

MacDraft® 8

# Companion Guide

to MacDraft® Pro and P.E.



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Updated and amended by Aaron Lamb.

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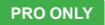
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**Note:** This companion guide is intended for use with both MacDraft Professional and MacDraft Personal Edition. Some of the features and options discussed in this guide are not available in MacDraft Personal Edition and have been marked with a  badge.



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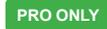
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# Chapter 1

## Introduction

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### Welcome to Microspot MacDraft

MacDraft is the 2D CAD app that makes floor plan design, architectural drawing and illustration simple on the Mac. Create precise and professional 2D drawings in moments, with this easy-to-use, powerful and affordable drafting application. With its precise vector tools, smart units and fully-featured scaled environment MacDraft is designed to deliver an easy to use solution, without having to spend hours and hours learning how to use more complicated software.

You'll find a comprehensive set of features, tools and options available to you with MacDraft. These will provide a smooth, fast and creative design experience, giving you the confidence to create your 2D CAD drawings, plans, illustrations and more.

This User Guide has information about the features and capabilities of Microspot MacDraft Professional. It is laid out to let you refer directly to a particular feature and obtain detailed instructions about its use. Before you proceed you should be comfortable with terms such as click, drag, select and choose. You should also be familiar with the general methods used in most Macintosh® applications such as moving and scrolling a window. If you are not, refer to your Macintosh owner's guide.

### Hardware and Software Requirements

- Macintosh System running MacOS 10.14 or later.
- Intel Processor
- 2 GB RAM

## Installing Microspot MacDraft

After installing MacDraft from one of the following methods, it must be run from your hard disk and not from the physical media (DVD or USB).

### ***To install Microspot MacDraft from a Download***

1. Download your MacDraft installation files using the link provided in your sales email. If prompted for a username and password, these can be found in the same email.
2. Once the file has downloaded, double click the ZIP file to uncompress it. (The operating system may unzip the file automatically for you once it has downloaded, if so, move onto step 3)
3. Double-click the MacDraft DMG file to mount it. Then double-click the MacDraft installer and follow the on screen instruction.
4. The MacDraft software and its files will be installed where you specify on your hard disk.

**Top Tip:** Once MacDraft has installed it would be a good idea to store the downloaded DMG somewhere safe. This will mean you can use it again in the future if you need to re-install the application for any reason.

### ***To install Microspot MacDraft from a DVD***

1. Insert the MacDraft DVD into the DVD drive.
2. Double-click the MacDraft Installer.
3. Follow the instructions that appear.
4. The MacDraft software and its files will be installed where you specify on your hard disk.

### ***To install Microspot MacDraft from a USB***

1. Insert the MacDraft USB into the USB port.
2. Double click the USB from your Finder or Desktop.

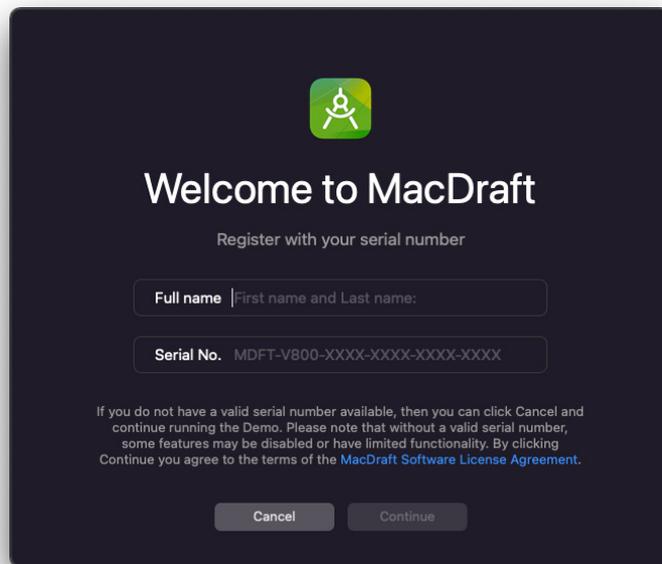
3. Double-click the MacDraft DMG file to mount it. Then double-click the MacDraft installer and follow the on screen instruction.
4. The MacDraft software and its files will be installed where you specify on your hard disk.

## Starting Microspot MacDraft

The first time you launch MacDraft you must enter a name and valid serial number to enable the software.

### *To enable Microspot MacDraft*

1. Double-click the MacDraft application icon to launch the software.
2. Enter a name and valid serial number into the dialog that appears.

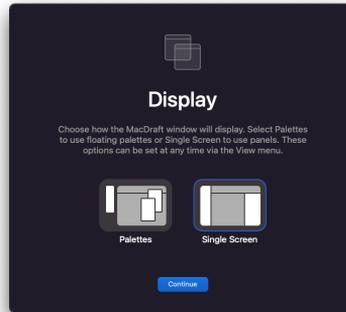
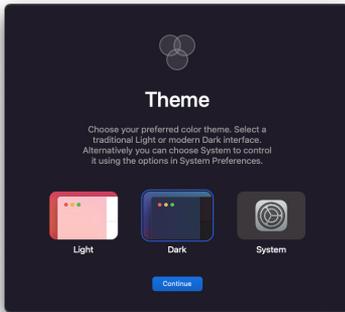


3. The serial number must be valid for the version you are using. This will be supplied with the program or upgrade when purchased.
4. Only when you have typed in your serial number, the Continue button becomes available. Click it to open the application.

5. If you click the Cancel button, the application will run in demo mode and some of the features and menu options will be dimmed.

**Important Note:** A single serial number is for use on a single machine. If you wish to run MacDraft on multiple machines you may need multiple serial numbers or a network license which would be perfect for educational or business institutions. If you need further information on this contact Microspot directly.

6. Next you will be met with a new prompt to choose your theme for MacDraft. You can choose Light mode, Dark mode or for MacDraft to automatically change based on your system preferences.
7. Next a prompt will appear asking you to choose whether you would like MacDraft to open as a single screen application or using palettes.

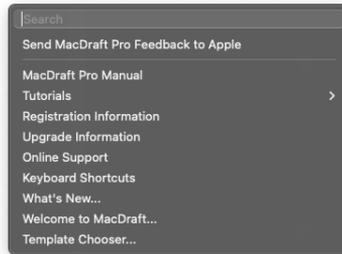


8. The next prompt is the What's New dialog. Here are a list of new features and a clickable link to the full list of new features in the current version of MacDraft.
9. The final prompt is the Welcome to MacDraft window. By default you will be met by this whenever you launch MacDraft. Here you can choose to create a new document, open an existing document, choose a template or gain help via online tutorials.

**Important Note:** In the preferences of MacDraft Pro you can make change how MacDraft behaves on start up. You can set MacDraft to open a new document, an existing template or even to open the template chooser for you to pick a new template each time you go to make a drawing.

# The Help Menu

The **Help** menu is used to open the MacDraft manual, product registration, upgrade information and online support.



## MacDraft Manual (PDF)

The MacDraft Manual in PDF format is a digital version of the manual for quick reference while running MacDraft. The digital manual is included with the product and will be installed on your hard drive during the installation process.

Choose **MacDraft Manual** from the **Help** menu and a PDF of the Manual will open. You can then navigate through and read the manual on screen or print sections for your reference.

## Registration Information

Choose **Registration Information** from the **Help** menu and you will be redirected to a web page where you can register your product.

**Note:** Registering your product is important as it gives you access to free technical support, makes upgrading your product easier and means you will be kept up to date with any information on future versions, releases and offers.

## Upgrade Information

You can also obtain information (if any) about upgrades from the Upgrades web page by choosing **Upgrade Information** from the **Help** menu.

**Note:** Upgrades are different from updates. Upgrades are payable purchases for you to turn your current version into the latest. For example upgrading version 7.0 to version 8.0. Updates are smaller incremental versions containing bug fixes and minor improvements and are free for registered users. For example, updating version 7.0 to version 7.0.1.

## Online Support

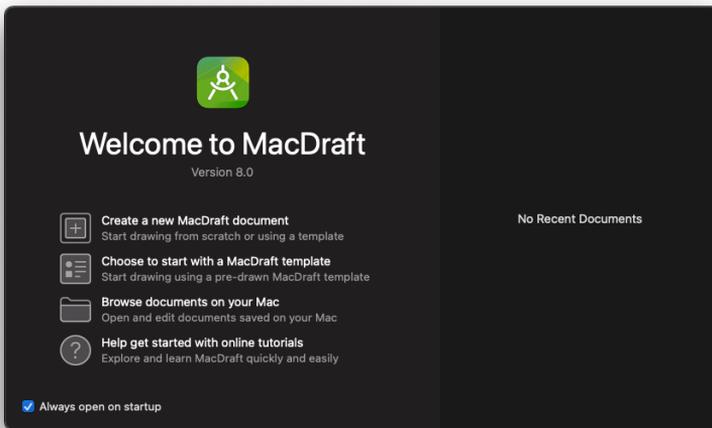
You can obtain free online support (if you have registered your product) from the support ticket web page by choosing **Online Support** from the **Help** menu.

## Keyboard Shortcuts

The Keyboard Shortcuts in PDF format is a digital list of the keyboard shortcuts for quick reference while running MacDraft. Choose **Keyboard Shortcuts** from the **Help** menu and a PDF will open. You can then navigate through and read the shortcuts on screen or print for your reference.

## Welcome to MacDraft...

Choose **Welcome to MacDraft** from the **Help** menu and it will open the Welcome to MacDraft panel, where you can access online PDF and Video tutorials.



## What's New...

Choose **What's New...** from the **Help** menu and it will open the What's New panel, where you can see what is new in the latest version of MacDraft.

## Document Handling

You can open documents from the desktop or from within the application.

### Creating a New Document

There are a few ways to create a new document in MacDraft. You can either open a blank new document, open an existing file or you can use the template chooser.

**Top Tip:** You can choose how your new documents open by setting the Document Defaults in Preferences, available in the MacDraft menu. From here you can choose whether to always open a blank new document, use the template chooser or open a particular template.

#### *To open a new document when launching MacDraft*

- When you launch MacDraft for the first time it will prompt the serial number panel and then will take you through the first time set up until you reach the Welcome to MacDraft panel where you can choose to create a new document, open a MacDraft template or browse your documents.
- When you launch MacDraft after the first time, it will do one of the following, depending on your Application Defaults:

**Show the Welcome to MacDraft Screen:** The Welcome to MacDraft screen will appear allowing you to choose to create a new document, open a MacDraft template or browse your documents.

**Show the Template Chooser:** The Template Chooser panel will open giving you the ability to choose from a selection of default templates or your own templates.

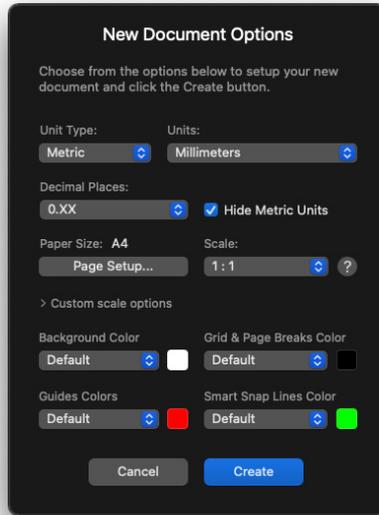
**Open New Blank Document:** This will create a new blank document.

**Use Template:** This will open your chosen template as a new document each

time you launch MacDraft.

### ***To create a new document with the New Document Wizard***

If you have chosen to create a new document via the Welcome to MacDraft window you will be met with the New Document Wizard.



In this dialog you can choose the unit type, unit, Decimal places, paper size, scale, background color, grid color, page break color, guide color and smart snap color to create your perfect document.

### ***To open a new document when MacDraft is already running***

- Choose **New** from the **File** menu.

**Note:** The New option in the File menu is controlled by the settings chosen in the Document Defaults from the Preferences... option in the MacDraft Menu.

## **Opening an Existing Document**

Existing documents can be opened from the Finder, from MacDraft's File menu or from the MacDraft Drawing Chooser.

**Notes:**

Only documents compatible with MacDraft version 5.6 or later (drawings and symbol libraries) can be opened by the current version of MacDraft. Drawings created with earlier versions of MacDraft (or with Dreams®) require special treatment.

Files created in versions prior to 5.6 (e.g. 2.1 to 5.5), need to be opened in MacDraft version 5.6 > 6.2.1 and then re-saved, before they can be opened in the version 7.0. The document will have a "Δ" symbol prefixed to the file name to distinguish it from the document created with the older version of the software.

MacDraft 8.0 has the same MD70 file format as seen in version 7. Files with an MD60 file format can still be opened in MacDraft 8.0 and will then need to be saved in the new file format.

***To open an existing document with the Finder***

- In the Finder, locate the document you want to open and double-click it.

**Note:** If you have any other versions of MacDraft on your machine, including Trial versions, double clicking a file may open one of those applications rather than the current open MacDraft. We recommend only having one version of MacDraft installed on a machine.

***To open an existing document from the File menu***

You can open a document from the File menu, even if you already have another document open.

**Note:** MacDraft can open files in many other formats including DWG and DXF (see *Appendix C File formats* for more details).

- Choose **Open** from the **File** menu

The standard open dialog appears. Locate the document you want to open and either double-click its name or click once its name to select it and then click the Open button.

- Choose **Open Recent** from the **File** menu to see a list of your recent documents. Click one to open it.

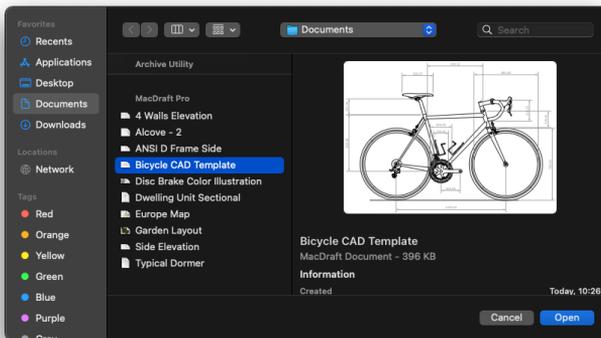
## To open an existing document from the Welcome to MacDraft window

You can open existing and recent documents from the welcome to MacDraft window.

**Note:** The Welcome to MacDraft window will only display if you have 'always show on startup' ticked within its window, otherwise you can select it from the Help menu.



You can open your files via the **Browse documents on your Mac** option in the Welcome to MacDraft window. Select this option and the standard open dialog will appear, navigate this to find the file you wish to open.



You will also see a list of your most recent documents in the right hand side of the Welcome to MacDraft window. Double Click any file here and it will open.

## Opening Drawings made with older versions of MacDraft

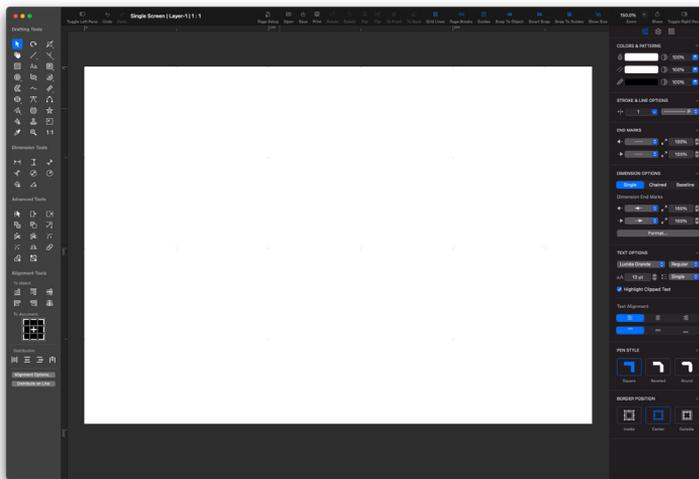
As MacDraft has become a more powerful drafting tool, its file formats have become more sophisticated. This means that some older MacDraft drawings must be converted through intermediate versions of the application before they can be opened with the current version of MacDraft. For example, drawings created with MacDraft 5.5 or earlier will be .mdd files and must be opened and saved using MacDraft 5.6 or higher before they can be opened in the version 7.0 of MacDraft. Microspot provides these versions for registered owners of the current version.

**Important Note:** With older files it is important to remember that sometimes, depending on the content of the files, there can be losses or slight discrepancies in the data, meaning that some items may not display as expected.

## The MacDraft Environment

### The Single Screen Document Window

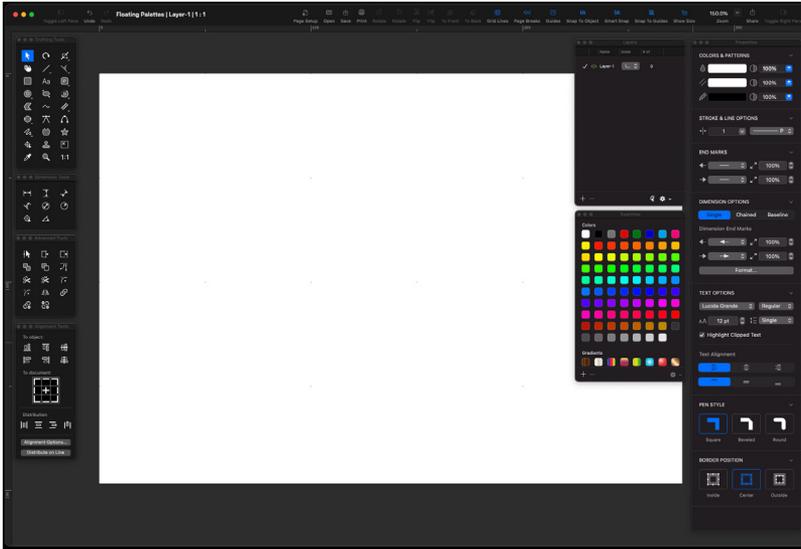
The MacDraft single screen allows you to access your document for viewing, creating and editing the drawing area. It is designed to offer you a drawing area with all the essential features of MacDraft within easy reach of your mouse. When you open the MacDraft application, the following screen appears.



## Floating Palettes

MacDraft can be run in single screen mode or floating palettes mode. In floating palette mode you can move all of the individual palettes around your screen or dual screens and put them where best suits you.

**Important Note:** Switch from single screen to floating palettes via View > Switch to Palettes or switch to single screen via View > Switch to Single Screen.



### *The Drawing Area*

The drawing area is the part of the window that shows the grid divisions. These divisions are called grid lines. In English units, the distance between the grid lines represents one inch; in decimal feet, one tenth of a foot; and in metric units, one centimeter. You can use the grid lines as visual aids to assist you in your drawing. When you create a new document, MacDraft shows a document based on a single sheet of paper for the current output device. However, you can change the size of your document at any time to include multiple pages, allowing you to create very large drawings.

When you first open your document, the drawing area will be centered inside the document frame, to make it easier to work with.

**Note:** The drawing area also includes a usable space around the page, which you can use to store items and create bleed areas for your drawings.

## The Left Panel

The left panel holds the three main tool categories for Drawing Tools, Dimension Tools, Advanced Tools and Alignment Tools.

**Note:** The left panel can be hidden and shown at any time using the "Show/Hide Panels" option in the Toolbar.



## The Drawing tools

All the main drawings tools for shapes, arcs, curves and much more. Select the tool to start using it.

### ***Pointer Tool: Image***

Use to move and change the shape of objects, make menu choices and activate panel functions.

### ***Rotation Tool: Image***

Use to rotate a selected object freely.

***Selection Tool: Image***

Use to select objects by drawing a selection rectangle around them.

***Hand Tool: Image***

Use to change the position of a drawing as an alternative to using the scroll bars.

***Line Tool: Image***

Use to draw straight lines at any angle (unconstrained lines) or lines that are restricted to a certain angle (constrained lines)

***Special Line Tool: Image***

Use to draw lines that are perpendicular to, tangent to or offset from some other object, or lines that start at the mid, end or center point of an existing object.

***Square - Corner Rectangle Tool: Image***

Use to draw squares and rectangles with square corners.

***Text Tool: Image***

Use to add text to a drawing or edit existing text.

***Rounded - Corner Rectangle Tool: Image***

Use to draw rounded-corner rectangles or squares.

***Circle Tool: Image***

Use to draw circles by diameter (D), by radius (R) or by three (3) points; and concentric circles.

***Ellipse Tool: Image***

Use to draw ellipses from the corners.

***Arc Tool: Image***

Use to draw arcs by radius (R) or three points (3); elliptical arcs (E); and concentric arcs.

***Irregular Polygon Tool: Image***

Use to draw closed objects with two or more sides.

***Irregular Polyline Tool: Image***

Use to draw open objects with two or more sides.

***Parallel Line Tool: Image***

Use to draw parallel line figures (both single segments and open or closed parallel polygon figures) and extrudes pairs of lines from straight edges.

***Regular Polygon Tool: Image***

Use to draw symmetrical objects with from 3 to 16 equal sides, such as triangles, hexagons, and octagons.

***Bezier Tool: Image***

Use to draw a bezier curve controlled by bezier handles

***Spline Tool: Image***

Use to draw spline curves.

***Freehand Line Tool: Image***

Use to draw freehand lines.

***Freehand Shape Tool: Image***

Use to draw freehand closed shapes.

***Star Tool: Image***

Use to draw stars defined by a number of sides and thickness.

***Marker Symbol Tool: Image***

Use to draw a standard marker symbol.

***Repeated Paste Tool: Image***

Use to paste objects that are stored on the clipboard repeatedly.

***Edit Datum Tool: Image***

Use to change the datum (origin point) point of a selected object.

**Attribute Tool: Image**

Use to copy and assign object attributes.

**Zoom Tool: Image**

Use to zoom in or out on areas of a drawing.

**1:1 Tool: Image**

Select to return to a single magnification view of the current drawing area.

**The Dimension tools**

All the dimension tools for horizontal, vertical, angled dimensions and much more. Select the tool to start using it.

**Horizontal Dimension Tool: Image**

Use to draw horizontal dimension lines.

**Vertical Dimension Tool : Image**

Use to draw vertical dimension lines.

**Slope Dimension Tool: Image**

Use to draw sloped dimension lines.

**Perpendicular Dimension Tool: Image**

Use to draw dimension lines perpendicular to straight lines and edges.

**Diameter Dimension Tool: Image**

Use to draw diameter dimension objects

**Radius Dimension Tool: Image**

Use to draw radial dimension objects

**Circle center mark Tool: Image**

Use to draw center mark for circles, arcs and ellipses

## ***Angular Dimension Tool: Image***

Use to draw angular dimension objects

## **The Advanced tools:** PRO ONLY

This contains a selection of advanced drawing tools for handling the adding and removing of material, fillets, adding and removing handles and more.

### ***Add/Delete Handle Tool: Image*** PRO ONLY

Use to add or delete (if the Option key is pressed) edit handles on objects.

### ***Attach/Join Tool: Image*** PRO ONLY

Use to attach open shapes and edges to form single objects.

### ***Break Tool: Image*** PRO ONLY

Use to break shapes into their component edges.

### ***Add Tool: Image*** PRO ONLY

Use to add two closed shapes together to form a single object.

### ***Subtract Tool: Image*** PRO ONLY

Allows use of a line or closed shape as a ‘cutter’ to subtract part of another closed shape.

### ***Extend Line Tool: Image*** PRO ONLY

Use to extend lines to their intersection or to a reference line.

### ***Trim Lines Tool: Image*** PRO ONLY

Use to trim ends from intersecting lines.

### ***Fillet Tool: Image*** PRO ONLY

Use to connect lines with an arc.

### ***Chamfer Tool: Image*** PRO ONLY

Use to create a beveled corner at the intersection of two lines.

### **Mirror Tool: Image** PRO ONLY

Use to mirror objects across a user-defined axis.

### **Link Tool: Image** PRO ONLY

Use to link two or more vertices together so that when one is moved the others move with it.

### **Unlink Tool: Image** PRO ONLY

Use to unlink two or more vertices so that they can be moved individually.

### **Unlink All Tool: Image** PRO ONLY

Use to unlink all vertices of a selected object.

## **Using the Tools**

You can activate any tool in a panel by positioning the pointer on the icon and clicking it. As long as the icon is highlighted, you can draw the object or perform the action associated with the icon.

When you start to use MacDraft, each tool has the default current option shown in the panel. To change the current tool, choose the desired tool from a pop-up menu that shows those available.

## **Using the Tool pop-up menus (sub-tools)**

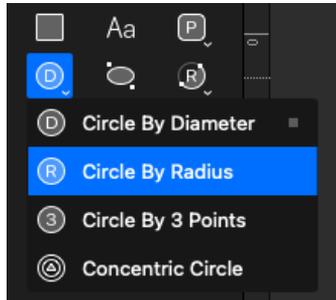
Each panel holds icons that represent certain tools or functions. Some tools and functions have more than one option associated with them. These options relate either to how the objects are created or to different characteristics of the objects. For example, in the Tool panel the square-corner rectangle options relate to how you create a rectangle; either from a corner or from its center. On the other hand, the rounded-corner rectangle options relate to the characteristics of the rectangles' corners; proportional, constant, or elliptical.

The options for each function and tool can be selected from pop-up menus.

Icons used to open pop-up menus have down arrows in the corner. Unlike pull-down menus, which are opened by clicking a word in the menu bar, pop-up menus are opened by clicking an icon in the panel and holding down the mouse button.

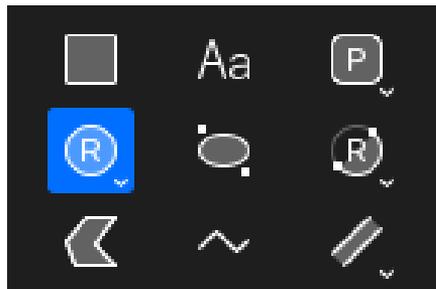
1. Click the appropriate icon in the panel and hold down the mouse button. A pop-up menu appears.
2. Holding down the mouse button, drag to the tool that represents the desired option.

As you drag, the menu items will be highlighted.



3. When the desired tool is highlighted, release the mouse button.

The pop-up menu disappears and the tool icon will be changed to show you the currently selected option.



## The Tool Options

Some of the tools have additional options you can set before you start drawing, which can be accessed via the Tool Options panel that appears at the top of the drawing area, when the respective tool is selected.

## The Right Panel

MacDraft's most important options appear in three tabs in the right hand panel: The **Properties, Layers and Swatches** tabs control various attributes of the objects created and the **Library** Panel has all the Symbols and other items you wish to use in your document.

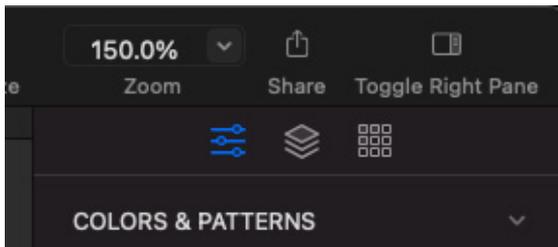
### ***Using the right panel***

The right hand panel includes three tabs at the top allowing you to select between Properties, Layers and Swatches. You can select a tab at any time while using MacDraft. The tabs will only show the relevant information for the current document and the selection within the document area.

**Note:** The Properties tab displays content specific to the selection. This means that the options within the Properties tab will change when you select different objects. To set the defaults for drawing make sure nothing is selected in the document area and change the settings in the properties tab.

### ***Opening the Properties, Layers and Swatches tabs***

Each key tab is represented by an icon in the right hand panel. Select the respective icon to open the particular tab. The tab icon will turn green once selected.



## **The Toolbar**

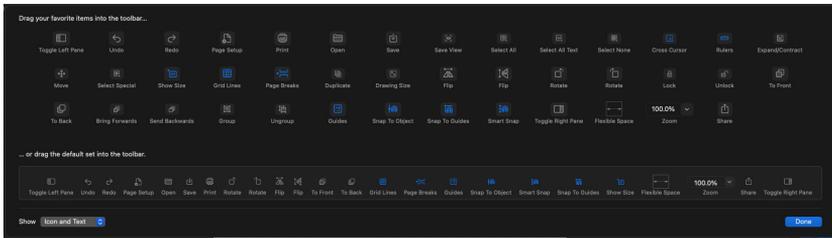
The Toolbar at the top of the document window can be made available, if it is not already, by selecting **Show Toolbar** from the **View** menu. This option can also be used to hide the toolbar.



## Customizing the Toolbar

With the MacDraft Toolbar you have a selection of the most commonly used and useful options and menu items from within the application, which you can customize at any time.

1. Select the **Customize Toolbar...** item from the **View** menu.
2. The toolbar sheet will appear showing you the available tools and options.



3. Locate the Tool or Option and drag it to the toolbar to place it.
4. You can also select whether or not you want to **Use Small Size** or If you want to see **Icons, Icons & Text** or just **Text**.

## The Menu Bar

The menu bar across the top of the screen contains all the MacDraft pull-down menus available. A rightward pointing triangle beside a menu item indicates that more options relating to that menu item are available.

### Using keyboard commands

Certain menu items can be chosen directly from the keyboard. The Command key symbol and a keyboard character appear beside menu items that can be chosen from the keyboard.

Choose these menu items by holding down the Command key, then pressing the relevant character key on the keyboard. For example, to choose Duplicate (from the Edit menu), hold down the Command key and press D (uppercase or lowercase). The Edit menu is highlighted for a moment, and a duplicate of the selected object appears.

## Document Tabs

MacDraft includes the option to display your documents as tabs in a single window. You can control this by selecting **Show Tab Bar** from the **View** menu.

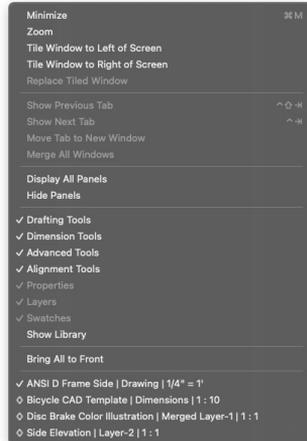
**Tip:** To have your documents default displaying in the tab bar, you will need to change your system preferences. Go to the **Apple** menu and choose **System Preferences...** Select the **Dock** category and set the **Prefer tabs when opening documents** option to **Always**.

## The Window menu

The Window menu provides you with options for displaying multiple document windows and for moving easily to a particular open drawing.

### *Switching between drawings*

1. Open the **Window** menu.



At the bottom of the Window menu, all the open MacDraft documents will be shown, with the active (topmost) drawing indicated by a checkmark.

2. Select the name of the drawing you want to work on.

The drawing you choose becomes active and will be shown in front of the other document windows or as the active tab.

**Top Tip:** You can switch between tabs by using the **Show Previous Tab** and **Show Next Tab** options. You can also move a tab to new window by selecting the **Move Tab to New Window** option and merge windows into tabs by using the **Merge All Windows** option

## Document Gray Space

Surrounding the MacDraft document is a usable gray space. This allows you to store items that you are not always using, create bleeds for your documents and control the borderless overlapping of objects in your layout.

**Top Tip:** The document gray space is a great place to store your symbols if you are drawing a plan layout. Its also perfect for working on page layouts and wanting to create full page spreads. Set you page size to have no margins, and you will be able to print full page borderless prints.

## Getting Started

MacDraft is a software tool that emulates a drafting board while giving you the advantages of creating and working with scaled designs on a computer. You can easily make changes without physically erasing or discarding sheets of paper.

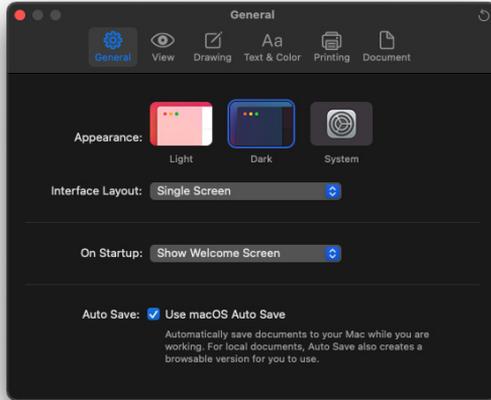
One of MacDraft's greatest strengths as a drafting and design tool is the way it allows you to define your drawing environment. Using simple menu commands and panel choices, you can specify the default scale, drawing units and page setup you need for the drawing.

The scaled environment automatically keeps track of the size and area of the objects you draw. You can display their dimensions using the Show Size cursor, the various dimension tools or the on-screen rulers.

**Note:** If you expect to use the same settings in most of your drawings, you can make those settings the defaults for all new drawings, using the MacDraft application menu's Preferences option. If you expect to use several different sets of defaults, you can save each setup as a Template file and access it through the Drawing Chooser panel.

# Preferences

MacDraft lets you define defaults that affect other MacDraft documents. The settings you save as defaults affect all documents, even existing documents, but document-level defaults affect only new documents you open.



## Preferences - General Tab PRO ONLY

### Appearance

MacDraft allows you to change the appearance of the application from Light Mode to Dark Mode *or* you can set this to change dependant on your system defaults.

### Interface Layout

Here you can change whether you want MacDraft to open as a single screen application or with floating palettes by default.

### On Startup PRO ONLY

This allows you to set what happens each time you run MacDraft from startup. You can have MacDraft:

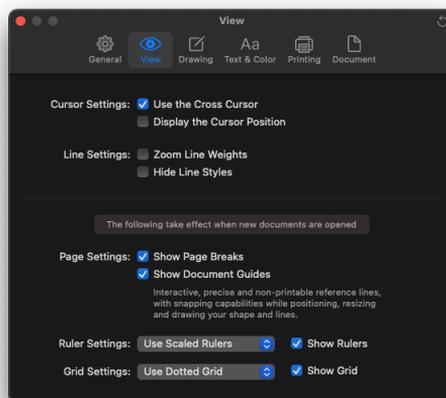
- Show Welcome Screen - Choose this if you want to see the Welcome Screen when you launch MacDraft.
- Show Template Chooser - Choose this if you want to see the Template Chooser when you launch MacDraft.

- Create a new empty drawing - Choose this if you want a new blank document to appear when you launch MacDraft.
- Display the open file dialog - Choose this if you want the Open File Dialog to appear when you launch MacDraft.
- Do nothing - Choose this if you want nothing to open when you launch MacDraft.

## Auto Save

MacDraft uses the macOS Auto Save feature. Auto Save monitors you as you work. When you pause, it saves the document. If you work continuously, Auto Save will perform a save every 5 minutes.

## Preferences - View Tab PRO ONLY



## Cursor Settings

- Click the Use the **Cross Cursor** checkbox and a when using a drawing tool the cross cursor will appear showing you where you cursor is in relation to the rulers.
- Click the **Display Cursor Position** checkbox and a small Cursor Position box will appear in the bottom left of your document window giving you an XY position of the cursor.

## Line Settings

- Click the **Zoom Line Weights** checkbox to make all documents open with the Zoom Line Weights function on.
- Click the **Hide Line Styles** checkbox to turn this option off and make all documents open with the line styles displayed on the screen.

## Page Settings

- Click the **Show Page Breaks** checkbox to make all documents open with page breaks displayed on them.
- Click the **Show Document Guides** checkbox make all documents open with document guides displayed on them.

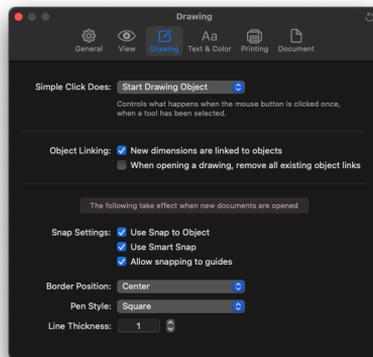
## Ruler Settings

Here you can change whether you wish to use the **Standard Rulers** or **Scaled Rulers**. You can also click the **Show Rulers** checkbox to make all documents open with visible rulers displayed on them.

## Grid Settings

Here you can change whether you wish to use the **Dotted Grid** or **Square Grid**. You can also click the **Show Grid** checkbox to make all documents open with a visible grid or no grid at all.

## Preferences - Drawing Tab PRO ONLY



## ***Simple Click Does***

Controls what happens when the mouse button is clicked once, when a tool has been selected. You can either have a click start drawing the object via the selected tool e.g. Rectangle. Or you can have a simple click reselect the arrow tool.

## ***Object Linking***

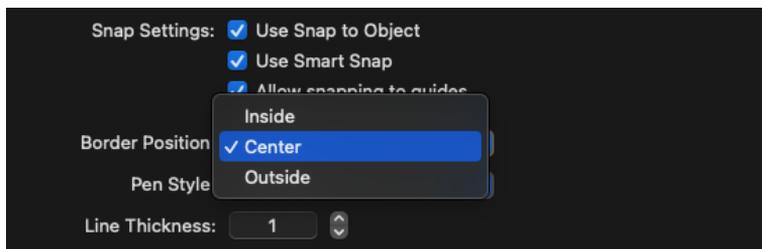
- Click the **New dimensions are linked to objects** checkbox to turn this option off. New dimensions drawn will not be linked to objects.
- Click the **When opening a drawing, remove all existing object links** checkbox if you wish all links between objects (including dimension objects) to be removed when a drawing is opened.

## ***Snap Settings***

- Click the **Use Snap to Object** checkbox to turn Snap to Object on by default when a new document is opened.
- Click the **Use Smart Snap** checkbox to turn Smart Snap on by default when a new document is opened.
- Click the **Allow snapping to guides** to turn Snap to Guides on by default when a new document is opened.

## ***Border Position***

This controls the position of the border on an object and can be set to the inside, center or outside of the object. Choose one of these options to set it as your default for new documents.



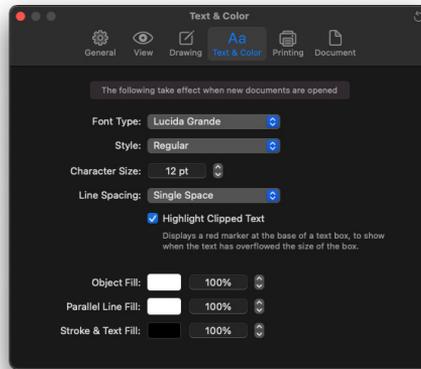
## Pen Style

This allows you to choose between square, beveled and rounded as a pen style. The pen is how the end of a line or joined section of a line appears. Your choice here will be set as default for new documents.

## Line Thickness

Click the stepper up or down to change the default thickness of your lines in new documents.

## Preferences - Text & Color Tab PRO ONLY



## Font Type

Select from the pop up menu the font you want to use by default in your new documents.

## Style

Select from the pop up menu the style (regular, bold, italic etc) you want to use by default in your new documents.

## Character Size

Use the stepper to increase or decrease your default character (font) size for new documents. You can also type in the character size you want.

## Line Spacing

Choose from **Single Space**, **1-1/2 Space** or **Double Space**. This will be set by default for text in new documents.

- Click the **Highlight Clipped Text** checkbox if you wish to have MacDraft display a red marker at the base of a text box, to show when the text has overflowed the size of the text box.

### **Object Fill**

Click the color box to choose your default fill color for objects in new documents. You can also use the stepper or type in a percentage value to set a default opacity for object fills.

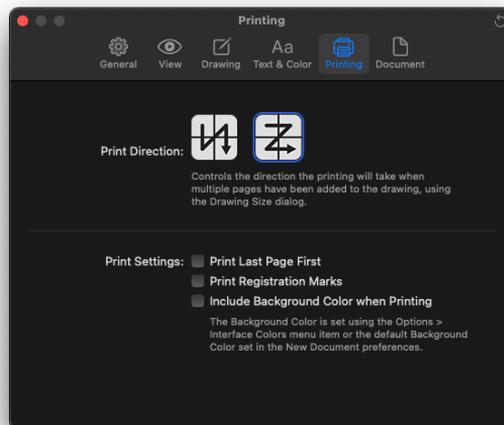
### **Parallel Line Fill**

Click the color box to choose your default parallel line fill color for parallel lines in new documents. You can also use the stepper or type in a percentage value to set a default opacity for parallel line fills.

### **Stroke & Text Fill**

Click the color box to choose your default stroke color for objects and text in new documents. You can also use the stepper or type in a percentage value to set a default opacity for stroke and text fills.

## **Preferences - Printing Tab** PRO ONLY



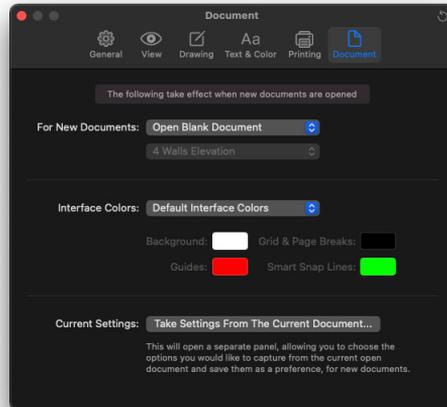
## Print Direction

Controls the direction the printing will take when multiple pages have been added to the drawing, using the Drawing Size dialog.

## Print Settings

- Click the **Print Last Page First** checkbox to print the last page first and continue to print the rest of your pages in reverse order by default.
- Click the **Print Registration Marks** checkbox to print crop marks at the corners of each printed page to show the edges of the drawing area.
- Click the **Include Background Color when Printing** to allow the background color of the document chosen in the interface colors dialog, to be printed or not.

## Preferences - Document Tab PRO ONLY



## For New Documents

Click the pop up to choose how new documents are handled in MacDraft. You can choose to **Show the Template Chooser**, **Open Blank Document**, or **Use Template**.

**Note:** If you choose 'Use Template' you can choose from the second pop up a pre saved Template to open by default when you create a new document.

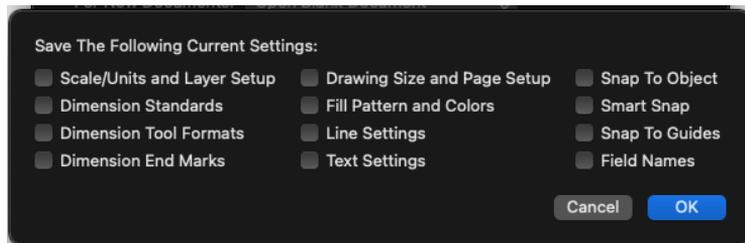
## **Interface Colors**

Click the **Interface Colors** pop up to either set the colors for the Background, Grid & Page Breaks, Guides and Smart Snap lines to the default colors when the application opens or to **Custom Interface Colors** to choose the different colors yourself.

- Click the color picker next to **Background** to set a custom background color for your new documents.
- Click the color picker next to **Grid & Page Breaks** to set a custom color for your grid and page break lines in your new documents.
- Click the color picker next to **Guides** to set a custom color for guide lines in your new documents.
- Click the color picker next to **Smart Snap Lines** to set a custom background color for your New documents.

## **Current Settings - Take Settings From The Current Document**

This will open a separate panel, allowing you to choose the options you would like to capture from the current open document and save them as a preference, for new documents.



### **Scale/Units and Layer Setup**

- Units, Default scale, Places behind the decimal, Grid snap, Rotation and angular units.

### **Dimension Standards**

- Current dimensioning standard (ANSI or metric).
- All options defined in the Dimension Standard dialog.

### **Dimension Tool Formats**

- Current dimensioning tool setting.
- All options defined in the Dimension Format dialog.

#### **Dimension End Marks**

- Current dimension end mark setting.

#### **Drawing Size and Page Setup**

- Drawing size.
- All options defined in the Page Setup dialog.

#### **Fill Patterns and Colors**

- Fill patterns.
- Colors in the document's color table.

#### **Line Settings**

- Line weight, Line style, End marks, Pen color.

#### **Text Settings**

- Font, Size, Style, Spacing, Justification.

#### **Snap to Object**

- Current Snap To Object setting.

#### **Smart Snap**

- Current Smart Snap setting.

#### **Snap To Guides**

- Current Snap To Guides setting.

#### **Field Names**

- Current Object Information Field Name definitions.

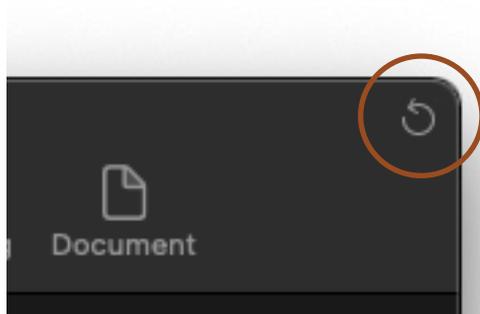
**Note:** When you click the OK button, MacDraft saves the defaults automatically. It makes no difference if you later save the current drawing file.

You may configure a document exactly the way you want it, then decide that you want all new documents to have that configuration. MacDraft lets you set certain default settings, including scale, grid snap, colors and patterns. Once you have established these settings in a document, you can store them as defaults so that the same settings are present in each new drawing you create.

Setting document defaults is different from saving MacDraft template files. You can save many different template documents, each with its own different settings. However, you can keep only one set of defaults. Also, to use the settings saved in a template document, you have to open the stationery document, to use defaults, you simply create a new document.

### ***To Restore Defaults***

Click the **Restore Defaults** button to reset your preferences back to the original settings.



### ***Overriding Defaults*** PRO ONLY

You can open a new or existing document without using your custom default settings.

**Note:** To remove permanently any application defaults you have set for MacDraft, remove the file `uk.co.microspot.md8pro.plist` (or `md8PE`) from the Preferences folder. This will be located inside the Preferences folder, within the Library folder at user level.

**To open a new document from within MacDraft, without using your default settings**

1. Press and hold down the **Option** key.

2. Choose **New** from the **File** menu.
3. Release the **Option** key.

To open a new document from the desktop, without using your default settings

1. Press and hold down the **Option** key.
2. Double-click the MacDraft application icon.

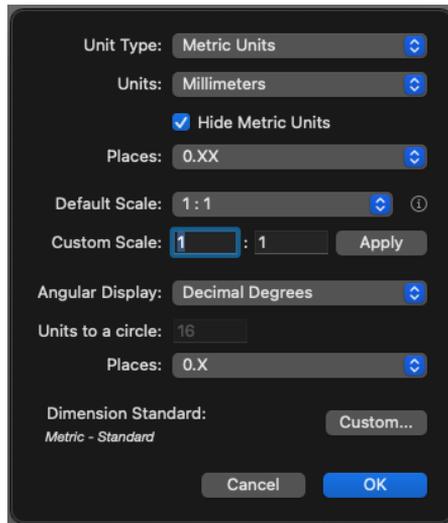
## Setting the Units

With MacDraft you can draw using either feet and inches (English) or metric units. MacDraft offers the most commonly used English and metric unit scales. Once you choose a unit system for your drawing you can define the scale you want to use.

### To set the units for a drawing

1. Open the **Layout** menu and choose **Set Scale/Units**.

The **Documents Scale & Units** dialog appears.



2. Click the pop-up button beside English or Metric, depending on the type of units you want to use in the document.

Whether you use the English or Metric system, you can choose the basic

units for the drawing: Decimal Inches, Decimal Feet & Inches, Decimal Feet, Fractional Inches or Fractional Feet & Inches in English drawings; Millimeters, Centimeters, Decimeters or Meters in metric drawings.

3. If necessary, change the units in the **Units** pop-up menu.

**Note:** In metric drawings, you can choose **Hide Metric Units**, which prevent the unit abbreviations (mm, cm and so on) from appearing when dimensions are displayed on the drawing.

You can also control the number of places displayed behind the decimal point in both metric and English decimal drawings.

When using fractional inches, the number of decimal places is set only for area displays in the show area option in the **View** menu.

## Setting the Scale

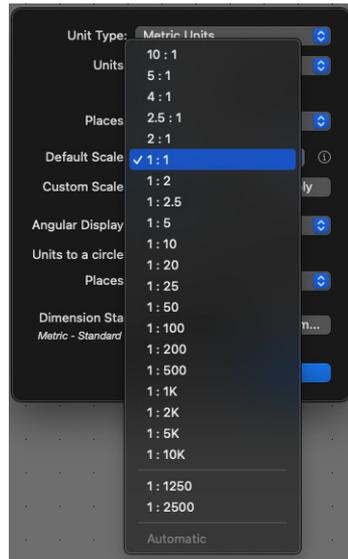
Before starting a drawing, you need to determine the sizes of the objects and the paper you are going to use. For large drawings it is impractical to draw objects at their actual sizes; it is necessary to reduce them, yet still maintain their proper proportions.

A scale, the ratio of the object's size on the drawing to its size in the real world, accomplishes this. For example, if you choose a scale ratio of one-quarter inch equals one foot ( $1/4'' = 1'$ ), a line drawn ten inches long on a drawing would represent a 40 foot line in the real world.

**Note:** When you paste an existing object into a drawing with a different scale, the size the object is drawn at will automatically adjust to conform to the scale of the new drawing.

### *To specify the default scale*

1. Open the **Layout** menu and choose **Set Scale/Units**. The **Document Scale & Units** dialog appears.
2. Click the **Default Scale** pop-up menu. The **Default Scale** pop-up menu shows the scales available for the chosen unit system. Select the scale you want to use.

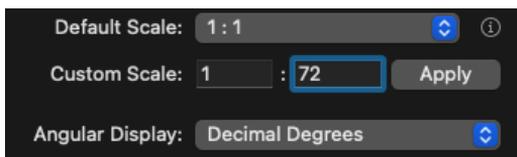


3. The new scale will be displayed.
4. Click the **OK** button to close the dialog and apply the changes.

**Top Tip:** In drawings that include more than one layer, you can set different scales for different layers if necessary. However, all the layers in a drawing must use the same unit system (English or Metric).

### ***To specify a custom scale***

1. Open the **Layout** menu and choose **Set Scale/Units**. The **Document Scale & Units** dialog appears.
2. Enter your custom scale in the **Custom Scale** text boxes and click the **Apply** button to set the scale.



3. The new custom scale will be displayed.
4. Click the **OK** button to close the dialog and apply the changes.

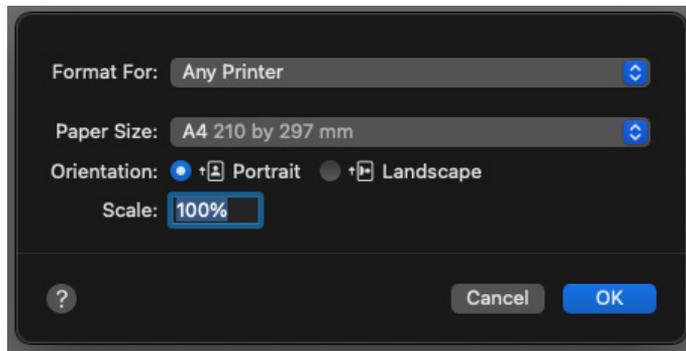
## Setting the Page Size

You can set a drawing's page size, page orientation and total size depending on your needs. If necessary, you can create a drawing that will print over several sheets of paper. The choice of page size is subject to the page sizes available with the currently active printer or printing device. For example, if the printer you've selected supports only letter-size and legal-size paper, you cannot print to larger or smaller sheets. You can also use custom sizes if it is supported.

### *To page size and orientation*

1. Choose **Page Setup** from the **File** menu.

The **Page Setup** dialog appears.

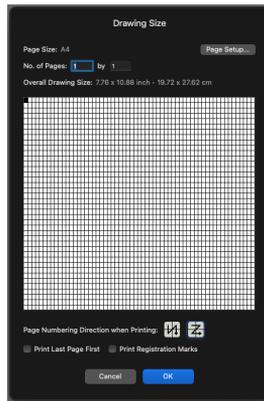


2. Select the paper size you want for printing your drawing.
3. Select the page orientation (horizontal or vertical) you want for printing your drawing.
4. Click the **OK** button to close the dialog. Your drawing will now have the desired page size and orientation assigned.

## Changing the Drawing Size

Open the **Layout** menu and choose **Drawing Size**. A dialog appears displaying the current total drawing size in the form of a block diagram.

This grid in the dialog represents the maximum drawing size available; each block represents a single page. The blocks that are darkened indicate the current



drawing size. You can control the overall size and shape of the drawing by clicking in the diagram. You can change the drawing size either graphically or by entering the number of pages in the text boxes.

### ***To change the drawing size graphically***

1. Click one of the page blocks and hold down the mouse button.
2. Drag until you have activated the number of page blocks required for the drawing size you want and release the mouse button.
3. Click the **OK** button to close the dialog.

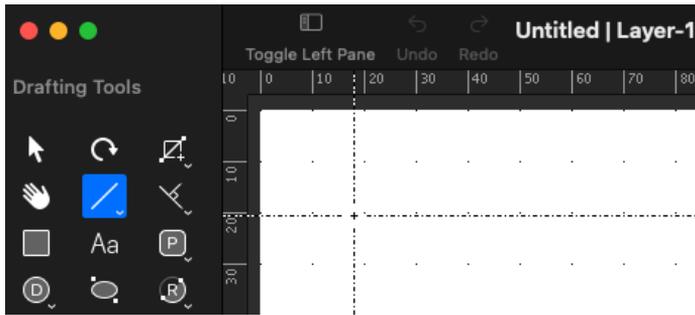
### ***To change the drawing size numerically***

1. Type how many pages you would like horizontally in the first text box.
2. Type the number of pages you would like vertically in the second text box.
3. Click the **OK** button to close the dialog.

## **Rulers and Cursors**

MacDraft's on-screen rulers can help you draw and position objects in precise locations on your drawing. They appear along the top and left sides of the drawing window, and reflect the current position of the window during scrolling. At magnified views (zoomed in or out), they change size accordingly.

The rulers are especially useful in conjunction with MacDraft's crosshair drawing cursor. The crosshair cursor extends horizontally and vertically across the window, into the rulers, when a drawing tool is active.



## ***Rulers***

The rulers can show either on-screen sizes (standard rulers) or values that match the current scale and units. For example, on a 1/8" = 1' scale, the major scale ruler divisions will be in increments of 10 (10 ft., 20 ft., and so on).

**To display Microspot MacDraft rulers:**

- Choose **Show Rulers** from the **View** menu

The rulers will be displayed and a checkmark appears by the Show Rulers command in the View menu.

**To display scale rulers (if Show Rulers is on):**

- Choose **Scale Rulers** from the **Layout** menu.

**To display standard rulers (if Show Rulers is on)**

- Choose **Standard Rulers** from the **Layout** menu.

## ***Cursors***

**To activate the crosshair cursor**

- Choose **Cross Cursor** from the **Options** menu.

When a drawing tool is selected, the crosshair cursor appears. A checkmark appears by the Cross Cursor item in the Options menu.

**To activate the small cursor**

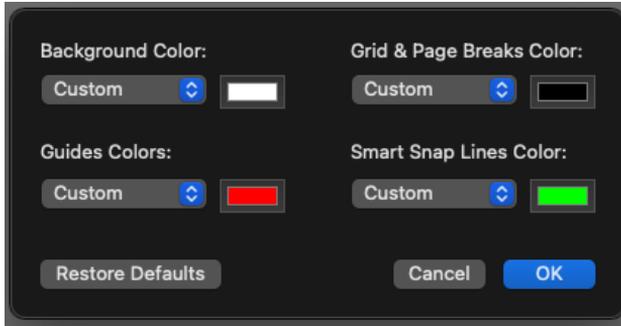
- Choose **Cross Cursor** from the **Options** menu again.

The checkmark disappears from the Cross Cursor command in the Options menu. When a drawing tool is selected, the cursor appears as a small plus.

**Top Tip:** We recommend that you use the cross cursor when drawing CAD layouts as this will help you to maintain positioning and drawing throughout your designs. However when working on illustration and less uniform designs, it may be easier to use the standard cursor.

## Interface Colors

MacDraft's drawing area is made up of a number of elements that you can set your own custom colors for. You can set your own custom colors for the background of the document, grid and page breaks, guides and smart snap lines. These can also be set in your application defaults, for all documents.



### *To set a custom interface colors*

1. Choose **Interface Colors...** from the **Options** menu
2. Click the color picker next to the interface element you want to change the color of and the system color picker will appear
3. Choose the color that you want and click the red close symbol in the top left hand corner of the color picker.
4. Click the **OK** button in the Interface Colors dialog to set the color.

**Note:** The background color will only print if you have the Include Background Color When Printing option turned on in the Options menu.

You can also set the default values by changing the pop-up next to the interface element back to default, or by clicking the restore defaults button.

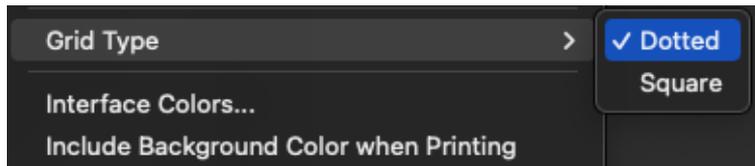
## Grid Type

MacDraft's has two main grid options. You can set your grid to a dotted grid or a square (graph paper) style grid. Each works in the same way with the grid snap options and can also be set in the Preferences.

### *To set the grid type*

1. Choose **Grid Type** from the **Options** menu

A sub menu will appear



2. Choose Dotted or Square from the sub menu and the grid type will change in your document.

**Note:** You can set a custom grid color using the Interface Colors... option in the Options menu.

## Starting a Drawing

With these settings in place, you're ready to start drawing. The settings you defined: units, scale, page setup, drawing size, rulers, drawing cursor interface colors and grid type remain active until you change them.

## Selecting Objects

You must always select an object before you can make any changes to it. Two fundamental principles of using MacDraft are as follows:

1. You select an item.
2. You choose what to do to the item you have selected.

For example, if you want to change the line weight of an object, you first select it, then click the line weights pop-up in the **Properties** tab and make a selection.

You can select a single object which you want to change or (for some operations) you can select multiple objects in order to make the same change to each selected object simultaneously.

Once you have selected an object, small black squares appear on its borders or at each end. These squares are called edit handles. For example, a selected rectangle will have eight edit handles; a selected line will have one handle at each end point. The following procedures will show you various ways of selecting objects on your drawing.

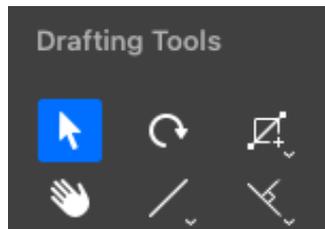
## Activating the Pointer Mode

Before you can select an object on your drawing, you must first activate the pointer. The pointer is used to resize, edit and move objects on a drawing.

### *Choosing the pointer*

To display Microspot MacDraft pointer:

- Position the cursor on the **Pointer** icon in the **Tool** panel and click it.



**Note:** When you move the cursor over the Tool panel, the cursor will temporarily turn into the arrow pointer to allow you to select a tool. You can also return to the pointer mode by pressing the ESC key on your keyboard.

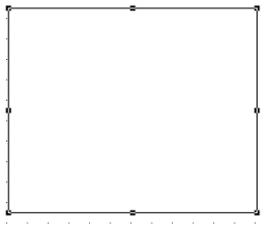
## Selecting an Object

An object is anything that you have created, including rectangles, circles, lines, arcs, freehand shapes and text.

### ***To select and object***

1. Return to the pointer mode by clicking the Pointer icon or by clicking the ESC key on your keyboard.
2. Position the tip of the pointer on the object and click.
3. The object is selected and selection handles appear.

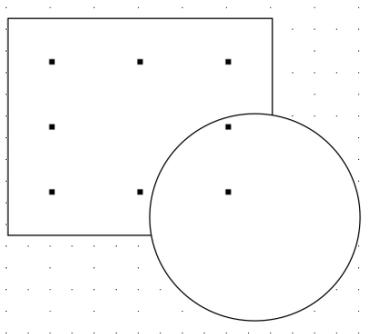
**Note:** To select a non-filled object, position the pointer exactly on the edge of the object (its border) and select it.



### **Selecting hidden objects**

#### ***To select an object hidden behind other objects***

1. Position the pointer over the hidden object's estimated location.
2. Double-click this place (once to select the front object and then once again to select the object hidden behind it).
3. You should now see the handles of the hidden object showing through the visible object.



Once the hidden object is selected, you can move it or choose **Bring to Front** from the **Arrange** menu to move it in front of other objects.

## Selecting multiple objects

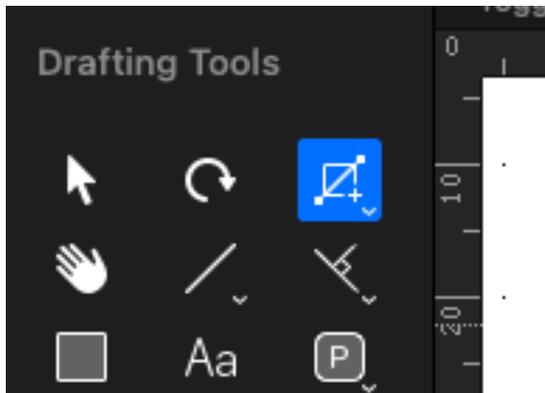
Select multiple objects to make the same change to all the selected objects at the same time.

### *To select multiple objects using the Pointer*

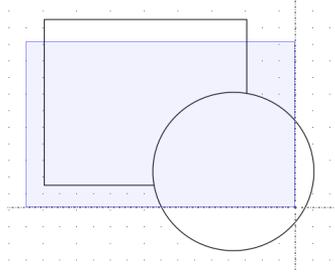
1. Select the first object by clicking it.
2. Press and hold down the **Shift** key.
3. Select additional objects by clicking them, then release the **Shift** key.

### *To select multiple objects using the Selection tools*

1. Click the **Inclusive Selection** tool in the **Tool** panel.



2. Position the pointer above and to the left (for example) of the objects to be selected.
3. Holding down the mouse button, drag diagonally across until you have enclosed all the objects you want to select in a selection box and release the mouse button.



**Note:** If you choose the Exclusive Selection tool and drag out a selection box to select multiple objects, all objects that the selection box touches will be selected, not just those that are completely enclosed.

## Deselecting objects

You can use the Shift-click method to deselect selected objects. This capability allows you to exclude a specific objects from a selection.

### *To deselect an object*

1. Return to the pointer mode by clicking the **Pointer** tool.
2. Hold down the **Shift** key.
3. Click the object you want to deselect and release the **Shift** key.

The edit handles will no longer appear on the deselected object.

## Select None

To deselect all selected objects, use the **Select None** option.

### *To select none*

1. Hold down the **Shift** key.

The **Select All** command in the **Edit** menu will be changed to **Select None**.

2. Choose **Select None** from the **Edit** menu.

All objects in the document will be deselected.

## Selecting all objects on a layer

### *To select all objects on the active layer*

- Open the **Edit** menu and choose **Select All**.

Notice that all objects and text on the active layer are selected. If you choose **Select All** while you are in the text mode and have an insertion point selected in a text block, the entire text block will be selected.

## Selecting text on your drawing

The two techniques for selecting text are: using the I-beam pointer (the text cursor) to select all or part of a piece of text; and using the arrow pointer to select a whole text object. The steps for each are outlined below.

### *Using the I-beam cursor to select text*

1. Activate the **Text** tool in the **Tools** panel by clicking it.



2. Position the I-beam pointer on one side of the text you want to select.
3. Holding down the mouse button, drag the cursor through the character(s) until all the text you want to select is highlighted, and release the mouse button.

### *Using the arrow cursor to select text*

- Click with the pointer on a text object.

Notice that edit handles appear around the text.

## Select Special PRO ONLY

The MacDraft **Select Special** command lets you select objects according to their type, graphical attributes or object information. For example, you could select all the circles that have a green fill and an object information name of Class A.

You can choose the **Select Special** command from the **Edit** menu. The **Select Special** dialog allows you to define the parameters of the objects you want to

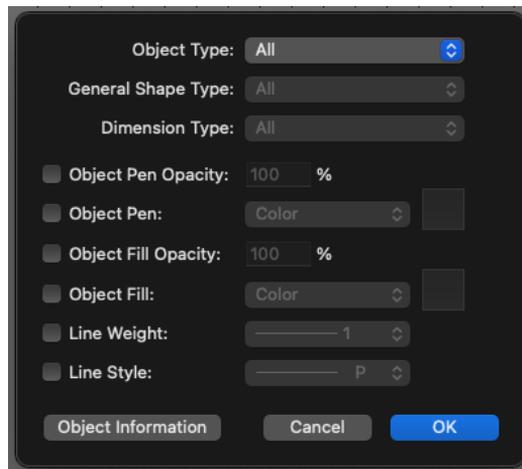
select. Any combination of attributes can be used to define a selection: object type, object fill color or fill pattern, object pen color or pen pattern, line weight, line style or object information. All the items in the current (active) layer that match your specifications will be selected.

### **The Select Special dialog** PRO ONLY

#### **Displaying the Select Special dialog**

- Choose **Select Special** from the **Edit** menu.

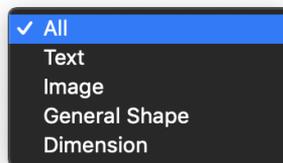
The **Select Special** dialog appears.



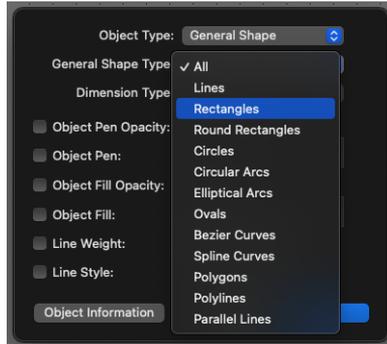
### **The Select Special options** PRO ONLY

#### **Object Type**

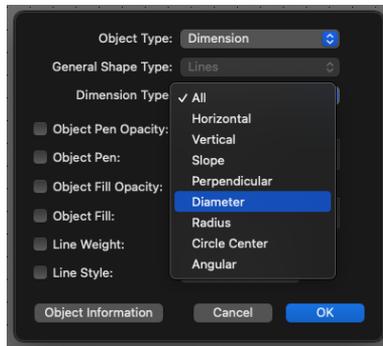
Click the **Object Type** pop-up menu and choose the type of object to be selected.



- Choose **All** to select all types of objects.
- Choose **Text** to select only text objects.
- Choose **General Shape**, and a further menu becomes available. Select a particular kind of shape from this pop-up menu.



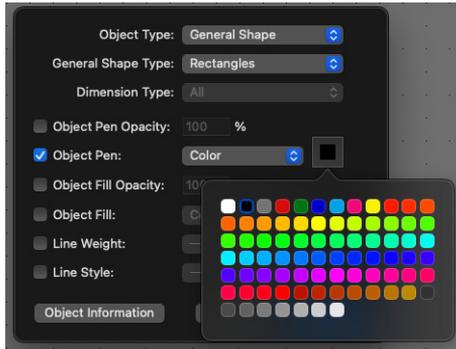
- Choose **Dimension**, and a further menu becomes available. Select a particular kind of dimension from this pop-up menu.



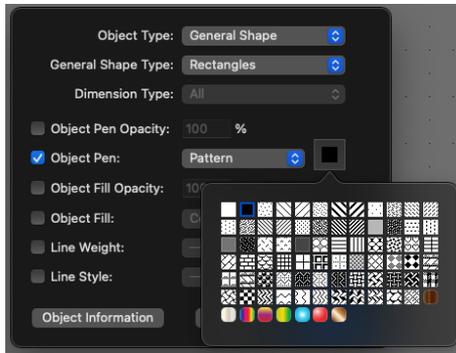
### Object pen and object fill

If you click the **Object Pen** or **Object Fill** checkbox, the relevant **Color** and **Pattern** radio buttons become available.

- Choose **Color** from the pop-up and then click the related **Color** button, the **Pen Color** or **Fill Color** pop-up menu becomes available. Select a particular color to be used as part of your selection criteria.

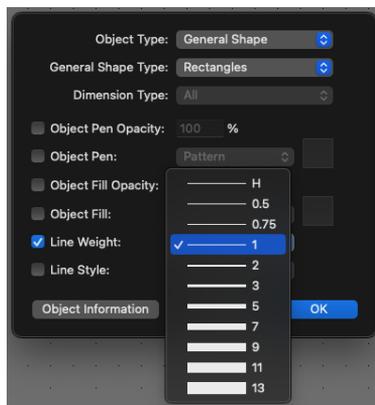


- Choose **Pattern** from the pop-up and then on the related **Pattern** button, the related **Pattern** pop-up menu appears. Select a particular pattern to be used as part of your selection criteria.



### Line Weight

If you click the **Line Weight** checkbox, the **Line Weight** pop-up menu becomes available. Select a line weight to be used as part of your selection criteria.



## Line Style

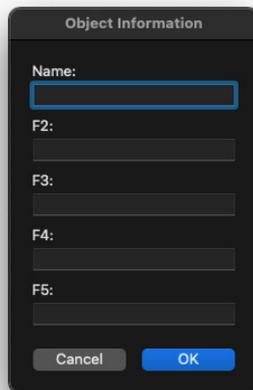
If you click the **Line Style** checkbox, the **Line Style** pop-up menu becomes available. Select a line style to be used as part of your selection criteria.



## Object Information

In addition to the visible attributes of objects, object information data can be used to determine selections. You can set these options by clicking the **Object Information** button in the **Select Special** dialog.

When you click the **Object Information** button, an **Object Information** dialog appears, where you can specify either all or some of a drawing's object fields as part of your selection criteria. Click the checkboxes to specify which object information fields should be used to make the selection, then type the information into the relevant fields.



## Selecting objects using *Select Special* PRO ONLY

To select objects using *select special*

1. Open the **Edit** menu and choose **Select Special**.

The **Select Special** dialog appears.

2. Set the select criteria.
3. Click the **Select** button.

All objects on the current layer that meet the criteria will be selected.

## Saving and Exporting

### Saving documents

The **Save** function allows you to save a new document or any changes you have made to an existing document.

#### *Saving and naming an untitled document*

When you first create a new document it will have the name untitled# (# indicates the number of your new document, for example untitled3).

To save and name the document

1. Choose **Save** from the **File** menu.

The standard **Save** dialog appears.

2. Specify the location to save the document and enter a name for it.
3. You may use any character or symbol on the keyboard (except a colon {;} and {/}) You can also use uppercase or lowercase characters, with spaces between words.
4. Click the **Save** button.

The document will be saved at the location, and with the name specified.

**Note:** To save a copy of the current document, click the Duplicate option in the File menu. This will open a duplicate of the document and allow you to save that duplicate as a new file, following the above steps.

### ***Save changes made to a previously saved document***

While working on your document, you should save it regularly to avoid possible losses or data damage to the files content.

#### **To save changes made to a previously saved document**

- Select **Save** from the **File** menu.

The document on the disk will be updated to include all of the changes you have made to the content of your document.

**Note:** MacDraft uses the MacOS Auto Save to automatically save your document as you are going. This will be on by default but you can turn it on/off via the General tab in Preferences.

### ***Saving a copy of a document***

By using the Duplicate command from the File menu you can save an existing document using another name without altering your original document.

#### **To save a copy of a document**

1. Choose **Duplicate** from the **File** menu.

A duplicate of the original document will open.

2. Choose **Save** from the **File** menu

The standard **Save** dialog appears.

3. Specify the location to save the document and enter a name for it.
4. Click the **Save** button.

The document will be saved with the name and at the location specified.

## ***Saving a document as a Template***

There are 2 ways to save a document as a MacDraft Template. The first is to use the standard save dialog if it is the first time saving the document, and the second is to use the Save As Template... option in the File menu.

**Note:** If you want to save a document and have it appear in the My Custom Templates section of the Template Chooser panel, then you will need to use the Save As Template... option in the File menu.

### **To save a template using the standard save option**

1. Choose **Save** from the **File** menu.

The standard **Save** dialog appears.

2. Specify the location to save the document and enter a name for it.
3. Click the **File Format** pop-up menu and choose **MacDraft Template**.
4. Click the **Save** button.

The template will be saved with the name and at the location specified.

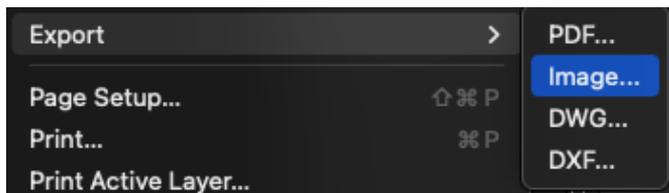
## **Exporting a document**

The Export option in the File menu can be used to export files as images such as PNG and JPEG, PDF documents and AutoCAD DWG and DXF files.

### ***To export files***

1. Choose **Export** from the **File** menu.

A sub menu will appear displaying the export options.



2. Choose **PDF...**, **Image...**, **DWG...** or **DXF...** from the sub menu.

A standard dialog appears

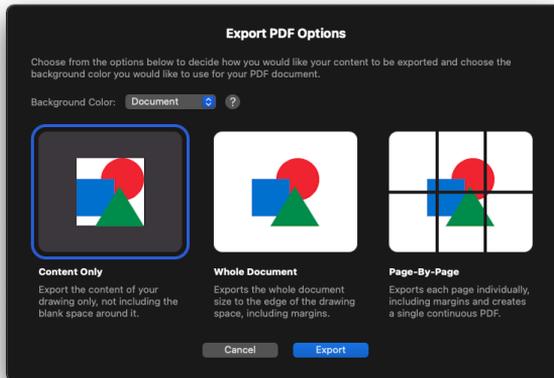
3. Give the file a name and choose the location to save it.
4. Click the **Save** button.

The file will be saved in the format you requested with the name and in the location specified.

### Exporting as PDF

There are 3 different ways to Export as a PDF in MacDraft via File > Export > PDF. You can export the **Content Only**, the **Whole Document** or **Page-by-Page**. You can also choose whether you want to include the **Document** background color, a **White** background or a **Transparent** background.

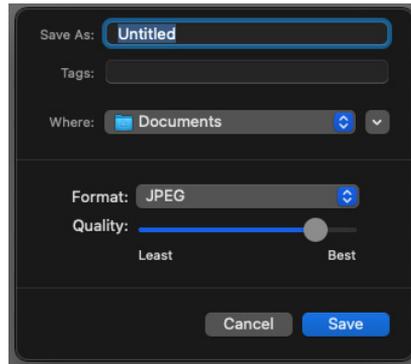
1. Open the File menu and choose Export.
2. In Export choose PDF, the PDF dialog appears.



3. Choose **Content Only**, the **Whole Document** or **Page-by-Page** and click Export.
4. The Save dialog will appear so choose your save location and an appropriate file name.
5. Click OK and the file will be exported as a PDF.

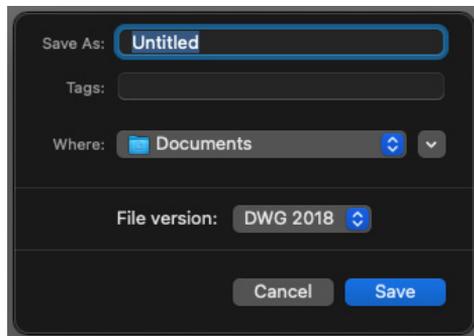
### Exporting as an Image

To export your file as an image you need to open the File menu and choose Export > Image. A dialog will appear offering you an array of different image formats to choose from. Choose your image format, set the quality level you would like and click save.



### Exporting as DWG

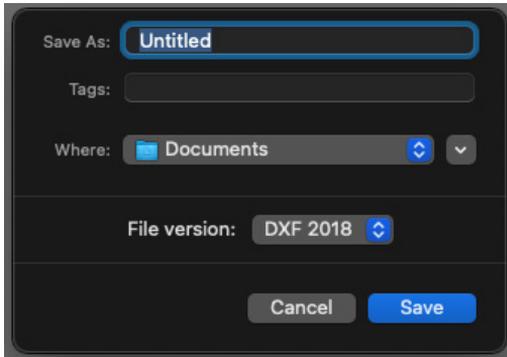
To export your file as a DWG you need to open the File menu and choose Export > DWG. A dialog will appear offering you an array of different DWG versions to choose from with DWG 2018, the latest format, set as default. Choose your version and click save.



### Exporting as DXF

To export your file as a DXF you need to open the File menu and choose Export > DXF. A dialog will appear offering you an array of different DXF versions to choose from with DXF 2018, the latest format, set as default. Choose your

version and click save.



## Closing documents

### To close the current active document

1. Open the File menu and choose Close.

If the document contains unsaved changes, a dialog appears asking if you want to save changes made to your document before closing it.

2. Click one of the following buttons:
  - Click the **Save** button to close the document and save the changes.
  - Click the **Delete** button to close the document without saving
  - Click the **Cancel** button to return to the document.

### To close all documents

1. Hold down the **Option** key.

The **Close** command in the **File** menu will be changed to **Close All**.

2. Choose **Close All** from the **File** menu.

If any documents contain unsaved changes, dialogs appear asking if you want to save changes made to your documents before closing them.

3. Click one of the following buttons:
  - Click the **Save** button to close the document and save the changes.
  - Click the **Delete** button to close the document without saving.
  - Click the **Cancel** button to return to the document.

All the open documents will be closed.

## Quitting Microspot MacDraft

When you are finished using MacDraft you can quit the application and return to the desktop.

1. Open the MacDraft application menu and choose Quit MacDraft.

If your open document contains unsaved changes, a dialog appears giving you the chance to save changes made to your document before quitting.
2. Click one of the following buttons:
  - Click the **Save** button to close the document and save the changes.
  - Click the **Delete** button to close the document without saving.
  - Click the **Cancel** button to avoid quitting and return to the document.

---

# Chapter 2

## Creating and editing objects

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### Getting Started

#### The Drawing Environment

When you open a new document in MacDraft, the following conditions are preset unless you use templates or have set your own defaults/preferences already.

- Document size is a single sheet of paper.
- Scale is set at 1:1 (one inch equals one inch).
- Grid lines are shown on the drawing area.
- Snap Grid is turned on.
- All lines and borders will be drawn with a one-pixel, solid-black line.
- All closed rectangles, circles, arcs polygons and freehand objects will be shaded with a white fill. Open objects will have no fill.

The method of drawing most objects is very similar: choose the tool, decide on a starting point, click the mouse button, drag to create the object, then release to finish. Drawing polygons, arcs and curves is a little different. Step-by-step instructions on how to draw and change the size of each type of object are in the following pages.

**Top Tip:** Drawing aids such as guides and snapping can make drawing in MacDraft much easier and faster. You will also find the cross cursor and object linking are a great help for working with your objects. In addition the standard and scaled rulers can provide a clear and precise value for your measurements.

## Cancelling actions

The current action can be cancelled (in most cases), while it is in progress.

### *To cancel the current action while it is in progress*

- Press the **Escape** key

For example, when drawing a rectangle using the rectangle drawing tool, press the Escape key to cancel the entire drawing operation and return you to the Arrow (Pointer) tool.

## Choosing Drafting Tools

The tools used to create objects are located on the Tool panel/palette.

### *Displaying the Drafting Tools in the left panel*

If the Drafting tools in the left panel are not shown, you can open them using the following methods.

- Choose **Show Left Panel** from the **View** menu, or
- Click the left-hand **Show/Hide Panels** button in the **Toolbar**.
- If the panel appears but the Drafting Tools themselves are not visible, go to the Window menu and select Drafting Tools, or click the small down arrow next to the Drafting Tools title in the left panel.

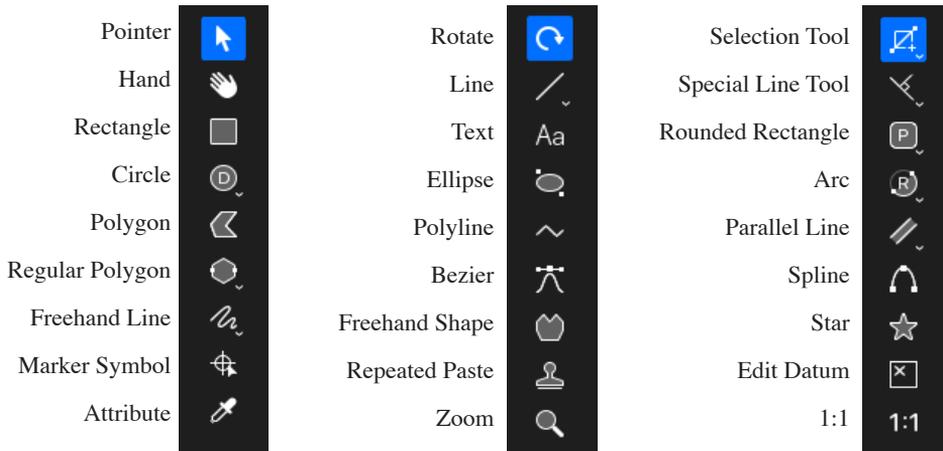
The **Drafting Tools** appear on the left of the screen

### *Displaying the Drafting Tools palette*

If you are running MacDraft in **Palette** View and can't see your Tools palette, you can open it in the following way.

- Choose the **Window** menu and select **Drafting Tools**.

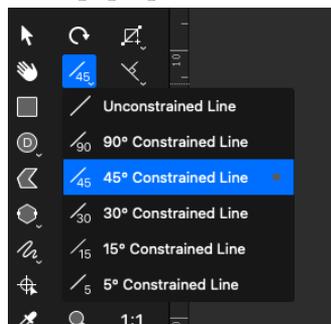
The **Drafting Tools** appear as their own floating palette.



The **Drafting Tools** section, whether in Palette view or Panel view, hold icons that represent certain tools. Some tools are stacked with related tools. These provide different ways of creating the same type of object, or create similar objects with slightly different characteristics. For example, the different circle tools relate to how you create a circle; On the other hand, the rounded-corner rectangle tools relate to the characteristics of the rectangles' corners; proportional, constant, or elliptical.

When you start to use MacDraft, each tool has the default option shown on the panel/palette. To use a tool, you activate, or select, the appropriate icon. As long as the icon is highlighted, you can draw the object associated with the icon.

You can activate any visible tool in the **Drafting Tools** panel/palette by positioning the pointer on the icon and clicking it. To change the current tool in a set, click and hold the mouse on the desired tool to reveal the pop up menu then choose the desired tool from the pop-up menu.



To exit a drawing tool mode, click the Pointer icon in the **Drafting Tools** panel/palette, or press the ESC (Escape) key on your keyboard to return to the pointer.

### **Pop-up menus**

The tools in a tool set are accessed by pop-up menus.

Icons used to access pop-up menus have arrow heads in their corners. Pop-up menus are opened by clicking an icon in the panel and holding down the mouse button.

