog box, select your settings.
5. Click **OK**.

### Raw Image Export Options Dialog Box (Binary)

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<b>Image Specs</b>	This section indicates the color mode, image size, and color depth.
<b>Binary options</b>	<p><b>Output:</b> For 8-bit and 16-bit images, this menu is disabled and only indicates the color depth shown in the Image Specs section. For images with a color depth of FP-32 bits/channel, you can select the output depth.</p> <p><b>Channels order:</b> Select either Interleaved or Planar. These options are disabled if grayscale is selected as the color mode. Interleaved refers to an image having the pixels stored contiguously; i.e., rbgbrgb. Planar means the color data is stored in separate 8-bit planes.</p> <p><b>Byte order:</b> For 8-bit images, this option is disabled. Select whether the byte order is for PC or Mac.</p> <p><b>Alignment:</b> Refers to the alignment of image data in file. Each row ends at a location, which is a multiple of 8 bits, 16 bits, 32 bits, or 64 bits.</p> <p><b>Header:</b> Enter the number of bytes in the file before the first byte of image data.</p> <p><b>BGR (Reverse Colors):</b> Select this checkbox to reverse the color order.</p>

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### To Export to RAW Format (Text):

1. Choose **File | Save As**.
2. Select RAW Image (text) as the format.

3. Click **Save**.
4. In the Raw Image Export Options (binary) dialog box, select your settings.
5. Click **OK**.

### Raw Image Export Options Dialog Box (Text)

<b>Image Specs</b>	This section indicates the color mode, image size, and color depth.
<b>Text options</b>	<p><b>Format:</b> Select from <b>Comma delimited</b>, <b>Tab delimited</b>, <b>Space delimited</b>, <b>Colon delimited</b>, or <b>Semicolon delimited</b>.</p> <p><b>Output:</b> For 8-bit and 16-bit images, this menu is disabled and only indicates the color depth shown in the Image Specs section. For images with a color depth of FP-32 bits/channel, you can select the output depth.</p> <p><b>Channels order:</b> Select either Interleaved or Planar. These options are disabled if grayscale is selected as the color mode. Interleaved refers to an image having the pixels stored contiguously; i.e., rbgbrgb. Planar means the color data is stored in separate 8-bit planes.</p> <p><b>BGR (Reverse Colors):</b> Select this checkbox to reverse the color order.</p>

### Importing RAW Files

You have three options when importing RAW files: binary (.raw), text (.txt), or comma separated values file (.csv).

Binary (.raw) is the most common selection since devices, like microscopes or various measuring equipment, produce binary (.raw) files.

#### To Import RAW Files:

1. Choose **File | Open**.
2. Select Raw Image as the format and navigate to the file.
3. Click **Open**.
4. In the Raw Image Import Options dialog box, select your settings.
5. Click **OK**.

### Raw Image Import Options Dialog Box

<b>Input Data</b>	Canvas normally detects the appropriate option. You can select either radio button.
<b>Image specs</b>	<p><b>Mode:</b> Select the color mode for the image: <b>Grayscale</b>, <b>RGB</b>, <b>BGR</b>, <b>CMYK</b>, <b>LAB</b>, or <b>Multichannel</b>.</p> <p><b>Source:</b> Select the source image type: <b>8 Bits/Channel</b>, <b>16 Bits/Channel</b>, <b>16 Bits/Channel signed</b>, or <b>Float-32 Bits/Channel</b>.</p> <p><b>Target:</b> Select the target image type: <b>8 Bits/Channel</b>, <b>16 Bits/Channel</b>, or <b>Float-32 Bits/Channel</b>.</p> <p><b>Height &amp; Width:</b> You must know these specifications to properly import the raw image.</p> <p><b>Channels:</b> The number of color channels depends on the image's color mode.</p> <p><b>Resolution:</b> Set the resolution for the image. Use either pixels/in or pixels/cm.</p>

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**Quantity:** Indicates the number of images stored in the file.

**Gap:** Indicates the number of bytes from the end of one image to the beginning of the next.

**Channels order:** Select either **Interleaved** or **Planar**. These options are disabled if grayscale is selected as the color mode. Interleaved refers to an image having the pixels stored contiguously; i.e., rbgbrgb. Planar means the color data is stored in separate 8-bit planes.

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#### Binary options

**Byte order:** Indicates whether the file originates from a PC or Mac.

**Header:** Enter the number of bytes in the file before the first byte of image data.

**Alignment:** Refers to the alignment of image data in memory. Each row ends at a memory location, which is a multiple of 8 bits, 16 bits, 32 bits, or 64 bits.

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## Image Types and Filters

Canvas supports 8-bit, 16-bit, and floating point (32-bit) images. All image filters are available for 8-bit images. For Binary filters, the 8-bit image must be grayscale. (See "Binary Filters" on page 527.)

Regarding 16-bit and floating point (32-bit) images, various image filters and adjustment commands are available. (See "Available filters and adjustment commands" on page 527.)

## Image Modes

If you are working with various image types and need to determine or convert images, choose **Image | Mode**.

- **8 Bits/Channel:** Indicates an 8-bit image. If working with 16-bit or 32-bit images, select this option to convert to an 8-bit image.
- **16 Bits/Channel:** Indicates a 16-bit image. Select this option to convert to a 16-bit image if working with another image type.
- **FP-32 Bits/Channel:** Indicates a floating point (32-bit) image. A floating point image refers to any array of data that is visualized. Select this option to convert to a 32-bit image if working with another image type.



You must convert an 8-bit or 16-bit image to grayscale to enable the FP-32 Bits/Channel option.

The following table indicates the filters that can be used with each type:

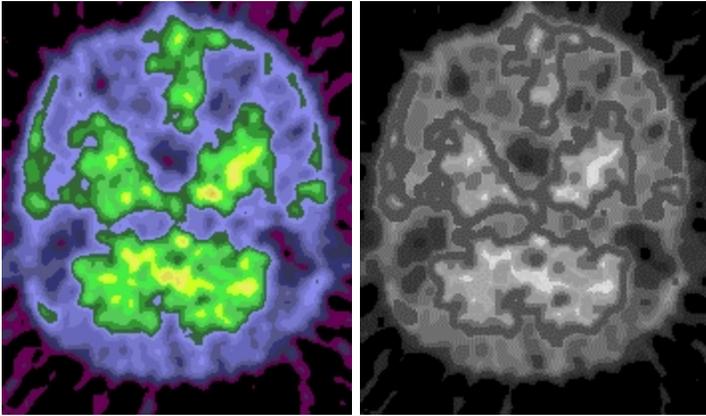
Image type	Available filters and adjustment commands
<b>16-bit</b>	Average blur, Gaussian blur, Add Noise, Despeckle, Dust & Scratches, Median, High Pass, Maximum, Minimum, Arithmetic, Binary Logic, Expression, Image Math, Colorize, Invert, Levels, Curves, Brightness/Contrast, Convolve, Hue/Saturation (RGB only), Color Balance (RGB only)
<b>FP (32-bit)</b>	Average blur, Median, Minimum, Maximum, Arithmetic, Expression, Image Math, Convolve, Colorize

## Binary Filters

These commands can be applied to 8-bit grayscale images. For the Dilate, Erode, Open, and Close commands, you must specify the number of iterations in a dialog box. Iterations refer to the number of repetitions of a chosen filter.

## Dilate

The Dilate command enlarges objects that are darker than the background adding pixels to the edges of black objects.

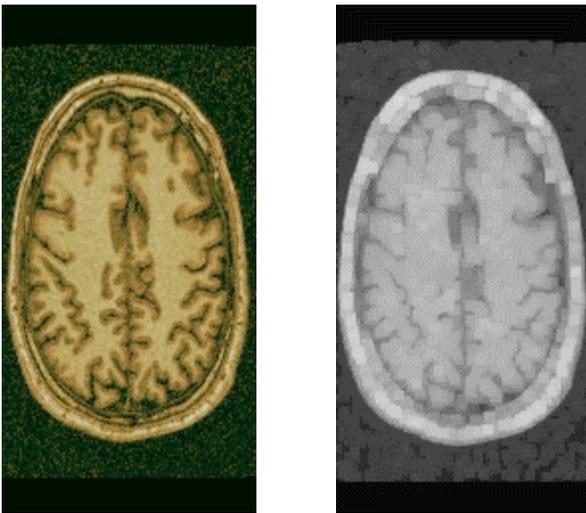


Original image

Image with Dilate filter applied

## Erode

The Erode command reduces the size of objects that are darker than the background.



Original image

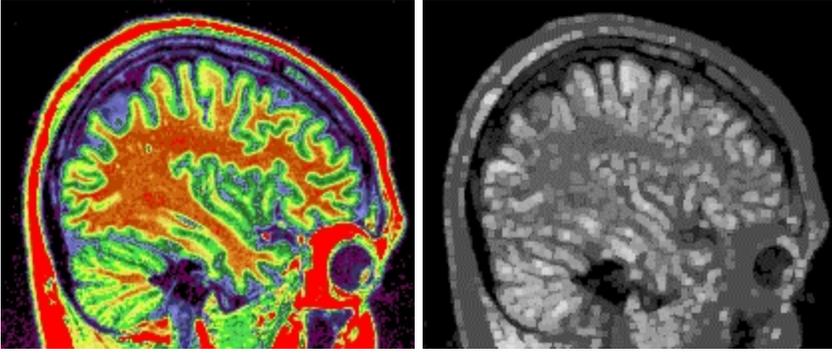
Image with Erode filter applied

## Make Binary

The Make Binary command converts a grayscale image, or the current selection, to values of either 0 or 255 so that you can apply a binary command to the image.

## Close

The Close command is a combination of the Dilate and Erode commands. When selected, the filter first performs a dilation and then the erosion. The goal of the filter is to smooth objects by filling in gaps in the image.

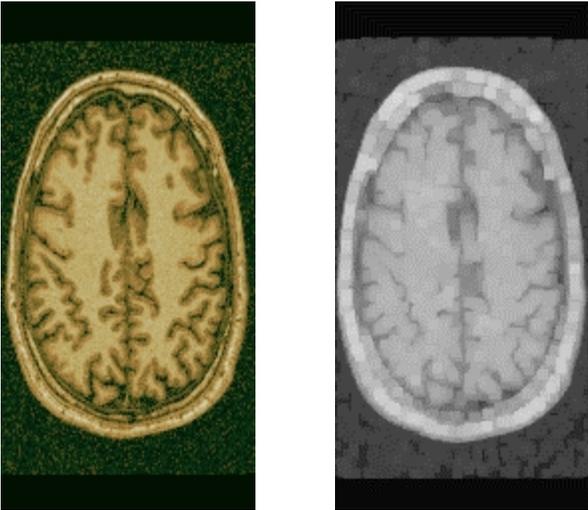


Original image

Image with Close filter applied

## Open

The Open filter, a combination of the Erode and Dilate commands, is used to smooth objects and eliminate isolated pixels. When applied, the Erode filter is first performed, followed by the Dilate command.



Original image

Image with Open filter applied

## Outline

Select this command and all black objects will be represented by a one-pixel wide outline.



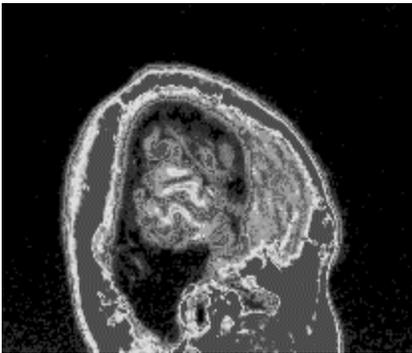
Original image



Image with Outline filter applied

### **Skeletonize**

When this command is applied to 8-bit grayscale images, pixels are removed from the edges of objects until the edges consist of single pixel-wide skeletons.



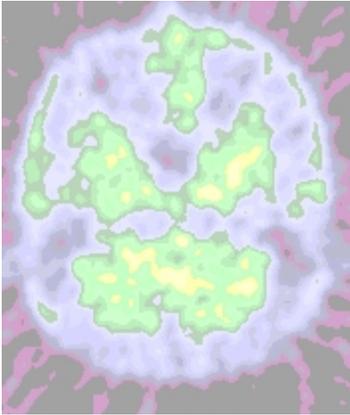
Original image



Image with Skeletonize filter applied

### **Distance Map**

When applied, this filter creates an Euclidean distance map (EDM). The result of the command is that every black pixel is replaced with a gray value that is equivalent to the black pixel's distance from the closest white pixel.



Original image

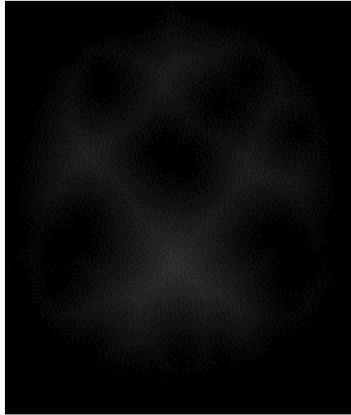


Image with Distance Map filter applied

### Ultimate Points

This filter is used on images to which the Distance Map filter has been applied to find the Ultimate Eroded Points (UEPs) of the Distance Map.

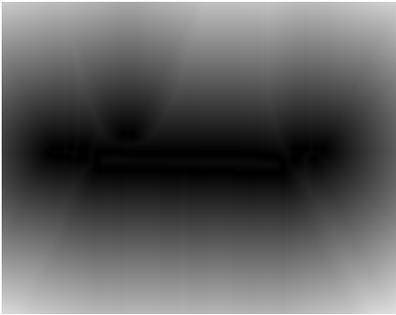


Image with Distance Map filter applied

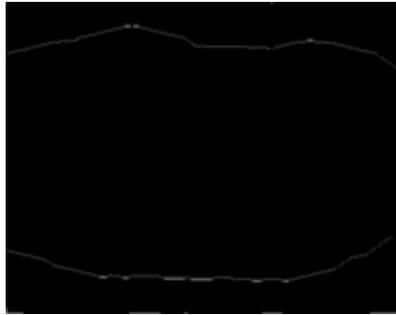


Image with Ultimate Point filter applied

### Scientific filters

Canvas features scientific filters that can be used to analyze 8-bit, 16-bit, and floating point (32-bit) images. See "Available filters and adjustment commands" on page 527 to verify which scientific filter is available for the various image types.

#### To Access the Scientific Filters:

Choose **Image | Filter | Scientific**.

#### Arithmetic

The Arithmetic Filter contains commands that add (subtract, multiply, etc.) a value to each pixel in the active image or selection. When the result value is above or below the legal range of the image's data type, the value is reset to the maximum/minimum value.

## To Apply an Arithmetic Filter:

1. Select the image object (or part of it with a Marquee or Lasso tool) or place it in Edit mode.
2. Open the Operation menu to choose a command.



Select the **Preview** checkbox so you can see the result before clicking **OK**.

3. Enter a value in the Value numeric field.
4. Click **OK**.

The Operation menu contains the following commands:

Operation	Explanation
<b>Add</b>	Adds a value to the image. With 8-bit images, results greater than 255 are set to 255.
<b>Subtract</b>	Subtracts a value from the image. With 8-bit and 16-bit images, results less than 0 are set to 0.
<b>Multiply</b>	Multiplies the image by the specified real value. With 8-bit images, results greater than 255 are set to 255. With 16-bit signed images, results greater than 65,535 are set to 65,535.
<b>Divide</b>	Divides the image by the specified real value. Attempts to divide by zero will be ignored.
<b>Minimum</b>	Pixels in the image with a value less than the specified value are replaced by the value.
<b>Maximum</b>	Pixels in the image with a value greater than the specified constant are replaced by the value.
<b>Square root</b>	Destination pixel is equal to the square root of source pixel.
<b>Square</b>	Destination pixel is equal to the square of source pixel.
<b>Gamma</b>	Applies the function $f(p) = (p/255)^{\text{gamma}} * 255$ to each pixel (p) in the image or selection, where $0.1 \leq \text{gamma} \leq 5.0$ . For RGB images, this function is applied to all three color channels. For 16-bit images, the minimum and maximum are used for scaling instead of 255.
<b>Log</b>	Applies the function $f(p) = \log(p) * 255 / \log(255)$ to each pixel (p) in the image or selection. For RGB images, this function is applied to all three color channels. For 16-bit images, the minimum and maximum are used for scaling instead of 255.

## Binary Logic

The Binary Logic Filter contains commands that perform bitwise operations or shift bits accordingly within a pixel.

The Operation menu contains the following commands:

Operation	Explanation
<b>Or</b>	Performs a bitwise OR operation on a source pixel and an argument.
<b>And</b>	Performs a bitwise AND operation on a source pixel and an argument.
<b>Xor</b>	Performs a bitwise XOR operation on a source pixel and an argument.
<b>Left Shift/Right Shift</b>	Performs a logical shift; it shifts all the bits in the pixel left or right according to the value specified in edit box and inserts 0.

## Colorize

The Colorize filter is used to assign colors or gradients to a chosen range of values. Depending on the image type, 8-bit, 16-bit, or floating point (32-bit), you can use either absolute values or percentages.

For floating point (32-bit) images, the Absolute values checkbox is automatically selected so you will use Absolute values.



## Using the Colorize Filter

<b>New filter</b>	Click on this icon to start a new filter. The default values are 0 to 100.
<b>Value range</b>	Enter the minimum and maximum in the scroll boxes. Deselect the <b>Absolute values</b> checkbox to use percentages for the range. Select it for actual values (floating point 32 images).
<b>Color palette</b>	Assign a color to the value range. Select the <b>Gradient</b> option to access both color palettes and view the distribution of the minimum/maximum range.
<b>Edit box</b>	All defined filters are stored in this area.
<b>Preview</b>	Select the <b>Preview</b> checkbox if you want to see the results before clicking <b>OK</b> .

## To Modify a Filter:

1. Select the filter in the Edit box.
2. Make any necessary changes.

## To Delete a Filter:

1. Select the filter in the Edit box.
2. Click the trash can icon.

### To Save a Setting:

1. Define the filters as indicated previously.
2. Click on the menu icon.
3. Select **Save** settings.
4. In the dialog box, enter a name for the setting.

You can save an unlimited number of settings.

### To Load a Setting:

1. Click on the menu icon.
2. Select **Load settings**.
3. Choose a setting.

### Image Math

This filter performs an arithmetic and logical operation between two color channels and applies the result to another color channel.

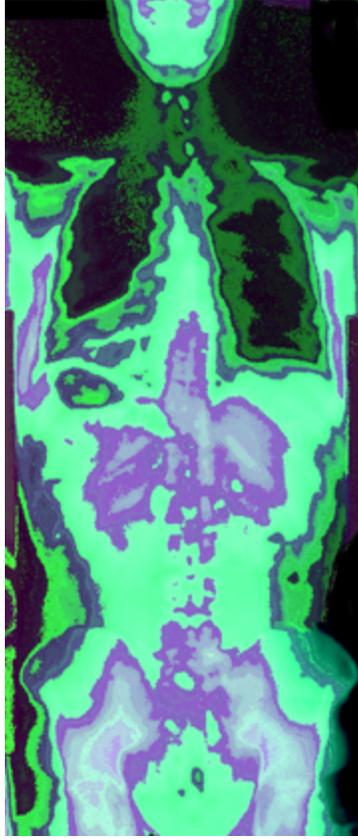
The Operation menu contains the following commands:

Operation	Explanation
<b>Add</b>	Adds a value to the image. With 8-bit images, results greater than 255 are set to 255.
<b>Subtract</b>	Subtracts a value from the image. With 8-bit and 16-bit images, results less than 0 are set to 0.
<b>Multiply</b>	Multiplies the image by the specified real value. With 8-bit images, results greater than 255 are set to 255. With 16-bit signed images, results greater than 65,535 are set to 65,535.
<b>Divide</b>	Divides the image by the specified real value. Attempts to divide by zero will be ignored.
<b>Minimum</b>	Pixels in the image with a value less than the specified value are replaced by the value.
<b>Maximum</b>	Pixels in the image with a value greater than the specified constant are replaced by the value.
<b>Or</b>	Performs a bitwise OR operation on a source pixel and an argument.
<b>And</b>	Performs a bitwise AND operation on a source pixel and an argument.
<b>Xor</b>	Performs a bitwise XOR operation on a source pixel and an argument.
<b>Average</b>	Applies the function $\text{Result} = (\text{img1} + \text{img2}) / 2$ to each pixel in the image or selection.
<b>Difference</b>	Applies the function $\text{Result} =  \text{img1} - \text{img2} $ to each pixel in the image or selection.

The chosen operation is performed, and the result is multiplied by the Scale factor. The Offset value is then added. The final result is applied to the color channel selected from the Result menu.



Original image



1st operand: Green  
Operation: Xor  
2nd operand: Red  
Scale: 2.0  
Offset: 0.0  
Result: Green

### To Apply the Image Math Filter to Multiple Images:

1. Select the images.
2. Apply the filter by choosing **Image | Filter | Scientific | Image Math**.
3. In the Filter operation mode dialog box, select the options you want to use.
4. Click **OK**.

### Expression

The Math Expression filter can be used to perform mathematical equations on a color channel.

### To Use the Math Expression Filter:

1. Select the color channel from the Target menu. The available color channels depend on the image mode; i.e., CMYK, RGB, etc.
2. Define the mathematical equation using the Categories scroll box and their related items.

3. Double-click on an item to make it appear in the Expression field.



The lower portion of the dialog box indicates the correct syntax and shows an example of the expression.

4. Click **Apply** to see the effect. Clicking **Revert** stops the effect on the color channel.
5. Click **OK** to permanently apply the effect to the channel.

### To Apply the Math Expression Filter to Multiple Images:

1. Select the images.
2. Apply the filter by choosing **Image | Filter | Scientific | Expression**.
3. In the Filter operation mode dialog box, select the options you want to use.
4. Click **OK**.

### Convolve

The Convolve filter can be used to apply a spatial convolution on an image or selected image area. The convolution is performed according to a kernel, which is basically a matrix whose size you define in terms of width and height in pixels. Note that only odd numbers can be used to define the size of the kernel. The maximum is 11 pixels and the minimum, 3 pixels.

1	2	3
4	5	6
7	8	9

The Convolve filter is applied to every pixel in an image. The center of the matrix matches the source pixel and the other matrix components relate to the surrounding pixels.

The resulting pixel is calculated by multiplying the value of each source pixel by the corresponding value in the kernel and then adding the results.

### To Preserve Image Brightness:

1. Select the **Normalize kernel** checkbox. This option causes each matrix value to be divided by the sum of the values.
2. Click **Apply** to see the filter effect on the image. If the convolution is not appropriate, click **Revert** and try another one.
3. Click **OK** to apply the filter and close the dialog box.

### To Save a Kernel:

1. Define the kernel.
2. Click on the menu icon and select **Save kernel as**.

3. In the Save kernel as dialog box, enter a name for the kernel and click **OK**.



Saved kernels appear at the bottom of the menu when you click the menu icon.

### To Delete a Kernel:

1. Click on the menu icon and select **Delete kernel**.
2. In the Delete kernel preset dialog box, select the kernel to be deleted and then click **OK**.

### To load a kernel:

1. Click on the menu icon.
2. Select the kernel that you want to apply.

### To Paste a Kernel:

Before pasting a kernel, ensure there is a space between the values.

1. Copy the kernel from its source (e.g., Notepad).
2. Click the **Paste** icon.



Original image



Image with Convolve filter applied

## Accessing Image Data

Canvas contains important features that allow you to analyze an image's pixel values and measure various image properties: Image Data Viewer tool, View Data command, and Image Measurement command.

## Image Data Viewer Tool

You can quickly view raw data within an image object using either the Image Data Viewer tool or View Data command. These tools are designed so you can quickly view image data “on the fly”. In addition, you can copy this data to a .txt file or spreadsheet application for further analysis.

### To Use the Image Data Viewer Tool:

1. Select the **Image Data Viewer** tool from the Marquee tools in the Toolbox. 
2. Drag it across the image. The Image Data Viewer dialog box opens showing the individual pixel values for the selected area.

### To Use the View Data Command:

1. Make a selection using the Marquee tools.
2. Click the **View Data** button in the Properties bar to open the Image Data Viewer dialog box.

## Image Data Viewer Dialog Box

<b>Display</b>	<b>Hexidecimal:</b> Refers to the base-16 number system, which consists of 16 unique symbols: the numbers 0 to 9 and the letters A to F. <b>Signed decimal:</b> Integer value which can have both positive and negative values. <b>Unsigned decimal:</b> Integer value with value of zero or greater (no negative numbers). <b>FP 2-Decimal:</b> Refers to a floating point value with 2 digits following the decimal. <b>FP 4-Decimals:</b> Refers to a floating point value with 4 digits following the decimal. <b>FP 8-Decimals:</b> Refers to a floating point value with 8 digits following the decimal.
<b>Channel</b>	Select a color channel from the menu. The available channels depend on the image mode; i.e., RGB, grayscale, CMYK, etc.
<b>Copy Data To Clipboard</b>	Click this icon to export the data to a spreadsheet or other file for analysis.
<b>Refresh Data</b>	Click this icon to update the data.
<b>Lock</b>	Click this icon to lock the dialog box and save the data view. Once locked, you can take the Image Data Viewer tool and select another data sample. Another dialog box will open so you can compare data.
<b>Left</b>	Indicates the position of the first pixel in relation to the left side; i.e., 43 would be the 43rd pixel from the left.
<b>Top</b>	Indicates the position of the first pixel in relation to the top; i.e., 29 would be the 29th pixel from the top.
<b>Width</b>	Indicates the width of the selected area in pixels.
<b>Height</b>	Indicates the height of the selected area in pixels.

 An alternative method to using the Image Data Viewer tool is to export the image as a .txt file using the RAW file export filter. (See "Exporting RAW Files" on page 525.) However, although effective, the RAW export method may be time-consuming if analyzing several images and data is required immediately.

## Image Measurement

The Image Measurement dialog box contains information about the selected image or selected regions within an image.

### To View an Image's Image Measurement at Any Time:

Choose **Image | Image Measurement**.

### Image Measurement Dialog Box

<b>List</b>	<p>This list contains the various image properties that are being measured. You can customize the data by clicking the Configure button and selecting the properties to be measured.</p> <p>Each selected region within an image has its own column of data.</p> <p>If you want to label the image or selected regions, select the <b>Label Objects</b> checkbox. The label corresponds to the column number.</p>
<b>Configure</b>	<p>Click this button to open the Image Measurement Properties dialog box. Select the properties that you want to appear in the list.</p>
<b>Copy</b>	<p>Select an column of data and click this button to copy the image measurements so you can paste them in a spreadsheet or text editing application.</p>
<b>Copy All</b>	<p>Click this button to copy all columns of data for multiple selections. You can paste them in a spreadsheet or text editing application.</p>
<b>Histogram</b>	<p>Click this button to launch the Histogram dialog box for a single column of data.</p>
<b>Histogram All</b>	<p>Click this button to launch the Histogram dialog box for multiple selections.</p>

### Image Measurement Properties

<b>Select Properties To Measure</b>	<p>Select or deselect properties to customize your list of image properties to be measured.</p> <ul style="list-style-type: none"><li>● <b>Area:</b> Total number of pixels in image.</li><li>● <b>Calibrated area:</b> The area of an image measured in current Canvas units.</li><li>● <b>Mean:</b> Measures the average pixel intensity.</li><li>● <b>Standard deviation:</b> A numeric value that describes how widely intensity values vary.</li><li>● <b>Median:</b> Middle value in the range of values; i.e.; number of pixels with intensity below the median is equal to the number of pixels with intensity that is above the median.</li><li>● <b>Center of mass:</b> The x/y coordinates of the image's center.</li><li>● <b>Perimeter:</b> Measures the perimeter of the image in pixels.</li><li>● <b>Calibrated perimeter:</b> The perimeter of an image measured in current Canvas units.</li><li>● <b>Compactness:</b> A numeric measurement of an object's shape. It is defined with the following equation:</li><li>● <b>Shape factor:</b> The measurement of an object's circularity. It is defined with the following equation:</li><li>● <b>Feret diameter:</b> Indicates an object's theoretical diameter if it had a circular shape.</li></ul>
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- **Calibrated feret diameter:** Measured in the current Canvas units, this indicates an object's theoretical diameter if it had a circular shape.
- 

#### Labels

- **Placement:** Determine label placement. The default placement is the center of the image or selection.
  - **Font:** Customize the appearance of the labels. You can change font, size, and color.
- 

## About Canvas + GIS

Canvas + GIS has various GIS-based tools and commands that allow you to work with various GIS formats, define a map projection, and perform advanced property operations. GIS (Geographic Information System) information can be used in a variety of fields such as engineering, resource management, public utility management, business, town planning, etc.



The Canvas + GIS features are only available in the Canvas + **GIS** product.

## Creating a New GIS Document

### To Create a New GIS Document:

1. Choose **File | New**.
2. In the New Document dialog box, select the **GIS Document** checkbox.
3. Select other New Document settings as appropriate.
4. Click **OK**. A new document opens and the GIS manager is displayed.

## GIS Manager

The GIS Manager lets you select or define geo-referencing information for a document. In addition, you can use the GIS manager to re-project the projection of a document that is currently open.

### To Open the GIS Manager:

Choose **GIS | GIS Document Settings**.

## GIS Manager

If you are currently working in a GIS document, the scale and projection settings will be indicated. If not, you can select the checkbox to Enable GIS.

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<b>Enable GIS</b>	Select this checkbox to access the Projected Coordinate System options.
<b>Document</b>	Lists the document scale and coordinates for the top, bottom, left and right.
<b>Projection</b>	Select the projection.  <b>Select:</b> Click <b>Select</b> to open the Select Map Projection dialog box, which contains predefined projections. Select one from the list. The related property and parameter values are displayed on the right.

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**Edit:** Click the **Edit** button to open the Map Projection dialog box. Select a projection from the list. Further customize the projection by entering the necessary values in the Parameters section.

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<b>Geo CS</b>	Select the earth model. The default earth model is WGS 1984.  <b>Select:</b> Click <b>Select</b> to open the Select Geographic Coordinate System dialog box. Select one from the list. The related property and parameter values are displayed on the right.  <b>Edit:</b> Click <b>Edit</b> to open the Geographic Coordinate System dialog box. (See "Edit Geographic Coordinate System Dialog Box" on page 541.)
<b>Angular Units</b>	Select the units that you want to use in the projection.
<b>Linear Units</b>	This unit of measure corresponds to your document unit in a GIS-enabled document.
<b>Axis Orientation</b>	Select either <b>North East</b> , <b>North West</b> , <b>South East</b> , or <b>South West</b> as the Canvas 0,0 origin.
<b>Auto Define</b>	Click <b>Auto Define</b> to open the Auto Define Document Coordinate System dialog box. (See "Auto Define Document Coordinate System" on page 542.)
<b>Select</b>	Click <b>Select</b> to open the Projected Coordinate Reference Systems dialog box. Choose one from the list and click <b>OK</b> .
<b>Save</b>	Click <b>Save</b> to save the current projection in a PRJ file.
<b>Load</b>	Click <b>Load</b> to open a saved projection in PRJ or TXT format.

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## Edit Geographic Coordinate System Dialog Box

Use this dialog box to define a geographic coordinate system for the projection.

### To Open the Edit Geographic Coordinate System Dialog Box:

In the GIS manager, in the Geo CS section, click the **Edit** button.

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<b>Geo CS Name</b>	Enter a name in this field.
<b>Load</b>	Click <b>Load</b> to open a saved Geographic Coordinate System in PRJ format.
<b>Save</b>	Click <b>Save</b> to save the current Geographic Coordinate System in a PRJ file.
<b>Datum</b>	<b>Ellipsoid (meter):</b> Select a defined ellipsoid from the menu. If you select <b>Custom</b> , you have to define the other elements in this section. <ul style="list-style-type: none"><li>● <b>Semi-Major Axis:</b> Half the distance across an ellipse along the longest of the principal axes.</li><li>● <b>Semi-Minor Axis:</b> Half the distance across an ellipse along the short principal axis.</li><li>● <b>Flattening:</b> The ratio of the length of half the semi-minor axis of the ellipse to half the semi-major axis of the ellipse, subtracted from 1.</li><li>● <b>Inverse flattening:</b> Calculated as the length of the semi-major axis over the difference in lengths of the semi-major and semi-minor axes.</li><li>● <b>Eccentricity:</b> Calculated value for the first eccentricity.</li><li>● <b>Second Eccentricity:</b> Calculated value for the second eccentricity.</li></ul> <b>Prime Meridian:</b> Select an option from the menu. The prime meridian forms the origin for the longitude part of

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<b>Datum</b>	Select an option from the Transform method menu.
<b>Transformation</b>	If you select <b>None</b> , no transformation is performed. If you select <b>Geocentric translations</b> , you have to define the Shifts to WGS 84. If you select <b>Coordinate Frame rotation</b> or <b>Position Vector 7</b> , you have to define the sections for Shifts to WGS 84, Rotation to WGS 84, and Scale Correction to WGS84.

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## Auto Define Document Coordinate System

Use this dialog box to set your drawing scale, establish a reference point, and define a reference rectangle. Based on the selected point or defined bounding box, Canvas sets up the projected coordinate system for the file.

### To Open the Auto Define Document Coordinate System Dialog Box:

In the GIS manager, click the **Auto Define** button.

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<b>Reference Point</b>	Allows you to define a scale and reference point within the document. <ul style="list-style-type: none"> <li>● <b>Scale:</b> Enter a scale amount in this field, if necessary.</li> <li>● <b>Latitude/Longitude:</b> Select an anchor point and then enter the coordinates for the reference point.</li> </ul>
<b>Reference Rectangle</b>	Enter coordinates to establish a bounding rectangle for the document. The rectangle is defined by the minimum and maximum coordinates in each of the two directions.

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## GIS Positioning Palette

You can use the GIS Positioning palette to strategically move or position objects according to their latitude and longitude coordinates. The GIS Positioning palette also displays Length and Forward Azimuth when measuring between two points.

When expanded, the percentage of error is indicated at the bottom of the palette. The distortion percentage is calculated by comparing the document's reference point (document center) to the world.

### To Open the GIS Positioning Palette:

Choose **GIS | GIS Positioning**.

### To Measure Distance in World Coordinates:

1. Create a line between the two points to be measured.
2. Select the line and open the GIS Positioning palette. The Length and Forward Azimuth are indicated.

### To Position Objects with the GIS Palette:

1. Select the object to be positioned. The object's current coordinates appear in the Latitude and Longitude fields at the top of the palette.
2. Select a handle in the bounding box icon and then enter the new latitude and longitude values. The object moves to the defined coordinates.



The coordinates are based on the object's selected handle. By default, the center handle is the reference point when the object is first selected. (See "To Manually Position the Center Reference Point:" on page 543.)

## Positioning Replicates

If you have to create several replicates of an object and then place each of them according to their latitude and longitude, the Replicate and Position abilities will be of benefit to you. (See "Replicating and Positioning Options" on page 118.)

The GIS component of the Replicate and Position dialog box is enabled once you have configured the GIS settings with the GIS manager. (See "GIS Manager" on page 540.)

### To Use the Replicate and Position Dialog Box:

1. Select the object to be replicated.
2. Choose **Edit | Replicate** and **Position**.
3. Click the **Angular** radio button.
4. Enter the latitude and longitude coordinates for each replicate. You can load or paste coordinates.
5. Click **OK** to create and position the replicates.

### To Manually Position the Center Reference Point:

1. Select the object and click once more. The object's handles appear.
2. Move the cursor over the center reference point. The cursor changes to a crosshair.
3. Click the crosshair on the selected handle and move the handle to another position. The object's latitude and longitude update after you release the cursor.

## Choosing a Reference Point

This command allows you to set the origin of your document. You also have the option of preserving the objects' coordinates, which can be viewed as a "move paper sheet" command.

### To Define a Reference Point:

1. Choose **GIS | Choose Reference Point**. A prompt appears when you move the cursor into the drawing area.
2. Click the cursor to define the new origin.
3. In the GIS Reference Point dialog box, select one or more of the following:
  - **Original location**: The original origin is indicated. You can view the coordinates in either Linear or Angular units.
  - **New location**: The new origin. Select Linear to view Easting and Northing coordinates. The Angular option provides Latitude Longitude coordinates.
  - **Preserve objects positions**: Select this checkbox to preserve the objects' coordinates.

## Creating a Graticule

Use the Graticule settings dialog box to create a grid of lines that display meridians of longitude and parallels of latitude.

## To Open the Graticule Settings Dialog Box:

Choose **GIS | Create Graticule**.

<b>Drop-down list</b>	Select either <b>Use Document Bounds</b> , <b>Use Selection Bounds</b> , or <b>Custom</b> from the menu. If no objects are selected, the <b>Use Selection Bounds</b> option is disabled.  For Custom, you must enter values in the Start and End sections for both Latitude and Longitude.
<b>Unit</b>	Select a unit from the menu. Document unit changes to this unit. You can choose angular units or linear units.
<b>Precision</b>	You can choose from no decimals to six decimals, or even use fractions.
<b>Longitude</b>	If a linear unit is selected, this section is labeled Easting.
<b>Start/End</b>	Enter the values that the meridians should span.
<b>Spacing/Divisions</b>	These two values influence each other. The larger number of divisions, the smaller the spacing becomes. Conversely, if you enter a large value for the spacing, the number of divisions decreases.
<b>Latitude</b>	If a linear unit is selected, this section is labeled Northing.
<b>Start/End</b>	Enter the values that the parallels should span.
<b>Spacing/Divisions</b>	These two values influence each other. The larger number of divisions, the smaller the spacing becomes. Conversely, if you enter a large value for the spacing, the number of divisions decreases.
<b>Labels</b>	You can define the settings for the labels. Select the font type and size.
<b>Latitude Rotate 90 deg</b>	This option rotates the labels for the parallels (latitude) at a 90 degree angle.
<b>Frame With Ticks</b>	This option produces short lines indicating where selected meridians and parallels intersect. If selected, a full grid is not created, only tick marks.
<b>Horizontal Offset</b>	This setting affects the placement of the labels for the meridians (longitude).
<b>Vertical Offset</b>	This setting affects the placement of the labels for the parallels (latitude).

## Warping Images

Canvas features image effects that you can use to warp images.

 The Image Warp commands are not available for various image modes: Indexed and FP-32. Change the image mode to RGB to access the Image Warp commands.

## Coordinates

With the Coordinates command, you can place control points within a selected image and warp it according to those points.

### To Make the Coordinates Controls Appear in the Properties Bar:

Select the image and then choose **Image | Image Warp | Coordinates**.

## Coordinates Controls

A click inside the image will add a control point; however, the point can be dragged outside the image. Press the **Delete** key to remove selected points.

<b>Coordinates</b>	Indicates the position of the defined control point.
<b>Coordinate system</b>	Select either <b>Document</b> or <b>GIS</b> . Document uses an X/Y control point system and GIS refers to latitude and longitude. To use the GIS option, you must have the GIS+.
<b>Shuffle arrows</b>	Click these arrows to select defined control points. Once a control point is selected, you can move it to another location.
<b>Fixed Frame</b>	Select this checkbox to maintain the form of the bounding box. If this option is deselected, the bounding box is warped.
<b>Create</b>	Click this button to perform the warp. At least three control points must be defined to create a warp.

## PointtoPoint Effect

With the PointtoPoint command, you can georegister an image or drawing to the geographic location of a “known good” reference image. The image or drawing used as a reference is called the target. The image that you are adjusting to the target is called the source.

 If both selected objects are images, the first selected image is the source and the second image is the target. If you select one image and one vector object, the image is the source and the vector object is the target.

### To Make the PointtoPoint Effect Controls Appear in the Properties Bar:

Select two objects, one of which must be an image, and then choose **Image | Image Warp | PointtoPoint**.

## PointtoPoint Effect Controls

<b>Control points</b>	Click to add control points to both the source and target. Every source point must have a corresponding target point. At least 3 points must be defined to enable the Create button.  Control points are saved in relative position to object, so if you drag or scale an object, the points will be scaled correspondingly. Save the document after change the control points configuration. When exiting the session, current point configuration is automatically saved.
<b>Segment points</b>	Click to add segments to both the source and target. Every source segment must have a corresponding target segment.
<b>Curve points</b>	Click to add curve segments to both the source and target. Every source curve must have a corresponding target curve.
<b>End curve points</b>	Click to complete the curve.
<b>Select all points</b>	Click to select all control points.
<b>Delete</b>	Delete has two functions: delete current curve, if you are creating a curve, or delete selection, if any.

<b>Save</b>	Click this button to save the control points within the source and target.
<b>Reload</b>	Click this button to reload the saved points.
<b>Pixel resampling</b>	Select a resampling method: <ul style="list-style-type: none"> <li>• <b>Nearest neighbor:</b> Will remove some pixel information from your target image; however, if used, this setting will be the fastest.</li> <li>• <b>Bilinear:</b> Will use a bilinear interpolation algorithm during downsampling.</li> <li>• <b>Biquadratic:</b> Estimates the color at a pixel in the destination image by an average of 9 pixels surrounding the closest corresponding pixel in the source image.</li> <li>• <b>Bicubic:</b> Estimates the color at a pixel in the destination image by an average of 16 pixels surrounding the closest corresponding pixel in the source image.</li> <li>• <b>Polygonal:</b> Every source pixel is mapped to a polygon in the target.</li> <li>• <b>Auto:</b> Canvas selects the most appropriate method for resampling.</li> </ul>
<b>Show Names</b>	Select this checkbox if you want to see labels. Use the Size menu to adjust the size of control points.
<b>Shape</b>	Select either <b>Circle</b> or <b>Square</b> for the control point shape.
<b>Opacity</b>	Adjust the transparency of the created object.
<b>Source &amp; Target colors</b>	Select a color from the palettes to distinguish the source and target. By default, the source is red and the target is green.
<b>Fixed Frame</b>	Select this checkbox to maintain the form of the bounding box. If this option is deselected, the bounding box is warped.
<b>Create</b>	Click this button to perform the effect.
<b>Delete</b>	Click this button to delete the created object.
<b>Exit</b>	Click this button to leave the warp effect before or after clicking <b>Create</b> .