#### **To select an option from a pop-up menu**

1. Click the appropriate icon in the **Drafting Tools** panel/palette and hold down the mouse button.

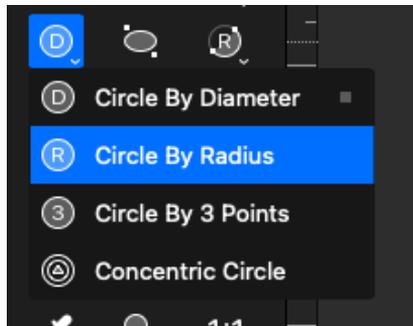
A pop-up menu appears.

2. Drag the cursor to the item that represents the desired tool.

As you drag, the menu items will be highlighted.

3. When the desired menu item is highlighted, release the mouse button.

The pop-up menu disappears and the tool icon will be changed to show you the currently selected tool.



As you drag, the menu items will be highlighted.

4. When the desired menu item is highlighted, release the mouse button.

The pop-up menu disappears and the tool icon will be changed to show you the currently selected tool.

**Top Tip:** Each of the main tools have a keyboard shortcut key assigned to them to make it faster to select the tool you want to use. You can use this key to cycle through the available tools. For example the parallel line tools (wall drawing tools) have the "w" key. Click the "w" key multiple times to cycle through the available tools, without having to access the sub tools pop-up.

## Tool Options

Some tools have options you can change associated with them. These are displayed at the top of the document window when the tool is selected. For example you can set the thickness of a parallel line before drawing it.



## Drawing basic lines

MacDraft has two types of line tools: constrained and unconstrained. The constrained line tools are used to draw straight lines that snap to specified angle increments; the unconstrained line tool is used to draw straight lines at any angle.

Constrained lines can be drawn at increments of 5°, 15°, 30°, 45° and 90°

**Top Tip:** The drawing of the lines can be snapped to existing objects using the smart snap system. You can also snap to the end point, center point and mid point of objects by holding the E, C or M key down on the keyboard, while drawing.

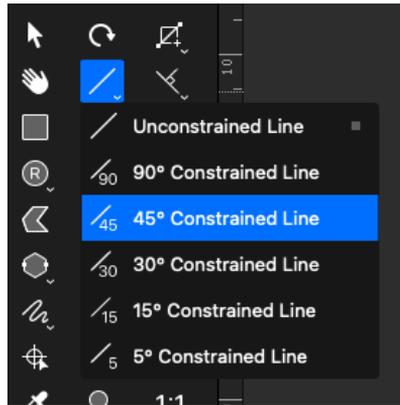
## Choosing line tools

Line tools are chosen from the Line tools pop-up menu in the **Drafting Tools** panel/palette.

### ***To choose a line tool***

1. Hold down the mouse button on the line icon on the Tool panel.

The Line tools pop-up menu appears.



2. Drag until the line you want is highlighted, and release the mouse button.

The tool you choose appears on the Tool panel.

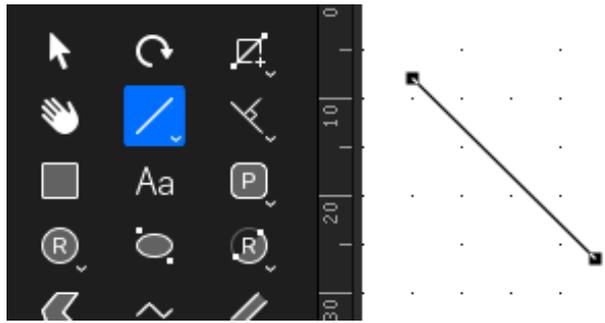
**Top Tip:** Press the "I" key on the keyboard to cycle through the line tools quickly. This is a faster way of selecting the individual line tools.

## **Drawing unconstrained lines**

### ***To draw an unconstrained line***

1. Click the **Unconstrained** line tool in the **Drafting Tools** panel/palette. (If the Unconstrained line tool is not visible, select it from the Line pop-up menu.)
2. Position the cursor at the point on the drawing that you want to start drawing.
3. Holding down the mouse button, drag in any direction until the line is the length you want and release the mouse button.

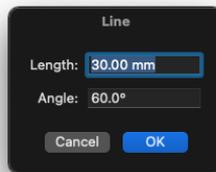
**Note:** If you hold the Shift key down while drawing the line will constrain to drawing a 45 degree angle.



### ***To draw an unconstrained line to a specific length***

1. Click the **Unconstrained** line tool in the **Drafting Tools** panel/palette. (If the Unconstrained line tool is not visible, select it from the Line pop-up menu.)
2. Position the cursor at the point on the drawing that you want to start drawing.
3. Double click the mouse button.

The size dialog will appear



4. Enter the length and angle of the line and click the OK button

The line will be drawn to the specified length and angle.

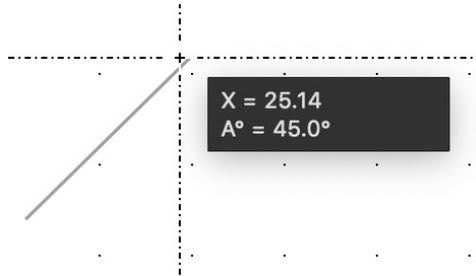
**Note:** To enter a length before drawing a line you need to have the **Simple Click Does** option in the **Application Defaults** set to **Start Drawing Object**.

## **Drawing constrained lines**

### ***To draw a constrained line***

1. Choose the line tool showing the desired angle of constraint from the Line pop-up menu in the **Drafting Tools** panel/palette.
2. Position the cursor at the point on the drawing that you want to start drawing.

3. Holding down the mouse button, drag until the line is the length you want and release the mouse button.
4. The line will be drawn at the angle specified. The diagram below shows a line constrained to  $45^\circ$ .



**Note:** If you hold the Shift key while you draw using a constrained line tool, the line can be drawn at any angle (unconstrained).

### ***To draw a constrained line to a specific length***

1. Choose the line tool showing the desired angle of constraint from the Line pop-up menu in the **Drafting Tools** panel/palette.
2. Position the cursor at the point on the drawing that you want to start drawing.
3. Double click the mouse button.

The size dialog will appear

4. Enter the length and angle of the line and click the OK button

The line will be drawn to the specified length and angle.

**Note:** To enter a length before drawing a line you need to have the **Simple Click Does** option in the **Application Defaults** set to **Start Drawing Object**.

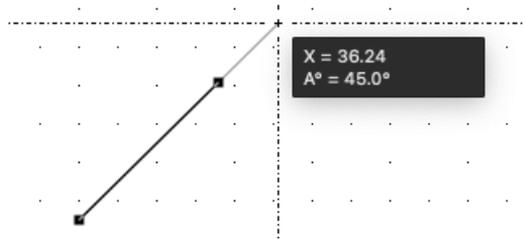
## **Changing the length of a line**

It is easy to edit a line to change its length.

### ***To change the length of a line graphically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the line you want to change.
3. Position the tip of the pointer on one of the line's handles.
4. Holding down the mouse button, drag until the line is the length you want and release the mouse button.

**Top Tip:** If you are editing a constrained line, you can hold the Shift key down while dragging the handle to maintain the angle it was drawn at.



### ***To change the length of a line numerically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Tool** panel/palette.
2. Select the line you want to change.
3. Go to the **Properties** tab in the right hand panel or Properties Palette
4. Enter the length and angle in the **Parameters** section of the **Resize Options** in the Properties panel/palette.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type 30mm into the resize fields to resize the line. The smart unit system will convert the value for you.

## Snap to Grid

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or resize a line, the end of the line will snap to the nearest grid intersection point. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.

- Hold down the **Command** key when drawing or resizing a line to avoid the line snapping to the grid.
- Hold down the **Option** key when drawing a line and the line length will increase in grid increment steps.

If there is an angular snapping grid set for the document (using the **Layout** menu, and the **Set Angle Snap** option), when you draw an unconstrained line, it will snap to the angular grid.

- Hold down the **Shift** key when drawing an unconstrained line to avoid the line snapping to the angular grid.

## Drawing rectangles

Rectangles can be drawn with square or rounded corners.

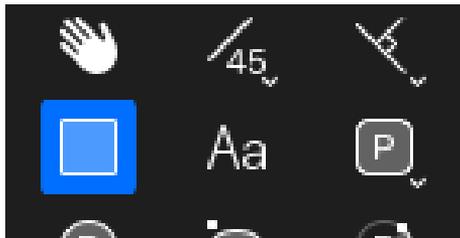
### Square-corner rectangles

Square-corner rectangles can be drawn in two ways: from the corner (Diagonal) or from the center (Centered).

#### *Choosing the square-corner rectangle tool*

To choose a square-corner rectangle tool:

- Select the **Square-corner rectangle** tool in the **Drafting Tools** panel/palette.

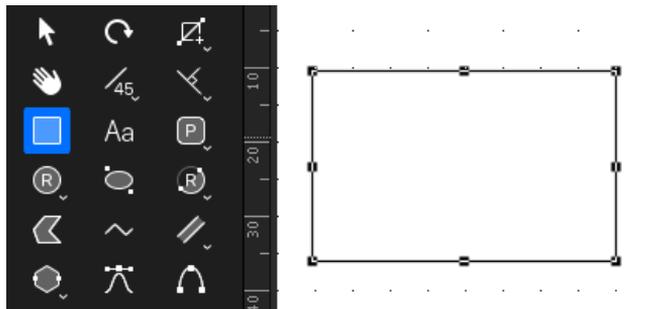


## ***Drawing a square-corner rectangle from its corner***

When you drawing a square-corner rectangle diagonally, you choose the position of one corner of the rectangle, then drag out the rest of the rectangle from that corner point.

**To draw a rectangle from its corner**

1. Choose the **Square-corner rectangle** tool from the **Drafting Tools** panel/ palette.
2. Position the cursor where you want one corner of the rectangle to appear on the drawing.
3. Press the mouse button.
4. Drag in any direction until the rectangle is the desired size, then click the mouse button to finish.



**Note:** If you hold the Shift key down while drawing a rectangle, it will be restricted to a square.

## ***Drawing a square-corner rectangle from its center***

When you draw a square-corner rectangle from its center, you center the rectangle round a specified point on the drawing.

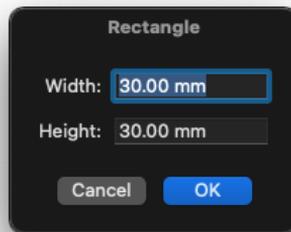
**To draw a rectangle from its center**

1. Choose the **Square-corner rectangle** tool from the **Drafting Tools** panel/ palette.

2. Position the cursor where you want the center of the rectangle to appear on the drawing.
3. Hold down the **Option (alt)** key on the keyboard and press the mouse button. Drag in any direction until the rectangle is the desired size and click the mouse button to finish.

**Note:** Hold the Shift key down while drawing and it will be restricted to a square.

### ***Drawing a square-corner rectangle to a specific size***



1. Click the **Rectangle** tool in the **Drafting Tools** panel/palette.
2. Position the cursor at the point on the drawing that you want to start drawing.
3. Double click the mouse button.

The size dialog will appear

4. Enter the size of the rectangle and click the OK button

The rectangle will be drawn to the specified size.

**Note:** To enter a size before drawing a rectangle you need to have the **Simple Click Does** option in the **Application Defaults** set to **Start Drawing Object**.

### ***Changing the size of a square-cornered rectangle***

It is easy to edit a rectangle to change its size.

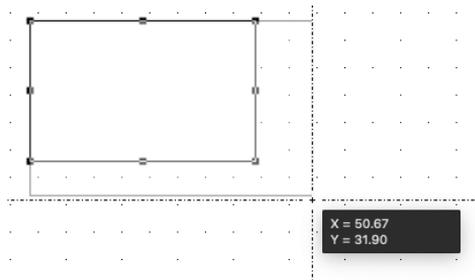
To change the size of a rectangle graphically

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools**

panel/palette.

2. Select the rectangle you want to resize.
3. Position the tip of the pointer on one of the edit handles.
4. Holding down the mouse button, drag until the rectangle is the size you want and release the mouse button.

The rectangle will be resized either diagonally or by its center, depending on the if you hold the **Option (alt)** key down while resizing.



**Note:** Hold down the Shift key and resize a rectangle using one of the corner edit handles and it will be restricted to its original proportions.

#### To change the size of a rectangle numerically

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the rectangle you want to change.
3. Go to the **Properties** tab in the right hand panel/ Properties palette.
4. Enter the size in the **Parameters** section of the **Resize Options**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

## Snap to Grid

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or resize a rectangle, the corners of the rectangle will snap to the nearest grid intersection points.

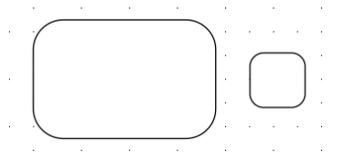
Hold down the **Command** key when drawing or resizing a rectangle to avoid the corners snapping to the grid.

## Rounded-corner rectangles

Rounded-corner rectangles can be drawn with proportional (P), constant (C) or elliptical (E) corners. The type of rounded-corner rectangle you choose to draw will be determined by the way you wish the size and shape of the corners to change when you edit the rectangle.

- Rounded-corner rectangles with proportional (P) corners

When you resize a rounded-corner rectangle with proportional corners, the radius of the corners will remain proportional to the size of the rectangle as shown below.



- Rounded-corner rectangles with constant (C) corners

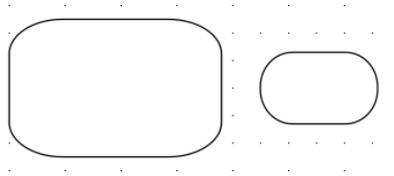
When you resize a rounded-corner rectangle with constant corners, the corners will always have the same radius regardless of the size of the rectangle.



- Rounded-corner rectangles with elliptical (E) corners

When you draw a rectangle with elliptical corners, the major and minor axes of the elliptical arcs that form the corners are determined by the size of the

rectangle; the size of the elliptical arcs on the corners grows or shrinks in proportion to the rectangle's size.

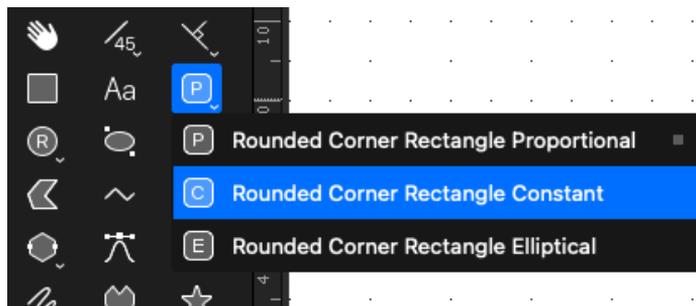


### ***Choosing a rounded-corner rectangle tool***

Choose the desired tool from the Rounded-corner rectangle pop-up menu. To choose the Rounded-corner rectangle tool:

1. Click the **Rounded-corner rectangle** tool in the **Drafting Tools** panel/palette and hold down the mouse button.

The **Rounded-corner rectangle** pop-up menu appears.



2. Holding down the mouse button, drag through the menu until the tool you want is highlighted, and release the mouse button.

The icon representing the tool you selected (P for proportional, C for constant, or E for elliptical) appears on the panel.

### ***Drawing a rounded-corner rectangle***

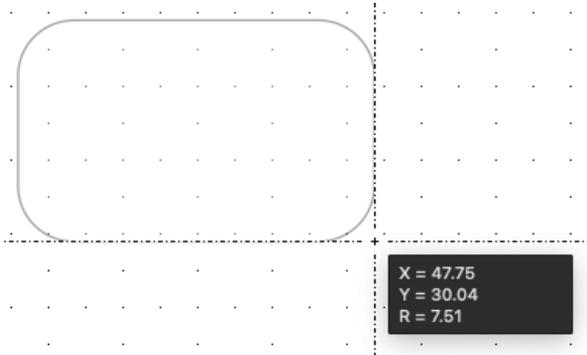
All the rounded-corner rectangles are drawn in the same way.

#### **To draw a rectangle with the chosen corner style**

1. Choose the desired tool from the **Rounded-corner rectangle** pop-up menu.
2. Position the cursor at the point you want the first corner of the rectangle to appear on your drawing.

**Note:** As the rectangle has rounded-corners this point will determine the corner position for the rectangle's bounding frame.

3. Press the mouse button.
4. Drag in any direction until the rectangle is the desired size and click the mouse button to finish.

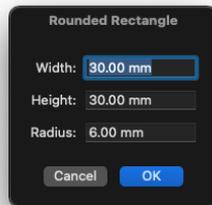


**Note:** Hold down the Shift key as you draw a rounded-corner rectangle and the shape of the rectangle will be restricted to a rounded-corner square.

### ***Drawing a rounded-corner rectangle to a specific size***

1. Click the **Rounded-Rectangle** tool in the **Drafting Tools** panel/palette.
2. Position the cursor at the point on the drawing that you want to start drawing.
3. Double click the mouse button.

The size dialog will appear



4. Enter the size of the rectangle and click the OK button

The rectangle will be drawn to the specified size.

**Note:** To enter a size before drawing a rectangle you need to have the **Simple Click Does** option in the **Application Defaults** set to **Start Drawing Object**.

### ***Changing the size of rounded-corner rectangles***

Rounded-corner rectangles can be resized in the same way as square-corner rectangles.

### ***Changing the corner shape of rounded-corner rectangles***

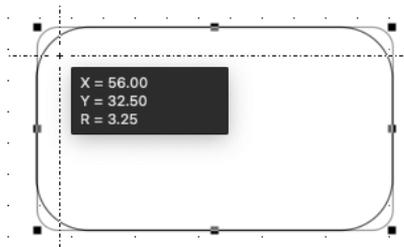
When you select a rounded-corner rectangle, an extra edit handle called the corner-edit handle appears, normally inside and near the upper left corner.

This edit handle is used to change the shape of the corners.

#### **To change the corner shape of proportional and constant-corner rectangles**

With proportional and constant-corner rectangles, you can drag the corner-edit handle in a diagonal direction to change the radius of the corner arc and reshape the rectangle.

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the rectangle you want to change.
3. Position the tip of the pointer on the corner-edit handle.
4. Hold down the mouse button and drag in one of the following directions:
  - Drag downwards to the right to increase the radius of the corners.
  - Drag upwards to the left to decrease the radius of the corners.



5. When the corners are the desired shape, release the mouse button.

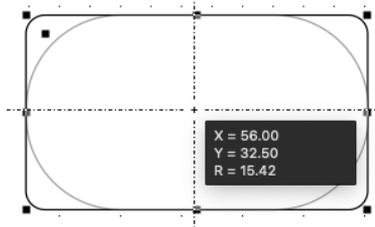
#### To change the corner shape of elliptical-corner rectangles

When you draw a rectangle with elliptical corners, the elliptical arcs at the corners cover  $90^\circ$ . By dragging the corner-edit handle, you can change the radius of the arcs to change the shape of the corners. The arcs will still cover  $90^\circ$ .

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the elliptical-corner rectangle you want to change.
3. Position the tip of the pointer on the corner-edit handle.
4. Holding down the mouse button, drag until the corners are the shape you want and release the mouse button.

Unlike other rectangles with rounded corners, you can drag the corner-edit handle on elliptical-corner rectangles in any direction. The direction in which you drag the handle determines the shape of the corners. The figure below shows how you can use the corner-edit handle to reshape the corners.

- If you drag the handle to the extreme upper left corner, the corners appear almost square.
- If you drag the handle to the center, the entire rectangle appears as an ellipse.



#### **Snap to grid**

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or resize a rectangle, the corners of the rectangle will snap to the nearest grid intersection points.

Hold down the **Command** key when drawing or editing a rectangle to avoid the edit handles snapping to the grid.

# Drawing regular polygons

A regular polygon is a closed object with equal sides and angles of equal length. The tools can be preset to draw shapes with from 3 to 64 sides. Depending on which regular polygon tool you select, you can draw a regular polygon from edge to edge, center to edge, vertex to vertex, or center to vertex.

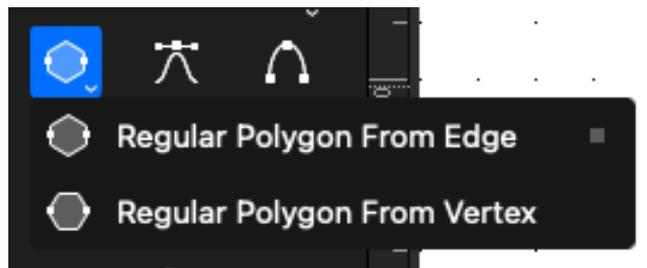
## Choosing a regular polygon tool

Choose the desired tool from the **Regular polygon** tool pop-up menu.

### *To choose a regular polygon tool*

1. Click the **Regular polygon** tool in the **Drafting Tools** panel/palette and hold down the mouse button.

The **Regular polygon** tool pop-up menu appears.



2. Hold down the mouse button, drag through the menu until the tool you want is highlighted, and release the mouse button.

The icon representing the tool you selected appears on the panel.

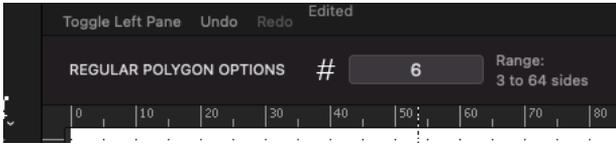
**Top Tip:** Press the "p" key on the keyboard to cycle through the regular polygon tools quickly. This is faster way of selecting the individual regular polygon tools.

## Setting the number of sides

The number of sides can be set before drawing the object.

### *To set the number of sides before drawing a regular polygon*

1. Select the regular polygon tool you want to use.
2. The Regular polygon tool options appear in a panel at the top of the document.

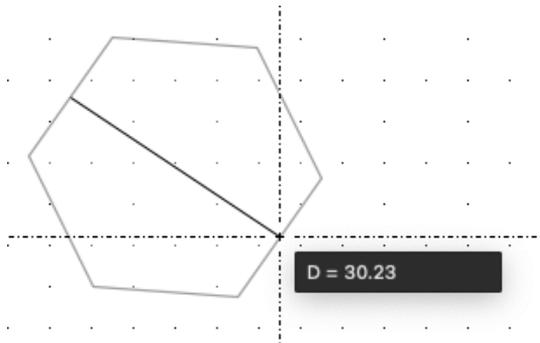


3. Enter the number of sides desired, then press the OK button.

## Drawing a regular polygon

### *Drawing a regular polygon from edge or vertex*

1. Choose the desired tool from the **Regular Polygon** pop-up menu.
2. According to the tool chosen, position the cursor at the point you want the edge or vertex of the polygon to appear on your drawing.
3. Click the mouse button, drag until the polygon is the desired size and release the mouse button to finish.



**Top Tip:** When you release the mouse button, the polygon is drawn as a single grouped object. If necessary, use the Ungroup command in the Arrange menu to ungroup the polygon for reshaping, breaking into separate items and so on. Changing fills and line attributes and resizing can be performed while the object is still grouped.

### *Drawing a regular polygon from center*

When you draw a regular polygon from its center, you center the rectangle round

a specified point on the drawing.

#### To draw a regular polygon from its center

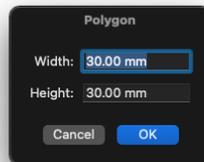
1. Choose the **Regular Polygon** tool from the **Drafting Tools** panel/palette.
2. Position the cursor where you want the center of the regular polygon to appear on the drawing.
3. Hold down the **Option (alt)** key on the keyboard and press the mouse button.
4. Drag in any direction until the regular polygon is the desired size and release the mouse button to finish.

**Note:** Hold down the **Shift** key while drawing a regular polygon, and the angle of the diameter or radius of the polygon will snap to 45° increments.

#### Drawing a regular polygon to a specific size

1. Choose the **Regular Polygon** tool in the **Drafting Tools** panel/palette.
2. Position the cursor at the point on the drawing that you want to start drawing.
3. Double click the mouse button.

The size dialog will appear



4. Enter the size of the regular polygon and click the OK button

The regular polygon will be drawn to the specified size.

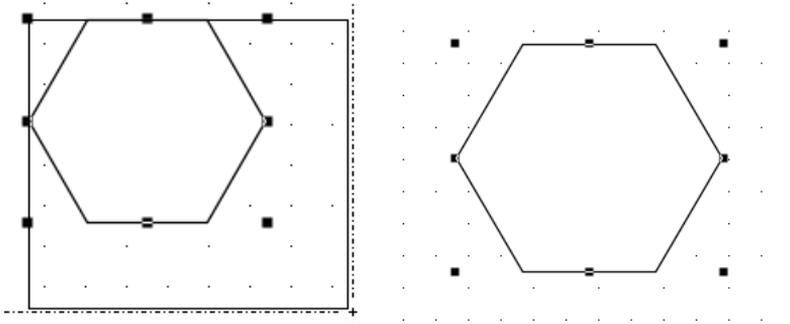
**Note:** To enter a size for drawing a regular polygon you need to have the **Simple Click Does** option in the **Application Defaults** set to **Start Drawing Object**.

#### Changing the size of a regular polygon

It is easy to edit a regular polygon to change its size.

### ***To change the size of a regular polygon graphically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the regular polygon to resize.
3. Position the tip of the pointer on one of the edit handles.
4. Holding down the mouse button, drag until the regular polygon is the size you want and release the mouse button.



### ***To change the size of a regular polygon numerically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the regular polygon you want to change.
3. Go to the **Properties** tab in the right hand panel or **Properties** palette.
4. Enter the size in the **Parameters** section of the **Resize Options**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

**Note:** Resize a regular polygon using one of the corner edit handles and it will be restricted to its original proportions.

## ***Snap to Grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or resize a regular polygon, the cursor will snap to the nearest grid intersection point.

- Hold down the **Command** key when drawing or editing a regular polygon to avoid the cursor snapping to the grid.

If there is an angular snapping grid set for the document (using the **Layout** menu, and the **Set Angle Snap** option), when you draw a regular polygon, its diameter or radius will snap to the angular grid.

- Hold down the **Shift** key when drawing a regular polygon to avoid its diameter or radius snapping to the angular grid.

## **Drawing circles**

You can draw a circle by its diameter (D), by its radius (R), by three points (3) or concentric to an existing circle.

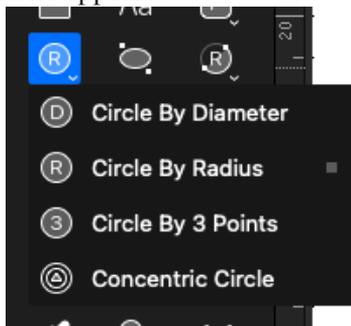
### **Choosing Circle Tools**

Choose how you want to draw circles by selecting one of the tools in the Circle pop-up menu.

#### ***To choose a circle tool***

1. Click the **Circle** icon in the **Drafting Tools** panel/palette and hold down the mouse button.

The **Circle** pop-up menu appears.



2. Holding down the mouse button, drag through the menu until the option you want is highlighted and release the mouse button.

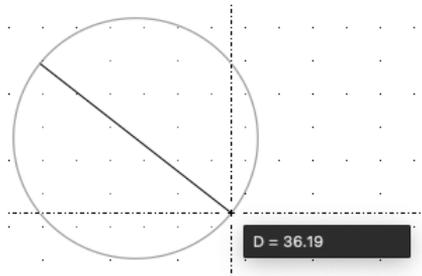
The tool you selected appears in the **Tool** panel.

**Top Tip:** Press the "c" key on the keyboard to cycle through the circle tools quickly. This is a faster way of selecting the individual circle tools.

## Drawing a circle by diameter

### *To draw a circle by diameter*

1. Choose **Diameter** from the **Circle** pop-up menu.
2. Position the cursor at the point you want to begin drawing the circle.
3. Click the mouse button, drag until the circle is the size you want, and release the mouse button to finish.

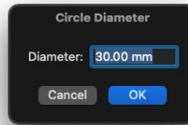


**Note:** Hold down the Shift key while drawing a circle by diameter and the diameter will be restricted to 45° increments.

### *To draw a circle by diameter to a specific size*

1. Choose the **Circle by diameter** tool in the **Drafting Tools** panel/palette.
2. Position the cursor at the point on the drawing that you want to start drawing.
3. Double click the mouse button.

The size dialog will appear



4. Enter the diameter of the circle and click the OK button

The circle will be drawn to the specified diameter.

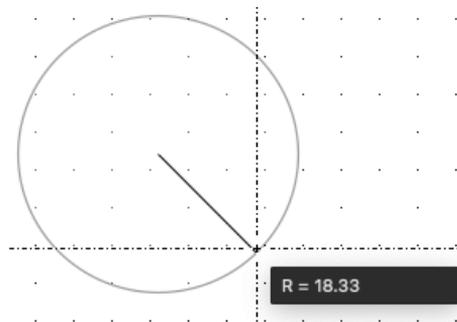
**Note:** To enter a size for drawing a circle you need to have the **Simple Click Does** option in the **Application Defaults** set to **Start Drawing Object**.

## Drawing a circle by radius

### *To draw a circle by radius*

1. Choose **Radius** from the **Circle** pop-up menu.
2. Position the cursor at the point you want the center of the circle to be on your drawing.
3. Click the mouse button, drag until the circle is the size you want, and click the mouse button to finish.

**Note:** Hold down the Shift key while drawing a circle by radius and the radius will be restricted to 45° increments.

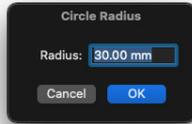


### *To draw a circle by radius to a specific size*

1. Choose the **Circle by radius** tool in the **Tool** panel.

2. Position the cursor at the point on the drawing that you want to start drawing.
3. Double click the mouse button.

The size dialog will appear



4. Enter the radius of the circle and click the OK button

The circle will be drawn to the specified radius.

**Note:** To enter a size for drawing a circle you need to have the **Simple Click Does** option in the **Application Defaults** set to **Start Drawing Object**.

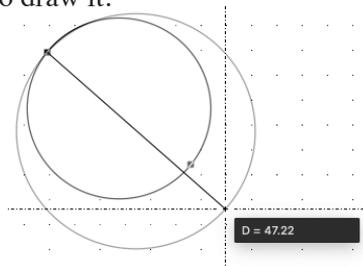
## Changing the size of a circle drawn by diameter or radius

After you have drawn a circle by diameter or radius, you can change its size by dragging one of its edit handles.

### *To change the size of a circle drawn by diameter or radius graphically*

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the circle you want to change.
3. Position the tip of the pointer on one of its handles.
4. Press and hold down the mouse button, drag the handle until the circle is the desired size, and release the mouse button.

The circle will be resized either by diameter or by radius, depending on the tool originally used to draw it.



### ***To change the size of a circle drawn by diameter or radius numerically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the circle you want to change.
3. Go to the **Properties** tab in the right hand panel / **Properties** palette.
4. Enter the size in the **Parameters** section of the **Resize Options**.

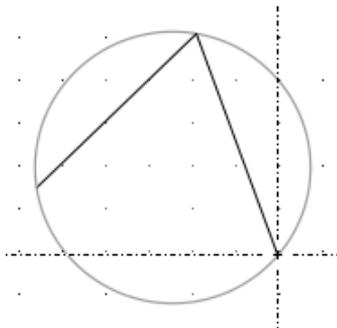
**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line.

### **Drawing a circle by three points**

Use the Circle by three points tool to draw a circle that passes through three specific points on your drawing.

#### ***To draw a circle by three points***

1. Choose the **Circle by three points** tool from the **Circle** pop-up menu in the **Tool** panel.
2. Position the cursor on the first point through which you want the circle to pass and click the mouse button.
3. Move to the second point through which you want the circle to pass and click the mouse button.
4. Move the cursor to the third point through which you want the circle to pass and click this point.



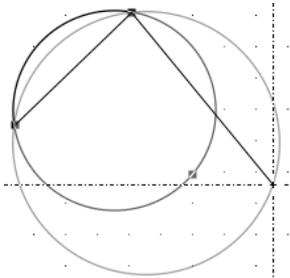
Three edit handles appear on the circle. The edit handles correspond to the three points used to define it.

## Changing the size of a circle drawn by three points

You can change the size of a circle drawn by three points by moving its edit handles.

### *To change the size of a circle drawn by three points graphically*

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the circle you want to resize.
3. Position the cursor on one of the edit handles.
4. Press and hold down the mouse button.
5. Drag until the circle is the size you want and release the mouse button.



The circle will be redrawn to pass through the three points represented by the edit handles.

### *To change the size of a circle drawn by three points numerically*

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the circle you want to change.
3. Go to the **Properties** tab in the right hand panel / **Properties** palette.
4. Enter the sizes in the **Parameters** section of the **Resize Options**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

### ***Snap to Grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or resize a circle drawn by three points, the edit handles will snap to the nearest grid intersection point.

Hold down the **Command** key when drawing or editing a circle to avoid the edit handles snapping to the grid.

### **Drawing concentric circles**

With MacDraft's **Concentric** circle tool, you can create new circles concentric to existing circles (sometimes called offset circles). The concentric circle will be of the same type and have the same line weight, line style and pen model as the original circle.

Concentric circles can be drawn in relation to any existing circle. Once drawn, a concentric circle is an independent circle that can be edited, moved or changed as required.

**Note:** The parent circle for the concentric circle must be in place before you choose the concentric circle tool.

### ***To draw a concentric circle***

Drawing a concentric circle from an existing circle takes two steps: Selecting the parent circle then clicking to specify the distance between the two.

#### **To draw a circle concentric to an existing circle**

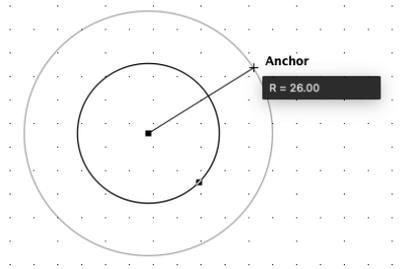
1. Choose the **Concentric** circle tool from the **Circle** tools pop-up menu in the **Drafting Tools** panel/palette.



The cursor will now read 'Click Circle', to let you know that you need to select a parent circle.

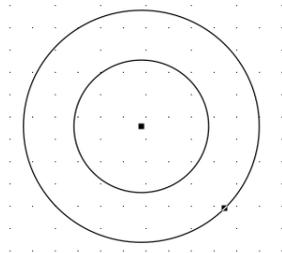
2. Click the parent circle.

The cursor will now read 'Anchor' and appears near a dotted copy of the parent circle to help you judge the distance between them.



3. Move the cursor until the concentric circle is the desired diameter, then click. As you move the cursor, the dotted sketching circle follows it.

The concentric circle is drawn.



The cursor returns to 'Click Circle', to let you draw more concentric circles.

4. To exit the concentric circle tool, click the **Pointer** icon on the **Drafting Tools** panel/palette or click the **Escape** key on your keyboard.

## ***Snap to grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw a concentric circle, the radius of the concentric circle will snap to the nearest grid increment.

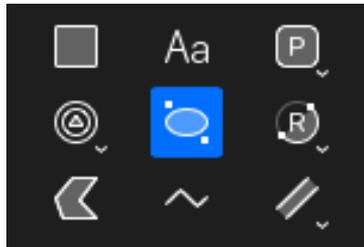
## **Drawing Ellipses**

MacDraft provides two methods of drawing ellipses: diagonal and centered. The two types of ellipses differ in the way you draw and edit the ellipse. The ellipse tools are located in on the **Drafting Tools** panel/palette. When drawn, an ellipse has eight edit handles, four on its circumference and four defining its bounding rectangle.

### **Choosing an ellipse tool**

To choose an ellipse tool

- Click the **Ellipse** tool in the **Drafting Tools** panel/palette.

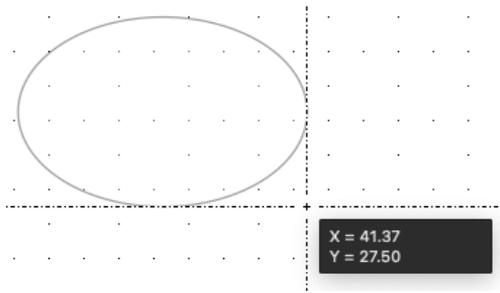


### **Drawing an ellipse**

To draw an ellipse click a starting point and drag until the ellipse is the desired size and shape then release the mouse.

***To draw a diagonal ellipse:***

1. Choose the **Ellipse** tool from the **Drafting Tools** panel/palette.
2. Click the point you want a corner of the ellipse's bounding rectangle to appear on your drawing.
3. Drag in a diagonal direction until the ellipse is the desired size, and click the mouse button to finish.



**Note:** Hold down the Shift key as you draw an ellipse and the shape of the ellipse will be restricted to a circle.

### ***To draw a centered ellipse:***

1. Choose the **Ellipse** tool from the **Drafting Tools** panel/palette.
2. Position the cursor where you want the center of the ellipse to appear on the drawing.
3. Hold down the **Option (alt)** key on the keyboard and press the mouse button.
4. Drag in any direction until the ellipse is the desired size and click the mouse button to finish.

**Note:** Hold down the Shift key as you draw an ellipse and the shape of the ellipse will be restricted to a circle.

### ***To draw an ellipse to a specific size***

1. Choose the **Ellipse** tool in the **Drafting Tools** panel/palette.
2. Position the cursor at the point on the drawing that you want to start drawing.
3. Double click the mouse button.

The size dialog will appear

4. Enter the width and height of the ellipse and click the **OK** button

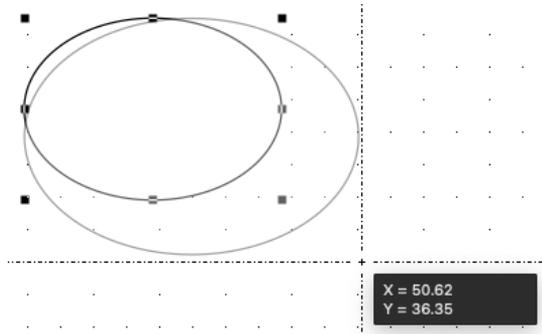
The ellipse will be drawn to the specified size.

## Changing the size of an ellipse

You change the size of an ellipse by dragging one of its eight edit handles.

### *To change the size of an ellipse graphically*

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the ellipse you want to resize.
3. Position the tip of the pointer on one of the edit handles, then press and hold down the mouse button.



4. Holding down the mouse button, drag the handle until the ellipse is the size you want, and release the mouse button.

**Note:** Hold down the Shift key and resize an ellipse using one of the corner edit handles and it will be restricted to its original proportions.

### *To change the size of an ellipse numerically*

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the ellipse you want to change.
3. Go to the **Properties** tab in the right hand panel/properties palette.
4. Enter the sizes in the **Parameters** section of the **Resize & Position**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

## Snap to grid

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or resize an ellipse, the edit handles will snap to the nearest grid intersection point.

Hold down the **Command** key when drawing or editing an ellipse to avoid the edit handles snapping to the grid.

## Drawing Arcs

You can draw circular and elliptical arcs; circular arcs can be drawn by radius or by three points. You can also draw arcs concentric to existing circular arcs.

**Top Tip:** When an arc is drawn with a fill, it appears as an object shaped like a piece of pie. To draw only the arc line, make sure that no objects are selected, then choose no fill from the Fill Color submenu, Fill Gradient and Fill Pattern submenu before you draw the arc.

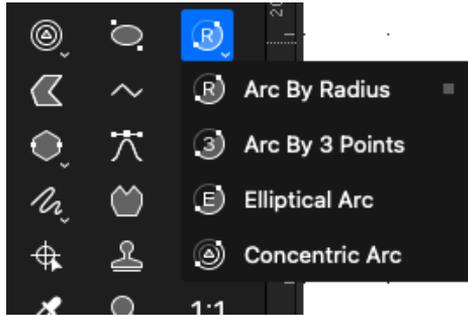
## Choosing an arc tool

Choose the arc tool required from the **Arc** pop-up menu in the **Drafting Tools** panel/palette.

### *To choose an arc tool*

1. Click the **Arc** tool in the **Drafting Tools** panel/palette and hold down the mouse button.

The **Arc** pop-up menu appears.



2. Holding down the mouse button, drag through the menu until the desired tool is highlighted, and release the mouse button.

The icon representing the tool chosen appears in the **Drafting Tools** panel/palette.

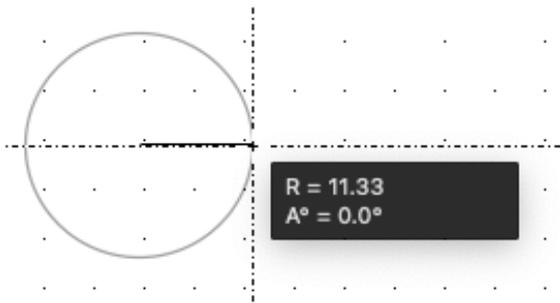
## Arc by Radius

### *Drawing an arc by radius*

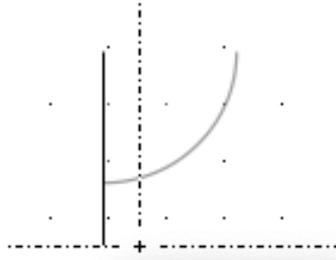
To draw an arc by radius, first define a radius, then project the arc the desired number of degrees around a circle.

**To draw an arc by its radius**

1. Choose **Arc by radius** from the **Arc** pop-up menu in the **Drafting Tools** panel/palette.
2. Position the cursor where you want to begin the radius of the arc, then click the mouse button.
3. Drag in any direction to draw a line that represents the radius of the arc. A ghosted circle will appear to represent the circle radius.



4. Click the mouse button again to place the first arc point.
5. Move the cursor away from the end of the radius line until you have created an arc of the desired number of degrees and click to place the arc end point.

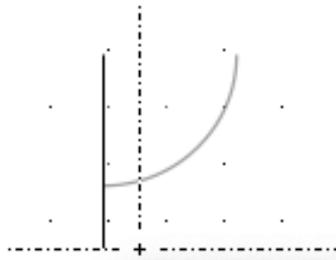


**Note:** If you drag outside the border of the arc, a line extending from the arc's border to the cursor will be drawn. This line allows you to align the ending point of the arc with other points on your drawing. Also hold down the Shift key while defining the arc's radius to restrict the radius to an angle of increments of 45°.

### ***Changing the radius of an arc drawn by radius graphically***

#### **To change the radius**

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the arc you want to change.
3. Position the tip of the pointer on the edit handle in the middle of the arc's border, then press and hold down the mouse button.
4. Drag until the radius is the length you want and release the mouse button.



## ***Changing the length of an arc drawn by radius graphically***

To change the length

1. Return to the pointer mode by clicking the Pointer tool in the **Drafting Tools** panel/palette.
2. Select the arc you want to change.
3. Position the tip of the pointer on one of the handles at either end of the arc, then press and hold down the mouse button.
4. Drag until the arc is the length you want, then release the mouse button.

**Note:** You cannot create a complete circle using the arc tool. If you drag past the beginning of the arc, it will collapse back to a shorter length.

## ***To change the size of an arc numerically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the arc you want to change.
3. Go to the **Properties** tab in the right hand panel/ properties palette.
4. Enter the sizes in the **Parameters** section of **Resize & Position**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

## ***Snap to grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw an arc by radius, the cursor will snap to the nearest grid intersection point.

- Hold down the **Command** key when drawing or resizing an arc drawn by radius to avoid the cursor snapping to the grid.

If there is an angular snapping grid set for the document (using the **Layout** menu,

and the **Set Angle Snap** option), when you draw or edit an arc by radius, the radius line will snap to the angular grid.

- Hold down the **Shift** key when drawing or editing an arc by radius to avoid the radius line snapping to the angular grid.

## Arc by three points

### *Drawing an arc by three points*

When drawing an arc by three points, you specify three points on the drawing through which you want the arc to pass. This tool is useful when you do not know the length of the radius of an arc, but do know that the arc should pass through three different points in a drawing.

#### **To draw an arc by three points**

1. Choose **Arc by 3 points** from the **Arc** pop-up menu in the **Drafting Tools** panel/palette.
2. Position the cursor on the first point through which you want the arc to pass, then click the mouse button.
3. Move to the second point through which you want the arc to pass.
4. Click the mouse button.
5. Move the cursor to the third point through which you want the arc to pass, and click this point.

**Note:** You cannot create a complete circle by using the arc tool. If you drag past the beginning of the arc, it will collapse back to a shorter length.

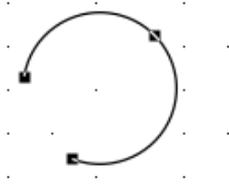
### *Changing the size of an arc drawn by three points graphically*

You can change the size of an arc drawn by three points by moving any one of the three handles that represent the three points originally used to define the arc.

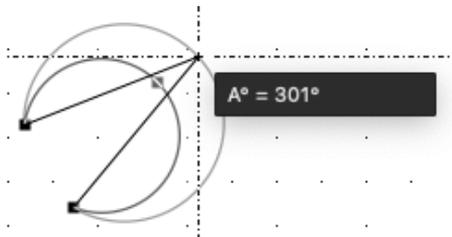
#### **To change the size of an arc drawn by three points**

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.

2. Select the arc you want to resize.
3. Position the tip of the pointer on the edit handle you want to move, then press and hold down the mouse button.



4. Drag the handle to a new location on the drawing.



5. Release the mouse button.

### ***To change the size of an arc by 3 points numerically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the arc you want to change.
3. Go to the **Properties** tab in the right hand panel/properties palette.
4. Enter the sizes in the **Parameters** section of **Resize & Position**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

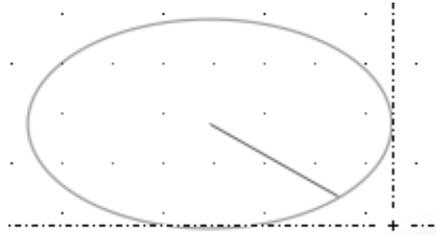
## **Elliptical Arcs**

### ***Drawing an elliptical arc***

You can use the Elliptical Arc tool to create elliptical arcs of a specific size and length. When you create an elliptical arc, you define an ellipse, then project an arc that is a portion of the ellipse. The actual size of the arc is determined by the size of the ellipse and the arc's length is determined by the number of degrees you project it during creation.

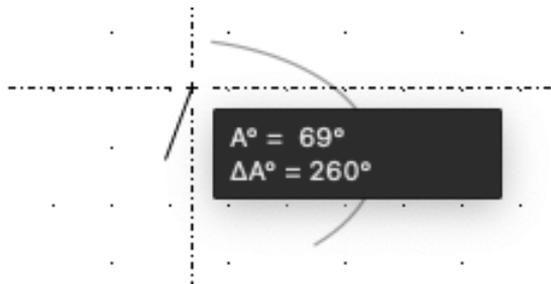
**To draw an elliptical arc**

1. Choose **Elliptical arc** from the **Arc** pop-up menu in the **Drafting Tools** panel/palette.
2. Position the cursor on the point to be used as the center point for the ellipse that will be used to define the arc, then click the mouse button.
3. Drag until you have created an ellipse that is the size and shape you want, and click the mouse button.

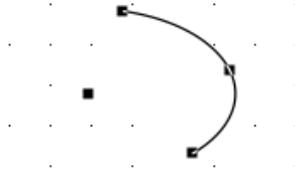


4. Move the cursor until you have projected an arc that is the length you want and click this point.

**Note:** A line will extend from the center of the ellipse to the cursor. This is used to define the ending angle of the arc. If you drag outside the ellipse's border, the line will extend past the ellipse's border; this allows you to align the ending angle of the arc with other points on your drawing.



The elliptical arc will be drawn.



### ***Changing the starting angle of an elliptical arc***

Part of the process of defining elliptical arcs involves defining the starting angle of the arc. The starting angle of the elliptical arc is determined by the position of the cursor when you release the mouse button after defining the initial ellipse, however, by using the **Shift** key to constrain the size of the ellipse, you can change the position of the starting angle without changing the size of the ellipse.

**To change the starting angle of the arc**

1. Choose **Elliptical arc** from the **Arc** pop-up menu in the **Drafting Tools** panel/palette.
2. Position the cursor on the point to be used as the center point for the ellipse that will be used to define the arc, then click the mouse button.
3. Drag until you have created an ellipse that is the size and shape you want, then hold down the **Shift** key.
4. Drag the line that marks the starting angle to a new position.
5. The line marking the starting angle of the arc will follow the cursor's movement, but the ellipse will not be resized.
6. Click the mouse button and the **Shift** key when the line is in the desired position for the starting angle of the arc.
7. Move the cursor until you have projected an arc that is the length you want, then click this place.

### ***Editing an elliptical arc***

There are two ways you can edit an elliptical arc: you can change its shape and you can change its length. When you change its shape, you change the major

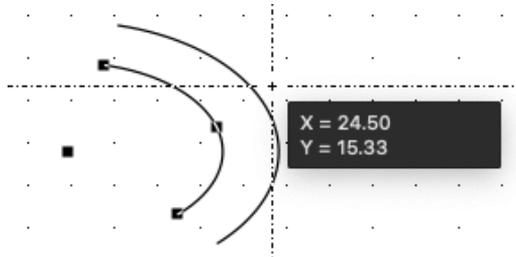
and minor axes of the arc. When you change its length, you either increase or decrease the number of degrees the arc is projected.

### ***Changing the shape of an elliptical arc***

You can change the arc's shape, without moving its end points, by dragging the edit handle in the middle of the arc's border.

#### **To change the shape of an elliptical arc**

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the elliptical arc you want to change.
3. Position the tip of the pointer on the edit handle located in the center of the arc's border, then press and hold down the mouse button.
4. Drag until the arc is the shape you want, and release the mouse button.



### ***Changing the length of an elliptical arc***

You can use the edit handles on the end points of an elliptical arc to change its length.

#### **To change the length of an elliptical arc:**

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the arc you want to change.
3. Position the tip of the pointer on one of the handles at either end of the arc, then press and hold down the mouse button.
4. Drag until the arc is the length you want, and release the mouse button.

### ***To change the size of an elliptical arc numerically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the arc you want to change.
3. Go to the **Properties** tab in the right hand panel/ properties palette.
4. Enter the sizes in the **Parameters** section of **Resize & Position**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

### ***Snap to grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw an elliptical arc, the cursor will snap to the nearest grid intersection point.

- Hold down the **Command** key when drawing or resizing an elliptical arc to avoid the cursor snapping to the grid.

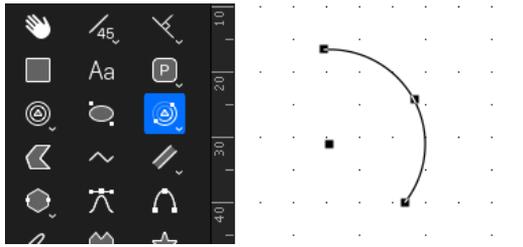
If there is an angular snapping grid set for the document (using the **Layout** menu, and the **Set Angle Snap** option), when you draw or edit an elliptical arc, the line of the ending angle will snap to the angular grid.

- Hold down the **Shift** key when drawing or editing an elliptical arc to avoid the line of the ending angle snapping to the angular grid.

### **Concentric arcs**

Using the Concentric arc tool you can create new arcs that are concentric to existing circular arcs. The concentric arc will be the same type (radial or three-point) and have the same line weight, line style and pen model as the original arc.

Concentric arcs can be created from any circular arc. Once drawn, a concentric arc is an independent object that can be edited, moved or otherwise manipulated as required.



**Note:** The “parent” arc for the concentric arc must be in place before you choose the Concentric arc tool.

### ***Drawing a concentric arc***

Drawing a concentric arc requires two steps: selecting the source arc and specifying the offset distance.

#### **To draw an arc concentric to an existing arc**

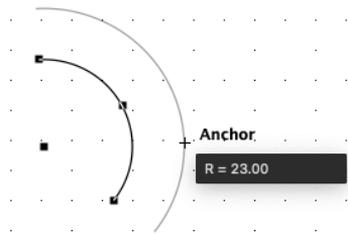
1. Choose the **Concentric arc** tool from the **Arc** pop-up menu.

The cursor now reads “Click Arc”, to let you know to select an arc.

2. Click the source arc.

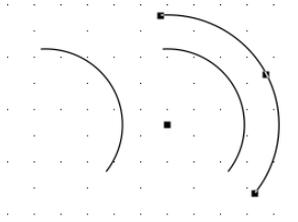
The cursor now reads “Anchor” and appears near a ghosted copy of the source arc, which helps you to position the concentric arc.

3. Move the cursor until the concentric arc is in the desired position.



As you move the cursor, the ‘ghost’ arc gets larger or smaller.

Once the concentric arc is drawn. The cursor returns to “Click Arc”, allowing you to create more concentric arcs if desired.



**Note:** To exit the Concentric arc tool, click the Pointer icon in the Tool panel or press the Escape key on the keyboard. Also note that concentric arcs once drawn can be editing graphically or numerically using in the same way as normal arcs.

### ***Snap to grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw a concentric arc, the radius of the arc will snap to the nearest grid increment.

To change the increment, choose a different value from the **Layout** menu's **Set Grid** submenu.

## **Drawing irregular polygons and polylines**

You can draw two types of multi sided irregular shapes: closed polygons and open polylines. Drawing irregular polygons and polylines is discussed in this section.

A polygon is a closed object made of three or more sides. It can be a complex, irregularly shaped object made up of many straight line segments. A polyline is an open object made of at least two straight line segments. The line segments used for either type of object can be of any length and drawn at any angle.

### **Choosing polygon tools**

The type of multisided shape you can draw depends on the tool you choose from the **Drafting Tools** panel/palette.

#### ***To choose a polygon tool***

- Click the **Polygon** tool you want to use in the **Drafting Tools** panel/palette.

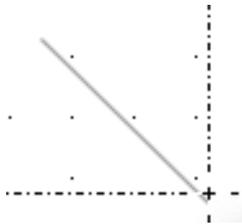


## Drawing an irregular polygon or polyline

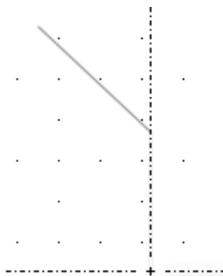
To draw an irregular polygon or polyline, you position the cursor and click to define the end points of the lines that make up the shape.

### *To draw an irregular polygon or a polyline*

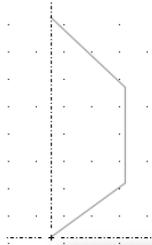
1. Choose the **Irregular polygon** or **Polyline** tool from the **Drafting Tools** panel/palette.
2. Place the cursor at the point you want to begin drawing the object, then click the mouse button.
3. Move until you have created a line that is the desired length and angle for the first side or line segment of the object.



4. Click the mouse button.
5. Move the cursor to draw the second line segment.



6. When the second line is the desired length and angle, click this point.
7. Move the cursor to draw the next line segment.



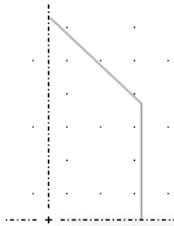
8. When the line is the desired length and angle, click the mouse.

You may decide that you want to change a line segment after you have drawn it. You can change the length and orientation of the last line segment drawn by using the dynamic Editing feature.

9. To change the last line segment drawn, move the cursor back to the last defined point and click it.

The previous line will reattach to the cursor, allowing you to move the end of the line to a new position on the drawing.

10. Move the cursor to a new position on the drawing and click it.



The line will be drawn to the new position.

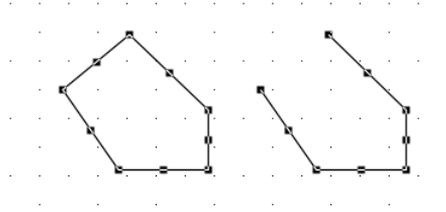
11. Continue to draw the rest of the object.

**Note:** You can also press the Backspace (Delete) key to delete the last point placed.

12. When you reach the last point to be placed, double-click the point.

This double-click action completes the object.

- If you are drawing an irregular polygon, the last point you clicked will be connected to the starting point of the shape by a straight line.
- If you are drawing a polyline, the object remains open.



**Note:** Hold down the Shift key while drawing an irregular polygon or polyline and the angle of the current line segment will snap to increments of 45°. The final point of a polyline can be snapped to the mid point, end point or center point of some existing objects by holding the C, M and E keys or by using the Smart Snap feature.

## Changing the shape of an irregular polygon or a polyline

Irregular polygons and polylines, like other objects, have handles when they are selected. Unlike most objects, they have two different kinds of handles: major (the handles on the vertex points or corners) and minor (the handles at the mid points of the line segments).

A major handle is used to move the end point of a line, which could change both the length and angle of the lines connected at that handle. A minor handle is used to move a line segment without changing its length or angle.

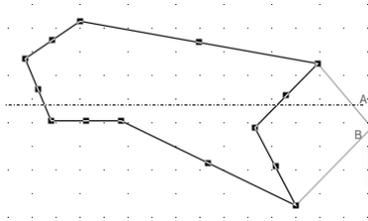
### *Changing the shape using the major handles*

To change the shape using the major handles

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the irregular polygon or polyline you want to change.
3. Position the tip of the pointer on one of the major handles, then press and hold down the mouse button.
4. Drag the handle to a new location on the drawing, and release the mouse button.

When you move the handle, the connecting lines will follow. As soon as you

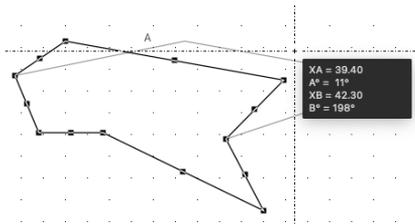
release the mouse button, both lines will be redrawn according to the new handle location.



### ***Changing the shape using the minor handles***

To change the shape using the major handles

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the irregular polygon or polyline you want to change.
3. Position the tip of the pointer on one of the minor handles, then press and hold down the mouse button.
4. Drag the handle to a new location on the drawing, and release the mouse button.



As you drag the minor handle, the line moves, but its length and angle remain the same.

### ***Changing the shape numerically***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the irregular polygon or polyline you want to change.
3. Go to the **Properties** tab in the right hand panel/ properties palette.
4. Click the Select Point button below the **Parameters** section of the **Resize**

**& Position Options** and click one of the points on the irregular polygon or polyline.

5. Enter the sizes in the **Parameters** section of the **Resize & Position Options**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

## Snap to grid

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or edit an irregular polygon or polyline, the ends of the line segments or the edit handles will snap to the nearest grid intersection points.

- Hold down the **Command** key when drawing or editing an irregular polygon or polyline to avoid the lines or edit handles snapping to the grid.
- Hold down the **Option** key when drawing an irregular polygon or polyline and the line lengths will snap to the nearest grid increment.

If there is an angular snapping grid set for the document (using the **Layout** menu, and the **Set Angle Snap** option), when you draw an irregular polygon or polyline, the line segments will snap to the angular grid.

- Hold down the **Shift** key when drawing an irregular polygon or polyline to avoid the line segments snapping to the angular grid.

## Drawing freehand lines, shapes and curves

At times you may want to draw an object that has a different shape to those provided for you in the **Drafting Tools** panel/palette. For this reason, five freehand drawing tools are provided: Smooth Freehand lines, Polygonal Freehand lines, Freehand shapes, Bezier curves and Spline curves.

- The **Smooth Freehand lines** tool is used to draw open freehand objects with smooth curves.

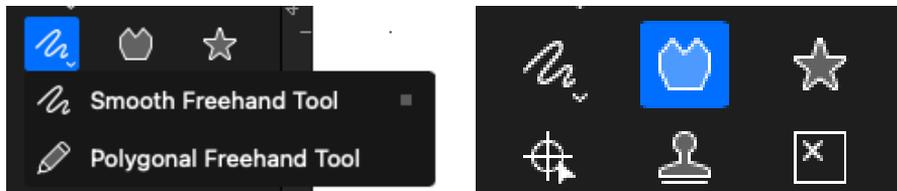
- The **Polygonal Freehand lines** tool is used to draw open freehand objects with small straight lines.
- The **Freehand shape** tool is used to draw closed freehand objects.
- The **Bezier curve** tool is used to draw curves that are defined by four control points. The curve passes through only two of the control points, the other two control points are used to define the shape of the curve.
- The **Spline curve** tool is used to draw curves that are fitted to a series of defined points on your drawing. The curve passes through all the defined (or control) points.

## Choosing a freehand drawing tool

Draw either an open freehand line (smooth or polygonal), a closed freehand shape, a Bezier curve or a spline curve by choosing the appropriate tool from the **Drafting Tools** panel/palette.

### *To choose a freehand drawing tool*

- Click the **Freehand** drawing tool you want to use in the **Tool** panel.



## Freehand lines or shapes

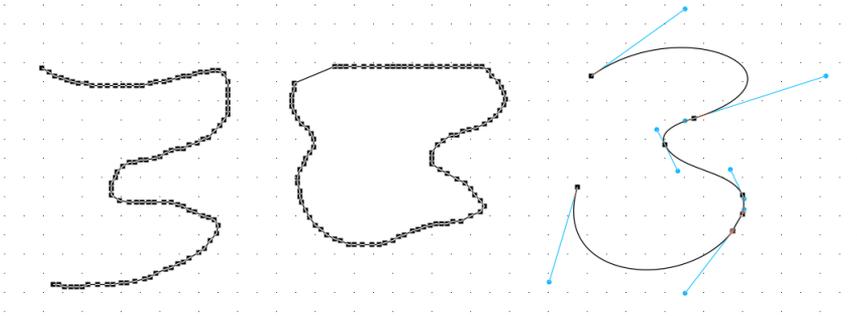
### *Drawing a freehand line or shape*

To draw a freehand line or shape

1. Choose the **Smooth Freehand line**, **Polygonal Freehand line**, or **Freehand**

**shape** tool from the **Drafting Tools** panel/palette.

2. Position the cursor at the point you want to begin drawing, then press and hold down the mouse button.
3. Drag the cursor in any direction, creating a line just as you would with a pencil.
4. When you have completed the smooth freehand line, polygonal freehand line or freehand shape, release the mouse button.
  - If you are using the **Smooth or Polygonal Freehand line** tool the object remains open.
  - If you are using the **Freehand shape** tool, the start and end points of your freehand line will be automatically joined by a straight line.



### ***Correcting a freehand line or shape while drawing***

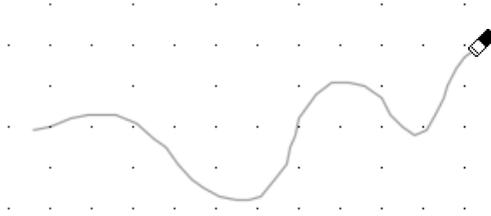
When you are using the **Smooth or Polygonal Freehand line** or the **Freehand shape tool**, you can erase portions of the line that you are drawing by using the **Shift** key.

#### **To correct a freehand line**

1. When you have made an error while drawing a freehand line, continue to hold down the mouse button, but stop drawing the line by ceasing to move the mouse.
2. Press and hold down the **Shift** key.

An icon of an eraser appears at the end of your freehand line.
3. Using the mouse to move the eraser, retrace the portion of the line that you

want to delete. The line will be erased.



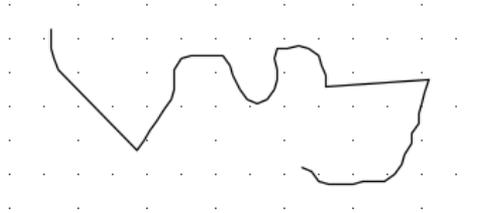
4. Release the **Shift** key to continue drawing the object.

### ***Drawing a straight line as part of a freehand object***

The constrained drawing mode for a freehand tool allows you to draw straight line segments as part of a freehand object.

**To draw a straight line as part of a freehand object**

1. Start drawing an object using the **Polygonal Freehand line** or **Freehand shape** tool.
2. When you want to draw a straight line, hold down the **Option** key and drag the cursor in any direction until you have created a straight line that is the required length.



3. Release the **Option** key.

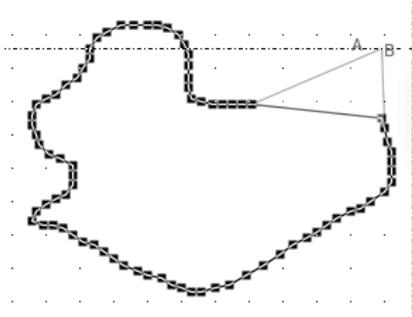
### ***Changing the shape of a freehand object***

You can drag the edit handles of a freehand object to change its shape.

**To change the shape of a freehand object**

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.

2. Select the freehand object you want to change by clicking it.
3. Position the tip of the pointer on one of its edit handles, then press and hold down the mouse button.
4. Drag the handle until you have created the shape you want, and release the mouse button.

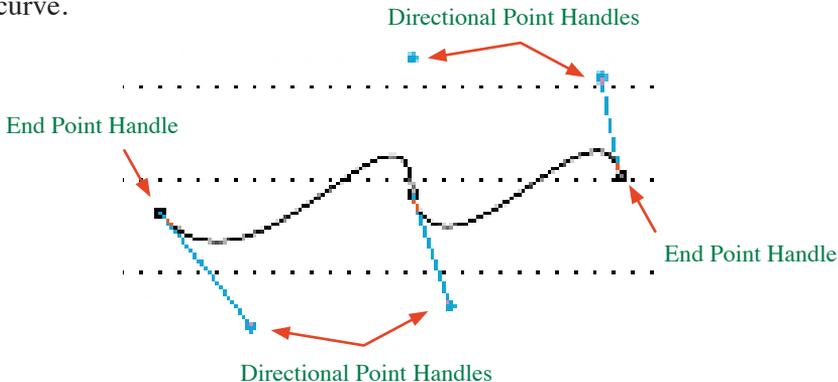


5. Continue to move other edit handles in the same way until you have obtained the shape you want.

## Bezier curves

Drawing using the **Bezier curve** tool gives you a great deal of flexibility in creating original designs that feature elegant shapes and loops.

A **Bezier curve** is a type of curve defined by four points, called “control points.” Two control points define the end points of the curve, the others define the direction in which the curve is projected. When you select a **Bezier curve**, the four control points are represented by edit handles on the screen: two handles appear on the end points of the curve and two other handles appear on either side of the curve.



The two handles on the end points are called “end point handles,” and the other two handles are called “direction point handles.” You can move the handles to modify and change the size of the Bezier curve.

When you create a **Bezier curve**, direction lines are used to indicate the slope and direction of the curves you draw. A direction line is a line between two control points, and is tangent to an end point.

You can draw a series of **Bezier curves** using the **Bezier curve** tool. Each individual curve actually passes through only the two end control points. The direction lines define the overall shape of the curve. When you draw a series of curves, the curves are connected at “joints” or end control points that are shared by two curves.

### **Creating Bezier curves**

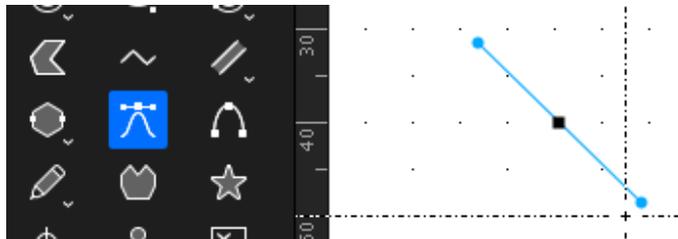
1. Choose the **Bezier curve** tool from the **Drafting Tools** panel/palette.



2. Position the cursor at the point you want the curve to begin, then press and hold down the mouse button.

This defines the first end control point of the curve.

3. Drag in the direction you want to project the curve.



A line with a handle at either end will be projected, the curve’s start point being at the center of the line. This is a direction line. One of the handles will be attached to the cursor. By dragging the handle, you indicate the direction

and slope of the curve. For example, if you drag the handle down all the way to the lower right corner of the screen, a curve sloping toward the lower right corner will result.

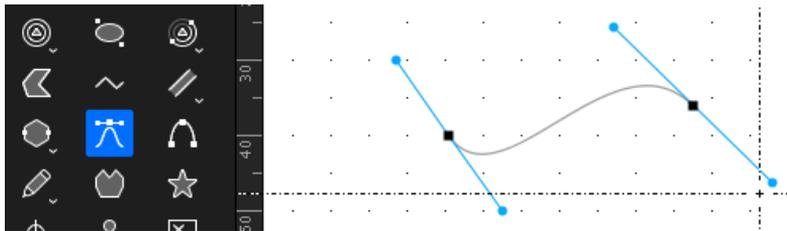
4. Release the mouse button.

The position of the cursor when you release the mouse button defines the first direction point.

5. Without pressing down the mouse button, move the cursor to the point you want the second end control point (the end point of the first curve and the start point for a next curve) to be, then press and hold down the mouse button. As you move the cursor the curve appears on the screen.
6. Holding down the mouse button, drag to define the curve's second direction point (this will also define the first direction point of the next curve).

The first direction point of the next curve is associated with the handle that is attached to the cursor. The second direction point of the first curve is associated with the handle at the opposite end of the direction line.

The curve's shape will change as you define the second direction point.



7. Release the mouse button.
8. To continue drawing curves, repeat steps six and seven above.
9. When you are ready to complete the shape
  - When you have defined the control handle for the curve's final point, double-click to complete the shape or,
  - Move the mouse to the start point and the cursor will change to show a small circle. When that cursor appears, double click to create a closed Bezier curve shape.

**Top Tip:** You can end a Bezier curve at any time with a curve, simply drag out a curve you want to finish with, then hold the Option key down on the keyboard and double click the previous point to finish the shape and remove unwanted handles.

### ***Correcting a Bezier curve while drawing***

When you are using the **Bezier curve** tool, you can erase portions of the curve that you are drawing by using the **Backspace** key.

**To correct a Bezier curve**

- When you have made an error while drawing a Bezier curve, press the **Backspace** key.
- The previous bezier point will be removed from the curve.

### ***Drawing straight line segments***

While drawing Bezier curves, you can draw straight line segments by clicking the mouse button instead of dragging the cursor with the mouse button held down.

**To create a straight line segment**

1. While drawing a Bezier curve, and after you have drawn at least one complete curve, move the cursor and click the new place.  
The resulting line will be curved, but the next line will be straight.
2. Without pressing and holding down the mouse button, move the cursor to where you want the end point of the line to be, then click this point.
3. Continue moving the cursor and clicking to create a series of straight lines.

**Note:** Hold the Shift key down while drawing to constrain to a 45 degree angle.

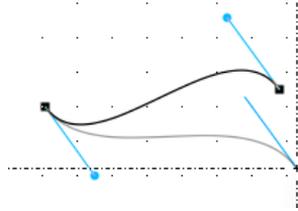
### ***Modifying Bezier curves***

You can modify a Bezier curve by dragging the edit handles. Edit handles appear on Bezier curves that are selected. When you move the end point handles, you

move the end point of the curve; when you drag a direction handle, it exerts a “pull” on the curve closest to it and so changes its shape.

### ***To move the end point of a Bezier curve***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.



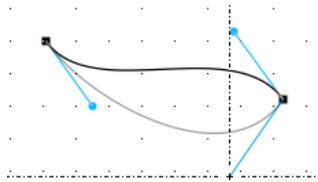
2. Select the Bezier curve object you want to change by clicking it.

Edit handles appear on the selected curve.

3. Position the tip of the pointer on one of the handles at either end of the curve, then press and hold down the mouse button.
4. Drag until the curve is the length you want, and release the mouse button.

### ***To change the shape of a Bezier curve***

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.



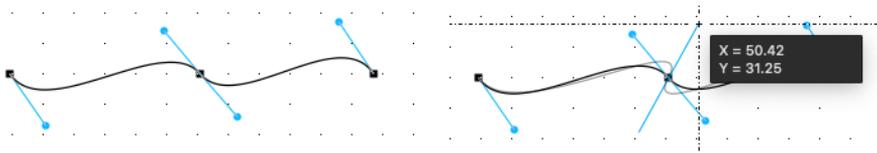
2. Select the Bezier curve object you want to change by clicking it.

Edit handles appear on the selected curve.

3. Position the cursor on one of the direction handles, then press and hold down the mouse button.
4. Drag until the curve is the shape you want, and release the mouse button. The curve will be reshaped to reflect the new position of the direction handle.

**Note:** Hold down the Shift key while selecting and moving the direction handle, and the direction handle and its opposite direction handle will pivot around the point on the curve. This will change the shape of the two curves controlled by those two direction control points, and will keep the curve smooth.

If you drag a direction handle for the end point of a straight line segment, you reshape the straight line segment, causing it to become curved. You can create sharp corners on a Bezier curve by pulling both direction handles to one side or by dragging the direction handles of a direction line on top of an end control point.



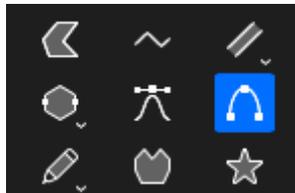
**Top Tip (Pro Version Only):** You can add and remove handles on a Bezier curve after it has been finished, by using the Add/Remove handles tool in the Advanced Tools section of the Tool panel.

## Spline curves

You can draw a type of curve that passes through a series of defined points on your drawing. This type of curve, called a spline curve, allows you to pick a series of points on a drawing and fit a curve to those points.

### *To draw a spline curve*

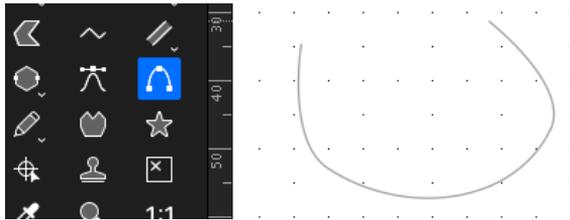
1. Choose the **Spline curve** tool from the **Drafting Tools** panel/palette.



2. Position the cursor at the point you want the spline curve to start, then click the mouse button.
3. Move until you reach the point through which you want the curve to pass.
4. Click the mouse button again.

A straight line appears between the starting point and the cursor to show you the slope of the curve segment.

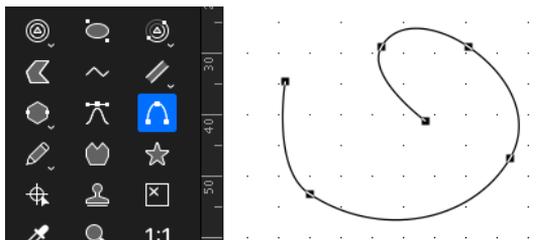
5. Move the cursor to the next point you want the curve to pass through and click it. A curve will be drawn through the three points defined so far.



6. Continue moving the cursor and clicking the mouse button until you have defined all the points the curve is to pass through.

**Note:** Press the Backspace (Delete) key at any time to delete the last point placed.

7. When you reach the last point, to complete the spline curve double-click to place the final point.



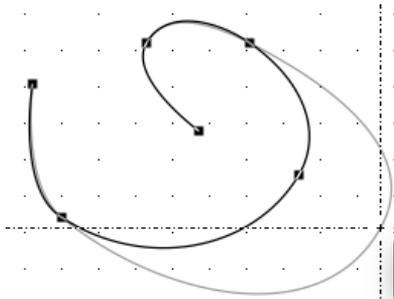
**Note:** To make the spline curve a closed object, finish the curve on the starting point

### ***Changing the shape of a spline curve***

You can change the shape of a spline curve by dragging its control points.

### To change the shape of a spline curve

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the spline curve object you want to change by clicking it.
3. Position the cursor on one of the edit handles (the edit handles represent the control points that were used to define the curve), then press and hold down the mouse button.
4. Drag to reposition the control point and modify the curve.



5. When the curve is the shape you want, release the mouse button.

**Top Tip (Pro Version Only):** You can add and remove handles on a Spline curve after it has been finished, by using the Add/Remove handles tool in the Advanced Tools section of the Tool panel.

## Drawing special lines

MacDraft provides a selection of special line tools to make it easy to draw lines in relation to existing objects. Lines can be drawn perpendicular to existing lines or edges; from the mid, end and center points of existing objects; at a tangent to, or at a tangent between, existing circles or arcs; offset from existing lines.

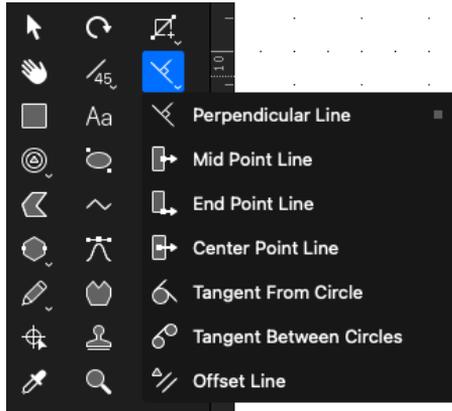
### Choosing special line tools

To draw a perpendicular line; a mid point, end point, or center point line; a tangent line; or an offset line, choose the appropriate tool from the **Special line** tools pop-up menu in the **Drafting Tools** panel/palette.

## To choose a special line tool

1. Click the **Special line** tool in the **Drafting Tools** panel/palette, then press and hold down the mouse button.

The **Special line** tools pop-up menu appears.



2. Drag until the desired tool is highlighted.
3. Release the mouse button and the icon representing the special line tool chosen appears in the panel.

## Perpendicular lines

The Perpendicular line tool is used for drawing lines perpendicular to existing lines, or perpendicular to the edges of polygons, circles, circular arcs or square-cornered rectangles.

Once a perpendicular line is drawn, it becomes a normal unconstrained line. You can edit it, resize it, or move it away from its original position.

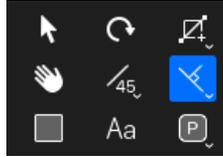
**Note:** The “anchoring” object for the perpendicular line must be in place before you choose the Perpendicular tool.

Drawing a line perpendicular to an existing object takes two steps: selecting the object to draw the line perpendicular to and specifying the end point.

### *Drawing perpendicular lines*

### To draw a line perpendicular to an existing object

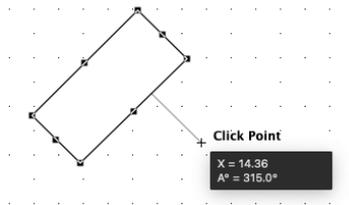
1. Choose the **Perpendicular line** tool from the **Special line** tools pop-up menu in the **Drafting Tools** panel/palette.



The cursor will now read “Click Line/Arc”, to let you know that you need to select a line, circular arc or the edge of an object.

2. Click the line, arc or object edge that the line is to be drawn perpendicular to.

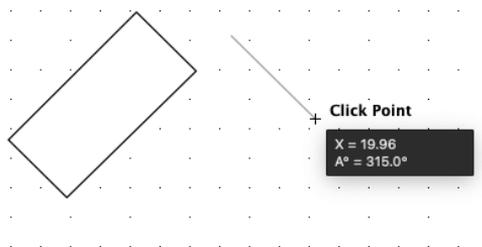
The cursor will now read “Click Point”, to let you know that you need to select an end point for the perpendicular line.



3. Move the cursor to the point where you want the perpendicular line to end.

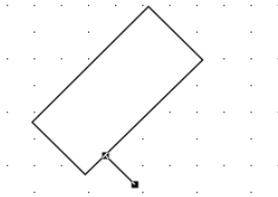
The perpendicular line’s starting point slides along the anchoring edge or line as you move the cursor.

**Note:** It is possible to draw a perpendicular line from a point not on the original shape, but on an invisible line or circle extended from it.



4. Click to specify the end point of the line.

The perpendicular line is then drawn.



### **Snap to grid**

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw a perpendicular line, the end of the line will snap to the nearest grid intersection point.

- Hold down the **Command** key when drawing a perpendicular line to avoid the line snapping to the grid.
- Hold down the **Option** key when drawing a perpendicular line and the line length will snap to the nearest grid increment.

### **Mid point, end point and center point lines**

The **Mid point**, **End point** and **Center point line** tools are used to draw lines from the mid point, or end point of an existing straight edge or circular arc, or from the center of an existing object. These tools are found in the **Special line** tools pop-up menu in the **Drafting Tools** panel/palette.

Once a line is drawn with a **Mid point**, **End point** or **Center point line** tool, it becomes a normal unconstrained line and can be edited, resized and moved.

The **Mid point** and **End point line** tools can be used with straight-edged objects (lines, polylines, polygons and square-corner rectangles) and circular arcs. Any of these objects can be part of a group. The Center point line tool can be used with any individual shape.

**Note:** The “anchoring” object for the line must be in place before you choose the Mid point, End point or Center point line tool.

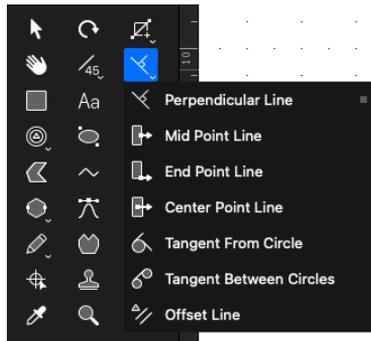
## Drawing Mid point, End point and Center point lines

Drawing a line from the mid, end or center point of an existing object takes two steps: selecting the object to draw the line from and specifying the end point.

All of these lines are drawn in the same way.

**To draw a line from the mid, end or center point of an existing object**

1. Choose the **Mid, End or Center point line** tool from the **Special line** tools pop-up menu in the **Drafting Tools** panel/palette.



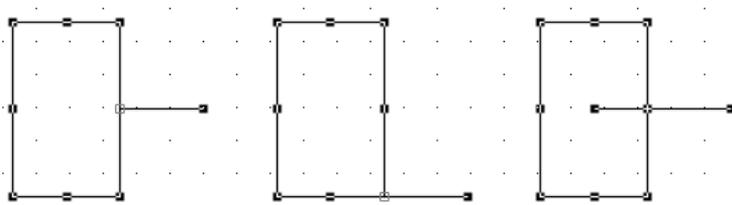
The cursor will now read “Click Line/Arc” or “Click Object”, to let you know that you need to select a line, edge, circular arc or object.

2. Click the line, edge arc or object that the line is to be drawn in relation to.

The cursor will now read “Click Point”, to let you know that you need to select an end point for the line.