## Creating Buffers

In GIS, a buffer is a zone around a map feature measured in units of distance or time. This is useful for proximity analysis. The buffer area is defined by a bounding region determined by a set of points at a specified maximum distance from all nodes along segments of an object.

### To Create Buffer Objects:

1. With a geo-referenced document open, such as a Canvas GIS document, or ShapeFile, choose **GIS | Buffer...**
2. In the GIS Buffer dialog, select settings as described below.
3. Click **OK**.

### GIS Buffer Dialog Box Options

<b>Scope</b>	Select <b>Current Layer</b> to include all of the features tagged as Point, Line, or Area objects in the current layer. Or choose <b>Selection</b> to include a selection only.
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<b>Rings</b>	Select how many buffer objects you would like and based at what set distance.	
<b>A single ring x.xx m from the feature</b>	Select this option for a single buffer object per feature, and specify how many meters it will be positioned from the feature.	
<b>A single ring based on the distance from property</b>	Select this option for a single buffer object per feature, and choose a Property and Unit from the drop-down menus. Properties contain numeric values that will act as the buffer distance. You can also create and set property queries by selecting <b>Build Expression</b> from the drop-down menu and launching the Expression Builder dialog box.	
	 Properties are Object Properties, which you add or load from the database file of a ShapeFile, for instance.	
<b>Multiple Rings</b>	Select this option for multiple buffer objects per feature. Select how many rings to include and how far they will be spaced apart.	
<b>Options</b>	Set the qualities of your buffer object(s).	
<b>Color</b>	Select a color for your buffer object(s). If you have selected Multiple Rings, you can set a range of two colors.	
<b>Opacity</b>	Select the opacity of your buffer object(s). If you have selected Multiple Rings, you can set a range of two opacities.	
<b>Precision</b>	Set the precision level. A higher precision level takes longer to process.	
<b>Tolerance</b>	This option is enabled when you select <b>Custom Tolerance</b> in the Precision drop-down menu. Select a custom tolerance distance in meters.	
<b>Output To</b>	Select which layer Canvas will create the buffer object(s) on.	
<b>Merge overlapping buffers</b>	Select this checkbox to merge overlapping buffer objects.	

## GIS Data Formats

Canvas + GIS supports the import/export of the most popular GIS data formats, including but not limited to TIGER files, Shapefiles, USGS DLG, MrSID, and TIFF.

The following table lists the file formats that can be opened in or exported from Canvas + GIS.

<b>Extension</b>	<b>In</b>	<b>Out</b>	<b>Description</b>
<b>TIFF</b>			GeoTIFF  TIFF/World File image — A world file carries pixel scale information and the location, in real world coordinates, of the (typically) northwest pixel (.TFW extension); on export, Canvas generates a TFW file
<b>SHP</b>			Shapefile — on export, Canvas creates both SHX and DBF files.
<b>DLG (.do, .opt)</b>			USGS Digital Line Graphs

Extension	In	Out	Description
<b>E00</b>			ARC/INFO interchange file format
<b>RT1</b>			Tiger (Topologically Integrated Geographic Encoding and Referencing system)
<b>SDTS</b>			USGS Spatial Data Transfer Standard
<b>MIF</b>			MapInfo Data Interchange Format
<b>S57</b>			A standard defined by the International Hydrographic Organization (IHO) for the exchange of digital hydrographic data.
<b>ECW</b>			Enhanced Compressed Wavelet images (export is Windows only)
<b>SID</b>			MrSID image format (Windows only)
<b>GML</b>			Geography Markup Language
<b>Geo JPEG</b>			JPEG with projection information; on export Canvas creates a JGW file and PRJ file
<b>Geo BMP</b>			BMP with projection information; on export Canvas creates a world file (WLD) and PRJ file
<b>Geo PNG</b>			PNG with projection information; on export Canvas creates a world file (WLD) and PRJ file
<b>Geo GIF</b>			GIF with projection information; on export Canvas creates a world file (WLD) and PRJ file
<b>GIS Text</b>			Opening/Exporting TXT file with GIS data
<b>GPS Garmin</b>			Open TXT file containing GPS Garmin data
<b>Geo JPEG 2000</b>			JPEG 2000 with projection information; on export Canvas creates a world file (JPW) and PRJ file
<b>GPX</b>			GPS exchange format used by many GPS-aware devices, as well as software
<b>KML/KMZ</b>			Google Earth's™ file format designed to store placemarks, network link information, etc

## Opening or Placing Geo-Referenced Files

The starting point for GIS users is the successful importation of a geo-referenced file. As noted in the previous table, Canvas can open a multitude of GIS file formats, including vector- and raster-based formats. This section provides an overview of each file format.

Shapefiles consist of the following three separate file entities:

- The main file, a Shape file (.SHP), which contains geographic objects.
- An index file (.SHX), which contains an I'th record. The I'th record in the .SHX file stores the offset and content length for the I'th record in the main file (.SHP).
- A dBASE table (.DBF), which contains attribute information about the geographic objects found in the Shapefile.

### To Open or Place Shapefiles:

1. Choose **File | Open** or **File | Place**. You can open or place multiple Shapefiles by **Shift**-clicking or **Ctrl**-clicking the required files.
2. Select **.SHP** as the file type.
3. Navigate to the .SHP file in the Open or Place dialog box and click **Open** or **Place**.

In the Files/Layers List dialog box, select the options you want to use.

## Files/Layers List Dialog Box

<b>Files/Layers</b>	This list indicates all the shapefiles that you are opening or placing.
<b>Add/Remove</b>	Click the <b>Add</b> button to open or place another shapefile. To delete a file from the list, select the file in the list and click the <b>Remove</b> button.
<b>Projection</b>	Click this button to open the File Coordinate System dialog box.
<b>Properties</b>	Select a file in the list and click this button to open the Layer Properties dialog box.
<b>Move Up/ Move Down</b>	Use these buttons to shuffle the files within the list.
<b>Sort by type</b>	Click this button to arrange the files according to type; i.e., area, line, or point.

## File Coordinate System Dialog Box

<b>Unknown Open</b>	As X/Y. If the projection information is unknown, choose this option and then select the Linear Units from the menu.
<b>Geodetic Lat/Long</b>	Select this option if you wish to select the angular units.
<b>Projected</b>	Click <b>Select</b> to open the Select Map Projection dialog box, which contains predefined projections. Select one from the list. The related property and parameter values are displayed on the right. Click <b>OK</b> to return to the File Coordinate System dialog box. Click the <b>Edit</b> button to open the Map Projection dialog box. Select a projection from the list. Further customize the projection by entering the necessary values in the Parameters section.
<b>Geographic Coordinate System</b>	You can select the earth model. The default earth model is WGS 1984. Click <b>Select</b> to open the Select Geographic Coordinate System dialog box. Select one from the list. The related property and parameter values are displayed on the right. Click <b>OK</b> to return to the File Coordinate System dialog box. Click <b>Edit</b> to open the Edit Geographic Coordinate System dialog box.
<b>Select</b>	Click <b>Select</b> to open the Projected Coordinate Reference Systems dialog box. Choose one from the list and click <b>OK</b> .
<b>Load</b>	Click <b>Load</b> from file to obtain the projection information from a PRJ or TXT file.
<b>Save</b>	Click <b>Save</b> to file to save the current projection in a PRJ file.
<b>Use For All Files</b>	Select this checkbox to apply this projection to all files being opened or placed.

## Layer Properties Dialog Box

If you are opening more than one file, select the file in the Files/Layers List dialog box and then click the **Properties** button.

<b>Layer Type</b>	<p>This reflects the type of object in the Shapefile. It can either be Line, Area, or Point. The following attributes will change according to object type.</p> <p>For Lines, you can select the pen stroke width.</p> <p>For Area, you can select the outline color or eliminate an outline altogether.</p>
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For Point, you can choose the point size and shape. To change the shape, open the Draw As menu and select an item. If you select Symbol Object, the Select Library Item dialog box opens.

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**Colorization**

In the Method menu you will have the option to select either No Fill, Solid Color, Color Range, or Color Array.

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## Select Library Item Dialog Box

The Select Symbol dialog box, available when you import file types such as GIS Text files, lets you select a symbol from the Symbol Library, and replace points on the map with the symbol.

### To Select a Symbol:

1. In the Select Symbol dialog box, select one of the symbol categories in the left pane.
2. In the right pane, select a symbol.
3. Click **OK**.

See "Working with the Symbol Library Palette" on page 276.

## Importing GeoTIFF or Geo JPEG 2000 Files

GeoTIFF and Geo JPEG 2000 are formats in which an image that originates from satellite imaging systems, scanned aerial photography, scanned maps, digital elevation models, or as a result of geographic analyses is related to a known model space or map projection.

Canvas will open, place, or import TIFF or JPEG files that contain GIS data. Whether you choose Open, Place, or Import, the same dialog box appears.

### To Open, Place, or Import a GeoTIFF:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **TIFF** or **JP2/JPX/JPK/J2K - JPEG 2000 JP2 File & Geo JP2** as the file type.
3. Navigate to the file in the Open, Place, or Import dialog box and click **Open**, **Place**, or **Import**. A warning message appears indicating that the file contains GIS data.
4. Click **OK**.
5. In the GeoTIFF or Geo JPEG 2000 Import Options dialog box, select your settings.
6. Click **OK**.

## GeoTIFF and Geo JPEG 2000 Import Options Dialog Box

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<b>Files/Layers</b>	This list indicates all the files that you are opening, importing, or placing.
<b>Add/Remove</b>	Click the <b>Add</b> button to open or place another shape file. To delete a file from the list, select the file in the list and click the Remove button.
<b>Projection</b>	Click this button to open the File Coordinate System dialog box.

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<b>Auto Define</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file.
<b>Document Coordinate System</b>	If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

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## Importing KMZ and KML Files

KML and KMZ files are Google Earth's™ file format designed to store placemarks, network link information, and more. KML stands for Keyhole Markup Language, and KMZ stands for KML-Zipped, as it is a compressed version of a KML. KMZs allow you to zip images inside the file so that you can share these details without having to reference them through links. Keyhole Markup Language expresses a geographic annotation and visualization existing within online 2D maps and 3D earth browsers in XML.

### To Open, Place, or Import KML or KMZ Files:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **KML/KMZ - Google Earth™** as file type.
3. Navigate to the .KML or .KMZ file and click **Open** or **Place**.

 KML and KMZ file formats only supports Geodetic Lat/Long and WGS 84. Canvas always maps them to "Plate Carree" projection upon import.

## Importing GPX Files

A GPX file is a GPS exchange format used by many GPS-aware devices, as well as software. GPX files record tracks, and contain waypoints, routes, and/or tracks.

Canvas will import waypoints as circle symbols, routes as lines, route points as rectangle symbols, tracks as lines, and track points as triangle symbols.

### To Open, Place, or Import a GPX File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **GPX - GPS Exchange Format** as file type.
3. Navigate to the .GPX file and click **Open** or **Place**.

## Importing DAT ASCII Files

Canvas will open, place, or import DAT ASCII files. These files contain geographic coordinates that form polygons when opened. These files are represented in the following format:

ID	LON1	LAT1
	LON2	LAT2

```

...
LONx      LATx
END
ID        LON1      LAT1
          LON2      LAT2
          ...
          LONx      LATx
END
END

```

- **ID:** A unique polygon identification number.
- **LON/LAT:** A longitude/latitude coordinate internal to the polygon.
- **LONn/LATx:** A sequence of longitude/latitude coordinate pairs defining the polygon vertices, with matching first and last vertices.

An END statement indicates the termination of each polygon, and a final END statement indicates the termination of the polygon file. Islands or exclusions within a polygon are flagged with an ID number of -99999.

### To Open, Place, or Import DAT ASCII Files:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **.dat** as the file type.
3. In the dialog box, navigate to the .dat file and click **Open** or **Place**.
4. In the Layer Properties dialog box, click **OK** to begin loading the file.
5. In the File Coordinate System dialog box, make any necessary changes for the coordinate system or load projection information and click **OK**.

## Importing TIGER Files

TIGER®, an abbreviation of Topologically Integrated Geographic Encoding and Referencing, refers to the database designed at the U.S. Census Bureau.

TIGER files are a digital database that contain various geographic elements for the United States; e.g., zip code areas, roads, railroads, rivers, etc. With Canvas + GIS and these TIGER files, it is possible to create a not only a local map of your area but also a map of the entire United States.

### To Open, Place, or Import a TIGER File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **RT1** as the file type.
3. Navigate to the RT1 file and click **Open** or **Place**.

4. In the Tiger Import Options dialog box, select your settings.
5. Click **OK**.

## Tiger Import Options Dialog Box

<b>Layers</b>	This list indicates all the files that you are opening or placing. The map objects that are contained in the file are indicated to the right (Point, Line, Area). To stop from opening a file in the list, deselect its checkbox. The file remains in the list but is not opened.
<b>Properties</b>	Select a file in the list and click this button to open the Layer Properties dialog box.
<b>Move Up/ Move Down</b>	Use these buttons to shuffle the files within the list.
<b>Sort by type</b>	Click this button to arrange the files according to map object type; i.e., area, line, or point.
<b>Auto Define</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file.
<b>Document Coordinate System</b>	If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing SID Files

MrSID®, an acronym for Multiresolution Seamless Image Database, reduces the size of large, high resolution images while still maintaining the image’s quality and integrity. These files consist of an image file (\*.SID) and a world file (\*.SDW), which contains the geospatial information of the image. Both files must be in the same folder when opening the MrSID file.

### To Open, Place, or Import a SID File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Navigate to the **.SID** file and click **Open** or **Place**.
3. In the MrSID Import Options dialog box, select your settings.
4. Click **OK**.

## MrSID Import Options Dialog Box

<b>Image List</b>	This list indicates all the files that you are opening or placing.
<b>Add/Remove</b>	Click the <b>Add</b> button to open or place another file. To delete a file from the list, select the file in the list and click the <b>Remove</b> button.
<b>Projection</b>	Click this button to open the File Coordinate System dialog box
<b>Auto Define</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file.
<b>Document Coordinate System</b>	If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing DLG Files

Created by the USGS, digital line graph (DLG) files are digital representations of cartographic data. These files are vector representations of maps either derived from photographs or digitized maps.

### To Open, Place, or Import a DLG File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **DLG/DO/OPT** as file type.



DLG files can have either .DLG, .DO, or .OPT as an extension.

3. Navigate to the .DLG file and click **Open** or **Place**.

In the DLG-0 Import Options dialog box, select your settings.

4. Click **OK**.

### DLG-0 Import Options Dialog Box

<b>Files/Layers</b>	This list indicates all the files that you are opening or placing. The map objects that are contained in the file are indicated to the right (Point, Line, Area).
<b>Add/Remove</b>	Click the <b>Add</b> button to open or place another file. To delete a file from the list, select the file in the list and click the <b>Remove</b> button.
<b>Projection</b>	Click this button to open the File Coordinate System dialog box.
<b>Properties</b>	Select a map object (Point, Line, Area) and click this button to open the Layer Properties dialog box.
<b>Move Up/ Move Down</b>	Use these buttons to shuffle the files within the list.
<b>Auto Define Document Coordinate System</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file. If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing E00 Files

ESRI Export files, are created when exporting from ArcINFO. E00 is a compressed format for vector and raster files. If a file is especially large, ArcINFO breaks the file into smaller files, which will be numbered in sequence; e.g., .E00, .E01, .E02, etc.

### To Open, Place, or Import an E00 File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **E00** as file type.
3. Navigate to the .E00 file and click **Open** or **Place**.

4. In the E00 Import Options dialog box, select your settings.
5. Click **OK**.

## E00 Import Options Dialog Box

<b>Files/Layers</b>	This list indicates all the files that you are opening or placing. The map objects that are contained in the file are indicated to the right (Point, Line, Area). If a file does not contain a specific map object, an X appears in the space.
<b>Add/Remove</b>	Click the <b>Add</b> button to open or place another file. To delete a file from the list, select the file in the list and click the <b>Remove</b> button.
<b>Projection</b>	Click this button to open the File Coordinate System dialog box.
<b>Properties</b>	Select a map object (Point, Line, Area) and click this button to open the Layer Properties dialog box.
<b>Move Up/ Move Down</b>	Use these buttons to shuffle the files within the list.
<b>Auto Define Document Coordinate System</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file. If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing S-57 Files

S-57 is the transfer standard prepared by the International Hydrographic Organization committee to allow users to open Electronic Navigational Charts (.000 files).

### To Open, Place, or Import an S-57 File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **000 - S-57** as file type.
3. Navigate to the .000 file and click **Open** or **Place**.
4. In the S-57 Import Options dialog box, select your settings.
5. Click **OK**.

## S-57 Import Options Dialog Box

<b>Layers</b>	This list indicates all the layers contained in the file. The map objects that are contained in the layer are indicated to the right (Point, Line, Area).
<b>Change</b>	Click this button to open the File Coordinate System dialog box.
<b>Properties</b>	Select a layer in the list and click this button to open the Layer Properties dialog box.
<b>Move Up/ Move Down</b>	Use these buttons to shuffle the files within the list.
<b>Sort by type</b>	Click this button to arrange the files according to type; i.e., area, line, or point.

<b>Auto Define</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file.
<b>Document Coordinate System</b>	If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing ECW Files

Developed by Earth Resource Mapping, Enhanced Compressed Wavelet (ECW) is a compressed format for very large geo-referenced images. Upon compression, images retain their geo-referencing information.

### To Open, Place, or Import an ECW File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **ECW** as file type.
3. Navigate to the .ECW file and click **Open** or **Place**.
4. In the ECW Import Options dialog box, select your settings.
5. Click **OK**.

### ECW Import Options Dialog Box

<b>Image List</b>	This list indicates all the files that you are opening or placing.
<b>Add/Remove</b>	Click the <b>Add</b> button to open or place another file. To delete a file from the list, select the file in the list and click the <b>Remove</b> button.
<b>Projection</b>	Click this button to open the File Coordinate System dialog box.
<b>Auto Define</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file.
<b>Document Coordinate System</b>	If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing USGS DOQ Files

Developed by the USGS, DOQ (digital orthophoto quadrangle) is a digital image of an aerial photograph in which distortions caused by camera tilting and topography have been removed.

### To Open, Place, or Import a USGS DOQ File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **DOQ** as file type.
3. Navigate to the .DOQ file and click **Open** or **Place**.
4. In the USGS DOQ Import Options dialog box select your settings.
5. Click **OK**.



A DOQ file may also have the following extensions: NES, SES, NWS, SWS.

## USGS DOQ Import Options Dialog Box

<b>Image List</b>	This list indicates all the files that you are opening or placing.
<b>Add/Remove</b>	Click the <b>Add</b> button to open or place another file. To delete a file from the list, select the file in the list and click the <b>Remove</b> button.
<b>Projection</b>	Click this button to open the File Coordinate System dialog box.
<b>Auto Define Document Coordinate System</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file. If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing MapInfo Files

Created by MapInfo Corporation, MapInfo® Interchange Format data consists of various files of which two files are paramount — .MIF and .TAB.

Canvas opens or places both the native MapInfo format (.TAB) and the interchange format (.MIF). To open the .TAB file, the .MAP file must be in the same directory. To open the .MIF file, the .MID file must be in the same directory.

### To Open, Place, or Import a MapInfo File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **MIF/TAB** as file type.
3. Navigate to the .MIF or .TAB file and click **Open** or **Place**.
4. In the MapInfo Import Options dialog box, select your settings.
5. Click **OK**.

## MapInfo Import Options Dialog Box

<b>Image List</b>	This list indicates all the files that you are opening or placing.
<b>Add/Remove</b>	Click the <b>Add</b> button to open or place another file. To delete a file from the list, select the file in the list and click the <b>Remove</b> button.
<b>Projection</b>	Click this button to open the File Coordinate System dialog box.
<b>Auto Define Document Coordinate System</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file. If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing GML Files

Based on XML, Geography Markup Language is a standard for geographic information developed by the OpenGIS Consortium (OGC). GML represents geographic information in a textual format.

### To Open, Place, or Import a GML File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **GML** as file type.
3. Navigate to the .GML file and click **Open** or **Place**.
4. In the GML Import Options dialog box, select your settings.
5. Click **OK**.

### GML Import Options Dialog Box

<b>Layers</b>	This list indicates the file that you are opening or placing. The map objects that are contained in the file are indicated to the right (Point, Line, Area). If the file does not contain a specific map object, an X appears in the space.
<b>Change</b>	Click this button to open the File Coordinate System dialog box.
<b>Properties</b>	Select a map object (Point, Line, Area) and click this button to open the Layer Properties dialog box.
<b>Move Up/ Move Down</b>	Use these buttons to shuffle the files within the list.
<b>Auto Define</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file.
<b>Document Coordinate System</b>	If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.

## Importing GIS Text Data Files

Canvas + GIS contains an import wizard for opening GIS Text Data files.

### To Open, Place, or Import a GIS Text Data File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **TXT** (GIS Text Data) as file type.
3. Navigate to the .TXT file and click **Open** or **Place**.
4. In the GIS Text Import Wizard, follow the prompts.