3. Move the cursor to the point where you want the line to end.
4. Click to specify the end point of the line.

The line will be drawn.



**Note:** The final point of a mid point, end point or center point line can be snapped to the mid point, end point or center point of some other existing objects.

### ***Snap to grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw a mid, end or center point line, the end of the line will snap to the nearest grid intersection point.

- Hold down the **Command** key when drawing a mid, end or center point line to avoid the line snapping to the grid.
- Hold down the **Option** key when drawing a mid point, end point or center point line and the line length will snap to the nearest grid increment.

## **Tangent Lines**

MacDraft provides two ways to draw tangent lines from circles and circular arcs. The **Tangent from** tool draws a tangent from a circle or arc to any point, and the **Tangent between** tool draws a tangent from one circle or arc to another. Both of these tools are located in the **Special line** tools pop-up menu in the **Drafting Tools** panel/palette.

Once a tangent is drawn, it becomes a normal unconstrained line. You can edit and resize it or even move it away from its original position if necessary.

**Note:** The circles or arcs the tangent line is to be drawn in relation to must be in place before you choose a tangent line tool.

### ***Drawing a tangent from a circle or arc to a point***

Drawing a tangent from a circle or arc to a point involves two steps: selecting the object the line is to be drawn at a tangent to, then specifying the end point for the tangent line.

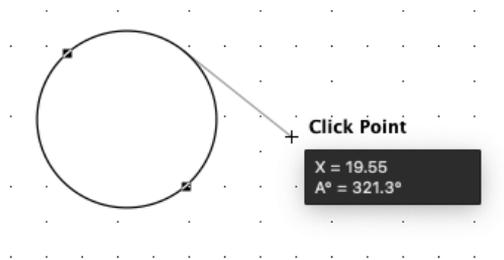
**To draw a tangent from a circle or arc to a point**

1. Select the **Tangent from** tool from the **Special line** tools pop-up menu in the **Drafting Tools** panel/palette.



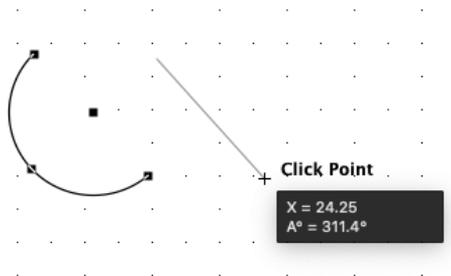
The cursor now reads “Click Circle/Arc”, to let you know that you need to select a circle or an arc.

2. Click the circle or arc.
3. The cursor now reads “Click Point,” to let you know that you need to select an end point for the tangent line.

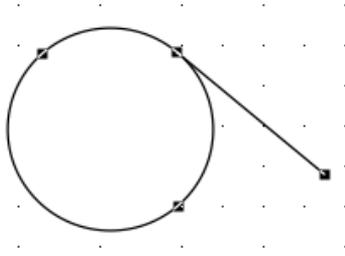


Move the cursor; the tangent's starting point slides around the circle or arc.

**Note:** When drawing a tangent line from an arc, it is possible to draw a tangent line from a point not on the visible arc, but on its “invisible circle.”



4. Position the cursor on the point you want the tangent line to end and click it.  
The tangent line is drawn.



**Note:** Normally the tangent will be drawn clockwise away from the arc or circle. You can draw the tangent counterclockwise by holding down the Option key before selecting the circle or arc, and keeping the Option key held down until the end point is specified.

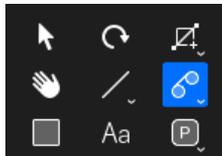
### ***Drawing a tangent between circles or arcs***

Drawing a tangent from a circle or arc to another circle or arc involves two steps: selecting the first object, then selecting the second object.

The tangent's final position depends on which half of each object you click.

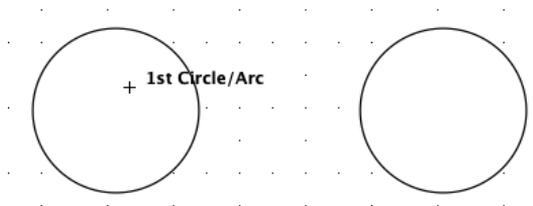
#### **To draw a tangent from a circle or arc to another circle or arc**

1. Choose the **Tangent between** tool from the **Special line** tools pop-up menu in the **Drafting Tools** panel/palette.



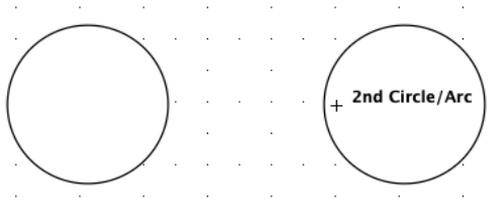
The cursor now reads “1st Circle/Arc”, to let you know that you need to select a circle or an arc.

2. Click the circle or arc near the desired starting point for the tangent.



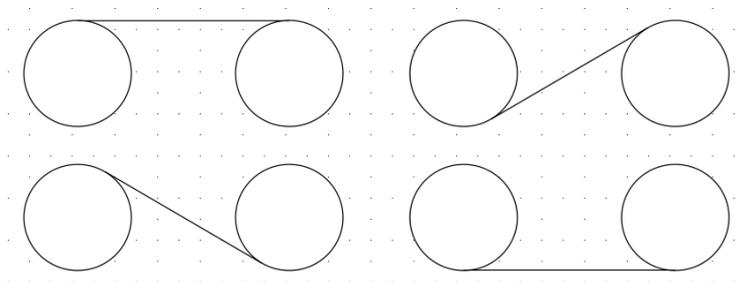
The cursor now reads “2nd Circle/Arc”, to let you know that you need to select another object.

3. Move the cursor to the other object the tangent is to be drawn to and click close to the point you want the tangent line to end.



The tangent line is drawn.

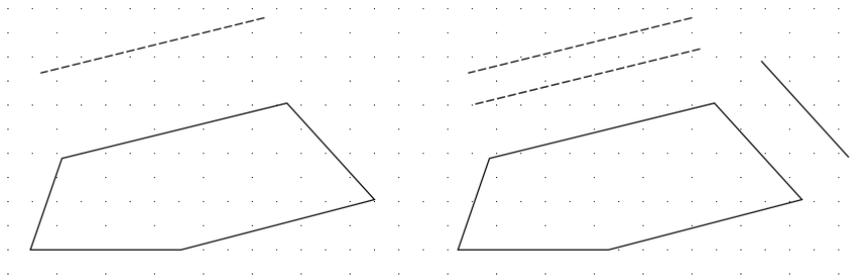
**Note:** The final path of the tangent is determined by which half of each object you select. For any pair of circles or arcs, there are four possible tangent arrangements, as shown below.



## Offset Lines

MacDraft’s **Offset line** tool is used to create single lines parallel to existing straight lines or edges. The offset line will have the same length, angle, line weight, line style and pen model as the original line or edge.

Offset lines can be created from any straight line or from any edge of a polygon, polyline or square-cornered rectangle. Once drawn, an offset line is an independent straight line object that can be edited, moved or otherwise manipulated as required.



**Note:** The “parent” object for the offset line must be in place before you choose the offset line tool. Also Parallel line objects can be created using the Parallel line tools.

### ***Drawing an offset line from an existing object***

Drawing an offset line from an existing object involves two steps: selecting the source line or edge and specifying the offset distance.

**To draw an offset line from an existing object**

1. Select the **Offset line** tool from the **Special line** tools pop-up menu in the **Drafting Tools** panel/palette.

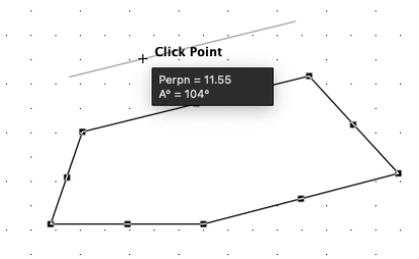
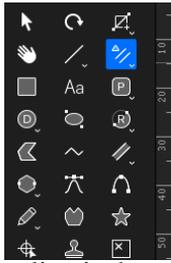


The cursor now reads “Click Line/Edge”, to let you know that you need to select a line or the straight edge of an object.

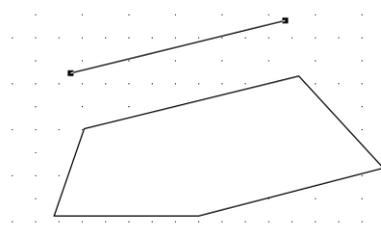
2. Click the line or edge.

The cursor now reads “Click Point” and appears near a dotted copy of the source line, helping you to determine the offset distance.

3. Move the cursor to the desired position for the offset line and click it.



The offset line is drawn.



The offset is a normal unconstrained line, which you can edit as needed. You can also use it as the base for a new offset line.

4. To exit the **Offset line** tool, click the **Pointer** icon in the **Drafting Tools** panel/palette or press the **Escape** key on your keyboard.

### ***Snap to grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw an offset line, the offset distance for the line will snap to the nearest active grid line.

- Hold down the **Command** key when drawing an offset line to avoid the offset distance for the line snapping to the grid.
- Hold down the **Option** key when drawing a line and the offset distance for the line will snap to the nearest grid increment.

## **Drawing parallel line objects**

MacDraft's **Parallel line** tools are used to draw single sets of parallel lines or polygons and polylines with double lines. You can use parallel lines to create drawings of such things as walls, beams and frames. Various options can be set to specify how the parallel lines should be drawn.

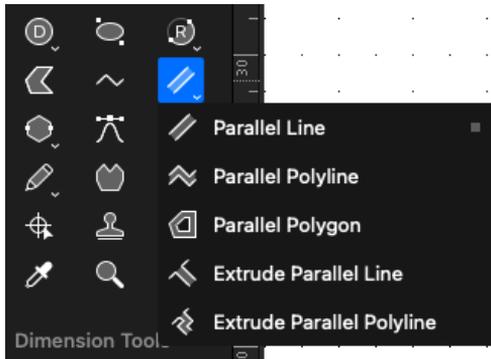
## Choosing parallel line tools

You can use parallel line tools to draw a single set of straight lines, polylines or polygons, parallel line objects can also be extruded from existing straight edged objects. The appropriate parallel line tool is chosen from the **Parallel line** tools pop-up menu in the **Drafting Tools** panel/palette.

### *To choose a parallel line tool*

1. Click the **Parallel line** tool in the **Drafting Tools** panel/palette, then press and hold down the mouse button.

The **Parallel line** tools pop-up menu appears.



2. Drag until the desired tool is highlighted.
3. Release the mouse button.

The icon representing the tool chosen appears in the panel.

## Parallel line tool options

Various options (alignment, end caps, line joints and distance between lines) can be set for parallel line objects. These options are found in the Parallel Line Options panel that appears at the top of the drawing when the tool is selected.



The parallel line tool options can be set as defaults to be used for all parallel objects drawn, existing parallel lines can be edited using the Properties panel/properties palette.

**Note:** Parallel line options for extruded parallel line objects can be edited using the Parallel Line Options in the Properties panel.

### ***Setting default parallel line tool options***

To set parallel line tool options to be used for all parallel line objects drawn

1. Ensure that nothing is selected on the drawing.
2. Select one of the **Parallel line** tools in the **Drafting Tools** panel/palette.

The Parallel Line options appear at the top of the drawing area.

3. Set the various options as desired. A complete description of the options available and their effects on parallel line objects follows later in this section.

The options set will be used for all parallel line objects drawn.

### ***Setting parallel line tool options for selected objects***

To set parallel line tool options for selected objects

1. Select the parallel line object you wish to change the attributes of.
2. Select the **Properties** tab in the **right-hand** panel/properties palette and scroll down to the **Parallel Line Options**.
3. Set the various options as desired. A complete description of the options available and their effects on parallel line objects follows later in this section.

The selected object will be changed to reflect your choices.

**Note:** To change the thickness of individual parallel lines, click the "Select Segment" button, select the parallel line (hold Shift to select more than one), then change the value in the thickness text box. Press Escape to exit editing.

### ***Alignment***

There are three alignment choices for parallel line objects: left, center and

right. The alignment options are represented by three icons in the **Parallel Line options**. The small arrow indicates what part of the line is active.



Select the desired option by clicking the appropriate icon in the **Alignment** section of the **Parallel Line options**.

Alignment controls how parallel lines, polylines and polygons are drawn and how editing affects them. Specifically, the alignment options determine what is the leading edge of the parallel line object and what part of the shape is active. For example, when align left is the current option, the left parallel line will be drawn on the grid and edit handles appear on the left line when the parallel lines are selected.

### ***How the alignment options affect parallel lines***

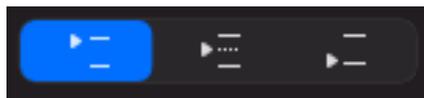
#### **Align Center**

When **Align Center** is on, the cursor appears between the lines during drawing. The center of the two lines will lie on the grid. When the parallel lines are selected, the edit handles appear between the ends of the line segments.



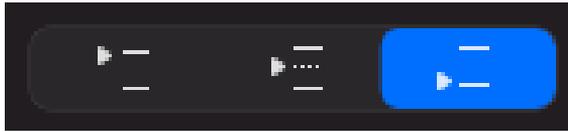
#### **Align Left**

The **Align Left** option is used to specify which of the parallel lines is active. The active line is the one that lies on the grid and is used to edit the shape. If you draw parallel lines while the **Align Left** option is on, the active line is determined by the direction you first drag during the creation of the shape. In general, if you drag up, the left line is active. If you drag down, the right line is active.



#### **Align Right**

As with **Align Left**, the **Align Right** option determines which of the two lines is active. When the **Align Right** option is on, the direction in which you first drag during creation determines which line is active. In general, if you drag up, the right line is active. If you drag down, the left line is active.



### Alignment and parallel polylines

The active alignment option determines how the parallel lines pivot around each ending point. When you define the ending point for a side, the end point of the active line (or the center of the two lines in the case of center alignment) is used as the ending point of the side. The inactive line pivots around the ending point, following the movement of the mouse.

### End Caps

You can draw parallel lines and polylines with butt end caps, that is, with line segments that join the ends of parallel lines. You can choose to draw parallel lines and polylines with no end caps, with an end cap at either end or with end caps at both ends. Extruded parallel lines and polylines can be drawn with or without a final end cap.

Select the appropriate icon from the **End Caps** section in the **Parallel Line options** panel in the properties panel/ Properties palette.

- Parallel lines drawn without end caps.



- End caps at the start of the parallel lines. (That is, the end at which you pressed and held down the mouse button and started to draw the lines.)

**Note:** Extruded parallel lines cannot have end caps at the start of the parallel line segment because they will be connected to an existing parallel line and therefore will not have a start point to set the end caps for.

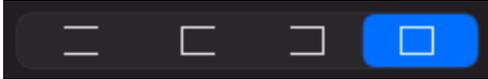


- End caps at the end of the parallel lines. (That is, the end at which you finished drawing the line or shape.)



- End caps at both ends of the parallel lines.

**Note:** Extruded parallel lines cannot have end caps at the start of the parallel line segment because they will be connected to an existing parallel line and therefore will not have a start point to set the end caps for.



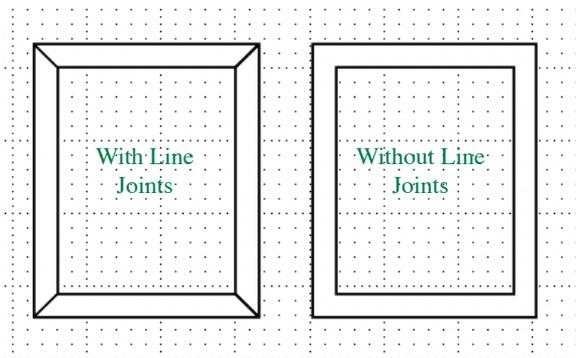
### ***Line joints***

You can choose to draw parallel polyline shapes and polygons with line joints at the corners. When you choose this option, a line is drawn between the inside and outside lines where the sides meet. (This feature can be used to indicate miter joints.)

Select the appropriate icon from the **Line Joints** section in the **Parallel Line options** panel in the properties panel/ properties palette.



**Note:** Extruded parallel lines cannot be drawn with line joints



## Line Width

You can specify the distance between parallel lines by entering a value in the Thickness field in the Parallel Line options. The values you enter for the distance are real-world values that reflect the current size units. For example, if you are working on a document in which Fractional Feet & Inches and the scale 1/4" = 1' were currently defined, if you entered "6" as the distance, the distance between the lines would represent 6 inches in the real world.

**Top Tip:** You can use patterns, gradients and colors to fill the gap between parallel lines (this is great for when creating walls and partitions).

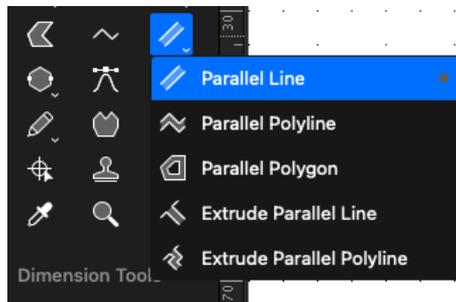
## Parallel lines

You can set the options for parallel lines (alignment, end caps, line joints and distance between lines) in the Parallel Line options panel in the properties panel/properties palette.

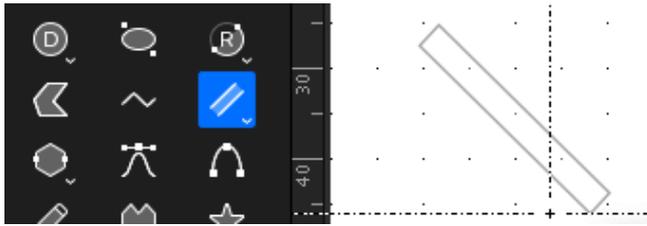
### *Drawing a single set of straight parallel lines*

To draw a single set of parallel lines

1. Choose the **Parallel line** icon from the **Parallel line tools** pop-up menu in the **Drafting Tools** panel/palette.



2. Position the cursor on the point you want the parallel lines to start, then press and hold down the mouse button.
3. Drag until the lines are the desired length, and release the mouse button.
4. When you release the mouse button, edit handles appear at the ends of the parallel line object. These can be used to change the length and orientation of the lines.



**Note:** Hold down the Shift key while drawing a single set of parallel lines and angle of the lines will snap to 45° increments. The final point of a parallel line can be snapped to the mid point, end point or center point of some existing objects using the M, E and C keys on your keyboard or by using the Smart Snap option.

### ***Editing a pair of parallel lines***

#### **To edit a pair of parallel lines**

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the parallel lines to be edited.
3. Position the cursor on one of the edit handles, then press and hold down the mouse button.
4. Drag in any direction until the lines are the desired length and orientation, and release the mouse button.

#### **To edit a pair of parallel lines numerically**

1. Return to the pointer mode by clicking the **Pointer** tool in the **Drafting Tools** panel/palette.
2. Select the parallel line you want to change.
3. Go to the **Properties** tab in the right hand panel/ properties palette.
4. Click the Select Point button below the **Parameters** section of the **Resize & Position Options** and click one of the points on the parallel line.
5. Enter the sizes in the **Parameters** section of the **Resize & Position Options**.

**Top Tip:** If you are using English units but want to resize using a Metric unit type, you can enter it into the text box. For example, if your units are set to Feet & Fractional Inches, you can still type "30mm" into the resize fields to resize the line. The smart unit system will convert the value for you.

### ***Snap to grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or resize a single parallel line, the end of the parallel line will snap to the nearest grid intersection point.

- Hold down the **Command** key when drawing or resizing a parallel line to avoid the line snapping to the grid.
- Hold down the **Option** key when drawing a parallel line and the line length will snap to the nearest grid increment.

If there is an angular snapping grid set for the document (using the **Layout** menu, and the **Set Angle Snap** option), when you draw a parallel line, it will snap to the angular grid.

- Hold down the **Shift** key when drawing a parallel line to avoid the line snapping to the angular grid.

### **Parallel polylines and parallel polygons**

You can draw two types of multi sided irregular shapes using parallel lines: closed polygons and open polylines. A parallel polygon is a closed object made of three or more sides. It can be a complex, irregularly shaped object made up of many straight parallel line segments.

A parallel polyline is an open object made of at least two straight parallel line segments. The line segments used for either type of object can be of any length and drawn at any angle.

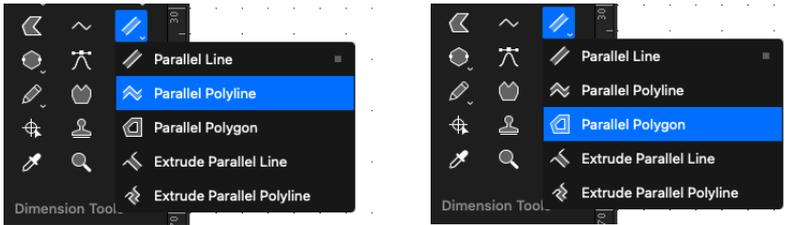
You can set the options for parallel polylines and polygons (alignment, end caps, line joints and distance between lines) in the **Parallel Line options** panel in the properties panel/ properties palette.

## Drawing polygons and polylines with parallel lines

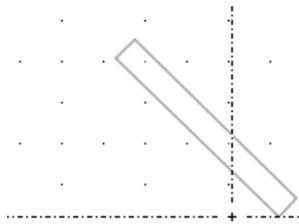
To draw an irregular polygon or polyline with parallel lines, you position the cursor and click to define the end points of the parallel lines that make up the shape.

To draw a polygon or a polyline with parallel lines

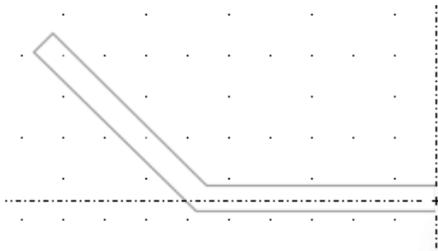
1. Choose the **Parallel polygon** or **Parallel polyline** tool from the **Parallel line tools** pop-up menu in the **Drafting Tools** panel/palette.



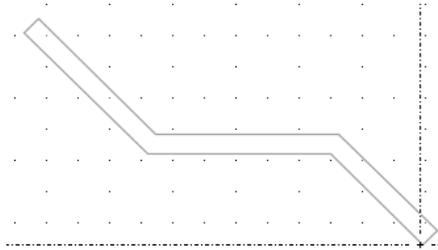
2. Place the cursor at the point you want to begin drawing the object, then click the mouse button.
3. Move until you have created a parallel line that is the desired length and angle for the first side or line segment of the object.



4. Click the mouse button.
5. Without pressing and holding down the mouse button, move the cursor to draw the second parallel line segment.



6. When the second parallel line is the desired length and angle, click this point.
7. Without pressing the mouse button, move the cursor to draw the next parallel line segment.



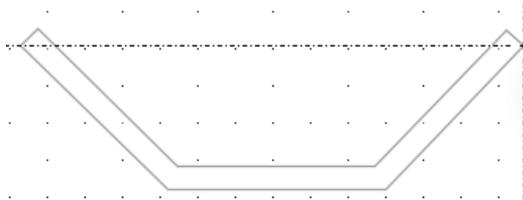
8. When the parallel line is the desired length and angle, click this point.

You may decide that you want to change a parallel line segment after you have clicked to define its end point. You can change the length and orientation of the last parallel line segment drawn by using the Dynamic Editing feature.

9. To change the last parallel line segment drawn, move the cursor back to the last defined point and click it.

The previous parallel line will reattach to the cursor, allowing you to move the end of the parallel line to a new position on the drawing.

10. Move the cursor to a new position on the drawing and click it.



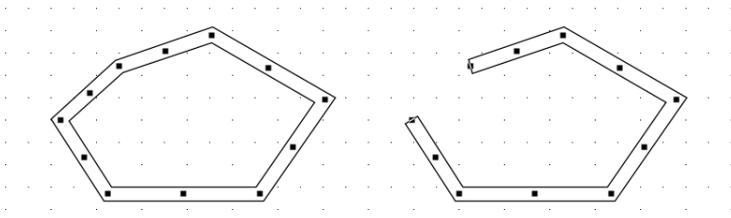
The parallel line will be drawn to the new position.

11. Continue to draw the rest of the object.
12. When you reach the last point to be placed, double-click this place.

This double-click action completes the object.

- If you are drawing a parallel polygon, the last point you clicked will be connected to the starting point of the shape by a straight parallel line.

- If you are drawing a parallel polyline, the object will remain open.



**Note:** Hold down the Shift key while drawing a parallel polygon or polyline and the angle of the current parallel line segment will snap to increments of 45°. The final point of a parallel polyline can be snapped to the mid point, end point or center point of some existing objects.

### ***Changing the shape of parallel polygons and polylines***

You can edit parallel polygons and polylines in the same way as you would normal polygons and polylines.

**Note:** The length and angle of the 2 parallel lines you are moving are displayed on the cursor while you are moving.

### ***Snap to grid***

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or edit a parallel polygon or polyline, the ends of the parallel line segments or the edit handles will snap to the nearest grid intersection points.

- Hold down the **Command** key when drawing or editing a parallel polygon or polyline to avoid the lines or edit handles snapping to the grid.
- Hold down the **Option** key when drawing a parallel polygon or polyline and the line lengths will snap to the nearest grid increment.

If there is an angular snapping grid set for the document (using the **Layout** menu, and the **Set Angle Snap** option), when you draw a parallel polygon or polyline, the line segments will snap to the angular grid.

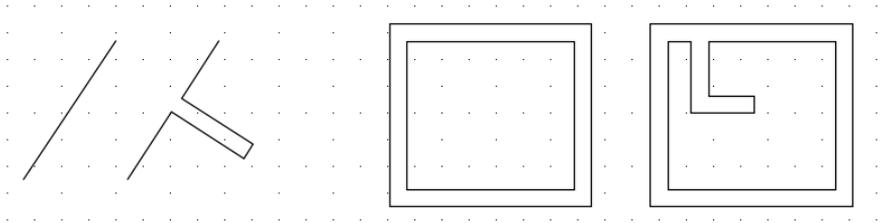
- Hold down the **Shift** key when drawing a parallel polygon or polyline to

avoid the line segments snapping to the angular grid.

## Extruding parallel lines and parallel polylines

MacDraft's **Extrude parallel line** and **Extrude parallel polyline** tools are used to draw parallel lines or parallel polylines from existing straight-edged objects, such as lines, rectangles or polygons. Although the extruded lines are actually separate line segments, they give the appearance of parallel lines.

Lines can also be extruded from parallel-line objects and between parallel line objects. This is useful in adding interior walls to a floor plan, for example.



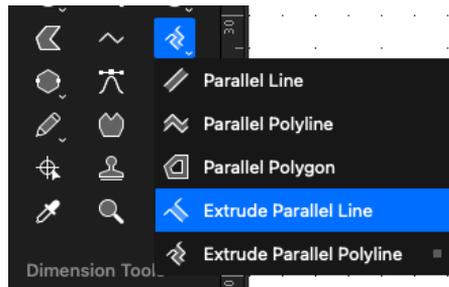
The **Extrude parallel line** and **Extrude parallel polyline** tools are located in the **Parallel line tools** pop-up menu in the **Tool** panel.

You can set the options for extruded parallel lines and polylines (alignment, end caps, line joints and distance between lines) in the **Parallel Line options** panel in the properties panel/ properties palette.

### *Extruding parallel lines from an edge or line*

To extrude parallel lines from a straight-edged object or line

1. Choose the **Extrude parallel line** tool from the **Parallel line tools** pop-up menu in the **Drafting Tools** panel/palette.



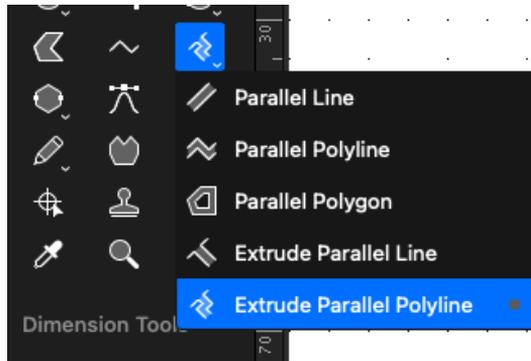
2. Position the cursor over the edge you wish to extrude the parallel lines from, then click the mouse button.
3. Drag until the extruded lines are the desired length and orientation, then click the mouse button.
4. The extruded parallel line segment appears on the drawing. It is added to the earlier object as a pair of line segments.

**Note:** Hold down the Option key to constrain the extruded parallel line to be perpendicular to the original edge and make its length snap to the currently active grid-snap distance.

### *Extruding parallel polylines from an edge or line*

To extrude parallel polylines from a straight-edged object or line

1. Choose the **Extrude parallel polyline** tool from the **Parallel line tools** pop-up menu in the **Drafting Tools** panel/palette.



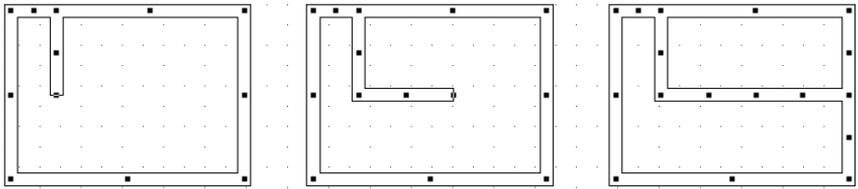
2. Position the cursor over the edge you wish to extrude the parallel polylines from, then click the mouse button.
3. Drag until you have created an extruded parallel line that is the desired length and angle for the first segment of the object, then click the mouse button.
4. Continue to draw the extruded parallel polylines as per the instructions for drawing parallel polylines.

## Extruding parallel lines or polylines from a parallel object

To extrude parallel lines or polylines from a parallel-line object

1. Choose the **Extrude parallel line** or **Extrude parallel polyline** tool from the **Parallel line tools** pop-up menu in the **Drafting Tools** panel/palette.
2. Position the cursor over the line you wish to extrude the parallel lines or polylines from, then press and hold down the mouse button.
3. Continue drawing as extruded lines or polylines.

**Top Tip:** You can connect the end of a parallel line or parallel polyline to another parallel line object, simply by moving the end of the extruded parallel line or polyline while drawing to overlap another parallel polyline or parallel line object.



### Snap to grid

If there is a snapping grid set for the document (using the **Layout** menu, and the **Set Grid** option), when you draw or edit an extruded parallel line or polyline, the ends of the parallel line segments or the edit handles will snap to the nearest grid intersection point.

- Hold down the **Command** key when drawing or editing an extruded parallel line or polyline to avoid the lines or edit handles snapping to the grid.
- Hold down the **Option** key when drawing an extruded parallel line or polyline and the initial parallel line segment will be constrained to be perpendicular to the original edge, and the line lengths will snap to the nearest grid increment.

# Drawing Stars

MacDraft offers a **Star** tool allowing you to easily create star shapes without the need to construct them with individual lines. You can either draw a star from the center or from the edge.

## Drawing a star from the edge

### *To draw a star from the edge*

1. Go to the **Drafting Tools** panel/palette and select **Star** tool .  
The cursor will change to a drawing cross.
2. Click the mouse button to place the start point.
3. Move the mouse until the desired size has been drawn.
4. Click the mouse button to finish drawing.

**Note:** Hold the **SHIFT** key down on the keyboard to constrain the angle.

## Drawing a star from the center

### *To draw a star from the center*

1. Go to the **Drafting Tools** panel/palette and select **Star** tool .  
The cursor will change to a drawing cross.
2. Click the mouse button to place the start point.
3. Hold down the **Option** key on the keyboard and move the mouse until the desired size has been drawn.
4. Click the mouse button to finish drawing.

**Note:** Hold the **SHIFT** key down on the keyboard to constrain the angle.

## Star tool options

### *To change the star tool options*

1. Select **Star** tool in the **Drafting Tools** panel/palette.

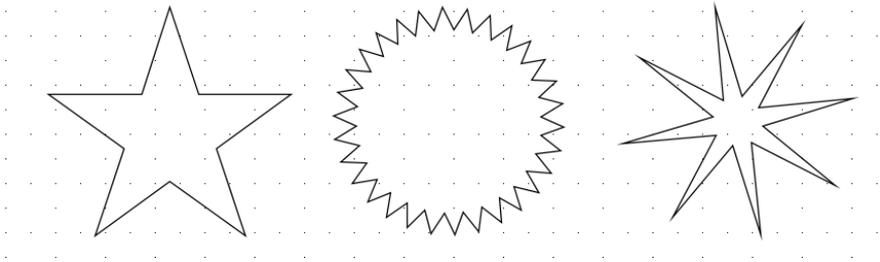
The Star tool options appear at the top of the drawing area.

2. Set the various options as desired. A complete description of the options available and their effects on parallel line objects follows later in this section.

The options set will be used for all star objects drawn.



3. Enter the number of points for the star.
4. Enter the percentage ratio for the thickness of the star.
5. Click OK.
6. Now draw the star as per the instructions outlined in drawing stars.



## The Marker Symbol

The Marker Symbol tool is used to add a registration-type marker to a drawing in one simple step.

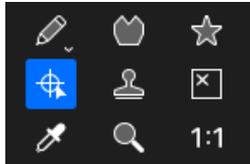
Select the **Marker** tool in the **Drafting Tools** panel/palette, then click the drawing one or more times to add as many markers as you need; each marker is centered on the point you click. Leave the **Marker Symbol** tool by holding down the **Command** key and clicking a blank area of the drawing or by clicking the **Pointer** tool in the **Tool** panel.

Once a marker symbol is drawn, it exists as a group. It can be ungrouped to a circle and two crossed lines

## Adding marker symbols to a drawing

### *To add marker symbols to a drawing*

1. Choose the **Marker symbol** tool in the **Drafting Tools** panel/palette.



2. Place the cursor where you want the marker symbol to appear on the drawing and click the mouse button.

The marker symbol appears on the drawing centered on the point specified.



3. To add more marker symbols, repeat steps 2 as many times as necessary.
4. When you have finished adding markers, click the **Pointer** tool in the **Drafting Tools** panel/palette, or hold down the **Command** key and click a blank area of the drawing. You can also press the **Escape** key on your keyboard.

## Datum Points

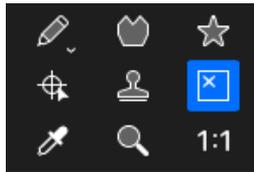
Each object in MacDraft has a datum point; this is a reference point used when you paste the object, rotate it, or manipulate it in other ways.

Each type of object has a default datum point, for example, the default datum point for a rectangle is the top left corner. It is possible to change the location of the datum point for any object.

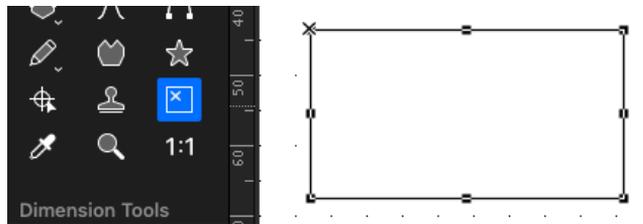
## Assigning a new datum point to an object

### *To assign a new datum point to an object*

1. Select the object to which you want to assign a new datum point by clicking it with the **Pointer** tool.
2. Either:
  - Choose **Edit Datum** from the **Edit** menu or,
  - Choose the **Edit datum** tool in the **Drafting Tools** panel/palette.



An “x” marker appears on the selected object at the current position for the datum point and the cursor will change to a “x”.



Move the cursor to the new position for the datum point and click it.

**Note:** The datum point can be located anywhere within a bounding rectangle that surrounds the object. In the case of most non rectangular objects, this will be an imaginary rectangle. If you click near a vertex point (that is, a point where two edges meet), the x marker will snap to that vertex.

The “x” marker appears at the point you clicked to mark the new datum point.

### *To place the datum point in the center of the object*

1. Select the object to which you want to assign a new datum point by clicking it with the Pointer tool.

2. Either:

- Choose **Edit Datum** from the **Edit** menu or,
- Choose the **Edit datum** tool in the **Drafting Tools** panel/palette.

3. Choose **Center Datum** from the **Edit** menu.

**Note:** The object's center is defined as the center of the object's "extent." The extent is the overall size of the object.

### ***To exit from the Edit Datum mode***

- Click the **Pointer** tool in the **Drafting Tools** panel/palette, or;
- Press the **Escape** key on the keyboard.

## **Fixed and free datum points**

### ***Fixed datum points***

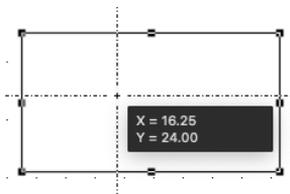
A datum point located at the center of the object or on a vertex point is a fixed datum point and has some special attributes. It retains the same relative position on the object even if you reshape or resize the object.

### **An example of a fixed datum point**

1. Assign a fixed datum point to the lower right vertex on a rectangle.



2. Resize the rectangle by dragging the handle on the middle of the right side towards the center of the rectangle.



As a fixed datum point was assigned to the lower right vertex, the datum point will still appear on the lower right vertex.

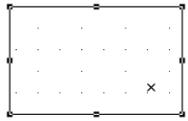


### **Free datum points**

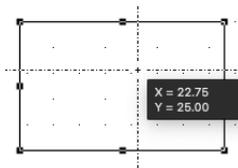
A datum point that is not located at the center of the object or on a vertex point is a free datum point and does not retain the same relative position on the object if you reshape or resize the object.

#### **An example of a free datum point**

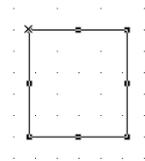
1. Assign a free datum point towards the lower right corner of a rectangle.



2. Resize the rectangle by dragging the handle on the middle of the right side towards the center of the rectangle.

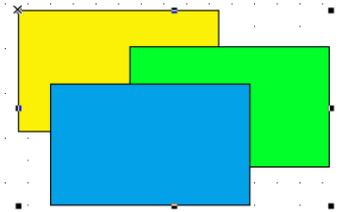


As a free datum point was assigned to the lower right vertex, and that point is now outside the new object's bounding rectangle, the datum point will revert to the default position within the object.



### **Datum points of groups**

Grouped objects also have datum points. The default datum point for a grouped object is the default datum point of the item in the group that is farthest back on the drawing.



## Reshaping objects

There may be occasions when you want to reshape an object so that straight lines and sharp corners become curved lines and rounded corners; the irregular lines of an object to smooth lines. You can accomplish this conversion by using the Reshape submenu in the Edit menu.

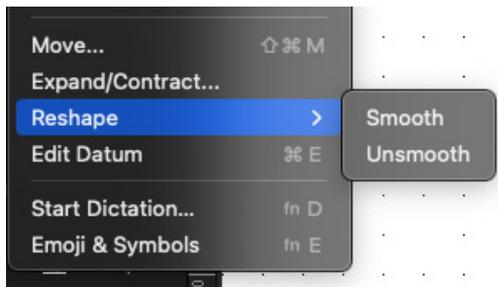
The objects that the Reshape command can modify are polygons (drawn with the irregular polygon tool), polylines, freehand lines and freehand shapes.

### Reshaping an object

#### *To reshape an object*

1. Select the object you want to reshape by clicking it.
2. Open the **Edit** menu and drag down until **Reshape** is highlighted.

The **Reshape** submenu appears.



3. Choose **Smooth** or **Unsmooth** (detailed explanations of the choices follow) and release the mouse button.

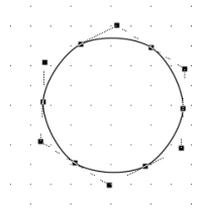
The object will be reshaped as you requested.

## Reshape options

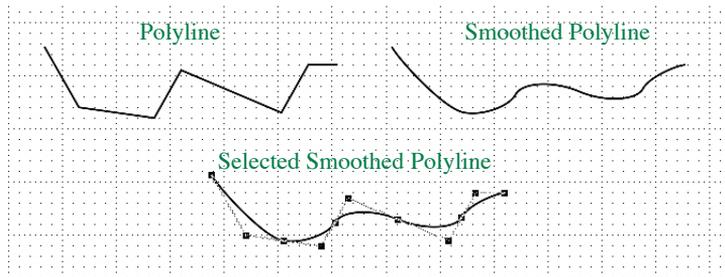
The **Smooth** and **Unsmooth** commands affect different shapes in different ways.

### *Reshaping polygons and polylines*

A polygon can be smoothed to a curve that lies inside the original object (intersecting the midpoints of each line segment). When the smoothed polygon is selected, its original shape appears as a ghost outline.



A polyline can be smoothed to a curve that intersects the midpoints of each line segment of the original object, except for the segments closest to the ends. That is, the curve will skip over the first and last midpoints of the original polyline.

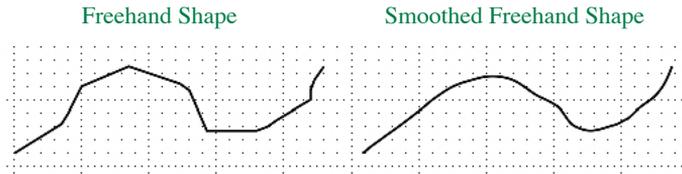


If you select a polygon or polyline that has been smoothed using the **Smooth** command, and choose **Unsmooth**, the object will revert to its original shape.

### *Reshaping freehand lines and shapes*

A freehand line or shape can be smoothed to a curve that lies close to the original object and passes near to the original vertices (the new edit handles appear at the old vertices). This new shape can be smoothed repeatedly until the desired effect is obtained.

If you select a freehand line or shape that has been smoothed using the **Smooth** command, and choose **Unsmooth**, the last stage in the smooth process will be undone.



**Note:** If a freehand object includes sharp points, you can often get good results by deleting or adding handles before smoothing

## Resizing Objects

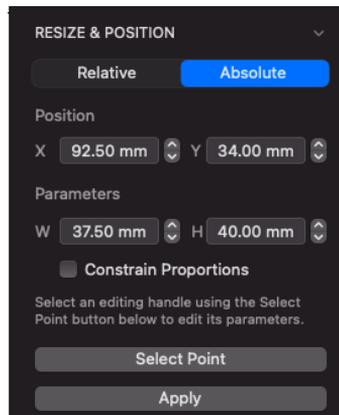
Objects can be resized manually by dragging their handles, as discussed in the sections about drawing the various types of objects. MacDraft also includes a **Properties** panel. This provides a method for resizing objects by typing exact sizes and gives you more precise control over the size of objects.

### Displaying the Properties panel

#### *To display the Properties panel*

The Properties panel is the first tab in the right hand panel. This panel will be open by default. If the panel is not open you can open it by:

- Go to the **View** menu and select **Show Right Panel** or;
- Click the **Right Panel** icon in the **Show/Hide Panels** toolbar item. If you are in palette mode, Properties will be in the Properties Palette.



- Scroll down to the **Resize & Position Options**.

The **Resize & Position Options** section of the **Properties** panel/ properties palette shows the size values and position of the currently selected object, if nothing is selected, the **Resize Options & Position** will not display.

## Resizing objects

Different types of objects are resized in different ways. For example, you can resize a rectangle by specifying the exact height and width of the rectangle, whereas resizing an arc includes entering various angle values and a radius length. The individual sections following describe the resizing options for the different types of objects and the information you can enter to resize them.

You can resize objects by entering absolute or relative values for the whole object or, for some objects, a selected point on the object. Measurements are defined in the current layer's scale and units, and changes are applied relative to the object's datum point, unless the **Select Point** button is used. When relative values are entered, positive values increase measurements, negative values decrease them.

**Note:** When objects are resized, any dimension objects linked to them will be automatically resized as well.

### Absolute resize values

- For a whole object, enter the values for the desired dimensions.
- For a point on the object, enter values for the desired location of the point.

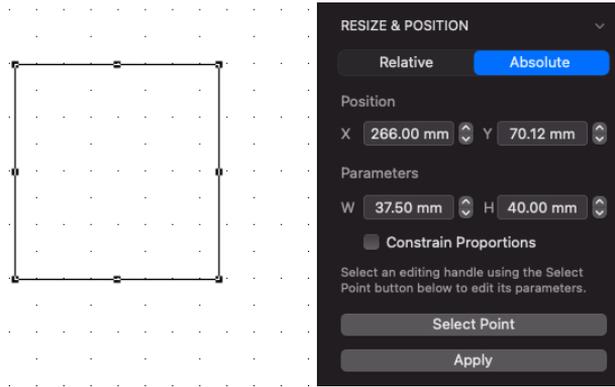
### Relative resize values

- For a whole object, enter values to be added to current dimensions.
- For a point on the object, enter values to move the point by.

### *Resizing a whole object by absolute values*

In general terms, to resize an object by changing its absolute size values

1. Select the object you want to resize.
2. Ensure the **Absolute** tab is selected in the **Resize & Position** options.



3. Enter the new size values (such as Width and Height) that you want.
4. Click the **Apply** button or press the **Return** or **Enter** key.

The new size will be applied to the object.

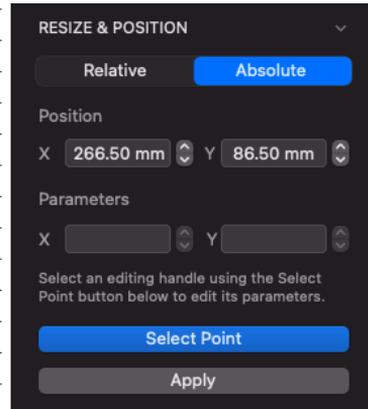
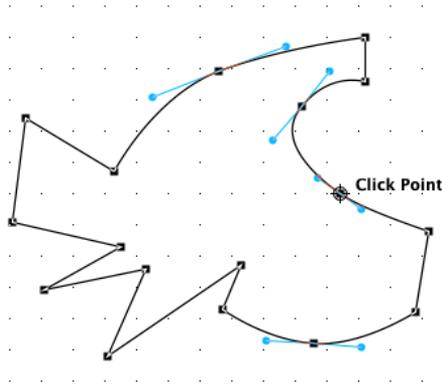
**Note:** If the resize operation requires the object to be enlarged beyond the drawing area, a system beep sounds.

### ***Resizing an object by changing the absolute values of one point***

**To resize an object by editing a single edit handle**

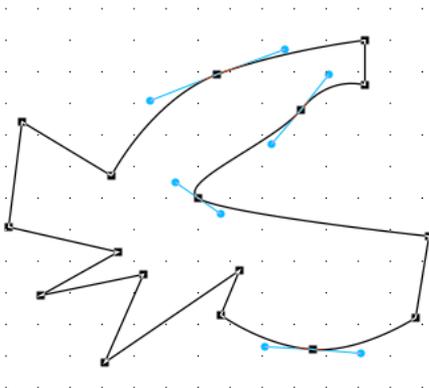
1. Select the object you want to resize.
2. Ensure the **Absolute** tab is selected in the **Resize & Position** options.
3. Click the **Select Pt** button on the **Resize Options** section.  
A select point sight cursor appears on the drawing.
4. Position the cursor on the point (edit handle) you want to edit and click it.

The **Resize & Position Options** shows the location of the point.



5. Enter values for the new location for the edit handle and click the **Apply** button or press the **Return** or **Enter** key.

The new values will be applied to that edit handle, moving it and so resizing the object.

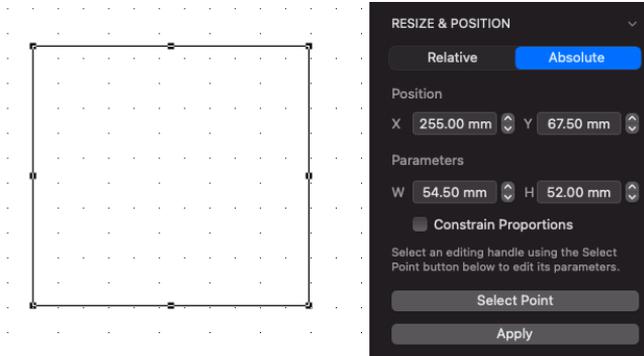


**Note:** If the resize operation requires the object to be enlarged beyond the drawing area, a system beep sounds.

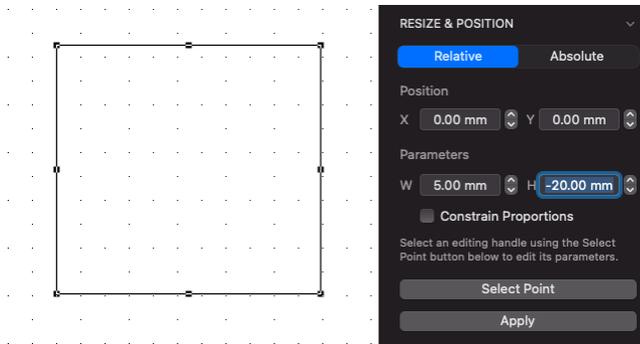
### ***Resizing a whole object by relative values***

In general terms, to resize an object by changing its relative size values

1. Select an object. Its current measurements are shown in the **Resize & Position Options**.



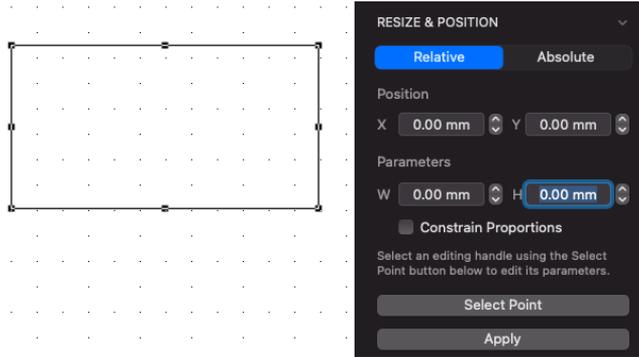
2. Ensure the **Relative** tab is selected in the **Resize & Position** options.
3. Enter values to increase (positive numbers) or decrease (negative numbers) the measurements to be changed.



4. Click the **Apply** button or press the **Return** or **Enter** key.

The measurement changes are applied to the object, making the appropriate dimensions larger or smaller.

**Note:** If the resize operation requires the object to be enlarged beyond the drawing area, a system beep sounds.



### ***Resizing an object by changing the relative values of one point***

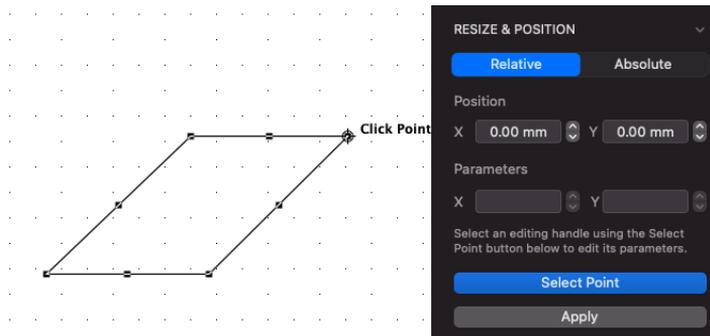
To resize an object by editing a single edit handle

1. Select an object. Its current measurements are shown in the **Resize & Position options**.
2. Ensure **Relative** tab is selected in the **Resize & Position options**.
3. Click the **Select Pt.** button in the **Resize & Position options**.

The select point sight cursor appears on the drawing.

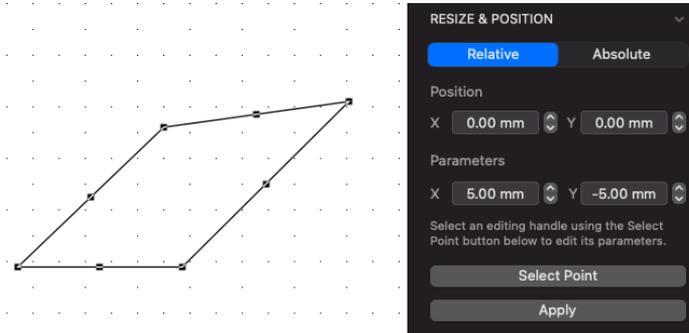
4. Position the cursor on the point (edit handle) you want to edit and click it.

Zeros are shown in the **Resize & Position options** for the horizontal and vertical changes, showing that no new values have been entered.



5. Enter values to increase (positive numbers) or decrease (negative numbers) the point's position.
6. Click **Apply** or press the **Return** or **Enter** key.

The measurement changes are applied to the selected point, moving it and so resizing the object.



**Note:** If the resize operation requires the object to be enlarged beyond the drawing area, a system beep sounds. Using relative is a great way to increase the size of an object by a specific value and will resize from the point the object was drawn at.

## Resize Units

The Resize & Position options use the scale and units of the current layer. When you select an object with the Resize & Position options visible, the values shown will reflect the scale. When you enter values to resize an object, you should use values appropriate to the current scale.

**Note:** If you enter unscaled units in a scaled drawing (for example, a width “4” ” in a 1/8”=1' drawing), you may get unexpected results (in that example, the four inches would appear in the drawing as 1/24 of an inch on screen and on paper).

If you don't specify units with the values you enter, MacDraft will interpret the values according to the document's current size units. The size units are set using the **Scale and Units dialog** which can be opened via the **Layout** menu.

Below are some examples of valid size and coordinate entries for some of the

available types of size units.

### ***Decimal feet and inches***

12.0'

110.3'

10'

10 in

12.3 is interpreted as 12.3'

### ***Fractional feet and inches***

23" = 1'11" 1 3/4"

1' 10-3/8"

### ***Fractional inches***

1"

123-3/4"

15 1/2

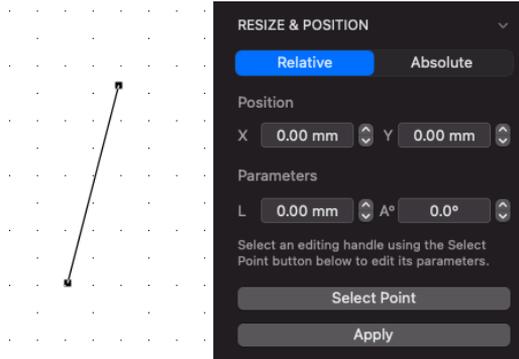
1/2

2-1/4

You can enter values greater than 12 inches if fractional inches are the current size units.

## **Resizing lines and parallel lines**

Lines drawn with the unconstrained, constrained, parallel and special line tools can all be resized in the same way.



## ***L (Length) & A° (Angle)***

Changes the desired length and angle of the line. The specified angle is measured relative to the X-axis and the last point drawn on the line, this “finishing point”, will normally be the one that moves.

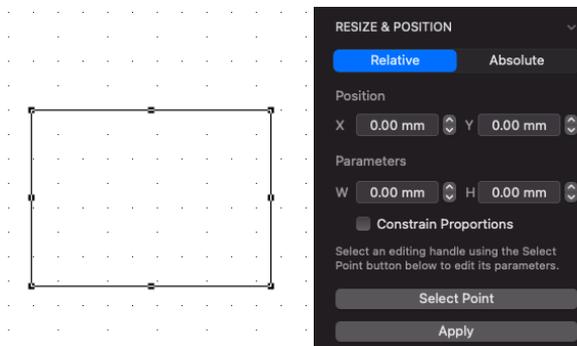
### ***Select point***

Allows you to select which end point of the line moves when you apply a new length or angle value.

**Note:** If you change the angle of a constrained line, it will become an unconstrained line, as constrained and special lines are only constrained when they're first entered.

## **Resizing rectangles**

### ***Square corner rectangles***



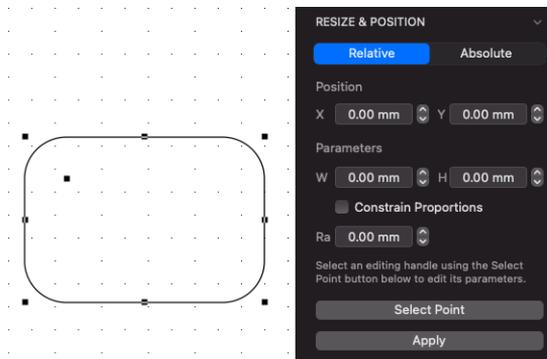
### W (Width) and H (Height)

Changes the width and height of a rectangle. For example, to enlarge a 1" x 1" rectangle to 3" x 3", enter 3" in both fields. A diagonally drawn rectangle will be resized by shifting its bottom edge or right-hand edge (or both).

### Select point

Allows you to select which edge or corner of the rectangle moves when you apply a new width or height (or both). For example, if you click Select Point and select the rectangle's top middle handle, then enter a new height, the top edge moves up.

### *Rounded corner rectangles with proportional and constant corners*



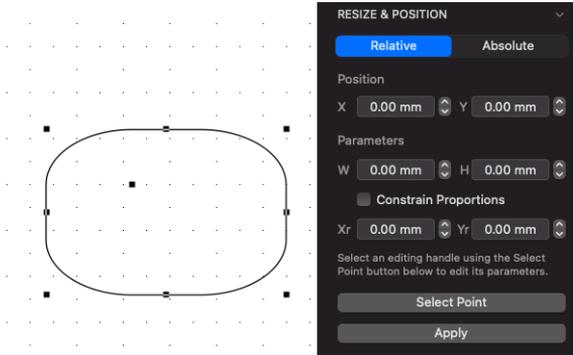
### W (Width), H (Height), and Ra (Radius)

Changes the width and height of a rounded corner rectangle and the radius of the corner arc. Normally, the width and height values resize the rectangle by shifting its bottom edge or right-hand edge (or both).

### Select point

Allows you to select which edge or corner of the rectangle moves when you apply a new width or height (or both). For example, if you click Select Point and select the rectangle's top middle handle, then enter a new height, the top edge moves up.

## Rounded corner rectangles with elliptical corners



**W (Width), H (Height), Xr (X-radius) and Yr (Y-radius)**

Changes the width and height of a rectangle, and the vertical and horizontal radii of the elliptical corner arc. Normally, the width and height values resize the rectangle by shifting its bottom edge or right-hand edge (or both).

### Select point

Allows you to select which edge or corner of the rectangle moves when you apply a new width or height (or both). For example, if you click Select Point and select the rectangle's top middle handle, then enter a new height, the top edge moves up.

## Resizing regular polygons

Regular polygons are resized in the same way as groups.

## Resizing circles

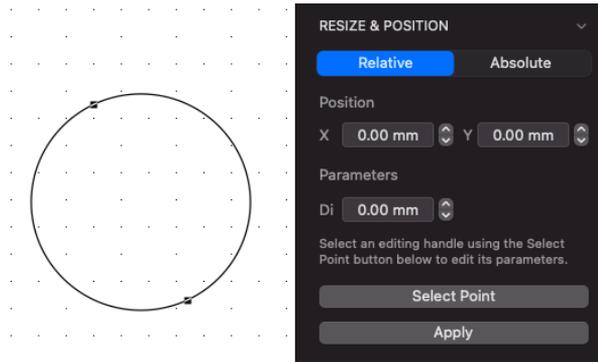
### *Drawn by diameter*

#### Diameter

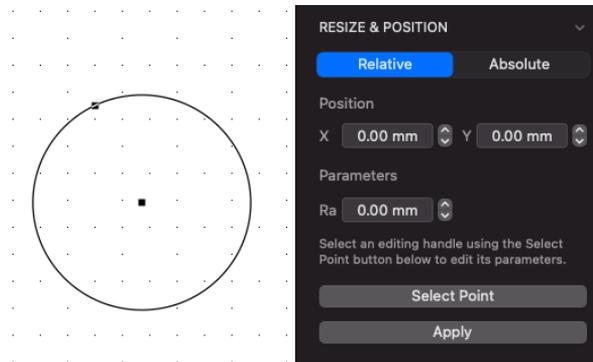
Changes the diameter of the circle. The last point drawn normally moves as the circle is resized.

#### Select point

Allows you to select which end of the diameter line moves when you apply a new diameter value.



### ***Drawn by radius***



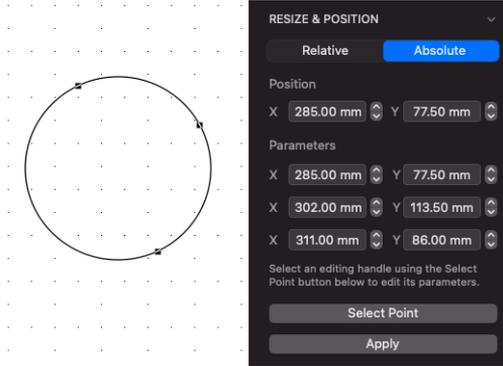
### **Radius**

Changes the radius of the circle. The handle on the circle's circumference normally moves as the circle is resized.

### **Select point**

Allows you to select which end of the radius line moves when you apply a new radius value. For example, if you click Select Point and select a radial circle's center handle, then enter a new radius, the center handle moves as the circle is resized.

## Drawn by three points



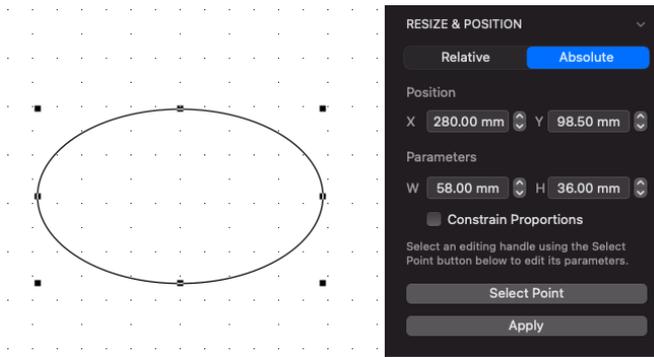
### X and Y locations

Changes the X and Y coordinates for the circle's three edit handles. Absolute coordinates you specify are measured from the zero origins of the rulers.

### Select point

Using the Select Point button has no additional effect on this object.

## Resizing Ellipses



### W (Width) and H (Height)

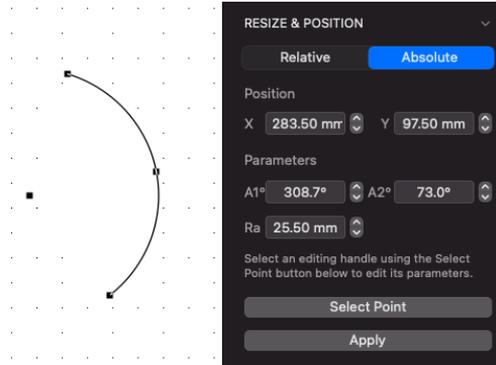
Changes the width and height of an ellipse. A diagonally drawn ellipse will normally be resized by shifting its bottom right edit handle, a centered ellipse will normally be resized without the center point moving.

## Select point

Allows you to select what portion of the ellipse moves when you apply a new width or height (or both). For example, if you click Select Point and select the ellipse's top middle handle, then enter a new height, the top moves up.

## Resizing arcs

### Drawn by radius



#### A1°

Changes the angle of the arc's starting point, measured in relation to the X-axis.

#### A2°

Changes the angle of the arc's ending point, measured in relation to the X-axis.

#### Ra (Radius)

Changes the radius of the arc.

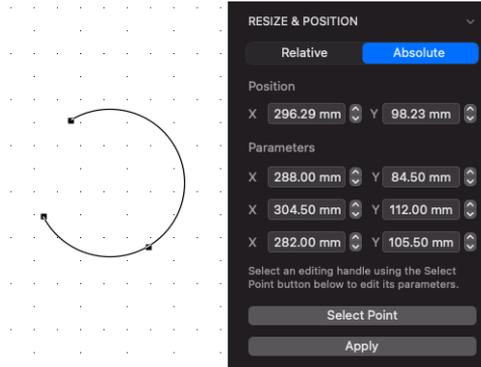
#### Select point

Use of the Select Pt button has no additional effect on this object.

### Drawn by three points

#### X & Y locations

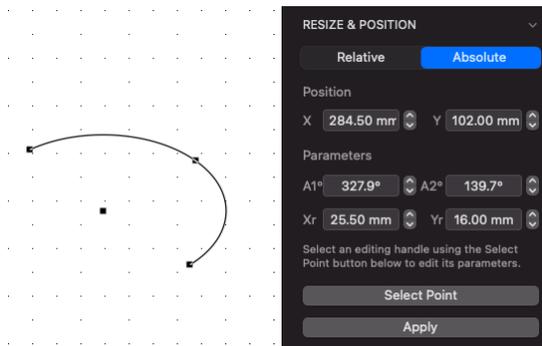
Changes the X and Y coordinates for the arc's three edit handles. Absolute coordinates you specify are measured from the zero origins of the rulers.



### Select point

Use of the Select Pt button has no additional effect on this object.

## *Elliptical Arcs*



### A1°

Changes the angle of the arc's starting point, measured in relation to the X-axis.

### A2°

Changes the angle of the arc's ending point, measured in relation to the X-axis.

### Xr (X-radius) and Yr (Y-radius)

Changes the horizontal and vertical radius of the arc.

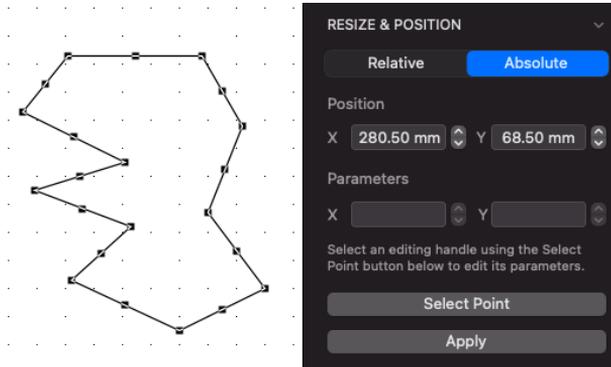
### Select point

Use of the Select Point button has no additional effect on this object.

## Resizing polygons and polylines, freehand shapes and curves

Because of the complexity of these objects, you can edit them only by using the Select Point cursor.

For example, if an object has several edit handles, each handle cannot be shown in the Resize options. Instead, you use the Select Point button to select a single handle, then specify a new location for it on the drawing.



### ***X and Y coordinates***

Changes the X and Y coordinates of a selected handle. Absolute values are measured from the zero origins of the rulers.

### ***Select point***

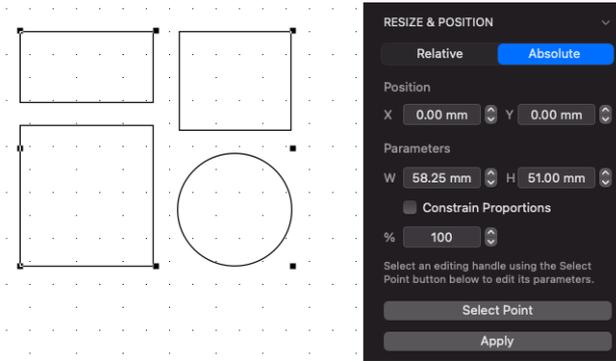
Allows you to select the handle to edit.

**Note:** The Resize options treat the direction handles on Bezier curve objects like any other edit handles.

## Resizing groups

### **% (Percent)**

Changes the size of the group proportionally by a percentage of its current size. Absolute values larger than 100% or positive relative values increase its size; absolute values smaller than 100% or negative relative values reduce it. Normally, the lower right corner moves as the group becomes larger or smaller.



### **W (Width) and H (Height)**

Changes the width and height of the group. A group will normally be resized by shifting its bottom edge or right-hand edge (or both).

### **Select point**

Allows you to select which corner of the groups bounding frame moves when you resize it. For example, if you click Select Point and select the top left handle of the groups bounding frame, then enter an absolute percentage value of 200%, the top edge moves up and the left edge moves left.

### ***Resizing groups manually***

There may be times when you would like to enlarge or reduce the size of a grouped object. MacDraft gives you the ability to change a group's size proportionally or non- proportionally (vertically or horizontally) by dragging the groups edit handles.

By changing the size of a group proportionally, you can maintain the original shapes of the individual objects within the group. Objects within the group become larger or smaller without becoming distorted.

### **To resize a group of objects proportionally**

1. Select the group you want to resize.
2. Position the tip of the pointer on an edit handle on the corner of the group.
3. Press and hold down the mouse button.
4. Drag until the group is the size you want, and release the mouse button.

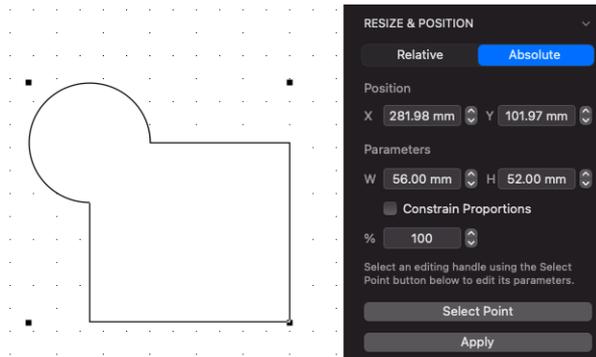
The grouped object will be changed in size proportionally to its original size.

#### To resize a group non-proportionally

1. Select the group you want to resize.
2. Position the tip of the pointer on an edit handle on the corner of the group.
3. Press and hold down the mouse button and press the **Shift** key.
4. Holding down the mouse button and the **Shift** key, drag until the group is the size you want, and release the mouse button and **Shift** key.

## Resizing Metapolygons

Metapolygons are the objects created when you use the Add command, Subtract command or Attach command to combine objects with different types of edges.



### **% (Percent)**

Changes the size of the metapolygon proportionally by a percentage of its current size. Absolute values larger than 100% or positive relative values increase its size; absolute values smaller than 100% or negative relative values reduce it. Normally, the lower right corner moves as the metapolygon becomes larger or smaller.

### **W (Width) and H (Height)**

Changes the width and height of the metapolygon. A metapolygon will normally be resized by shifting its bottom edge or right-hand edge (or both).

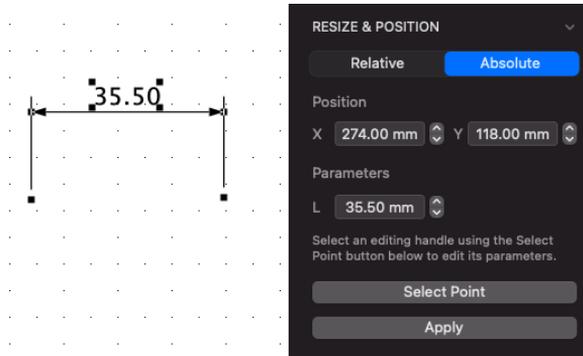
## Select point

Allows you to select which corner of the metapolygon's bounding frame moves when you resize it. For example, if you click Select Point and select the metapolygon's top left handle, then enter an absolute percentage value of 200%, the top edge moves up and the left edge moves left.

## Resizing dimension objects

When objects (not circles) are resized, any dimension objects linked to them will be automatically resized as well. Also, when dimension objects are resized, if they are linked to an object, the object will also be resized.

### Linear and radial dimensions



### L (Length)

Changes length of the dimension object. Normally, the first reference point (the left end of a diameter or the center of a radius) remains fixed.

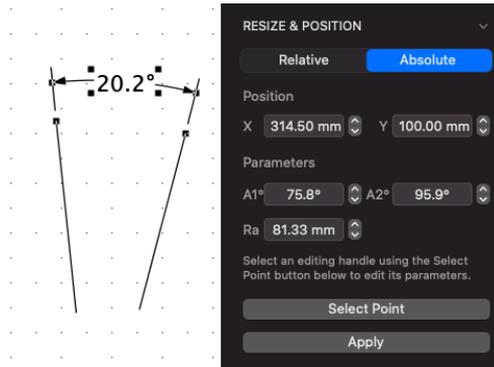
### Select point

Allows you to select which reference point moves when you apply a new length.

### Angular dimensions

#### A1°

Changes the angle of the dimension's starting point, measured in relation to the X-axis.



**A2°**

Changes the angle of the dimension's ending point, measured in relation to the X-axis.

**Ra (Radius)**

Changes the radius of the dimension object.

**Select point**

Use of the Select Point button has no additional effect on this object.

## Expand and contract objects

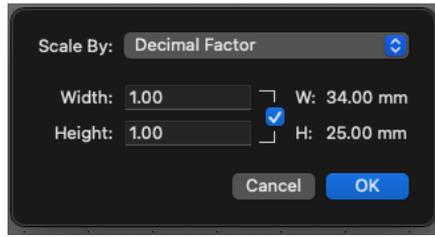
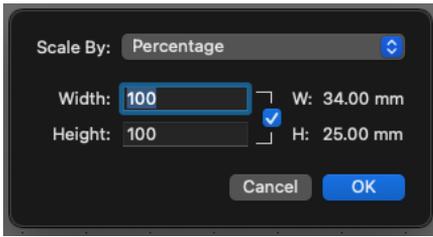
All MacDraft objects can be increased or reduced in size by multiplying or dividing the object's dimensions by specified values or by percentage. You can choose whether or not to maintain the object's proportions. The **Expand/Contract** command in the **Edit** menu is used to resize objects in this way.

### Expand

*To resize an object using the Expand/Contract command*

1. Select the object to be expanded.
2. Choose **Expand/Contract...** from the **Edit** menu.

The **Expand/Contract** dialog appears.

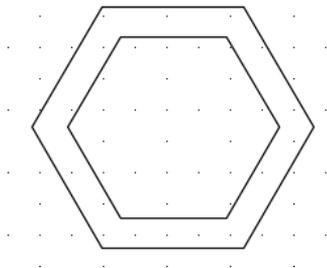


3. To maintain the object's proportions, ensure that the Linked checkbox is on.
4. To change the object's proportions, click the Linked checkbox to turn this option off.
5. Choose **Percentage** or **Decimal Value** from the pop-up menu.
6. Enter a value to multiply the X dimension of the object by.

**Note:** 100% and 1.0 is the original size of the object. To increase the size type a higher value than the original.

7. Enter a different value to multiply the Y dimension of the object by, if necessary.
8. Click the OK button.
9. The dimensions of the object are multiplied by the specified values and the object is expanded around its center point.

**Note:** The screen shot below shows a copy of the original shape in front of the expanded shape.

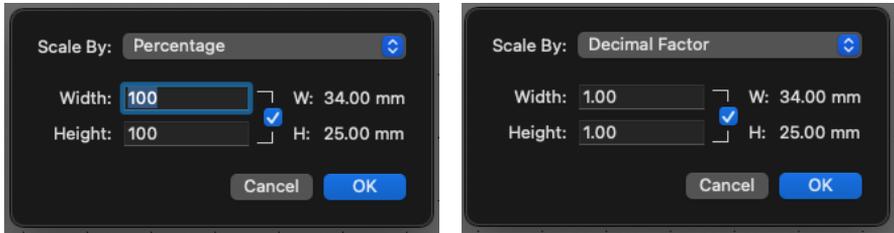


## Contract

### *To resize an object using the Contract command*

1. Select the object to be contracted.
2. Choose **Expand/Contract...** from the **Edit** menu.

The **Expand/Contract** dialog appears.

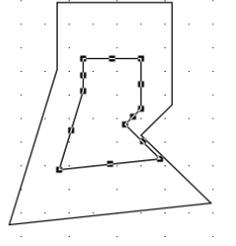


3. To maintain the object's proportions, ensure that the Linked checkbox is on.
4. To change the object's proportions, click the Linked checkbox to turn this option off.
5. Choose **Percentage** or **Decimal Value** from the pop-up menu.
6. Enter a value to multiply the X dimension of the object by.

**Note:** 100% and 1.0 is the original size of the object. To decrease the size type a lower value than the original.

7. Enter a different value to multiply the Y dimension of the object by, if necessary.
8. Click the OK button.
9. The dimensions of the object are divided by the specified values and the object is expanded around its center point.

**Note:** The screen shot below shows a copy of the original shape behind the contracted shape.



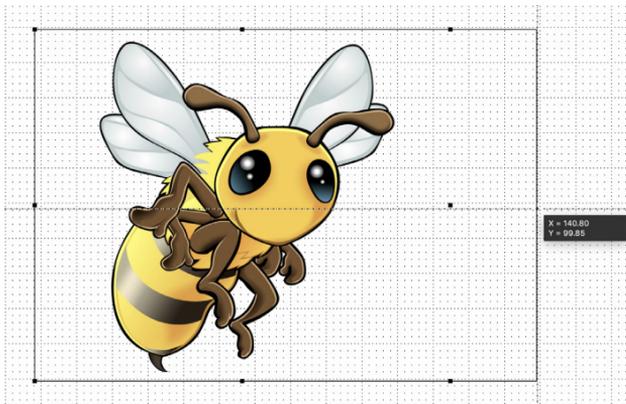
## Editing bitmap images

There may be occasions when you want to enlarge, reduce, distort or clip the shape of pictures or photos produced from a program such as Photoshop. MacDraft allows you to enlarge or reduce the size of a bitmap image without distorting the image; to change the size of a bitmap image in one direction only; and to clip an image.

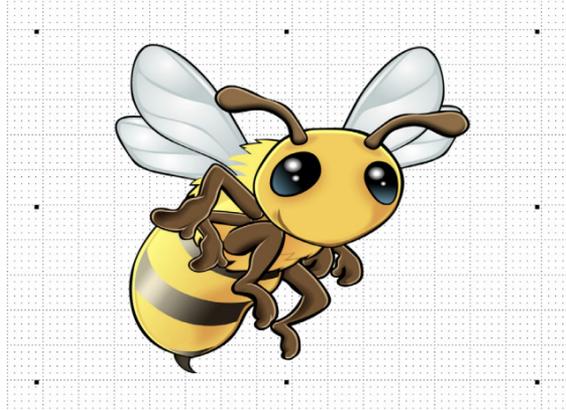
### Resizing bitmap images

#### *To resize a bitmap image in one direction only*

1. Select the bitmap image you want to resize.
2. Position the cursor on one of the edit handles in the middle of the bitmap's bounding box, (that is, one of the handles on the top, bottom, left or right side).
3. Press and hold down the mouse button.
4. Drag until the bitmap image is the size you want.

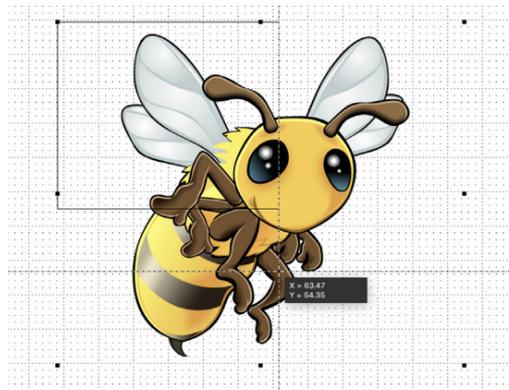


5. Release the mouse button. The image will be resized in the direction chosen.



***To resize a bitmap image in two directions without maintaining proportions***

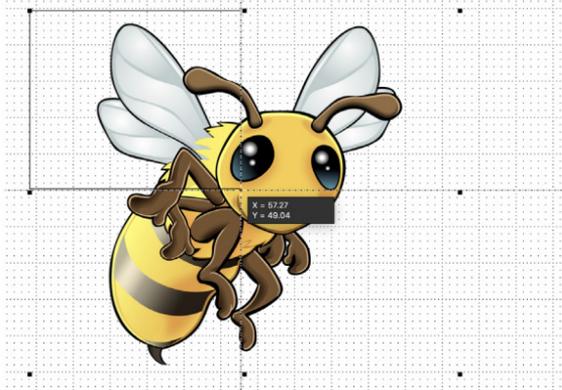
1. Select the bitmap image you want to resize.
2. Position the cursor on one of the corner edit handles.
3. Press and hold down the mouse button.
4. Drag until the bitmap image is the size you want.
5. Release the mouse button. The image will be resized, in two directions, but it could be distorted.



***To resize a bitmap image while maintaining its proportions***

1. Select the bitmap image you want to resize.

2. Position the cursor on one of the corner edit handles.
3. Hold down the **Shift** key, then press and hold down the mouse button.
4. Holding down the mouse button and the **Shift** key, drag until the bitmap image is the size you want.



5. Release the mouse button and the **Shift** key. The image will be resized, and its proportions maintained.

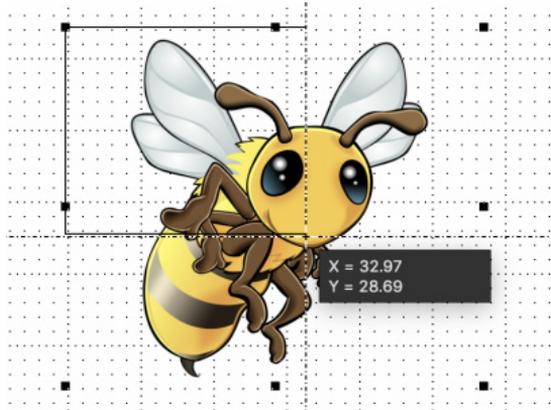
### ***To resize a bitmap image using the Resize options***

You can use the Resize & Position options in the Properties tab/ properties palette to change the size of an image in same way as other objects, by defining its physical width and height, dpi and pixel width and height.

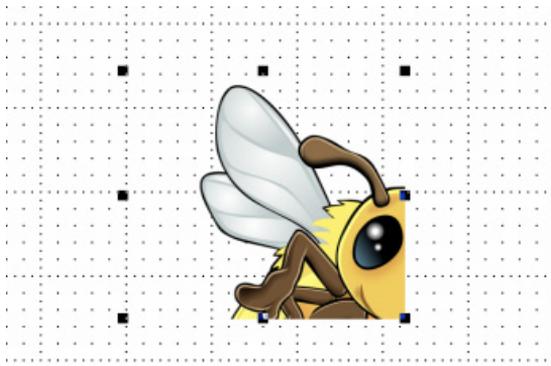
## **Clipping bitmap images**

### ***To clip a bitmap image***

1. Select the bitmap image you want to clip.
2. Position the cursor on one of the edit handles.
3. Hold down the **Shift** and **Option** keys, then press and hold down the mouse button.
4. Holding down the mouse button and the **Shift** and **Option** keys, drag to select a portion of the bitmap.



5. Release the mouse button and the **Shift** and **Option** keys. The image will be clipped, and only the portion selected will be shown.



MacDraft doesn't normally discard the unseen part of a cropped image; you can move the edit handles back out any time to reveal the unclipped image.

On the other hand, cutting a cropped image from a drawing, pasting it to the Clipboard, then copying it back into MacDraft will reduce the document's size on disk, because the cropped data discarded during the cut/paste operation will no longer be stored.

**Notes:** MacDraft does not allow cropping of grouped objects. You must ungroup any bitmap image you wish to crop.

- Some pixel maps and bitmaps, when ungrouped, become a set of several objects that together form one image. Each of these objects can be cropped individually.
- If a bitmap has a very low resolution (for example, if it has been resized to be much larger than it was originally), it may resize itself slightly during cropping. This is because its own pixels may be larger than the standard screen pixels. The image will expand or shrink so that none of its own large pixels are split by the cropped edge.
- MacDraft stores each pixel map only once in each document file. This means that you can copy a pixel map within a MacDraft drawing without increasing the drawing's size on disk.

## The Advanced tools PRO ONLY

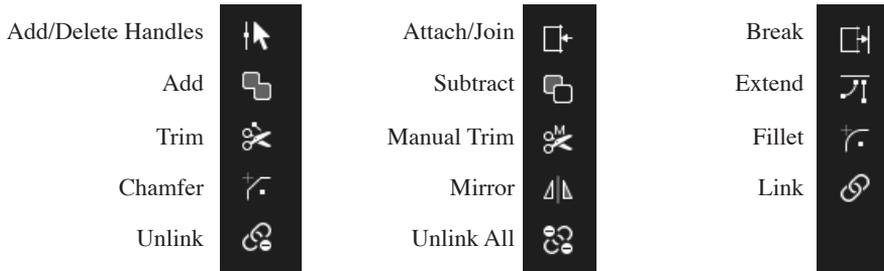
The Advanced tools contain editing and object manipulation functions. There are tools to create fillets and chamfers, add handles to objects, break objects into their edges, extend lines to their intersections and automatically trim lines that overlap. This panel also provides many advanced tools such as the attach function, merge objects, cut, and mirror.

### Displaying the Advanced tools PRO ONLY

#### *To display the Advanced tools*

- Choose **Show Left Panel** from the View menu, or if in palette mode, select the **Advanced Tools** palette from the Window menu.
- Choose left panel icon from the **Show/Hide Panels** toolbar item.

The **Tools** panel will appear and the **Advanced** tools are at the bottom, if in palette mode the **Advanced Tools** palette will appear.



Most of the tools in the Advanced tools are discussed in this section. The Mirror tool is discussed in Chapter 5 and the Link, Unlink and Unlink All tools are discussed in Chapter 4.

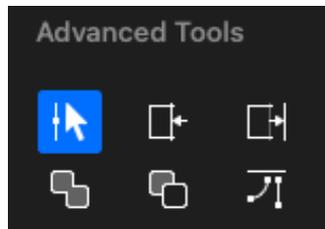
## Adding and deleting handles PRO ONLY

It is sometimes useful to add a handle to an object before editing it. Handles can be added to lines, square corner rectangles, polylines, polygons and freehand shapes.

### ***Adding a handle***

To add a handle to a shape

1. Click the **Add/delete handle** tool in the **Advanced Tools** panel/palette.



The cursor will turn into an arrow pointer with a plus sign attached to it. This shows you that you are in the add handle mode.

2. Position the tip of the pointer on the object's border at the place you want a new handle and click it.

A new handle appears on the object at the point clicked.

You can drag the handle associated with the new vertex to reshape the object, just as you would any other handle.

**Note:** When you add a handle to some shapes, minor (midpoint) handles will also be added.

## ***Deleting a handle***

Handles can also be deleted from objects. Sometimes this is a useful action before smoothing an object. When you delete a handle, the handle disappears and a straight line or curve (depending on the shape) will be drawn between the two handles that were the closest to the deleted handle.

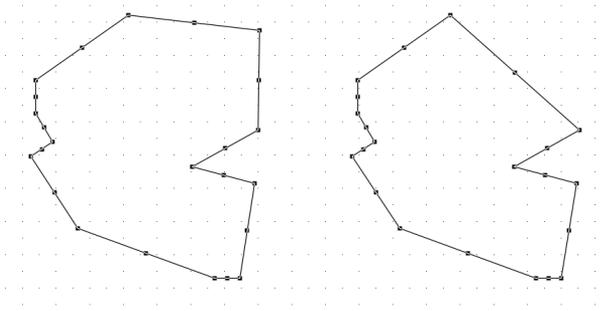
### **To delete a handle**

1. Click the **Add/delete handle** tool in the **Advanced Tools** panel/palette.
2. Press and hold down the **Option** key.

The cursor will turn into an arrow pointer with a minus sign attached to it. This shows you that you are in delete handle mode.

3. Position the tip of the pointer on the handle you want to delete and click it.

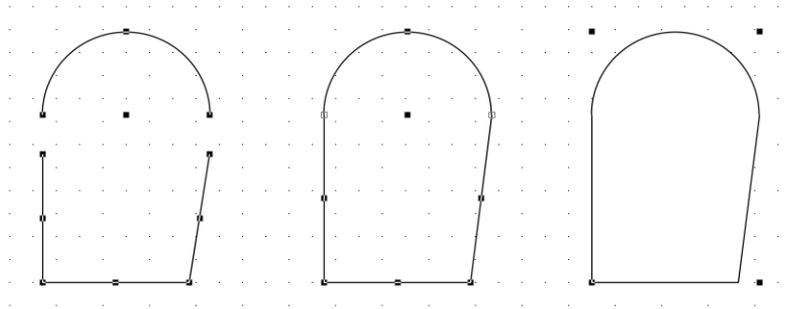
The handle will be deleted.



## **Attaching and joining lines/objects** PRO ONLY

The Attach tool, in the Advanced tools, is used to join the edges of open objects together at their end points. For example, you can draw any combination of lines, polylines, open freehand shapes, curves or arcs, arrange them so vertices coincide, and finally attach them together to form a single open or closed object.

- If the edges of the combined objects are all straight line segments, the new object will be an ordinary polygon.



- If any of the edges are curved, the new object will be a “metapolygon.”

**Note:** The objects to be attached together must be open. For example, you cannot attach two rectangles together. Closed objects such as rectangles, polygons or circles can be combined using the Add tool

### ***Aligning objects to attach***

When aligning the objects that are to be attached, the **Snap to Object** function can be helpful. The **Snap To Object** function allows you to align the vertex points of objects as you draw them. You can also accurately reposition the vertex points of objects so the vertex points coincide.

When you reposition (drag) vertex points, the object is normally resized. However, you can move a complete object by dragging a vertex point. This is an easy way of aligning vertex points.

#### **To reposition an object by dragging a vertex point**

1. Press and hold down the **Option & Command** key.
2. Position the cursor on the vertex point of one object that you want to align with a vertex point of another object.
3. Holding down the mouse button and **Option & Command** key, drag the vertex point to the other vertex point.

The first object will be moved rather than resized, and the vertex points will be accurately aligned.

## Attaching open objects together

To attach open objects together

1. Align the vertex points of the objects you want to attach together.

**Note:** Edit handles are not shown on the vertex points that overlap. This shows that the vertex points are aligned.

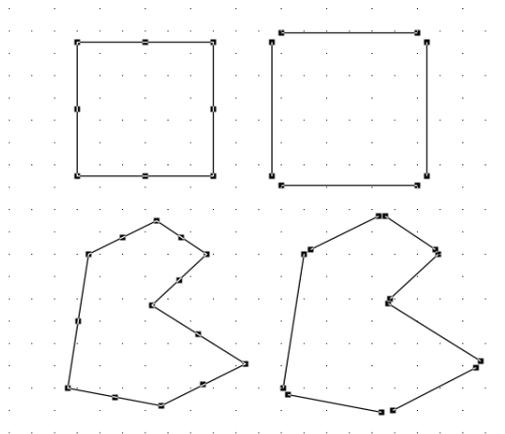
2. Select the objects to attach.
3. Click the **Join tool** in the **Advanced Tools** panel/palette.

The objects will be joined together.



## Breaking objects PRO ONLY

You can break down some MacDraft objects into simpler objects using the **Break tool** in the **Advanced Tools** panel/palette.



## Object components

Rectangles, polygons and polylines, spline or Bezier curve shapes, parallel-line objects and dimension objects can all be broken down into simpler components as detailed in the following list.

**Rectangles:** Single lines

**Round-corner rectangles (constant or proportional corners):** Four single lines and four radial arcs.

**Round-corner rectangles (elliptical corners):** Four single lines and four elliptical arcs.

**Polygons and polylines:** Single lines.

**Parallel lines (single):** Single lines

**Parallel polygons and polylines:** Individual polygons and polylines.

**Freehand objects:** Single lines.

**Spline and Bezier objects:** Series of single-segment Bezier curves.

**Dimension objects:** Varies.

**Metapolygons (objects with both curved and straight edges, created using the Add, Subtract or Attach tools):** Each edge will become a separate object. For example, an object created by adding a circle and a polygon will break into a radial arc and several straight line segments.

**Note:** Once objects (other than polygons or polylines) are separated using the Break tool, they cannot be reassembled. The one exception to this is that the Undo command can reverse the Break tool's effects immediately after its use.

### ***Breaking an object into its component parts***

To break an object into its component parts

1. Select the object to be broken.
2. Click the **Break** tool in the **Advanced Tools** panel/palette.

The object will be broken down into simpler components.

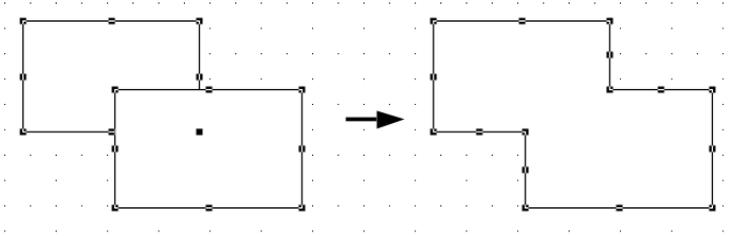
### **Adding objects** PRO ONLY

You can use the **Add** tool in the **Advanced Tools** panel/palette to combine two

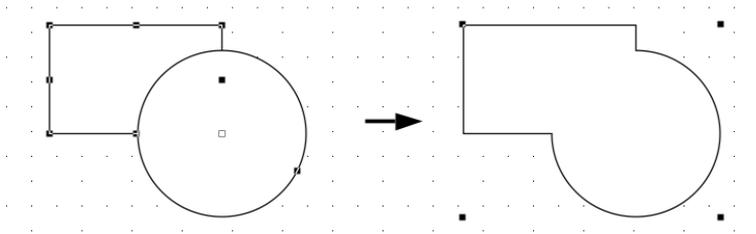
objects together to form a single object.

When you add two overlapping objects, the edges that overlap disappear and the objects are fused together to form a single, composite object. You can apply a single fill, line weight, line style or set of object information to the new composite object.

If the edges of the combined objects are all straight line segments, the new object becomes an ordinary polygon.



If any of the edges are curved, the new object will be a “metapolygon”.



### ***Adding two objects***

To add two objects

1. Select the two overlapping objects you want to add together.
2. Click the **Add** tool in the **Advanced Tools** panel/palette.

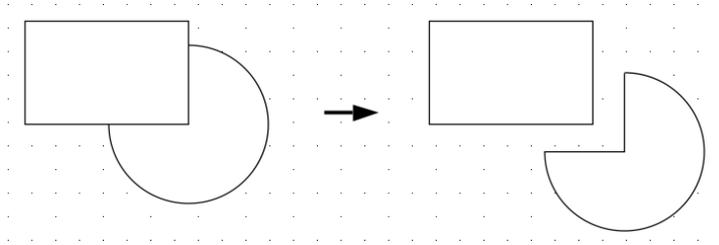


The selected objects will be added together.

**Note:** You cannot break the merged object into the original, individual components after you have merged them. However, you can use the Break tool to “disassemble” the added polygon or metapolygon into its component edges.

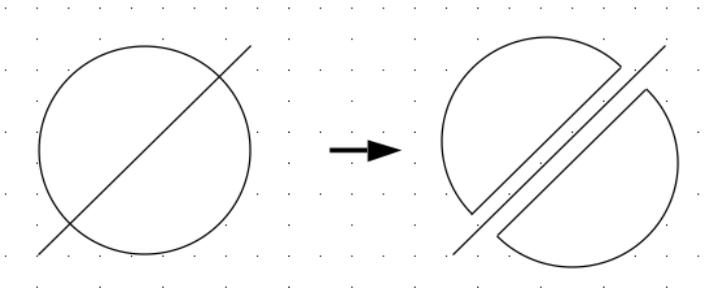
## Subtracting objects PRO ONLY

The **Subtract** tool is used to slice away part of one object with another object that lies above it.



The portion of the object under the cutting object will be removed. You can view the results by moving the cutting object to one side.

You can also use a straight line object to slice another object in two (this works even if the line doesn't go all the way across the object).



If the edges of the cut object are all straight line segments, the new object will be an ordinary polygon.

If any of the edges are curved, the new object will be a “metapolygon”.

## ***Subtracting part of an object using another object***

To subtract part of an object using another object

1. Position the object to be used as the cutting object on top of the object to be cut into. If necessary, use the **Arrange** menu's **Bring to Front** command. The cutting object must overlap part of the object to be cut into.
2. Select the cutting object and the object to be cut into.
3. Click the **Subtract** tool in the **Advanced Tools** panel/palette.



The portion of the object under the cutting object will be removed from that object. View the results by moving the cutting object to one side.

If the new object has all straight edges, it will be an ordinary polygon. If any of the edges are curved, the new object will be a “metapolygon”.

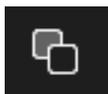
**Note:** The Subtract tool only works with two objects at a time.

## ***Using a line to cut an object in two***

If you use a line object and the **Subtract** tool to cut an object in two, the line only needs to cross part of the object. The **Subtract** tool automatically continues the cut straight across the rest of the object.

To use a line to cut an object in two

1. Position the line to be used as the cutting object on top of the object to be cut. If necessary, use the **Arrange** menu's **Bring to Front** command.  
  
The line must overlap part of the object to be cut; it doesn't need to reach all the way across the object.
2. Select the line and the object to be cut.
3. Click the **Subtract** tool in the **Advanced Tools** panel/palette.



The object under the cutting line will be sliced in two. You can view the results by moving the pieces and the cutting-line apart.

If the new object has all straight edges, it will be an ordinary polygon. If any of the edges are curved, the new object will be a “metapolygon”.

## Extending lines PRO ONLY

You can extend selected lines to various points on your drawing using the **Extend** tool.

There are a number of options available: you can extend two non-parallel lines to the point where they intersect; you can extend lines to make them intersect with a reference line; and you can extend lines to make them intersect with an existing, nonparallel line.

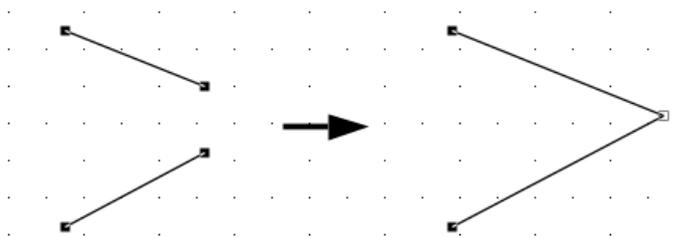
### *Extending two lines to a common intersection point*

To extend two lines to a common intersection point

1. Select the two non-parallel lines that you want to extend.
2. Click the **Extend** tool in the **Advanced Tools** panel/palette.



The two lines will be projected to the point at which they intersect.



**Note:** In some cases, if one line is perpendicular to the other and the logical operation is to extend one line toward the other, MacDraft extends one line and not the other. If you select more than two lines and click the Extend icon, the Extend dialog appears. This allows you to extend lines toward a reference line or an existing line on the drawing. These options are discussed in the following pages.

### ***Extending lines to intersect with a reference line***

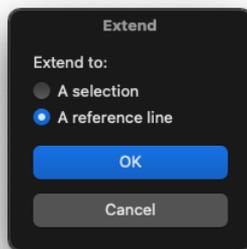
You can select one or more lines on a drawing then define an imaginary reference line to which you want to extend the lines. The lines to be extended can be parallel.

#### **To extend lines to a reference line**

1. Select the lines you want to extend.
2. Hold down the **Option** key (if only one, or more than two lines are selected, holding down the **Option** key is not necessary.)
3. Click the **Extend** tool in the **Advanced Tools** panel/palette.



The **Extend** dialog appears.



4. Release the **Option** key.
5. Ensure the 'A reference line' radio button is on.
6. Click the **OK** button.

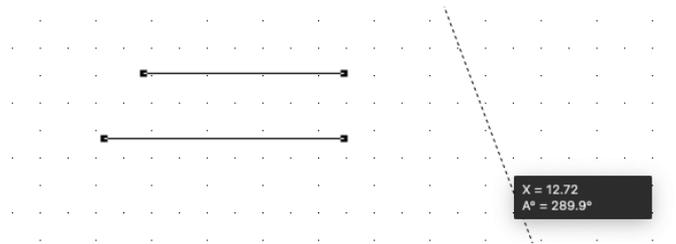
7. Without pressing and holding down the mouse button, move the cursor to the first position you wish to use to define the reference line.

If you move the cursor beyond the borders of the drawing area, the drawing will automatically scroll.

8. Press and hold down the mouse button.

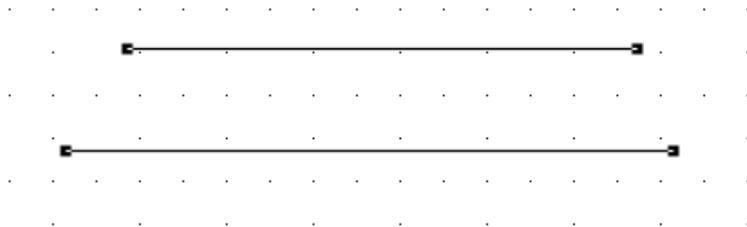
A dotted reference line appears.

9. Drag to define the reference line.



**Note:** If you hold down the Shift key while you drag, the line will snap in 45° increments.

10. When the reference line is in the correct position, release the mouse button. The lines will be projected toward the reference line, which will disappear.

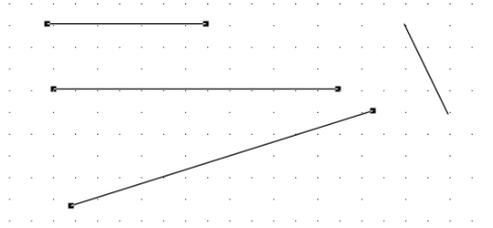


### ***Extending lines to intersect with a selection***

You can also extend selected lines toward an existing line or object on a drawing. The lines to be extended can be parallel to each other.

#### **To extend lines toward an existing line on your drawing**

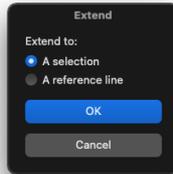
1. Select the lines you want to extend.



2. Press and hold down the **Option** key.
3. Click the **Extend** tool in the **Advanced Tools** panel/palette.



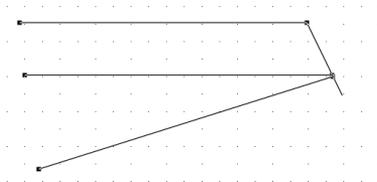
The **Extend** dialog appears.



4. Release the **Option** key.
5. Click the 'A Selection' radio button.
6. Click the **OK** button.
7. Position the tip of the pointer on the line to which you want the selected lines extended and click it.

If you move the cursor beyond the borders of the drawing area, the drawing automatically scrolls.

MacDraft will interpret the line you clicked as being infinite in length and extend the selected lines toward it.



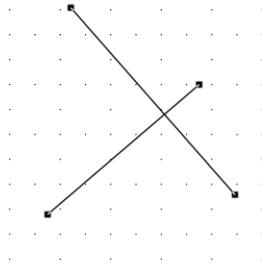
## Trimming lines PRO ONLY

The **Trim** tool is used to cause breaks in two intersecting lines at the point of intersection. When you trim a line, MacDraft adds a vertex point at the point of intersection. There are two trim choices: **Automatic trim** and **Manual trim**.

### *Trimming two intersecting lines*

To trim two intersecting lines

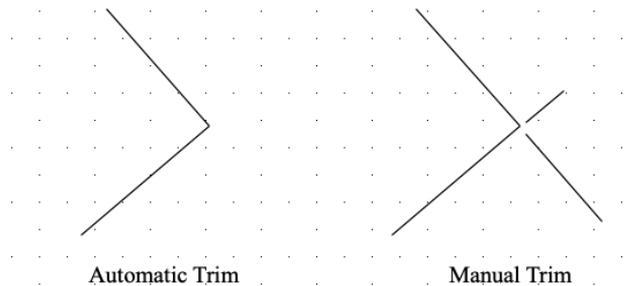
1. Select the two lines you want to trim.



2. Click either the **Automatic Trim** or **Manual Trim** icon on the **Advanced Tools** panel/palette.
  - **Automatic trim:** MacDraft automatically removes the shorter pair of lines that result from the trim operation.
  - **Manual trim:** MacDraft leaves all lines for you to remove if you wish.



The two lines will be broken at their point of intersection.



## Creating fillets PRO ONLY

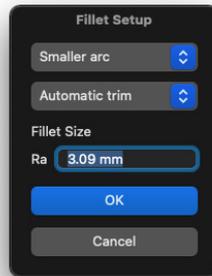
A two-line fillet is an arc of a given radius that is tangent to two line segments. There are many options for creating two-line fillets: you can specify the radius of the arc that results from the operation; you can indicate if you want to create a large or a small arc; and you can choose what to do with the line segments that are left over after the fillet operation is completed (for example, you can choose that MacDraft automatically removes the extra line segments, trims them and leaves them for you to remove or leaves them intact).

### *To create a two line fillet*

1. Select two lines on the drawing.
2. Click the **Fillet** tool in the **Advanced Tools** panel/palette.



The Fillet Setup dialog appears.

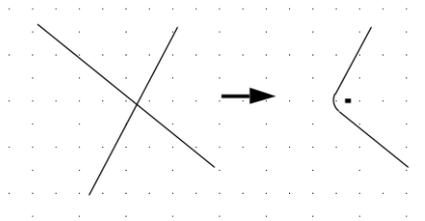


3. Choose the **Smaller arc** or **Larger arc** from the first pop up.
4. Type in the desired radius for the arc.
5. Choose the **Automatic trim**, **Manual trim** or **No trim** from the next pop up to choose how MacDraft deals with the line segments after the fillet operation is completed.

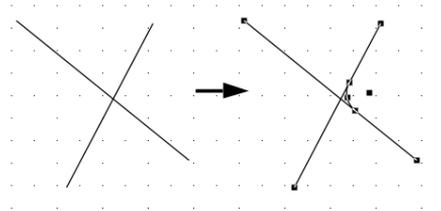
**Note:** The units for the values you enter are based on the size units that were set up in the Set Scale/Units dialog



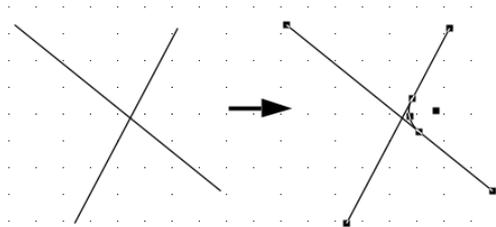
- **Automatic trim:** The arc is drawn and the extra line segments are removed.



- **Manual trim:** The arc is drawn and the lines are broken at the points where they intersect with the arc. You can then select the extra line segments and remove them if you wish.



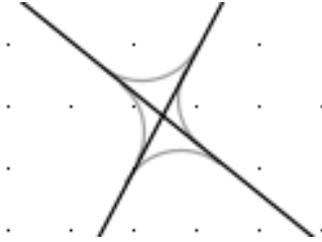
- **No trim:** The arc is drawn and the lines are left intact.



6. Click the **OK** button.

If the two lines intersect each other, there are four possible quadrants in which the arc can be drawn. These are shown on your drawing.

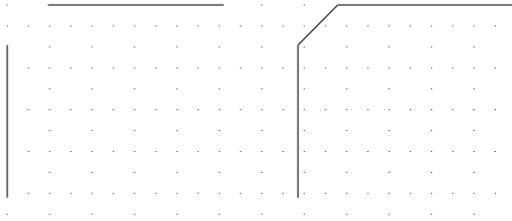
7. Click the quadrant you want the arc to be drawn in. The fillet will be drawn as specified.



## Creating chamfers

PRO ONLY

MacDraft's **Chamfer** tool is used to create a beveled corner at the intersection of two lines.



There are several options for creating chamfers. You can specify the chamfer's distance from the intersection point along each line; you can choose what to do with the line segments that are left over after the chamfer operation is completed (for example, you can choose to have MacDraft automatically remove the extra line segments, trim them and leave them for you to remove or leave them intact).

### *Creating a chamfer*

You can create a chamfer between two lines either by selecting the lines, then clicking the **Chamfer** tool or by activating the **Chamfer** tool, then selecting the lines.

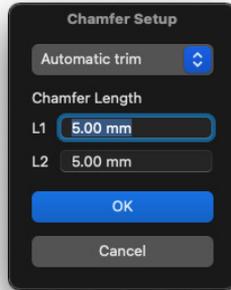
**To create a chamfer**

1. Select two lines on the drawing.

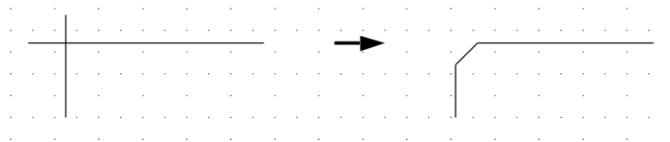
2. Choose the **Chamfer** tool in the **Tools** panel.



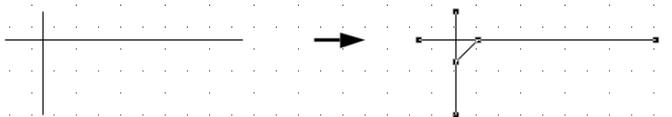
The **Chamfer Setup** dialog appears.



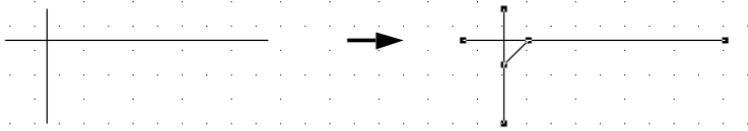
3. Enter values in the Line 1 and Line 2 fields to specify how far along each line from the point of intersection (actual or projected) the chamfer is defined.
4. Click the **Automatic trim**, **Manual trim** or **No trim** radio button to choose how MacDraft deals with the line segments after the chamfer operation is completed.
  - **Automatic trim:** The chamfer is drawn and the extra line segments are removed.



- **Manual trim:** The chamfer is drawn and the lines are broken at the points where they intersect with the chamfer. You can then select the extra line segments and remove them if you wish.



- **No trim:** The chamfer is drawn and the lines are left intact.



5. Click the **OK** button.

The dialog closes. Chamfers drawn will now match the settings specified.

### ***If no lines were selected before clicking the chamfer tool***

1. Follow steps 2 to 5 previously.
2. The cursor will prompt you to select the first line.  
Click the first line.
3. The cursor will prompt you to select the second line.  
Click the second line.
4. The original lines will be extended or truncated to match the specified chamfer settings.

**Note:** Alternatively, select two lines on the drawing before you click the Chamfer tool in the Tools panel.

## **Object information** PRO ONLY

MacDraft allows you to associate names and other text information with objects or groups. For example, if an object or group represents a machine part with a particular name, stock number and manufacturer, you can name it and assign it the appropriate information. Then if you move or copy the shape, even into a library or other drawing, its name and other of information will remain with it.

Object information can be used as criteria for searches using the **Find and Replace** feature or for functions in a MacDraft report format.

Each object or group can have up to five text strings assigned to it. These text

strings are held in fields. The first field is always called “Name” and can be used to hold the name of the object. You can label the other four fields according to the information they will hold for your drawing’s objects. For example, if objects in a drawing need names, stock numbers and manufacturers (as mentioned above), you can define the second and third fields as “Stock Number” and “Manufacturer.” You can then enter that data for individual objects.

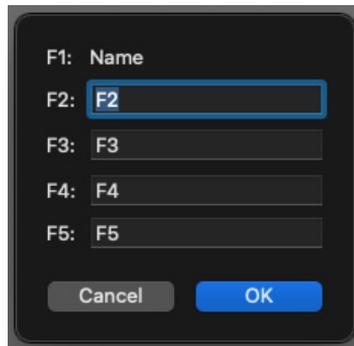
You can name data fields using the **Edit Field Names** command via the **Data** menu. You put data in fields for an object or group using the **Properties** panel.

## Setting the field names PRO ONLY

### *To set the field names for a drawing*

1. Choose **Edit Field Names** from the **Data** menu or click the **Edit Field Names** button at the bottom of the **Properties** panel/ properties palette.

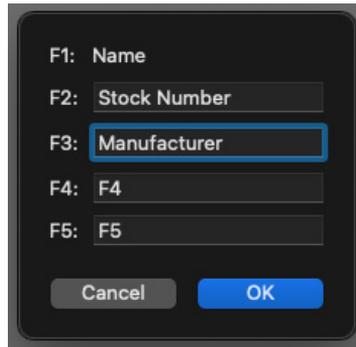
The **Edit Field Names** dialog appears.



2. Double-click in a field name field and type the desired name.

**Note:** The field name can be up to 12 characters long and can contain any letters, numerals or punctuation marks (including spaces).

3. Press the **Tab** key to move to the next field.
4. Repeat steps 2 and 3 until all the field names required are entered, then click the **OK** button.

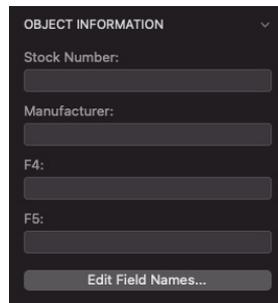
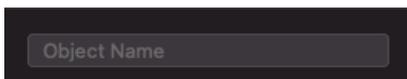


The **Edit Field Names** dialog closes. You have changed the field name default for the drawing and any object that you enter data for will use the field names you have defined

## Assigning object information PRO ONLY

### *To assign object information to an item*

1. Select an object or group.
2. Go to the **Properties** panel/ properties palette and scroll to the bottom of the properties to get to the object info text boxes.



3. Click in a field and enter the desired information.
4. Press the Tab key to move to the next field.
5. Repeat the steps 3 and 4 until all the required object information is entered.



6. Click the **OK** button.

You have assigned one or more types of information to the item. You can now use the data as criteria for Find and Replace operations or manipulate them using the Report feature.

The item will retain its data if you copy and paste it, duplicate it or move it; even if you put it into a different MacDraft document or add it to a library.

**Note:** If you copy or move the item to a document with different field names, it will retain its object information, but the field names of the “host document” appear if you select the item.

## Editing object information PRO ONLY

You can change the object information of an object or group at any time.

### *To edit existing object information*

1. Select the object or group to edit the object information for.
2. Go to the **Properties** panel/ properties palette and scroll to the bottom of the properties to get to the object info text boxes.
3. Click in a field and edit the text as desired.
4. Repeat step 3 until all the data fields read as required

The object information for the selected item(s) has been revised.

## Object information for multiple objects PRO ONLY

Object info for more than one item can be added to or edited, at the same time.

**Note:** When you edit the object information of multiple items, only the fields you edit will change.

### *Adding and editing object information*

To add or edit object information for multiple items

1. Select the objects or groups (or both) to add the object information to, or edit object information for.
2. Go to the **Properties** panel/ properties palette and scroll to the bottom of the properties to get to the object info text boxes.
3. Add the desired information to the appropriate fields.

All the selected objects and groups will have the object information you specified. However, any object information fields you did not edit remain unchanged.

## Replacing objects or object information PRO ONLY

Object information can be replaced using the **Find and Replace** function.

## Reversing changes

If you do something unintentionally or want to correct a mistake, MacDraft allows you to reverse certain actions. The **Undo** command reverses execution of the last action offering 100 levels of undo; the **Redo** command executes the previously reversed action; the **Revert** command returns you to previous saved versions of the document.

### **Undo**

If you choose a command or perform an action and then wish that you had not done so, in most cases you can choose **Undo** to reverse the action or the effects of the command. There are 100 levels of **Undo** in MacDraft.

### ***To undo an action or command***

- Open the **Edit** menu and choose **Undo**, or
- Press **Command** and **Z** on your keyboard.

If the action or command can be undone, the command will be listed beside **Undo** at the top of the **Edit** menu (**Undo Delete** after a deletion, for example).

If the action or command cannot be undone, **Undo** will be dimmed.

## **Redo**

You can use the Redo command to re-execute an action or command that you just reversed using the Undo command. By using Undo and Redo you can experiment with your drawing and MacDraft's features. For example, you could delete an object, observe the effect on your drawing, and choose Undo to reverse the deletion. If you then decided that the deletion produced the desired effect, you could choose Redo and the same object would be re-deleted.

### ***To redo an action or command***

- Open the **Edit** menu and choose **Redo**, or
- Press **Command** and **Shift** and **Z** on your keyboard.

The action or command you just reversed by choosing **Undo** will be listed beside **Redo** at the top of the **Edit** menu (**Redo Delete** after undoing a delete, for example).

## **Revert**

If you execute a command that cannot be undone using the Undo command, or you make changes you are unable to delete but do not wish to save, you can eliminate any unsaved changes by reverting to the another saved version of your document.

### ***To revert to a previously saved version of your document***

1. Open the **File** menu and choose **Revert To**.
2. Choose Browse All Version... from the sub menu that appears.

A screen appears showing all the different versions of the file that you can choose to revert to.

3. Choose the version of the file and click the Revert button.

**Note:** If you revert to a previously saved version of the document, all changes made since the last time it was saved will be deleted.

## Drawing views

MacDraft offers various features for changing the view of your drawing. Using these features you can move the drawing in the document window so that you view a different part of the drawing, or you can zoom in or out on a portion of the drawing to see it in more detail or to see an overall view. Any view can be saved.

### Changing the position of the drawing in the document window

To change the position of the drawing within the document window, you can scroll the drawing, use the **Hand** tool.

**Top Tip:** You can easily return to the top left corner of your drawing by using the Home View command via the View menu.

### *Scrolling*

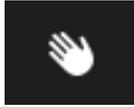
Scrolling in MacDraft drawings is accomplished just as it is in other Macintosh document windows by using the scroll bars at the edges of the windows. See your system documentation for details.

### *The Hand tool*

The Hand tool provides an alternative method of moving the drawing within the document window.

#### To use the Hand tool

1. Click the **Hand** tool in the **Drafting Tools** panel/palette.



The cursor turns into a hand.

2. Position the cursor over the drawing area, then press and hold down the mouse button.
3. Drag in any direction and the view moves with the hand.
4. Release the mouse button when the desired section of the drawing is shown in the document window.

**Top Tip:** Press the "h" key on the keyboard to select the Hand tool.

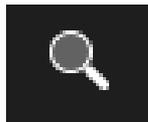
## Zooming in or out on a drawing

When you work with a large document you may need to see the entire drawing at one time or you might need to obtain a close up view of a particular area so that you can add small details. MacDraft gives you the possibility to change the view of your drawing in either of these cases by providing features that allow you to zoom in or out of an area of the drawing. Zoom controls are provided via the **Zoom** tool in the **Tool** panel, by commands in the **View** menu and by a pop-up menu in the toolbar. There are also features that allow you to easily return to a preset or saved view.

**Note:** The current magnification of the drawing view is shown in the zoom pop-up in the toolbar. Also if you zoom out several consecutive times, and have text on your drawing, the text becomes too small to be displayed and only its edit handles will be shown.

### *Using the Zoom tool*

- Click the **Zoom** tool in the **Tool** panel to select it.



## ***Zoom In***

To use the **Zoom** tool to zoom in on an area of the drawing

1. Select the **Zoom** tool from the **Drafting Tools** panel/palette.

The cursor will change to a magnifying glass with a plus sign inside it to show that you are about to increase the magnification of the drawing.

2. Position the cursor over the area of the drawing you wish to zoom in on and click.

The magnification of the drawing view will be increased, and the view will be centered around the position of the cursor.

## ***Zoom Out***

To use the **Zoom** tool to zoom out on an area of the drawing

1. Select the **Zoom** tool from the **Drafting Tools** panel/palette.
2. Press and hold down the **Option** key.

The cursor will change to a magnifying glass with a minus sign inside it to show that you are about to decrease the magnification of the drawing.

3. Position the cursor over the area of the drawing you wish to zoom out on and click.

The magnification of the drawing view will be decreased one level, and the view will be centered around the position of the cursor.

4. Continue clicking to zoom out further.

## ***Marquee zoom***

The **Zoom** tool can also be used to perform marquee zooms.

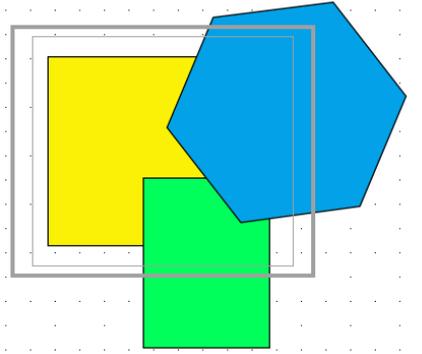
To use the **Zoom** tool to perform a marquee zoom

1. Select the **Zoom** tool from the **Drafting Tools** panel/palette.

The cursor will change to a magnifying glass with a plus sign inside it to show that you are about to increase the magnification of the drawing.

2. Position the cursor over the drawing.

Press and hold down the mouse button, and drag over the area you want to zoom in on.



The inner rectangle shown in the screen shot above is the area selected with the Zoom tool. The outer rectangle represents the actual area that will be shown in the document window when the mouse button is released.

3. Release the mouse button to display the portion of the document selected.

### ***Zoom commands***

The Zoom commands are found in the **Zoom** submenu in the **View** menu.

- **Zoom out:** Choose **Zoom Out** from the **View** menu.

The magnification of the drawing view will be decreased.

- **Zoom in:** Choose **Zoom In** from the **View** menu.

The magnification of the drawing view will be increased.

### ***Zoom pop-up menu***

The current magnification of the drawing view is shown in the toolbar. If you click this area, a magnification pop-up menu appears. You can also type the percentage of zoom you would like to use.



- Choose a magnification value from this pop-up menu to zoom in or out on your drawing.

### ***Restore previous zoom***

The **Restore Previous Zoom** function allows you to return to the previous magnification of your drawing, regardless of the current magnification.

#### **To return to the previous magnification**

- Choose **Restore Previous Zoom** from the **View** menu.

The view will zoom in or out to the previous magnification.

**Note:** You can use this command to alternate between two magnification levels. For example, you could do some detailed editing at high magnification, use **Restore Previous Zoom** to examine the whole image, then use **Restore Previous Zoom** again to zoom back in and continue the detailed work.

### ***Controlling the appearance of lines/borders in zoomed-in views*** PRO ONLY

When you zoom in on objects, you can decide if you want to have lines and borders become magnified in proportion to the current zoom factor.

Normally, lines and borders are not magnified. For example, a 3-pixel line appears as a 3-pixel line even in a view magnified to 200%. However, you can choose that lines and borders should be magnified when you zoom in on them. For example, a 3-pixel line will appear to be 6 pixels in width if you zoom in to 200% magnification.

The command that controls the appearance of lines and borders in zoomed in views is **Zoom Line Weights** in the **Options** menu.

**To make line weights appear larger in zoomed-in views than in the normal view**

- Choose **Zoom Line Weights** in the **Options** menu.

A check mark appears by the menu item, and line weights will be magnified in zoomed in views.

**To make line weights remain constant regardless of the current magnification factor**

- If there is a check mark against **Zoom Line Weights** in the **Options** menu, choose **Zoom Line Weights**.

The check mark will be removed, and lines and borders will not be magnified by the current zoom factor.

## Home view

The view which appears on the screen when you first open a MacDraft document is called the **Home View**. This view shows the unmagnified view of the upper left corner of the document.

### *To display the home view*

- Choose **Home View** from the **View** menu.

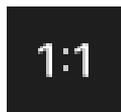
An unmagnified view of the upper left corner of the document is shown.

## 1:1 tool

You can easily return to an unmagnified view of the current area of the document by using the **1:1** tool in the **Tool** panel. This is useful if you have zoomed in on a detail and now want to see it at single magnification, but don't want to return to the upper left corner of the drawing as when using the **Home View** command.

### *To return to an unmagnified view of the current working area*

- Click the **1:1** tool on the **Drafting Tools** panel/palette.



The view will be changed to an unmagnified view of the current area.

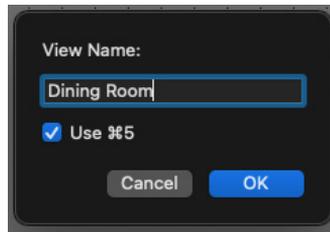
## Saved views PRO ONLY

You can save any view of your drawing. Saved views can be of any part of the image and at any magnification. This feature allows you to move quickly to and from different areas of your drawing and different magnifications.

### To save a view PRO ONLY

1. Display the view you want to save.
2. Choose **Save View** from the **View** menu.

The **Save View** dialog appears.



3. Enter a name for the view.

By default, MacDraft will assign the Command key equivalent to the first five views you save. This means that you will be able to display a saved view by pressing down the **Command** key and typing the number that corresponds to the saved view; **Command-5**, **Command-6** and so on.

4. If you don't want the **Command** key equivalent to be assigned to a view, click the **Use checkbox** to turn this option off.
5. Click the **OK** button to save the view.

The name of the view is added to the bottom of the **View** menu.

### Displaying saved views PRO ONLY

You can display a previously saved view in two ways: by choosing the view's name from the View submenu or by using a Command key equivalent (this method can only be used for up to five views).

### To display a saved view

- Choose the name of the desired view from the **View** menu.

### *Deleting saved views* **PRO ONLY**

When you save a view, the commands **Delete View** and **Delete All Views** are added to the **View** menu.

### To delete a saved view

1. Open the **Delete View** submenu in the **View** menu.
2. Choose the name of the view you want to delete from the **Delete View** submenu.

The saved view will be deleted. If the view had a **Command** key equivalent associated with it, that number will now be available for use again

### To delete all views

1. Select **Delete All Views** from the **View** menu.

An alert appears asking you to confirm that you want to delete all views.

2. Click the **Delete** button to delete all views.

### **Interrupting the screen redraw** **PRO ONLY**

If you are working on a large, complicated drawing and you perform an action (such as zooming) that requires the screen to be redrawn, it may take some time for the screen redraw to be completed. If you decide that you want to interrupt the screen redraw before it is completed, you can do so.

- **To interrupt the screen redraw:** Press and hold down the **Command** key and the period (.) key
- **To redo the screen redraw:** Press and hold down the **Option** key and click the **Pointer** tool icon in the **Tool** panel.

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## Chapter 3

# Changing the appearance of objects

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In many drawings, you may want to change the appearance of objects to help differentiate between them. You can change their appearance by filling objects with washes (solid fills), gradients and patterns; by drawing lines and object borders with different colors, patterns, line weights, line styles and pen styles; by drawing lines with different end marks; and by choosing different positions for object borders.

You can define attributes for fills and lines that will be applied to all objects you draw or you can change the attributes of existing objects.

When the application is launched, the default values are white fill, black pen, no pattern, line weight 1 point, plain line style.

## Object Attributes

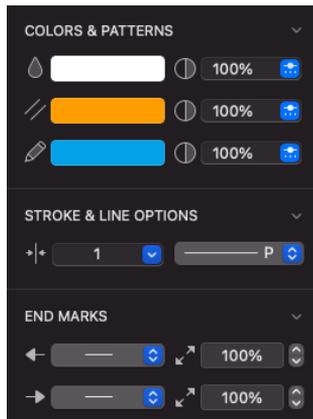
Most attributes are chosen from various pop-up menus in the **Attribute** section of the **Properties** panel/ properties palette. Others are chosen from the options menu or the **Swatches** panel.

### The Attributes options

#### *Displaying the Attribute options*

To open the Attribute options

- Go to the **Properties** panel (right panel, first tab)/ properties palette and the **Attribute** Options for colors, patterns, gradients, line weights, line styles and end marks will be displayed at the top of the panel.



### **Selecting attributes using the Attribute options**

Selecting attributes is discussed in detail in later sections of this chapter, but in general:

- Change the attributes of existing objects by selecting the object, opening the appropriate menu in the Attribute options, then making your choice.
- Change the drawing's default attributes (the fill, line weight and so on that will be applied to all new objects you draw) by making sure nothing is selected, then opening the appropriate menu and choosing an attribute.

### **Default attributes**

The attributes that you can select for objects before you draw them are Fill color and pattern, and Parallel line fill color and pattern. The pen attributes (that is, the attributes associated with lines and object borders) that you can define for objects before you draw them include pen style, color and pattern, line weight (thickness), line style (solid and dashed lines), end marks (symbols at the ends of lines), and border position. The option for each of these attributes that is currently active is called the 'default attribute'.

The current default fill and pen attributes appear on the lines and borders of the objects you draw.

**Note:** You cannot apply both a fill color and fill pattern to an object unless you define a colored fill pattern.

When nothing is selected on the drawing, the default attributes are shown in the Attribute options in the Properties panel/ properties palette. When an object is selected, the Attribute options show the attributes of that object.

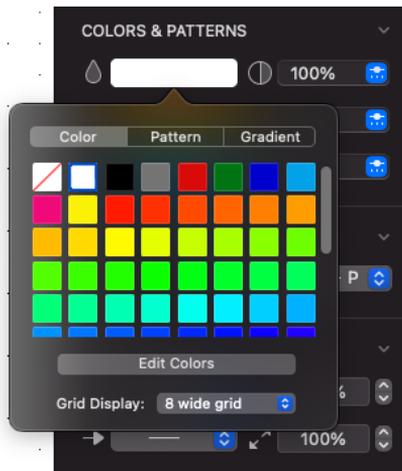
### **Setting default attributes**

To change the current default attributes for fills and lines

1. Activate the **Pointer** tool on the **Drafting Tools** panel/palette.

**Note:** Make sure that there is nothing selected on the drawing.

2. From the pop-up menus in the Attribute options, choose the fill and/or line attributes you want to apply to all objects you create.



The attributes you choose will automatically be applied to all objects until you make other choices for the default attributes.

### **Selecting attributes for specific objects**

You can change the fill and line attributes for selected objects without affecting the default fill and line attributes.

To define the fill and/or line attributes for selected objects

1. Select the object or objects you want to change.

2. From the pop-up menus in the Attribute options, choose the fill and/or line attributes you want to apply to the selected objects.

The chosen attributes will be applied only to the selected objects. The default attributes will not be changed.

## Using colors

With MacDraft you can use color in a variety of ways: to fill objects with solid colors, to fill objects with color patterns, to draw the borders of objects and to color text. The use of solid colors is referred to as a “wash,” and the use of colors to draw lines and object borders is referred to as the “pen color.” The color you choose for the pen is applied to text as well. You can also use colors in fill patterns and to fill the gaps between parallel lines.

### The color table

The color table contains the colors used in a document. Each new document contains a number of preset colors, which you can edit and any new colors you create. The preset colors and the colors you edit or create are stored in the document’s color table.

The color table is represented on your screen as a submenu that shows all the preset colors and all the colors that have been created and used in the document.



The colors in the color table can be chosen from the **Attribute** options in the **Properties** panel/ properties palette and can be edited or new ones created via

the **Swatches** panel, you can also apply colors, patterns and gradients via the swatches panel but this will be discussed in more detail later.

**Note:** Any colors created or edited in the **Swatches** panel will be available for selection in the attributes submenu in the **Attribute** options. You cannot use the **Swatches** panel to apply attributes, only to edit and create them.

In addition when you paste objects from a different document that has colors that are not present in the target document's color table, the colors from the source document are preserved in the objects that are pasted, and will be added to the target document's color table.

## Editing colors

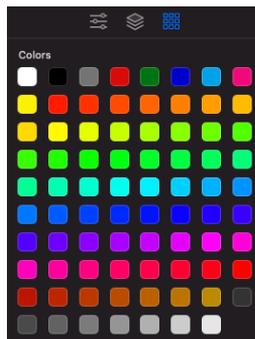
You can edit the existing colors in the color table to add your own colors.

When you edit an existing color, the existing color is replaced with the new color in the color table.

**Note:** If you edit a color that has been used in the document, the objects that contain the edited color will be updated with the new color.

### *To edit a color in the color table*

1. Open the **Swatches** panel and locate the color you want to edit.



2. Double-click the mouse button on the color you want to edit or select the color with a single mouse click and choose **Edit** from the options menu (the **Gear** symbol).

The **Color Picker** dialog appears.

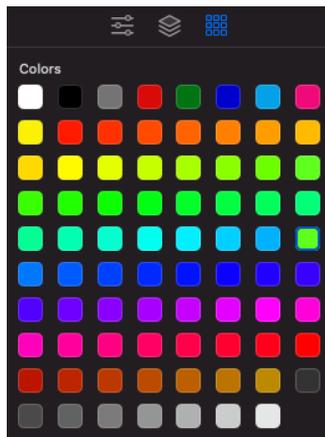
3. Use the controls in the **Color Picker** dialog to choose a new color.



**Note:** The Color Picker dialog is specific to the operating system. For full details on how to use it refer to the operating system documentation.

4. When you have chosen a new color, close the Color Picker dialog using the red X in the top left hand corner of the dialog and return to MacDraft.

The new color you chose replaces the color you selected to edit.



## New colors

You can create new colors in the Swatches panel/ palette to add your own colors.

When you add a new color, it will be added to the Attributes submenu.

### *To create a new color*

1. Open the **Swatches** panel and click the plus (+) symbol in the bottom left hand corner.

A submenu will appear.



Select **New Color** from the submenu and the **Color Picker** dialog appears

2. Use the controls in the **Color Picker** dialog to choose a new color.



3. When you have chosen a new color, close the Color Picker dialog using the red X in the top left hand corner of the dialog and return to MacDraft.

The new color you chose is appears in the Swatches panel and is available for selection the Attributes pop-up.



## Duplicating colors

You can duplicate existing colors in the Swatches panel/ palette to add your own colors. Duplicating a color is a good when you want to get a new color close to the existing one.

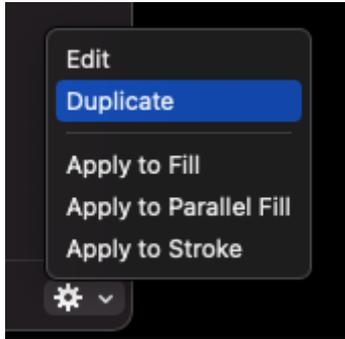
When you duplicate a color and create a new one, it will be added to the Attributes submenu.

### *To duplicate a new color*

1. Open the **Swatches** panel/ palette and select the color you want to duplicate with a single mouse click.
2. Choose **Duplicate** from the options menu (the **Gear** symbol).

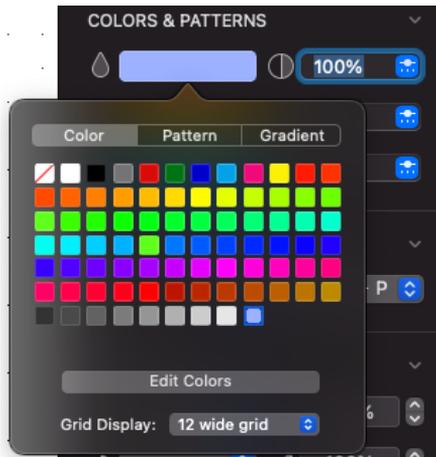
The **Color Picker** dialog appears.

3. Use the controls in the **Color Picker** dialog to choose a new color.



4. When you have chosen a new color, close the Color Picker dialog using the red X in the top left hand corner of the dialog and return to MacDraft.

The new color you chose is appears in the Swatches panel and is available for selection the Attributes pop-up.



## Object fill color

You can use a solid color to fill the interiors of objects. Filled objects are opaque and you can select them by clicking their borders or anywhere within them. If a filled object is on top of another object, it hides the object beneath it from view.

## Selecting the fill color

To select the fill color

1. Open the **Fill Color** pop-up menu in the **Attribute** options section of the **Properties** panel/ properties palette.
2. Locate the fill color you want to use and click the mouse button to select it.



The selected fill color will be shown on the color picker in the Attribute options.

**Note:** If you choose "/" (for No fill) from the Fill Color submenu as the current fill color, the objects you draw will be wire frame shapes.

You must draw polylines, freehand lines and curves with No fill if you want end marks to appear on the lines

You can set the fill color before or after you draw the object.

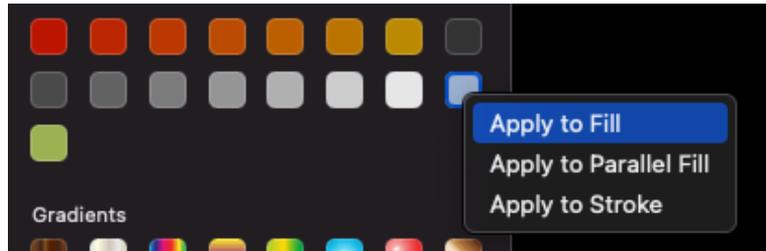
## Applying a Fill Color from Swatches

You can now apply a color to an object directly from the Swatches Panel/ Palette.

To draw an object with a selected fill color

1. Select the object you wish to apply a color from the swatches panel/ palette to.
2. Open the swatches panel/ palette.

3. Click a color to select it.
4. Right Click the color.



5. Choose Apply to Fill and the object will now have its fill set to the desired color.

### ***Drawing an object with a selected fill color***

To draw an object with a selected fill color

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. Select the desired fill color from the **Fill Color** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.
3. Draw an object.
4. The object will be drawn with the specified fill color.

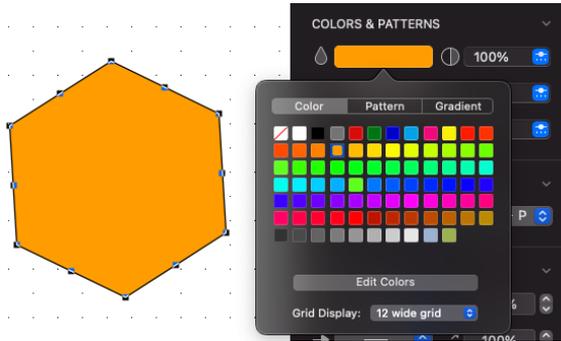
**Note:** The chosen fill color will be used for objects until you choose another fill color as the default.

### ***Changing the fill color of an existing object***

To change the fill color of an existing object

1. Select the object you want to change the fill color of in your document.
2. Select the desired fill color from the **Fill Color** pop-up menu in the **Attribute**

options in the **Properties** panel/ properties palette.



The fill of the selected object will be changed to reflect the chosen fill color.

## Parallel fill color

MacDraft's parallel-line objects (single parallel lines, open parallel polylines and closed parallel polygons) can include fill colors (including No Fill) between their component edges.

**Note:** In addition to parallel fills, parallel objects can also have pen colors, patterns and object fills.

### Selecting the parallel fill color

To select the parallel fill color

1. Open the **Parallel Fill Color** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.



2. Select the desired parallel fill color. The selected parallel fill color will be shown on the color picker in the **Attribute options**.

You can change the parallel fill color before or after you draw the parallel line object.

### ***Drawing a parallel line object with a selected fill color***

To draw a parallel line object with a selected fill color

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Tools** panel. (make sure nothing is selected in the document.)
2. Select the desired fill color from the **Parallel Fill Color** pop-up menu in the **Attribute options** in the **Drafting Tools** panel/palette.
3. Draw a parallel line object.

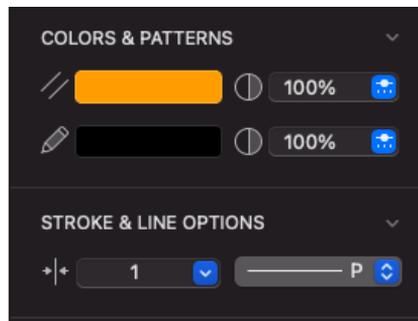
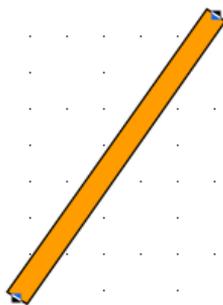
The object will be drawn with the specified fill color.

**Note:** The chosen parallel fill color will be used for objects until you choose another parallel fill color as the default.

### ***Changing the fill color of an existing parallel line object***

To change the fill color of an existing parallel line object

1. Select the parallel line object to change its fill color.
2. Choose the desired parallel fill color from the **Parallel Fill Color** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.



The fill of the selected parallel line object will be changed to reflect the chosen fill color.

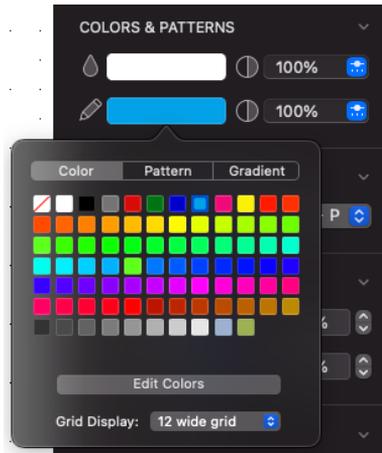
## Pen color

This section describes how to use colors to draw lines, borders and text. You use the Pen Color pop-up menu in the Attribute options to choose pen colors. You can use different pen colors to help distinguish between objects.

### *Selecting the pen color for lines, borders and text*

To select the pen color

1. Open the **Pen Color** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.



2. Choose the desired pen color. The selected pen color will be shown on the color picker in the **Attribute options**.

**Note:** If you choose "/" (for No ink) from the Pen Color submenu as the current pen color, the lines, borders or text you draw will be invisible. Edit handles appear on selected objects drawn with no ink, but the lines, borders or text will not appear on the screen or on printed drawings.

You can change the pen color before or after you draw an object or enter text.

## ***Drawing a line or object, or entering text, with a selected pen color***

To draw a line or object, or enter text, with a selected pen color

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. Select the desired pen color from the **Pen Color** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.
3. Draw a line or object or enter the text.

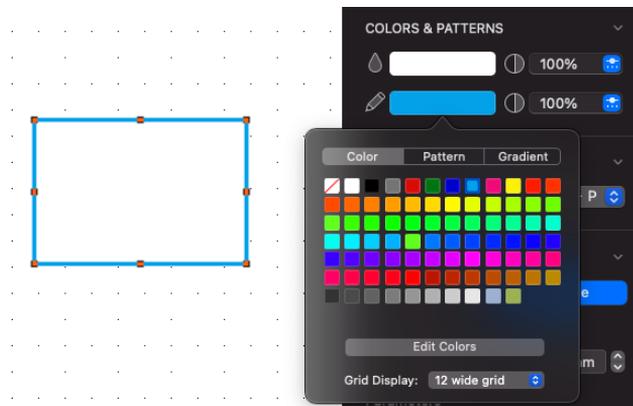
The line, object or text will be drawn with the specified pen color.

**Note:** The chosen pen color will be used for lines, borders and text until you choose another pen color as the default.

## ***Changing the pen color of an existing line, object or piece of text***

To change the pen color of an existing line, object or piece of text

1. Select the line, object or text to change the pen color of.
2. Choose the desired pen color from the **Pen Color** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.



The line or border of the selected object, or the selected text, will be changed to reflect the chosen pen color.

## Showing and hiding fills

You can choose to hide fills, including colors and patterns, on your drawing. When you turn fills off, only the borders of filled objects appear.

### *To hide line fills*

- Open the **Options** menu and choose **Hide Fills**.

Objects appear as wire frame shapes, and a check mark appears next to the **Hide Fills** command.

### *To display fills*

- Open the **Options** menu and choose **Hide Fills** again.

Objects will be drawn with their respective fills, and the check mark disappears from next to the **Hide Fills** command.

## Using patterns

Fill patterns provide an effective way to distinguish between objects. Two reasons you might want to use different fill patterns within a drawing would be to improve its aesthetics or to add meaningful information to the drawing. In a technical drawing, an architect or engineer might use a variety of fill patterns and inks to differentiate between various object types or textures within the drawing. MacDraft offers a selection of standard fill patterns to complement your drawing. You can use the existing patterns, customize them or create your own.

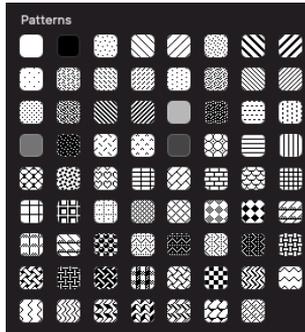
## Editing patterns

The edit patterns feature allows you to change the patterns available in the pattern fill submenus from the Attribute options in the Properties panel. When a pattern is edited, the pattern fill submenus will be updated to show the new pattern, and the new pattern will be saved with the document. If a pattern that has been used to fill objects is edited, the objects will be changed to reflect the revised pattern. You can also duplicate and create new patterns, which will be added to the bottom of the available patterns.

## The Edit Pattern dialog

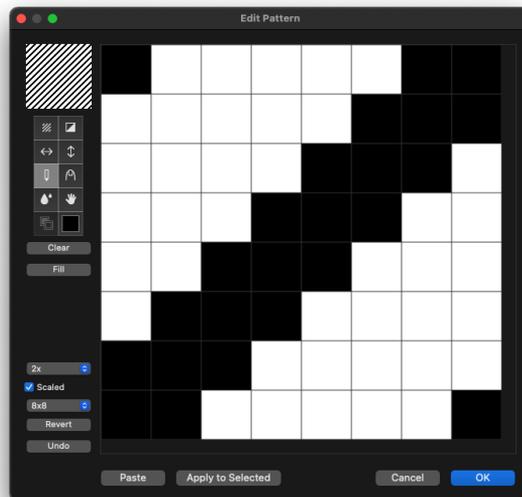
To open the Edit Pattern dialog

1. Open the **Swatches** panel/ palette and locate the pattern you want to edit.



2. Double-click the mouse button on the pattern you want to edit or select the pattern with a single mouse click and choose **Edit** from the options menu (the **Gear** symbol).

The **Edit Pattern** dialog appears.



## ***The edit pattern field***

The large box in the center of the Edit Patterns dialog is the edit pattern field. It shows a magnified view of the bits that make up the pattern. The pattern is edited within this field.

## ***Pattern preview***

The box in the upper left corner of the Edit Pattern dialog shows a preview of the pattern as it appears on the drawing. It is updated as the pattern is edited in the Edit Pattern field.

## ***The pattern grid***

The pattern grid can be defined as 8 x 8, 16 x 16, 32 x 32, 64 x 64, 128 x 128, 256 x 256 or 512 x 512 grid squares.

### **To specify the pattern grid**

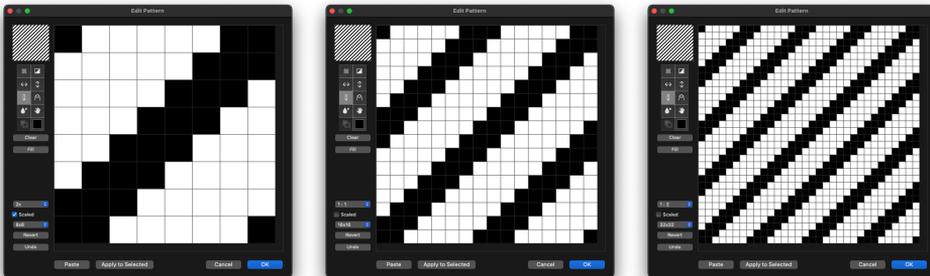
- Select 8 x 8, 16 x 16, 32 x 32, 64 x 64, 128 x 128, 256 x 256 or 512 x 512 from the grid size pop-up menu.

## ***Scale with Scale turned off***

### **Grid Size Increased**

If the Scale box is turned off, as the grid size is increased, the pattern is replicated to fill the new area.

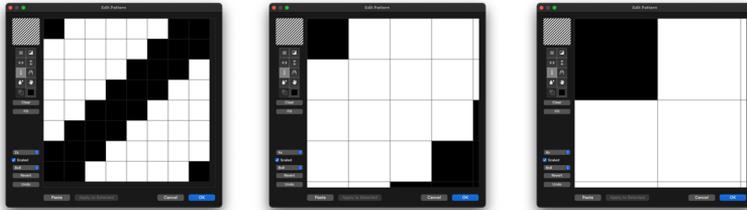
For example: In the dialogs below, the grid size is increased from 8 x 8 to 16 x 16, then to 32 x 32. At each stage, four copies of the contents of the Edit Pattern field are used to fill the new grid. Notice that although the contents of the Edit Pattern field change, the Pattern Preview field remains the same.



### Grid size decreased

If the Scale box is turned off, as the grid size is decreased, the pattern is divided and applied to the new area.

For example: In the dialogs below, the grid size is decreased from 32 x 32 to 16 x 16, then to 8 x 8. At each stage, the contents of the top left quarter of the Edit Pattern field are used to fill the new grid.

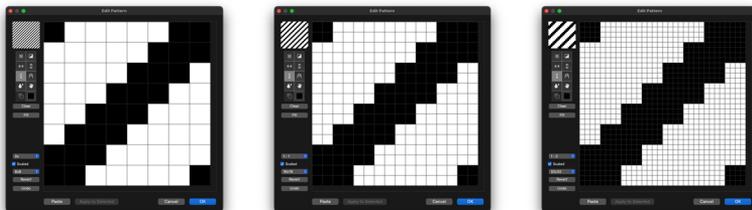


### Scale with Scale turned on

#### Grid Size Increased

If the Scale box is on, as the grid size is increased, the pattern in the Edit Pattern field remains the same, but is divided up into more squares.

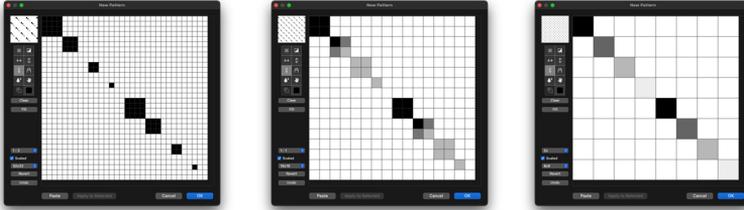
For example: In the dialogs below, the grid size is increased from 8 x 8 to 16 x 16, then to 32 x 32. At each stage, the contents of the Edit Pattern field remain the same, but the pattern is divided into more grid squares. Notice that the contents of the Pattern Preview field are scaled up at each stage.



### Grid size decreased

If the Scale box is on, as the grid size is decreased, the pattern in the Edit Pattern field remains the same but is divided into less grid squares. Colors are averaged out in this process.

For example: In the dialogs below, the grid size is decreased from 32 x 32 to 16 x 16 then to 8 x 8. At each stage, as four grid squares are combined to make one new grid square, the average color of the four squares is used for the new square. Notice that the contents of the Pattern Preview box are scaled down at each stage.



### **Color mode**

Patterns can be edited in two modes: black and white, and color/grayscale.

### **Pattern editing tools**

The tools at the left of the pattern edit field are used to edit the current pattern.



### **The Overlay tool**

The Overlay tool is used to apply a pattern over the one in the Edit Pattern field.

#### **To apply a pattern over the one in the Edit Pattern field**

1. Click the **Overlay tool** and hold down the mouse button. The **Fill Patterns** submenu appears.
2. Holding down the mouse button, drag the cursor over the pattern you wish to apply, and release the mouse button.



3. The selected pattern will be applied over the current contents of the **Edit Pattern** field using the current color.



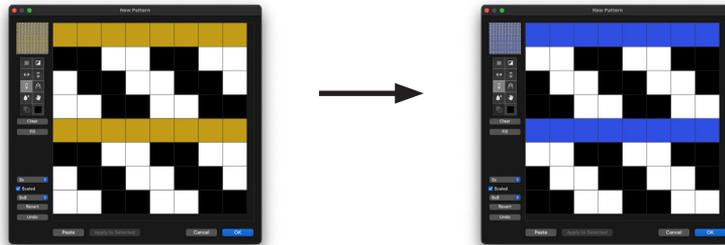
### *The Invert tool*

The **Invert** tool is used to invert the color of the bits in the **Edit Pattern** field. In black and white mode, this action will change all the black bits to white and all the white bits to black. If color bits are included in the pattern, when the **Invert** tool is used, each bit will be changed to the color on the opposite side of the color wheel to the original color, and the brightness will also be inverted. For example, a light pink color will become a dark green/blue, while a dark red will become a light green/blue.

To invert the color of the bits in the **Edit Pattern** field

- Click the **Invert** tool.

The color of the bits in the **Edit Pattern** field will be inverted



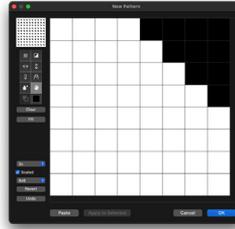
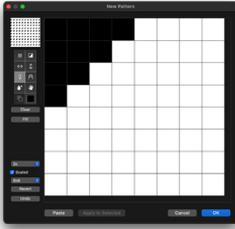
### *The Flip horizontal tool*

The **Flip Horizontal** tool is used to flip the pattern in the **Edit Pattern** field around the vertical axis.

To flip the pattern in the **Edit Pattern** field around the vertical axis

- Click the **Flip Horizontal** tool.

The pattern will be flipped.



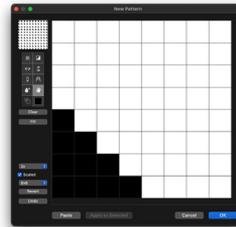
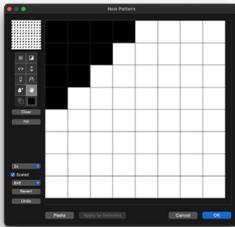
### *The Flip vertical tool*

The **Flip Vertical** tool is used to flip the pattern in the **Edit Pattern** field around the horizontal axis.

To flip the pattern in the **Edit Pattern** field around the horizontal axis

- Click the **Flip Vertical** tool.

The pattern will be flipped.



### *The Pencil tool*

The **Pencil** tool is used to add or delete individual bits or series of bits, or to draw lines in the **Edit Pattern** field.

To add bits to the **Edit Pattern** field one at a time

1. Click the **Pencil** tool and move the cursor over the **Edit Pattern** field.
2. Click the **Edit Pattern** field to add a square of the current color.

### To add a series of bits

1. Click in the **Edit Pattern** field and drag, holding down the mouse button.
2. Bits showing the current color will be added to the pattern as you drag.
3. Release the mouse button when you are finished.

### To draw lines

- Constrain the movement of the **Pencil** tool to a horizontal or vertical direction by holding down the Shift key while you drag. To delete black bits in Black and White mode
- Select the **Pencil** tool and click the black bits you want to delete. To delete color bits in the **Color** mode
- Hold down the **Command** key, then click the color bits to be deleted.

### The Eye dropper tool

You can use the **Option** key to change the pencil tool to an eye dropper, and use this to choose the color of any bit in the **Edit Pattern** field as the current color.

1. Select the **Pencil** tool, hold down the **Option** key and move the pointer into the **Edit Pattern** field.

The pointer will change to an **Eye Dropper** tool.

2. Click the **Eye Dropper** tool on the bit of the color you require to be the current color.

The current color will be changed to reflect your choice.

**Note:** Release the Option key to start using the color you have picked.



### *The Finger tool*

The **Finger** tool is used to blend together the current color and the color of any bit in the **Edit Pattern** field, or the colors of adjacent bits in the **Edit Pattern** field.

### To blend the current color with the color of any bit in the Edit Pattern field

1. Select the **Finger** tool.

The **Finger** cursor shows the current color, which is the first of the two colors to be used in the blending process.

2. Move the cursor over the **Edit Pattern** field and click the bit with which you want to blend the current color.

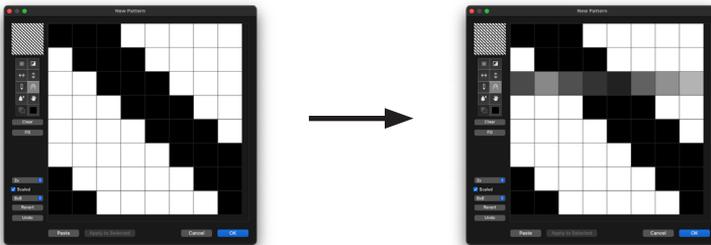
The bit clicked will change to a new color that is the average of the **Finger** cursor color and the color of the bit clicked. The **Finger** cursor color will also be updated to show the new color.

### To blend the colors of a series of bits

1. Select the **Finger** tool.
2. Click in the **Edit Pattern** field and, holding down the mouse button, drag the **Finger** cursor across bits of varying colors.

The average of the color values of the **Finger** cursor color and the bits dragged across will be calculated, and applied to the bit.

**Note:** If you hold down the Shift key while dragging, the movement of the Finger cursor will be constrained to a horizontal or vertical direction.



When you release the mouse button, the **Finger** cursor shows the color last applied to a bit. To reset the **Finger** cursor color to the current color, click the **Finger** tool icon again. To reset the **Finger** cursor color to a color in the pattern, hold down the **Option** key and click one of the colors in the pattern.

**Note:** The Finger tool can be selected in Black and White mode, but the mode is automatically changed to color.



### ***The Paint Bucket tool***

The **Paint Bucket** tool is used to change bits in the Edit Pattern field to the current color.

**To change bits in the Edit Pattern field to the current color**

1. Click the **Current Color** button and choose the color from the **Pattern Color** pop-up menu.
2. Click the **Paint Bucket** icon and then click a bit in the **Edit Pattern** field.  
  
The bit clicked and all bits of the same color connected to it, are changed to the current color.
3. If you hold down the **Option** key with the **Paint Bucket** tool selected, the tool will be changed to the **Eye Dropper** tool. Click a bit in the **Edit Pattern** field with the **Eye Dropper** tool to select the color of that bit as the current color.

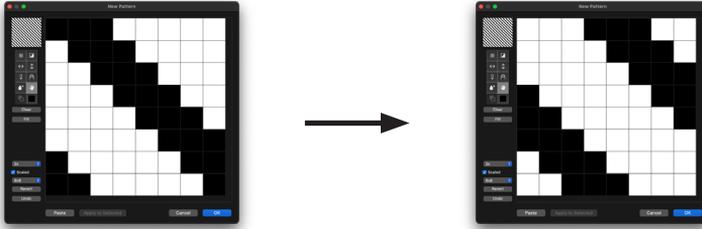


### ***The Hand tool***

The **Hand tool** is used to move the pattern within the **Edit Pattern** field.

**To move the pattern within the Edit Pattern field**

1. Click the **Hand tool** and move the cursor over the **Edit Pattern** field.
2. Holding down the mouse button, drag the pattern to reposition it within the **Edit Pattern** field, and release the mouse button.



### *The Black and White tool*

This tool is used to convert patterns to black and white.

#### To convert patterns to black and white

- Click the **Black and White** tool.

Any bits used in the pattern that are more than 50% saturated will be changed to black. Bits that are less than 50% saturated will be changed to white.



### *The Current Color tool*

You can work with only one color at a time while editing patterns. The selected color is called the current color and is shown in the tool panel of this dialog. With this tool you open the **Pattern Color** menu.

#### To change the current color

1. Click the **Current Color** button and hold down the mouse button.

The **Pattern Color** pop-up menu appears

2. Holding down the mouse button, drag to select the color you want to use, and release the mouse button.

The selected color will be shown on the **Current Color** tool. This color will be used for pattern editing until another color is chosen.



**Note:** The current color is always black when you operate in black and white mode.

### ***Choosing a color which is not available in the Pattern Color menu***

The **Other** button in the **Pattern Color** pop-up menu allows you to select colors that are not available in the **Pattern Color** menu.

To choose a color which is not available in the **Pattern Color** menu

1. Click the **Current Color** button and hold down the mouse button.

The **Pattern Color** pop-up menu appears

2. Click the **Other** button.

The **Color Picker** dialog appears.



3. Select a color from the **Color Picker**.
4. When you have chosen a new color, close the **Color Picker** dialog using the red X in the top left hand corner of the dialog and return to pattern editor.

The color selected will be shown on the **Current Color** button.

### ***Clearing the current pattern***

At times, you may want to clear all the bits from the **Edit Pattern** field and start afresh rather than alter an existing pattern.

**To clear all the bits from the Edit Pattern field**

- Click the **Clear** button and the field will be cleared.

### ***Filling the entire field***

If you need to fill the entire field with the current color you can do this with one mouse click using the **Fill** button.

**To fill the entire field**

- Click the **Fill** button.

The entire **Edit Pattern** field will be filled with the current color.

### ***Zoom***

If you need to zoom in or out of the pattern you can do this using the zoom pop-up menu.

**To zoom in or out of the pattern**

- Click the **Zoom** pop-up menu and choose the desired zoom level and the **Edit Pattern** field will zoom to your selection.

### ***Revert***

- Click the **Revert** button to return to the pattern you originally selected to edit. Any changes you have made will be lost.

## ***Undo***

- Click the **Undo** button to remove the effects of your last action only.

## ***Cancel***

- Click the **Cancel** button to close the **Edit Pattern** dialog and return to your MacDraft drawing without making any changes to the fill patterns.

## ***OK***

- Click the **OK** button to close the **Edit Pattern** dialog and return to your MacDraft drawing accepting the changes you have made to the selected fill pattern. The fill submenu will be updated to show the new pattern, and the new pattern will be saved with the document. If a pattern that has been used to fill objects is edited, the objects will be changed to reflect the revised pattern.

## **New patterns**

You can create new patterns in the Swatches panel/ palette to add your own patterns.

When you add a new pattern, it will be added to the Attributes submenu.

### ***To create a new pattern***

1. Open the **Swatches** panel and click the plus (+) symbol in the bottom left hand corner and a submenu will appear.

Select **Pattern** from the submenu and the **Edit Pattern** dialog appears

2. Use the controls in the **Edit Pattern** dialog to create a new pattern.
3. When you have created your new pattern click the **OK** button

The new pattern you created appears in the Swatches panel and is available for selection the Attributes pop-up.

## **Duplicating patterns**

You can duplicate existing patterns in the Swatches panel/ palette to add your

own patterns. Duplicating a pattern is a good when you want to get a new pattern close to the existing one.

When you duplicate a pattern and create a new one, it will be added to the Attributes submenu.

### ***To duplicate a new color***

1. Open the **Swatches** panel/ palette and select the pattern you want to duplicate with a single mouse click.
2. Choose **Duplicate** from the options menu (the **Gear** symbol).

The **Edit Pattern** dialog appears.

3. Use the controls in the **Edit Pattern** dialog to create a new pattern.
4. When you have created your new pattern click the **OK** button

The new pattern you created appears in the Swatches panel and is available for selection the Attributes pop-up.

## **Object fill patterns**

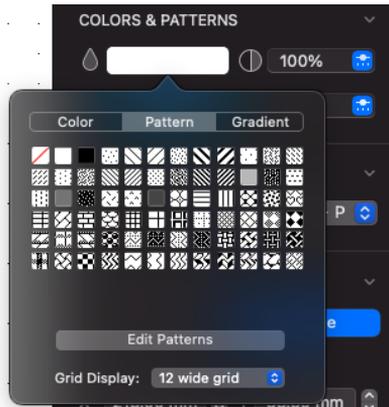
You can use a pattern to fill the interiors of objects. Filled objects are opaque and you can select them by clicking their borders or anywhere within them. If a filled object is on top of another object, it hides the object beneath it from view.

### ***Selecting the fill pattern***

To select the fill pattern

1. Open the **Fill Pattern** pop-up menu in the **Attribute** options section of the **Properties** panel/ palette.
2. Locate the fill pattern you want to use and click the mouse button to select it.

The selected fill pattern will be shown on the color picker in the **Attribute** options. You can set the fill color before or after you draw the object.



### ***Drawing an object with a selected fill pattern***

To draw an object with a selected fill pattern

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. Select the desired fill pattern from the **Fill Pattern** pop-up menu in the **Attribute options** in the **Properties** panel/ palette.
3. Draw an object.

The object will be drawn with the specified fill pattern.

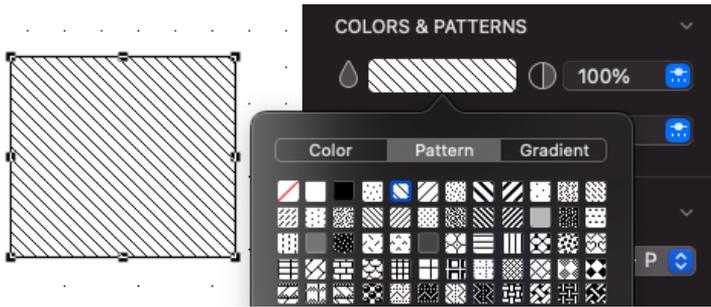
The **Fill** Indicator box in the lower left corner of the window will change to indicate the pattern you chose.

**Note:** The chosen fill pattern will be used for objects until you choose another fill pattern as the default.

### ***Changing the fill pattern of an existing object***

To change the fill pattern of an existing object

1. Select the object you want to change the fill pattern of in your document.
2. Select the desired fill pattern from the **Fill Pattern** pop-up menu in the **Attribute options** in the **Properties** panel/ palette.



The fill of the selected object will be changed to reflect the chosen pattern.

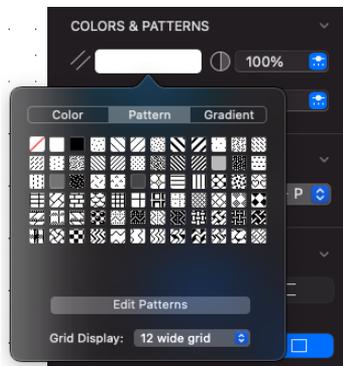
## Parallel fill pattern

MacDraft's parallel-line objects (single parallel lines, open parallel polylines and closed parallel polygons) can include fill patterns (including No Fill) between their component edges.