### GIS Text Import Wizard

<b>Import Type</b>	Select either <b>Points/Single Line</b> or <b>Points/Lines/Areas</b> . If you select Points/Lines/Areas, the Format section
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	becomes grayed out.
<b>Start Import at Line</b>	Enter a value in this field to specify when Canvas should starting reading the data in the .TXT file.
<b>Select Coordinate Offset/Scale</b>	Click this button to open the Offset/Scale dialog box. You can enter scale or offset values for the X/Y coordinates.
<b>Format</b>	Select either <b>Fixed Width</b> or <b>Delimited</b> . If you select Delimited, You have access to the Delimiter Options section.
<b>Delimiter Options</b>	Select <b>Auto Detect</b> and Canvas attempts to detect the delimiters upon import. Click <b>Custom</b> and you can specify the delimiter by selecting its appropriate checkbox. You can also define a delimiter by selecting <b>Other</b> and then entering the character in the field.
<b>Text Qualifier</b>	If the delimiter appears in a column of data and you want to ignore the delimiter, you can specify a text qualifier that would define the column as a whole. A text qualifier could be quotation marks "", parentheses (), etc. The actual .TXT file must contain the specified text qualifier.
<b>Treat Consecutive Delimiters as One</b>	Select this option to consider consecutive delimiters as one delimiter.
<b>Load Settings</b>	If you have already defined and saved an import setting, click this button to load the settings. Navigate to the GTI file and click <b>Open</b> .
<b>Next</b>	Click <b>Next</b> to proceed to the next screen.

## GIS Text Import Wizard (Screen 2)

This screen varies according to your Import Type selection in the first screen.

<b>Coordinates</b>	<p>The information in this section changes according to the Import Type.</p> <p>If you chose Points/Single Line with a Fixed Width, you could define the Offset/Width for the X/Y (Lat/Long) coordinates. You also have access to the Define Import Schema option. Offset refers to the number of characters before that column begins; i.e., if you enter 10, Canvas establishes the X/Y coordinates at the tenth character. Width refers to the number of characters within that column.</p> <p>If you chose Points/Single Line with Delimited, you could define the Field Position for the X/Y (Lat/Long) coordinates. You also have access to the Define Import Schema option.</p> <p>If you chose Points/Lines/Areas, you have to define the Field Position for the X/Y (Lat/Long) coordinates.</p>
<b>Define Import Schema</b>	<p>Select this option to define the columns of data contained in the .TXT file.</p> <p>Click the <b>Add</b> button or enter the number of columns in the Fields box. To remove a field, select it and click the <b>Remove</b> button.</p> <p>Enter a descriptive name in the Field Name column. Then define it in the Field type column. Select either <b>Latitude</b>, <b>Longitude</b>, <b>Text</b>, <b>Numeric</b>, or <b>Date Time</b>. Width refers to the number of characters within that column. Select <b>Read</b> to import that column or deselect <b>Read</b> to ignore it. Once imported, you can see this information in the Object Properties palette.</p>
<b>Next</b>	Click <b>Next</b> to move to the next screen.

## GIS Text Import Wizard (Screen 3)

If the file does not contain a certain object, the object's option is grayed out in this screen.

<b>Display Points as</b>	Click <b>Select Symbol</b> to open the Select Library Item dialog box. You can select a library item from a library object set (.MCR). Select a library item and click <b>OK</b> . The Point is now replaced with the library item throughout the document. Define the size of the point objects by entering a value in the Point Size field. Deselect this option if you do not want to create any point objects in the file.
<b>Display Lines as</b>	Click <b>Select Stroke</b> to open the stroke options in the Presets palette. You can use any stroke type. Click <b>Select Color</b> to choose a color ink for the line objects. Deselect this option if you do not want to create any line objects in the file.
<b>Display Areas as</b>	Click <b>Select Fill</b> to choose a fill ink for the area objects. You can use any fill ink type. Select <b>Remove Outlines</b> to remove the stroke from all area objects. Click <b>Outline Stroke</b> to open the stroke options in the Presets palette. You can use any stroke type. Click <b>Outline Color</b> to choose a color ink for the outline stroke of the area objects. Deselect this option if you do not want to create any area objects in the file.
<b>Next</b>	Click <b>Next</b> to move to the next screen.

## GIS Text Import Wizard (Screen 4)

<b>Units</b>	Select this option and choose the linear unit from the menu.
<b>Coordinate System</b>	Select this option and click the <b>Define</b> button to open the File Coordinate System dialog box and configure the coordinate system.
<b>Auto Define Document Coordinate System</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file. If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.
<b>Save Settings</b>	Click this button if you want to save the text import settings for future use.
<b>Finish</b>	Click <b>Finish</b> to complete the import process.

## Importing GPS Garmin Data Files

Canvas + GIS contains an import wizard for opening GPS Garmin simple text files. Use this functionality to plot the waypoints or recreate the path.

### To Open, Place, or Import a GPS Garmin Data File:

1. Choose **File | Open** or **Place**, or **GIS | Import**.
2. Select **TXT** (GPS Garmin) as file type.

3. Navigate to the .TXT file and click **Open** or **Place**.
4. In the GPS Garmin Import Wizard, follow the prompts.

## GPS Garmin Import Wizard

<b>Display Points as</b>	Click <b>Select Symbol</b> to open the Select Library Item dialog box. You can select a library item from a library object set (.MCR). Select a library item and click <b>OK</b> . The Point is now replaced with the library item throughout the document. Define the size of the point objects by entering a value in the Point Size field.
<b>Display Lines as</b>	Click <b>Select Stroke</b> to open the stroke options in the Presets palette. You can use any stroke type.
<b>Next</b>	Click <b>Next</b> to go to the next screen.

## GPS Garmin Import Wizard (Screen 2)

<b>Coordinate System</b>	Click the <b>Define</b> button to open the File Coordinate System dialog box and configure the coordinate system.   In the File Coordinate System dialog box, you can only select angular units and a geographic coordinate system. You do not have access to linear units and map projections.
<b>Auto Define Document Coordinate System</b>	Select this checkbox so Canvas sets up the projected coordinate system for the file. If this checkbox is deselected and you click <b>OK</b> , the Document Coordinate System dialog box opens. This dialog box has the same projection options as the GIS manager.
<b>Finish</b>	Click <b>Finish</b> to complete the import process.

## Exporting GIS Files

Canvas + GIS provides export capabilities to various vector- and image-based GIS formats, including Shapefile, GeoTIFF, ECW, among others. (See "Exporting GIS Files" on page 561) Or you can export your GIS data to an ASCII file. You can then open and edit this file in a text editor or open the file another GIS application, if necessary.

### To Export GIS Files:

1. Do one of the following:
  - Choose **File | Save As**.
  - Choose **GIS | Export**.
2. In the Save As dialog box, enter a name for the file and the location where you want to save the file.
3. Select the appropriate file type.
4. Click **Save**.
5. In the Options dialog box, select the options, and click **OK**.

## Shapefile Export Options

<b>Layer list</b>	All layers being exported are indicated in this list. Select/Deselect a checkbox to include or remove the layer from the export.
<b>Export</b>	By default, the shape_tag is indicated: area, line, or point. (See "Tagging Selections" on page 567.) If you want to specify a different shape_tag, exclude objects that are not tagged, or include all objects, even those with no shape_tag, open this menu and select an option.
<b>Create Directory</b>	Select this checkbox to make a directory for the files. Enter a name in the text box.
<b>Use Prefix Filename</b>	Select this checkbox to attach a prefix to the filename(s). Enter a prefix name in the text box.
<b>Coordinate System</b>	Select <b>Current Document</b> or <b>Geodetic Lat/Long</b> . For Current Document, select a linear unit, if necessary. For Geodetic Lat/Long, select an angular unit.



If you have opened several shapefiles, each shapefile is exported individually.



Each layer is exported as a separate Shapefile, and Canvas creates their respective SHX and DBF files.



You should also assign attributes to objects (Object Properties palette). These attributes are included in the DBF file.

## GeoTIFF and Geo JPEG 2000 Render Options

<b>Scope</b>	Select either <b>Document</b> , <b>Layer</b> , or <b>Selection</b> . Choosing Document exports all active layers, whereas Layer exports the current layer. Selection is grayed out if no objects have been selected.
<b>Bounds</b>	Select either <b>All objects in scope</b> , <b>Paper</b> , <b>Selection</b> , or <b>Custom</b> .  If you choose Custom, you must define a bounding box by entering values in the North, South, West, and East fields.  Then choose a clipping rectangle option: <ul style="list-style-type: none"><li>• <b>Lat/Long Area - Angular Units</b> — Rectangle in angular units</li><li>• <b>Rectangular Area - Linear Units</b> — Rectangle in linear units</li><li>• <b>Corner and Size - Linear Units</b> — North West Corner and width and height in linear units</li></ul>
<b>Linear units</b>	Select an X/Y unit from the menu.
<b>Image Mode</b>	Select either RGB Color or Grayscale.
<b>Resolution</b>	Enter values in the X- and Y-axis fields for the pixel dimensions. The unit is the selected Linear unit; e.g., 3 meter and 4 meter for the X- and Y-axis respectively indicates that each pixel is 3 x 4 meter.  The final image dimensions are noted at the bottom of the dialog.

## ECW Export Options

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<b>Scope</b>	Select either <b>Document</b> , <b>Layer</b> , or <b>Selection</b> . Choosing Document exports all active layers, whereas Layer exports the current layer. Selection is grayed out if no objects have been selected.
<b>Bounds</b>	Select either <b>All objects in scope</b> , <b>Paper</b> , <b>Selection</b> , or <b>Custom</b> .  If you choose Custom, you must define a bounding box by entering values in the North, South, West, and East fields.  Then choose a clipping rectangle option:  Lat/Long Area - Angular Units — Rectangle in angular units  Rectangular Area - Linear Units — Rectangle in linear units  Corner and Size - Linear Units — North West Corner and width and height in linear units
<b>Linear units</b>	Select an X/Y unit from the menu.
<b>Image Mode</b>	Select either <b>RGB Color</b> or <b>Grayscale</b> .
<b>Resolution</b>	Enter values in the X- and Y-axis fields for the pixel dimensions. The unit is the selected Linear unit; e.g., 3 meter and 4 meter for the X- and Y-axis respectively indicates that each pixel is 3 x 4 meter.  The final image dimensions are noted at the bottom of the dialog.

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## Geo JPEG Render Options

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<b>Scope</b>	Select either <b>Document</b> , <b>Layer</b> , or <b>Selection</b> . Choosing Document exports all active layers, whereas Layer exports the current layer. Selection is grayed out if no objects have been selected.
<b>Bounds</b>	Select either <b>All objects in scope</b> , <b>Paper</b> , <b>Selection</b> , or <b>Custom</b> .  If you choose Custom, you must define a bounding box by entering values in the North, South, West, and East fields.  Then choose a clipping rectangle option:  Lat/Long Area - Angular Units — Rectangle in angular units  Rectangular Area - Linear Units — Rectangle in linear units  Corner and Size - Linear Units — North West Corner and width and height in linear units
<b>Linear units</b>	Select an X/Y unit from the menu.
<b>Image Mode</b>	Select either <b>RGB Color</b> or <b>Grayscale</b> .
<b>Resolution</b>	Enter values in the X- and Y-axis fields for the pixel dimensions. The unit is the selected Linear unit; e.g., 3 meter and 4 meter for the X- and Y-axis respectively indicates that each pixel is 3 x 4 meter.  The final image dimensions are noted at the bottom of the dialog.

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## Geo GIF Render Options

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<b>Scope</b>	Select either <b>Document</b> , <b>Layer</b> , or <b>Selection</b> . Choosing Document exports all active layers, whereas Layer exports the current layer. Selection is grayed out if no objects have been selected.
<b>Bounds</b>	Select either <b>All objects in scope</b> , <b>Paper</b> , <b>Selection</b> , or <b>Custom</b> .  If you choose Custom, you must define a bounding box by entering values in the North, South, West, and East fields.  Then choose a clipping rectangle option:  Lat/Long Area - Angular Units — Rectangle in angular units  Rectangular Area - Linear Units — Rectangle in linear units  Corner and Size - Linear Units — North West Corner and width and height in linear units
<b>Linear units</b>	Select an X/Y unit from the menu.
<b>Image Mode</b>	Select either <b>RGB Color</b> or <b>Grayscale</b> .
<b>Resolution</b>	Enter values in the X- and Y-axis fields for the pixel dimensions. The unit is the selected Linear unit; e.g., 3 meter and 4 meter for the X- and Y-axis respectively indicates that each pixel is 3 x 4 meter.  The final image dimensions are noted at the bottom of the dialog.

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## Geo PNG Render Options

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<b>Scope</b>	Select either <b>Document</b> , <b>Layer</b> , or <b>Selection</b> . Choosing Document exports all active layers, whereas Layer exports the current layer. Selection is grayed out if no objects have been selected.
<b>Bounds</b>	Select either <b>All objects in scope</b> , <b>Paper</b> , <b>Selection</b> , or <b>Custom</b> .  If you choose Custom, you must define a bounding box by entering values in the North, South, West, and East fields.  Then choose a clipping rectangle option:  Lat/Long Area - Angular Units — Rectangle in angular units  Rectangular Area - Linear Units — Rectangle in linear units  Corner and Size - Linear Units — North West Corner and width and height in linear units
<b>Linear units</b>	Select an X/Y unit from the menu.
<b>Image Mode</b>	Select either <b>RGB Color</b> or <b>Grayscale</b> .
<b>Resolution</b>	Enter values in the X- and Y-axis fields for the pixel dimensions. The unit is the selected Linear unit; e.g., 3 meter and 4 meter for the X- and Y-axis respectively indicates that each pixel is 3 x 4 meter.  The final image dimensions are noted at the bottom of the dialog.

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## Geo BMP Render Options

<b>Scope</b>	Select either <b>Document</b> , <b>Layer</b> , or <b>Selection</b> . Choosing Document exports all active layers, whereas Layer exports the current layer. Selection is grayed out if no objects have been selected.
<b>Bounds</b>	Select either <b>All objects in scope</b> , <b>Paper</b> , <b>Selection</b> , or <b>Custom</b> .  If you choose Custom, you must define a bounding box by entering values in the North, South, West, and East fields.  Then choose a clipping rectangle option:  Lat/Long Area - Angular Units — Rectangle in angular units  Rectangular Area - Linear Units — Rectangle in linear units  Corner and Size - Linear Units — North West Corner and width and height in linear units
<b>Linear units</b>	Select an X/Y unit from the menu.
<b>Image Mode</b>	Select either <b>RGB Color</b> or <b>Grayscale</b> .
<b>Resolution</b>	Enter values in the X- and Y-axis fields for the pixel dimensions. The unit is the selected Linear unit; e.g., 3 meter and 4 meter for the X- and Y-axis respectively indicates that each pixel is 3 x 4 meter.  The final image dimensions are noted at the bottom of the dialog.

## Export GIS Text File

<b>Coordinate Separator</b>	Specify the type of separator that you want to use to separate the X/Y coordinates.
<b>Feature Separator</b>	Select <b>None</b> for no separator between the objects in the text file. Blank Line separates the individual objects with a blank line.
<b>Scale Factors for X/Y Values</b>	Enter values in the fields if you want to scale the X/Y values.
<b>Offsets for X/Y Values</b>	Enter values in the fields if you want to apply an offset to the X/Y coordinates.
<b>Coordinate System</b>	Select <b>Current Document</b> and choose the linear and angular units from the menus.  If your file is already GIS enabled, the projection is indicated beneath the Current Document radio button; e.g., Transverse Mercator. Select the projection radio button and choose the linear units and angular units from the menus.
<b>Include Feature Attributes Before Coordinate Data</b>	Select this option if you want to include object attributes in the GIS text file. Deselecting this option excludes any object attributes from the exported GIS text file.

## KMZ and KML Export Options

KMZ and KML files saved by Canvas can be viewed with Google Earth™ or any other software that supports this file format.

<b>Scope</b>	Select which layers to export.   Regardless which selection you choose, only objects tagged as Point, Line, or Area objects will be exported.  <ul style="list-style-type: none"> <li>● <b>All layers from the current page</b></li> <li>● <b>Current Layer</b></li> <li>● <b>Selected Layers</b></li> <li>● <b>Selected Objects</b></li> </ul>
<b>Export images for point placemarks (KMZ only)</b>	Symbols or objects in KMZ files that are tagged as Point objects are rendered and exported as image files.
<b>Point Placemark Size</b>	Select the size of objects and symbols tagged as Point objects: <ul style="list-style-type: none"> <li>● <b>Canvas size:</b> Various sizes are respected.</li> <li>● <b>Custom Scale:</b> You can set a relative size to act as a percentage for all.</li> </ul>
<b>Export Visual Styles</b>	Select this option to export attributes of solid pen and fill inks tagged as Line and Area objects. If left unselected, pen and fill inks will be represented in white.
<b>Export hidden objects</b>	Select this option to export all hidden objects, and mark them as hidden in the KML/KMZ file.

## Advanced Property Operations

A number of advanced property operations can be performed on vector-based GIS files of the following types:

- SHP
- S-57
- E00
- RT1
- GML
- SDTS
- MIF

## Common Operations

The following operations available for other types of objects, are also available for GIS objects:

- **Viewing object properties:** If you want to view the properties of multiple map objects, you can use the Object Properties Table View palette to see all the properties in a table. This palette lets you view custom properties that you have assigned to an object as well as geometric properties such as the width and height of the object, location information, pen weight and color, and fill color.

To view GIS object properties in a table: Choose **GIS | Object Properties Table View**.

For more information, see "Viewing Object Properties" on page 146.

- **Selecting objects by property:** The Select by Property command lets you select map objects according to property information. Create a query based on a selected property and property value. For example, if you have opened a file that indicates all airport locations in a state, you could perform a query that selects private airports as opposed to public airports.



If necessary, you could perform this command and then use a Tag Selection As command to modify the selected objects SHAPE\_TAG information. (See "Tagging Selections" on page 567.)

See "Selecting Objects by Property" on page 147.

- **Statistics by Property:** Use the Statistics by Property command to obtain the total number of map objects on the current layer or within the current selection. The information is displayed in a histogram as well.

See "Statistics by Property" on page 148.

- **Expression Builder:** The Expression Builder dialog box, accessible from the palettes such as the Statistics by Property palette and the Calculate Values command from the Object Properties Table View palette, is very similar to the Select by Property dialog box. It lets you create queries.

See "Expression Builder" on page 149.

- **Calculating Values:** You can calculate additional values based on the properties displayed in the Object Properties Table View palette.

See "Calculating Values" on page 148.

## GIS Object Operations

The following operations are only available for GIS objects.

### Tagging Selections

Depending upon the file type, a file or layer may contain one type or of all three types of map objects — Point, Line, or Area. The object type is indicated in the respective Import Options dialog box when opening or placing various file types. (See "Files/Layers List Dialog Box" on page 549.) If you select a map object and open the Object Properties palette, the object type is indicated within the SHAPE\_TAG property field.

The Tag Selection As command lets you modify or remove the SHAPE\_TAG information for the selected objects.

### To Remove the SHAPE\_TAG Property:

1. Select an object.
2. Choose **GIS | Tag Selection As | Unknown feature**.

The SHAPE\_TAG property is removed.

## To Add the SHAPE\_TAG Property:

1. Select the object from which you removed the SHAPE\_TAG property
2. Choose **GIS | Tag Selection As**, and choose one of the following:
  - **Point object**: Changes the selected object to a point object.
  - **Line object**: Changes the selected object to a line object.
  - **Area object**: Changes the selected object to an area object.

## Label by Property

Canvas + GIS has the ability to create labels for map objects based on a selected property. Create queries for a selected property and its related property values to drill down even further. You could combine the Select by Property command with this command to apply labels to selected map objects.

## Label by Property Dialog Box

<b>Property</b>	Select an object property from the menu. Select Build Expression to open the Expression Builder dialog box.
<b>Font</b>	Select the font and its text attributes. By default, the color ink is set to black. Click on the color icon to open the color ink palette.
<b>Collision detection</b>	Select this checkbox to define the placement of labels that collide.
<b>Scope</b>	Select <b>Current Operation</b> , <b>Layer</b> , or <b>Page</b> . If there are no labels yet, select <b>Current Operation</b> . If there are already labels on a layer or page, select <b>Layer</b> or <b>Page</b> depending on the location of the existing labels.  Then select a collision option radio button. If you select <b>Prioritize By Property</b> , you must choose a property that takes priority when labeling is performed.
<b>Feature</b>	Select <b>Point</b> , <b>Line</b> , or <b>Area</b> from the menu.
<b>Point or Area</b>	Select the reference point and enter a <b>Rotation Angle</b> .
<b>Line</b>	Select <b>Above</b> , <b>On</b> , or <b>Under</b> to position the label in relation to the line.  Select <b>Force Label</b> so lines are labeled even if they are smaller than the label itself. Collision detection is still enforced.
<b>Output</b>	Select the location for the labels: <b>New Layer</b> , <b>Current Layer</b> , or an existing layer.
<b>Label Selection Only</b>	If you have a portion selected, this option is enabled. Deselect it to label the entire object.