**Note:** In addition to parallel fills, parallel objects can also have pen colors and patterns, and object fills.

### Selecting the fill pattern

1. Open the **Parallel Fill Pattern** pop-up menu in the **Attribute** options section of the **Properties** panel/ palette.
2. Locate the fill pattern you want to use and click the mouse button to select it.



The selected fill pattern will be shown on the color picker in the **Attribute options**. You can set the fill color before or after you draw the object.

### ***Drawing a parallel line object with a selected fill pattern***

To draw a parallel line object with a selected fill pattern

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. Select the desired parallel fill pattern from the **Parallel Fill Pattern** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.
3. Draw a parallel line object.

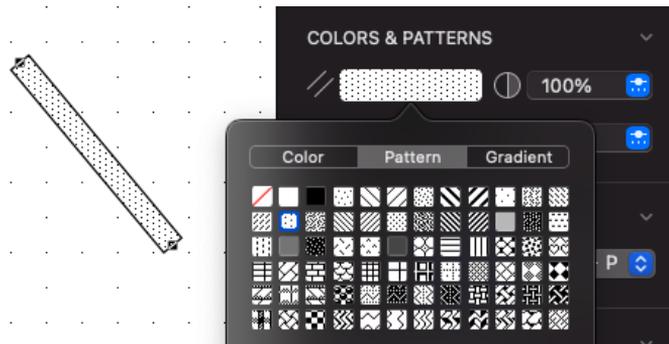
The object will be drawn with the specified fill pattern.

**Note:** The chosen parallel fill pattern will be used for objects until you choose another parallel fill pattern as the default.

### ***Changing the fill pattern of an existing parallel line object***

To change the fill pattern of an existing parallel line object

1. Select the parallel line object to change the fill pattern of.
2. Select the desired parallel fill pattern from the **Parallel Fill Pattern** pop-up menu in the **Attribute options** in the **Properties** panel.



The fill of the selected parallel line object will change to reflect the chosen fill pattern.

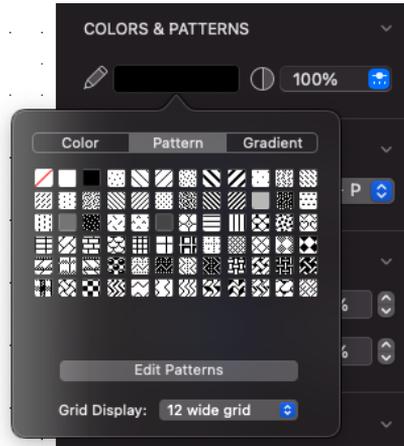
## Pen Pattern

This section describes how to use patterns to draw lines and borders. Use the Pen Pattern pop-up menu in the Attribute options to choose pen patterns. You can use different pen patterns to help distinguish between objects.

### *Selecting the pen pattern for lines and borders*

To select the pen pattern

1. Open the **Pen Pattern** pop-up menu in the **Attribute options** in the **Properties panel/ properties palette**.



2. Choose the desired pen pattern. The selected pen pattern will be shown on the picker in the **Attribute options**.

**Note:** If you choose "/" (for No ink) from the Pen Pattern submenu as the current pen pattern, the lines and borders you draw will be invisible. Edit handles appear on selected objects drawn with no ink, but the lines or borders will not appear on the screen or on printed drawings.

You can change the pen pattern before or after you draw the object.

### *Drawing a line or object with a selected pen pattern*

To draw a line or object with a selected pen pattern

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting**

**Tools** panel/palette. (make sure nothing is selected in the document.)

2. Select the desired pen pattern from the **Pen Pattern** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.
3. Draw a line or object.

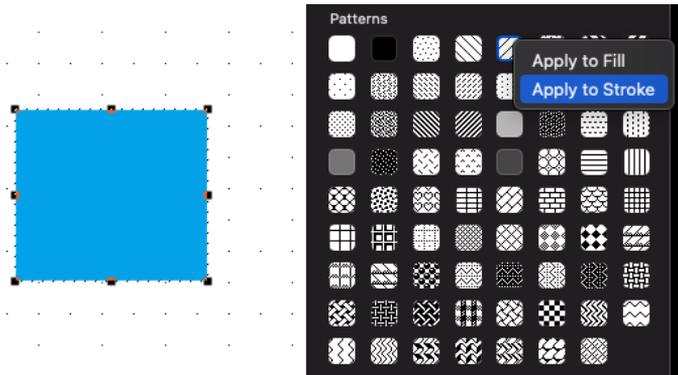
The line or object will be drawn with the specified pen pattern.

**Note:** The chosen pen pattern will be used for lines and borders until you choose another pen pattern as the default.

### ***Adding a pen pattern from the swatches panel/palette***

To add a stroke pattern from the swatches/palette to an object

1. Select the object you wish to apply a pen pattern to.
2. Open the swatches panel/ palette
3. Click the pattern you desire to highlight it
4. Right click (CTRL Click) and a pop up will appear



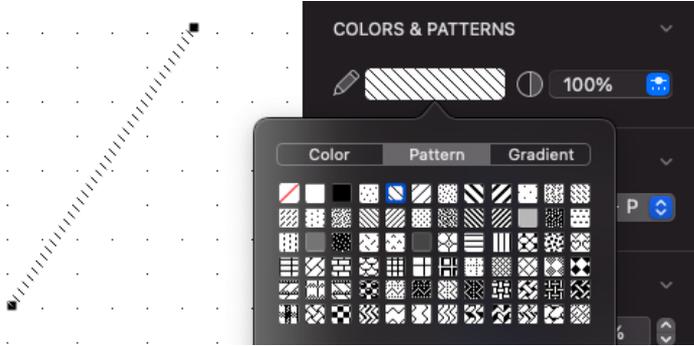
5. Choose Add to Stroke
6. The pattern will now be applied to the stroke/pen of the object

**Note:** Pen patterns are also referred to as Strokes, like a stroke of a pen to create the rectangle.

## Changing the pen pattern of an existing line or object

To change the pen pattern of an existing line or object

1. Select the line or object to change the pen pattern of.
2. Select the desired pen pattern from the **Pen Pattern** pop-up menu in the **Attribute options** in the **Properties** panel/ properties palette.



The line or border of the selected object will be changed to reflect the chosen pen pattern.

## Showing and hiding fills

You can choose to hide fills, including colors and patterns, on your drawing. When you turn fills off, only the borders of filled objects appear.

### To hide line fills

- Open the **Options** menu and choose **Hide Fills**.

Objects appear as wire frame shapes, and a check mark appears next to the **Hide Fills** command.

### To display fills

- Open the **Options** menu and choose **Hide Fills** again.

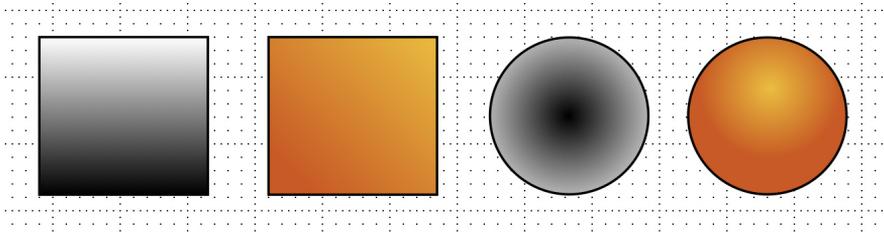
Objects will be drawn with their respective fills, and the check mark disappears from next to the **Hide Fills** command.

# Gradient Fills and Strokes

MacDraft includes Gradients, which can be applied to fills and strokes. You can create, edit and save new gradients into your documents.

## Available Gradient Types

The two main gradients types available are Linear and Radial, which have additional settings within them. The Linear gradient allows you to change the angle to alter the direction of the gradient and the Radial allows you to change the centre position of the gradient. Below are examples of the gradients types available.



## Creating new linear gradients

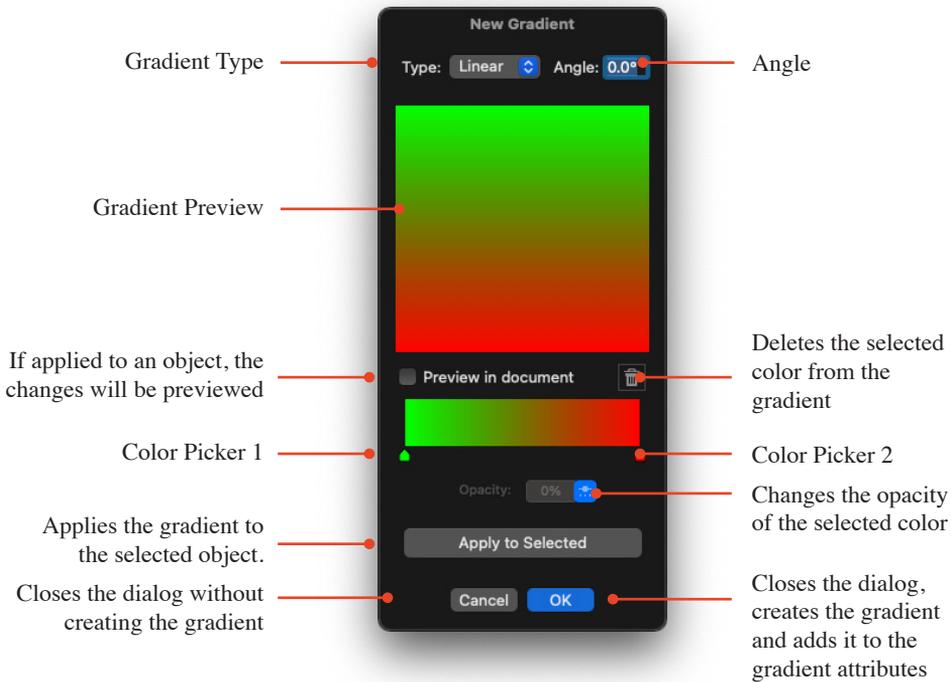
Creating new gradients can be done using the **Swatches** panel/ palette.

### *To create a new linear gradient*

1. Open the **Swatches** panel/ palette and click the plus (+) symbol in the bottom left hand corner and a submenu will appear.
2. Select **Gradient** from the submenu and the **New Gradient** dialog appears
3. Make sure the **Linear** option is selected in the gradient type pop up.
4. Double-click the Color Picker 1 square

The Colors dialog will appear

5. Select a color and close the Color Picker dialog using the red X in the top left hand corner of the dialog and return to **Edit Gradient** dialog.



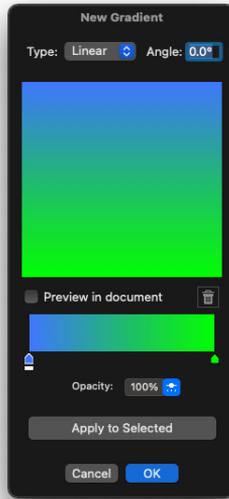
6. Double-click the Color Picker 2 square

The Colors dialog will appear again

7. Select a color and close the Color Picker dialog using the red X in the top left hand corner of the dialog and return to **Edit Gradient** dialog.

The color will be added to the gradient

**Note:** You can add extra colors to a gradient easily. Follow the steps in the next section to add extra colors.



### ***Adding extra colors***

To add extra colors to the gradient

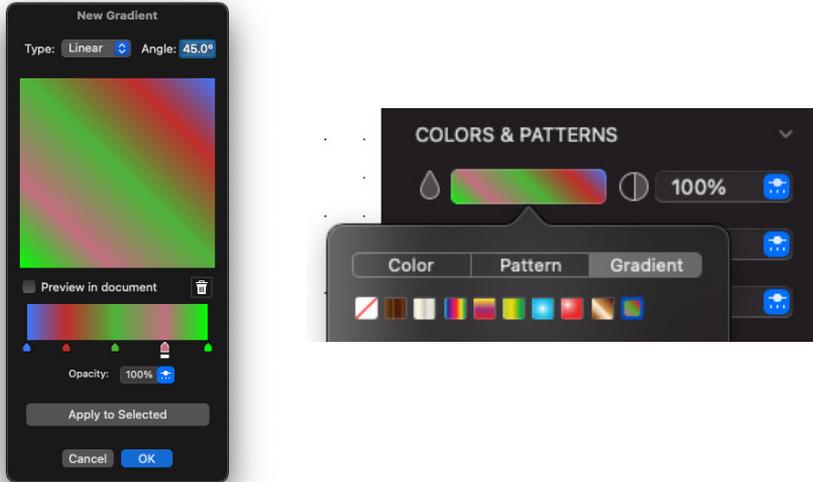
1. Click anywhere in the area defined by the red line in the image above.
2. This will add a new color picker square to the gradient.
3. Double-click the new color picker and follow the steps outlined in the previous section to change the color. When you add the new color the gradient will update.



## Changing the angle direction

To change the angle direction of the linear gradient

1. Enter the desired angle into the Rotation text box.
2. When you are happy with the settings click the OK button.
3. The gradient will now be stored in the Swatches panel/ palette, and available for selection in the Attribute options section of the Properties panel/ palette.



## Deleting colors

To delete colors from the gradient

1. Select one of the color markers by clicking it with a single click.
2. Click the Trash/Bin icon to delete the selected color from the gradient.

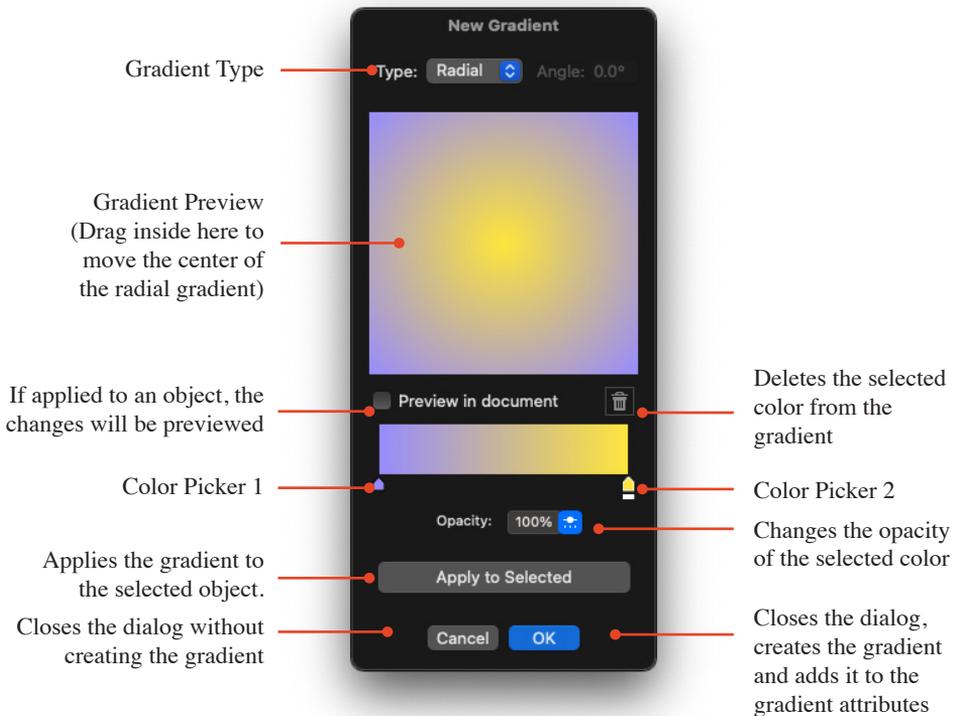
**Note:** This operation cannot be undone, so make sure you want to delete the color from the gradient before doing so.

## Creating new radial gradients

Creating new gradients can be done using the **Swatches** panel/ palette.

## To create a new radial Gradient

1. Open the **Swatches** panel/palette and click the plus (+) symbol in the bottom left hand corner and a submenu will appear.
2. Select **Gradient** from the submenu and the **Edit Gradient** dialog appears
3. Make sure the **Radial** option is selected in the gradient type pop up.

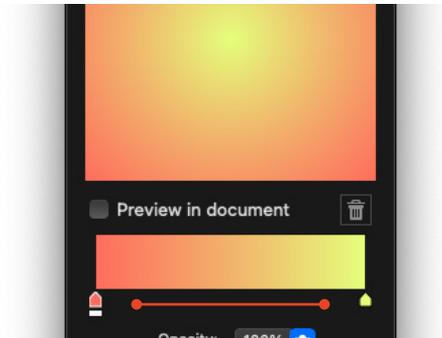


4. Double-click the Color Picker 1 square  
The Colors dialog will appear
5. Select a color and close the Color Picker dialog using the red X in the top left hand corner of the dialog and return to **Edit Gradient** dialog.
6. Double-click the Color Picker 2 square  
The Colors dialog will appear again

7. Select a color and close the Color Picker dialog using the red X in the top left hand corner of the dialog and return to **Edit Gradient** dialog.

The color will be added to the gradient

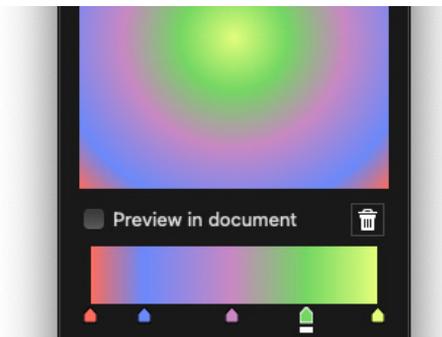
**Note:** You can add extra colors to a gradient easily. Follow the steps in the next section to add extra colors.



### ***Adding extra colors***

To add extra colors to the gradient

1. Click anywhere in the area defined by the red line in the image above.
2. This will add a new color picker square to the gradient.
3. Double-click the new color picker and follow the steps outlined in the previous section to change the color. When you add the new color the gradient will update.

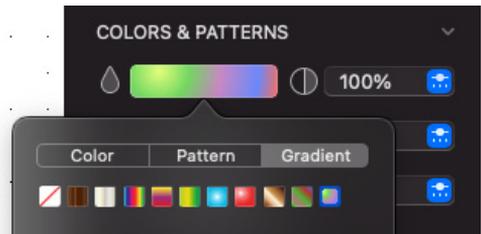
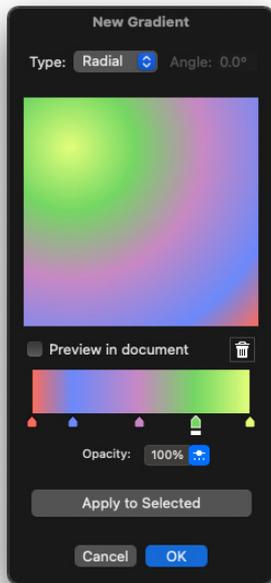


## ***Moving the center of the radial gradient***

To move the center of the radial gradient

1. Click in the gradient preview area and the center will move to it.
2. When you are happy with the settings click the **OK** button.

The gradient will now be stored in the **Swatches** panel and available for selection in the **Attributes** options in the **Properties** panel.



## ***Deleting colors***

To delete colors from the gradient

1. Select one of the color markers by clicking it with a single click.
2. Click the Trash/Bin icon to delete the selected color from the gradient.

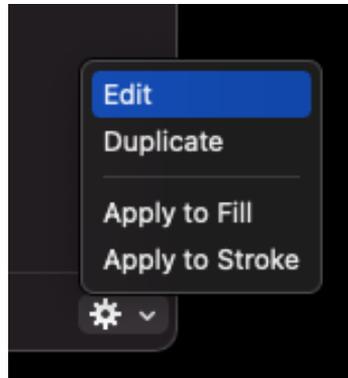
**Note:** This operation cannot be undone, so make sure you want to delete the color from the gradient before doing so.

## Editing gradients

### To edit a gradient

1. Open the **Swatches** panel/ palette and locate the gradient you want to edit.
2. Double-click the mouse button on the gradient you want to edit or select the gradient with a single mouse click and choose **Edit** from the options menu (the **Gear** symbol).

The **Edit Gradient** dialog appears.



3. Click the color you want to change

The Colors dialog will display.

4. Select a color and close the Color Picker dialog using the red X in the top left hand corner of the dialog and return to **Edit Gradient** dialog.
5. You can also change the Angle. Once happy with the changes click OK.

**Note:** Click the Preview check box when editing to view your changes live in the document. When you edit a gradient, any object that has the gradient applied will update with the changes. If you wish to use an existing gradient to create a new one, use the Duplicate gradient option.

## Duplicating gradients

Sometimes you may find the need to create a gradient similar to an existing one. This option allows you to duplicate an existing gradient and then edit it to create a new one.

### *To duplicate a gradient*

1. Open the **Swatches** panel/ palette and locate the gradient you want to duplicate.
2. Single mouse click the gradient and choose **Duplicate** from the options menu (the **Gear** symbol).

The gradient dialog will appear with the selected gradient.

3. Make the changes you want to the gradient
4. Click the OK button when you are happy.

The New gradient will be added the patterns and gradient popup.

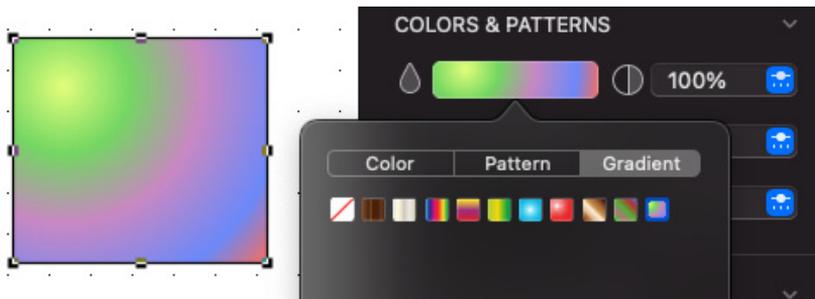
## Applying gradients

Gradients can be applied as a Fill, Pen or Parallel line attribute.

### *To apply a gradient*

1. Select the object(s) you want to apply the gradient to.
2. Go to **Attribute options** in the **Properties** panel/ palette and choose a gradient for either the fill, parallel line or pen.

The gradient will be applied to the attribute of the selected object(s).



# Line and Border Attributes

The attributes that define the appearance of lines and borders are sometimes referred to as the ‘pen model’ simply, the ‘pen’ or the 'Stroke'. The attributes for the pen include pen style, line weight, line style and end marks. The border position of an object can also be specified.

The various options for each attribute are selected using pop-up menus in the Attribute options or, in the case of pen style and border position, from the Options menu or the Properties panel. Pen color or pattern are discussed in previous sections of this chapter.

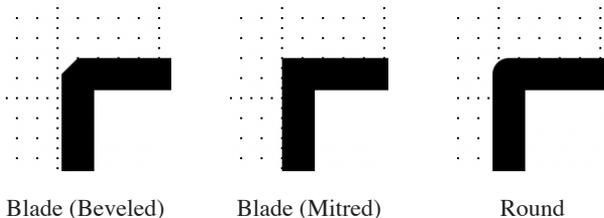
**Note:** Many of the pen model attributes you choose do not affect only lines, they also affect the borders of objects. For example, when you select a certain line weight and color, these attributes will be applied to line segments used to draw rectangles, circles, polygons and so on.

## Pen Styles PRO ONLY

There are three types of pen style: **Mitre Blade**, **Bevel Blade** and **Round**. The pen style options apply to lines and objects.

The pen style affects the width of angled lines and the appearance of the ends of lines and of joins.

- **Mitre Blade** (QuickDraw): Angled lines will have pointed ends and will be proportionally thicker than a horizontal or vertical line.
- **Bevel Blade** (Accurate width): Lines remain a constant width regardless of their angle. The line ends will be straight.
- **Round** (Accurate width): Lines remain a constant width regardless of their angle. The line ends will be rounded.



## Selecting pen styles PRO ONLY

To select a pen style

1. Open the **Pen Style** submenu in the **Options** menu.
2. Drag until the desired pen style is highlighted.



3. Release the mouse button. A check mark appears next to the selected pen style on the submenu.

You can change the pen style before or after you draw the line or object.

**Note:** You can also change the Pen Style by selecting the desired style at the bottom of the Properties panel. This can be done when an item is selected or not.

## Drawing an object with a selected pen style PRO ONLY

To draw an object with a selected pen style

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. Select the desired pen style from the **Pen Style** submenu in the **Options** menu or at the bottom of the **Properties** panel/ properties.
3. Draw an object.

The object will be drawn with the specified pen style.

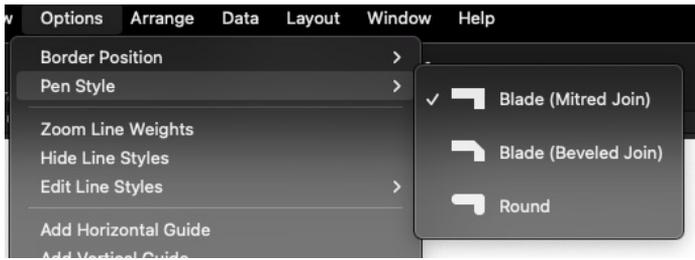
**Note:** The chosen pen style will be used for objects until you choose another pen style as the default.

## Changing the pen style of an existing object PRO ONLY

To change the pen style of an existing object

1. Select the object to change the pen style of.
2. Select the desired pen style from the **Pen Style** submenu in the **Options** menu or at the bottom of the **Properties** panel/ properties.

The selected object will be changed to reflect the chosen pen style.



## Line weight

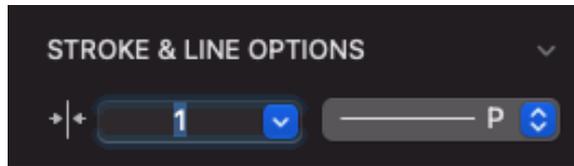
Line weight refers to the thickness of lines and borders. Line weight is measured in pixels (picture elements).

They vary in size from hairline to 13 pixels. The numbers beside the line weights indicate the number of pixels that make up the line weight.

**Note:** Although the hairline, 0.5 and 0.75 line weights appear as one point thick on the screen, they will print at their designated weights on any printer with a resolution of 300 dpi or more.

### Selecting line weights To select the line weight

1. Open the **Line Weight** pop-up menu in the **Attribute options** section of the **Properties** panel/ palette.
2. Drag until the line weight you want is highlighted.



3. Release the mouse button and the selected line weight will be shown on the pop-up menu.

You can change the line weight before or after you draw the line or object.

### ***Drawing a line or object with a selected line weight***

To draw a line or object with a selected line weight

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/ palette. (make sure nothing is selected in the document.)
2. Choose the desired line weight from the **Line Weight** pop-up menu in the **Attribute options** section of the **Properties** panel/ properties palette.
3. Draw a line or object.

The line or object will be drawn with the specified line weight.

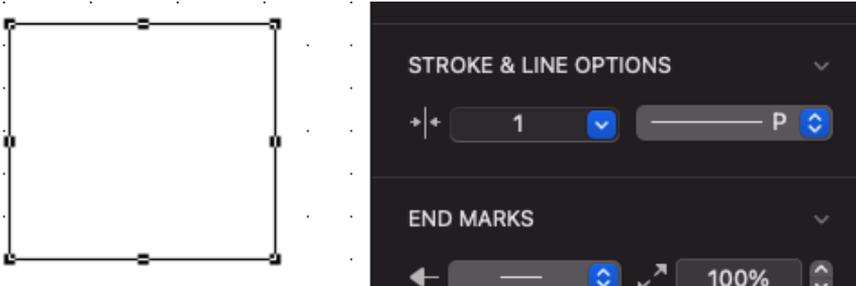
**Note:** The chosen line weight will be used for lines and borders until you choose another line weight for the default line weight attribute.

### ***Changing the line weight of an existing line or object***

To change the line weight of an existing line or object

1. Select the line or object to change the line weight of.

2. Choose the desired line weight from the **Line Weight** pop-up menu in the **Attribute options** section of the **Properties** panel/ properties palette.



The line or border of the selected object will be changed to reflect the chosen line weight.

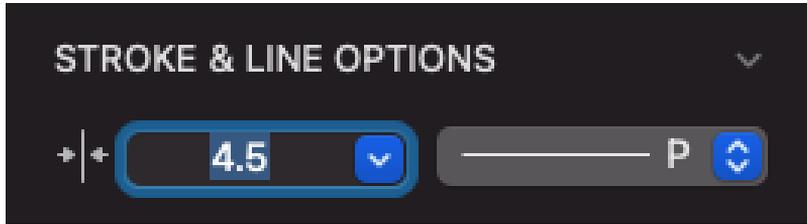
**Note:** For information about how to make line weights appear either magnified or at their normal size while in a zoomed in view, please refer to zoom line weights.

### ***Changing Line Weight by typing an exact number***

MacDraft also allows you to manually type in a specific line weight from 0 to 13 and up to two decimal places in accuracy. For example, you might find you want a line weight that isn't as thin as 2 but also isn't as thick as 3. You can achieve this by typing the value in.

**To change the line weight by typing an exact number**

1. Select a line or object in the document.
2. Click in the stroke & line options, the current text will highlight.
3. Type in the value you want the line or object to change to.
4. The value in the text field will change, as will the thickness of the stroke of the selected object.



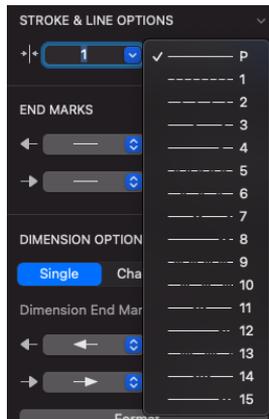
## Line style

The term ‘line style’ refers to whether a line is solid or one of an assortment of dashed lines. You can use the preset line styles provided with MacDraft or customize them in the professional version to make your own. You can use line styles in object borders and straight lines.

### *Selecting line styles*

To select the line style

1. Open the **Line Style** pop-up menu in the **Attribute options** section of the **Properties** panel/ properties panel.
2. Drag until the line style you want is highlighted.
3. Release the mouse button and the selected line style will be shown on the



pop-up menu.

You can change the line style before or after you draw the line or object.

### ***Drawing a line or object with a selected line style***

To draw a line or object with a selected line style

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel. (make sure nothing is selected in the document.)
2. Choose the desired line style from the **Line Style** pop-up menu in the **Attribute options** section of the **Properties** panel/ properties palette.
3. Draw a line or object.

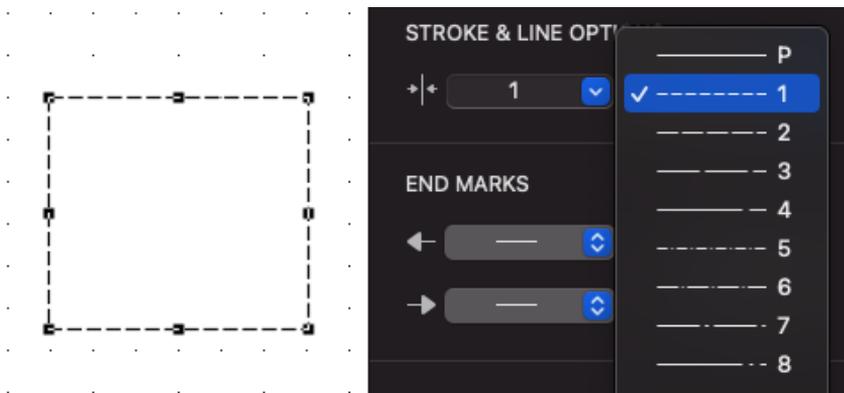
The line or object will be drawn with the specified line style.

**Note:** The chosen line style will be used for lines and borders until you choose another line style for the default line-style attribute.

### ***Changing the line style of an existing line or object***

To change the line style of an existing line or object

1. Select the line or object to change the line style of.
2. Choose the desired line style from the **Line Style** pop-up menu in the **Attribute options** section of the **Properties** panel/ properties palette.



The line or border of the selected object will be changed to reflect the chosen line style.

### **Editing line styles** PRO ONLY

MacDraft provides you with a variety of preset line styles. You can use these line styles or customize them to suit your needs. When you create your own custom line styles, each line style can be made up of numerous dashes and gaps. You can specify the length of each dash and gap.

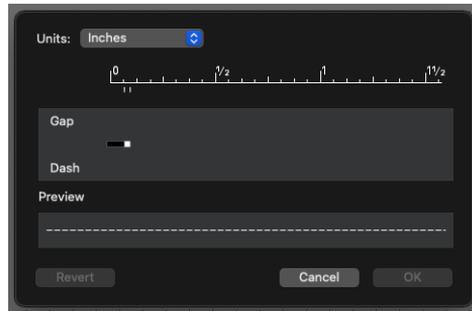
#### **To select a line style to edit**

1. Open the **Options** menu and drag until **Edit Line Styles** is highlighted.

The **Edit Line Styles** submenu appears.

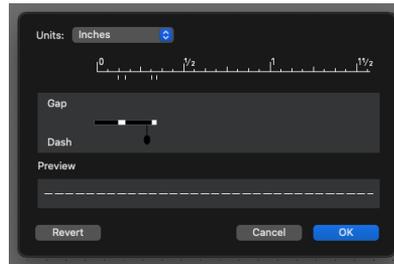
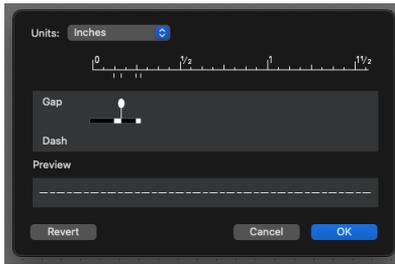
2. Holding down the mouse button, drag until the line style you want to edit is highlighted, and release the mouse button.

The **Edit Line Style** dialog appears. The line style you chose to edit appears in a box below the ruler.



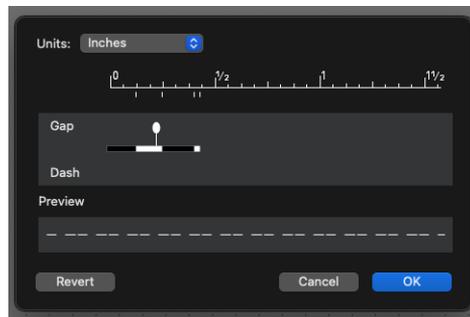
#### **To edit the line style**

1. The default measurement for the lengths of dashes and gaps is inches. To use centimeters to measure the lengths of dashes and gaps, click the cm radio button.
2. Without pressing down the mouse button, move the cursor onto the box containing the line. A flag appears above or below the line style (depending on whether you point above or below the line). You use the flag to specify the length of dashes and gaps. When you point above the line, the flag turns white to show you are ready to add gaps to the line. When you point below the line, the flag turns black to show you are ready to add dashed segments.



3. You can edit the line in the following ways.

- To add a gap or a dashed segment:** Position the cursor above the line to add a gap or below the line to add a dashed segment. Without pressing down the mouse button, move the pointer to where you want the dash or gap to begin. As you move the pointer, notice that the flag moves along with it. Press and hold down the mouse button, drag to the right until the dash or gap is the length you want and release the mouse button.



- To shorten a segment:** Position the cursor near the segment you want to shorten. Holding down the mouse button, drag to the left until the segment is the length you want and release the mouse button.
- To erase the line style:** Position the cursor near the right end of the line. Hold down the mouse button, drag to the extreme left end of the line and release the mouse button. Notice that a tick mark on the ruler follows the movement of the flag. The tick marks show the beginning and end of each segment (either dash or gap). Notice also that the sample line style below the line will be changed to reflect the new style and shows you how the line style will appear on a document. The line style will be repeated after the last segment of the line.

**Note:** You can create a line style with segments that extend beyond the limit of the edit box. Although the edit box will not show these segments, the sample below the box shows you how the line will appear on the drawing.

4. When you have finished editing the line style, click one of the following buttons.
  - **OK:** To accept the modified line style and place the line style into the Line Style pop-up menu for use with lines and borders.
  - **Revert:** To revert to the original line style (the line style you originally chose to edit).
  - **Cancel:** To close the dialog without applying your changes.

### **Showing and hiding line styles** PRO ONLY

If your drawing contains many objects with line styles, you might want to increase the rate at which the screen is redrawn by hiding the line styles while you work. When line styles are hidden, solid lines appear on the lines and objects instead of the line styles.

#### **To hide line styles**

- Open the **Options** menu and choose **Hide Line Styles**.

Lines will be drawn with solid lines, and a check mark appears next to the **Hide Line Styles** command.

#### **To display line styles**

- Open the **Options** menu and choose **Hide Line Styles** again.

Lines will be drawn with their respective line styles, and the check mark disappears from next to the **Hide Line Styles** command.

## **End marks**

End marks are symbols on the ends of lines that are used for annotating drawings. You can make end marks appear on lines by using a set of end marks in combination with the **Line** tools, the **Polyline** tool, the **Freehand Line** tool,

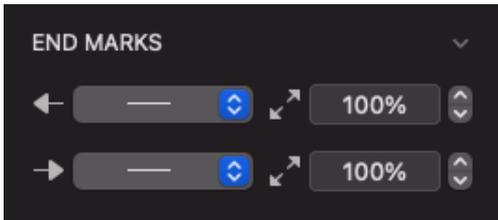
the **Bezier curve** tool or the **Spline** tool.

**Note:** The end marks you can use for the above objects are separate from the end marks you use for dimension lines. Dimension line objects can only be edited in the professional version of MacDraft.

### Selecting end marks

To select end marks

1. Open the **Start** or **End** pop-up menu in the **End Marks** section of the **Attribute options** in the **Properties** panel/ palette.
2. Drag until the desired end marks are highlighted.
  - Drag down the **Start** pop-up menu to choose a left end mark; it appears at the beginning of a line.
  - Drag down the **End** pop-up menu to choose a right end mark; it appears at the end of a line.



3. Release the mouse button and the selected end marks will be shown on the pop-up menu.

You can change the line style before or after you draw the line or object.

**Note:** Polylines, freehand lines, Bezier curves or splines must contain No Fill if you wish to add end marks to them.

### ***Drawing a line or object with selected end marks***

**To draw a line or object with selected end marks**

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. Choose the desired end marks from the **Start** or **End** pop-up menu in the **End Marks** section of the **Attribute options** in the **Properties** panel/properties palette.
3. Draw a line or object.

The line or object will be drawn with the specified end marks.

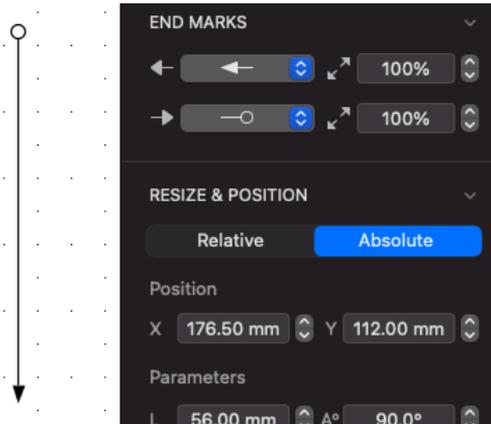
**Note:** The chosen end marks will be used for lines and borders until you choose other end marks for the default end marks attribute.

### ***Changing the end marks of an existing line or object***

**To change the end marks of an existing line or object**

1. Select the line or object to change the end marks of.
2. Choose the desired end marks from the **Start** or **End** pop-up menu in the **End Marks** section of the **Attribute options** in the **Properties** panel/properties palette and choose the size they should be.

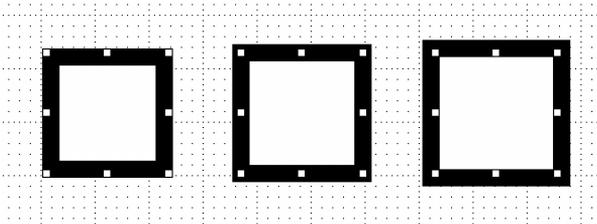
The line or object selected will be changed to reflect the chosen options.



## Border positions

There are three types of border position: Line Inside, Line Centered and Line Outside. The border position options apply to objects only, not to lines.

All three border positions affect objects differently, these differences are discussed later in this chapter. In general though, border position is important with regard to how objects are aligned. MacDraft uses the position of an object's edit handles to align objects. It is important to keep this in mind when you align objects, as border position controls the position of the edit handles relative to the width (that is the line weight) of the border.



Border position applies only to square-corner and rounded-corner rectangles, parallel line objects, circles and arcs. You can draw these objects with a certain border position or change the border position of selected objects.

### *Selecting border positions*

To select a border position

1. Open the **Border Position** submenu in the **Options** menu.

2. Drag until the desired border position is highlighted.



3. Release the mouse button. A check mark appears next to the selected border position on the submenu.

You can change the border position before or after you draw the line or object.

**Note:** You can also change the Border Position by selecting the desired style at the bottom of the Properties panel/ properties palette. This can be done when an item is selected or not.

### ***Drawing an object with a selected border position***

To draw an object with a selected border position

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. Choose the desired border position from the **Border Position** submenu in the **Options** menu or at the bottom of the **Properties** panel/ properties palette.
3. Draw an object.

The object will be drawn with the specified border position.

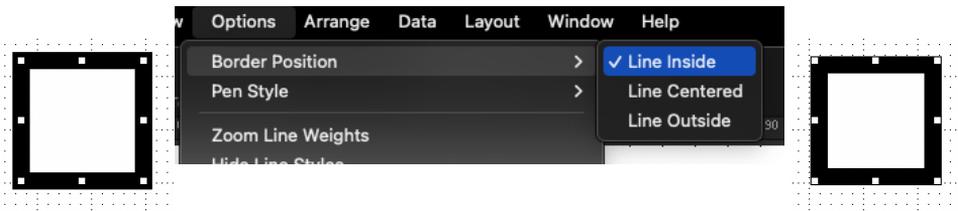
**Note:** The chosen border position will be used for objects until you choose another border position as the default.

## Changing the border position of an existing object

To change the border position of an existing object

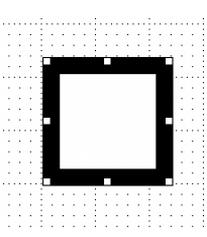
1. Select the object to change the border position of.
2. Choose the desired border position from the **Border Position** submenu in the **Options** menu or at the bottom of the **Properties** panel/ properties palette.

The border of the selected object will be changed to reflect the chosen border position.

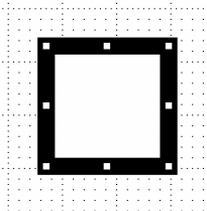


### How border position affects objects

Border position determines the location of the edit handles on the border of an object, and as MacDraft uses the edit handles as reference points for alignment and size calculations, border position affects the alignment and size readings of objects.

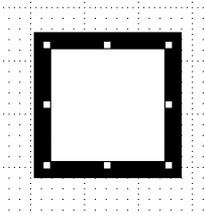


**Line Inside:** When you draw an object with the border position Line Inside, the border of the object appears between the cursor and the object during creation. When you select an object created with the border position Line Inside, the edit handles appear on the outside of the object. When Show Size is on, the size shown represents the entire object, including its borders.



**Line Centered:** When you draw an object with the border position Line Centered, the cursor appears centered within the object's borders during creation. When you select an object created with the border position Line Centered, the edit handles appear in the center of the objects borders.

When Show Size is on, the size shown is the size of the object measured from the center of the object's borders.



**Line Outside:** When you draw an object with the border position Line Outside, the border of the object appears outside the cursor during creation. When you select an object created with the border position Line Outside, the edit handles appear on the inside of the object. When Show Size is on, the size shown is the size of the object's interior, excluding the object's borders.

## Copying Attributes

An object's graphic attributes (fill, pen color or pattern, line weight and line style etc.) and object information can be copied and applied to another object using either the Attributes tool or the Copy Attributes and Apply Attributes commands in the Edit menu. The Apply Attributes command can be used to apply changes to all of the objects selected, while the Attributes tool applies changes only to the object clicked.

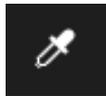
Any settings for applying attributes will be stored only while the application is running.

The default options for applying attributes are to apply only graphic attributes, not object information.

### Copying attributes using the Attributes tool

#### *To copy attributes using the Attributes tool*

1. Click the **Attributes** tool in the **Drafting Tools** panel/ palette.

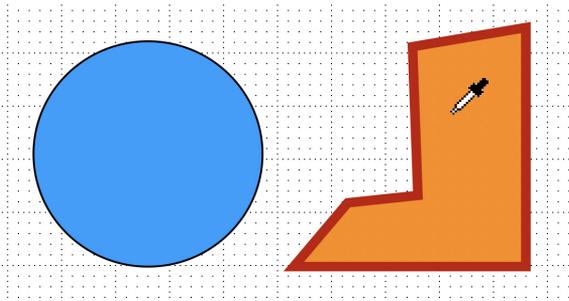


2. Click an object.

The default attributes will be applied to the object.

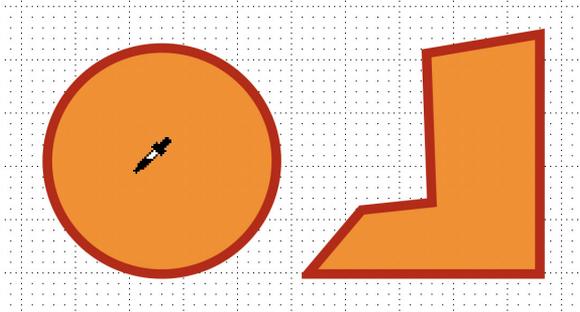
3. With the Attributes tool still selected, hold down the **Option** key and click an object.

The cursor turns into an empty eye dropper.



The object's pen and fill attributes will be copied

4. Release the **Option** key, the cursor turns into a full eye dropper.
5. Click another object to apply the copied pen and fill attributes to it.



#### Notes:

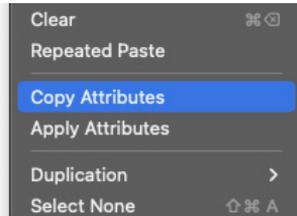
- Attributes will be applied only to the object clicked, even if that object is part of a group.
- The apply action can be undone by selecting Undo Eye Dropper from the Edit menu immediately after the apply action.
- Hold down the Command key and click in the drawing window with the Attributes tool, and the tool reverts to the Arrow tool.

## Copying attributes using the Edit menu

### *To copy attributes using the Edit menu*

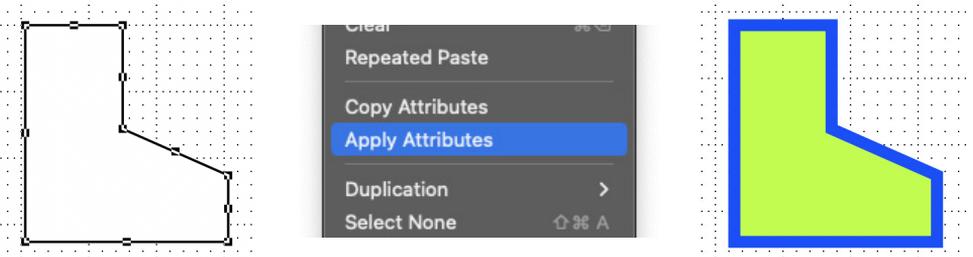
1. Select the object from which you want to copy attributes.

2. Open the **Edit** menu and choose **Copy Attributes**.



The object's graphical attributes and object information will be stored.

3. Select the object or objects to which you want to apply these attributes.
4. Open the **Edit** menu and choose **Apply Attributes**.



The copied attributes will be applied to the selected object or objects.

## Picture Backgrounds

### Transparent pictures

There may be occasions when you position a picture object on top of another object, and want the lower object to show through the background of the foremost. Do this by importing images such as PNG or Photoshop PSD that have transparent backgrounds.

#### ***To make the background of a picture transparent***

- Make sure that the images already have transparent backgrounds with them, you can then drag them into MacDraft or import them from the file menu.



## Opaque picture backgrounds

- Choose a color from the **Fill Color** pop-up menu, or a pattern from the **Fill Pattern** pop-up menu in the **Attributes options** in the **Properties** panel/properties palette.

What was a transparent background will now be the color or pattern you selected. You can make it transparent again by selecting the No Fill option in either of the pop-ups.



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# Chapter 4

## Annotating your drawing

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Annotation describes or gives information about an object in a drawing. In MacDraft, annotation is of four kinds: text, dimension objects, area calculation and perimeter calculation.

### Text

Text, in a MacDraft document, consists of all letters, punctuation and numbers. Once text is created, it is recognized as a single object and you can then use most functions with it, such as moving and duplicating.

The Text function allows you to use a variety of fonts, styles, and character sizes. You can arrange text lines with single spacing, one and a half spacing, or double spacing. Text can also be justified within each individual text block and all text can be hidden or displayed.

### Entering Text

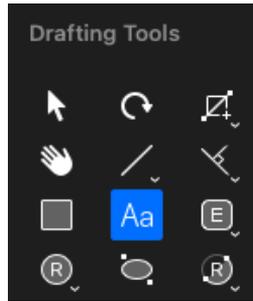
You can enter text in two ways: using the regular text mode or the paragraph text mode. In the paragraph text mode, you drag to define a text rectangle of a certain size with the Text tool, and the text you enter into the rectangle automatically “wraps” when it reaches the side of the rectangle.

#### *Regular Text*

In the regular text mode, you click the drawing to define an insertion point, then type in the text. You define the end of a line of text by pressing the Return key.

**To enter regular text (i.e. text that does not automatically “wrap”)**

1. Activate the **Text** icon in the **Drafting Tools** panel/palette by clicking it.



Notice that when you activate the text icon and then move the cursor onto the drawing area, the cursor turns into an I-beam pointer. The I-beam pointer indicates that you are in the text insertion mode.

2. Position the I-beam pointer where you want to begin inserting text and click.

A flashing vertical bar appears at the point where you clicked to show that you can now begin typing.

3. Enter the text by typing on the keyboard.

You can continue to enter text in various places on your drawing by moving the I-beam pointer to the desired place, clicking it, and typing.

#### **Notes:**

- If you make a typing mistake as you are entering text, simply use the backspace key to remove the error and then type the correct character.
- To start a new line in the same text block, just press the Return key and continue to type.

4. After you have finished entering text, click the **Pointer** tool or press the Escape key on your keyboard.

### ***Paragraph text***

On many occasions, you may wish to enter a paragraph of text and restrict it to a certain rectangular shape, such as a column. MacDraft's paragraph text feature allows you to define a rectangle of any size, then type text into it. As you enter the text into the rectangle, the words will automatically wrap around to the next line when the letters reach the edge of the rectangle. If you type to the bottom of

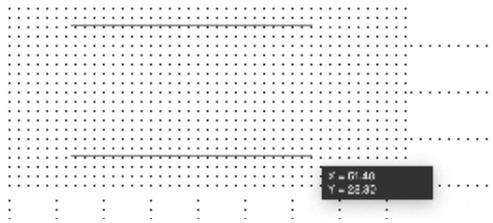
the rectangle, the text will be scrolled within the rectangle to keep the line you are typing visible.

### ***Entering paragraph text***

You can define the paragraph text by drawing a rectangle with the **Text** tool.

**To enter paragraph text with the Text tool**

1. Activate the **Text** tool.
2. Position the I-beam pointer where you want to begin entering text.
3. Press and hold down the mouse button.
4. Drag in a diagonal direction until you have defined a rectangle that is the size you want, and release the mouse button.



5. Start entering text via the keyboard.
6. When you are finished, click the **Pointer** tool or the **Escape** key on your keyboard to end the text entry.

### ***Reshaping a block of paragraph text***

**To reshape a block of paragraph text**

Once the paragraph of text is entered, you can reshape the paragraph using the edit handles.

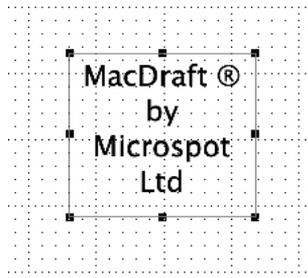
1. Return to the pointer mode.
2. Select the paragraph of text by clicking it.

Edit handles appear on the text block.

3. Position the tip of the pointer on one of the edit handles.
4. Press and hold down the mouse button.
5. Drag until the paragraph is the shape you want.



6. Release the mouse button.



**Note:** If you select regular text (entered using the Text tool) and try to reshape the paragraph using the edit handles, you will actually resize the font rather than the paragraph.

## Selecting/editing text

Sometimes you need to edit text you have previously entered on your drawing. MacDraft gives you various ways to edit text: replacing an existing word or line of text by selecting it and retyping in its place; inserting characters or words at the end of existing text or at any selected point in the text; and backspacing to delete text.

Before you can edit a piece of text, you must select it. You can select text by using the pointer while in the pointer mode, or by using the I-beam pointer. (When you select text using the pointer mode, any changes you make will affect the entire text block.)

## Selecting text

### *Using the I-beam pointer to select text*

1. Click the **Text** tool icon in the **Drafting Tools** panel/palette.
2. Position the I-beam pointer to either side of the text you want to change.
3. Press and hold down the mouse button.
4. Drag through all the text you want to edit, and release the mouse button.

Notice that the text becomes highlighted as you drag through it. Using this



method of selecting allows you to select a single character or an entire block of text.

#### **To select a word:**

- Position the I-beam pointer on the word you want to select and double-click.

#### **To extend the selection of text**

1. Position the I-beam pointer on the first word you want to select.
2. Click and hold down the mouse button.
3. Drag through the text until all the words you want to select are highlighted, then release the mouse button.

#### **To select a range of text**

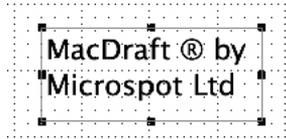
1. Position the I-beam pointer at the starting point for the range and click.
2. Press down the Shift key.
3. Position the I-beam pointer on the ending point for the range.
4. Still holding down the Shift key, click this point.

5. Release the mouse button and the Shift key.

The text between the specified starting and ending points will be selected.

### ***Using the Arrow tool To select text***

- Position the pointer on the block of text that you want to select and click it.



Notice that a rectangle and/or a set of edit handles appears around the text, indicating that it is selected. This method of selecting text allows you to change the text attributes (including the font, size, and style) of the selected text block.

### ***Selecting rotated text for editing***

#### **To select rotated text**

1. Activate the **Text** tool in the **Drafting Tools** panel/palette.
2. Click the block of rotated text you want to edit.

The text will temporarily be rotated to zero degrees (horizontal orientation) allowing you to edit it.

3. When you are through editing the text, click the **Pointer** tool or press the **Escape** key on your keyboard.

The text returns to its rotated position.

**Note:** If you print rotated text on a printer that is not PostScript®-compatible, the text will print out at the resolution of the printer hardware.

### ***Selecting all text***

You can select all the text in the active layer on the current document if you want to make a global change to text attributes.

**To select all text on the active layer in the document**

1. Return to the pointer mode.
2. Open the **Text** menu, from the menu bar and choose **Select All Text**.

## **Editing text**

### ***Replacing existing text***

Once you have selected any portion of text, you can immediately replace it by simply typing in the new text. As soon as you begin typing, the old text disappears. As you enter the new text, all of the non-selected text in the line will automatically adjust to make room for the text you are entering.

### ***Inserting text into existing text***

On many occasions you may need to insert a single character, word or sentence into an existing piece of text.

**To insert text**

1. Activate the **Text** tool in the **Drafting Tools** panel/palette.
2. Position the I-beam pointer on the desired insertion point and click it.
3. Type in the character or words that you wish to insert. (Keep in mind that you can press the Delete key or backspace to delete characters or words.)

In this mode, you can continue to pick insertion points in other pieces of text on your drawing and edit them as well.

4. Once you have completed all the editing that you want to do, click the Pointer icon in the panel.

### ***Deleting selected text***

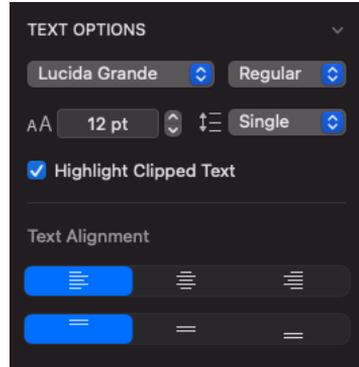
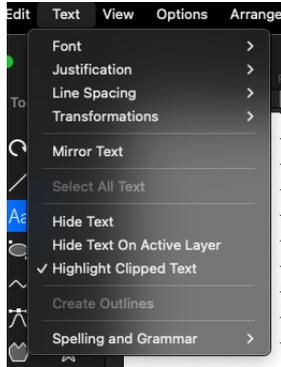
There are two simple ways to delete text that you have selected.

Either:

- Open the Edit menu and choose Cut or Clear, or
- Press the Delete key or Backspace key

## Formatting text

You can choose the way you want to present text either before entering the text, or by changing the text after it has been entered. There are many options to choose from to obtain the effect that you desire. MacDraft allows you to use many different font types, sizes and styles for text. You can format text by choosing options from the **Text** menu or the **Properties** panel/ properties palette.



### *Formatting text before entering it*

To format text before entry

1. Make sure that no text is selected on the drawing before you make each choice.
2. Choose the text attributes you want from the **Text** menu's submenus or from the **Properties** panel/ properties palette.

The current attributes for text, such as font, size, and style are marked with check marks in the appropriate menus. These check marks show you what attributes will be applied to the text you enter.

### *Formatting existing text*

You can change the font, size and style of any existing text. You can change the text attributes for a given piece of text by selecting the text and then opening the submenu associated with the attribute you want to change.

To format existing text

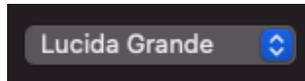
1. Select the text you wish to change. Choose the text attributes you want from the **Text** menu's submenus or the **Properties** panel/ properties palette.

2. Each time you make a choice from the **Text** menu or **Properties** panel/properties palette, the selected text will change to reflect that choice.

### **Define attributes for text**

#### **To define the font**

1. To change the font either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Font** pop-up menu in **Text Options** in the **Properties** panel/properties palette.
2. Choose the font you would like to use.



#### **To define the point size for text**

1. To change the font size either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Size** menu in **Text Options** in the **Properties** panel/properties palette.
2. Choose the size of the font you would like to use, type in the size, or use the steppers to increase or decrease the size.



#### **To define the style**

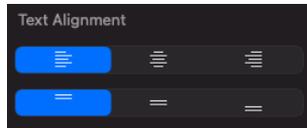
1. To change the font style either:
  - Open the **Font** submenu from the **Text** menu, or
  - Click the **Style** pop-up menu in **Text Options** in the **Properties** panel.
2. Choose the style you would like to use.

**Note:** The style popup in the Properties panel will show the full list of styles attributed to that font. However the Text menu will only display the basic styles.



#### To justify text

1. To set the justification either:
  - Open the **Justification** submenu from the **Text** menu, or
  - Use the **Justification** buttons in **Text Options** in the **Properties** panel.
2. Select the horizontal justification (left, center or right) you want to use.
3. Select the vertical justification (top, middle or bottom) you want to use.



#### To set the line spacing

MacDraft offers you flexibility in choosing line spacing (also known as “leading”) options to suit your needs. You can have Single, 1 1/2, or double space between lines of text.

1. To set the spacing either:
  - Open the **Line Spacing** submenu from the **Text** menu, or
  - Click the **Spacing** pop-up menu in **Text Options** in the **Properties** panel.
2. Choose the spacing (Single Space, 1 1/2 Space or Double Space) you would like to use.



#### *Changing the case of text*

On some occasions you may enter a piece of text in one case, such as lowercase, and then decide that you want it in uppercase or in title format. You could clear the text and reenter it; however, MacDraft allows you to change the case of existing text.

### To change the case of existing text

1. Select the text that you want to change by clicking it.
2. Open the **Transformations** submenu from the **Text** menu.
3. Holding down the mouse button, drag until the case option you want is highlighted.

The results of each choice are as follows:

- **UPPERCASE:** Converts all selected text to uppercase.
- **lowercase:** Converts all selected text to lowercase.
- **Title Text:** Capitalizes the first character of each word in selected text.

### *Moving text*

Once you have created a block of text, you can move it to a different location on your drawing if necessary. Notice that when you create a line of text and then click anywhere else, the text becomes surrounded by a box or edit handles. This indicates that MacDraft recognizes the piece of text as an object. You can move the text just as you would move any other object.

### To move a piece of text

1. Position the cursor over the text block.
2. Press and hold down the mouse button until the white arrow pointer appears.
3. Drag the text to its new position, and release the mouse button.

### *Aligning Text*

There are two ways to align text. Justifying text within the text block and aligning text with an object or another piece of text that is treated as an object.

### To align text with another piece of text or an object

1. Click the text to be aligned to select it.
2. Open the Arrange menu and choose Alignment Options.

The Alignment Options dialog appears.

3. Choose the alignment method you want, and click the OK button.
4. Click the object with which you want the text block aligned (if necessary).

The selected text and objects will snap into alignment according to the specified alignment attribute.

**Note:** You can also align objects using the Alignment panel.

## Clipped Text

If text is likely to overflow the text box then with clipped text turned on the text box will be highlighted with a red line and icon. The text box should be increased in size to accommodate all of the text, and the red line and icon will disappear.

### *To turn clipped text on*

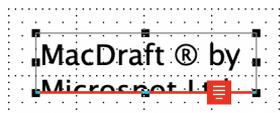
- Choose **Highlight Clipped Text** from the **Text** menu (a tick will be next to it), or
- Click the **Highlight Clipped Text** checkbox (will contain a tick) in **Text Options** in the **Properties** panel/ properties palette.

### *To turn clipped text off*

- Choose **Highlight Clipped Text** from the **Text** menu (the tick will no longer be next to it), or
- Click the **Highlight Clipped Text** checkbox (will not contain a tick) in **Text Options** in the **Properties** panel/ properties palette.

### *Resizing using clipped text icon*

When Highlight Clipped Text is turned on, an icon appears with a red line on the text boxes that have text overflowing. You can either resize the text box manually or use the icon to resize it automatically.



### To resize overflowed text with highlight clipped text turned on

- Double click the red icon on the highlight clipped text red line, or
- Select the text object and drag one of the handles to resize the height of the text box, until the text fits.

## Text Flow

MacDraft allows you to flow text from one text box to another using Text Flow. You could set multiple text boxes around the document or create columns of text which flow up and down like a newspaper.

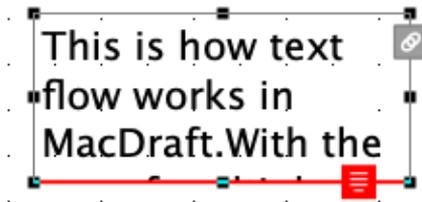
### To create a Text Flow

1. Select the **Text** tool in the **Drafting Tools** panel/palette.
2. Click and drag the mouse to create the size and shape of your first text box.
3. Type in your text.

**Note:** You can either type all of your text now or simply a single word. There needs to be something in the text box for the text box to be placed.

4. Press the Esc key to confirm your text.

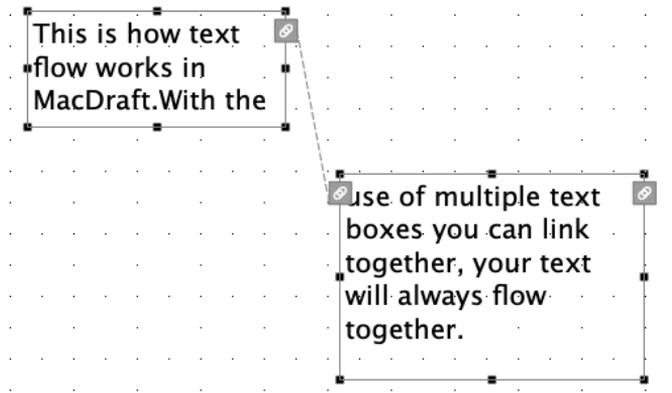
The first text box is placed.



5. Click the Grey link button on the top right of the text box.
6. The cursor will change to a link text cursor.
7. Click and drag the mouse to draw your second text box.

One of two things will now happen. If your original text box overflowed with

text the additional text will now appear in the second text box. If the original text box didn't overflow then you will be presented with a blank second text box. If you continue to type in text box 1 the text will flow naturally into text box 2.



**Note:** If you select any linked text box you will see a dashed line showing the text box it links to. This is particularly helpful if you have yet to add the text as the text box itself may not be visible.

There is no limit to the amount of text boxes you can link to flow your text across. To link/ flow text to a third, fourth etc text box simply repeat steps 5 to 7 from the **To Create a Text Flow** section above.

## Spelling and grammar

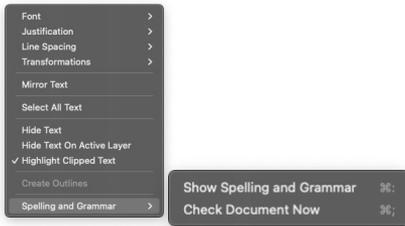
MacDraft uses the system spelling and grammar options, that can be accessed and used for the selected text and text objects in the document. These options are accessed via the contextual (right hand mouse click) menu, when a text object is selected.

### ***To set the spelling and grammar options***

1. Select and highlight a piece of text
2. Right hand mouse click (hold the Control key down and click) on the selected text.

The contextual menu appears.

### 3. Choose Spelling and Grammar



### 4. Set the options you want to use.

- **Show Spelling and Grammar:** Displays the spelling and grammar dialog for the selected text box.
- **Check Document Now:** Checks for spelling and grammar mistakes.

**Note:** You can also check spelling and grammar via the menu. Click Text then Spelling and Grammar then choose from **Show Spelling & Grammar** or **Check Document Now**.

## Vector Text

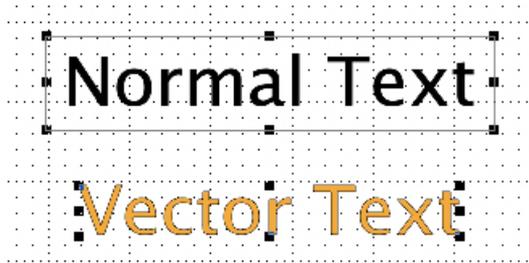
MacDraft allows you to convert your text elements to 100% vector graphics. This will give you the ability to edit the attributes of the text element as if it was a normal vector object. In addition it will allow you to manipulate parts of the text to create your own unique text styles for personal branding and logo design.

### *To turn your text into vector graphics*

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. Select the text object you want to turn into vector graphics by single clicking it with the mouse.
3. Choose Create Outlines from the Text menu
4. The selected text object will be turned into vector graphics and be editable.

### Notes:

- Now that the text is vectors, you can edit the handles, add pattern and gradient fills and even add borders to it.
- When you have turned your text into vector graphics you can no longer add more text to it using the text tool.



## Hiding/displaying text

### *Hiding text*

At times, you may want to temporarily hide all of the text on a document. If you choose to hide all the text, and then print the document, the text will not appear on the output. You might use this feature to hide all the text before you produce a test print of a drawing to shorten the printing time. If you are working on a complex drawing with many elements, you could use this feature to minimize the amount of time it takes to redraw the screen after you scroll or zoom.

#### To hide all text

- Open the **Text** menu and choose **Hide Text**.

#### To hide text only on the active layer

- Open the **Text** menu and choose **Hide Text On Active Layer**.

Text on the drawing will be temporarily removed from the screen and from any printed output until you choose to re-display the text. A check mark appears beside **Hide Text** and **Hide Text On Active Layer** in the Text menu.

### *Re-displaying text*

When you want to make the text visible again on the screen and on your output, you can choose the **Hide Text** or **Hide Text On Active Layer** command again.

**To re-display all text:**

- Open the **Text** menu and choose **Hide Text**. The check mark next to the option will no longer be there.

**To re-display text on the active layer**

- Open the **Text** menu and choose **Hide Text On Active Layer**. The check mark next to the option will no longer be there.

## Dimension Objects

### About dimension objects

MacDraft's Dimension tools allow you to add dimension lines to your drawing so that you can display and print the sizes of (or distances between) various lines and objects. Dimensions show sizes and distances in real-world units according to the scale of the drawing. In addition, MacDraft can show and print the size of an angle. Angular dimensions appear in degrees of arc, regardless of the scale of a drawing.

MacDraft's dimensions are specialized objects that can incorporate a range of recognized drafting formats and standards, including witness lines, extension gaps, and so on. Custom formatting of dimensions is only available in the professional version of MacDraft.

### *Linked dimensions*

Dimension objects that are drawn with reference to object vertices will be linked to those points by default. This means that if the object is resized, the dimension object and the value associated with it will be updated to reflect the new size.

### *Linking and unlinking* PRO ONLY

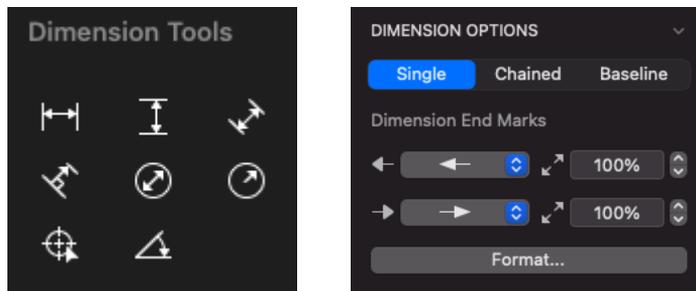
If you don't wish your dimensions to be linked as default, turn them off in application preferences. Object vertices and dimension objects can be linked and unlinked using some of the Advanced tools in the Tool panel.

## The Dimension Tools

The dimension objects are created and controlled using the tools and pop-up menus of the **Drafting Tools** panel/palette.

### *To display the Dimension tools*

- Choose **Show Left Panel** from the **View** menu and a tick will appear next to it to let you know the **Tools** panel is visible, Or
- Click the left panel icon of the **Show/Hide Panels** toolbar item, Or
- If in Palette mode, go Window > Dimension

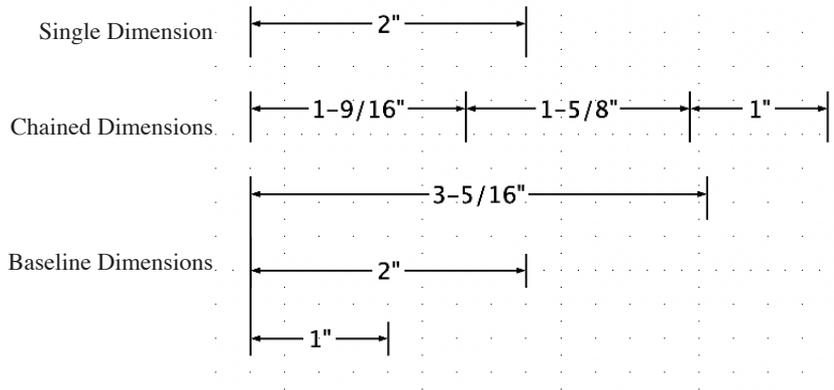


### *To close the Tools panel*

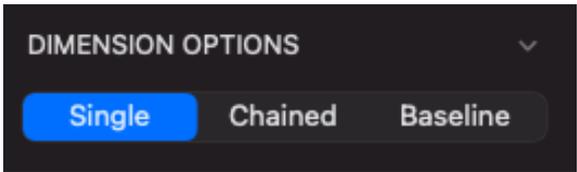
- Choose **Show Left Panel** from the **View** menu again and a tick will no longer be next to it and the **Tools** panel will disappear.
- Click the left panel icon of the **Show/Hide Panels** toolbar item again.
- If in Palette mode, click the red X in the palette.

### *Linear dimensions*

Linear (horizontal, vertical, sloped, or perpendicular) dimensions can consist of a single dimension span, several dimensions chained together, or several dimensions measured from the same baseline.



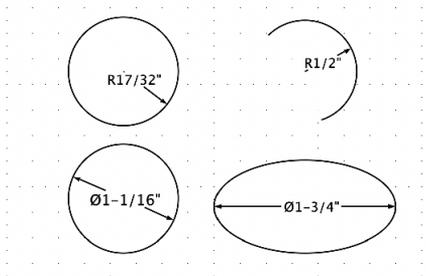
The type of linear dimension required is selected from the **Dim. type** pop-up menu in the **Dimension options** in the **Properties** panel/ palette. PRO ONLY



Linear dimensions can use existing vertices, corners, and so on as their points of reference. If the **Snap to Object** feature is active, the dimension tools will snap the reference points to existing corners and handles

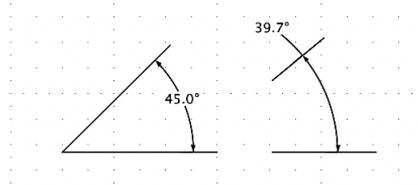
**Radial dimensions**

Radial dimensions appear as straight lines (like linear dimensions), but measure the radius or diameter of an existing circle, ellipse, or arc.



## Angular dimensions

Angular dimensions measure the angle of arc between any two straight lines or edges of square-cornered rectangles, polygons, or polylines (single-line or parallel). The lines or edges need not intersect.

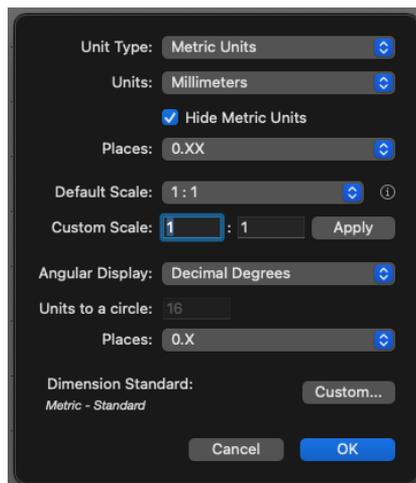


## Dimension standards and formats

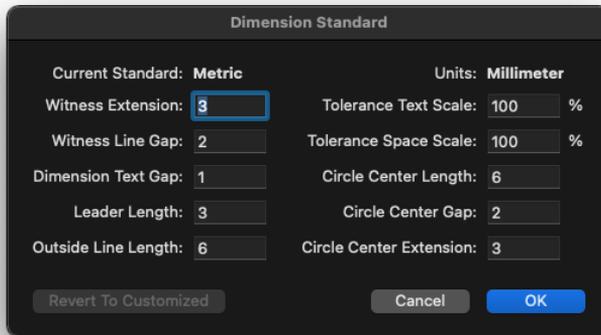
MacDraft follows recognized drafting and design standards for dimensioning in English units (as mandated by the American National Standards Institute, or ANSI) and metric units (matching the BS-308, DIN, ISO, and JIS standards). These standards, which you can modify in MacDraft to meet your own needs, control the sizes and lengths of such dimension elements as witness lines, leader lines, gaps between elements and so on. A drawing's dimension standards are displayed and set using the **Dimension Standard** dialog.

### To display the Dimension Standard dialog

1. Choose **Set Scale/Units...** from the **Layout** menu.
2. The **Document Scale & Units** dialog appears. Click the **Custom...** button in the **Dimension Standard** area of the dialog.



The **Dimension Standard** dialog appears.



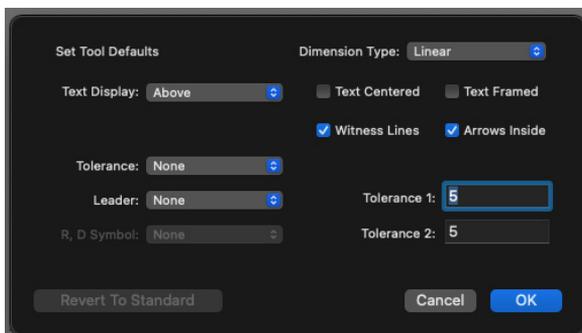
Details of the options available in the **Dimension Standard** dialog are provided later in this chapter.

MacDraft Professional also allows you to control the formats of dimension objects. You can define whether a dimension object's text is displayed horizontally, how dimension arrows are positioned, where (and whether) leader lines appear, and so on.

**To open the Dimension Format dialog** PRO ONLY

- Click the **Format** button in the **Dimension** section in the **Properties** panel/properties palette.

The **Dimension Format** dialog appears.



Details of the options available in the **Dimension Format** dialog are provided later in this chapter.

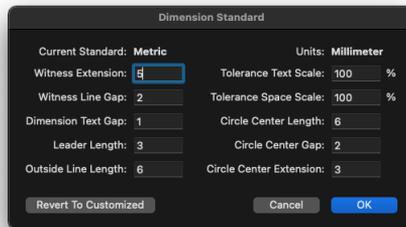
### ***Dimension Standards***

Although MacDraft's dimension standards follow approved guidelines for English unit and metric drawings, you can adjust them to meet your own needs.

These attributes are controlled using the Dimension Standards dialog. They can be adjusted for selected dimension objects or set as defaults to determine the attributes for all dimension objects drawn subsequently.

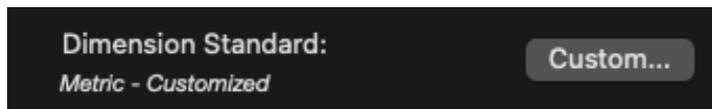
To change the dimension standard defaults for a drawing

1. Choose **Set Scale/Units...** from the **Layout** menu.
2. The **Document Scale & Units** dialog appears. Click the **Custom...** button in the **Dimension Standard** area of the dialog.



3. Click and type values in the appropriate fields to change standards as needed.
4. Click the **OK** button to close the dialog.

The **Document Scale & Units** dialog appears again. The **Dimension Standard: Status** Field will now read “Customized.”



5. Click the **OK** button.

The dimension standards you revised will now be the standards for all new dimension objects.

**Note:** Click the **Revert to Standard** button in the **Dimension Standard** dialog to return all the settings in the dialog to the ANSI or Metric standard values.

## Changing the dimension standards for existing dimensions PRO ONLY

To change the dimension standards for existing dimension objects

1. Select the dimension object or objects to be changed.
2. Click the **Format** button in the **Dimension** section in the **Properties** panel/properties palette.

The **Dimension Format** dialog appears.

Edit Selected Dimension      Type: Linear

Text Display: Above       Text Centered     Text Framed

Witness Lines     Arrows Inside

Tolerance: None

Dim. Round Off: None      Tolerance 1: 5

Leader: None      Tolerance 2: 5

R, D Symbol: None

Dimensions Label:

Standards...      Cancel      OK

3. Click the **Standards...** button.

The **Format Dimension Standard** dialog appears.

Dimension Standard

Current Standard: Metric      Units: Millimeter

Witness Extension: 3      Tolerance Text Scale: 100 %

Witness Line Gap: 2      Tolerance Space Scale: 100 %

Dimension Text Gap: 1      Circle Center Length: 6

Leader Length: 3      Circle Center Gap: 2

Outside Line Length: 6      Circle Center Extension: 3

Cancel      OK

- Click and type values in the appropriate fields to change standards as needed.
- Click the **OK** button to close the dialog.

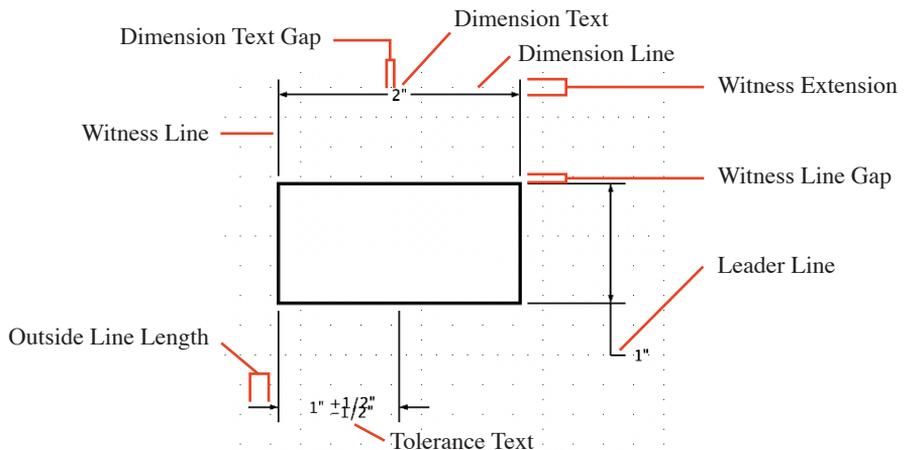
The **Dimension Format** dialog appears again.

- Click the **OK** button.

The dimension objects you selected are now revised as you specified. For details on the effects of each standard attribute see the next section.

**Note:** The format of individual Circle Centre Marks cannot be changed. The document default values will always be used.

### ***Dimension standard attributes***



#### **Witness extension**

The Witness Extension is the length the witness line extends beyond the dimension line itself. (Units indicate distance on screen and on the printed drawing, not in scaled units.)

#### **Witness line gap**

The distance from each reference point to the beginning of its witness line. (Units indicate distance on screen and on printed drawing, not in scaled units.)

**Dimension text gap**

The distance from any side of the dimension text to the dimension line or arc. (Units indicate distance on screen and on printed drawing, not in scaled units.)

**Leader length**

The length of a leader line connecting the dimension text to the dimension line or arc. (Units indicate distance on screen and on printed drawing, not in scaled units.)

**Outside line length**

The length of the lines indicating a linear dimension when the dimension object is formatted so that the lines are outside the witness lines, pointing “inward.” (Units indicate distance on screen and on printed drawing, not in scaled units.)

**Tolerance text**

A percentage value determining the point size of tolerance text (if any) relative to the dimension value text. Values can range from 25% (one-fourth the size of the dimension text) to 200% (twice the size of the dimension text).

**Tolerance space scale**

A percentage value determining the line spacing when two lines of tolerance value text appear together (either two tolerance values or tolerance limits).

The percentage is relative to the size of tolerance text itself, and ranges from 25% (one-fourth of a line) to 200% (two lines, or double spacing). Since a 100% setting single-spaces the text, values less than 100% percent may result in overlapping, depending on the font chosen for the dimension object.

**Circle center length**

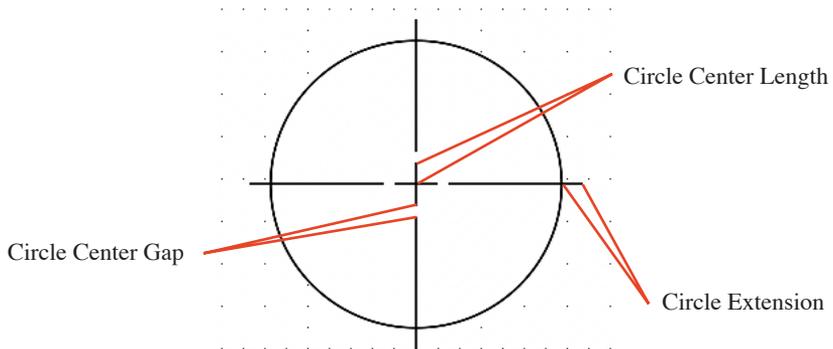
The length of each of the two crossed lines that mark the center point of a circle.

**Circle center gap**

The distance between the end point of a circle center line and the line that extends through the circle’s perimeter.

### Circle center extension

The distance that the circle center lines that pass through the circle's perimeter extend outside the perimeter.



Although the values are given in screen units rather than scale units, Circle Center marks change size as appropriate if a whole drawing is rescaled.

**Note:** The format of individual Circle Centre Marks cannot be changed. The document default values will be always used.

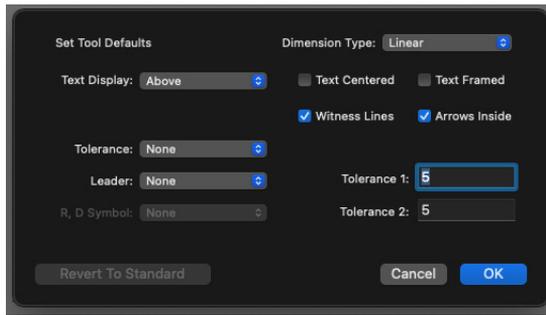
### Dimension formats PRO ONLY

Some of the attributes for dimension objects can be adjusted both as drawing defaults to determine the attributes for dimension objects drawn subsequently, and for existing dimensions. These attributes are controlled using the Dimension Format dialog.

**To change dimension format defaults for a whole drawing**

1. Make sure no objects are selected by clicking a blank area of the drawing.
2. Click the **Format** button in the **Dimension** section in the **Properties** panel/properties palette.

The **Dimension Format** dialog appears.



3. From the **Dimension Type** pop-up menu, choose the type of dimension (Linear, Radial, or Angular) that you want to set new defaults for.
4. Adjust the settings as needed.
5. If you want to set defaults for more than one dimension type, repeat steps 3 and 4.
6. When you are finished, click the **OK** button.

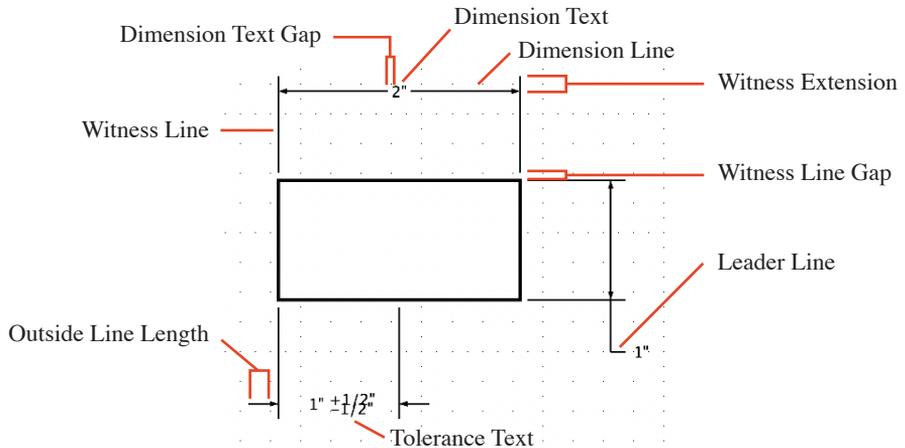
The dialog disappears, and the formats you revised will now be the defaults for all new dimension objects.

#### To change the dimension formats for existing dimension objects

1. Select the dimension object or objects.
2. Click the **Format** button in the **Dimension** section in the **Properties** panel/properties palette.
3. Adjust the settings as needed, then click the **OK** button.

The dialog disappears, and the selected objects will be changed as you specified.

## Dimension format attributes PRO ONLY



### Dimension type (available only when no object is selected in the document)

This pop-up menu controls which type of dimension object (linear, radial or angular) you want to set the defaults for.

### Text display

This pop-up menu controls whether dimension text is displayed horizontally on the drawing, or along, above, or below a dimension, extension, or leader line.

### Text centered

Click this checkbox if you wish dimension text to be centered on a dimension line or dimension arc.

### Text framed

Click this checkbox if you wish dimension text to appear within a frame.

### Witness lines

Click this checkbox if you wish witness lines to be displayed.

### Arrows inside

Click this checkbox if you wish the dimension lines to appear inside the witness

lines (if any). If this checkbox is turned off, dimension lines will be displayed outside the witness lines (if any).

**Note:** Hold down the Option key when entering dimension objects to toggle between arrows inside on/off.

#### **Dim. round off (available only for selected objects)**

Select a value from this pop-up menu to specify how dimension values are rounded off. (The values available for rounding off are in the scale and units of the drawing.)

#### **Leader**

Applicable only when dimension text appears horizontally outside a dimension object, choose an option from the pop-up menu to specify whether a leader line is displayed and whether it extends from a dimension line to the left or to the right.

#### **R, D symbol**

Applicable only to radial dimensions, this item controls whether the radius or diameter symbol is displayed and whether it leads or follows the dimension value.

#### **Tolerance**

Choose an option from this pop-up menu to specify how many tolerances are displayed:

- **None:** No tolerances are displayed.
- **One:** Shows a single “plus/minus” value determined by the Tol. 1 field.
- **Two:** Shows a “plus” value from the Tol. 1 field and a “minus” value from the Tol.2 field (e.g. “333cm +1cm -2cm”).
- **Limits:** Shows two dimension values calculated from the Tol. 1 and Tol. 2 fields in place of original dimension value (e.g. “331 cm / 334 cm” in place of “333 cm”).

#### **Tol. 1 and Tol. 2**

Enter values in these fields to specify values for tolerance to be displayed, as described above.

**Dimension label (available only for selected objects)**

Click this checkbox to turn this option on and enter text in the Dimension Label field to replace an existing object's dimension text with the specified text string. Any tolerances will be hidden if this option is chosen.

**Top Tip:** If you need to type an angular degree symbol (°) in the label, use Shift-Option-8 on your keyboard.

**Revert to standard (available only when no object is selected in the document)**

Click the Revert to Standard button to return all the settings in the dialog to the ANSI or Metric standard values.

**Standards... (available only for selected objects)**

Click the **Standards...** button to display the **Format Dimension Standard** dialog.

**Dimension end marks**

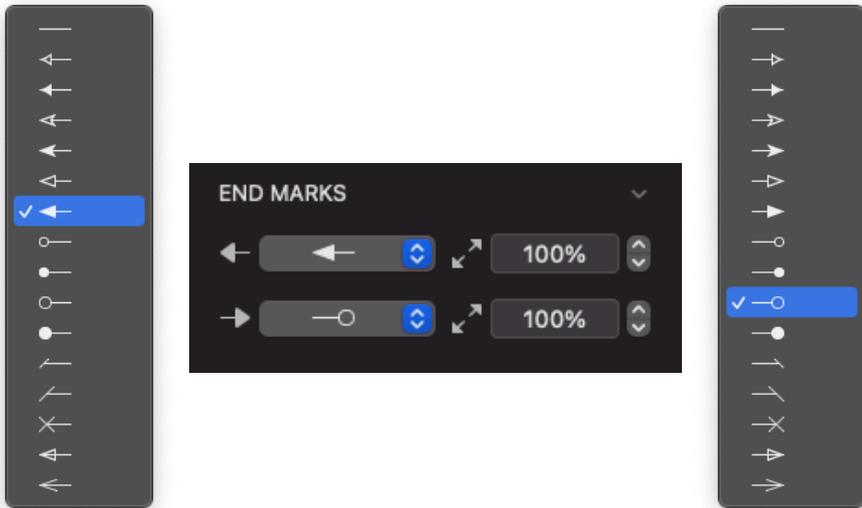
MacDraft's dimension lines and dimension objects can have end marks; usually arrows or slashes at the ends of a dimension line. You can specify different end marks for each end of the line. The end marks for dimension objects are controlled by the pop-up menu in **Dimension** section of the **Properties** panel.

**Note:** The end marks for ordinary lines are controlled by the End Marks pop-up menu in the Attribute section of the Properties panel.

***To change the end marks of an existing dimension object***

1. Select the dimension object.
2. Move the cursor to the **Start** or **End** pop-up menu in the **End Marks** section of the **Dimension** options in the **Properties** panel/ properties palette and hold down the mouse button.

The pop-up menu opens.



3. Drag until the desired end marks are highlighted.
  - Drag down the **Start** pop-up menu to choose a left end mark;
  - Drag down the **End** pop-up menu to choose a right end mark;
4. Release the mouse button and the selected end marks will be shown on the dimensions line.

### ***To set the end marks before drawing a dimension object***

1. Make sure nothing on the drawing is selected.
2. Move the cursor to the **Start** or **End** pop-up menu in the **End Marks** section of the **Dimension** options in the **Properties** panel/ properties palette and hold down the mouse button.
3. Move the cursor to highlight the desired end marks (see above).
4. Release the mouse button.

The end marks you specified appear on any new dimension objects you

draw and will be shown on the **Dimension** options in the **Properties** panel/properties palette.

## Drawing dimension objects

MacDraft's dimension objects include linear (horizontal, vertical, sloped, or perpendicular), radial (radius or diameter), and angular dimensions. Once created, dimension object's attributes, such as color, line style, text font, and so on can be controlled in the normal way.

**Note:** Dimension objects are drawn using the current default pen model.

If the dimension object is not linked to an object, it can be independently resized and edited much like other MacDraft shapes. In addition, different components of a dimension object can be treated independently once the object is disassembled using the **Break** tool available in the **Advanced Tools** panel/palette.

**Note:** Using the Break tool on a dimension object will automatically unlink it from its associated object.

### ***Linear dimensions Reference points***

The user-defined reference points for linear dimensions can be either part of existing objects (on corners or edges) or independent points on the drawing. To show an object's size precisely, and to automatically link the dimension object to the existing object, it is usually necessary to put the dimension's reference points on the object's corner points (or other edit handles).

### ***Linear dimension modes***

MacDraft's linear dimension tools (horizontal, vertical, slope, and perpendicular) let you display and print distances between points, either in pairs (single dimensions), strung together (chained dimensions), or from a single starting point (baseline dimensions).

#### **Single**

Instructions for drawing single dimension lines are given in the following

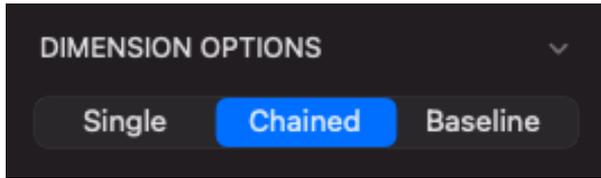
sections:

Horizontal dimension objects, Vertical dimension objects, Slope dimension objects and Perpendicular dimension objects.

**Chained** PRO ONLY

For all linear dimension tools, you can draw a string (or chain) of linear dimension lines, one after the other. The Chained mode of the dimension tool creates a series of single dimension objects, which can be moved, resized, or edited independently.

1. Open the **Dimension Options** section of the **Properties** panel/ properties palette, and choose **Chained**.



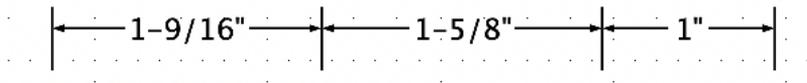
2. Select a linear dimension tool from the **Dimension Tools** panel/ palette.  
The cursor will now read “1st point.”
3. Click the first point for the dimension line.  
The cursor will now read “Next Point.”
4. Click the second point for the dimension line.  
The cursor will now read “Anchor,” and include an outline of the dimension’s text box.
5. Click the drawing where you want the text box to appear.  
The distance between the first two points appears, and the cursor will now read “Next Point.”
6. Click the next point for the dimension line.

The cursor will read “Anchor” again.

**Note:** If you hold down the Shift key, you can constrain the placement of the next dimension text block to the same plane as the first segment’s text.

7. Click the place in the drawing area where you want the next text box to appear. The distance between the second and third points appears, and the cursor will now read “Next Point.”
8. Continue steps 6 and 7 until you want to exit the dimension-drawing mode; to do this, hold down the **Option** key and click the drawing area.

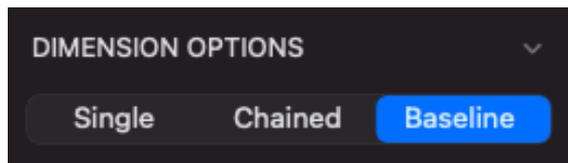
The dimension objects will be complete, with the appropriate distances between the various points selected displayed where specified.



#### Baseline **PRO ONLY**

MacDraft lets you draw several linear dimension lines from one starting point; this is called the “Baseline” dimension mode.

1. Open the **Dimension Options** section of the **Properties** panel/ properties palette, and choose **Baseline**.



2. Select a linear dimension tool from the **Dimension Tools** panel/palette.

The cursor will now read “1st point.”

3. Click the first point for the dimension line. (This will be the base point for all the dimension objects created in this process.)

The cursor will now read “Next Point.”

4. Click the second point for the dimension line.

The cursor will now read “Anchor,” and include an outline of the dimension’s text box.

5. Click the place in the drawing area where you want the text box to appear.

The distance between the first two points appears, and the cursor will now read “Next Point.”

6. Click the location for the end point of the next dimension line.

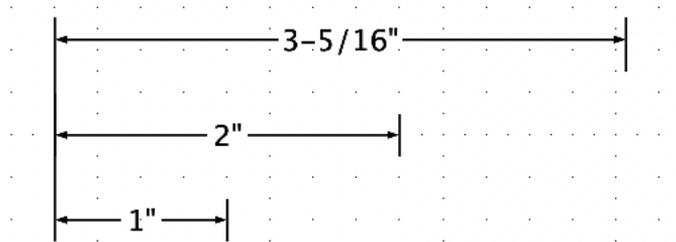
The cursor will read “Anchor” again.

7. Click the place in the drawing area where you want the next text box to appear.

The distance between the first and third points appears, and the cursor will now read “Next Point.”

8. Continue steps 6 and 7 until you want to exit the dimension-drawing mode; to do this, hold down the **Option** key and click the drawing area.

The dimension objects will be complete, with the appropriate distances from the first baseline point to the various other points displayed at the locations specified.



The **Baseline** mode of the dimension tool creates a series of single dimension objects, which can be moved, resized, or edited independently.

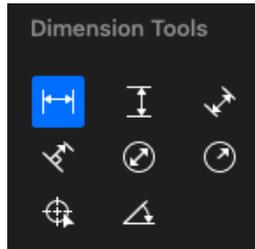
### ***Horizontal dimension objects***

The horizontal dimension tool creates dimension lines that are constrained to horizontal orientation. When edited, moved, or resized, horizontal dimension

objects retain their original angle of orientation.

To draw a single horizontal dimension line

1. Select the **Horizontal dimension** tool from the **Dimension Tools** panel/ palette.



The cursor will now read “1st point.”

2. Click the first point for the dimension line (an object's corner, if desired).

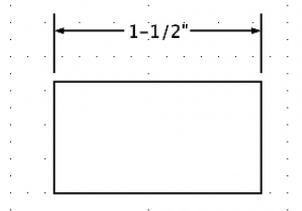
The cursor will now read “2nd Point.”

3. Click the second point for the dimension line.

The cursor will now read “Anchor,” and include an outline of the dimension's text box.

4. Click the place in the drawing area where you want the text value to appear.

The dimension object will be complete, with the horizontal distance between the two points displayed where you specified.



5. Click the **Pointer** tool or the **Escape** key on your keyboard to exit the dimension mode.

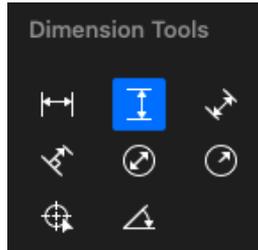
### ***Vertical dimension objects***

The vertical dimension tool creates dimension lines that are constrained to

vertical orientation. When edited, moved, or resized, vertical dimension objects retain their original angle of orientation.

**To draw a single vertical dimension line**

1. Select the **Vertical dimension** tool from the **Dimension Tools** panel/palette.



The cursor will now read "1st point."

2. Click the first point for the dimension line (an object's corner, if desired).

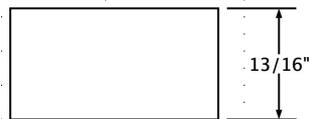
The cursor will now read "2nd Point."

3. Click the second point for the dimension line.

The cursor will now read "Anchor," and include an outline of the dimension's text box.

4. Click the place in the drawing area where you want the text value to appear.

The dimension object will be complete, with the horizontal distance between the two points displayed where you specified.



5. Click the **Pointer** tool or the **Escape** key on your keyboard to exit the dimension mode.

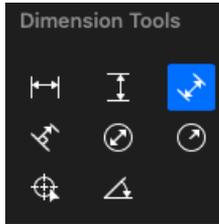
### ***Slope dimension objects***

The slope dimension tool is used to create dimension lines running in any direction on a drawing. Slope dimensions can be edited, moved, or resized, and the angle changed.

### To draw a single slope dimension line

1. Select the **Sloped dimension** tool from the **Dimension Tools** panel/palette.

The cursor will now read “1st point.”



2. Click the first point for the dimension line (an object's corner, if desired).

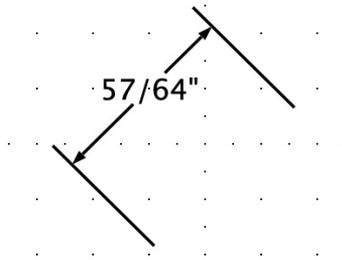
The cursor will now read “2nd Point.”

3. Click the second point for the dimension line.

The cursor will now read “Anchor,” and include an outline of the dimension’s text box.

4. Click the place in the drawing area where you want the text value to appear.

The dimension object will be complete, with the horizontal distance between the two points displayed where you specified along the slope.



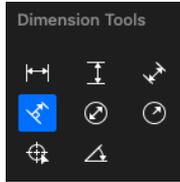
5. Click the **Pointer** tool or the **Escape** key on your keyboard to exit the dimension mode.

### ***Perpendicular dimension objects***

The perpendicular dimension tool creates dimensions perpendicular to lines or to the edges of square-cornered rectangles, polygons, and polylines (single-line or parallel-line). When edited, moved, or resized, perpendicular dimension objects retain their original angles of orientation.

### To create a perpendicular dimension line

1. Select the **Perpendicular dimension** tool from the **Dimension Tools** panel/palette.



The cursor will now read “Click Line/Edge.”

2. Click the line or edge for the first point of the dimension line.

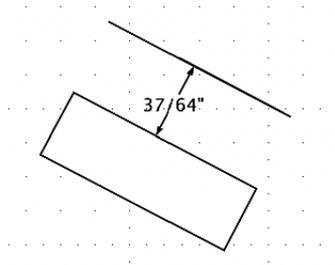
The cursor will now read “2nd Point.”

3. Click the second point for the dimension line.

The cursor will now read “Anchor,” and include an outline of the dimension’s text box.

4. Click the place in the drawing area where you want the text value to appear.

The dimension object will be complete, with the perpendicular distance from the edge of the object to the point you chose.



5. Click the **Pointer** tool or the **Escape** key on your keyboard to exit the dimension mode.

### **Radial dimension objects**

MacDraft’s radial dimension tools let you display and print the radius or diameter of a circle, arc, or ellipse.

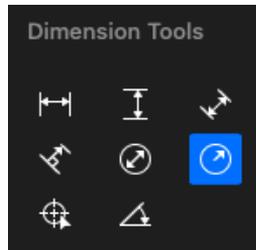
### Notes:

- Radial dimensions are not rotated together with the ellipses and elliptical arcs after dimensions are applied.
- Also, ellipses or elliptical arcs can display a radius or diameter only along their major and minor axes.

## Radius dimensions

To apply a radius dimension to an object

1. Select the **Radius dimension** tool from the **Dimension Tools** panel/palette.



The cursor will now read “Click Circle/Arc”.

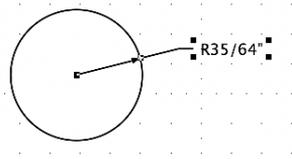
2. Click the circle, arc, or ellipse.

The cursor will now read “Anchor,” and include an outline of the dimension’s text box.

**Notes:** To constrain the angle of the dimension line to 45° increments, after selecting the circle, hold down the Shift key while clicking the anchor point where the dimension text is to appear. This option does not work with ellipses and elliptical arcs.

3. Click the place in the drawing area where you want the text value to appear.

The dimension object will be complete, with the radial distance shown where you specified.

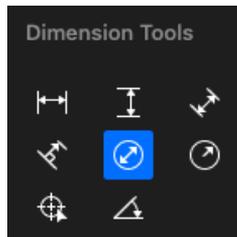


4. Click the **Pointer** tool or the **Escape** key on your keyboard to exit the dimension mode.

### ***Diameter dimensions***

To draw a diameter dimension

1. Select the **Diameter dimension** tool from the **Dimension Tools** panel/palette.



The cursor will now read “Click Circle/Arc”.

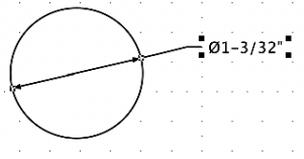
2. Click the circle, arc, or ellipse.

The cursor will now read “Anchor,” and include an outline of the dimension’s text box.

**Notes:** To constrain the angle of the dimension line to 45° increments, after selecting the circle, hold down the Shift key while clicking the anchor point where the dimension text is to appear.

3. Click the place in the drawing area where you want the text value to appear.

The dimension object will be complete, with the diameter distance appearing where you specified.



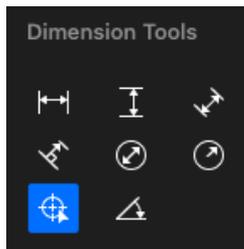
4. Click the **Pointer** tool or the **Escape** key on your keyboard to exit the dimension mode.

### **Circle center marks**

MacDraft's Dimension tools include a special tool for indicating the center of circles, ellipses, and arcs.

To apply a Circle center mark

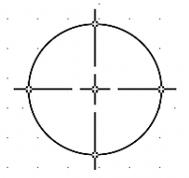
1. Select the **Circle center mark** tool from the **Dimension Tools** panel/palette.



The cursor will now read “Click Circle/Arc”.

2. Click the circle, arc, or ellipse.

The **Circle Center mark** appears over the object



3. Click the **Pointer** tool or **Esc** key on your keyboard to exit dimension mode.

### **Angular dimension objects**

MacDraft's **Angular dimension** tool lets you display and print the angles

between different lines or edges, whether they intersect or not. You can apply an angular dimension object to any pair of straight lines or edges of square-cornered rectangles, or to polygons or polylines (single-line or parallel-line).

#### To apply an angular dimension

1. Decide which two lines or edges you want to apply the dimension object to.
2. Select the **Angular Dimension** tool from the **Dimension Tools** panel/palette.

The cursor will now read “Click 1st Line”.

3. Click the first line or edge.

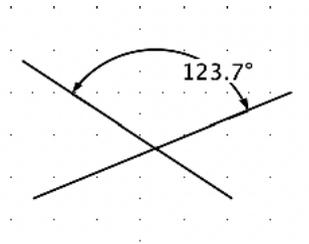
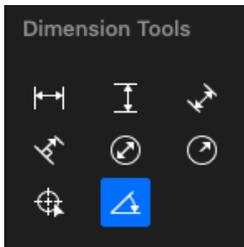
The cursor will now read “Click 2nd Line”.

4. Click the second line or edge.

The cursor will now read “Anchor”, and include an outline of the dimension’s text box.

5. Click the drawing where you want the text value to appear.

The dimension object will be complete, with the angle between the two edges displayed where you specified.



6. Click the **Pointer** tool or the **Escape** key on your keyboard to exit the dimension mode.

**Notes:** To display the obtuse rather than acute angle between two lines or edges, hold down the Option key after selecting the second edge, while clicking the point where the dimension text is to appear.

## Linking and unlinking dimension objects PRO ONLY

Dimension objects that are drawn with reference to object vertices will be linked to those points by default. This means that if the object is resized, the dimension object and the value associated with it will be updated to reflect the new size.

Object vertices and dimension objects can be linked and unlinked using some of the tools in the **Advanced Tools** section of the **Tools** panel or **Advanced Tools** palette. These tools can be used to link object vertices with other object vertices in the same way.

### Displaying the Advanced tools PRO ONLY

To display the Advanced tools

- Choose **Show Left Panel** from the **View** menu, or
- Choose left panel icon from the **Show/Hide Panels** toolbar item.

The **Tools** panel will appear and the **Advanced** tools are at the bottom.



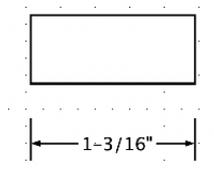
### Link PRO ONLY

Dimension objects (and other objects) can be linked by positioning the dimension object on an object vertex and using the **Link** tool from the **Advanced tools** to link the two objects at that point. Once linked, a dimension object will be automatically updated if the object it is linked to is resized.

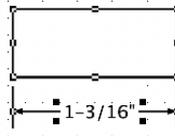
**Notes:** Dimension objects are automatically linked to object vertices when they are first drawn if the preference is enabled in the MacDraft Professional Preferences.

To link objects

1. Draw or locate the objects, or object and dimension object, to be linked.



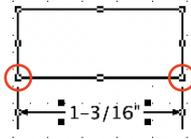
2. Position the objects so that a vertex point of one object is at the same location as a vertex point of the other object.



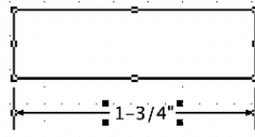
3. Open the **Drafting Tools** panel/palette and select the **Link** tool.

The cursor will be displayed with a question mark next to it.

4. Click the points that are to be linked.



The vertex point of the dimension object will be linked to the other object. If the object is resized the dimension object will be automatically updated.



Other vertex points can be linked in the same way.

### **Unlink** PRO ONLY

Dimension objects (and other objects) can be unlinked from an object by using the **Unlink** tool from the **Drafting Tools** panel/palette to break the link between the two objects at a specific point. Once unlinked, a dimension object will not be updated if the object it was previously linked to is resized.

#### **To unlink objects**

1. Locate the objects, or object and dimension object, to be unlinked.
2. Open the **Drafting Tools** panel/palette (if necessary) and select the **Unlink**

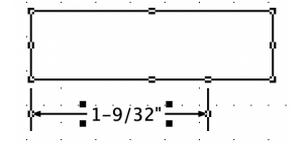
tool.

The cursor will be displayed with a question mark next to it.

3. Click the points that are to be unlinked.



The vertex point of the dimension object will be unlinked from the other object. If the object is resized the dimension object will not be updated.



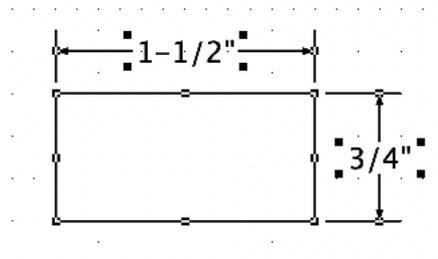
Other linked objects can be unlinked in the same way.

### **Unlink all** PRO ONLY

You can break all the links for an object by using the **Unlink All** tool from the **Drafting Tools** panel/palette to break all the links associated with a selected object. This will be faster than using the Unlink tool if an object is linked to another object at more than one point, or is linked to several different objects, and you want to remove all the links.

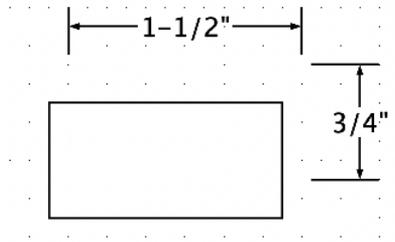
#### **To unlink all objects**

1. Select the object (or dimension object) you wish to remove all links from.



2. Open the **Drafting Tools** panel/ palette and select the **Unlink All** tool.
3. Click **Cancel** to return to the drawing without removing the links, or click **Remove** to remove all the links from the selected objects.

If you click **Remove**, all the links will be removed from the selected object. If dimension objects were selected, or linked to the selected objects, they will no longer be updated if the object is resized.



## Breaking dimension objects PRO ONLY

The **Break** tool in the **Drafting Tools** panel/palette can be used to separate dimension objects into distinct lines and so on. This is necessary when you want to give different line attributes to different parts of a dimension object.

**Notes:** Using the **Break** tool on a dimension object automatically unlinks it from its associated object.

In most cases, the components of a dimension object are the same after the use of the **Break** tool; that is, their positions and attributes will not change. Once the object is broken apart into separate objects, each new object can be moved, edited, resized, or otherwise changed like any other MacDraft object.

**Notes:** A dimension object that has been broken apart cannot be converted back (“reassembled”) into a dimension object. The partial exception to this is the fact that if the **Undo** command is used immediately after using the **Break** tool it will reverse the break. However, if elements from a broken-apart dimension object are edited, moved, or deselected, the **Undo** command will not be able to reverse the break.

## **Breaking apart a dimension object** PRO ONLY

To break apart a dimension object

1. Select the dimension object you want to break apart.
2. Open the **Drafting Tools** panel/palette and select the **Break** tool.



The dimension object will become several objects of different types, each of which can be edited individually.

## **Effects of the break tool on dimension objects** PRO ONLY

Different kinds of dimension objects are affected in different ways by the Break tool. In all cases, reference points will be lost.

### **Linear or radial dimensions**

Linear or radial dimensions will become an unconstrained point-to-point dimension line, with or without end marks as determined by the original object. Any witness, extension, or leader lines become unconstrained individual lines, and any frame around the dimension text will be deleted.

### **Angular dimensions**

An angular dimension becomes an unfilled radial arc. Any extension arcs become separate unfilled radial arcs, and witness or leader lines become unconstrained individual lines.

### **Dimension labels and tolerances**

Dimension labels and tolerances become ordinary text objects. Any frame around the dimension text will be deleted.

### **Circle center marks**

Circle center marks become individual unconstrained lines.

# Area calculation

MacDraft's automatic Area Calculation feature can determine and show the area of a selected object for you. If you later change the size of the object, the size shown changes automatically.

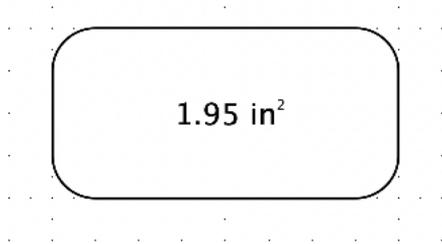
This feature can calculate the areas of simple objects, like rectangles and circles, or complex objects, such as complex polygons and freehand shapes. When the area of an object is calculated, it always reflects the current scale and units.

## Show Area

### *To calculate the area of an object*

1. Select the object whose area you want to determine.
2. Open the **View** menu and choose **Show Area**.

The result of the area calculation will be shown in approximately the center of the object.



## Modifying area calculation values

MacDraft allows you to change the appearance and/or positioning of area calculation values. The current font attributes, including font type and size, are used for these values. MacDraft uses the Macintosh system font (usually 13-point Lucida Grande) as the preset font and size when you create a new document. There may be times when this font size is inconvenient, such as when area values are shown on small objects, and the size of the text value overwhelms the size of the object.

MacDraft gives you the flexibility to change the value's font type and size. In addition, it allows you to separate the values from their related objects and move them to any location on your drawing. In the case of small objects with area

values, you can move the area values away from the object. If you want to tidy up your drawing, you can move these values into an information table. If you change the size of an object, the calculated value in the table will be updated automatically to reflect the object's or line's new size.

### ***Changing font attributes***

**To change the font attributes before you use show area**

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/ palette. (make sure nothing is selected in the document.)
2. To change the font either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Font** pop-up menu in **Text Options** in the **Properties** panel/ palette.
3. Choose the font you would like to use.
4. To change the font size either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Size** pop-up menu in **Text Options** in the **Properties** panel/ palette.
5. Choose the size of the font you would like to use.
6. Implement the area calculation feature.

The area calculation value text (and any subsequent text entered) will be shown in the font and at the text size specified.

**To change the font attributes for existing area calculation values**

1. Select the area calculation value you want to change.
2. To change the font either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Font** pop-up menu in **Text Options** in the **Properties** panel/ palette.

3. Choose the font you would like to use.
4. To change the font size either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Size** pop-up menu in **Text Options** in the **Properties** panel/palette.
5. Choose the size of the font you would like to use.

The area calculation value text selected will be shown in the font and at the text size specified.

**Note:** If you are printing to a PostScript printer, choose a laser printer font to obtain a high-quality output.

### ***Moving area calculation values***

Area calculation text can be moved away from an object, but if the object is subsequently moved, the area calculation text maintains its position relative to the object. For example: If you moved the area calculation text from the center of a rectangle, repositioned the text above the rectangle, then moved the rectangle, the text would follow the movement of the rectangle and remain above it.

Alternatively, the area calculation text can be detached from an object and placed in a fixed location. If the object is moved the area calculation text remains in its specified position. This unique feature offers an extreme level of flexibility, especially if you want to place the values into an information table.

In both cases, the area calculation value remains associated with the object, and will be updated if the object is edited.

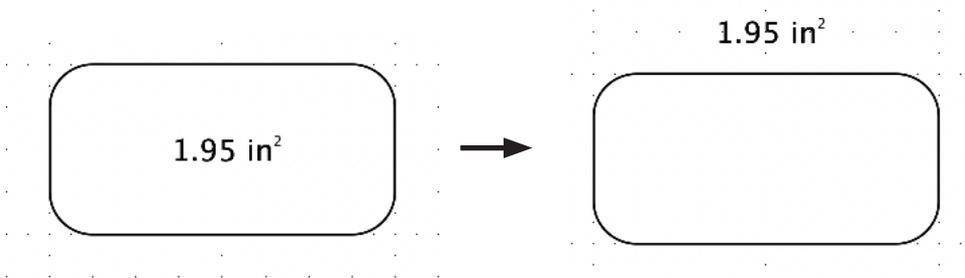
### ***Moving attached area calculation values***

Use this method if you want the area calculation text to remain attached to the object it is associated with. The text maintains its position relative to the object.

**To move an attached area value**

1. Position the cursor on the area value.
2. Press and hold down the **Shift** key.
3. Press and hold down the mouse button.
4. Release the **Shift** key.
5. Holding down the mouse button, drag the value to the desired location, then release the mouse button.

The area value text will be shown at the specified location, but maintains its position relative to the object if the object is moved.



**Note:** To constrain the movement of the value to a horizontal or vertical direction, keep holding the Shift key down as you drag the value to its new location.

### ***Detaching and moving area calculation values***

Use this method if you want the area calculation text to be detached from the object it is associated with. The text remains in the fixed position even if the object is moved. The value remains associated with the object and will be updated if the object is edited.

#### **To detach and move area calculation values**

1. Select the area value you want to detach and move.
2. Drag it to the desired position, and it will be detached from the object.

The text remains in the position specified even if the object is moved.

You can reattach the area value by using the **Shift** key, as explained in

"Moving attached area calculation values".

## Hide Area

If a selected object shows an area calculation, the View menu command Hide Area will be available.

### *To hide the area calculation display*

1. Select the object with the area you wish to hide.
2. Open the **View** menu and choose **Hide Area**.

The area calculation for the selected object will be no longer shown.

## Perimeter calculation

MacDraft's automatic Perimeter Calculation feature can determine and show the perimeter of a selected object for you. If you later change the size of the object, the size shown changes automatically.

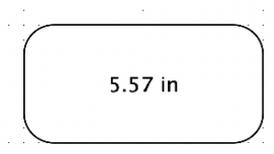
This feature can calculate the perimeter of simple objects, like rectangles and circles, or complex objects, such as complex polygons and freehand shapes. When the perimeter of an object is calculated, it always reflects the current scale and units.

## Show Perimeter

### *To calculate the perimeter of an object*

1. Select the object whose perimeter you want to determine.
2. Open the **View** menu and choose **Show Perimeter**.

The result of the perimeter calculation will be shown in approximately the center of the object.



## Modifying perimeter calculation values

MacDraft allows you to change the appearance and/or positioning of perimeter calculation values. The current font attributes, including font type and size, are used for these values. MacDraft uses the Macintosh system font (usually 13-point Lucida Grande) as the preset font and size when you create a new document. There may be times when this font size is inconvenient, such as when area values are shown on small objects, and the size of the text value overwhelms the size of the object.

MacDraft gives you the flexibility to change the value's font type and size. In addition, it allows you to separate the values from their related objects and move them to any location on your drawing. In the case of small objects with perimeter values, you can move the perimeter values away from the object. If you want to tidy up your drawing, you can move these values into an information table. If you change the size of an object, the calculated value in the table will be updated automatically to reflect the object's or line's new size.

### ***Changing font attributes***

To change the font attributes before you use **show perimeter**

1. Return to the pointer mode, by selecting the **Pointer** tool in the **Drafting Tools** panel/palette. (make sure nothing is selected in the document.)
2. To change the font either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Font** pop-up menu in **Text Options** in the **Properties** panel/palette.
3. Choose the font you would like to use.
4. To change the font size either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Size** pop-up menu in **Text Options** in the **Properties** panel/palette.
5. Choose the size of the font you would like to use.
6. Implement the perimeter calculation feature.

The perimeter calculation value text (and any subsequent text entered) will be shown in the font and at the text size specified.

#### To change the font attributes for existing perimeter calculation values

1. Select the perimeter calculation value you want to change.
2. To change the font either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Font** pop-up menu in **Text Options** in the **Properties** panel/palette.
3. Choose the font you would like to use.
4. To change the font size either:
  - Open the **Font** submenu from the **Text** menu and choose **Show Fonts**, or
  - Click the **Size** pop-up menu in **Text Options** in the **Properties** panel/palette.
5. Choose the size of the font you would like to use.

The perimeter calculation value text selected will be shown in the font and at the text size specified.

**Note:** If you are printing to a PostScript printer, choose a laser printer font to obtain a high-quality output.

#### ***Moving perimeter calculation values***

Perimeter calculation text can be moved away from an object, but if the object is subsequently moved, the perimeter calculation text maintains its position relative to the object. For example: If you moved the perimeter calculation text from the center of a rectangle, repositioned the text above the rectangle, then moved the rectangle, the text would follow the movement and remain above it.

Alternatively, the perimeter calculation text can be detached from an object and placed in a fixed location. If the object is moved the perimeter calculation text remains in its specified position. This unique feature offers an extreme level of

flexibility, especially if you want to place the values into an information table.

In both cases, the perimeter calculation value remains associated with the object, and will be updated if the object is edited.

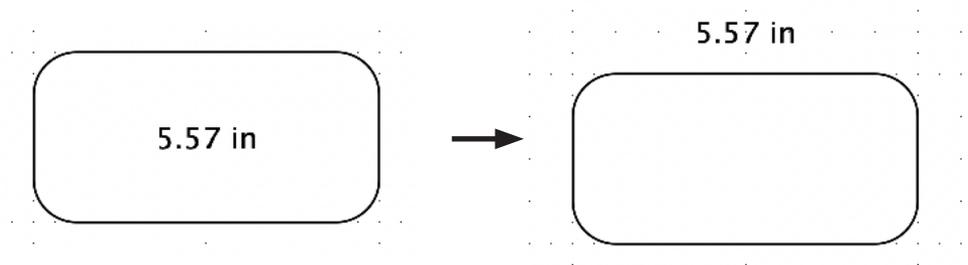
### ***Moving attached perimeter calculation values***

Use this method if you want the perimeter calculation text to remain attached to the object it is associated with. The text maintains its position relative to the object.

#### **To move an attached perimeter value**

1. Position the cursor on the perimeter value.
2. Press and hold down the **Shift** key.
3. Press and hold down the mouse button.
4. Release the **Shift** key.
5. Holding down the mouse button, drag the value to the desired location, then release the mouse button.

The perimeter value text will be shown at the specified location, but maintains its position relative to the object if the object is moved.



**Note:** To constrain the movement of the value to a horizontal or vertical direction, keep holding the Shift key down as you drag the value to its new location.

### ***Detaching and moving perimeter calculation values***

Use this method if you want the perimeter calculation text to be detached from

the object it is associated with. The text remains in the fixed position even if the object is moved. The value remains associated with the object and will be updated if the object is edited.

#### To detach and move perimeter calculation values

1. Select the perimeter value you want to detach and move.
2. Drag it to the desired position, and it will be detached from the object.

The text remains in the position specified even if the object is moved.

You can reattach the perimeter value by using the **Shift** key, as explained in "Moving attached perimeter calculation values".

## Hide Perimeter

If a selected object shows an perimeter calculation, the View menu command Hide Perimeter will be available.

#### To hide the perimeter calculation display

1. Select the object with the perimeter you wish to hide.
2. Open the **View** menu and choose **Hide Perimeter**.

The perimeter calculation for the selected object will be no longer shown.

## Subscript & Superscript

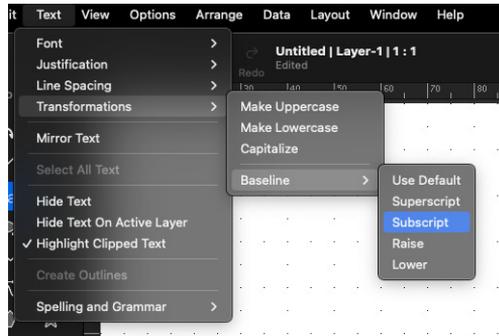
MacDraft has the ability to create subscript and superscript text. You can also edit the position of text in relation to the baseline by raising it or lowering it. You can use these functions to create text such as 42° or H<sub>2</sub>O.

#### To create subscript text

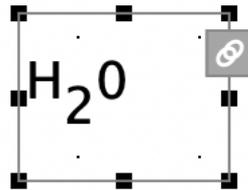
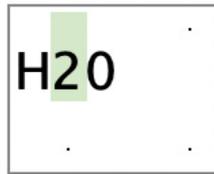
1. Select the Text tool in the **Drafting Tools** panel/ palette.
2. Draw out a rectangle of paragraph text by clicking and dragging the cursor.
3. Type text including the characters you wish to make subscript.
4. Press the Esc key or choose the pointer tool to confirm the text.
5. With the cursor tool selected, highlight the characters you wish to make

subscript.

6. Go to the Text menu
7. Go to the Transformations sub-menu
8. Go to the Baseline sub-menu
9. Choose Subscript.



The Text will update and will now be subscript.

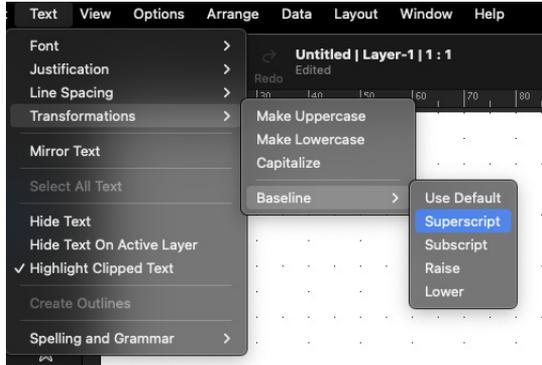


**Note:** You can edit how high or low a character appears on the Baseline via the Text > Transformations > Baseline submenu.

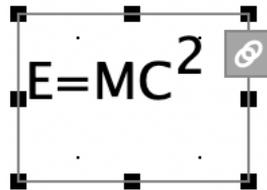
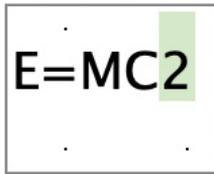
#### To create superscript text

1. Select the Text tool in the **Drafting Tools** panel/ palette.
2. Draw out a rectangle of paragraph text by clicking and dragging the cursor.
3. Type text including the characters you wish to make superscript.
4. Press the Esc key or choose the pointer tool to confirm the text.

5. With the cursor tool selected, highlight the characters you wish to make superscript.
6. Go to the Text menu
7. Go to the Transformations sub-menu
8. Go to the Baseline sub-menu
9. Choose Superscript.



The Text will update and will now be superscript.



You can edit how high or low your text appears along the baseline. The baseline is the default line that text is written on when you start typing. The position of the text can be increased or decreased incrementally via the Baseline options in the Text menu.

**To raise text above the baseline**

1. Highlight the text you wish to edit
2. Go to the Text menu
3. Go to the Transformations sub-menu

#### 4. Choose Raise

The highlighted text will be raised once

**Note:** If you follow steps 1 to 4 again the text will raise again. You can keep doing this until the text is the height you desire.



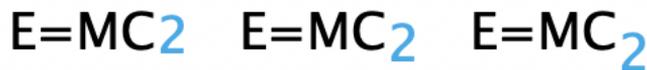
E=MC<sup>2</sup> E=MC<sup>2</sup> E=MC<sup>2</sup>

#### To lower text below the baseline

1. Highlight the text you wish to edit
2. Go to the Text menu
3. Go to the Transformations sub-menu
4. Choose Lower

The highlighted text will be lowered once

**Note:** If you follow steps 1 to 4 again the text will lower again. You can keep doing this until the text is the depth you desire.



E=MC<sup>2</sup> E=MC<sup>2</sup> E=MC<sup>2</sup>

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## Chapter 5

# Transforming and arranging your objects

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Once created, objects in your MacDraft drawing can be moved, duplicated, transformed, and arranged in many different ways. To avoid objects being altered in error, items can be locked, and a find and replace feature allows multiple identical changes to be performed quickly. These features are discussed in this chapter. MacDraft offers several useful drawing aids that help you to position objects easily.

**Top Tip:** The application can convert units for you. (i.e. If you are working in inches but type "mm" after the number the application will convert those millimeters to inches.)

## Moving objects

You may create an object, then decide you want to move it to a new location on your drawing or into a different drawing. MacDraft provides several different methods of moving objects: **drag and drop**; **cut/copy and paste**; the **Move** command; the **Resize** options; the **arrow keys**; and the **Position** command. Objects can also be removed permanently by using the **Clear** function.

### Drag and drop

Drag and drop can be used to move objects to/from a MacDraft document to/from a variety of locations.

***Drag and drop an object or group of objects from a MacDraft document to:***

- The same document window (to move or copy the object or group).

- The Library Window.

***Drag and drop an object or group of objects into a MacDraft document:***

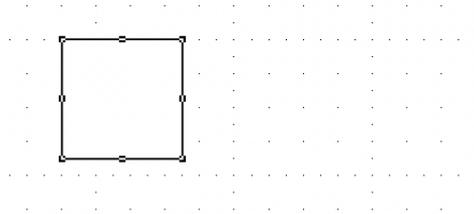
- Library Window.
- Any PICT file can be dragged directly into a MacDraft document window.
- Items in other image and graphics file formats, such as JPEG and PDF files, can be dragged into MacDraft.

***The drag and drop process***

In its simplest form, drag and drop can be used to move an object or group of objects within a MacDraft document. To perform other drag and drop actions, you must press additional “modifier” keys. The modifier keys required to perform specific actions are described later in this chapter.

**To use drag and drop**

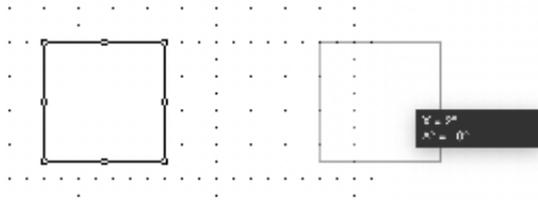
1. Select the object you want to move by clicking it.



2. Position the cursor over the object.
3. Press down a modifier key if required (see next section).
4. Press and hold down the mouse button.

**Note:** Be careful not to position the pointer on an edit handle when you move an object. Edit handles are for changing the size and shape of an object

5. Holding down the mouse button, drag the object to its new location.
6. Release the mouse button.



When you drag objects, “ghost” images of the objects will be visible as you drag them. The original stays in place until you release the mouse button.

### ***Drag and drop modifier keys***

Various keys perform a special function when used during the process of clicking the object(s) to be dragged. Once the drag action is started, these modifier keys have no effect and can be released. The same modifier keys may perform other functions when used during the process of releasing the mouse button to drop the dragged object(s).

### ***Using drag and drop within a MacDraft document***

**To move an object within a MacDraft document using drag and drop**

- No modifier key is required.

**To copy an object within a MacDraft document using drag and drop**

- Hold down the Option key at any time.

The original object selected remains in place, and a copy of it will be placed at the new location.

**To constrain the movement of an object**

- Hold down the Shift key while dragging an object to constrain the object's movement to either a horizontal or vertical direction.

**Note:** If you drag an object beyond the borders of the drawing area, the drawing automatically scrolls. In addition, objects can be placed in the area around the document space, but they will not print or export.

### ***Using drag and drop to move an object via its anchor point***

You can drag an object via one of its anchor points. If you want to move an object such as a rectangle via one of its corners you can do so by selecting the object to highlight its anchor points, then hold down the Option & Command keys and click and drag the anchor point of the rectangle. Release the mouse and keys to place.

**Note:** The modifier keys are very important here. If you don't use them you will simply resize the object rather than moving it. If you have Object Snap on you can snap the point you are moving to another.

### ***Using drag and drop with multiple objects***

To move multiple objects or grouped objects, simply select the objects or group you want to move, then drag the objects or group to a new position.

Alternatively, hold down the **Shift** key to drag only the object or group clicked, rather than all of the selected objects. Release the **Shift** key once the drag action has been started.

## **Cut/copy and paste**

By using the **Cut**, **Copy** and **Paste** functions, you can remove or copy objects from one location on your drawing, then paste them into another location in the same drawing, a different drawing, or a different application.

The **Cut** function deletes selected objects from the drawing and places them on the Clipboard.

The **Copy** function makes a copy of selected objects and places the copy on the Clipboard, while leaving the original objects in place.

You can place several objects on the Clipboard as long as they are selected and cut or copied at the same time. The objects are stored on the Clipboard until you are ready to paste them onto the drawing, or until you use the **Cut** or **Copy** function again.

## ***Using cut/copy and paste within a single MacDraft document***

### **Cut and paste**

1. Select the object you want to move.
2. Open the **Edit** menu and choose **Cut**.

The selected object is removed from the drawing.

3. Click the place where you want to paste the cut object.
4. Open the **Edit** menu again and choose **Paste**.

The object reappears at the location where you clicked.

You can continue to paste objects that have been cut into as many areas on your drawing as you like by simply selecting the insertion point and choosing **Paste** from the **Edit** menu. The objects remain on the Clipboard until you cut or copy a different object on your drawing, then the first object will be replaced with the new object on the Clipboard.

### **Copy and paste**

The **Copy** and **Paste** functions allow you to make a copy of an object and paste the copy into another area of the drawing without affecting the status of the original.

1. Select the object you want to copy.
2. Open the **Edit** menu and choose **Copy**.

A copy of the object will be stored on the Clipboard for your use.

3. Click the place where you want to paste the copy.
4. Open the **Edit** menu again and choose **Paste**.

The object will be pasted in at the new location.

You can continue to paste objects that have been copied into as many areas on your drawing as you like by simply selecting the insertion point and choosing **Paste** from the **Edit** menu. The objects remain on the Clipboard until you cut or copy a different object on your drawing, at that time the first object will be replaced with the new object on the Clipboard.

**Note:** All Cut, Copy and Paste commands can be sped up using keyboard shortcuts: Cut (CMD + X), Copy (CMD + C) and Paste (CMD + V).

## ***Using cut/copy and paste to transfer items from one MacDraft document to another***

### **Cut and paste**

MacDraft allows you to cut/copy and then paste all or part of a drawing into another MacDraft document.

#### **To cut or copy part of a drawing**

1. Select all or the part of the drawing you wish to place in another document.
2. Open the **Edit** menu and choose **Cut** or **Copy**.

The selected objects will be stored on the Clipboard.

#### **To paste objects into a different MacDraft document**

1. Open the document into which you wish to paste the objects stored on the Clipboard.
2. Click the place where you want to paste the objects into the drawing.
3. Open the **Edit** menu and choose **Paste**.

The objects that you cut or copied will be pasted into the specified location.

**Note:** When you cut or copy objects from one drawing and paste them into another drawing, the objects that you pasted take on the scale of the new drawing. For example, if you copy an object from a drawing with a scale of 1" = 20', then paste it into a drawing with a scale of 1" = 10', the object would appear twice as large as it did on the original drawing. In reality, the object is still the same size, but it is represented at the new scale. To avoid this use the Paste Unscaled feature.

### ***Paste unscaled***

If you hold down the **Shift** key, the **Paste** command in the **Edit** menu changes to **Paste Unscaled**. Use the **Paste Unscaled** command to paste an object into a

document and have it appear at its original size, regardless of any differences in view scale between the object and the destination document window.

### **Repeated paste**

You may often want to use an object on your drawing in more than one location. To accomplish this you can use either the **Copy** and **Paste** functions, the **Duplicate** function or the **Repeated Paste** function. These functions save you the time of redrawing the object again and again.

The **Repeated Paste** function is used to paste multiple copies of the same object into various locations on a drawing. When using **Repeated Paste**, any object on the Clipboard is pasted into the drawing at each point you click. While in this mode, you can scroll the window and continue to paste in objects.

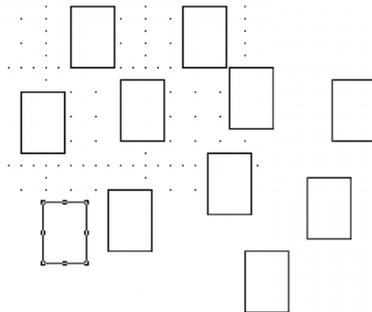
#### **To use the repeated paste function**

1. Open the **Edit** menu and choose **Cut** or **Copy**.
2. Select the **Repeated Paste** tool in the **Tool** panel/palette or open the **Edit** menu and choose **Repeated Paste**.



The cursor changes to an “X”.

3. Click the point you want to paste the object.
4. Continue to move the cursor and click the areas on the drawing until you’ve pasted as many copies of the object as you want into your document.



A copy of the object appears at each point you click the drawing. The object's datum point will be used as the reference point for the paste operation.

5. Click the **Pointer** tool or **Escape** key on your keyboard when you have finished pasting.

### ***Using cut/copy and paste to transfer items from MacDraft to other applications***

At times you may want to use MacDraft in conjunction with other applications, such as a word processor. For example, you may want to paste a chart into MacDraft to enhance its appearance, then paste it into a layout document.

#### ***Transferring objects from Microspot MacDraft***

**To transfer objects to other applications using the clipboard:**

1. Select the object or objects you want to move.
2. Open the **Edit** menu and choose **Cut** or **Copy**.

The selected objects will be placed on the Clipboard.

3. Switch to another application and once you leave MacDraft, all objects on the Clipboard will be converted to the PICT format.
4. In the new application, open the **Edit** menu and choose **Paste**.

The cut or copied objects appear as a PICT image in the new application's document window.

### **The Move command**

With the **Edit** menu's **Move** command, you can move objects or groups with great precision by entering values from the keyboard.

Objects can either be moved to a specific location (absolute move), or moved by a specified amount (relative move). The setting for **Absolute** or **Relative** mode in the **Move** dialog will be stored for subsequent openings of the dialog, until the application is closed.

The coordinates or distances are shown in the current layer's scale and units. The **Move a Copy** option places a copy of the selection in a specified location while

leaving the original in place.

In MacDraft Professional you can also move objects or groups you select to another layer. Because the **Move** dialog opens with the selection's current location entered, you can easily move or copy it to the same spot on a different layer. This can be useful, for example if you need to show walls or posts in the same location on many layers in a plan view drawing.

**Note:** The Move command can only move or copy objects between layers that have the same scale. To move objects between layers with different scales, use the Cut and Copy and Paste commands.

The datum point of the selected object or group is used as the reference for moving. Therefore, to move an object, you specify the desired location (the X and Y coordinates) of the object's datum point. If you select multiple objects or groups, MacDraft uses the datum point of the top left item as the reference.

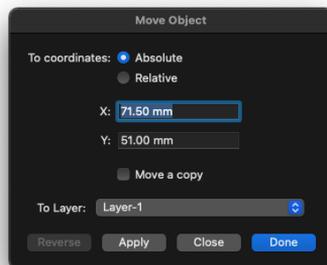
### ***Absolute move***

To move objects or groups to a particular location on the drawing

1. Select the objects or groups you want to move.
2. Open the **Edit** menu and choose **Move**.

The **Move** dialog appears.

3. Choose **Absolute** from the **Position** pop-up menu if necessary. The current location of the selection will be shown.



4. Type in the *X* and *Y* coordinate values for the new location.
5. To move the selection to another layer, choose the layer name from the **To Layer** pop-up menu. PRO ONLY
6. To leave the original in place, moving only a copy, click the **Move a Copy** checkbox.
7. Click one of the following buttons:
  - **Apply:** To apply the changes and leave the dialog open.
  - **Close:** To close the dialog without applying the changes.
  - **Done:** To apply the changes and close the dialog.
8. The selection (or a copy of it) is moved to the new location.

The default zero origin for both rulers (the point where  $X=0$  and  $Y=0$ ) of the coordinate system is the upper left corner of the window. The rulers along the top and left sides of the window are used to control the zero origins. In this default coordinate system, *X* values increase from left to right and *Y* values increase from top to bottom. You can change the zero origins of the rulers.

**Note:** If the move operation requires the object to be moved beyond the edge of the drawing, an alert appears.

### ***Relative move***

In relative movement, positive values for distance move items to the right (in the  $\Delta X$  field) or downward (in the  $\Delta Y$  field). Negative values move items to the left or upwards.

#### **To move items relative to their original position**

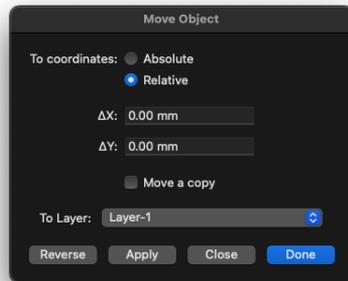
1. Select the objects or groups you want to move.
2. Open the **Edit** menu and choose **Move**.

The Move dialog appears.

3. Choose **Relative** from the **Position** pop-up menu if necessary. The starting position will be shown as zeroes in the  $\Delta X$  (horizontal change) and  $\Delta Y$

(vertical change) fields.

4. Enter values to move the selection by into the  $\Delta X$  and  $\Delta Y$  fields.



5. To move the selection to another layer, choose the layer name from the **To Layer** pop-up menu. **PRO ONLY**
6. To leave the original in place, moving only a copy, click the **Move a Copy** checkbox.
7. Click one of the following buttons:
  - **Reverse:** To apply the entered values as though they were negative amounts.
  - **Apply:** To apply the changes and leave the dialog open.
  - **Close:** To close the dialog without applying the changes.
  - **Done:** To apply the changes and close the dialog.
8. The selection (or a copy of it) is moved to the new location.

**Note:** If the move operation requires the object to be moved beyond the edge of the drawing, an alert appears.

## The Resize options

Most of the controls in the Resize options are discussed in Chapter 2. However the Resize options can also be used to move a single object or group, within the

current active layer, and these controls are discussed in this section.

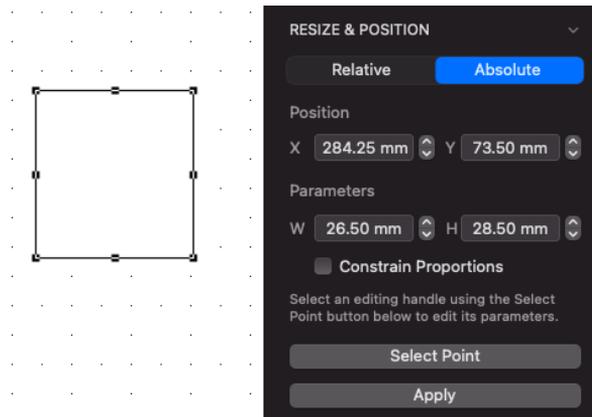
### ***To display the Resize & Position options***

1. Open the right panel by choosing **Show Right Panel** from the **View** menu or if you are in palette mode, the Properties Palette from the Window menu.

A tick will be next to the menu item

2. Open the **Properties** panel/ palette and scroll down to the **Resize options**.

**Note:** You can also show and hide the right panel using the Show Hide Panels toolbar item for quick access. The Select Pt button is not relevant to the move operation and has no use when moving objects.



### ***Moving objects using the Resize & Position options***

The Resize & Position panel / palette's Position X and Y fields can be used to move a selected object or group to an absolute position on the drawing or by relative horizontal and vertical distances. All movement is defined in the units and scale of the active layer.

#### ***Absolute move***

**To move objects or groups to a particular location on the drawing**

1. Select the objects or groups you want to move.
2. Open the **Resize & Position options** in the **Properties** panel / palette.

3. Choose **Absolute** from the **Position** toggle options if necessary. The current location of the selection appears.
4. Type in the X and Y position values for the new location.



5. Click the **Apply** button.

The selection is moved to the new location.

The default zero origin for both rulers (the point where  $X=0$  and  $Y=0$ ) of the coordinate system is the upper left corner of the window. The rulers along the top and left sides of the window are used to control the zero origins. In this default coordinate system, X values increase from left to right and Y values increase from top to bottom. You can change the zero origins of the rulers.

**Note:** If the move operation requires the object to be moved beyond the edge of the drawing, an alert appears.

### **Relative move**

In relative movement, positive values for distance move items to the right (in the X field) or downward (in the Y field). Negative values move items to the left or upwards.

#### **To move items relative to their original position**

1. Select the objects or groups you want to move.
2. Open the **Properties** panel / palette and scroll down to the **Resize & Position options**.
3. Choose **Relative** from the **Position** toggle options if necessary. The starting position will be shown as zeroes in the X (horizontal change) and Y (vertical

change) fields.

4. Enter values to move the selection by into the X and Y fields.



5. Click the **Apply** button.

The selection is moved to the new location.

**Note:** If the move operation requires the object to be moved beyond the edge of the drawing, an alert appears.

## Moving using the arrow keys

Selected objects and groups can be moved using the arrow keys on the keyboard.

When a grid snap is on, each press of an arrow key moves (or “nudges”) the current selection one grid increment in the appropriate direction: left, right, up, or down. If no grid snap is on, the selection moves one screen pixel (1/72 of an inch) for each keystroke.

Press and hold down the **Command** key and press an arrow key to release the selection from the grid snap and allow the selection to be moved by one pixel.

## The Position command PRO ONLY

Sometimes you may decide that a drawing you have started needs to be moved so that the items appear on a different area of the page when printed.

One way to move the whole drawing is to select all objects, then drag them to a better position, however this can only be done for one layer at a time.

MacDraft’s **Position** command allows you move all the objects on all layers at one time, by specifying where you want the top left corner of the image to be.

You enter values to show how far you want the image to be from the top and left edges of the drawing window.

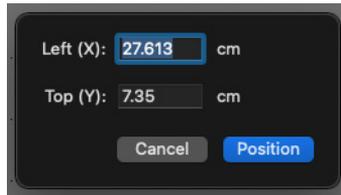
**Note:** When a drawing is printed, the edge of the drawing window represents the edge of the printable area on the page, which is usually a little smaller than the whole page.

## **Positioning your drawing on the page** PRO ONLY

To change the drawing's position on the page

1. Choose **Position...** from the **Layout** menu.

If the document contains objects, the **Position** dialog appears. (If there are no objects in the drawing the **Position** dialog does not appear, and an alert sounds.)



The onscreen position of the current upper left corner is shown in the dialog.

**Note:** There may not be an object at that location because the corner is defined by an imaginary rectangle that encloses all objects on all layers of the drawing. The location shown reflects all layers, even those that are currently hidden.

As the **Position Document** dialog is used to control the position of the drawing on the printed page, the values shown do not reflect the drawing's scales or rulers, but the actual distance on the screen (and on the printed page). This means that even if the drawing is set to show ten feet per inch, with the zero points of both rulers in the center of the image, the **Position Document** dialog shows the onscreen distances from the left and top edges of the drawing window, in the current document's onscreen units, whether inches or centimeters.

2. Select the Left (X) field and enter the distance you want the image to be from the left edge of the drawing window (and from the left edge of the print area

on the finished page).

3. Select the Top (Y) field and enter the distance you want the image to be from the top edge of the drawing window (and from the top of the print area on the finished page).
4. Click the **OK** button.

Your entire drawing will be moved within the document window according to your specifications.

**Note:** If you enter values that are too large, an alert appears telling you the range of possible values. If this happens, click the alert box's OK button, then enter new values in the X and Y fields as needed.

MacDraft lets you move objects partly or entirely off the page. This happens if you enter a negative value or an extremely large positive value for one or both fields. Negative values move the top left corner of the image beyond the top or left edge of the document, and large positive values could move the bottom right corner of the image beyond the bottom or right edge of the document.

If you accidentally move part of your drawing beyond the drawing window, you can bring it back by using the **Edit** menu's **Undo** command immediately or by using the **Position** command again and entering different values in the X and Y fields as needed.

## The Clear function

Objects can be removed permanently from the drawing using the **Clear** function. The object can only be recalled by using **Undo**.

**Top Tip:** You can also press the Delete key or the Backspace key on your keyboard to delete the selections. You may also be able to recall something before the deletion by using the Revert To command in the File menu.

### *Using the Clear function*

To clear a single object

1. Select the object to be deleted from the drawing by clicking it.

2. Open the **Edit** menu and choose **Clear**.

The selected object will be removed from the drawing.

#### To clear multiple objects

1. Select the objects to be deleted from the drawing by Shift-clicking them, or by using the selection rectangle.
2. Open the **Edit** menu and choose **Clear**.

The selected objects will be removed from the drawing.

#### To clear the entire contents of a layer

There may be times when you want to throw away all the contents of the active layer and start over again. To accomplish this:

1. Open the **Edit** menu and choose **Select All**.

All the objects on the active layer will be selected.

2. Open the **Edit** menu again and choose **Clear**.

All the objects on the active layer will be removed from the drawing.

**Top Tip:** You can also use the keyboard shortcut **CMD + A** to select all data on the active layer. Do this and then press the delete or backspace key to quickly delete all data on the active layer.

## Duplicating objects

Objects can be duplicated by using the **Duplicate** command or by using the **Linear** and **Circular** duplication features.

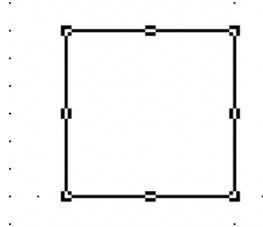
### The Duplicate command

The Duplicate command is used to make an exact copy of any object or line on the drawing. The duplicate object is placed in front of the original in a slightly offset position, and is selected. You can then drag the duplicate into the desired

position on your drawing.

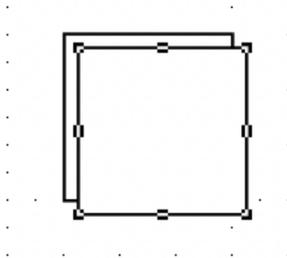
### ***Using the Duplicate command To duplicate an object***

1. Select the object you want to duplicate.

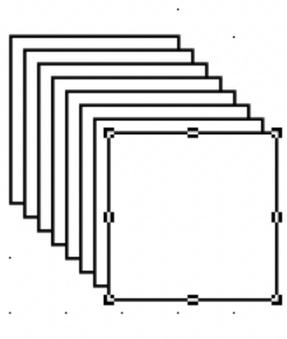


2. Open the **Edit** menu and choose **Duplicate** form the **Duplication** submenu.

The object is duplicated. The duplicate object is placed in front of the original in an offset position, which is 1 increment of the current grid horizontally and vertically.



3. To make a second or third duplicate, simply choose the **Duplicate** command again, and again. Each new duplicate appears in front of the previous one.



### Top Tips:

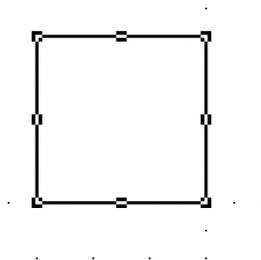
- Hold down the Shift key and the Duplicate command changes to Duplicate without offset. Use this option to create a duplicate that is placed directly on top of the original.
- The keyboard shortcut for Duplicate is CMD + D.
- Hold down the Control key to avoid duplicating locked objects. All other objects in the selection will be duplicated.
- Hold down the Option key and drag the item to duplicate.

### *Auto-spacing of duplicate objects*

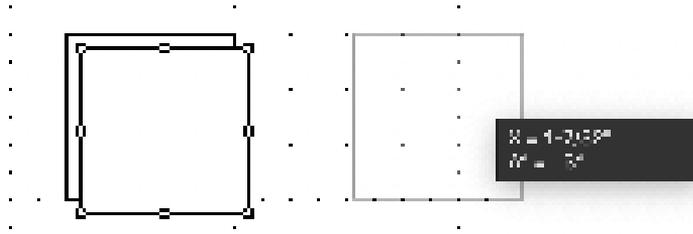
If you want to create a row or column of identical, evenly spaced objects, the **Duplicate** function incorporates an auto-spacing feature that allows you to determine the distance and angle you want between objects. You can then make new duplicates that will be automatically placed at that distance and angle.

To use auto-spacing during creation

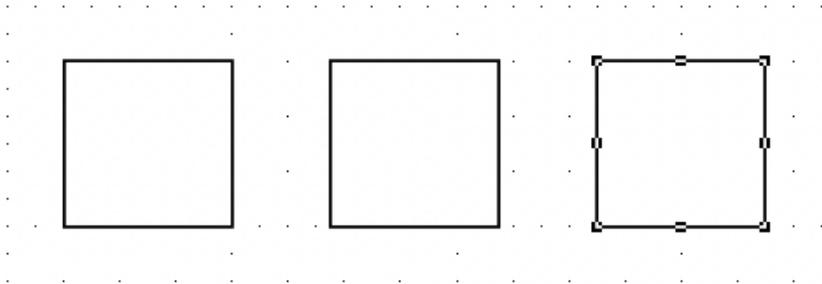
1. Select the object to be duplicated.



2. Open the **Edit** menu and choose **Duplicate** or **Duplicate With No Offset** from the **Duplication** submenu.
3. Position the cursor over the selected duplicate, hold down the mouse button, drag the duplicated object to the desired position relative to the original, and release the mouse button. (Alternatively move the duplicate using the arrow keys on your keyboard.)



4. Open the **Edit** menu and choose **Duplicate** from the **Duplication** submenu.



Notice that the second duplicate is automatically placed in the same position relative to the first duplicate as the first duplicate is to the original.

5. Keep choosing **Duplicate** to produce as many duplicates as you need or use **CMD + D** to quickly place more duplicates.

## Linear duplication PRO ONLY

The **Linear Duplication** feature allows you to make many duplicates of objects or groups, laid out in straight lines or arrays, in just a few steps.

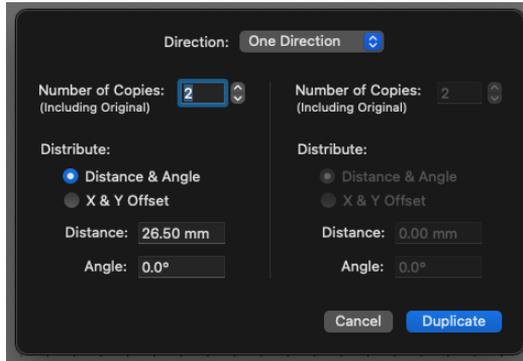
The **Linear Duplication** dialog allows you to specify the distance and angle of duplication, as well as the number of directions (one or two) for duplicating selections.

You can also define the duplication interval by horizontal and vertical offset. (Duplication distances appear in the scale and units of the drawing).

## The Linear Duplication dialog PRO ONLY

- Choose **Linear** from the **Duplication** submenu in the **Edit** menu to open the

## Linear Duplication dialog.



### ***One or two directions***

**Linear duplication** can be used to produce single rows and columns of duplicates, or to produce sets of rows or columns (arrays).

### ***One Direction***

Choose **One Direction** from the **Direction** pop-up menu if you wish to create a single row or column of duplicates.

### ***Two Directions***

Choose **Two Directions** from the **Direction** pop-up menu if you wish to create multiple rows or columns of duplicates.

### ***Number of copies***

Enter the number of copies desired.

### ***Distance and angle***

Click the **Distance & Angle** radio button to define the space between duplicates by entering values in the **Distance** and **Angle** fields.

### ***Distance***

Enter the distance you want between copies. Distances between objects will be set in the drawing's scale and units.

## Angle

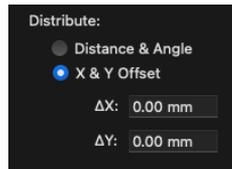
In the Angle field, type the desired angle of duplication.

Angle values increase counterclockwise: zero degrees is straight to the right, 90° is straight up, 180° is straight to the left, and 270° is straight down the page. Negative values make the angles increase in the opposite (clockwise) direction.

## X and Y offset

The duplication interval can also be defined by horizontal and vertical offset, entering an X and Y value to determine the positions of the copies.

Click the X & Y Offset radio button to activate the X and Y fields. Positive values move the duplicate down and to the right, negative values move duplicates up or to the left.



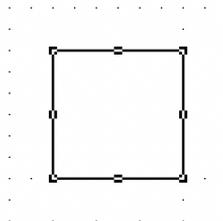
**ΔX:** Enter the desired horizontal offset for each duplicate.

**ΔY:** Enter the desired vertical offset for each duplicate.

## Duplicating in a single direction PRO ONLY

To duplicate an object or group in a single direction

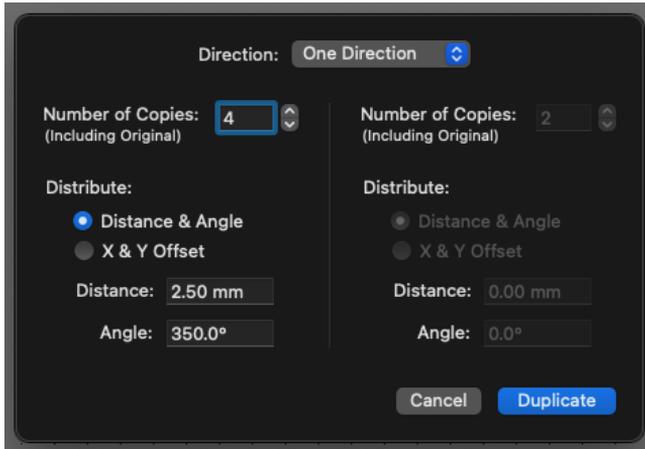
1. Select the object or group to be duplicated.



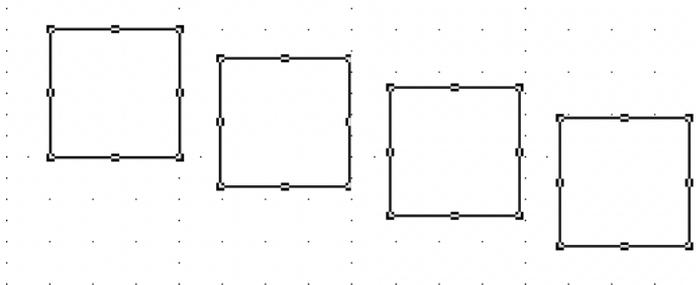
2. Open the **Edit** menu's **Duplication** submenu and choose **Linear...** The **Linear Duplication** dialog appears.
3. In the **Number of Copies** field, type the total number of copies you want

(including the original).

4. Click the **Distance & Angle** or **X & Y Offset** radio button.
5. Enter values in the **Distance** and **Angle** fields, or the **X** and **Y Offset** fields.



6. Click **OK** and a line of duplicates appears, beginning with the original selection.



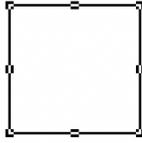
### **Duplicating in two directions** PRO ONLY

With **Linear Duplication**, you can duplicate an object or group in two directions at the same time. You create a row or column of duplicates and simultaneously create duplicates of that row or column.

Two-direction duplication can create rectangular arrays in the simplest case, or sets of rows and columns offset at any combination of distances or angles.

## To duplicate in two directions

1. Select the object or group to be duplicated.



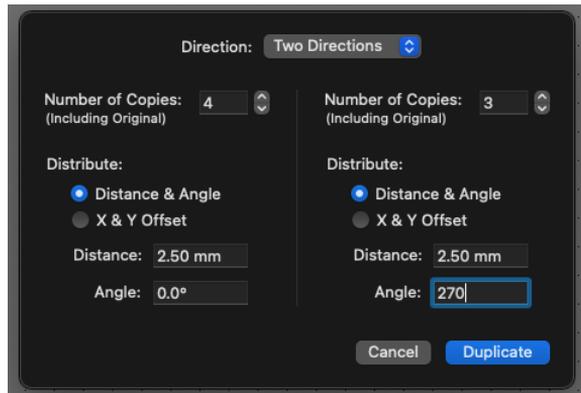
2. Open the **Edit** menu's **Duplication** submenu and choose **Linear...**

The **Linear Duplication** dialog appears.

3. As detailed in the preceding section, specify the first direction's number of copies and their duplication offset, by distance and angle or X/Y offset.
4. Choose **Two Directions** from the **Direction** pop-up menu.

The choices for Two Directions become active.

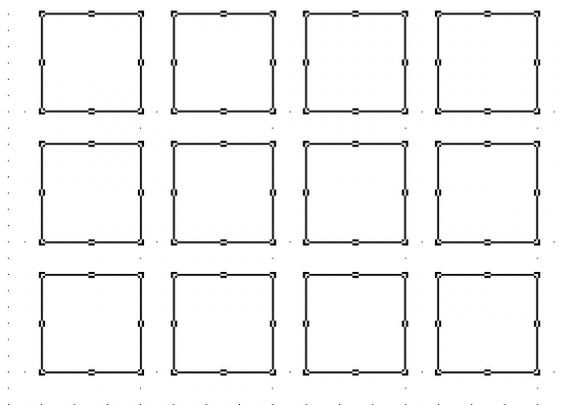
5. Enter the second direction's number of copies and their duplication offset, by distance and angle or X/Y offset.



The **Two Directions** settings define the number and locations of the duplicates of the row or column defined by the **One Direction** settings.

6. Click **OK**.

The duplicates appear: an “original” row or column as defined by the settings under One Direction, and duplicates of that row or column defined by the settings under Two Directions.



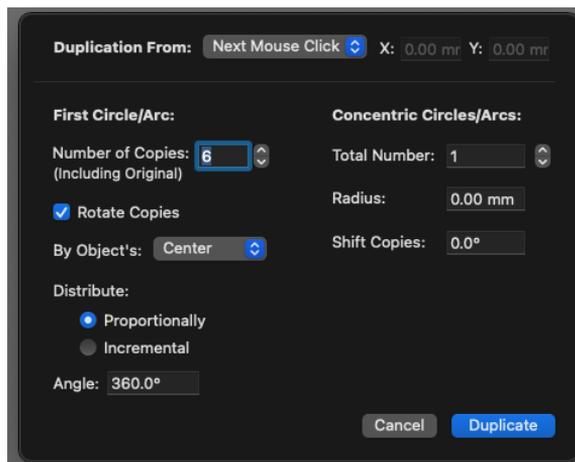
## Circular duplication PRO ONLY

At times you may want multiple copies of shapes or groups to appear in circular arrangements on a drawing. You can achieve this effect by carefully copying, dragging, and rotating objects, but it's usually easier to use MacDraft's circular duplication feature.

The circular duplication options allow you to duplicate objects or groups so that they appear arranged along a circle or arc, or in concentric circles or arcs.

## The Circular Duplication dialog PRO ONLY

- Choose **Circular** from the **Duplication** submenu in the **Edit** menu to open the **Circular Duplication** dialog.

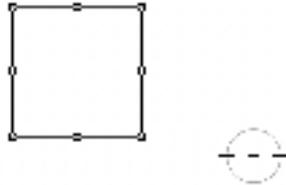


### ***Duplication From: Circle center***

**X,Y:** Enter the X,Y coordinates for the point you wish to duplicate the objects around, or use the **Next Mouse Click** option below.

### ***Duplication From: Next mouse click***

Choose the **Next Mouse Click** options from the **Duplication From** pop-up menu if you want to specify the point you wish to duplicate the objects around by pointing and clicking the drawing. When you choose **Next Mouse Click** then click **OK**, the dialog disappears and the centering cursor will be shown over your drawing. Click the desired center point.



### ***First circle/arc Number of copies***

Enter the number of copies of the object that you want to end up with, including the original.

### ***Rotate copies***

Click the **Rotate Copies** checkbox if you wish the duplicates to be rotated according to their position on the circle/arc.

### ***By object's***

- **Center:** Choose **Center** from the **By Object's** pop-up menu to specify that the duplication should be performed in relation to the center of the object.
- **Datum:** Choose **Datum** from the **By Object's** pop-up menu to specify that the duplication should be performed in relation to the object's datum point.

## **Distribute**

- **Proportionally:** Click the **Proportionally** radio button to space the copies evenly around the circle or arc.
- **Incremental:** Click the **Incremental** radio button to position each copy a specified angle from the previous copy.

## **Angle**

- If you selected proportionally, enter a value for the sweep of the circle or arc.
- If you selected incremental, enter a value for the angle between each copy.

## **Concentric circles/arcs**

**Total number:** Enter the total number of concentric circles or arcs you wish to produce.

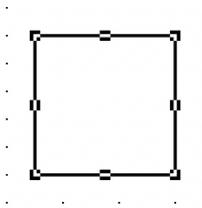
**Radius:** Enter the distance (in the scale and units of the drawing) you want between the concentric circles or arcs.