## Visualize Data

With the Visualize Data command, you can modify the appearance of map objects according to a selected property or a query that is based on a selected property and related property value. You can change the appearance of a map object as well as create thematic and choropleth maps by using either the Symbol, Stroke, or Fill classifications.

## To Open the Visualize Data Dialog Box:

Choose **GIS | Visualize Data**.

## To Save a Visualization Setting:

1. Open the dialog box menu and select **Save**.
2. In the Save visualization settings dialog box, enter a name for the file (.DVF) and click **Save**.

## To a Load a Saved Data Visualization:

1. Open the dialog box menu and select **Load**.
2. In the Load visualization settings dialog box, navigate to the .DVF file and click **Open**.

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## Symbol

The Symbol classification refers to using a symbol from a symbol library object set to modify the appearance of map objects; e.g., perhaps, you have opened or placed a file that contains point objects that indicate airports, hospitals, or points of interest, etc., and you want to replace the point objects with symbols. See "Working with the Symbol Library Palette" on page 276 for information regarding symbols and the Symbol Library palette.

### To Use a Single Symbol:

1. Select **Single** to define one symbol that you wish to use to modify the appearance of a map object.
2. Select **Layer** or **Selection** from the Scope menu.
3. Click the **Select** button.
4. In the Select Library Item dialog box, choose the dynamic library object and click **OK**.
  - **Preserve original size:** Select this radio button to keep the size of the object being replaced by a dynamic object; i.e., if a point object is originally 5 points, the selected dynamic object would be sized to 5 points.
  - **Change size to:** Select this radio button and then enter a size in the text field. The selected dynamic object will be the chosen size.
  - **Preserve symbol frame ink:** Select this checkbox to use the object's original outline color.
  - **Preserve symbol fill ink:** Select this checkbox to use the object's original fill color.
5. Click **Apply** to view the result and then **OK** to return to the main window.

### To Use a Graduated Symbol:

1. Select **Graduated** to define a symbol or symbols that you wish to use to modify the appearance of a map object. Graduated refers to a graduation in size based on a selected property or defined query.
2. Select **Layer** or **Selection** from the Scope menu.
3. Select a property from the Property menu. Only properties that have a numeric data type appear in the Property menu.

You can also click the **Build Expression** button to launch the Expression Builder dialog box in which you can create property queries that have a numeric result.

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If your query does not have a numeric result, no action will occur when you click **Apply** or **OK**.

4. Enter the number of classes in the Equal Interval field. You can also click the **Classify** button to open the Classify dialog box, in which you further define the classification method.
5. Use the From and To fields to determine the size range for the dynamic library objects. From refers to the smallest size, and To is the largest size.
6. Click the **Select** button.
7. In the Select Library Item dialog box, choose the dynamic library object and click **OK**. The chosen dynamic library object is displayed to the left of the size values.



If you want a value, or all values, to have a different dynamic library object, click on the dynamic library object to the left of the value to open the Select Library Item dialog box. Choose the dynamic library object and click **OK** to close the Select Library Item dialog box. Repeat this procedure to assign a different dynamic library object to a value.

8. Click **Apply** to view the result and then **OK** to return to the main window.

### To Use Unique Symbols:

1. Select **Unique** to select individual symbols for each value obtained from the selected property or query.
2. Select **Layer** or **Selection** from the Scope menu.
3. Select a property from the Property menu.

You can also click the **Expression** button to launch the Expression Builder dialog box in which you can create property queries.

4. Click the **Add all values** button to load the values for the selected property or the query.
  - **To remove values:** Select the value in the list and then click **Remove**.
  - **To add values:** Click the **Add** button to open the Add Values dialog box.
  - **To remove all values from the list:** Click the **Clear** button.
  - **To match values to symbols:** Click the Match values to symbols in a file. In the Load Settings dialog box, navigate to the Canvas Symbols folder and select the appropriate file. Click **Open**.



The names of the symbols in the file must match the values that appear in the list. You can create objects and then save the files via the Symbol Library palette.

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### Stroke

The Stroke classification refers to changing the width, color, or type of pen stroke of map objects according to a selected property or query. Perhaps you have opened a Shapefile that contains the locations of every runway in a specific state and you want to assign them a parallel stroke or you wish to differentiate them

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according to their length. You could do so with the Stroke classification.

### To Use a Single Stroke:

1. Select **Single** to choose a single pen stroke type to modify the appearance of a map object.
2. Select **Layer** or **Selection** from the Scope menu.
3. Click the **Select** button to open the pen stroke options of the Presets palette.
4. Choose a pen stroke type (**Standard**, **Calligraphic**, **Neon**, or **Parallel**). A preview of the chosen stroke type is displayed in the preview window.
5. Click **Apply** to view the result and then **OK** to return to the main window.

### To Use Unique Colors:

1. Select Unique Colors to assign various colors to the pen stroke of map objects.
2. Select **Layer** or **Selection** from the Scope menu.
3. Select a property from the Property menu.

You can also click the **Build Expression** button to open the Expression Builder dialog box in which you can create property queries.

4. Click **Add all values** to load the values for the selected property or the query. By default, black is assigned to every value in the list.
  - **To remove values:** Select the value in the list and then click **Remove**.
  - **To add values:** Click the **Add** button to open the Add Values dialog box.
  - **To remove all values from the list:** Click the **Clear** button.
  - **To use random colors:** Click the **Options** button and select **Generate Random Color Palette**.
  - **To apply a specific color ink to a Value:** Select the **Value** and click the color ink icon to open the color inks option in the Presets palette.
  - **To load a different color palette:** Click the **Options** button and select **Load Color Palette** to open the Load Inks dialog box. Select a color palette and click **Open**.
  - **To match values to inks in a file:** Click the **Options** button and select Match values to inks in a file. In the Load Inks dialog box, select a color palette and click **Open**.



The names of the inks in the file must match the values that appear in the list. You can create inks as well as ink palettes and then save the ink palettes via the Presets palette.

5. Click **Apply** to view the result and then **OK** to return to the main window.

### To Use Graduated Colors:

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- 
1. Select **Graduated Colors** to apply a graduation in colors to the pen stroke of map objects.
  2. Select **Layer** or **Selection** from the Scope menu.
  3. Select a property from the Property menu. Only properties that have a numeric data type appear in the Property menu. The value ranges appear in the list.

You can also click the **Build Expression** button to launch the Expression Builder dialog box in which you can create property queries that have a numeric result.



If your query does not have a numeric result, no action will occur when you click **Apply** or **OK**.

4. Enter the number of classes in the Equal Interval field. You can also click the **Classify** button to open the Classify dialog box, in which you further define the classification method.
5. Use the From and To color icons to choose the start and end colors. Select the **Rainbow** checkbox to apply a band of colors to the value ranges.
6. Click **Apply** to view the result and then **OK** to return to the main window.

#### To Use a Graduated Stroke:

1. Select **Graduated Stroke** to apply a graduation in pen stroke width to the pen stroke of map objects.
2. Select **Layer** or **Selection** from the Scope menu.
3. Select a property from the Property menu. Only properties that have a numeric data type appear in the Property menu. The value ranges appear in the list.

You can also click the **Build Expression** button to launch the Expression Builder dialog box in which you can create property queries that have a numeric result.



If your query does not have a numeric result, no action will occur when you click **Apply** or **OK**.

4. Enter the number of classes in the Equal Interval field. You can also click the Sélection des formats de fichiers Audio et Vidéo button to open the Classify dialog box, in which you further define the classification method.
5. Use the From and To fields to determine the size range for the pen stroke. From refers to the thinnest width, and To is the widest width.
6. Click **Apply** to view the result and then **OK** to return to the main window.

---

## Fill

The Fill classification refers to changing the fill ink of map objects according to a selected property or query.

#### To Use a Single Fill Ink:

1. Select **Single** to choose a single fill ink type to modify the appearance of a map object.
  2. Select **Layer** or **Selection** from the Scope menu.
-

- 
3. Click the **Select** button to open the fill ink options of the Presets palette.
  4. Choose a fill ink type (**Color, Gradient, Hatch, Texture, Symbol, or Pattern**). A preview of the chosen ink type is displayed in the preview window.
  5. Click **Apply** to view the result and then **OK** to return to the main window.

### To Use Unique Colors:

1. Select **Unique Colors** to assign various colors to the fill of map objects.
2. Select **Layer** or **Selection** from the Scope menu.
3. Select a property from the Property menu.

You can also click the **Build Expression** button to launch the Expression Builder dialog box in which you can create property queries.

4. Click **Add all values** to load the values for the selected property or the query. By default, black is assigned to every value in the list.

- **To remove values:** Select the value in the list and then click **Remove**.
- **To add values:** Click the **Add** button to open the Add Values dialog box.
- **To remove all values from the list:** Click the **Clear** button.
- **To toggle between Color, Hatch, or Pattern inks:** Open the ink type menu and select either **Color, Hatch, or Pattern**. The Hatch or Pattern ink will use the color ink that is displayed to the left of the Value list.
- **To apply a specific ink type to a Value:** Select the **Value** and click the ink icon to the left to open the ink type options in the Presets palette. Choose either **Color, Gradient, Hatch, Texture, Symbol, or Pattern**.
- **To use random color inks:** Click the **Options** button and select **Generate Random Color palette**.
- **To load a different color palette:** Click the **Options** button and select **Load Color Palette** to open the Load Inks dialog box. Select a color palette and click **Open**.
- **To match values to inks in a file:** Click the **Options** button and select **Match values to inks in a file**. In the Load Inks dialog box, select a color palette and click **Open**.



The names of the inks in the file must match the values that appear in the list. You can create inks as well as ink palettes and then save the ink palettes via the Presets palette.

5. Click **Apply** to view the result and then **OK** to return to the main window.

### To Use Graduated Colors:

1. Select **Graduated Colors** to apply a graduation in fill color to map objects.
-

2. Select **Layer** or **Selection** from the Scope menu.
3. Select a property from the Property menu. Only properties that have a numeric data type appear in the Property menu. The value ranges appear in the list.

You can also click the **Build Expression** button to launch the Expression Builder dialog box in which you can create property queries that have a numeric result.



If your query does not have a numeric result, no action will occur when you click **Apply** or **OK**.

4. Enter the number of classes in the Equal Interval field. You can also click the **Classify** button to open the Classify dialog box, in which you further define the classification method. (See "Classification Dialog Box" on page 574.)
5. Use the From and To color icons to choose the start and end colors. Select the **Rainbow** checkbox to apply a band of colors to the value ranges.
  - **To toggle between Color, Hatch, or Pattern inks:** Open the ink type menu and select either **Color**, **Hatch**, or **Pattern**. The Hatch or Pattern ink will use the color ink that is displayed to the left of the Value list.
6. Click **Apply** to view the result and then **OK** to return to the main window.

## Classification Dialog Box

You can use the Classification dialog box to apply classification methods to your map for various reasons; e.g., to simplify map presentation, to demonstrate data that is not obvious, etc.



The Classification dialog box is only available if you are using a graduated classification process for symbol, stroke, or fill.

<b>Method</b>	<p>Select either Equal Interval, Quantile, Standard Deviation, or Manual.</p> <ul style="list-style-type: none"> <li>• <b>Equal Interval:</b> This method equally sets the entire range of values in each category. You can select the number of class breaks.</li> <li>• <b>Quantile:</b> Data is classified into a number of categories with an equal number of values in each category. You can select the number of class breaks.</li> <li>• <b>Standard Deviation:</b> With this method, Canvas finds the mean, places class breaks above and below the mean at intervals of either 1/6, 1/4, 1/2, or 1 standard deviation.</li> <li>• <b>Manual:</b> With this method, you can adjust, add, or remove class breaks. Place the cursor over an existing class break in the histogram and drag it to its new location. <b>Shift</b>-click within the histogram to add a class break. <b>Shift</b>-click an existing class break to remove it from the histogram.</li> </ul>
<b>Classes</b>	<p>For Equal Interval and Quantile, you can adjust the number of class breaks. Standard Deviation has 4 default class breaks. Manual method has an unlimited.</p>
<b>Show Standard Deviation</b>	<p>Select this checkbox to show the standard deviation if you have used either Equal Interval, Quantile, or Manual. The standard deviation appears as a dotted line.</p>

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<b>Show Mean</b>	Select this checkbox to show the average value for the applied method.
<b>Columns</b>	Select the number of columns to display in the histogram.
<b>Statistics</b>	This section indicates the statistics for the selected property. The same information can be obtained by using the Statistics by Property function.
<b>Breaks</b>	This section indicates the number and location of each class break. If you adjust, add, or remove a class break, this list updates automatically.
<b>OK/Cancel</b>	Click <b>OK</b> to apply classification method and return to the previous dialog box. Click <b>Cancel</b> to exit the dialog box without applying the method.

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Index

.		{Frame #1}	487
.000	555	{last page}	487
.DBF	548	{next page}	487
.DLG	551, 554	{page-bottom}	487
.DOQ	556	{page-top}	487
.E00	554	{Page #1}	487
.ECW	556	{previous page}	487
.GML	558	{Sheet #1}	487
.MIF	557	{Slide #1}	487
.RT1	552	<b>1</b>	
.SHP	548	1 side command	258
.SHX	548	16-bit image	527
.SID	553	<b>2</b>	
.TAB	557	2 sides command	258
.TXT (GIS)	558, 565	<b>3</b>	
.TXT (GPS)	560	3-D effects	266
—		3D effects	269
_blank	488	<b>8</b>	
_parent	488	8-bit image	527
_popup	488	<b>A</b>	
_self	488	absolute paths	491
_top	488	accessing individual tools	9
{		acquiring	
{first page}	487	files as proxies	389

Photoshop files	99	adding units	76
proxies	389	Adobe Photoshop file format	99, 352
see also importing	86	again command	32
Acrobat (PDF) files	89	AI export options dialog box	90
activate font history	74	Airbrush tool	288
activating channels	357	align command	121
activating document window	32	align palette	121
add noise filter	337	align to object (inks)	167, 169
add points to curve	230	aligning	
add property dialog box	149	objects	14, 121
add unit dialog box	46, 76	text	418
add visibility mask command	300	text vertically	419
adding		alignment guides and objects	50
anchor points	228, 230	all (image selection) command	340
dictionary words	441	alpha channels	353
layers	57	see channels	356
metatags	505	Alt key	1
pages	57	anchor points	
paintbrushes	294	adding	230
speaker notes	515	corner	234
tangent line handles	228	deleting	230
toolbar buttons	83	selecting	104, 228
units	46	smooth	234
waveforms	232	tangent lines	234

Angle Dimensioning tool	248	appending	
angle preference	75	brushes	296
animated GIF		inks	152
creating	501	web buttons	501
onion-skinning	43	applying	
save as	502	arithmetic filter	532
animated GIF options		attribute style	138
anti-aliasing	503	binary logic filter	532
auto crop	503	convolve filter	536
differential frames	503	envelope effect	268
erase previous frame	503	envelope template	267
individual palette per frame	503	envelope to images	384
infinite loop	503	frame ink	445
interlaced	503	frame stroke	445
optimize frames	503	image filters	14
transparent background	503	image math filter	534
annotations tools		math expression filter	535
shape type	212	outline ink	445
using	212	outline stroke	445
anti-alias image	125	preset inks	154
anti-aliased Canvas objects	70	scientific filters	531
anti-aliased Clipboard	70	SpriteEffects	13
anti-aliasing rotated bitmaps	382	tapered ends	183
append brushes command	295	text formats	395

Arc 3 Points tool	198	stained glass	376
Arc Radius tool	199	artistic filters	374
Arc tool	196, 202	ASCII	565
Area Dimensioning tool	248	assign position dialog box	47
arithmetic filter	532	assigning	
arrange icons command	33	names	56
arranging		URL to slice	498
objects	120	X/Y positions	47
toolbar buttons	83	assigning properties to object	143
arrow styles icon	10	attaching comments to objects	140
arrowheads		attribute styles	
adding to strokes	180	applying	138
using different ones on each end		attribute styles palette	137
of stroke	181	deleting	138
arrows		loading	138
arrow manager	193	saving	138
arrow tab	180	attributes	
customizing	193	changing text	435
presets	180	finding text	435
removing	182	pasting	113
artistic effects		Attributes manager	65
bevel	378	attributes palette	185
crystallize	374	auto-scroll to selection	72
lens flare	375	auto cache images option	66
oil painting	375		

auto correct	72, 437	Bézier curve paths	241
Auto Curve tool	223	binary filters	527
auto define document coordinate		close	528
system dialog box	542	dilate	528
auto trace command	322	distance map	530
Auto Trace settings	323	erode	528
auto word select	74	make binary	528
automatic selection method	312-313	open	529
autosave	68	outline	529
AutoSnap palettes	9	skeletonize	530
average blur command	333	ultimate points	531
average blur filter	334	binary logic filter	532
AVI	100	bind position handles	450
<b>B</b>		bind text command	449
background color	296	bind to path command	275
background color icon	346	binding text	
background inks	445	removing bind	451
background options, seismic	522	to a circle	451
background updates, preventing	68	to vector objects	448
backup documents	68	black & white image mode	306
Baseline Dimensioning tool	248-249	black body palette	308
baseline position, text	411	blend command	
Basic Smart Lines tool	209	bind to path	265
bevel effect	378	creating borders	266
bevel line joins	188		

dynamic	265	brightness/contrast command	328
objects	265	bring to front command	121
point to point	265	brush icon	294
rainbow colors	265	brush options command	295
Blend tool	290, 361	brush options dialog box	294
blending		brush pointers	69
colors	158	brushes	
gradient inks	160	adding to palette	294
blur filters	333	appending	296
blur more filter	333	creating	295
Blur tool	293	defining with selection	295
bold font style	411	deleting	296
borders		editing	294
border command	350	loading from disk	296
creating with blend command	266	modifying	294
trimming image borders	317	saving to disk	296
both axes (flip) command	453	selecting	295
Bound text commands	451	brushes palette	295
bounding box		Bucket tool	289
description	106	Burn tool	293
restoring after rotation	129	butt end cap	
breaking		see flat end cap	188
break composite command	240	buttons, web	499, 501
paths	228		

<b>C</b>		Canvas origin, setting	543
cache object command	66-67	capitalization style	411
cache options	66	Cartesian	216
caching		Center Dimensioning tool	248
paint objects	14	center justification	418
text objects	15	center of rotation	129
vector objects	13	center reference point	543
calculate command	385	center snap option	202
Calculate values command	148, 567	center, drawing objects from	197
Calendar tool	208	centerpoint, skewing	126
calibration	78	CGM export options dialog box	90
calligraphic pen stroke	187	CGM import options dialog box	519
Camera tool	303	Chain Dimensioning tool	248-249
cancelling actions		changing	
see undo command	31	brush settings	294
Canvas		color settings	78
CVAppData.Set file	15	current inks	171
CVI	387, 392	current pen width	180
dictionary	440	document type	67
drawing format (OLE)	101	image mode	14
exporting image files	392	image resolution	14
settings file	152	object dimensions	13
Canvas 6-style object locking	68	object opacity	13
Canvas Assistant	3	object position	13

object transfer mode	13	character formatting	
zero points	47	font styles	410
channel mask scope	475	fonts	409
channel masks	358, 360, 473	horizontal and vertical scaling	414
channels		kerning	411
activating	357	preventing changes to	431
alpha	353-354, 474	special characters	438
calculations with	385	type size	410
channel masks	354, 360	type styles	426
color	353-354	character spacing	412
composite	354	Charts	281
composite channels	353	check proxies command	391
creating	356	Chinese fonts	74
deleting	356	choke trap	136
display options	69	choosing document type	41
displaying a single channel	357	choropleth maps	568
isolating a selection	380	Circle 3 Points tool	198
mask options	356	Circle Radius tool	198
options	356	Circle Redline tool	139
renaming	356	circles, drawing	196
saving selections in	351	classic arrows	
channels palette	354, 356	bottom	193
character attributes	431	editing	193
		full	193

hollow	193	pasting into selections	347
top	193	clipping paths	
witness	193	applying effects to	261
classification method		creating	260
equal interval	574	definition	260
manual	574	editing	261
quantile	574	from text	452
standard deviation	574	removing	261
classifying map data	568	showing and hiding	261
clean up by name command	16	cloning options	
clean up command	16	see Rubber Stamp tool	289
clean up palettes command	9	close filter	528
clear command	109	closed paths	230
clear font history	74	closing	
clearing customized settings	82	documents	41
clearing inks	152	palettes	10
clearing print area	40	clouds (render) filter	362
clipart		CMYK color	154, 157
placing;symbols		CMYK color mode	310, 353
placing 278		color	
clipboard		applying	172
copying objects to	110	blends	158
definition & use	109	calibration	78
OLE	101	CMYK	154, 157