**Shift copies:** Enter a value to specify the amount of angular shift between each circle or arc.

## **Using circular duplication** PRO ONLY

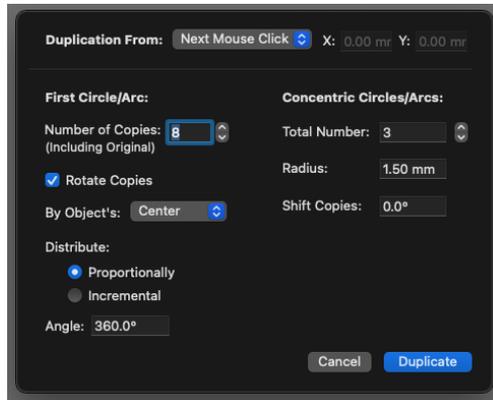
### **To duplicate an object or group in a single circle** PRO ONLY

1. To duplicate an object or group in a single circle.



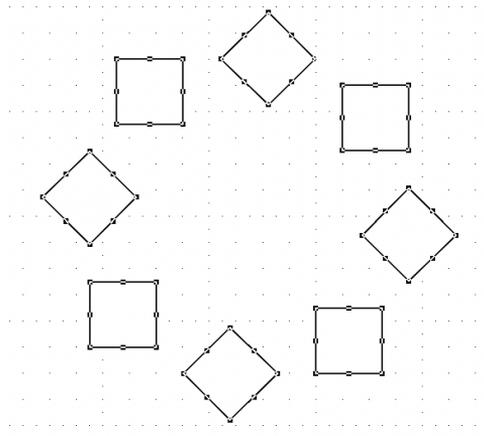
2. Choose **Circular** from the **Duplication** submenu in the **Edit** menu. The **Circular Duplication** dialog appears.
3. In the **Number of Copies** field, type the total number of copies you want (including the original).

4. Ensure that **Distribute: Proportionally** is selected, and that the angle entered is  $360^\circ$ . These settings ensure that the copies will be distributed all the way around a circle.
5. Choose **Center** from the **By Object's** pop-up menu to distribute in relation to the object's center.
6. Ensure that **Rotate Copies** is on, so that each copy is rotated according to its position on the circle.



7. To locate the **Circle Center** (the center of distribution), ensure the **Next Mouse Click** choice is on, click **OK** to close the dialog, then click the desired center point.

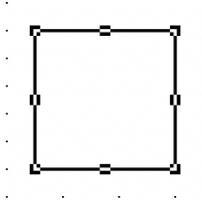
A ring of duplicates appears, centered around the point, and according to the settings, you specified.



**Note:** You can hold down the C, E or M key whilst moving the cross hair to snap to the Centre (C), Edge (E) or Mid-Point (M) of the desired object.

**To duplicate an object or group proportionally along an arc** PRO ONLY

1. Select the object or group you want to duplicate.



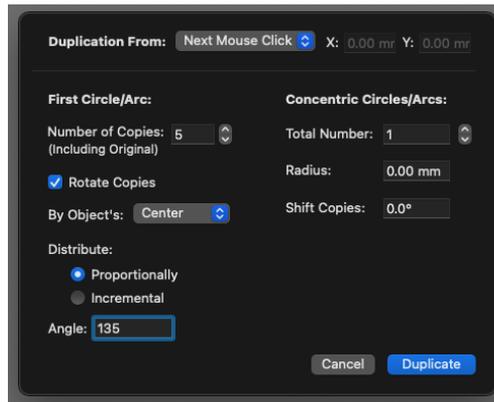
2. Choose **Circular** from the **Duplication** submenu in the **Edit** menu. The **Circular Duplication** dialog appears.
3. Enter the total number of copies you want (including the original).
4. Ensure **Distribute: Proportionally** is selected.

This distributes the copies evenly along the arc you specify in the next step.

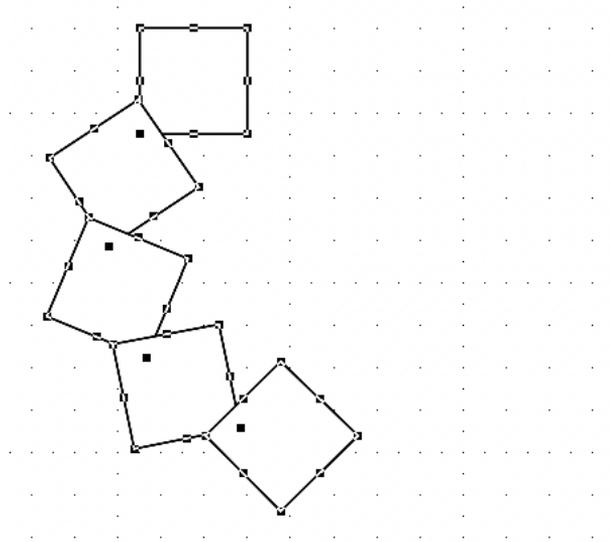
In the **Angle** field, enter the total degrees for the sweep of the arc.

**Note:** A positive angle value yields a counterclockwise sweep, a negative value yields a clockwise sweep.

5. Click **Center** to fix the distribution between the duplicates' centers.
6. Click **Rotate Copies** so that each copy is rotated according to its position on the arc.
7. To locate the **Circle Center** (the center of distribution), ensure the **Next Mouse Click** choice is on, click **OK** to close the dialog, then click the desired center point.



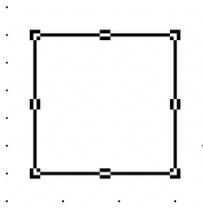
The duplicates appear, proportionally filling the arc you defined, centered around the point you specified.



The position of the original object relative to the circle center determines the starting angle and the distribution radius of the duplicates.

**To duplicate an object or group incrementally along an arc** PRO ONLY

1. Select the object or group you want to duplicate.

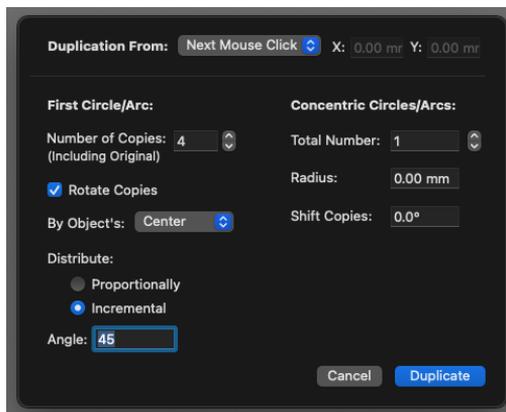


2. Select **Circular** from the **Duplication** submenu in the **Edit** menu. The **Circular Duplication** dialog appears.
3. Enter the total number of copies you want (including the original).
4. Ensure **Distribute: Incremental** is selected.
5. In the **Angle** field, enter the degrees desired between copies.

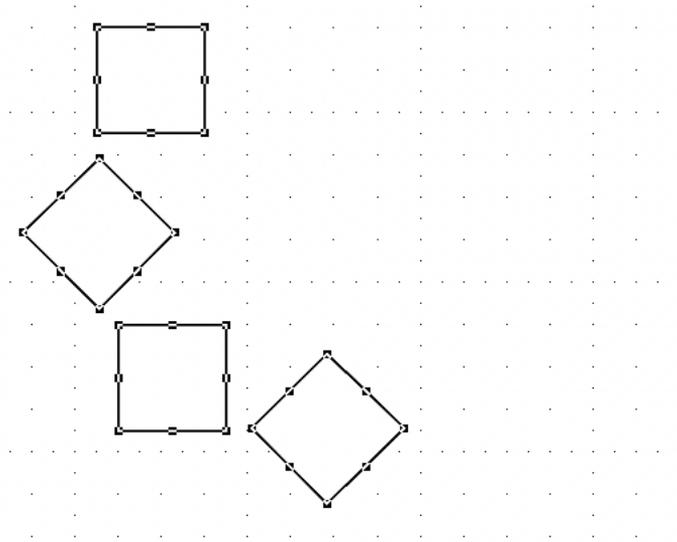
This setting spaces each copy by the number of degrees you specify.

**Note:** A positive angle value yields a counterclockwise sweep, a negative value yields a clockwise sweep.

6. Click **Center** to fix the distribution between the duplicates' centers.
7. Click **Rotate Copies** for each copy to be rotated according to its position on the arc.
8. To locate the **Circle Center** (the center of distribution), ensure the **Next Mouse Click** option is on, click **OK** to close the dialog, then click the desired center point.



The duplicates appear, incrementally spaced at the angle specified. The position of the original object relative to the circle center determines the starting angle and the distribution radius of the duplicates.

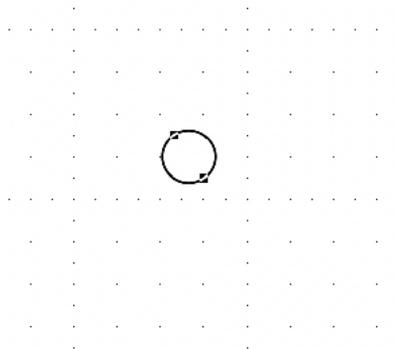


### Duplicating concentric circles or arcs PRO ONLY

To duplicate a selection in multiple circles or arcs, you use the same methods as in single circle duplication to define a single ring or arc, you can then specify the number of concentric circles or arcs, the distance between additional circles or arcs, and the shift angle (if any) for each circle or arc.

#### ***To duplicate a selection in basic multiple arcs or circles*** PRO ONLY

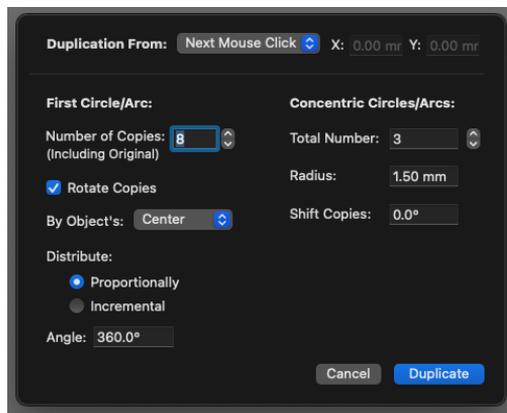
1. Select the object or group you want to duplicate.



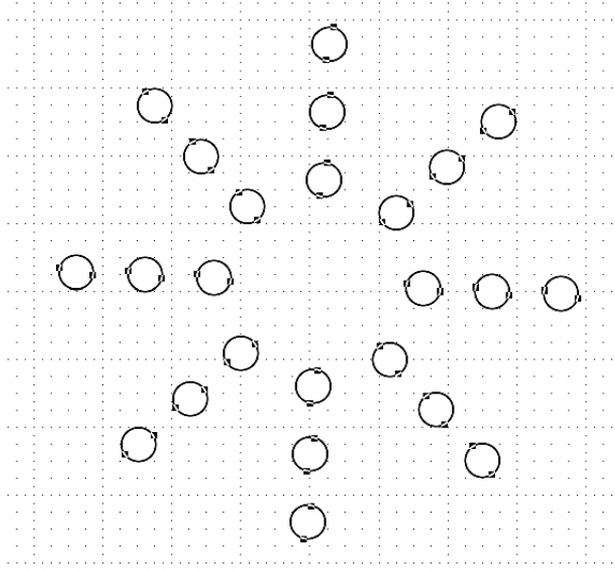
2. Select **Circular** from the **Duplication** submenu in the **Edit** menu. The **Circular Duplication** dialog appears.
3. Follow the steps described in **To duplicate an object or group in a single circle**.
4. In the **Concentric Circles/Arcs: Total Number** field, enter the number of circles or arcs desired.
5. In the **Radius** field, enter the distance desired (in the drawing's scale and units) between concentric circles or arcs.

This value defines the distance each additional arc or circle appears outside the first arc or circle; it does not affect the distance from the innermost circle or arc to the center of the array.

6. To locate the **Circle Center** (the center of distribution), ensure the **Next Mouse Click** choice is on, click **OK** to close the dialog, then click the desired center point.



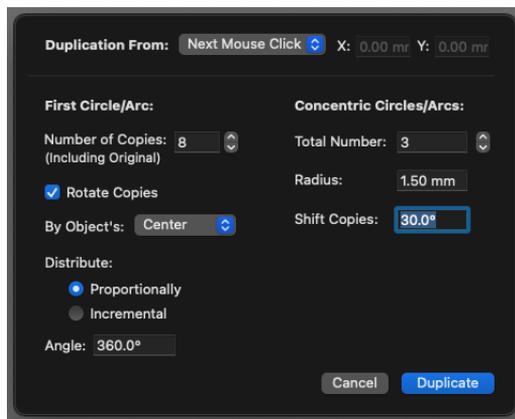
The duplicates appear, in the number of concentric circles or arcs you defined, centered around the point you specified.



**To duplicate a selection in multiple arcs or circles using the Shift Copies option** PRO ONLY

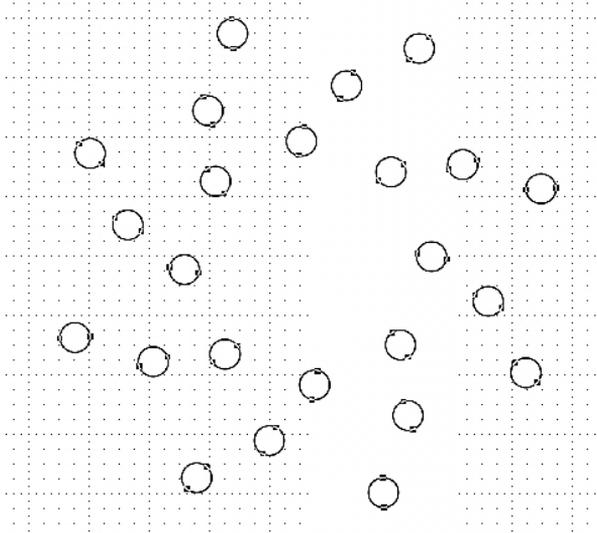
1. Define the initial circle and concentric circles as in the example above.
2. In the Shift Copies field, enter the number of degrees to shift each concentric circle or arc from its inner neighbor.

This angle defines the angular shift of each additional arc or circle, moving outward from the innermost arc or circle; it does not affect the incremental or sweep angle within each circle or arc.



3. To locate the **Circle Center** (the center of distribution), ensure the **Next Mouse Click** choice is on, click **OK** to close the dialog, then click the desired center point.

The duplicates appear, in the number of concentric circles or arcs you defined, each shifted by the specified angle.



## Arranging objects

You can use some of the commands in the **Arrange** menu to manipulate the positions of objects. You can perform the following actions using these commands: move objects backwards and forwards; group and ungroup objects; align and distribute objects. The tools in the **Alignment** panel / palette can be used also to distribute and align objects. The commands in the **Arrange** menu affect only the objects on the active layer.

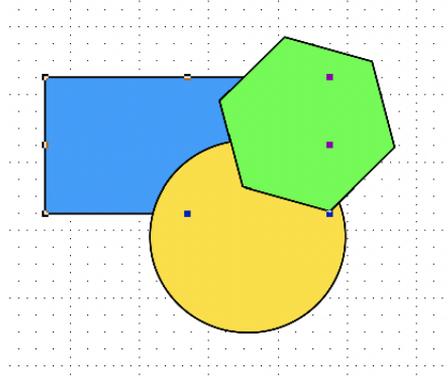
### Moving objects backwards and forwards

When you create multiple objects on the same layer, the newest object created appears on the top plane, while the oldest object appears on the bottom plane, that is, each new object appears on the plane above the previous object. At times, you might want to move an object in front of or behind other objects on the same layer. The functions that allow you to do this are **Bring to Front**, **Send to Back**, **Move Forward One**, and **Move Back One**.

## ***Bring to front***

If an object is currently behind other objects, you can move it in front of the other objects on the layer by using the **Bring to Front** function.

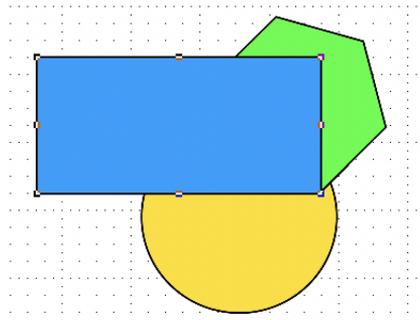
1. Select the object you want to move to the foreground.



2. Open the **Arrange** menu and choose **Bring to Front**.

The selected object will be moved in front of all the other objects.

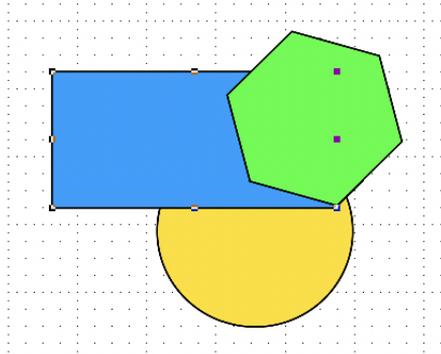
**Top Tip:** Use keyboard shortcut **CMD + Shift + ]** to bring the object to the front. You can also use **CMD + ]** to move the object Forward one space rather than all the way to the front should you prefer.



## ***Send to back***

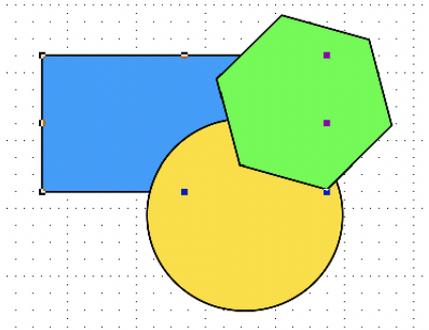
To reposition an object behind all other objects on the layer

1. Select the object you want to move to the background.



2. Open the **Arrange** menu and choose **Send to Back**.

The selected object will be moved behind all the other objects.

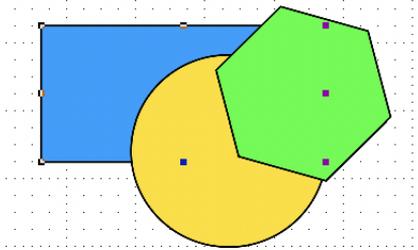


**Top Tip:** Use keyboard shortcut **CMD + Shift + [** to bring the object to the front. You can also use **CMD + [** to move the object Forward one space rather than all the way to the front should you prefer.

### ***Move forward one***

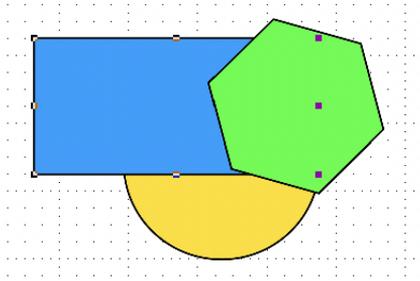
To move an object forward one level

1. Select the object you want to move forward.



2. Open the **Arrange** menu and choose **Move Forward One**.

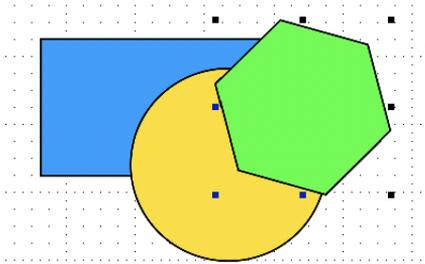
The selected object will be moved forward one level.



### ***Move back one***

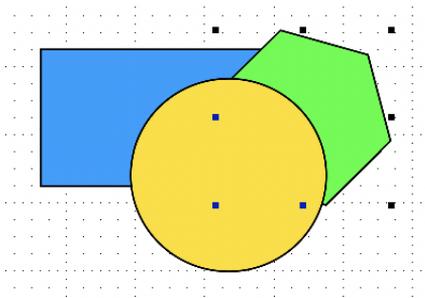
To move an object back one level

1. Select the object you want to move back one level.



2. Open the **Arrange** menu and choose **Move Back One**.

The selected object will be moved back one level.



## **Grouping and ungrouping objects**

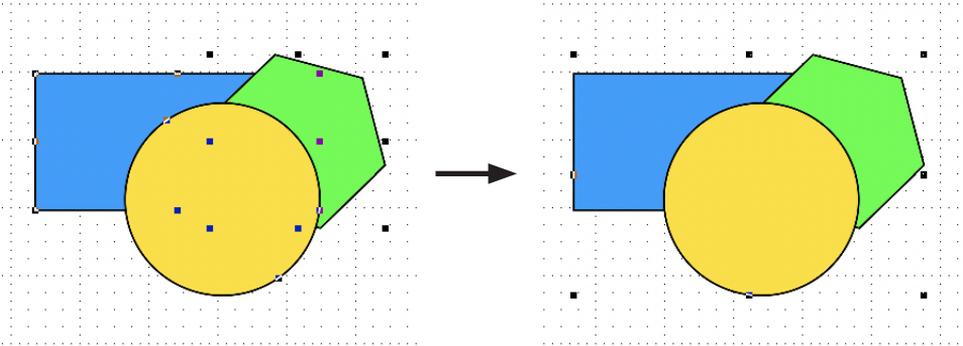
### ***Grouping objects***

In a drawing that contains several individual objects, you might want to group some objects together so that you can treat them as a single object. When objects

are grouped together, most functions you choose will be performed on the entire group just as though it were a single object.

#### To group several objects together

1. Select all the objects that you want in the group.



2. Open the **Arrange** menu and choose **Group**.

Notice that the objects are now surrounded by a single set of edit handles. This indicates that all objects within the edit handles are part of this group and will be treated as a single object. You can perform any function on the group, such as move, duplicate or fill, and the entire group responds to that command. Once you have grouped several objects, you cannot reposition or edit any individual object or piece of text within the group unless you first ungroup the objects.

#### **Ungrouping objects**

If you no longer require a set of objects to be grouped, or if you need to edit one of the individual objects, you can use the **Ungroup** function to return the objects to their individual status.

#### To ungroup objects:

1. Select the group of objects by clicking one of the objects.
2. Open the **Arrange** menu and choose **Ungroup**.

Notice that each object has its own set of edit handles again. This is an indication that the objects are no longer part of a grouped set, and that you can now select and edit each object individually.

## Aligning your objects

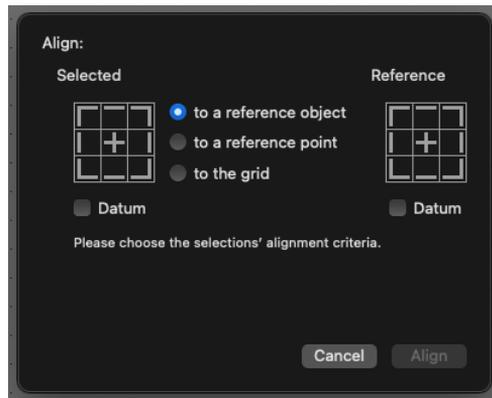
### Aligning objects

Aligning objects means to line objects up relative to some other point. You can specify exactly how the objects should be aligned using the **Alignment Options** dialog, the **Align Again** command and the **Alignment** panel. The **Alignment** panel is used to align objects with each other; the **Alignment Options** dialog is used to align specified parts of objects with specified parts of other objects, a reference point or the grid; the **Align Again** command is used to align objects according to the current settings in the **Alignment Options** dialog.

### Alignment Options dialog PRO ONLY

- Select **Alignment Options** from the **Arrange** menu.

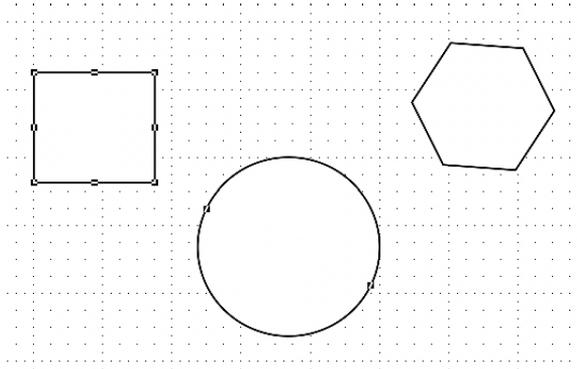
The **Alignment Options** dialog appears.



The **Alignment Options** dialog provides controls to specify which part of a selected object should be aligned with which part of a reference object, a reference point or the grid.

### To align selected objects to a reference object PRO ONLY

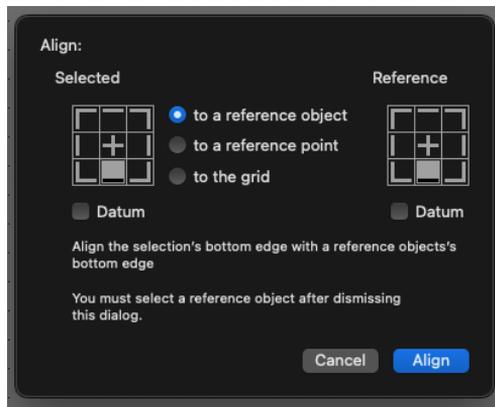
1. Select the object(s) to align.



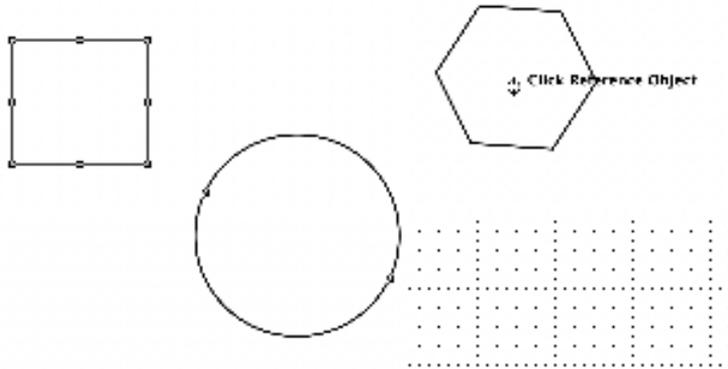
2. Choose **Alignment Options...** from the **Arrange** menu.

The **Alignment Options** dialog appears.

3. On the grid representing the selected object(s), click the grid squares to specify which parts of the selected object(s) are to be aligned, or click the 'Datum' checkbox below the grid.
4. Click the 'to a Reference Object' button.
5. On the grid representing the reference object, click the grid squares to specify which parts of the reference object the selected object(s) are to be aligned with, or click the 'Datum' checkbox below the grid.



6. Click the **Align** button. The cursor will be displayed as 'click reference object'.
7. Click the object to be used as a reference for the alignment.

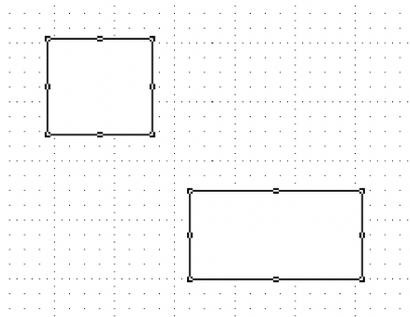


The selected object(s) will be aligned with the reference object according to your settings.

**Note:** To align objects to one element of a group (rather than to the group as a whole), hold down the Option key when the click reference object cursor appears, then click the element of the group to which you want to align the other objects.

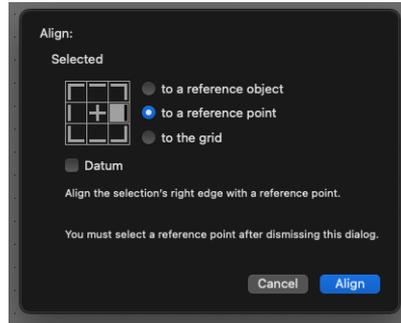
**To align selected objects to a reference point:** PRO ONLY

1. Select the object(s) to align.

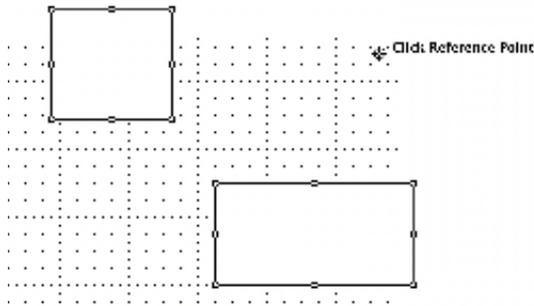


2. Choose **Alignment Options...** from the **Arrange** menu. The **Alignment Options** dialog appears.
3. On the grid representing the selected object(s), click the grid squares to specify which parts of the object(s) are to be aligned, or click the 'Datum' checkbox below the grid.

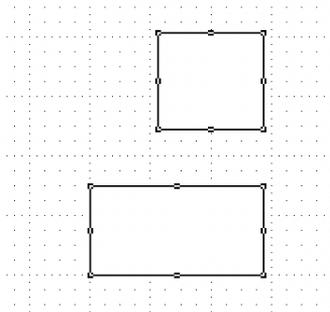
- Click the 'to a Reference Point' button.



- Click the **Align** button. The cursor will be displayed as 'click reference point'.
- Click the point to be used as a reference for the alignment.

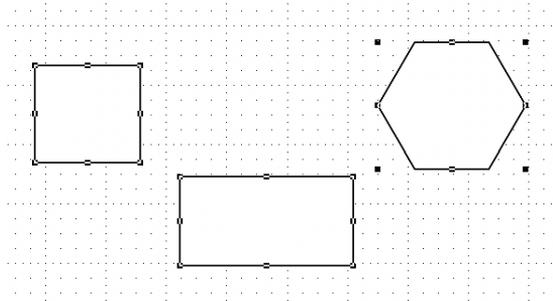


- The selected object(s) will be aligned with the reference point according to your settings.



**To align objects to the current grid** PRO ONLY

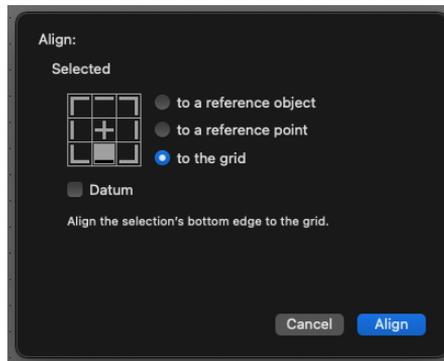
- Select the object(s) to align.



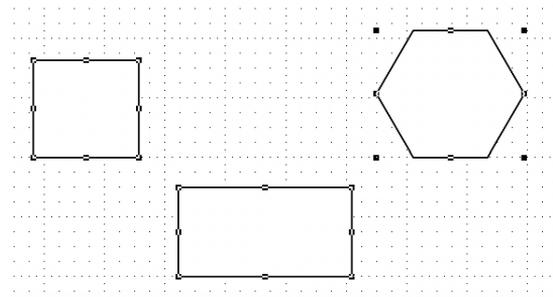
2. Choose **Alignment Options...** from the **Arrange** menu.

The **Alignment Options** dialog appears.

3. On the grid representing the selected object(s), click the grid squares to specify which parts of the object(s) are to be aligned, or click the 'Datum' checkbox below the grid.
4. Click the 'to the Grid' button.



5. Click the **OK** button. The selected object(s) will be aligned to the current grid according to your settings.



## **Align Again command** PRO ONLY

Use the **Align Again** command in the **Arrange** menu to align objects according to the settings specified in the **Alignment Options** dialog.

### **To align objects using the Align Again command**

1. Select the object(s) to be aligned.
2. Choose **Align Again** from the **Arrange** menu.

Accordingly to the settings in the **Alignment Options** dialog, the **Click Reference Object** or **Click Reference Point** cursor appears.

3. Click the reference point or object.
4. The selected object(s) will be aligned according to the settings currently held in the **Alignment Options** dialog.

## **Alignment Tools**

The **Alignment Tools** provides tools for you to carry out the most common alignment options. They can be found in the left hand panel if running MacDraft in single screen mode or on the Alignment Tools Palette in palette mode.

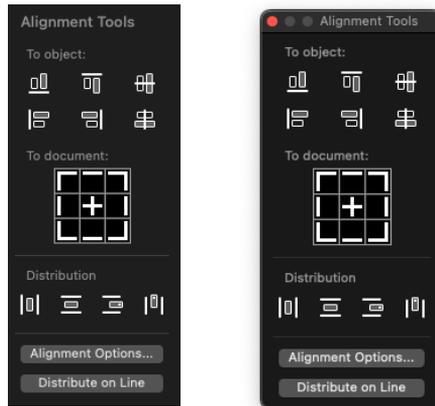
### **To display the Alignment Tools panel/palette**

- If MacDraft is running in Single Screen Mode, click the **Toggle Left Pane** button in the menu bar. The **Alignment Tools** will appear at the bottom of the panel.

**Note:** You may need to 'Show' or 'Hide' the toolset. This can be done via the small arrow to the right of the 'Alignment Tools' title or you can go **Window > Alignment Tools**, either way will show the tools in the left panel.

- If MacDraft is running in Palette Mode, click **Window > Alignment Tools**. This will launch the palette and all Alignment Tools will be available.

**Note:** 'Alignment Options...' is the only tool/option in Alignment toolset which is only available in MacDraft Pro. This is covered earlier in the User Guide.



### ***To use the Alignment panel/palette***

1. Select the object(s) to be aligned.
2. In the **Alignment** panel, click the desired alignment button.
3. The cursor will be displayed as ‘Click Reference Object’.
4. Click the object to align the other object(s) with.
5. The selected object(s) will be aligned with the reference object according to the alignment tool chosen.

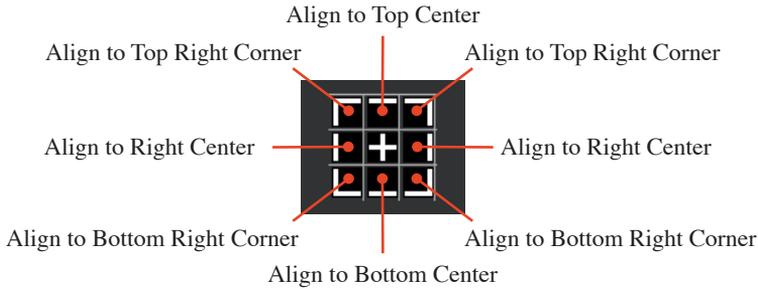
**Note:** To align objects to one element of a group (rather than to the group as a whole), hold down the Option key when the click reference object cursor appears, then click the element of the group to which you want to align the other objects.

### ***Aligning objects to the document***

The **Alignment** panel/palette provides tools for you to align your selections to the document.

1. Select the object(s) to be aligned.
2. Open the **Alignment** panel/palette
3. On the grid representing the areas of the document, click the grid squares to specify which parts of the document you want the selection to be aligned to.

The object will be aligned to the selected area of the document.



## Distributing your objects

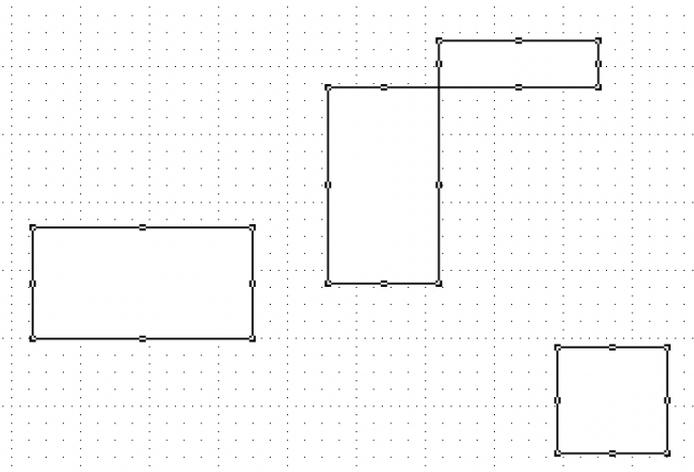
Objects can be positioned and aligned along a defined line. This can be done using the **Distribute on Line** command or using options in the **Alignment** panel/palette.

### *Distribute on Line command*

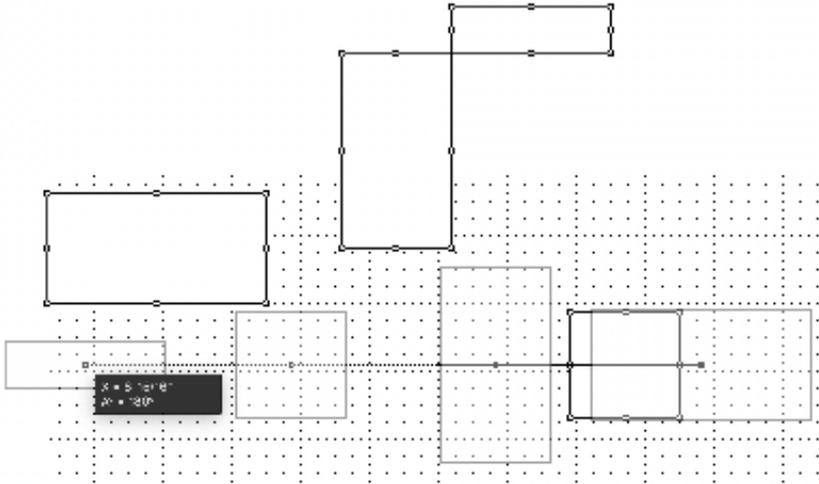
The **Distribute on Line** function allows you to position and align selected objects along a line that you define. The objects are distributed according to their level on the drawing, i.e. the object farthest back appears on the distribution line first, and the foremost object appears last. By default, the objects automatically align themselves along their centers, and will be equally spaced apart on the line.

You can also choose to align the objects according to their datum points.

### *To distribute objects on a line*

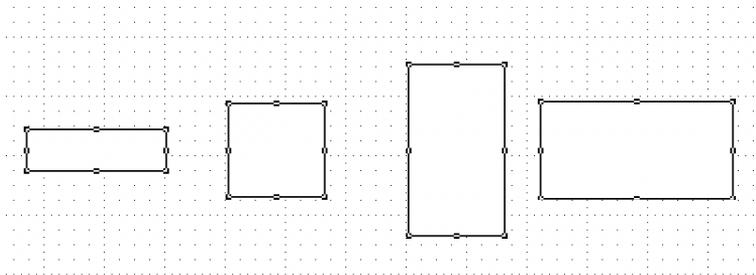


1. Select the objects to be distributed.
2. Open the **Arrange** menu and choose **Distribute on Line**.
3. Move the pointer to the point on your drawing where you would like to place the first object.
4. Press and hold down the mouse button.
5. Drag in the direction you want to distribute the objects.



6. Release the mouse button.

The objects will be distributed along the line you specified. Their center points will be spaced equally apart along the line.

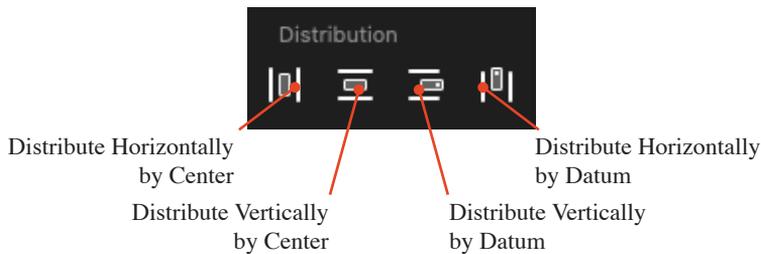


**Note:** To align objects according to their datum points, press and hold down the Option key before you open the Arrange menu and choose Distribute on Line. To constrain the line the objects are to be distributed along, hold down the Shift key as you draw the line and it will snap to 45-degree increments.

### ***To use distribute options in the Alignment panel/palette***

The distribute controls in the **Alignment** panel/palette distribute objects in the same way as the distribute command, but the line is defined for you.

1. Choose **Show Left Panel** from the **View** menu and the left panel will appear. Select the **Alignment Tools** panel from the tab system at the top of the left hand panel. If running palette mode, choose Alignment Palette from the Window menu.



2. Select the objects on the drawing to be distributed.
3. Click the appropriate button to distribute the objects horizontally or vertically by center or by datum point.
4. The objects will be distributed along a line in the manner specified.

# Transforming objects

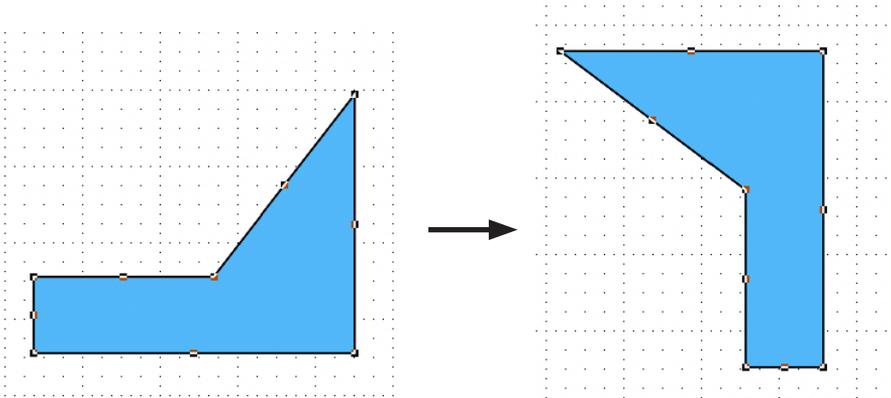
Objects can be transformed by rotating, flipping or mirroring them.

## Rotating objects by 90°

MacDraft provides several tools and commands that can be used to rotate objects freely or by specified amounts.

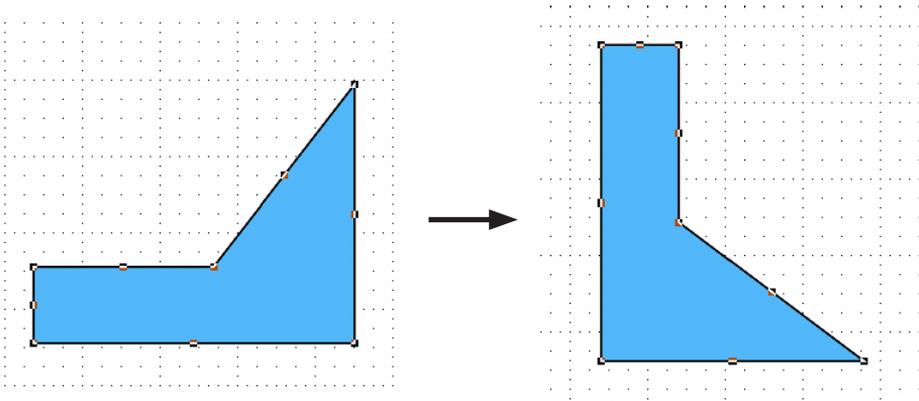
### *To rotate an object 90° anti-clockwise around its center*

- Select an object in the drawing then choose the **Rotate Left 90°** option from the **Arrange** menu, or.
- Click the **Rotate Left 90°** toolbar item.



### *To rotate an object 90° clockwise around its center*

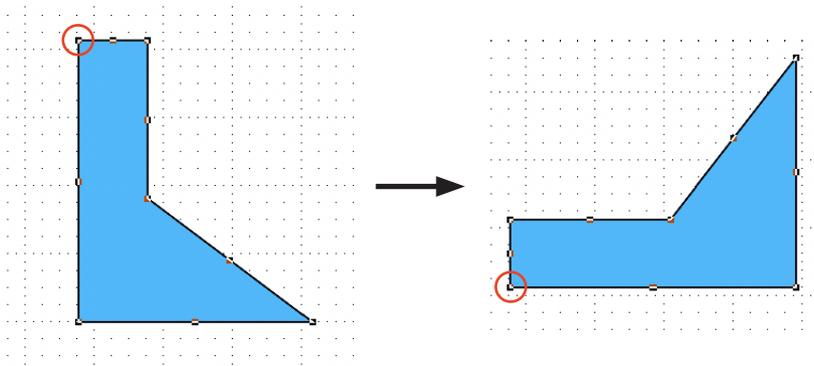
- Select an object in the drawing then choose the **Rotate Right 90°** option from the **Arrange** menu, or.
- Click the **Rotate Right 90°** toolbar item.



***To rotate an object 90° anti-clockwise around its datum point***

- Select an object in the drawing, hold down the **Option** key on your keyboard, then choose the **Rotate Left 90°** option from the **Arrange** menu.

In this example the datum point is marked by a small circle.



***To rotate an object 90° clockwise around its datum point***

- Select an object in the drawing, hold down the **Option** key on your keyboard, then choose the **Rotate Right 90°** option from the **Arrange** menu.

## **Rotate tool and Rotate command**

The **Rotate** tool and **Rotate Tool** command allow you to rotate objects by any angle you want. You can rotate objects in various increments using the mouse; to enter a specific value through the keyboard, use the **Rotate Options**.

You can rotate single objects, multiple objects, or grouped objects. Unless you specify otherwise, selected single or multiple objects will rotate around their individual centers. If you wish you can also specify the center of rotation for selected objects.

### ***To enter rotation mode***

- Choose **Rotate Tool** from the **Arrange** menu, or
- Click the **Rotate** tool in the **Tools** panel/palette



### ***To exit rotation mode:***

- Click the **Pointer** tool in the **Tools** panel/palette or press the **Escape** key on your keyboard.

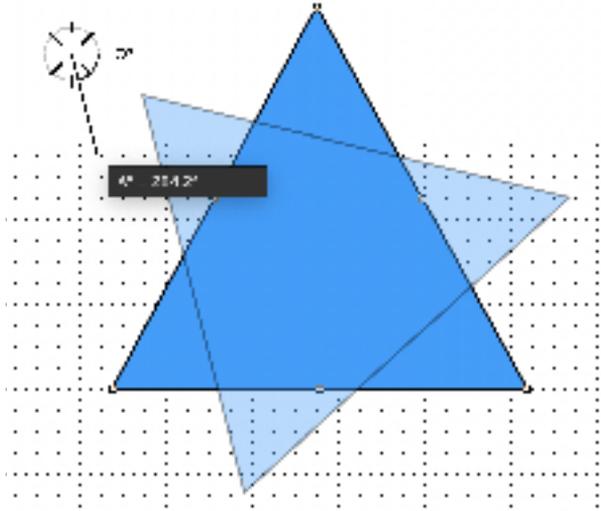
### ***Rotating an object:***

1. Select the object to be rotated.
2. Choose the **Rotate** tool from the **Tools** panel/palette or the **Rotate Tool** command from the **Arrange** menu.
3. Position the cursor in the window, then press and hold down the mouse button.

The cursor changes into a rotation indicator.

4. Holding down the mouse button, drag in a circular direction until you have rotated the object the desired amount, and release the mouse button.

The exact number of degrees being rotated can be seen in the Show Size block next to the cursor as you rotate.



### ***To rotate an object in specific degree increments***

- Go to the **Layout** menu and change **Set Angle Snap** to what you want and then use the **Rotate** tool from the **Tools** panel/palette or the **Rotate Tool** command from the **Arrange** menu.

### ***Changing the rotation units***

#### **To rotate an object in minutes or decimal fractions**

1. Press and release the **Shift** key while rotating an object.
2. Continue to drag in a circular direction to rotate the objects in minutes.

The number of degrees remains fixed.

#### **To rotate an object in seconds**

1. Press and release the **Shift** key twice while rotating an object.
2. Continue to drag to rotate the objects in seconds.

As you rotate the object in seconds, the number of degrees and minutes are constrained.

### ***Returning to previous rotation units***

You can return to the previous rotation units (from seconds to minutes, and minutes to degrees) by using the **Command** key.

#### **To return to the previous rotation units**

- Press the **Command** key while in the rotation mode, or
- Return to the **Pointer** tool and then reselect the **Rotate** tool or **Rotate Tool** command in the **Arrange** menu.

### ***Rotating multiple objects***

When rotating multiple objects, by default each object rotates around its individual center.

### ***Rotating grouped objects***

When rotating a grouped object, all the objects in the group rotate around the center of the group, unless you specify a different center of rotation.

### ***Rotating text***

The rotation feature works exactly the same way when you rotate a text block as it does when you rotate other objects.

### ***Rotating bitmaps***

Rotate your bitmap image in the same way you would rotate another object.

### ***Choosing the centre of rotation***

Objects are usually rotated about their centers, however you can also specify any point on the drawing as the center of rotation.

#### **To rotate objects around a specified point**

1. Select the objects you want to rotate.
2. Choose the **Rotate** tool from the **Tools** panel/palette or the **Rotate Tool** command from the **Arrange** menu.

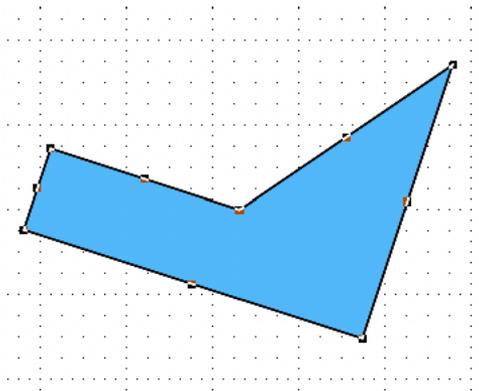
3. Position the cursor on the point you want to use as the center of rotation. You can use the scroll controls to move to a part of the drawing that is outside your current view.
4. Press and hold down the **Option** key.
5. Press and hold down the mouse button.
6. Holding down the mouse button and the **Option** key, drag in a circular direction until you have rotated the object the desired number of degrees.
7. Release the mouse button and the **Option** key.

## Rotate to zero command

The **Rotate to zero** command allows you to return an object to its original angle of rotation.

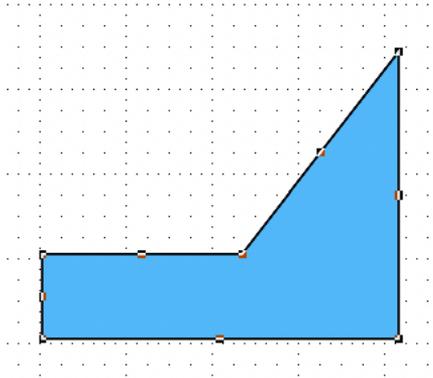
### *To return an object to its original angle of rotation*

1. Select a rotated object.



2. Choose **Rotate to Zero** from the **Arrange** menu.

The object will be returned to its original angle of rotation.



## Rotate options

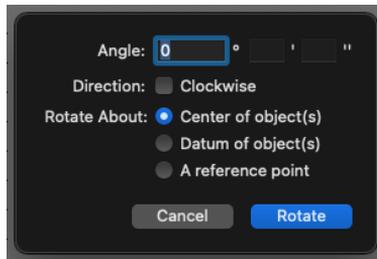
You can use the keyboard to directly enter the rotation values in degrees, minutes, and seconds using the **Rotate Options** dialog.

### *The Rotate Options dialog*

To display the Rotate Options dialog

1. Select the object or objects you want to rotate.
2. Choose **Rotate Options** from the **Arrange** menu.

The **Rotate Options** dialog appears.



### Amount of rotation

The fields available to enter the rotation amount vary depending on the **Angular Display** option selected in the **Document Scale and Units dialog**. The above screen shot shows the field that appears when decimal degrees are selected.

To enter an amount for rotation, double-click the appropriate field and type your desired value.

### Direction of rotation

The default direction for rotation is counterclockwise. To rotate an object in a clockwise direction, click the **Clockwise** checkbox.

### Center of rotation

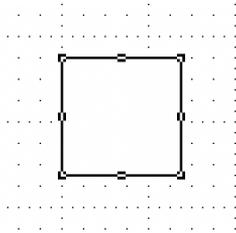
The default center of rotation is the center of the selected object or objects. To rotate objects about their datum, click the **Datum of object(s)** radio button.

To rotate objects about a specified reference point, click the **A reference point** radio button.

If the **A reference point** radio button is on, the **Rotate Options** dialog disappears and the **Rotation** cursor will be shown over the drawing. Click the point you want to use as the center of rotation.

### *To rotate an object or objects using Rotate options*

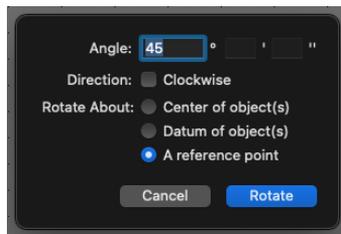
1. Select the object or objects you want to rotate.



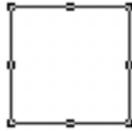
2. Choose **Rotate Options** from the **Arrange** menu.

The **Rotate Options** dialog appears.

3. Enter the desired angle of rotation.
4. Specify the direction and center of rotation.

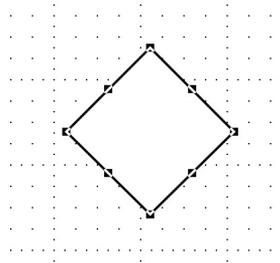


5. Click the **Rotate** button.
6. Specify the reference point to rotate about if necessary.



☛ Click Reference Point

The selected object or objects will be rotated the specified number of degrees, minutes, and seconds around the requested center of rotation.



## Flipping objects

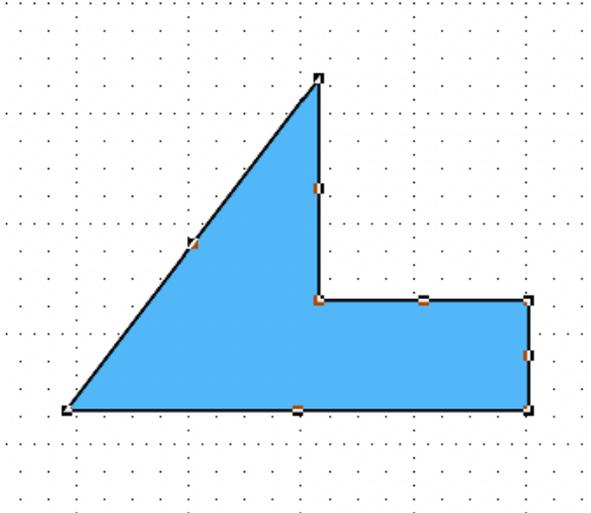
Sometimes you may want to display the reverse image of an object. For this, MacDraft has the **Flip Horizontal** and **Flip Vertical** commands.

You can duplicate an object and then use one of the **Flip** functions to create the other side of that object for the sake of symmetry, as well as convenience.

**Note:** Pictures can be flipped as well as objects, however text is treated slightly differently and described later in the section.

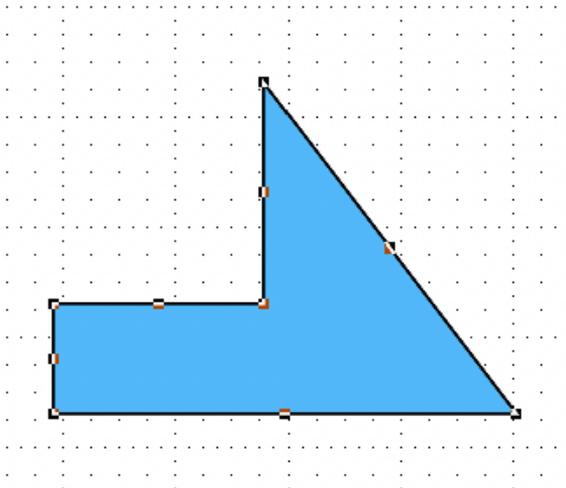
### ***To flip an object or picture horizontally***

1. Select the object you want to flip.



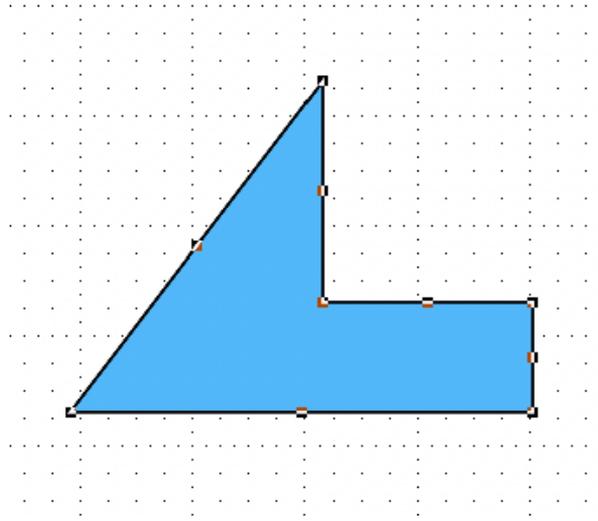
2. Open the **Arrange** menu and choose **Flip Horizontal**.

The object will be flipped about its vertical axis.



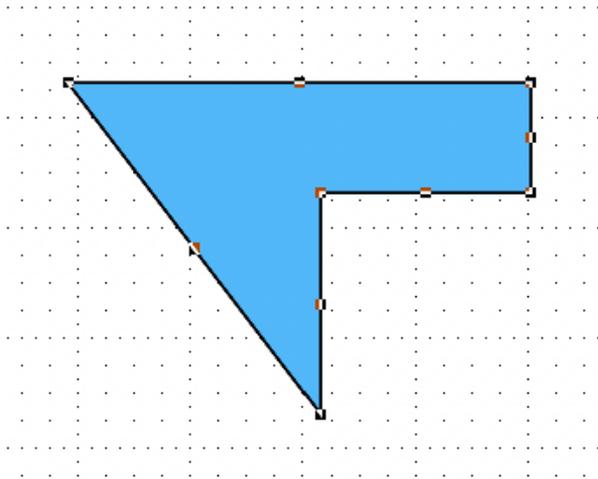
### ***To flip an object or picture vertically***

1. Select the object that you want to flip.



2. Open the **Arrange** menu and choose **Flip Vertical**.

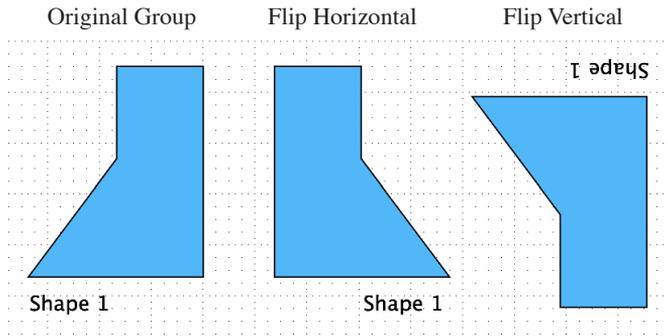
The object will be flipped about its horizontal axis.



## Flipping text

Text is not flipped in the same way as objects, as often it does not make sense to produce a mirror image of text. However you may well want to flip a group that includes text, and have the text shown in its correct position and orientation in relation to the objects in the group. If you do want to produce a mirror image of text, choose the **Mirror text** style in the **Text** menu.

- **Flip horizontal:** The position of the text in the group is flipped, but the text remains at the same orientation.
- **Flip vertical:** The position of the text in the group is flipped, and the text is rotated through 180°.



## Mirroring objects

The Mirror tool is used to mirror an object or group at any specified angle. The mirroring can either move and flip the original selection or make a turned copy while leaving the original in place. The mirror image of your selected items appears across the axis you define, opposite the original's position, and the same distance from the axis as the original. You define the axis of mirroring with a temporary onscreen reference line.

The **Mirror** tool is located in the **Advanced tools** in the left panel or, if in palette mode, in the **Advanced tools** palette.

### *To open the Advanced Tools panel/palette*

- If in single screen mode choose **Show Left Panel** from the **View** menu and the left panel will appear. You may need to show the Advanced tools via the Window menu.
- If in palette mode, choose the **Advanced tools** palette from the Window menu.



**Note:** Bitmap or pixel-map objects (such as those pasted in from a paint-type program or loaded in from TIFF files) will not be reversed, but will appear at the position defined by the mirror operation. Also text objects cannot be mirrored using this the Mirror tool.

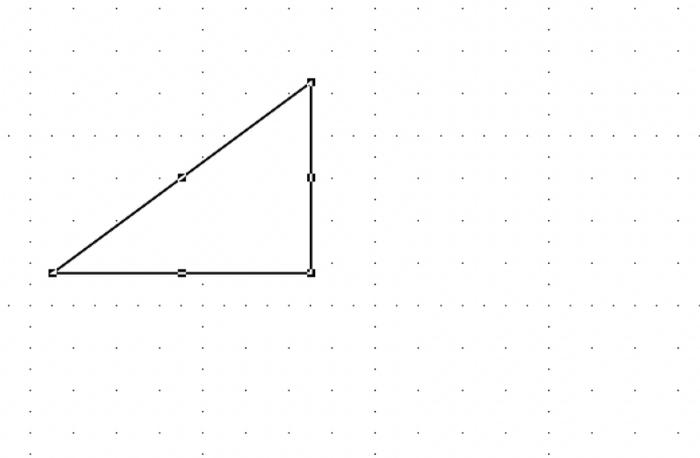
### ***Mirroring an object or group***

To mirror an object or group

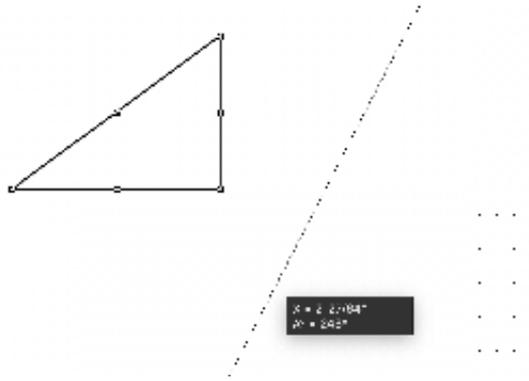
1. Select the object or group to be mirrored.
2. Choose the **Mirror** tool from the **Tools** panel/palette.

The cursor changes to a white arrowhead.

3. Move the cursor to the first point you'll use to define the reference line.



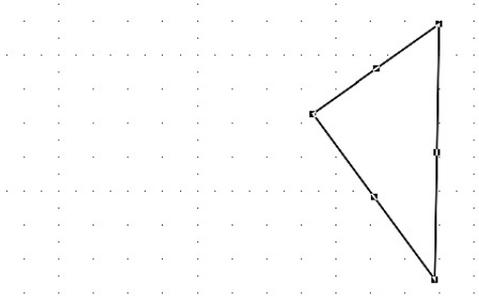
4. Press and hold down the mouse button. A dotted reference line appears.
5. Holding down the mouse button, drag to define the reference line (the axis of mirroring).



**Note:** If you hold down the Shift key, the line snaps in 45-degree increments.

6. Once the reference line is at the desired angle, release the mouse button.

The selection will be mirrored across the plane you defined with the reference line.



The precise angle of the mirroring line can be seen in the Show Size block next to the cursor as you draw the reference line.

***Mirroring a copy of an object***

Sometimes you may need a mirror-image of an object, but still want to leave the original in place. You can specify that a copy is mirrored by using the **Mirror** tool configuration dialog.

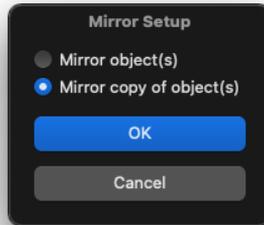
**To mirror a copy of an object or group**

1. Open the **Tools** panel/palette if necessary.

2. Hold down the **Option** key and click the **Mirror** tool.

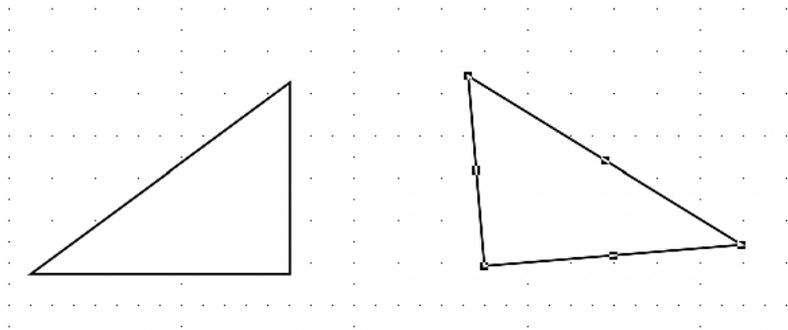
The **Mirror Setup** dialog appears.

3. Click the **Mirror Copy of Object(s)** radio button, then click **OK**.



4. Follow the steps required to mirror an object, as described above.

A copy of the selection will be mirrored across the axis you defined with the reference line, while the original remains in place.



## Lock and Unlock

You may sometimes want to make sure that objects on your drawing are not moved or changed by mistake. To do this you can use MacDraft's **Lock** feature to make sure certain objects remain unchanged.

## Locking objects

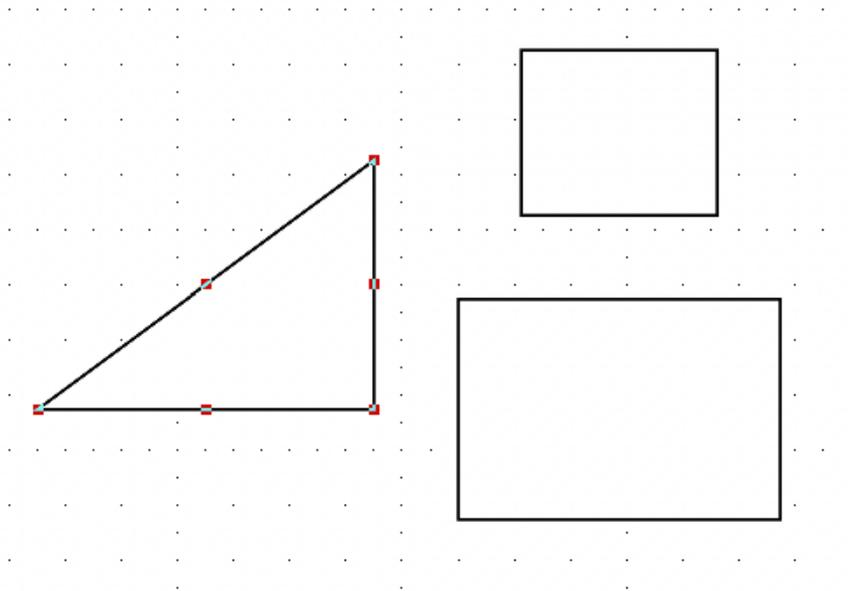
### *To lock objects*

Locked objects on the drawing cannot be edited, moved, copied, pasted, or deleted. None of MacDraft's functions affect locked objects.

1. Select the objects you want to lock.
2. To lock either;
  - Open the **Arrange** menu and choose **Lock**.
  - Press the **CMD + L** keys at the same time.
  - Click the **Lock** icon on the toolbar.

You may need to add the **Lock** option to the toolbar by customizing the toolbar.

The objects will be locked and the edit handles change to red to indicate this.



## Unlocking objects

You may later realize that you need to edit locked objects. To do this, you must

first unlock them.

### ***To unlock objects***

1. Select the locked objects you want to unlock.
2. To unlock either;
  - Open the **Arrange** menu and choose **Unlock**.
  - Press the Shift + CMD + L keys at the same time.
  - Click the **Unlock** icon on the toolbar.

You may need to add the **Unlock** option to the toolbar by customizing the toolbar.

The objects will be unlocked and the edit handles will be shown normally.

## **Find and replace** PRO ONLY

Sometimes you may need to find certain objects or groups quickly in a large drawing. Scrolling and examining all the items in a drawing to find the one you want can be time consuming and inaccurate, so instead you can use MacDraft's **Find and Replace** feature.

### **The Find/Replace dialog** PRO ONLY

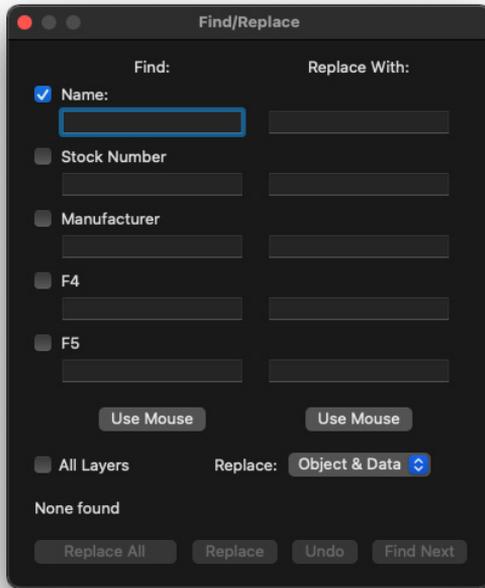
The **Find/Replace** dialog provides tools to automatically find and select objects or groups that have names or other object information assigned to them. This is most useful for finding items that have been copied many times in a drawing. The **Find/Replace** dialog also allows you to replace found objects with other objects.

#### ***Displaying the Find/Replace dialog*** PRO ONLY

To open the **Find/Replace** dialog

- Choose **Find/Replace** from the **Data** menu.

The **Find/Replace** dialog appears.



## Entering information into the Find/Replace dialog

### *Object Information fields* PRO ONLY

You define the objects to be found by specifying which of the object information fields assigned to them you want to search by.

### *Type in text*

You can manually type the desired object information into the appropriate object information fields. Note that any typing errors affect the results of the search and may cause the wrong objects to be found. Alternatively use the **Use Mouse** button as described in the next section.

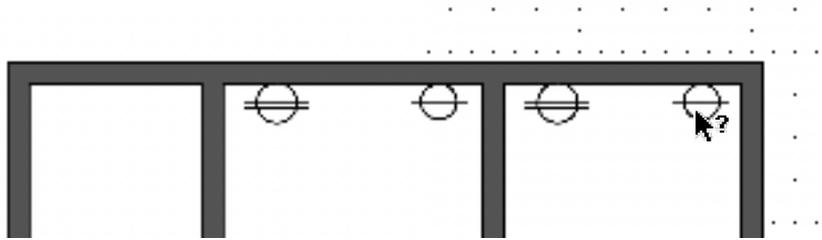
### *Use Mouse button*

The quickest way to define search criteria is with the **Use Mouse** button, which

lets you enter all of an item's object information instantly by clicking that object.

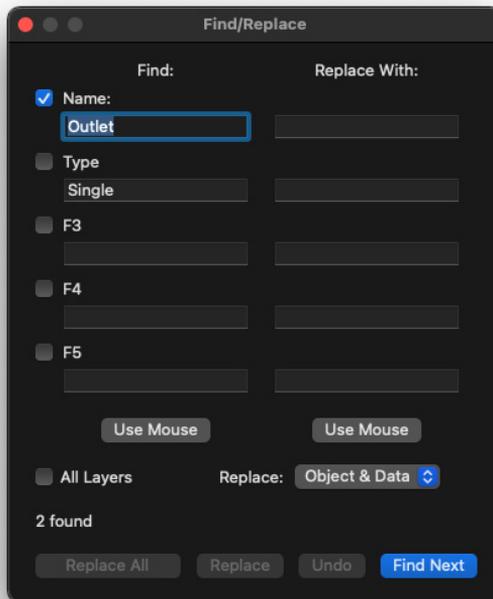
1. In the **Find/Replace** dialog, click the **Use Mouse** button.

The **Find/Replace** dialog disappears and the selection cursor appears over your drawing.



2. Click the object for which you wish to enter object information.

The object information for the selected object is shown in the object information fields.



## Check boxes

Click the checkbox next to each object information field that you want to use in your search. If check boxes are on, but you do not want to use these options in your search, click the check boxes to turn them off.

**Note:** It is possible to find objects or groups that share some object information data, but are not identical. For example, two items might have the same name but different part numbers and both would be found if 'Name' was on and 'Part Number' was not.

## Layers

Objects or groups can be found and replaced in either the current layer or in all layers of a drawing. Click the **All Layers** checkbox to search on all layers.

## Finding objects using the Find/Replace dialog PRO ONLY

### Finding objects PRO ONLY

To find objects or groups with particular object information

1. Make sure the objects or groups you want to find have object information assigned to them, and that one of them is visible in the drawing window.
2. Choose **Find/Replace** from the **Data** menu.

The **Find/Replace** dialog appears, with no information entered

3. In the **Find** section of the dialog, type in the desired object information for each field, or enter the information using the **Use Mouse** button.

**Note:** In drawings with many items that have object information, temporarily clicking the Find fields check boxes to turn this function off can speed up the typing of Find criteria.

4. Activate or turn off the object information field check boxes as necessary.
5. Click the **All Layers** checkbox to search on every layer of the drawing.
6. The total number of items found will be displayed at the lower left.

## Selecting found objects PRO ONLY

To select objects found using the Find/Replace dialog

1. Follow the previous instructions to find objects based on their object information.
2. In the **Find/Replace** dialog, click the **Find Next** button.

The first matching object will be selected, and the remaining number of objects or groups that meet the find criteria will be shown at the bottom left of the **Find/ Replace** dialog (that is, the initial count will be reduced by one).

3. Continue to select matching objects by clicking the **Find Next** button.
4. When you have finished finding or replacing objects, click the close box at the upper left of the dialog to close it.

## Replacing objects using the Find/Replace dialog PRO ONLY

When you use the **Find** feature, you will often want to replace the objects or groups you find with different items. The **Replace** options in the **Find/Replace** dialog can be used to replace some or all of the found items with other individual objects or groups.

When an object is replaced, the datum point of the replacement object occupies the same location as the datum point of the original object.

### Notes:

- An object or group to be used to replace another object or group must have object information assigned to it.
- The replacement object must also be unique; that is, it must have a unique set of data in its object information fields.

## Choosing a replacement object PRO ONLY

Enter the object information into the **Replacement** object fields by typing the information directly into the fields or using the **Use Mouse** button as described in the previous section.

## **Finding and replacing objects** PRO ONLY

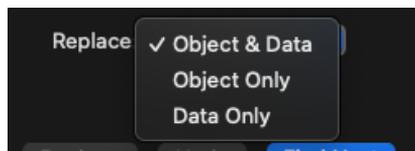
To find and replace objects or groups

1. Enter the find criteria as discussed previously.
2. Enter the information for the replacement object.
3. Click the **Find Next** button.
4. The **Find/Replace** dialog shows the number of objects or groups that match the find criteria, and the first matching object will be selected.
  - To find the next object that matches the find criteria, click the **Find Next** button.
  - To replace this particular found object, click the **Replace** button.
  - The selected object will be replaced with a copy of the object you defined as the replacement.
  - To replace all matching objects or groups, click the **Replace All** button.
  - All objects that match the **Find** criteria will be replaced.
  - Click **Undo** to reverse the replacement of the last single object or group.
5. When you have finished finding and replacing objects, click the close box at the upper left of the dialog.

## **Replacing objects and/or object information** PRO ONLY

When objects are found according to their object information, you can choose to replace either the entire object (including its object information), the object information only (leaving the visible object), or the visible object only (leaving the object information intact).

The desired option is chosen from the **Replace** pop-up menu in the **Find/Replace** dialog. The default setting is to replace the object and data together.



#### To replace an object and its data

- Choose **Object & Data** from the **Replace** pop-up menu.

Any items chosen for replacement will be replaced, and their object information will also be replaced.

#### To replace only an object

- Choose **Object Only** from the **Replace** pop-up menu.

Any items chosen for replacement will be replaced, but their object information will remain unchanged.

#### To replace only an object's data

- Choose **Data Only** from the **Replace** pop-up menu.

Any items chosen for replacement will have only their object information replaced, the visible objects will remain unchanged.

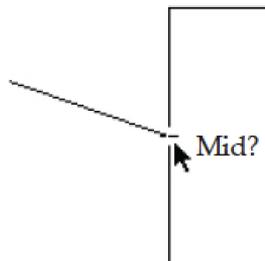
## C, E and M Modifier Keys

MacDraft is able to snap objects to the mid point (M) or end point (E) of a straight edge or circular arc, or to the center (C) of an object. This is done by holding down the M, E or C key while drawing a line or moving an object.

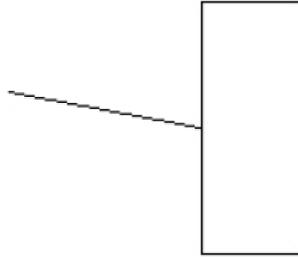
### *Drawing a line to the mid, end or centre point of an existing object or line*

To draw a line to the mid point of an existing edge or line

1. Choose the line tool from the **Tool** panel/palette.
2. Press and hold down the M key. The cursor will read "Mid?".



3. Still holding down the **M** key, bring the cursor near the edge of the object or line you wish to snap the end point of the line to. The line will snap to the mid point of the existing object or line that is near the cursor.
4. Finish the line by releasing the mouse button.



The line appears on the drawing between the starting point and the mid point of the specified edge or line. The cursor reverts to the line tool, allowing another line to be drawn.

#### **Notes:**

- A line or object can be drawn to the End point of an existing line or object in the same way, by holding down the E key and positioning the line near the End of the line or object.
- A line or object can be drawn to the Centre point of an existing line or object in the same way, by holding down the C key and positioning the line near the Centre of the line or object.

### ***Moving an object to the mid, end or centre point of another object***

#### **To move an object to the centre point of another object**

1. Select object one and start to drag it towards object two.
2. Press and hold the **C** key.
3. Still holding the C key down, drag object one towards object two until it snaps to the centre of object two.
4. Finish the movement by releasing the mouse button.

**Notes:**

- A line or object can be moved to the End point of an existing line or object in the same way, by holding down the E key and positioning the object near the End of the next line or object.
- A line or object can be moved to the Mid point of an existing line or object in the same way, by holding down the M key and positioning the object near the Mid point of the next line or object.

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# Chapter 6

## Drawing aids

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MacDraft offers several useful features that make your drawing tasks much easier: show size, rulers, cursor position indicator, grid snap, angle snap, grid lines, snap to object and line snapping, guides, and document units and scale. This chapter discusses these drawing aids in detail.

### Show Size Cursor

MacDraft is a precision drawing application designed to help you create detailed drawings. The **Show Size Cursor** function makes it easier to draw objects precisely because it provides a continuous display of an object's size as you draw or resize it. It also shows the degree of rotation as you rotate objects.

The units displayed in the **Show Size Cursor** are determined by the current options chosen in the **Document Scale & Units** dialog.

### Displaying the Show Size Cursor

*To turn the Show Size Cursor on*

- Choose **Show Size** from the **View** menu (a tick appears next to it), or
- Click **Show Size** from the **Toolbar** (The toolbar item highlights).

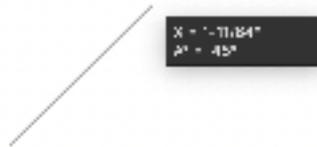
The Show Size cursor appears while drawing, dragging or resizing.



## Using the Show Size Cursor with drawing tools

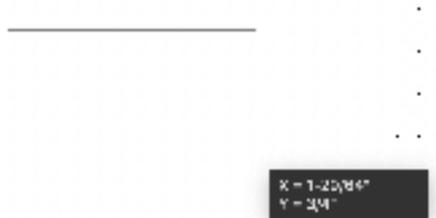
### *Line tools*

When using line tools (including the Perpendicular, Tangent, Parallel, and Extrude tools), the Show Size Cursor displays the length (X) of the line and the angle(A°) at which the line is drawn.



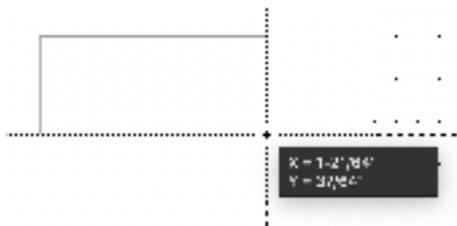
### *Square-corner rectangles*

When drawing square-corner rectangles, the Show Size Cursor displays the width (X) and height(Y) of the rectangle.



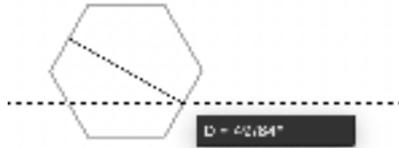
### *Text tool*

When drawing a rectangle to define the block for paragraph text, the Show Size Cursor displays the width (X) and height(Y) of the rectangle.



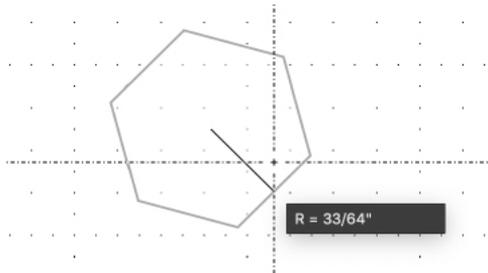
### **Regular polygons - Side to side**

When drawing a regular polygon from side to side, the Show Size Cursor displays the side to side diameter (D) of the polygon.



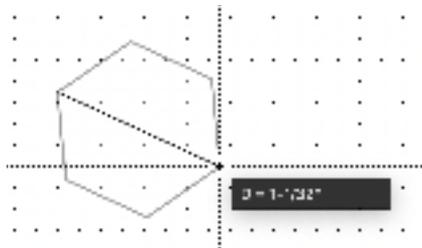
### **Regular polygons - Center to side**

When drawing a regular polygon from center to side, the Show Size Cursor displays the center to side radius (R) of the polygon.



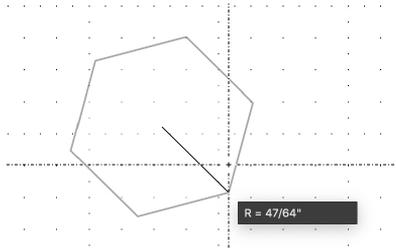
### **Regular polygons - Vertex to vertex**

When drawing a regular polygon from vertex to vertex, the Show Size Cursor displays the vertex to vertex diameter (D) of the polygon.



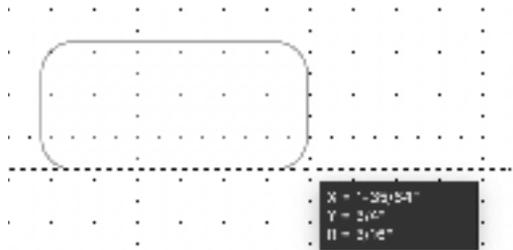
### **Regular polygons - Center to vertex**

When drawing a regular polygon from center to vertex, the Show Size Cursor displays the center to vertex radius (R) of the polygon.



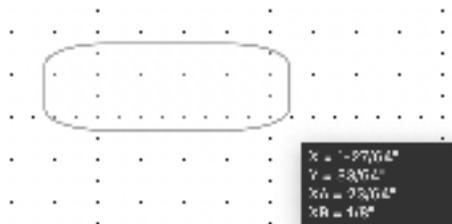
### **Rounded Corner Rectangles - Proportional and constant**

When drawing a proportional or constant corner rectangle, the Show Size Cursor displays the height(Y) and width(X), and the radius(R) of the corners.



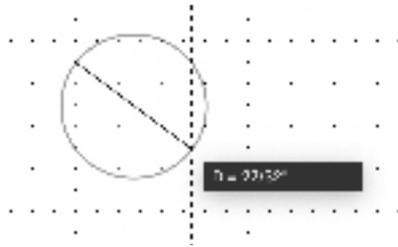
### **Rounded Corner Rectangles - Elliptical**

When drawing an elliptical-corner rectangle, the Show Size Cursor displays the height (Y) and width(X) of the rectangle, and the major and minor radii of the arcs on the corners.