Color Dropper tool	172, 297	saturation	333
color editor	160	selecting	172
color range files	343	selecting in images	345
color spectrum strip	156	separations	135
color systems	157	spot color option	158
custom colors	159	tints	158
defining	157	wheel	332
gamut warning	156	color balance command	329
gradient inks	160	color channels	69, 353
grayscale	157	Color Dropper tool	172, 297
HSL	157	color editor dialog box	160
identifying inks	154	color equalization command	333
inks	151	color icons	
management	78	displaying	153
mixing two colors	273	hiding	153
mode	484	color management	78
models	304	color manager	156
of layout area	6	color range command	339, 342, 344
outside of Canvas	173	color separations, previewing	38
painting with	296	color settings	
pen inks	170	intent	79
printing options	36	printer	79
registration ink	208	color spectrum strip	156
RGB	157	color systems	155

## Canvas 15 User Guide

color table command	308	intersect	263
color table dialog box	308	mix	265
color tables, saving and loading	308	outline	263
color wheel filter	366	punch	264
colorize filter	533	subtract back	264
colorize vector objects	273	subtract front	264
column guides command	400	transparency	265
column guides dialog box	397	trim	262
Column Selection tool	341	combine effects	262
columns		Combine palette	262
controlling breaks	423	commands	
creating	395	1 side	258
flowing text	403	2 sides	258
guides	398	add noise	337
layout	398	add visibility mask	300
margins	395	again	32
modifying	400	align	121
settings	399	all (image selection)	340
vertical check box	397	arrange icons	33
width	422	auto trace	322
combine		average blur	333-334
add	263	bevel	378
crop	264	bind text	449
divide	264	bind to path	275

blend	265	Configuration Center	62
blur	333	configure fine kerning	412
blur more	333	continue spell check	442
border	350	contract	349
both axes (flip)	453	convert to paths	130, 238, 455
break composite	240	copy	109, 114
brightness/contrast	328	copy as 96 dpi	111
bring to front	121	copy as image	110-111
cache object	66-67	copy at 4X	111
calculate	385	copy at 8X	111
Calculate values	148, 567	copy options	110
check proxies	391	copy to layers	121
choosing	1	create	285
clean up	16	crop	315
clean up by name	16	crop and fit to sheet	48
clean up palettes	9	crystallize	374
clear	109	curves	330
color balance	329	custom (filter)	380
color equalization	333	cut	109, 346
color range	342	date	425
colorize	273	date stamp	425
column guides	400	de-interlace	339
combine	262	defloat	348
comments & markup	140	delete	57

## Canvas 15 User Guide

delete view	22	fit Bézier	241
desaturate	328	fit selection to sheet	48
despeckle	338	fit to objects	22
detach	360	fit to selection	22
detach mask	477-478, 482	fit to window	22
disperse	60	flip both axes	130
display options	65	flip horizontal	130
dock all palettes	16	flip vertical	130
dock palettes when closed	16	float	348
document setup	84, 88	footer	424
duplicate	109, 114	fractalize	273-274
dust and scratches	338	freeform	125
edit	107	gamut warning	66
edit channel mask	359, 476	Gaussian blur	334
edit path	227	GIS Positioning	542
emboss	366	grids	50
envelope	267, 454	group	118
expand	349	grow	344
export	86, 352	guides	51
extrude	269, 454	header	424
feather	347, 360	hide grids	50
fill	380	hide page breaks	44-45
find	108	hide rulers	45
fit all objects to sheet	48	hide size	247

hide spelling errors	440	lock	121
hide text boxes	395	loose (kerning)	412
hide text invisibles	434	loosen (kerning)	412
high pass	378	loosen (leading)	415
home view	22	loosen fine kerning	412
horizontal (flip)	453	make composite	240
horizontalize	125	math expression 2-D plot	216
hue/saturation	332	maximum	380
image measurement	539	median	338
import	86	minimum	380
in context menus	25	motion blur	334
increase (text size)	410	move	120
insert	56	new	41, 84, 88
insert object	101	new channel mask	358, 475
insert picture	438	new image from selection	350
insert symbol	438	new view	22
inside shape (wrap)	446	none (selection)	340
invert	327	normal (kerning)	412
join (paths)	233	object specs	132
lens flare	375	offset	368
levels	329	offset path	260
links	102	oil painting	375
live curve editing	224	open	26, 85
load (image selection)	352	open document layout palette	53

## Canvas 15 User Guide

open page navigator palette	53	reduce (text size)	410
outline path stroke	239	reduce points	241
output resolution	485	refresh	19
overprint	137	remove effects	124, 260, 315, 318
page numbering	425	remove wrap	446
page setup	39, 44	render	301-302
paragraph rules	420	repeating	32
paste	109, 114	repel options	448
paste and place	109, 112	replicate	114
paste attributes	113	resolution	320
paste into	347	revert	32
paste link	102	ripple	370
paste special	102, 442	rotate	129, 453
path to selection	345	rulers	46
place	27, 85, 443	save	28
posterize	326	save (image selection)	352
print	36, 38	save as	28, 84, 88, 352
print preview	38	save to web	506
printer setup	44	scale	131, 315
properties	33	scale bar	49
proxy info	390-391	scale by area/perimeter	131
put away palettes	10	select	107
radial blur	335	select all	105
redo	32	selection to path	351

send to back	121	shuffle down	121
send to guide layer	51	shuffle up	121
send to layers	121	similar	344
set document scale	49	Smart Mouse	254
set tab length	16	smooth	349
shadow	274, 453	smooth (paths)	220
sharpen	336	solarize	367
sharpen edges	336	spell check document	441
sharpen more	336	spell check selection	441
show added words	442	spherize	373
show channels	353-354, 360	spread	137
show grids	50	stack windows	33
show page breaks	44-45	stained glass	376
show rulers	45	Statistics by property	148, 567
show size	247	Tag selection as	567
show spelling errors	440	threshold	325
show text boxes	395	tight (kerning)	412
show text invisibles	434	tighten (kerning)	412
show toolbox	7	tighten (leading)	415
show/hide docking bar	15	tighten (leading)	415
show/hide guides	51	tighten fine kerning	412
show/hide text flow bars	403	tile across	33
show/hide toolbar	10	tile down	33
show/hide transparency preview	473	time	425
		time stamp	425

total page count	425	zoom in/out	20
trace contour	368	commands, choosing	1
Treat as point object	48	comment attributes dialog box	142
trim	317	comments & markup command	140
trim to path	317	Comments & Markup palette	141
twirl	372	Commission Internationale d’Eclairage (CIE)	310
type	414	composite channels	353-354
uncache object	67	composite paths	240
undo	31, 68	Computer Graphics Metafile (CGM) format	90
ungroup	118	concentric circles	
unlink proxy	390	converting to paths	238
unlock	121	drawing	203
unsharp mask	337	Concentric Circles tool	203
unsmooth (paths)	220	Configuration Center	62-63
update proxies	392	configure fine kerning command	412
vanishing point	202, 258	configuring dimension objects	249
vertical (flip)	453	Connection Point tool	210
very loose (kerning)	412	constraints	
very tight (kerning)	412	see also snap options	200
view data	538	context menu	25, 107, 228, 295, 473
view fonts	409	continue spell check command	442
visualize data	568	contract command	349
wireframe	66		
zoom blur	336		

contrast		objects	109
adjusting	328	objects to layers	121
creating high-contrast images	326	text objects	434
Control key	1	copying lenses;SpriteEffects	
convert curve to simple paths	238	copying lenses	464
convert to lens command;commands		corner anchor points	228, 234
convert to lens	464	corner radius, rounded rectangle	199
convert to paths		create backup when saving	68
command	130, 227, 238, 455	create brushes	295
convolve filter	536	create command	285
coordinates command	544	create image dialog box	286
copy as 96 dpi	111	create object at viewpoint	
copy as image command	110-111	command;commands	
copy at 4X command	111	create object at viewpoint	467
copy at 8X command	111	creating	
copy command	109, 114	animated GIFs	501
copy options command	110	attribute style	137
copy to layers command	121	basic shapes	196
copying		callouts	213
anti-aliasing	111	channel masks	358, 475
attributes	113	channel masks from selections	360
attributes of objects	113	channels	356
by dragging	120	classic arrow	193
into selections	347	composite paths	240
object properties	146	custom arrowheads	193
			594

## Canvas 15 User Guide

custom neon strokes	190	vector masks	479
dimension objects	247	vector objects	196
flowcharts simple	212	creating Favorite inks	170
forms	405	creating lens object;making lens object;lens object	464
keyboard shortcuts	82	creating transparent background	300
lenses;lenses		crop and fit to sheet command	48
creating;SpriteEffects		crop command	315
creating lenses	464	crop marks	208
new channels	355	Crop tool	316, 318
new documents	41	cropping	
new inks	156	constraining	320
objects from selections	350	images	316
paint objects	284-285	paint objects	14
pattern inks	169	vector objects	232
proxies	387	with the selection tool	320
sections	399	cropping images	316
shadows	454	crystallize effect	374
slices	493	Ctrl key	1
Smart Lines	210	Cube tool	204
special vector objects	203	cubes, drawing	203
symbol inks	167	current inks	171
texture ink	168	current strokes	176, 179
transparency effects	358	Curve tool	218, 221
transparency fades	361		

curves		customize rulers	76
adding anchor points	230	customizing dashes	194
adding segments	230	customizing dimension objects	249
closing and opening	230	customizing pen strokes	186
deleting segments	230	cut command	109, 346
drawing	221	cutting and pasting	
curves command	330	into selections	347
curves dialog box	331	objects	109
cuspid anchor points	228	text	434
custom		text objects	434
color tables	308	CVI (Canvas Image File) format	387
filters	380	<b>D</b>	
inks in pop-up palettes	159	Darken transfer mode	483
views	22	dash preference	65
custom (filter) command	380	dash styles icon	10
custom controls dialog box	103	dashes	
customize dialog box		customizing	194-195
add buttons to toolbar	83	dash manager	195
clear all	82	presets	182
fonts and sizes	82	removing	182
inks	82	DAT files	
keyboard shortcuts	82	general	551
opening	81	date command	425
strokes	82	date stamp command	425

date, inserting in documents	424	preset strokes	178
DCS format	93	sections	401
DCS information	87, 506	tangent lines	228
de-interlace filter	339	text	434
default		deleting alpha channels	355
for new documents	41	deleting attribute style	138
inks	171	deleting channel mask	360
strokes	176	deleting Favorite inks	170
type attributes	408	deleting slices	497
define brush command	295	deleting tabs	414
define properties dialog box	143	deleting units	76
defining units	76	desaturate command	328
defloat command	348	deselecting	
delete brush command	295	in images	340
delete command	57	objects	106
delete view command	22	text	434
deleting		despeckle filter	338
anchor points	228, 230	detach mask command	360, 478
channel masks	359	detaching channel masks	360
channels	356	dialog balloons	209
dictionary words	442	dialog box	
objects	109	add property	149
path segments	230	add unit	46, 76
preset inks	152	AI export options	90

assign position	47	Edit Geographic Coordinate System	541
auto define document coordinate system	542	export GIS text file	565
brush options	294	export Shapefile	562
CGM export options	90	export TIFF	99
CGM import options	519	Expression Builder	149, 567
color editor	160	File/Layers List	548
color table	308	Geo BMP render options	565
column guides	397	Geo GIF render options	564
comment attributes	142	Geo JPEG export	563
Configuration Center	62-63	Geo PNG render options	564
create image	286	GeoTIFF export	562
curves	331	GeoTIFF import options	550
custom controls	103	GML import options	558
customize	81	graticule settings	543
define properties	143	guides	51
DICOM import options	524	hue/saturation	332
DLG-O import options	554	image measurement	539
document properties	505	indexed color	307
duotone curves	311	insert	57
duotone options	310	kerning specifications	412
DWG & DXF import	91	layer properties	549
E00 import options	555	levels	330
ECW import options	556	make proxy	388-389
ECW render options	563	MapInfo import options	557
			598

math expression 2-D cartesian plot	216	Tiger import options	553
math expression 2-D polar plot	217	USGS DOQ import options	557
modify unit	76	view comments	141
MrSID import options	553	wave configuration	233
new mask	358	Diameter Dimensioning tool	248
new standard definition	252	DICOM import options dialog box	524
paragraph rules	421	dictionary, spelling	440
PDF & PS import	88	digital camera	87, 506
raw image export options	525	dilate filter	528
raw image import options	526	dimension objects	
render image	302	attributes	251
replicate & position	118, 543	changing attributes	251
ripple	370	editing	249
rotate	125, 382	extensions	253
S-57 import options	555	gaps	253
save AVI options	100	standards	253
scale options	47	text properties	251
select library item	550	text styles	252
select properties to display	147	tolerance	253
slice divider	497	units	253
speaker note	515	dimension properties	
Startup	2	add	250, 252
SVG options	100	arrows	250
tab	414	display units	250

edit	250	Direct Edit Selection tool	104
leaders	250	Direct Group Selection tool	105
outside lines only	250	Direct Selection tool	104
postfix	250	disable AutoSnap palettes	9
prefix	249	disable Smart Toolbox	7
remove	250	disperse command	60
standard	250	display options command	65
text always centered	252	display options manager	65
text display	250	display preferences	
tolerance	250	color mode	484
units	249	interpolation	70
use fill color for text	252	object caching	71
use secondary units	250	transparency	71
value	249	vector quality	70
witness lines	250	display redraw	19
dimensioning tools	247-248	displaying	
configuring leaders	250	color icons	153
customizing	249	gamut warnings	66
types described	249	rulers	45
Dimensioning tools	249	selected object type	106
dimensions		slide show on two monitors	516
displaying while drawing	247	slide shows	517
linking to measured objects	252	spelling errors	440
Direct Edit Lasso tool	105	text flow bars	403

## Canvas 15 User Guide

wireframe views	66	columns	398
distance map filter	530	comments	139
distort		creating	41
see envelope command and skewing objects	268	discarding changes	32
distributing objects	121	display modes	66
dithering options	307	formatting text	408
dividing slices	497	GIF animation	43
DLG-O import options dialog box	554	keywords	34
dock all palettes command	16	layout	52, 61
dock palettes when closed command	16	margins	44
docking tool palettes	7	moving objects in	121
document layout palette	53	navigation controls	6
document properties dialog box	505	opening	26
document setup command	84, 88	orientation	42, 44
document size	42	page layout	44
document type	41	paper color	44
document units	42, 44	placing	27-28
documents		printing	34
active	32	properties	33
applying section settings	401	rulers and scale	45
Canvas illustration	41-42	saving as web pages	503
Canvas presentation	41, 43	scrolling	19
Canvas publication	41-42	setting up	43
closing	41	size	42

spell checking	440	cubes	203
statistics	34	curves	222
substituting fonts	27	freehand shapes	220
templates	43, 84	from center of objects	197
two-sided	44	grids	203, 205
types of	41	lines	196
units	42	multigons	206
viewing	19, 22	objects within images	304
zooming	20-21	ovals	196
Dodge tool	292	paths	222
Dogleg Connector Smart Lines tool	209	polygons	219
don't show plug-in host warning	69	rectangles	196
DOQ files	556	rounded rectangles	196
dots per inch	315	rounded squares	196
double-sided arrowhead	181	Smart Lines	209
double spacing lines of text	415	spirals	203, 205
drag & drop text	74	squares	196
draw text as Béziars	74	stars	203
draw with cache option	66	with snap options	200
drawing		with snap points	77
arcs	196, 198	drawing aid	253
by numbers	202	Drawing Interchange file format	92
circles	196, 198	drawing preferences	
concentric circles	203	auto-scroll to selection	72

when dragging and resizing always			
show originals	72		
when duplicating objects offset	72		
when moving objects offset	72		
drawing scale	42, 45, 67		
drawing vector objects	196		
drop caps	423		
drop shadows	274		
duotone curves dialog box	311		
duotone image mode	310		
duotone inks command	311		
duotone options dialog box	310		
duplicate command	109, 114		
duplicate command preference	72		
duplicate with transform	116		
duplicating			
by dragging	115		
channels	355		
using modifier keys	115		
while rotating	116		
while skewing	116		
dust and scratches filter	338		
DWG & DXF import dialog box	91		
DWG import	91		
DXF export options	93		
DXF import		91	
dynamic objects			
converting to paths		238	
<b>E</b>			
E00 files		554	
E00 import options dialog box		555	
ECW files		556	
ECW import options dialog box		556	
ECW render options dialog box		563	
edit channel mask command	359, 476		
edit command	107		
Edit Geographic Coordinate System			
dialog box		541	
edit mode			
definition		107	
paint objects		287	
paths		227	
proxies		390	
text		432	
edit path command		227	
editing			
alpha channels		357	
arcs		199	
channel masks		359, 476	
clipping paths		261	

comments	141	spirals	205
concentric circles	204	SpriteEffects	458
context menus	25	tabs	414
cubes	204	text	408, 432
dimension objects	249	text clipping path	262
extruded objects	272	vector masks	480
finding text	435	vector objects	227
grids	205	effect dimensions dialog box; dialog box	
hatch inks	165	effect dimensions	463
masks	470	effects	
multigons	207	blend command	265
object data	133	clipping paths	261
objects	107	colorize command	273
paint objects	287	combine command	262
paragraph rules	421	drop shadows	274
pasting attributes	113	envelope command	267
pasting into selections	347	extrusion	269
paths	224, 227, 234	fractalize command	273
preserving visibility	362	offset filter	362
proxies	389-390	offset path command	260
resizing	199	perspective	258
rotated objects	129	removing	318
Smart Lines	210	render filter	362
specialized objects	227		

SpriteEffects;objects		equal interval	574
SpriteEffects	457	Eraser tool	289, 362
stylize filter	362	erode filter	528
three-dimensional	266	ESRI export files	554
Electronic Navigational Charts	555	EXIF image information	87
embedding (OLE)	103	expand command	349
embedding slide transition effects	511	export commands	86
emboss command	366	export GIS text file dialog box	565
enable two-byte script preference	396	export Shapefile dialog box	562
enabling symmetrical drag	228	export submenu	352
end caps	188	export TIFF dialog box	99
endpoints of paths	231	export transition effects to PDF	511
English measurement units	46	exporting	
Enter key	1	ASCII	565
envelope		Canvas Image Files	392
Bézier	269	ECW files	563
distort	268	files	302
double cusp	269	Flash (SWF editor)	507
single cusp envelope	269	Flash (SWF player)	507
straight line	269	Geo BMP	565
warp	268	Geo GIF	564
envelope command	267, 384	Geo JPEG	563
enveloping text objects	454	Geo PNG	564
EPS (Encapsulated PostScript Format)	93, 95	GeoTIFF	562

GIF	95	file formats	
GIS Text files	565	Acrobat (PDF)	89
Illustrator (AI) format	90	Canvas (CVI)	387
images	14	Computer Graphics Metafile (CGM)	90
images with channels	352	Drawing Interchange Format	92
JPEG	95	EPS	93, 95
PDF	508	Graphics Interchange Format (GIF)	95
RAW files	525	HTML	503
slices	498	Illustrator (AI)	90
SVG	100	JPEG	95-96
text	443	PDF	508
exporting as CGM	90	SWF	507
Expression Builder dialog box	149, 567	Tag Image File Format (TIFF)	99
extensions, dimension objects	253	text	101
extrude command	269	file transfer protocol	487
extruded objects, editing	272	File/Layers List dialog box	548
extruding text	455	fill command	380
eye color	312	fill ink icon	10, 150
<b>F</b>		fill inks	
facing pages	52	applying to paths	171
Favorite inks		applying to text	444
creating	170	using ink buttons	83
deleting	170	fillet	228
feather command	347, 360	filling objects	171

## Canvas 15 User Guide

filter effects	457	median	338
filters		minimum	380
add noise	337	motion blur	334
applying SpriteEffects;filters		offset	362, 368
plug-ins	457	oil painting	375
average blur	333-334	plug-ins	69
bevel	378	radial blur	335
binary	527	render	362
blur	333	ripple	370
blur more	333	scientific	531
clouds (render)	362	sharpen	336
crystallize	374	sharpen edges	336
custom	380	sharpen more	336
de-interlace	339	solarize	367
description	362	spherize	373
despeckle	338	stained glass	376
dust and scratches	338	stylize	362
emboss	366	trace contour	368
fill	380	twirl	372
Gaussian blur	334	unsharp mask	337
high pass	378	wheel	366
image measurement	539	zoom blur	336
lens flare	375	find command	108
maximum	380		

find palette		floating point (32-bit) image	527
objects tab	108	flow chart boxes	209
text tab	435	flowcharts	
fit all objects to sheet command	48	simple	212
fit Bézier command	241	following hyperlinks	491
fit selection to sheet command	48	font history	74
fit to objects command	22	fonts	
fit to selection command	22	applying	409
fit to window	68	Chinese	74
fit to window command	22	finding and changing	436
Flash		folder	410
exporting to	507	including in EPS files	94
general options	507	installation tips	410
image options	507	Japanese	74
SWF editor	507	Korean	74
flat end caps	188	preventing changes to	431
flip both axes command	130	selecting	409
flip horizontal command	130	specifying	409
flip vertical command	130	styles	410
flipping		substituting	27
objects	130	two-byte	74
text	453	type size	410
flipping objects	124	view fonts palette	409
float command	348	Western languages	74

foot and inch marks	73	full justification	418
footer command	424	functionality options	67
foreground color	296	<b>G</b>	
formatting text with properties bar	408	gamut warning	75, 156
fractalize command	273	gaps, dimension objects	253
fractals		Garmin	560
curves or polygon	274	Gaussian blur filter	334
density	274	general preferences	
wiggle	274	autosave	68
frame ink	445	Canvas 6-style object locking	68
frame inks	445-446	create backup when saving	68
frame stroke	445	fit to window	68
frame strokes	446	freeform selection	68
frames (animation)	43, 502	maximize on opening	67
freeform command	125	no background updates	68
freeform image selections	127	paste as metaobject	68
freeform mode		scale stroke weight	68
rotating and skewing objects in	125	search selection on clicks	68
text	453	select across visible layers	68
vector objects	125	show information tooltips	68
freeform selection	68	Geo BMP render options dialog box	565
Freehand tool	218, 220	Geo GIF render options dialog box	564
from printer option	45	Geo JPEG export dialog box	563
FTP	487	Geo PNG render options dialog box	564

geography markup language	558	styles	161, 163
GeoTIFF export dialog box	562	gradient manager	163
GeoTIFF import options dialog box	550	Gradient Vector tool	161
GIF export options dialog box	95	Graphics Interchange Format (GIF)	95
GIS		graticule settings dialog box	543
new document	41	grayscale colors	157
GIS manager	540	grayscale image mode	306
GIS palette	542	grayscale palette	308
GIS Positioning		greeking text	73
palette	542	grid layers	
GIS Text files	558, 565	adding	61
GIS Text Import Wizard	558	arranging	62
GML files	558	copying	62
GML import options dialog box	558	definition	60
GPS	560	deleting	62
GPS Garmin Import Wizard	561	Gridmaker tool	205
GPS Text files	560	grids	
gradient inks	477	converting to paths	238
applying	160-161	drawing	203
creating	160	grids command	50
customizing	160	group command	118
Gradient Vector tool	161	grow command	344
modifying	164	guide layers	
rainbow	164	adding	61

arranging	61	hide	
copying	61	channel mask	359
definition	60	color icons	153
deleting	61	docking bar command	15
guides		edges command	340
columns	398	grids command	50
setting position numerically	51	guides command	51
snap to command	51	page breaks command	44-45
guides dialog box	51	properties bar	11
<b>H</b>		rulers command	45
halftone frequency	75	size command	247
halftone options	75	spelling errors command	440
halftone screens	321	text boxes command	395
Hand tool	19	text flow bars command	403
hard crop	316	text invisibles command	434
Hard Light transfer mode	483	toolbar command	10
hard rotate	382	transparency preview command	473
hard rotate for image	125	high pass command	378
hatch inks	165	home view command	22
attributes	166	horizontal (flip) command	453
hatch manager	165	Horizontal Align options	123
modifying	166	Horizontal Dimensioning tool	248
using	165	Horizontal Distribute options	123
header command	424	horizontal skewing	126

horizontalize command	125	relative paths	488, 491
hotkeys	73	to e-mail	487
HSL color model	157	to FTP addresses	487
HTML export options		to HTTP addresses	487
create new folder	100, 504	hypertext	486
file format	504	hypertext transfer protocol	487
general	503	<b>I</b>	
generate navigation file	504	ICC (International Color Consortium)	
layout mode	504	profiles	78
put images in subfolder	504	illustration area	470
separate pages	504	illustration documents	
use external style	504	definition	41-42
HTTP	487	placing	28
hue/saturation		setting up	43
brightness	332	Illustrator	
colorize option	333	export filter	90
definition	332	export options	90
dialog box	332	exporting EPS files to	94
Hyperlink pointer	491	exporting to (AI) file format	90
hyperlinks		image channels	353
absolute paths	491	Image Data Viewer	282, 538
complete URLs	491	Image Data Viewer dialog box	538
defined	486	image effect	383
invalid characters	490	image interpolation	
		auto	70

bicubic	71	images	
bilinear	71	acquiring as proxies	86
nearest neighbor	71	acquiring proxies	389
image math filter	534	adding visibility masks	300
image measurement command	539	applying filters	14
image measurement dialog box	539	auto tracing	322
image measurement properties	539	black & white mode	306
image modes	527	changing modes	305
black & white	305	changing resolution	321
changing	305	channels	353
CMYK color	310	clearing selections	346
definition	304	copying selections	346
duotone	310	creating	284-285, 303
grayscale	306	cropping	315, 320
Indexed	307	distorting	373
LAB color	310	enveloping	384
multichannel	312	feathering selection edges	347
RGB color	309	floating selections	348
image proxies		freeform selections	127
definition	387	importing	86
import command	389	in texture inks	168
image selections	127	modifying	14
image shadow	454	moving selections	348
		pasting into selections	347

preserving visibility	362	JPEG files	86
printing proxies	35	Photoshop files	99
proxies	387	proxies	86, 389
resampling	320	RAW files	526
ripple filter	370	text	442
rotating and skewing selections	127	TIFF files	86
scanning	313	inches measurement units	46
scanning resolution	314	included snap option	201
screening	306	increase (text size) command	410
selecting areas	340	indenting text	
selections	344, 353	properties bar	417
size and resolution	315	type palette	417
trimming borders	317	indexed color options	307
trimming to path	317	indexed color palettes	308
twirl filter	372	information area	19
images during HTML export	505	ink coverage	75
import command	86	inks	
importing		appending	152
CVI files	86	applying	174
DICOM files	524	applying preset	154
EPS linked files	93	arranging	154
GeoTIFFs	550	blends	158
Illustrator	90	clearing presets	152
images	86	color	151

## Canvas 15 User Guide

color editor	160	symbol	166
color tab	151	symbol manager	167
creating	156	text	444
current	171	texture inks	168
default	171	texture manager	168
fill	171	using ink buttons	83
gamut warning	156	inks managers	155
gradient styles	161	inks preference	65
gradients	160	inline (preferences) manager	80
hatch	165	insert	
hatch manager	165	date	424
inks managers	154	page numbers	424
loading	152	time	424
managers	154	total page count	424
naming	158	insert command	56
Pantone	156	insert dialog box	57
pattern inks	169	insert object command	101
pattern manager	169	insert picture command	438
pen	170	insert symbol command	438
registration color	208	inserting ActiveX controls	103
saving	152	insertion point	432
selecting	173	inside shape (wrap) command	446
sharing	152	interlacing in GIF files	98
spot color option	158	International Hydrographic Organization	555

Internet		kerning	
FTP	487	definition	411
HTTP	487	loose	412
Internet graphics	307	normal	412
interpolation preferences	70	tight	412
interrupting display redraw	19	very loose	412
inverse command	344	very tight	412
invert command	327	kerning specifications dialog box	412
italic font style	411	key object	106
<b>J</b>		key selection object, alignment	124
Japanese fonts	74	keyboard keys	1
Japanese language kit	396	Kinked Smart Lines tool	209
join (paths) command	233	Knife tool	231
joining curves	228	knock outs and overprinting	135
JPEG EXIF file format	506	Korean fonts	74
JPEG Export Options dialog box	96	<b>L</b>	
JPEG file format	95	LAB color mode	310, 353
justification		Lasso Selection tool	105
justification commands	418	Lasso tool	127, 341
last line of paragraph	422	Lasso tool options	341
vertical	419	layer controls	57-58
<b>K</b>		layer properties dialog box	549
kernel	536	layers	
		definition	52

grid	60	lenses	
guide	60	frozen	468
options	58	selecting	108
placing	28	viewpoints;viewpoints of	
sending objects to	121	lenses;SpriteEffects	
sharing	59	lens viewpoint	466
status bar symbols	19	letter spacing	421
unsharing	60	levels command	329
laying out a document	52	levels dialog box	330
Layout	53	Lighten transfer mode	483
layout area	6	lighting effects in extrusions	271
leading		line joins	188
loosen	415	Line tool	196, 202
setting with type palette	416	Linear Dimensioning tool	248
tighten	415	lines	
left justification	418	dashes	195
lens flare effect	375	drawing	196
lens object		editing	209
changing settings	465	painting	289
magnification;minimum		rules in text	420
magnification,		transforming	13
lens;maximum		Link Info tool	404
magnification, lens	465	Link Manager palette	486, 491
settings;properties bar		linked text flows	403
lens object settings	465		

linking		tool palettes	7
(OLE)	103	loosen (kerning) command	412
to pages	490	loosen (leading) command	415
web buttons	501	loosen fine kerning command	412
links command	102	lowercase command	411
live curve editing command	224	luminance	474
load (image selection) command	352	<b>M</b>	
load brushes command	295	macro files	
loading		converting to symbol format	281
brushes	296	Magic Wand tool	
buttons	501	see Wand tool	342
color tables	308	magnification in lenses; setting	
curve settings	331	lens magnification; SpriteEffects	
ink presets	152	lens magnification	464
inks	152	magnification levels	20
shortcut configurations	81	magnification menu	21
stroke presets	178	magnification of documents	20
web buttons	501	Magnifying Glass tool	20
loading and saving duotone		mailto tag	487
information	311	make binary filter	528
loading visualization settings	569	make composite command	240
lock command	121	Make Lens button	464
locking		make proxy dialog box	388-389
character attributes	431	making callouts	213
objects	121		

making channel masks	358	masks	
managers		attaching	476, 480
dash	195	channel masks	473, 477
gradient	163	detaching	477, 482
inks	154-155	transparency	472
parallel line	189	using paint objects as	476
pattern	169	vector masks	477, 482
strokes	185	vector objects as	480
managing colors	154	master pages	52
manual classification method	574	math expression 2-D cartesian plot	
manual registration marks	207	dialog box	216
manual selection method	312-313	math expression 2-D plot	216
MapInfo files	557	math expression 2-D polar plot dialog	
MapInfo import options dialog box	557	box	217
MapInfo Interchange format	557	math expression filter	535
margins		maximize on opening	67
setting	44	maximum command	380
text objects	417	maximum document size	42
Marker tool	289	measurement units	42
Markup Highlighter tool	139	measurements	
Markup Pen tool	139	preferences	76
Marquee tool	127, 339, 341	specifying units	24
masking with paint objects	476	using expressions	24
masking with vector objects	480	using fractions	23

measuring		modifier keys	2
objects	247	modify brush settings	294
show size display	247	modify icon dialog box	81
median filter	338	modify unit dialog box	46, 76
meta data	33	modifying	
metatags	505	attribute style	138
metric measurement units	46, 396	hatch inks	165
Microsoft Excel, pasting into	110	images	14
Microsoft PowerPoint, pasting into	110	paint objects	14
Microsoft Word, pasting into	110	modifying units	76
minimum command	380	monitor	79
minor divisions	76	motion blur filter	334
miter joins	188	mouse with modifier keys	2
miter limit	187	move command	120
modes		moving	
CMYK color	310	anchor points	234
Duotone	310	dragging objects preference	72
for Color Dropper tool	172	objects	119
grayscale	306	segments	234
images	305	selections	348
Indexed	307	MrSID import options dialog box	553
LAB color	310	multi-column font menu	74
multichannel	312	multichannel image mode	312
RGB color	309	Multigon tool	206

multigons, converting to paths	238	none (selection) command	340
multiple master postscript fonts	513	normal mode	482
<b>N</b>		number format	78
navigation controls	6	numbering pages	424-425
navigator palette		<b>O</b>	
displaying	22	object caching	71
scrolling	23	object linking and embedding	
view options	23	definition	101
zooming	23	text files	442
neon manager	191	Object Path Editor	
neon strokes	190	angular units (GIS)	257
Neon tool	289	insert point	258
new brush command	295	load Bezier	257
new channel mask command	358, 475	load polygon	257
new command	41, 84, 88	paste as Bezier	257
new image from selection command	350	paste as polygon	257
new mask dialog box	358	save path	257
new standard definition dialog box	252	using	256
new view command	22	object position	
no background updates	68	moving	13
noise		object properties	
add noise filter	337	assigning	142
dust and scratches filter	338	common properties	146
removing noise	338	define a unit	145

define properties dialog box	143	comments	139
definition	142	converting EPS to Canvas	93
format	144	converting EPSF objects	95
label	143	copying	109
palette	142	cutting and pasting	109
prompt	144	deleting	109
type	143	dispersing	60
value	144	distributing	121
Object Properties palette	567	dragging	119
Object Properties Table View palette	146, 566	edit mode	227
object shadow	454	editing	107
Object Side Dimensioning tool	248	editing data	133
object specs command	132	editing rotated	129
object specs palette		embedding	102-103
data tab	133	extruding	269
trap tab	135	fill inks	171
objects		filleting	228
aligning	121	finding	108
alignment	121	flipping	124
alignment guides	50	fractalizing	274
appearance when selected	106	from auto tracing	322
arcs	198	getting inks from	174
caching	66	group	482
circles	198	group transparency	471

## Canvas 15 User Guide

grouping/ungrouping	118	transforming	13
linking	102-103	trimming	262
locking and unlocking	121	types described	104
moving	119	vector	482
offsetting paths	260	objects, pasting in place	13, 112
paint	482	Oblique Dimensioning tool	248
paint objects	284	offset command	368
pasting	109	offset filter	362
pasting attributes	113	offset path command	260
pasting into selections	347	oil painting effect	375
path editing	224	OLE	
paths	346	Canvas drawing format	101
repelling text	447	see object linking and embedding	101
resizing rotated	124	onion-skinning	6, 43, 502
rotating	124	onion-skinning icon	502
rotating and skewing	125	opacity	13, 349, 470-471
selecting	104	defined	470
selecting by type and attributes	108	opacity slider	469
send or copy to layers	121	open command	26, 85
skewing	124	open filter	529
slicing	231	opening	
SpriteEffects	457	Canvas Assistant	3
stacking order	120	DAT files	551
text	406, 482	DICOM files	524

DLG files	551, 554	outline filter	529
documents	26	outline font style	411
DOQ files	556	outline ink	445
DWG files	91	outline path stroke	239
DXF files	91	outline stroke	445
E00 files	554	output resolution command	485
ECW files	556	output to maximum resolution	75
GeoTIFFs	550	Oval Marquee tool	341
GIS Text files	558	Oval tool	196, 202
GML files	558	ovals, drawing	196
GPS Text files	560	overprint command	137
MapInfo files	557	overprint object option	135
MIF files	557	overset text	403
MrSID files	553	<b>P</b>	
S-57 files	555	page breaks	44-45
shapefiles	548	page controls	57
SpriteEffects palette	13	Page Crop tool	232
TAB files	557	page distance	67
TIGER files	552	page links	
tool palettes	8	creating	490
OpenType fonts	410	removing	490
options tab	39	page numbering	424
orientation, document layout area	42	page orientation	42
orphan and widow lines	422	page setup command	39, 44

pages		visibility masks	350
adding and deleting	56	Paintbrush tool	288
defined	52	painting	
facing	52	auto create	285
from printer option	45	colors	296
hyperlinks to	490	creating objects	284
master pages	59	edit mode	353
moving	56	Eraser tool	351
options	58	modes	297-298
placing	28	opacity	287
printable	54	preferences	304
selecting	55	selections	350, 353
sending objects to	121	with vector objects	304
Paint Object Creator tool	284	painting modes	
paint objects		add	386
adding visibility masks	300	darken	386
backgrounds	300, 350	difference	386
creating	284-285, 303	hard light	386
cropping	320	lighten	386
defined	284	multiply	386
described	284	normal	386
image modes	305	overlay	386
masking with	476	screen	386
resolution	320	soft light	386

subtract	386	Paintbrush	288
painting preferences		Pencil	289
anti-aliased Canvas objects	70	pressure-sensitive options	288
anti-aliased Clipboard	70	Remote Move	348
color channels	69	Row Selection	340
painting pointers	69	Rubber Stamp	291
plug-in host warning	69	Sharpen	293
plug-ins	69	Smudge	292
separate grayscales as black	69	Sponge	294
painting tools		Wand	342
Airbrush	288	palettes	
Blend	290	align	121
Blur	293	attribute styles	137
Bucket	289	attributes	154
Burn	293	black body (color table) option	308
Column Selection	340	blending colors	158
Crop	318	browser safe	308
Dodge	292	brushes	295
Eraser	289	clean up palettes command	9
Marker	289	color tables	308
Marquee	339	combine	262
Neon	289	commands	10
Oval Marquee	340	Comments & Markup	141
Paint Object Creator	284	docking	16

## Canvas 15 User Guide

docking bar	15	Pantone inks	156
docking pane	18	paragraph alignment	418
docking when closed	16	paragraph formatting	415, 424
document layout	53	column breaks	423
GIS Positioning	542	indents	417
icons	10	justification (alignment)	418
link manager	487	justifying last line	422
navigator	22	leading	415
object properties	142	letter spacing	421
Object Properties	567	line width	422
Object Properties Table View	146, 566	rules	420
object specs	132	spacing before and after	
page navigator;page navigator		paragraphs	416
palette	53	text columns	423
presets	150, 177	type styles	426
put away palettes command	10	word spacing	421
Seismic Traces	520	paragraph leading	416
slide show	514	paragraph rules dialog box	421
spectrum	308	paragraph spacing	422
transparency	469	parallel line manager	189
undos	31, 69	parallel snap option	201
view fonts	409	paste and place command	109, 112
web buttons	499	paste as metaobject	68
zoom	20	paste attributes command	113
Pantone colors	156		

paste attributes command; commands		converting text to	455
paste attributes	460	converting to selections	346
paste command	109, 114	deleting segments	230
paste into command	347	editing	224
paste link command	102	filleting	228
paste special command	102, 442	from selections	351
pasteboard	6	joining	233
pasted text box size	74	offsetting	260
pasting		pop-up menu for editing	228
attributes	113	reducing points	241
attributes of objects	113	simplifying	241
in place	13, 112	slicing	231
into image selections	347	straightening	237
text	443	tangent lines	234
path points, symmetrical resize	240	text	455
Path Text tool	393, 455	pattern inks	169
path to selection command	345	pattern manager	
Path tools	218	background color	170
paths		editing window	170
adding anchor points	230	foreground color	170
adding segments	230	Move tool	169
advanced editing	237	Pencil tool	169
changing angle and length	237	preview window	170
closing and opening	230	switch background & foreground	170

patterns, creating with blend		file format	284
command	266	format	352
PDF	29	pica measurement units	46
exporting	508	pixel measurement units	46
opening	89	pixel mode	492
PDF options	508	pixels	284
saving as	89	place command	27, 85, 443
security settings	511	placeholders	387
PDF & PS import dialog box	88	placing	
pen ink icon	10, 150	clipart;placing	
pen inks		symbols	278
applying to objects	170	DAT files	551
using ink buttons	83	DICOM files	524
Pencil tool	289	documents	28
pens		DWG files	91
calligraphic	187	DXF files	91
customizing	187	files	27
presets	179	GeoTIFFs	550
Perimeter Dimensioning tool	248	images	284
Perpendicular Dimensioning tool	248	layers	28
perpendicular snap option	201	pages	28
personality manager	70	shapefiles	548
perspective effects	258	Shapefiles	548
Photoshop		text	442-443
exporting EPS files to	94		

TIGER files	552	inks	65
plain font style	411	inline manager	80
playing slide show	517	measurements	76
playing slide show with speaker notes	516	menu bar icons	81
plug-in acquire modules	313	never	80
plug-ins	69	painting	69, 304
point object	48	personality manager	70
point size, type	410	printing	75
pointtopoint effect	545	type	73
Polar	216	undo levels	68
Polygon tool	218-219, 241	user info	72
polygons		when moving objects offset	72
converting to Bézier curves	241	presentation documents	
drawing	219	definition	43
smoothing	220	placing	28
positioning center reference point	543	playing	517
posterize command	326	presentations	
PostScript fonts	410	dual monitors	516
preferences		speaker notes	515
auto correct	72, 437	Speaker Notes object	515
dash	65	preserve visibility	362
display	65	preserving channels	352
font history	74	preserving visibility in images	361
for text from	80	preset inks	152

preset strokes	177	SpriteEffects;SpriteEffects	
presets palette	150, 177	printing	461
preview image, EPSF	94	thumbnail previews	38
previews, transparency	473	tile option	39
prime meridian	541	transparency effects	472, 484
Print	39	transparency rendering options	36
print command	34, 36	unlinked proxies	391
print preview command	38	printing preferences	
print preview options	39	angle	75
printable area	40	halftone frequency	75
printable layers	40	halftone options	75
printable objects	40	output to maximum resolution	75
printer setup command	44	use printer's default	75
printing	34, 36	projection, reprojecting	540
color separations	135	properties bar	
colors as grays	37	Break Composite button	240
crop marks	208	brush icon	294
documents	34	combine menu	262
preferences	75	dimension objects	249
previewing	38	document setup	11
printable option	54	Group button	118
proxies	391	Make Composite button	240
scaled pages	38	showing and hiding	11
		tool settings	12

Ungroup button	119	raw image import options dialog box	526
View Data button	538	Rectangle Redline tool	139
properties command	33	Rectangle tool	196, 202
proxies		rectangles, drawing	196
acquiring files as	389	Red Eye Reduction tool	312
creating	388	redo command	32
definition	387	reduce (text size) command	410
printing	35	reduce points command	241
replacing an image with proxy	388	reference point	12
proxy info command	390-391	refresh command	19
publication documents		registration ink	208
definition	42	Registration Mark tool	207
placing	28	relative path	491
Push tool	218, 225	Remote Move tool	348
put away palettes command	10	remove effects	
<b>Q</b>		command	124, 260, 315, 318
quadtone image mode	310	remove wrap command	446
quantile	574	removing	
QuickDraw	75	anchor points	210
quotation marks, using typographical	73	anchors	489
<b>R</b>		hyperlinks	489
radial blur filter	335	proxies	390
Radius Dimensioning tool	248	red eye	312
raw image export options dialog box	525	web buttons	501
		removing units	76

render filter	362	reprojecting projections	540
rendering		reset brushes command	295
images	301-302	Reshape tool	218, 224
objects	301-302	resizing	
render command	301-302	paint objects	315, 321
render image dialog box	302	text objects	396
selected areas	303	using the Properties bar	13
SpriteEffects;SpriteEffects		vector objects	199
rendering 468		resolution	
SpriteLayer / SpriteEffects	94	Auto function	314
rendering intent		changing	315, 320
absolute colorimetric	79	choosing	314
perceptual	79	defined	314
relative colorimetric	79	described	315
saturation	79	for scanned images	314
repeating actions		of new paint objects	284
see undo command	32	SpriteEffects;SpriteEffects	
repel options command	448	resolution 461	
repel options dialog box	448	retain selected tool	7
replace selection on paste	74	reversing actions	
replacing text	435	see undo command	31
replicate & position dialog box	118, 543	revert command	32
replicate and position	543	RGB color	157
replicate command	114	RGB color mode	309, 353

right justification	418	rulers	
ripple dialog box	370	adding units	76
ripple filter	370	command	46
ripple settings	370	defining	45
rotate command	129, 453	deleting units	76
rotate dialog box	125, 382	displaying	45
rotated bitmaps, anti-aliasing	382	minor divisions	76
rotating		modifying units	76
bounding box orientation	129	tear-off	47
center of rotation	129	rulers controls	46
digital images	382	rules, paragraph	420
extruded objects	272	<b>S</b>	
freeform selections	127	S-57 files	555
objects	12, 114, 124	S-57 import options dialog box	555
text objects	453	saturation of colors	
rotation effects in extrusions	271	hue/saturation command	332
round end caps	188	Sponge tool	294
round line joins	188	save (image selection) command	352
Rounded Rectangle tool	196, 202	save as command	28, 32, 84, 88, 352
rounded rectangles		save AVI options dialog box	100
adjusting corner radius	199	save brushes command	295
drawing	196	save command	28
Row Selection tool	341	save entire document	29
Rubber Stamp tool	291	save selection	29

save to web command	506	proportional	12
saving		scale bar command	49
animations	502	scale by area/perimeter command	131
backup documents	68	scale command	131, 315
buttons	501	scale options dialog box	47
color tables	308	scale stroke weight	68
curve settings	331	scaling	
envelope template	268	freeform selections	128
EPS	93	images	316
GIF	95	objects	12, 114, 131
inks	152	paint objects	14
JPEG	95	when replicating objects	117
layers	29	scaling options	47
preset inks	152	scanning	
shortcut configurations	81	determining resolution	314
stroke presets	178	images into Canvas	313
templates	84	scientific filters	531
web buttons	501	Scissors tool	231
web pages	503	scrap file	101
saving Favorite inks	170	screen frequency	321
saving visualization settings	569	screen mode	483
sawtooth wave	232	screen rendering manager	70
scale		scrolling documents	19
non-proportional	12	search selection on clicks	68

searching		in text	104
text	435	linked text	407
Section tool	400	named objects	108
sections		objects	104
applying	401	objects by type and attributes	108
definition	398	objects on other layers	68
deleting	401	parts of objects	104
modifying	400	pixels in images	339
segments		rows of pixels	341
see paths	230	selection indicators	106
Seismic Traces palette	520	selection sets	108
select across visible layers	68	text	406, 432
select all command	105	text objects	104
select command	107	text with keyboard keys	432
select library item dialog box	550	tools	7
select properties to display dialog box	147	vector objects	104
selecting		with modifier keys	105
anchor points	228	with the Lasso tool	341
brushes	284, 294	selecting objects	104
Canvas documents	110	selection mask;SpriteEffects	
columns of pixels	341	selection mask	462
fonts	409	selection masks	353
group objects	104	selection to path command	351
in paint objects	104	selection to path options	351

Selection tool	104, 315	hiding and showing edges	340
selections		inverse	344
borders	350	inversing	342
contracting	349	moving	348
converting to paths	351	opacity	349
expanding	349	pasting	346
freeform	127	selecting all pixels	340
from paths	346	selection border	340
grow and similar commands	344	subtracting from	342
in images	340	send to back command	121
modifying	349	send to guide layer command	51
pasting into	347	send to layers command	121
smoothing	349	separate grayscales as black	69
selections in images		separations	
adding to	342	color	135
clearing	346	grayscale separation preference	69
color range command	342	set document scale command	49
copying	346	set tab length command	16
defloating	348	setting	
deleting	346	channel mask scope	475
deselecting	340	character attributes	431
feathering	347	curve tolerance	221
floating	348	preferences	62
floating selections	340	print area	40

setting origin	543	docking pane	17
setting up documents	43	edges command	340
settings	12	grids command	50
shadow command	274, 453	guides command	51
shadow font style	411	page breaks command	44-45
shape effect	383	rulers command	45
SHAPE_TAG property	567	size command	247
shapefiles		spelling errors command	440
general	548	SpriteEffects palette	
Shapefiles, exporting	562	command;commands	
sharing		show SpriteEffects palette	458
inks	152	text boxes command	395
layers	59	text flow bars command	403
strokes	178	text invisibles command	434
sharpen edges filter	336	toolbar command	10
sharpen filters	336	transparency preview command	473
sharpen more filter	336	show information tooltips	68
Sharpen tool	293	show original objects	72
sheets, placing	28	showing	
Shift key	1	presentation with speaker notes	516
show		properties bar	11
added words command	442	toolbox	7
channels command	353-354, 360	shuffle down command	121
docking bar command	15	shuffle up command	121
		similar command	344
			638

simplifying paths	241	select this slice	497
sine wave	232	select/deselect all	497
single-letter shortcut	73	Slice Creator tool	493
size of paint objects	321	slice layer	494
skeletonize	530	Slice Selector tool	493
skewing		slicer preferences	493
freeform selections	128	splitting	497
objects	124, 126	use spacing GIFs	498
skewing objects	13	slide show palette	514
slice divider dialog box	497	slide shows	
slices		anti-aliased play quality	515
alignment guides	495	Build Slide Show command	515
arrangement commands	498	on two monitors	516
creating	493	placing slides	28
definition	493	playing	517
deleting	497	playing self-running	517
deselecting	497	progressive build option	515
dividing	497	self-running	515
exporting	498	slide options	516
exporting GIF/web buttons	506	transitions	516
HTML export options	498	small caps command	411
image options	496	smart-crop icon;SpriteEffects	
properties	496	smart-crop icon	463
remove from selection	497	smart copy	74

Smart Lines	209	snap constraints	253
adding anchor points	210	snap option	
changing start/end points	210	center	202
Connection Point tool	210	included	201
creating	210	parallel	201
deleting anchor points	210	perpendicular	201
end direction	210	tangent	201
line type	210	vanishing point	202
moving anchor points	210	snap points	77
start direction	210	soft crop	316
tab length	210	Soft Light transfer mode	483
Smart Lines tool		solarize command	367
drawing	209	speaker note dialog box	515
editing	210	speaker notes	515
Smart Mouse		Speaker Notes object	515
definition	253	Speaker Notes tool	515
Smart Toolbox	6	special characters, typing	438
smooth (paths) command	220	special copy commands	111
smooth anchor points	228, 234, 241	special drawing tools	203
smooth command	349	spectrum palette	308
Smooth Kinked Smart Lines tool	209	spelling	
Smooth Polygon tool	218	dictionary	442
smoothing video images	339	pop-up menu	440
Smudge tool	292	spell check document command	441

spell check selection command	441	general	457
spell checking	440	lenses;lenses	
spherize command	373	using;effects	
spherize settings	373	lenses 464	
Spiral tool	205	mode	461
spirals		modifying effects area	462
converting to paths	238	pasting	460
drawing	203	printing	36
Sponge tool	294	removing	459
spot color inks	156, 158	saving and loading	460
spot colors		selecting	108
in duotone images	311	selection masks;masks	
spot colors in duotone images	311	SpriteEffects selection masks	462
spread command	137	sharing documents	468
spread trap	136	transferring	460
Sprite tool	358, 475	transferring between objects	114
SpriteEffects		SpriteEffects palette	13
applying	13, 457, 459	SpriteLayer effects	
attaching;attach command;detach		properties bar	469
command;commands		transparency palette	469
attach;commands		SpriteLayers	
detach;SpriteEffects		printing	36
detaching 460		selecting	108
duplicating	459	square end caps	188
effects area	462		

square wave	232	deleting presets	178
squares, drawing	196	frame	446
stacking command	33	managers	185
stacking lenses;lenses		neon	177, 190
stacking order	467	no pen ink setting	180
stacking order	120	no stroke settings	182
stained glass effect	376	parallel	177
standard deviation	574	parallel lines	189
stars, drawing	203	pen inks	180
Startup dialog box	2	pen width	179
Statistics by property command	148, 567	presets	177
status bar	18, 33	presets based on objects	186
straightening curves	228, 237	removing	182
strikethrough font style	411	saving and loading presets	178
strokes		sharing	178
applying custom settings	185	symbol	192
applying tapered ends	183	tapered ends	183
arrow tab	193	text	176, 446
arrows	180	strokes icon	10
colors	180	strokes, outline path	239
customizing	186	styles command (font styles)	411
dash tab	194	styles, text	
dashes	182, 194-195	applying to text	429
definitions	175	basing styles on others	430

character styles	426	symbology	568
copying from other documents	429	symbols	
deleting	430	converting macro files	281
finding and changing	436	creating new	280
modifying	430	Symbol Library palette	276
paragraph styles	426	symmetrical drag	240
stylize filter	362	<b>T</b>	
submenu commands	2	tab dialog box	414
subscript character style	411	tabs	
subscript command	411	center	413
substituting fonts	27	comma	413
superscript character style	411	decimal	413
superscript command	411	editing	414
SVG options		left	413
create new folder	100	right	413
put images in subfolder	100	tab menu	413
SVG options dialog box	100	Tag Image File Format (TIFF)	99
symbol ink manager	167	Tag selection as command	567
symbol inks		tagging selections	567
creating	167	tangent lines	
definition	166	adding and removing	228, 236
Symbol Library palette	280-281	definition	234
switching directories	278	tangent snap option	201
symbol strokes	192	tapered end controls	183

tapered strokes	187	changing	435
target		changing attributes	435
_blank	488	character attributes	431
_parent	488	character styles	426
_popup	488	checking text flows	404
_self	488	color	409
_top	488	column breaks	423
tear-off rulers	47	column width	422
templates		columns	395, 398
Canvas documents	43	converting to paths	238, 455
creating	84	copying	434
envelope effect	267	copying text objects	434
testing hyperlinks	491	deleting	434
text		drop caps	423
alignment	418	edit mode	432
apostrophes	73	editing	432
as clipping paths	452	envelope effect	454
attributes	409	exporting	443
background color	409	extrude effect	454-455
baseline position	411	finding	435
binding to a circle	451	flipping	453
binding to paths	448	flow	400
binds, removing	451	flow symbol	402
capitalization styles	411	flow symbols	403

flowing	456	kerning	409, 411
font styles	410	layout	398
fonts	409	leader characters	409, 414
fonts, specifying	409	leading	409, 415
foot and inch marks	73	letter spacing	421
footers	424	linked flows	403
formatting	407	lowercase	411
formatting options	14, 408	moving insertion point	432
formatting text flows	407	overset text	403
frame inks	409	page numbering	424
freeform mode	453	paragraph attributes	415, 424
greeking preference	73	paragraph rules	420
headers	424	paragraph spacing	416
horizontal and vertical scaling	414	paragraph styles	426
importing	442	pasting	434, 443
in dimension objects	251	pasting attributes	113
in layouts	395	Path Text tool	393
in symbol inks	166	pen size	409
indents	417	placing	443
inks	409	positioning text objects	396
inks and strokes	444	preferences	73
insertion point	432	preset formats	408
justification	409, 418, 422	preventing format changes	431
justifying last line of paragraph	422	Properties bar	444

quotation marks	73	Text Link tool	393
repelling	447	text menu commands	407
replacing	435	Text Object tool	393
resizing text objects	396	Text tool	393
rotating	453	Text Unlink tool	393
scaling	131	trapping selected	137
searching	435	type palette	407
sections	398	type size	410
selecting	104, 406, 432	typing on paths	455
selecting linked text	407	using Text tool	394
setting indents	417	vector effects	452
setting tabs	413-414	vertical justification	419
shadow effects	453	vertical option	397
skewing	453	Vertical Text Object tool	397
special characters	438	Vertical Text tool	396
spell checking	440	word spacing	421
strokes	176	wrapping inside objects	446
styles	409	wraps, removing	447
subscript	411	text file format	101
superscript	411	text flow bars	403
tab position	409	Text Form Field tool	393, 405
tab types	409	Text Format Brush tool	394-395
Text Form Field tool	393	Text Link tool	393, 403, 456
Text Format Brush tool	394	Text Object tool	393, 395

## Canvas 15 User Guide

text shadow effects	454	tool palettes	8
Text tool	393-394	docking	7
Text Unlink tool	393, 404	locking	7
texture inks	168	unlocking	7
thematic maps	568	toolbar	
three-dimensional effects	266	adding buttons	83
threshold command	325	arranging buttons	83
thumbnail previews, printing	38	customizing	81
TIFF, with transparency	99	general	10
TIGER files	552	tools	
Tiger import options dialog box	553	Airbrush	288
tighten (kerning) command	412	Angle dimensioning	248
tighten (leading) command	415	annotations	212
tighten fine kerning command	412	Arc	196
tile across command	33	Arc 3 points	198
tile down command	33	Arc Radius	199
tile option	39	Area dimensioning	248
time command	425	Auto Curve	223
time stamp command	425	Baseline dimensioning	248
time, inserting in documents	424	Baseline Dimensioning	249
tints	158	Basic Smart Lines	209
title command	411	Blend	290, 361
tolerance, dimension text	253	Blur	293
		Bucket	289

Burn	293	Horizontal dimensioning	248
Camera	303	Hyperlink pointer	491
Center dimensioning	248	Kinked Smart Lines tool	209
Chain dimensioning	248	Knife	231
Chain Dimensioning	249	Lasso	127, 341
Circle 3 Points	198	Line	196
Circle Radius	198	Linear dimensioning	248
Circle Redline	139	Linear Dimensioning tool	248
Color Dropper	172, 297	Link Info	404
Column Selection	341	Magnifying Glass	20
Concentric Circles	203	Marker	289
Connection Point	210	Markup Highlighter	139
Crop	318	Markup Pen	139
Cube	204	Marquee	127, 339, 341
Curve	218, 221	Multigon	206
Diameter dimensioning	248	Neon	289
dimensioning	248	Object Side Dimensioning	248
Direct Selection	104	Oblique dimensioning	248
Dodge	292	Oval	196
Dogleg Connector Smart Lines	209	Oval Marquee	341
Eraser	289, 362	Page Crop	232
Freehand	218, 220	Paint Object Creator	284
Gradient Vector	161	Paintbrush	288
Hand	19	palettes	8

## Canvas 15 User Guide

Path Text	393, 455	Smudge	292
Pencil	289	Speaker Notes	515
Perimeter dimensioning	248	Spiral	205
Perpendicular dimensioning	248	Sponge	294
Polygon	218-219, 241	Sprite	475
Push	218, 225	Sprite tool	358
Radius dimensioning	248	Text	393
Rectangle	196	Text Form Field	393, 405
Rectangle Redline	139	Text Format Brush	394-395
Red Eye Reduction	312	Text Link	393, 403, 456
Remote Move	348	Text Object	393, 395
Reshape	218, 224	Text Unlink	393, 404
Rounded Rectangle	196	Vector Transparency	479
Row Selection	341	Vertical dimensioning	248
Rubber Stamp	291	Vertical Text	396
Scissors	231	Vertical Text Object	397
Section	400	Wand	342
Selection	104, 315	tooltips	11
Sharpen	293	total page count command	425
Slice Creator	493	trace contour command	368
Slice Selector	493	tracking	
Smart Lines	209	see letter spacing	421
Smooth Kinked	209	transfer modes	
Smooth Polygon	218	applying	469

burn	483	preserving in images	361
darken	483	preserving visibility	361
difference	483	preview	473
dodge	483	printing	472, 484
hard light	483	printing options	36
lighten	483	scope	480
multiply	483	scope setting	472
normal	483	select scope	483
overlay	483	SpriteLayer effects	469, 485
properties bar	13	transfer modes	482-483
screen	483	vector masks	477, 482
soft light	483	visibility masks	300, 361
transferring attributes		transparency palette	358, 469
see paste attributes	113	transparency preview	473
transformed dimensions	126	trap object option	137
transforming		trapping	
objects	116	limitations	136
transform command	273	options	135
transparency	13, 99	trap size	137
channel masks	473, 477	Treat as point object command	48
combining objects	265	trim command	317
defined	470	trim to path command	317
opacity	470	trimming objects	262
paint object background	284	tritone image mode	310

TrueType fonts	410	multi-column font menu	74
TWAIN		pasted text box size	74
acquire image command	314	replace selection on paste	74
devices	313	smart copy	74
select scanner command	314	use greeked text	73
twirl filter	372	use smart quotes	73
two-byte fonts	74	when typing into document	73
two-byte fonts and text	396	types of objects	104
two-sided documents		<b>U</b>	
see facing pages	44	Ultimate Points filter	531
type		uncache object command	67
command	414	underline font style	411
leading	416	undo command	
size	410	definition	31
special characters	438	number of undo levels	68
type palette	417	preference	68
type styles	426	undos palette	31, 69
vertical option	398	Ungroup	119
type preferences		ungroup command	118
auto word select	74	ungrouping objects converted to	
clear font history	74	paths	239
drag & drop text	74	units of measurement	42, 46, 396
draw text as Béziars	74	unlink proxy command	390
enable two-byte script	396	unlock command	121
		unlocking objects	121

unlocking tool palette	7	using	
unlocking tool palettes	7	Baseline Dimensioning tool	249
unshare layers	60	Chain Dimensioning tool	249
unsharp mask command	337	envelope styles	268
unsmooth (paths) command	220	Linear Dimensioning tool	248
untransformed dimensions	126	Object Path Editor	256
update proxies command	392	Smart Lines tools	210
uppercase command	411	Sprite tool	475
URLs		using annotations tools	212
assigning	487	using auto cache images option	66
definition	486	using channels palette	360
invalid characters in	490	<b>V</b>	
link manager palette	487	vanishing point	
page links	490	command	202, 258
removing	489	snap option	202
use greeked text	73	vector	
use printer's default	75	path texts	455
use smart quotes	73	perspective effects	258
user dictionary		vector effects	
adding words	442	blend command	265
general	440	colorize command	273
user info preferences	72	combine command	262
USGS DOQ import options dialog box	557	envelope command	267
		fractalizing	273

## Canvas 15 User Guide

in text	452	view comments dialog box	141
three-dimensional	266	view controls	62
vector masks		view data command	538
applying	477	View Data command	538
definition	477	view fonts command	409
paint edit mode	482	view fonts palette	409
vector objects		view magnification	20
drawing	196	viewing	
resizing	199	channel mask	359
scope	472	views, creating custom	22
vector quality	70	visibility masks	300, 361
Vector Transparency tools	479	visible layers	40
vertical		visualization settings	
justification	419	loading	569
option for text	397	saving	569
skewing	126	Visualize data	
vertical (flip) command	453	Fill	572, 574
Vertical Dimensioning tool	248	Stroke	570, 572
Vertical Text Object tool	397	Symbol	569-570
Vertical Text tool	396	visualize data command	568
Vertical Align options	123	<b>W</b>	
Vertical Distribute options	123	Wand tool	342
vertical text objects	396	wave	
video images, smoothing	339	sawtooth	232

sine	232	tile down	33
square	232	Windows	
wave configuration dialog box	233	system palette	308
waveforms	232-233	wireframe command	66
web browser color palette	308	word spacing	421
web buttons	499, 501	world distance	67
web buttons palette	499	wrapping text	
web pages		indent from object	418
animations	501	inside objects	446
creating in Canvas	486	removing text wraps	447
rendering graphics	303	wrap commands	446
saving	503	<b>X</b>	
Slice Creator tool	493	X/Y reference point	12
Slice Selector tool	493	<b>Z</b>	
wheel (render) filter	366	zero points	47
when moving objects offset	72	zoom blur filter	336
when typing into document	73	zoom commands	20
widow and orphan lines	422	zoom controls	20
wiggle options, seismic	521	zooming documents	20
windows		zooming, navigator palette	23
arranging	33		
size	67		
stack command	33		
tile across	33		