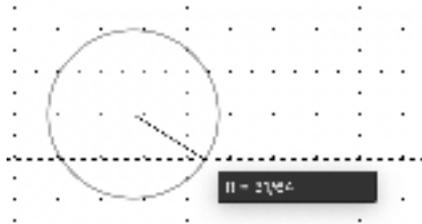
### ***Circles by diameter***

When drawing a circle by diameter, the Show Size Cursor displays the diameter (D) of the circle.



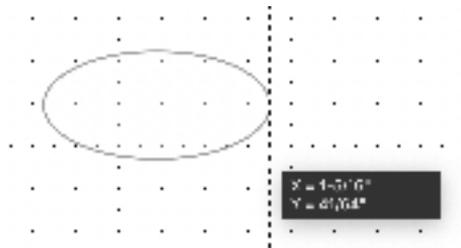
### ***Circle by radius***

When drawing a circle by radius, the Show Size Cursor displays the radius (R) of the circle.



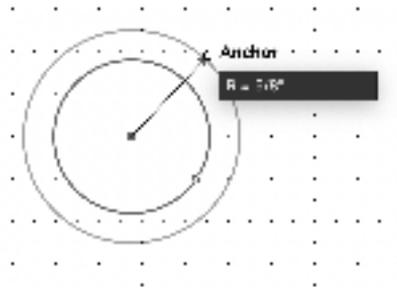
### ***Ellipses***

When drawing an ellipse, the Show Size Cursor displays the width (X) and height (Y) diameters of the ellipse.



## Concentric circles

When drawing a concentric circle, the Show Size Cursor displays the radius (R) of the circle.



## Arcs By radius

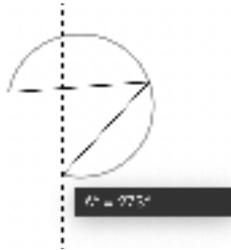
As you drag to create the radius of an arc, the Show Size Cursor displays the length of the radius (R) and the starting angle ( $A^\circ$ ). The starting angle is the angle between the line attached to the cursor and the X-axis.

Once you release the mouse button and move the mouse to create the arc, the Show Size Cursor changes to display: the difference between the starting angle and the ending angle of the arc, i.e., the actual number of degrees through which the arc passes ( $\Delta A^\circ$ ); the angle between the ending angle (shown on-screen by the line attached to the cursor) and the X-axis ( $A^\circ$ ).



## Arcs by three points

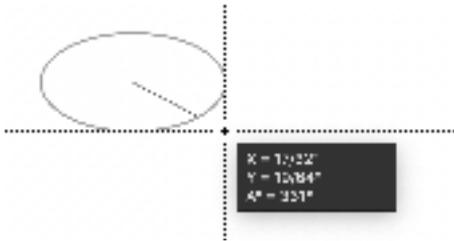
As you create an arc by three points, the Show Size Cursor does not become active until you are moving from the second to the third point in the arc. At that time, it shows the entire arc angle ( $A^\circ$ ).



### ***Elliptical arcs***

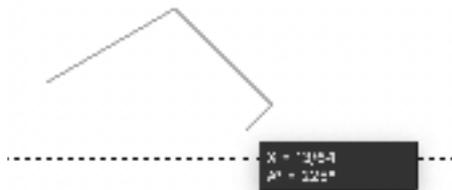
When you start drawing an elliptical arc, the Show Size Cursor displays the height(Y) and width(X) of the ellipse used to define the size of the arc. It also shows you the starting angle ( $A^\circ$ ), which is the angle between the line attached to the cursor and the X-axis.

When you finish defining the size and the starting angle of the arc, the Show Size Cursor shows you: the difference between the starting angle and the ending angle, i.e. the actual number of degrees through which the arc passes( $\Delta A^\circ$ ); the angle between the ending angle (shown on-screen by the line attached to the cursor) and the X-axis ( $A^\circ$ ).



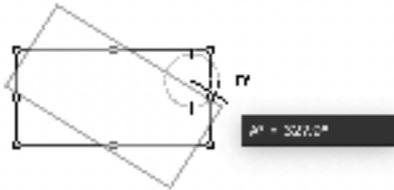
### ***Irregular polygons***

When using irregular polygon or polyline tools (including the double-line polygon or polyline tools), the Show Size Cursor displays the length (X) of the line and the angle( $A^\circ$ ) of the line, for each side of the polygon as it is drawn.



## Using Show Size with rotation

When rotating an object, the Show Size Cursor displays how much you have rotated the object( $A^\circ$ ).



Angles of rotation range from zero to 360 degrees, moving counterclockwise from a rightward-pointing or “due East” orientation.

You can rotate objects in degrees, minutes and seconds, or in degrees and decimal fractions.

## Hiding the Show Size cursor

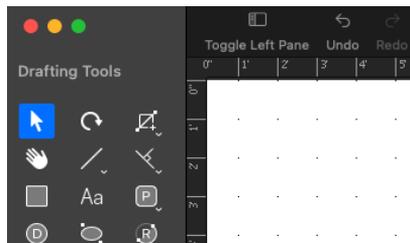
*To turn the Show Size Cursor off*

- Choose **Show Size** from the **View** menu (a tick disappears), or
- Click **Show Size** from the **Toolbar** (Highlight state is removed).

The **Show Size Cursor** disappears

## Rulers

Rulers are used as drawing aids to help you position objects in precise locations on your drawing. Rulers appear along the top and left side of the drawing.



The displayed rulers reflect the current position of the window during scrolling, and their scale reflects the current magnification level.

## Displaying rulers

### *To display rulers*

- Open the **View** menu and choose **Show Rulers**.

The rulers will be displayed, and a check mark appears by the **Show Rulers** command in the **View** menu.

## Types of rulers

MacDraft offers two types of rulers: standard and scale.

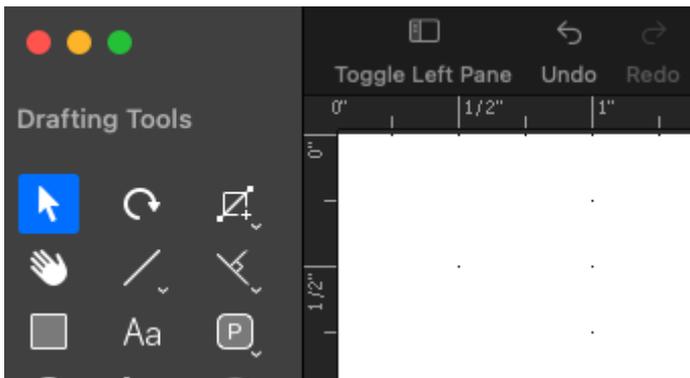
### *Standard rulers*

Standard rulers show the actual size of the drawing in the units specified in the **Set Scale and Units** dialog.

**To display standard rulers (if Show Rulers is checked)**

- Open the **Layout** menu and choose **Standard Rulers**.

The rulers show the actual size of the drawing, in this example, in inches.



## Scale rulers

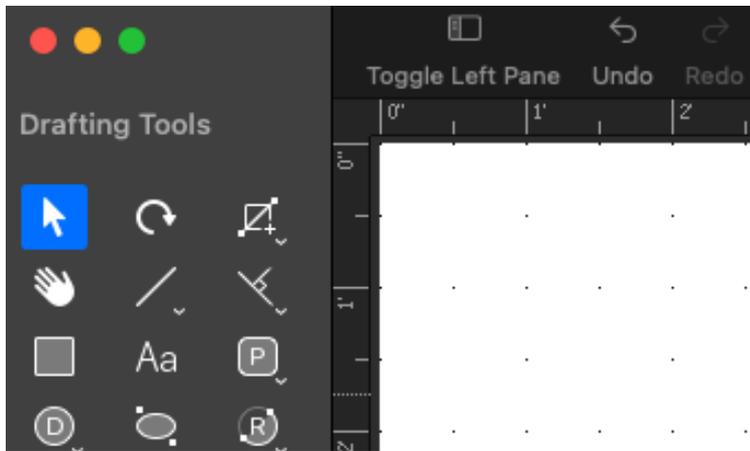
Scale rulers reflect the current drawing scale of your document. For example, on a  $1/4'' = 1'$  scale, the major ruler divisions will be in increments of four: 4 ft., 8 ft., and so on.

To display scale rulers (if Show Rulers is active)

- Open the **Layout** menu and choose **Scale Rulers**.

The rulers show the drawing measurements according to the scale specified.

In this example, the scale is  $1/4'' = 1'$  and the size units are set at fractional feet and inches.



## Setting the rulers' zero points

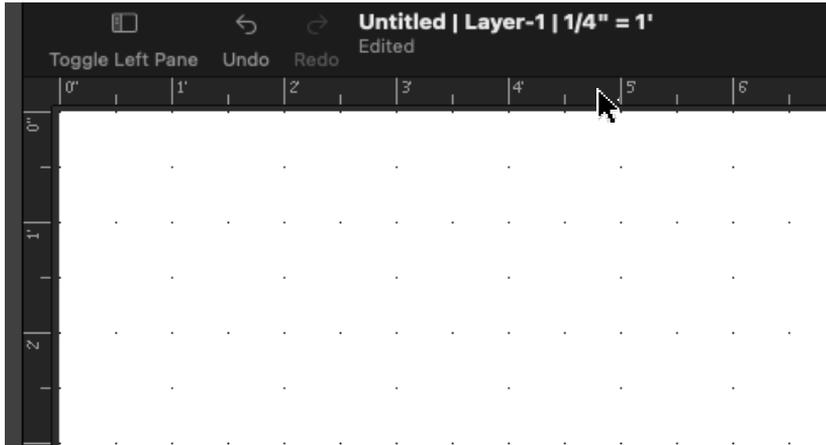
There may be occasions when you want to change the zero point of the rulers from the upper left corner of your drawing to some other convenient point on the drawing. For instance, you may want to set the zero point of the rulers to one edge of an object so that you can position other objects relative to that particular point. For this reason, MacDraft allows you to change the ruler zero points.

When you change the zero point of one or both of the rulers, the positioning of the new zero point is dependent upon the grid snap. You can change the zero point of either the top or left ruler independently, or change the zero points of both rulers at the same time.

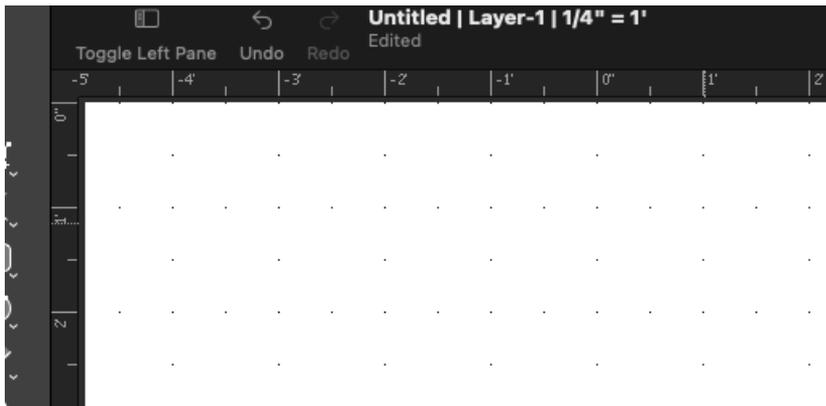
## Setting the zero points of the rulers independently

To change the zero point of either the top or the left edge ruler independently of the other

1. Position the tip of the pointer on either ruler, at the place you want the new zero point for that ruler to be, and click.



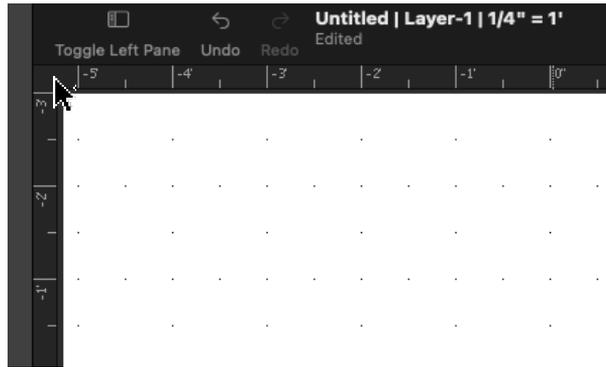
The zero point is repositioned as specified.



To change the zero point of either the top or the left edge ruler back to the upper left corner

- Position the tip of the pointer in the box where the two rulers cross at the upper left corner of the drawing window and click.

The zero points will be reset.

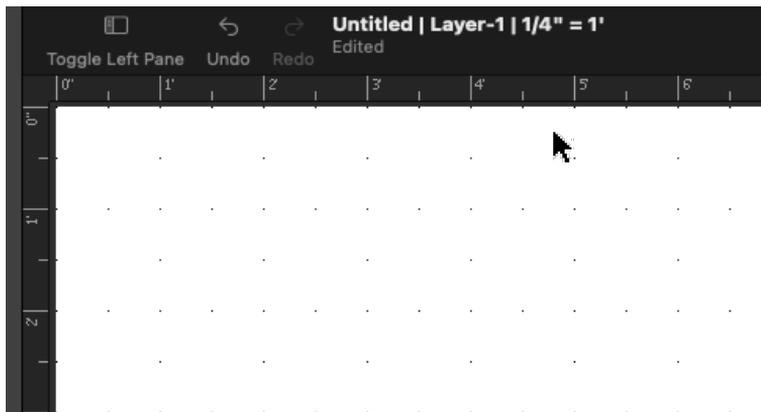


### ***Setting the zero points of both rulers simultaneously***

You can change the zero points of both rulers simultaneously by using the cursor. In this way, you can easily align the zero points of both rulers to a particular point on your drawing.

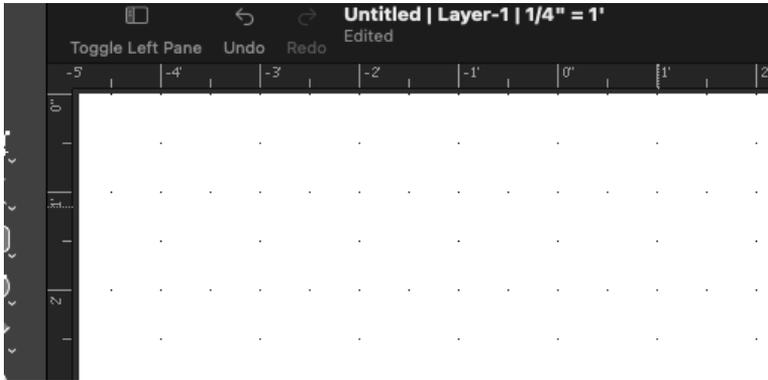
**To set the zero points for both rulers at the same time**

1. Position the tip of the pointer in the box where the two rulers cross at the upper left corner of the drawing window.
2. Press and hold down the mouse button.
3. Drag diagonally downward and to the right until the cursor is positioned on the new zero point you want for both rulers.



Release the mouse button.

4. The zero points of both rulers are repositioned as specified.



**To reset the zero points of both rulers to the upper left corner of your drawing**

- Position the tip of the pointer in the box where the two rulers cross at the upper left corner of the drawing window and click.

The zero points will be reset.

## Cursor position indicator

The cursor position indicator shows the position of the cursor (that is, the crosshair cursor, the arrow pointer, and the various other cursor icons) on your drawing. This allows you to determine accurately the starting and ending points of an object, and also gives you the ability to discover the precise position of any point on your drawing.

The cursor position indicator shows the absolute position of the cursor in relation to the zero origin. The zero origin of the cursor position ( $X=0$ ,  $Y=0$ ) is determined by the zero points on the rulers. Therefore, if you move the zero points on the rulers, the zero origin of the cursor position indicator also changes. This feature is very useful, especially when you want to make measurements relative to a specific point on your drawing.

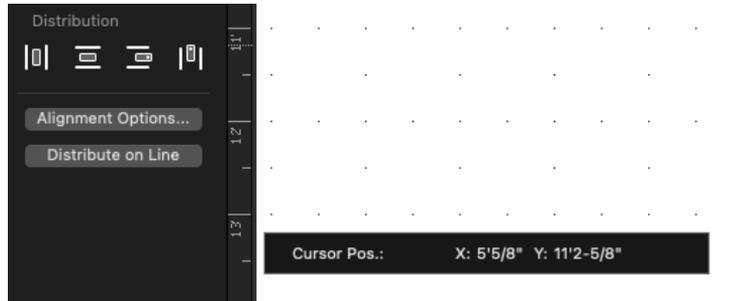
The cursor position indicator reflects the drawing environment. The X/Y position of the cursor's position is displayed according to the scale of the drawing and in the size units that are currently selected.

## Activating the cursor position indicator

### *To activate the cursor position indicator*

- Open the **View** menu and choose **Show Cursor Position**.

The X/Y position of the cursor will be shown on the bottom left corner of the document window as shown below.



As you move the cursor around on your drawing, the cursor position indicator shows the cursor's X/Y position relative to the current zero points set for the rulers.

## Hiding the cursor position indicator

### *To hide the cursor position indicator*

- Open the **View** menu and choose **Show Cursor Position** .

The cursor position disappears, and the check mark will be removed from the **Show Cursor Position** command in the **View** menu.

## Document guides

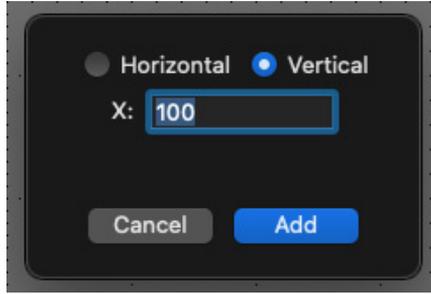
You may sometimes want to place guides in your drawing, that you don't want to print, but would like to use as a reference for drawing and editing objects. MacDraft offers vertical and horizontal document guides that can be placed either at an exact position on the drawing or manually by dragging and placing them.

# Adding a guide to an exact position

## To place a guide exactly

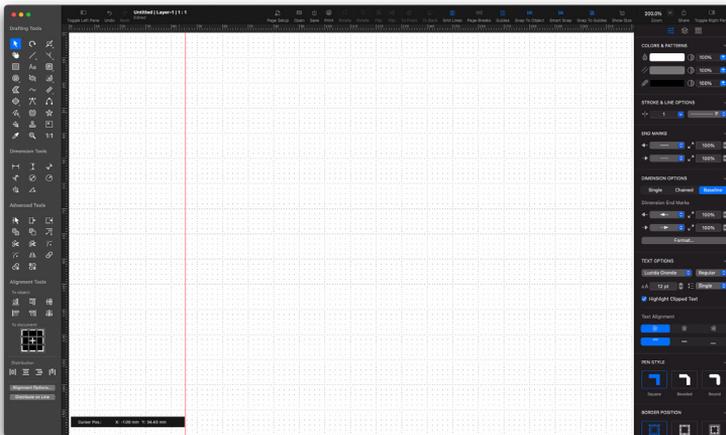
1. Open the **Options** menu and choose **Add Guide by Position...**

The Add Guide dialog appears.



2. Either;
  - Click the **Horizontal** radio button and type a value in the **Y** position field, where you want the horizontal guide to be placed.
  - Click the **Vertical** radio button and type a value in the **X** position field, where you want the vertical guide to be placed.
3. Click the **OK** button

The guide you have chosen will be placed at the position you specified.



## Adding a vertical guide to the center

- Open the **Options** menu and choose **Add Vertical Guide...**

The Vertical Guide will be added to the center of the document.

**Note:** If you have multiple pages in the document, the guide will be centered across the whole document, not just one page.

## Adding a horizontal guide to the center

- Open the **Options** menu and choose **Add Horizontal Guide...**

The Horizontal Guide will be added to the center of the document.

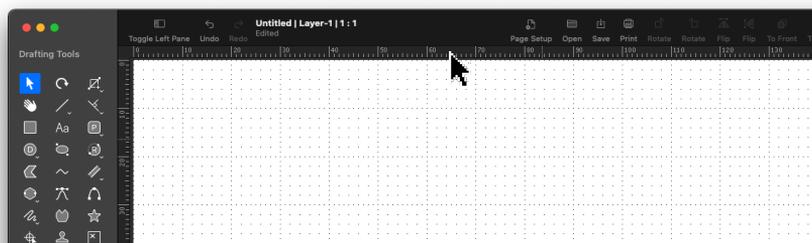
**Note:** If you have multiple pages in the document, the guide will be centered across the whole document, not just one page.

## Adding a guide manually

You can add a **Horizontal** or **Vertical** guide by dragging one from the respective rulers. This options allows you create guides quickly when you do not need to be specific in their position.

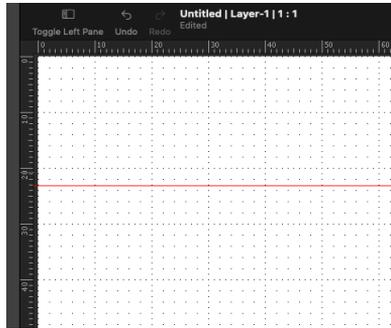
### *To add a horizontal guide manually*

1. Hold down the **Command** key on your keyboard.
2. Move the cursor to the horizontal (top) ruler.



3. While still holding the **Command** key down, click and hold the mouse button down inside the top ruler.
4. With the **Command** key and mouse button held down, drag downwards until the guide is in the position you want.
5. Release the mouse button

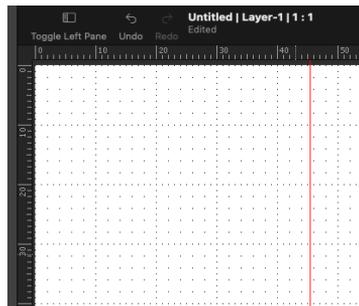
The horizontal guide will be added.



### *To add a vertical guide manually*

1. Hold down the **Command** key on your keyboard.
2. Move the cursor to the vertical (left) ruler.
3. While still holding the **Command** key down, click and hold the mouse button down inside the left ruler.
4. With the **Command** key and mouse button held down, drag to the right until the guide is in the position you want.
5. Release the mouse button

The vertical guide will be added.

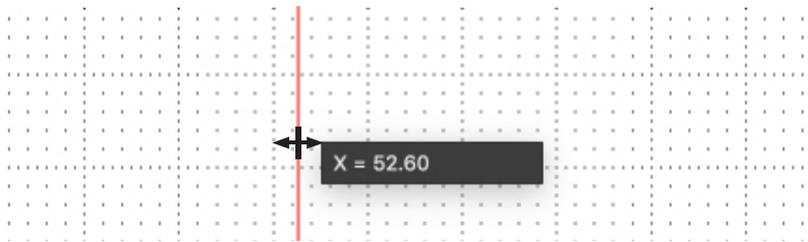


## Removing a guide from the drawing

Sometimes you might want to remove a guide that you have already placed. This can be done by dragging the guide in the dark space that surrounds the document.

### *To remove a guide*

1. Move the tip of the mouse pointer to the guide you want to remove
2. Hold down the **Command** and **Option** keys on your keyboard.
3. The cursor will change to a line and two arrows



4. While still holding the **Command** and **Option** keys down, click and hold the mouse button and drag the guide into the dark space surrounding the document area.
5. Release the mouse button and **Command** and **Option** keys.

The guide will be removed.

## Positioning objects

MacDraft provides several features to aid in the precise positioning of objects: grid snap, angle snap, grid lines, snap to object, smart snap, snap to guides and line snapping. The grid snap and angle snap features allow you to superimpose an invisible network of “magnets” over your drawing so that objects can be drawn, moved, or resized precisely and easily. Grid lines provide visual guidelines that assist you in drawing. Snap to object allows you to position one object directly next to another, smart snap puts reference lines on other objects, snapping to guides allow you to align to the reference guides you have added and line snapping allows you to snap the end of lines to a specified point on another object.

## Grid snap

You should set the grid snap to the smallest length you need in or between objects in your drawing. For example, if you wanted to draw a line that is  $5 \frac{3}{4}$  inches long, you should set the grid snap to one-quarter inch. With the grid snap set this way, the cursor will snap to every quarter-inch increment as you draw the line. Values shown in the **Set Grid** submenu will be always given in the current scale and unit system.

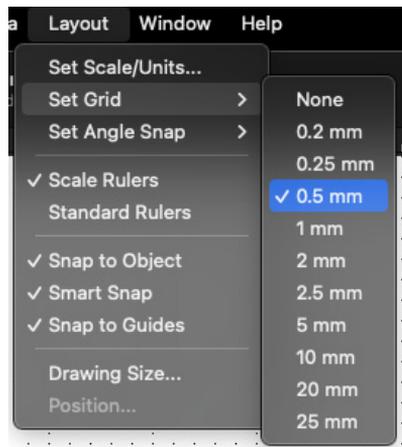
### Setting the grid snap

Before you set the grid snap, you should choose a scale to be used for your drawing. The grid snap setting should be appropriate for that scale.

#### To choose a new grid snap

1. Open the **Layout** menu and drag until **Set Grid** is highlighted.

The **Set Grid** submenu appears. A check mark indicates the document's current grid snap.



The **Set Grid** submenu shows the grid spacing for the current scale. Each scale has its own set of possible grid spacings. For example, a scale of 1:1 (1"=1") in fractional units will have increments as small as 1/64th of an inch and as large as 1/4 of an inch.

2. Holding down the mouse button, drag through the submenu until the grid snap you want is highlighted, and release the mouse button.

The grid snap remains as set until it is changed again.

### ***Using the grid snap function***

When a grid snap other than **None** is chosen, any object you draw or move will automatically be positioned to the nearest grid snap position. You will not be able to begin or end a draw or move action between the grid snap positions. For example, if you were moving an object with the grid spacing set at 1/4 inch, the object would move in quarter inch increments. You can activate or deactivate the grid snap to suit your needs at the time.

### ***Turning the grid snap off and on***

At times you may want to turn off the grid snap when you draw or move objects.

#### **To turn off grid snap**

1. Open the **Layout** menu and drag until **Set Grid** is highlighted.

The **Set Grid** submenu appears.

2. Choose **None** to turn off the grid snap.

#### **To turn on grid snap**

1. Open the **Layout** menu and drag until **Set Grid** is highlighted.

The **Set Grid** submenu appears.

2. Choose the desired grid snap.

### ***Releasing objects from the grid snap***

You can temporarily suspend the grid snap function by holding down the **Command** key as you move or draw an object. This technique allows you to position an object on a location that does not fall at a grid snap point.

**Note:** If you turn the grid snap off while drawing or moving an object, that object will be removed from the grid. This means that it will be difficult for you to draw lines or borders tangential to the object, or align the object with other objects. In order to place the object back on the grid, use the Align to Grid function.

## Snapping edges and lines along their lengths

As you draw an object with grid snap on, its edges get longer by small increments as they jump to the closest grid snap point. Rather than a line or edge snapping to the grid, hold down the **Option** key as you draw and the line or edge length will snap to increments of the current grid snap. For example, if the current grid snap is 1/4" and you draw a 30° line while holding down the Option key, the line length will grow in quarter inch increments.

## Re-align to grid using Alignment Options PRO ONLY

There will be times when actions you take will result in objects existing in the MacDraft document that are not on the current grid. This means that it will be difficult for you to draw lines or borders tangential to the object, or align the object with other objects. You can reposition objects on the grid by using the align to grid option, inside the **Alignment Options...** from the **Arrange** menu.

## Angle snap

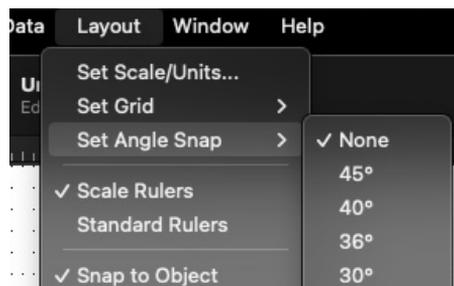
You should set the angle snap to the angle you need in or between objects in your drawing. For example, if you wanted to draw a line at an angle of 14°, you should set the angle snap to 2°. With the angle snap set this way, the cursor will snap to two degree increment as you draw the line.

## Setting the angle snap

To choose a new angle snap

1. Open the **Layout** menu and drag until **Set Angle Snap** is highlighted.

The **Set Angle Snap** submenu appears. A check mark indicates the document's current angle snap.



The **Set Angle Snap** submenu shows the possible angle choices.

2. Choose the angle snap you want.

The angle snap remains as set until it is changed again.

### ***Using the angle snap function***

When an angle snap other than **None** is chosen, objects you draw or edit (that angle is relevant to) will be positioned automatically to the nearest angle snap position. You will not be able to draw lines between the angle snap positions.

You can activate or deactivate the angle snap to suit your needs at the time.

### ***Turning the angle snap off and on***

At times you may want to turn off the angle snap when you draw objects.

#### **To turn off angle snap**

1. Open the **Layout** menu and drag until **Set Angle Snap** is highlighted.

The **Set Angle Snap** submenu appears.

2. Choose **None** to turn off the angle snap.

#### **To turn on angle snap**

1. Open the **Layout** menu and drag until **Set Angle Snap** is highlighted.

The **Set Angle Snap** submenu appears.

2. Choose the angle snap you want.

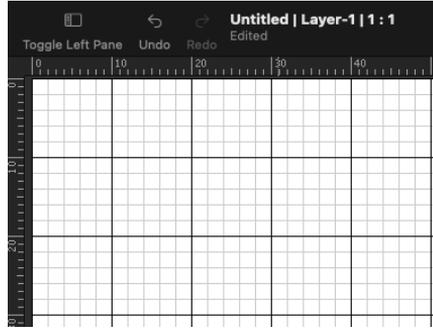
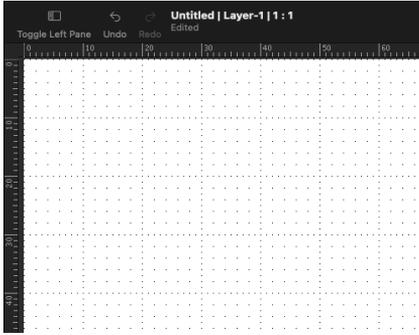
### ***Releasing objects from the angle snap***

You can temporarily suspend the angle snap function by holding down the **Shift** key as you draw an object. This technique allows you to draw an object at an angle that is not an angle snap line.

**Note:** Set a custom angle snap by choosing Custom in the menu.

## Grid lines

Grid lines provide visual guidelines that assist you in drawing. Choose **Dotted** or **Square** from the **Grid Type** option in the **Options** menu.



### *Hide/show the grid lines*

The grid lines are shown by default, but you can hide them if you wish.

#### To hide grid lines

- Open the **View** menu and drag until **Show Grid Lines** is highlighted.

The grid lines are hidden and the check mark will be removed from beside **Show Grid Lines** in the **View** menu.



#### To show grid lines

- Open the **View** menu and drag until **Show Grid Lines** is highlighted.

The grid lines will be shown again, and a check mark appears by **Show Grid Lines** in the **View** menu.

## Snap to object

The snap to object feature allows you to position one object directly next to another. When snap to object is enabled, the cursor will snap to the vertices of existing objects. For example, you could draw a line and make one of its end points coincide precisely with the corner of a rectangle. By default, the **Snap to Object** function is active when you open a new MacDraft document.

### *To turn off snap to object*

- Open the **Layout** menu and choose **Snap to Object**.

The check mark will be removed from the command, and snap to object will be turned off.

### *To turn on snap to object*

- Open the **Layout** menu and choose **Snap to Object**.

Snap to object will be turned on, and a check mark appears next to its name in the **Layout** menu.

## Line snapping

MacDraft is able to snap the final point of a line to the mid point or end point of a straight edge or circular arc, or to the center of an object. This is done by holding down the **M**, **E** or **C** key while drawing a line.

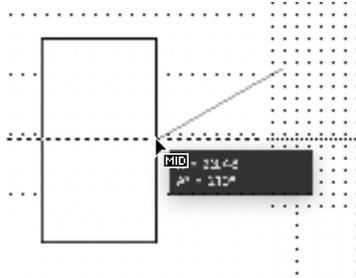
**Note:** These snap keys can be used when drawing unconstrained lines, including lines drawn with the Mid point, End point and Center point line tools and Tangent from line tool.

The mid point and end point snap keys, **M** and **E**, can be used when drawing a line to straight edged objects (lines, polylines, polygons and square-corner rectangles); any of these objects can be part of a group. The end point key, **E**, can also be used to snap the end of a line to the end of a circular arc. The center key, **C**, can be used to snap the end of a line to the center of any closed shape, including shapes within groups, but not with text objects, dimension objects, bitmap or pixel objects.

## ***Drawing a line to the mid point of an existing edge or line***

To draw a line to the mid point of an existing edge or line

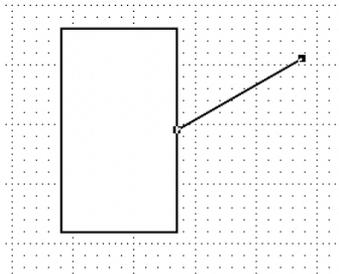
1. Choose a line tool from the **Tool** panel and begin drawing the line.
2. Press and hold down the “**M**” key. The cursor will read “**Mid**”.



3. Still holding down the “**M**” key, bring the cursor near to the edge or line you wish to snap the end point of the line to.

The line will snap to the mid point of the existing edge or line that is near the cursor.

4. Finish the line by releasing the mouse button.



The line appears on the drawing between the starting point and the mid point of the specified edge or line. The cursor reverts to the line tool, allowing another line to be drawn.

A line can be drawn to an end point of an existing edge, line, arc or center of an object in the same way, by holding down the “**E**” or “**C**” key instead of the “**M**” key.

## Smart Snap

MacDraft offers a range of snapping options but one of the most powerful is the Smart Snap system. With this turned on you can align objects while you are drawing, resizing and position to other objects in the document. The Smart Snap system draws a number of reference lines on the screen as objects interact and coincide with each other, helping you to positions and draw things correctly.

### *To turn off smart snap*

- Open the **Layout** menu and choose **Smart Snap**.

The check mark will be removed from the command, and snap to object will be turned off.

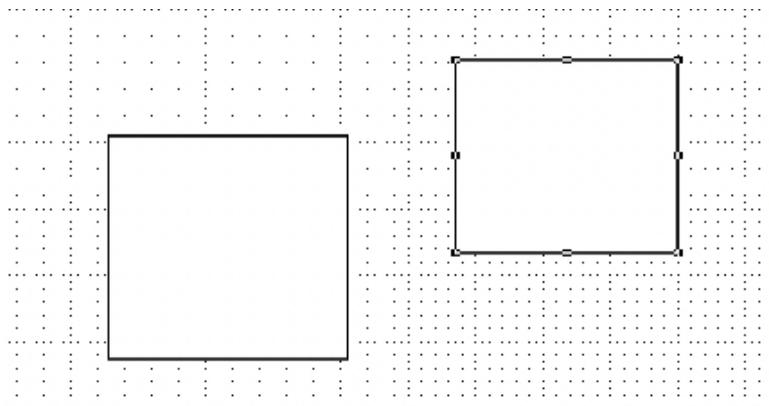
### *To turn on smart snap*

- Open the **Layout** menu and choose **Smart Snap**.

Smart snap will be turned on, and a check mark appears next to its name in the **Layout** menu.

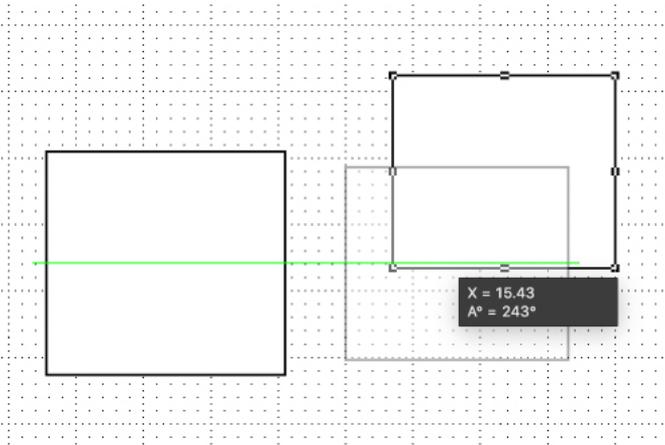
### *Using smart snap*

1. Make sure **Smart Snap** is turned on.
2. Draw two shapes in your document, such as two rectangles.



3. When the rectangles are drawn, select one of the rectangles and start moving it towards the other rectangle.

When the rectangle gets closer to the other rectangle you will see smart snap reference lines appear.



4. Position the rectangle as you prefer, using the smart snap reference lines to help you snap the position to the correct place.

The **Smart Snap** reference lines can be used when you are drawing objects, resizing them or moving them. **Smart Snap** allows you to snap and align to the edges, center and mid points of objects.

## Snap to Guides

With the use of MacDraft's document guides, you can snap your objects to them while you are drawing resizing or moving. This will make it much easier for you to position your objects when using guides.

### *To turn off snap to guides*

- Open the **Layout** menu and choose **Snap to Guides**.

The check mark will be removed from the command, and snap to guides will be turned off.

### ***To turn on snap to guides***

- Open the **Layout** menu and choose **Snap to Guides**.

Snap to Guides will be turned on, and a check mark appears next to its name in the **Layout** menu.

### **Snapping between layers**

When using multiple layers in your documents you'll find that most of the snapping facilities work between the layers. This means you can align objects on one layer with those on another layer. This option can be turned on and off while you are drawing.

### ***To stop snapping between layers***

1. Start drawing or moving your object(s).
2. Hold down the Control key on your keyboard.

The snapping between layers will be disabled.

**Note:** Holding the Control key down will only disable snapping between layers. The snapping options will still work on the current layer.

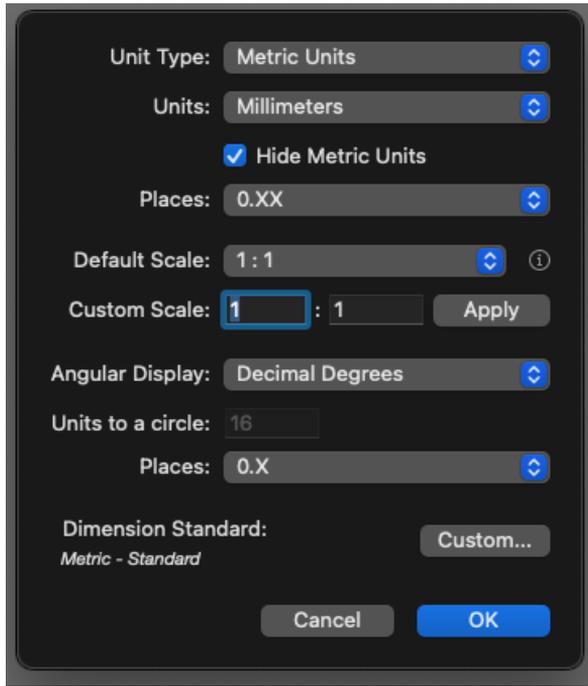
## **Document units and scale**

When setting up the drawing environment, you can choose the units in which you want to work. The units chosen affect the Show Size Cursor, the grid lines and grid snap, the scale options and rulers, dimension, perimeter calculations, area calculations and the units of rotation. The unit options can be set in the **Document Scale and Units** dialog.

### ***Displaying the Document Scale and Units dialog***

1. Open the **Layout** menu and choose **Set Scale/Units**.

The **Document Scale & Units** dialog appears.



2. Make any changes as discussed in the next section, and click the **OK** button to close the dialog and apply the changes.

## Units

### *English or metric units*

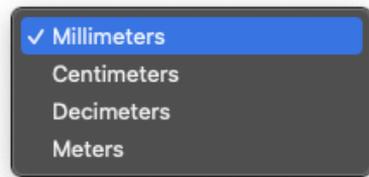
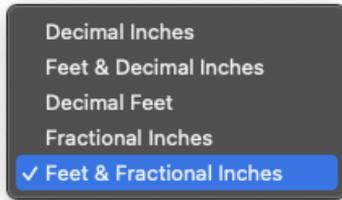
To choose the units

- Choose **English** or **Metric** from the **Unit Type** pop-up menu, depending on the type of units you want to use in the document.

### *Unit size*

To select the unit size

1. Click the units pop-up menu.



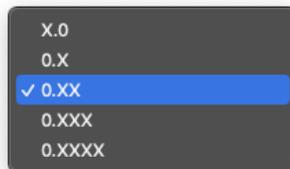
2. Choose the unit size option you want. Your choice appears on the button. The numerical values shown on the drawing reflect the chosen units.

### ***Decimal places***

If you chose a metric or decimal English unit size, you can also specify the number of decimal places that you want to be displayed in numerical values. You can choose either one, two, three, or four places behind the decimal point, as well “None” (no places) to show integers only. Values will be rounded off to the selected number of decimal places. The default number of places behind the decimal is two. In larger scales, the number of decimal places allowed for display may be reduced automatically.

#### **To change the number of decimal places**

1. In the **Document Scale and Units** dialog click the Places pop-up menu. The decimal places pop-up menu appears.



2. Choose the desired number of decimal places.

Once you have made your choice and closed the dialog, all numerical values will be rounded off to the selected number of decimal places.

## Hide metric units

### To hide metric units

1. In the **Document Scale & Units** dialog, choose Metric from the Unit Type pop-up menu

The **Hide Metric Units** check checkbox becomes available.

2. Click the **Hide Metric Units** checkbox.

The option will be on, and the unit names will not be shown with the drawing's dimension line and area values.

## Scales

Before starting a drawing, you need to determine the sizes of the objects, and the paper you are going to use. For large drawings it is impractical to draw objects at their actual sizes; it is necessary to reduce them, yet still maintain their proper proportions.

A scale accomplishes this. A scale is the ratio of the object's size on the drawing to its size in the real world. For example, if you choose a scale ratio of one inch equals ten feet (1" = 10'), a line drawn ten inches long on a drawing would represent a 100-foot line in the real world. MacDraft offers 25 different Feet & Inches scales and 22 Metric scales for your use plus a custom scale facility. This versatility allows you to create a drawing at one scale, and then have it automatically converted to a different scale.

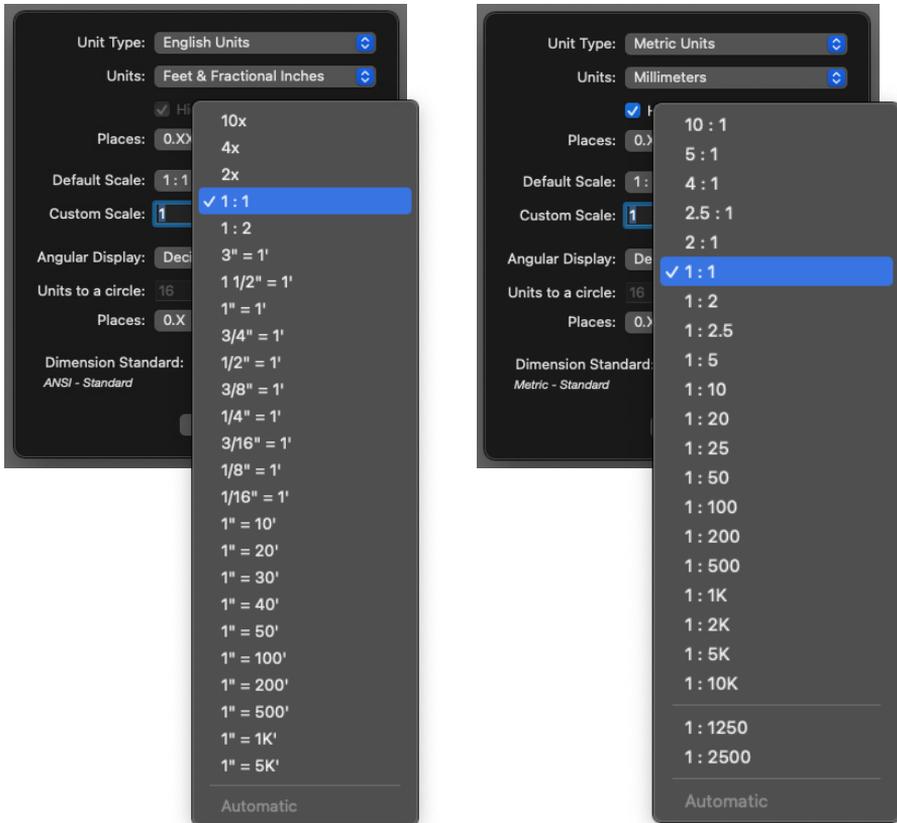
You can also have multiple drawings, all at different scales, displayed on the screen at the same time. This makes it easy for you to copy and paste between drawings. When you paste an object into a drawing with a different scale, the object automatically adjusts in size to conform to the scale of the new drawing. Alternatively you can use the Paste Unscaled command to paste an object into another document at its original size.

**Note:** The scale you choose is used as the default scale for the document. You can assign a different scale to each layer on your drawing if you wish. The default scale you specify in the Document Scale & Units dialog will be assigned to new layers. If you change the default scale in the Document Scale & Units dialog, any layers using the default scale will be rescaled.

## Specifying the scale

To specify the Default scale

1. In the **Document Scale & Units** dialog, click the **Default Scale** pop-up to open the **Scale** pop-up menu. The options available depend on the units chosen.



2. Choose the scale you want.

The new scale will be shown in the **Default Scale** button.

3. Click the **OK** button to close the dialog and apply the changes.

The dialog disappears and your drawing now reflects the new scale

### To specify the Custom scale

1. Enter the scale you wish to use in the text fields provided.
2. Click the **Apply** button or press the **Enter** key.
3. If you create a drawing at one scale, and then decide later to change to a new scale, simply follow the steps outlined above to choose a new scale. In most cases the appearance of the objects on the drawing will either grow or shrink depending on the new scale chosen, however if there is text on the document you can choose if you want the text to be scaled or not.

### Scaling text

If you change the scale of a document that contains text, an alert appears asking if you want to scale the text or not.

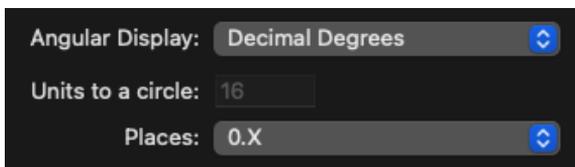
- Click Yes if you want the text to be resized according to the new scale, or
- Click No if you wish the text to be shown at the size it currently is on screen.

**Note:** Scale can be also changed in any layer via the Layer panel/palette. Change the scale of a layer by choosing it from the layer pop-up, next to the layer you want in the Layers panel/palette.

### Angular display

The Angular Display choices let you specify the units in which you want rotation and angular dimensions to be shown and calculated.

You can choose to display the rotation units in decimal degrees (e.g. 63.580), in degrees and minutes (e.g. 51° 14'), in degrees, minutes and seconds (e.g. 47° 22' 30"), or in user defined units.



## Setting the rotation units

To specify the rotation units

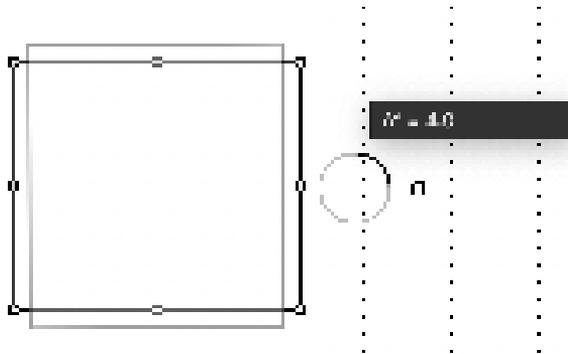
- In the **Document Scale & Units** dialog, choose one of the units types from the **Angular Display** pop-up menu, depending on the type of units you want to use in the document.

### User defined units

If you choose **User defined units**, you can specify the number of units to a circle by typing a value in the **Units to a circle** field.



With a value of 16 units to a circle, at one decimal place, 90 degrees will be displayed as 4.0.



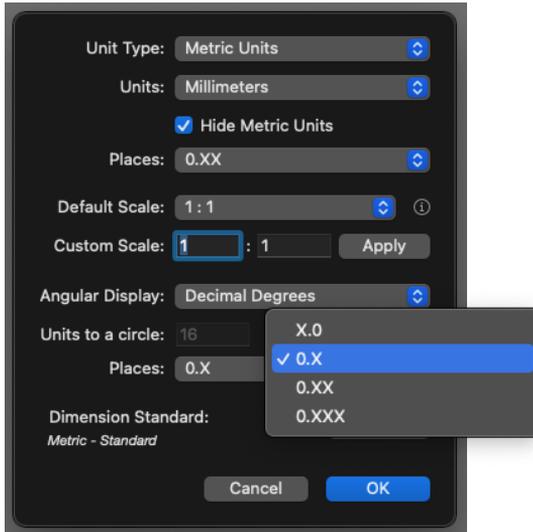
## Decimal places

If you choose decimal degrees or user defined units for the units of angular display, you can also select the number of decimal places you would like to be displayed for angular values.

### To change the number of decimal places

1. Click the **Places** pop-up menu below the Angular Display.

The decimal places pop-up menu appears.



2. Choose the desired number of decimal places.

Once you have made your choice and closed the dialog, all angular values will be rounded off to the selected number of decimal places.

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# Chapter 7

## Libraries and Layers

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### Symbol libraries

Symbol libraries give you the ability to save, catalog, and reuse standard images or symbols. Previously created symbols can be taken out of symbol libraries and placed directly into your drawings.

You can also create your own electrical and architectural symbols or commonly used images; these can then be stored in easy-to-access libraries, and inserted into drawings as required.

The symbols in the libraries retain their drawing attributes, such as their scale and rotation.

### Symbol libraries available

Depending on which MacDraft product you are using either App Only, Home & Garden, Starter or Complete, MacDraft has a number of libraries available.

- MacDraft App Only: Includes a sample library of 100 items
- MacDraft Home & Garden: Includes 2 libraries containing over 1100 items.
- MacDraft Starter: Includes 5 libraries containing over 5500 items.
- MacDraft Complete: Includes 11 libraries containing over 7500 symbols.

### Purchasing symbol libraries

Contact Microspot directly for information on purchasing additional libraries or upgrading to Home & Garden, Starter or Complete packs.

# Microspot Library Palette

Microspot Libraries are now available as a Library file (.spotlibrary). The Library viewer is built into the application making the use of the libraries much faster and more efficient. You can use the library to drag and drop existing Microspot Symbols or create new libraries of your own items.

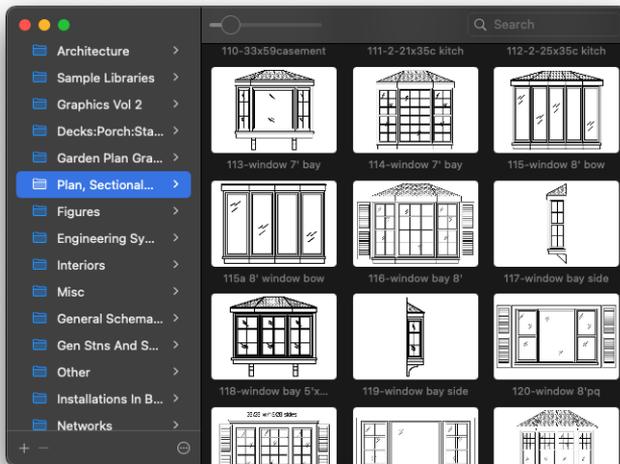
## Opening the Library Palette

The Library system opens as its own window/palette whether you are in single screen mode or palette mode. As there is a lot of content stored within the Library palette this means it only needs to be loaded as you need it, not every time MacDraft is opened.

### To open the Library Palette

1. Select Window from the menu bar
2. Choose 'Show Library'

The Library palette will appear.

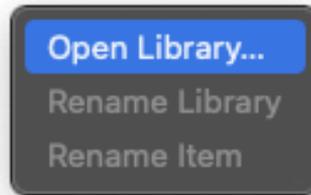


## Opening a Library in the Library panel

To open a library

1. Open the **Library** palette by going **Window > Show Library**.
2. Once the Library palette has opened, click the **Options** pop-up menu (Circle with 3 dots Symbol) at the bottom of the library and choose **Open Library...**

The standard open dialog appears.

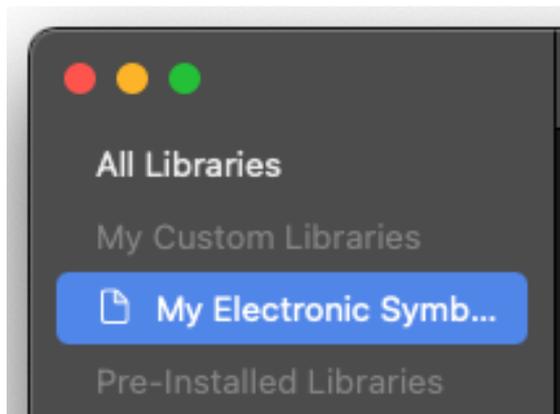


3. Locate the library you want to open and click the **Open** button.

The library will open and be added to the list.

**Note:** The file type you will be looking for is '.spotlibrary' this is the library file format and will be required to load a library into MacDraft.

4. Your library will appear under the **My Custom Libraries** section on the left hand side of the Library palette.



## Creating a new library

If you draw an object or group of objects in your MacDraft document, and wish to store that object or group in a library it can be done using the following.

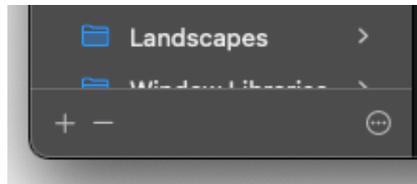
### To create a new library file

1. Open the **Library** palette by going **Window > Show Library**.

The library palette will appear.

2. Click the Plus symbol in the bottom left hand corner of the library.

The standard Save dialog will appear.

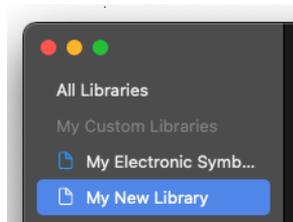


3. With the Save dialog open you can now give the library a name and select a location to save it to. Then click Save.

The new library will appear in the **My Custom Libraries** section on the left hand side of the Library palette.

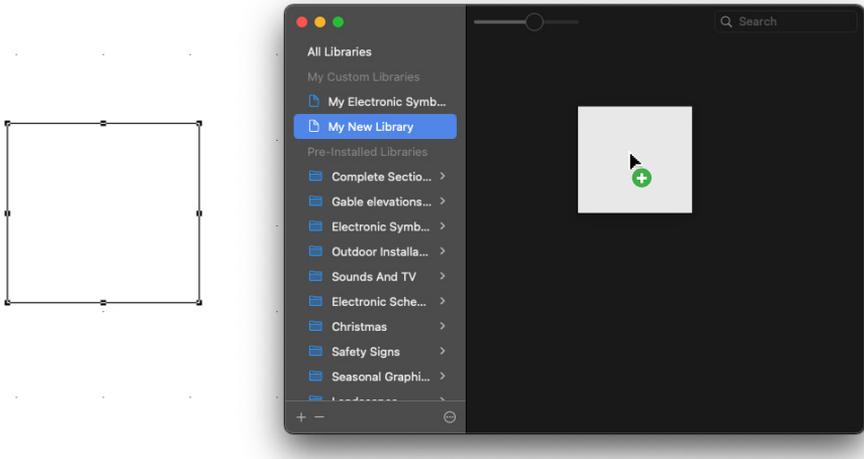
## Adding items to the library

1. Select the Library you wish to copy the item to via the library list menu in the left hand side of the **Library** palette.



2. Select the object or group in the MacDraft document that you want to put into the library.
3. Hold down the **Command** key.

4. Whilst holding the **Command** key down, drag the selection to the Library section window.



The library item will appear in the library panel, inside the selected library.

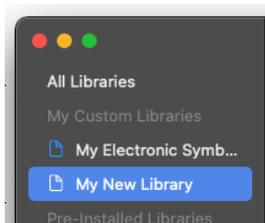
**Note:** You can also add multiple selections to the library however they will go in as a single item.

### ***Removing a library***

1. Open the **Library** palette by going **Window > Show Library**.

The library palette will appear.

2. Select the Library you wish to remove via the library list on the left hand side of the Library palette.



3. Click the Minus symbol in the bottom left hand corner of the library section.



4. The selected library will now have been removed.

**Note:** Removing a library from the Library palette, will not delete it from your machine. You can go and add it to the library palette again if you want to. Also you are unable to remove pre-installed libraries from the library panel.

### ***Retrieving items from a library***

When you want to use a symbol or graphic stored in a library in a MacDraft document, you can retrieve items for use by the following.

#### **To drag and drop an item out of a library into an open MacDraft document**

1. Click the required item in the library to select it.
2. Holding down the mouse button, drag the item over the MacDraft document window.
3. Release the mouse button.

A copy of the item will be placed in the MacDraft document.

#### **To drag and drop an item out of a catalog into an open MacDraft document UNSCALED**

1. Click the required item in the library to select it.
2. Holding down the mouse button, drag the item over the MacDraft document window.
3. Press and hold the **Shift** key while dragging the item.
4. Release the mouse button.

An unscaled copy of the item will be placed in the MacDraft document.

# Layers

MacDraft allows you to use multiple layers in a drawing, however only one layer can be active at a time. This means that you can draw and edit objects on only one layer at a time. The name and scale of the active layer appear beside the document name in the title bar. The number of layers you can use in a document is only restricted by the amount of memory you have.

You can assign a distinct name to each layer and change the order of layers. You can choose to hide specific layers (which makes them both invisible and non-printing), and you can make objects on inactive layers either appear dimmed (gray) or show their fill and line attributes. Each layer can have a different scale. Layers are controlled through the Layers panel/palette.

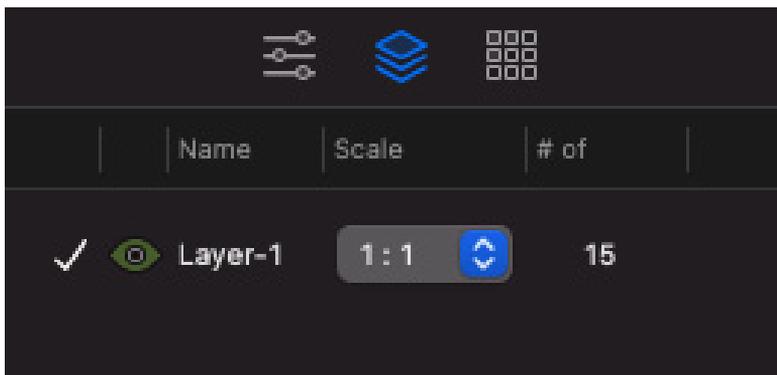
When printing, all layers are printed, not just the currently active layer.

## The Layers panel

### *Displaying the Layers panel*

- If in Single Screen Mode, choose **Show Right Panel** from the **View** menu and select the **Layers** tab.
- If in Palette Mode, choose **Layers** from the **Window** menu

The **Layers** palette appears



## ***Layers list***

When you open a new MacDraft document, you start working on Layer-1. The names of all the existing layers appear in the layers list.

Only one layer can be active at a time. The active layer is the only layer you can edit. In the Layers panel, a white circle appears beside the name of the active layer to let you know its the one you are working on.

Inactive layers can be hidden, grayed out or visible. An eye appears beside the names of visible layers, a washed out eye for the grayed layers and a blank square for the hidden layers.

### ***Selecting layers in the layers list***

You can select a single layer or a number of layers in the **Layers** panel/palette.

#### **To select a single layer**

- Position the cursor on the layer's name in the layers list and click it. The name of the selected layer will be highlighted in the list.

#### **To select multiple layers listed in order**

1. Click the name of the first layer you want to select.
2. Press and hold down the **Shift** key.
3. Holding down the **Shift** key, select the layer at the end of the set you wish to have selected.

The names of the selected layers will be highlighted.

#### **To select multiple layers that are not listed in order**

1. Click the name of the first layer you want to select.
2. Press and hold down the **Command** key.
3. Holding down the **Command** key, individually click all of the other layers you want to select.

The names of the selected layers will be highlighted.

## Add New Layer

The Plus Symbol button is used to create new layers.

### To create a new layer

- Click the plus (+) symbol button at the bottom of the **Layers** panel/palette.

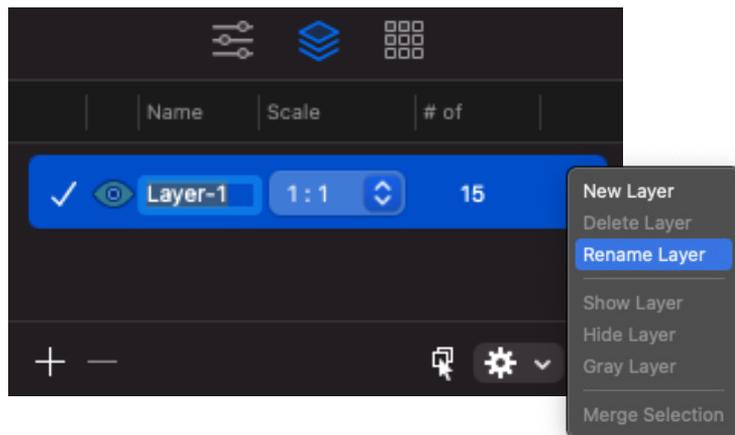
The name of the new layer appears at the bottom of the list of layers in the panel. MacDraft assigns the default name “Layer-#” to new layers, where “#” is a number that reflects the total number of layers in the document.

## Rename a Layer

You can easily rename layers, assigning descriptive names that reflect the contents of the layers.

### To rename a layer

1. In the **Layers** panel, move the cursor over the name of the layer.
2. Click the name once then click again straight after (Slightly slower than a double click).
3. The name will be highlighted and turn into a text editing area.
4. In the text area, type in a new name for the layer.



**Note:** You can also rename a layer by selecting it and then choosing Rename from the options menu (gear symbol) at the bottom of the Layers panel.

## Hidden layers

At times you may find it convenient to hide some or all of the inactive layers on the drawing. The contents of hidden layers are not only removed from the screen, they are also omitted from printed output. This allows you to print only the contents of certain layers. You cannot hide the active layer.

### To hide inactive layers

- Click the eye symbol next to the layer until a blank square appears. This will hide the current layer.

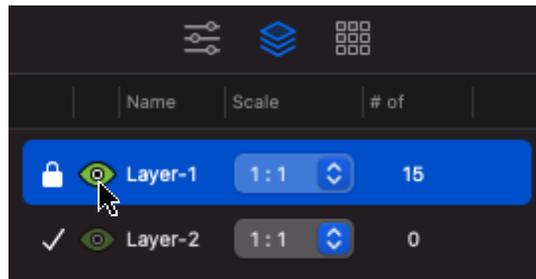
The layers will be re-displayed when you click the blank square. (The eye will reappear)

## Grayed out layers

The Grayed option is used to specify how the objects on inactive layers are displayed. Grayed out layers are without fills and with their borders dimmed. This helps to avoid confusion about which objects are on the active layer. However, you can choose to have the objects on inactive layers appear with their fills and border attributes, including colors and patterns. This allows you to preview your drawing before you print it.

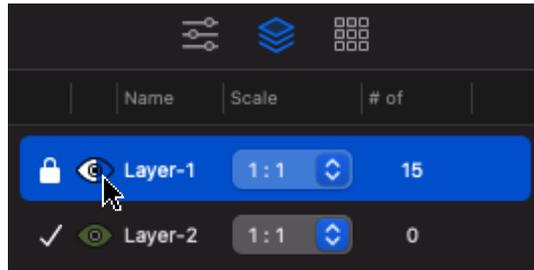
### Viewing layers accurately

- Click the eye symbol next to the layer, until it becomes a solid eye symbol. The layer will be displayed accurately.



### To display objects on inactive visible layers as grayed

- Click the eye symbol next to the layer you wish to gray out until the half and half eye symbol becomes visible.



The Layer will appear grayed out.

### **Layer Scale**

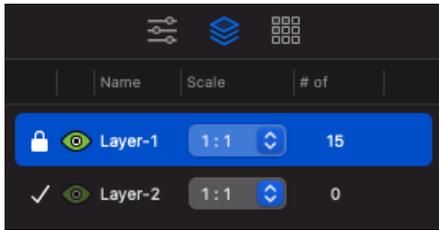
You can assign different scales to the various layers in your document. This allows you to include details within an overall floor plan drawing, or details of a part of a machine within the drawing of the entire machine.

The default scale for each layer is the scale that was defined in the **Document Scale & Units** dialog. When you start out with a new document, the default scale is 1:1; therefore, unless you change the default scale for the document using the **Document Scale & Units** dialog, the default scale for each new layer will be 1:1.

### To assign a new scale to a layer

1. Locate the layer you want to change the scale of.
2. Position the cursor over the over the scale to the right of the layer name.
3. Press and hold down the mouse button

The **Layer Scale** pop-up menu appears.



4. Holding down the mouse button, drag until the scale you want to apply to the selected layer is highlighted, and release the mouse button.

The scale for the active layer appears on the title bar beside the document and layer names

#### Notes:

- If there is text on the document you can choose if you want the text to be scaled or not.
- If you change the default scale in the Document Scale & Units dialog, the layers that use the default scale will be changed to the new scale. The layers that you have given custom scales to will be unaffected by changes made to the default scale. Custom scales will appear at the bottom of the scale pop-up menu in the Layers panel.

### Arrange Layers

As you add layers, each new layer is placed on top of the existing layers on the drawing, a process similar to placing transparent sheets of plastic on top of each other. The layer at the top of the layers list in the **Layers** panel is at the rear of the drawing, and the layer at the bottom of the list is at the front of the drawing.

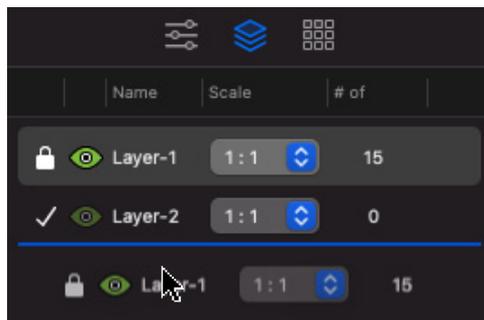
Objects on an upper layer appear on top of objects on a lower layer. If objects

are opaque (that is, filled), and overlap objects on a lower layer, they naturally cover portions of the objects beneath them. Sometimes you might want to move objects on a lower layer in front of an upper layer. To do this, you can rearrange the layers.

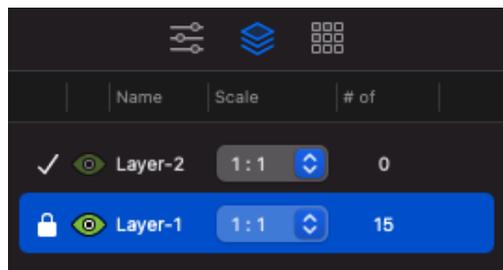
#### To move a layer

1. Open the Layers Palette or click the Layers tab in the right panel.
2. Position the cursor on the layer's name you want to move in the layers list.
3. Click and hold the mouse button down.
4. While holding the mouse button down on the selected layer, drag it to the position you want the layer in the list.

As you drag the layer a highlight colored line will appear showing where the layer position will be.



The layer is moved as requested, and its name is also repositioned in the layers list.



### To move multiple layers

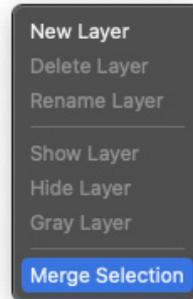
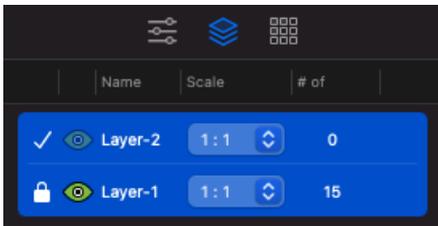
1. Open the Layers Palette or click the Layers tab in the right panel.
2. Select the layers you want to move.
3. Click and hold the mouse button down.
4. While holding the mouse button down on the selected layers, drag them to the position you want them in the list.
5. The layers will be placed in the order they were previously.

### Merge Layers

MacDraft allows you to merge the objects on two or more layers into one layer. All the layers to be merged must have the same scale.

#### To merge layers:

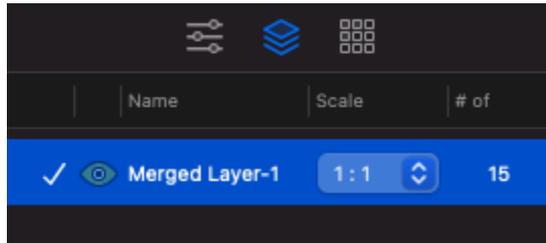
1. Select the layers you want to merge into one layer.
2. Open the **Options** pop-up (gear symbol) menu in the **Layers** panel/palette and select **Merge Selection**.



A new layer named Merged Layer-#, will be created, where # is the number of merged layers in the drawing.

You can rename the layer to the desired name.

The layer can be treated as any other and the objects within those layers are now editable under one new layer.

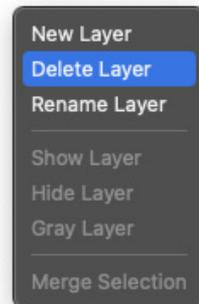
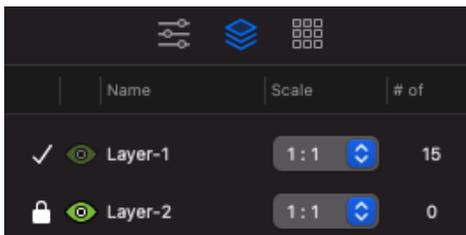


## Delete Layer

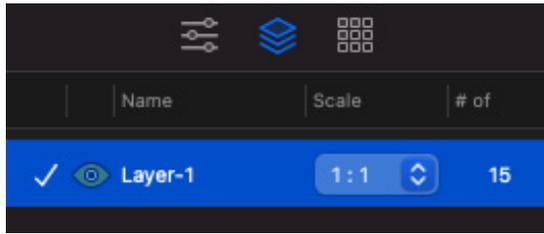
You can delete specific layers, along with all their contents. All but the last layer in the document can be deleted.

### To delete layers

1. Select the layers you want to delete.
2. Either;
  - Click the Minus (-) symbol button, or
  - Open the **Options** pop-up (gear symbol) menu in the **Layers** panel and select **Delete Layer**.

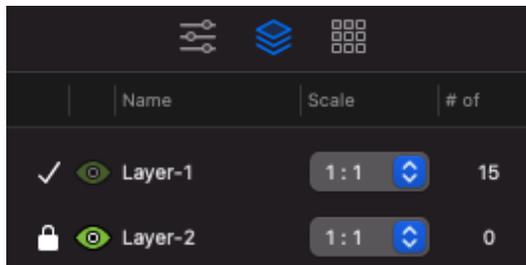


**Note:** You can see how many objects are in a layer by looking at the number to the right of the layer scale.



## Selecting the active layer

When you want to edit objects, the layer that those objects are on must be the active layer. Only one layer can be active at a time and only objects on the active layer can be selected or edited. In the Layers panel, a tick symbol appears beside the name of the active layer.

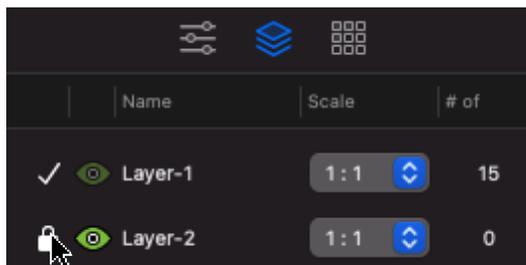


## Using the Layers panel

To select the layer to be the active layer using the Layers panel

1. Move the cursor over the padlock to the left of the layer you want to be active.
2. Click the padlock symbol.

The symbol will now be a tick, and the layer will be active.



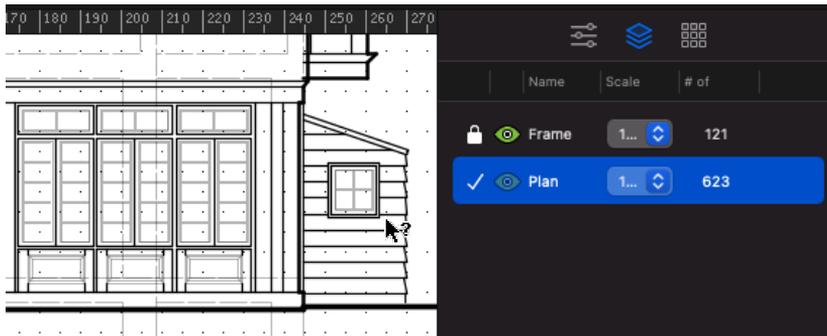
## To select the layer to be the active layer using the Layer Selection tool

Sometimes you can see the object you want to edit, but you don't remember which layer it is on. The **Layer Selection** tool offers a good way of getting to a visible layer quickly. Once selected, the **Layer Selection** tool's cursor allows you to click an object in another layer, automatically activating that layer.

1. Click the Layer Selection tool in the Layers panel.



2. The layer selection cursor appears.
3. Click an object that is in a different layer.



The layer that the selected object is on becomes the active layer.

## Print Active Layer option PRO ONLY

The **File** menu's **Print Active Layer** command can be used to print layers separately, either at their full sizes or reduced to fit each layer on a page. You can also use Print Active Layer to print the currently shown layer.

## Loading layers from another document PRO ONLY

MacDraft provides you with a method to load a layer from one MacDraft document into another. When you load a layer, the layer's contents and scale information are imported into your open MacDraft document.

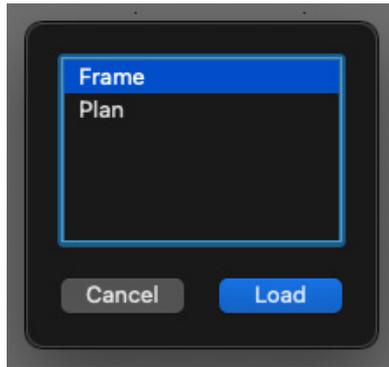
**To load a layer into the active MacDraft document** PRO ONLY

1. Open the **File** menu and choose **Load Layer**.

A standard open dialog appears.

2. Locate and select the document you want to load.
3. Click the **Open** button.

A dialog listing the layers in the selected document appears.



4. Select the layer you want from this list and click the **Load** button.

The layer you have chosen will be loaded into your open document as the active layer.

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# Chapter 8

## Drawing layout and printing

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### Drawing Layout

Using MacDraft pro, you can create drawings of up to 1,785 inches high by 1,785 inches (4533cm). MacDraft PE is restricted to 17 inches high by 17 inches (43.18cm) You define the desired drawing size by using **Page Setup** options in conjunction with the **Drawing Size** feature. The **Page Setup** dialog, opened by choosing the **Page Setup** command in the **File** menu, determines the size of the individual pages that make up the overall drawing area. The **Drawing Size** feature in the **Layout** menu, has a graphical interface that lets you select the number of pages needed to achieve the desired overall size of the drawing.

Before you define the overall size of your drawing using the **Drawing Size** feature, you should select the printer to be used, and set the **Page Setup** information for that printer in the **Page Setup** dialog.

**Note:** You will need to make sure your printer has been installed and the correct one set as default, before moving onto the Page Setup and Drawing size. For more information refer to your Printer or Printer Driver Documentation.

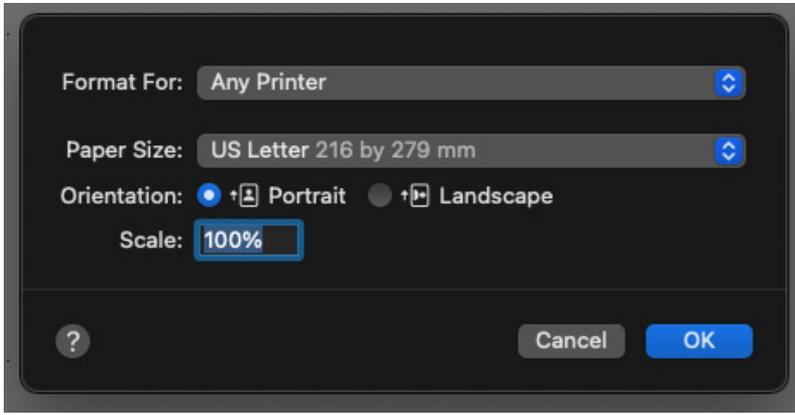
### Defining your page setup

The **Page Setup** options allow you to specify how you want your document to appear on the printed page. The **Page Setup** options available will be determined by the printer you selected in the **System Preferences**.

#### *Displaying the Page Setup dialog*

- From within MacDraft, open the **File** menu and choose **Page Setup**.

A **Page Setup** dialog similar to the one below appears.



### ***Page Setup options***

Refer to your printer or printer driver documentation for complete details of the **Page Setup** options available. The most important choices: **Paper**, **Orientation** and **Scale** are discussed in the following sections.

When you have finished specifying the **Page Setup** options, click the **OK** button to close the **Page Setup** dialog.

### ***Paper***

#### **Selecting the paper size**

1. Click the **Paper Size** pop-up menu to display the paper sizes available for your printer.
2. Select the size of the paper that you will be printing on.

**Note:** As most printers require some margin around the edges of the printed page, you will not be able to print to the full size of the paper. MacDraft shows appropriate page drawing areas (or block sizes) which take into account the required printer margins.

## Orientation

### Selecting the page orientation

- Click the **Portrait** icon to print objects vertically on the page.
- Click the **Landscape** icon to print objects horizontally on the page.

## Scale

### Selecting the scale

Enter a percentage value into the **Scale** text box to reduce or enlarge the printout of your drawing.

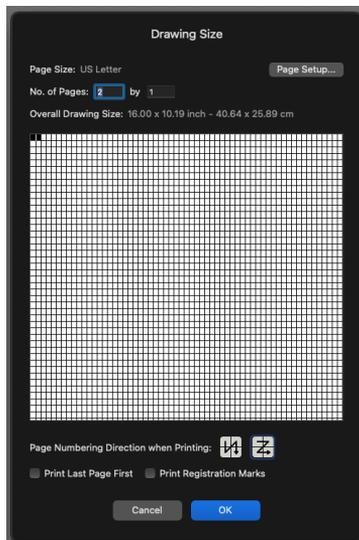
## Defining your drawing size

Once you have specified the **Page Setup** options you are ready to define the overall size of the drawing.

### To set the size of your drawing

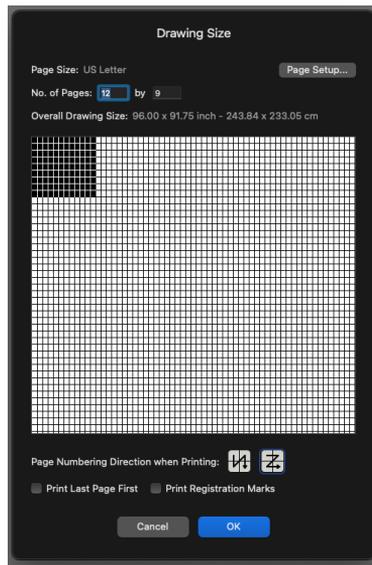
1. Open the **Layout** menu and choose **Drawing Size**.

A dialog appears, displaying the current total drawing size in the form of a block diagram.



The diagram is divided into blocks and represents the maximum drawing size available, each of the blocks representing a single page. The blocks that are darkened indicate the current drawing size.

2. Position the cursor on one of the darkened page blocks.
3. Press and hold down the mouse button.
4. Holding down the mouse button, drag until you have activated the number of page blocks required to make up the drawing size you want, then release the mouse button.



5. Click the **OK** button to close the **Drawing Size** dialog.

**Note:** The MacDraft drawing window generally shows only a portion of the overall drawing. Therefore, when you change the drawing size it may not be noticeable until you zoom out or scroll to another area of the drawing.

#### To set the size of your drawing numerically

1. Open the **Layout** menu and choose **Drawing Size**.

A dialog appears, displaying the current total drawing size in the form of a block diagram.

2. Type the number of pages you would like in the **No. of Pages** text fields.

The graphic area will update to reflect your values.

3. Click the **OK** button to close the **Drawing Size** dialog.

## Hiding and displaying page breaks

Page breaks are visual aids that can be useful when you create a large drawing. They can help you locate a particular area of the drawing quickly, and they allow you to see if an object happens to fall on the edge of a page, so you can move it if necessary. The page breaks are shown by default.



### *To hide page breaks*

- Open the **View** menu and choose **Show Page Breaks**. The check mark will be removed from the command in the menu to show that it is inactive.

### *To display page breaks*

- Open the **View** menu and choose **Show Page Breaks** again. A check mark appears against the command in the menu to show that it is active.

# Printing

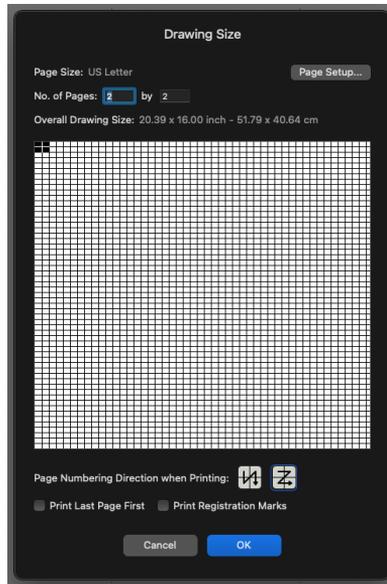
MacDraft gives you options to choose how pages are printed. For example, you can specify the order in which pages in a document are printed and whether or not registration marks are printed.

These options are set in the **Drawing Size** dialog.

## Opening the Drawing Size dialog

- Open the **Layout** menu and choose **Drawing Size**.

The **Drawing Size** dialog appears.



## *Specifying how pages are numbered*

You can choose to number pages by column or by row. In either case, page one appears in the upper left corner of the document. Page numbers are not added to the document with these options but, as the pages are printed in number order, this setting affects the print order of the pages.

### To number pages

- In the **Drawing Size** dialog, click one of the **Page Numbering** buttons,

either by column (in ascending order from top to bottom), or by row (from left to right).

### ***Printing in reverse order***

If your printer produces pages face up, it is useful to be able to print pages in reverse order so that the printed pages end up in order, starting with page one on the top.

**To print the pages in the document from the last page to the first page**

- In the **Drawing Size** dialog, click the **Print Last Page First** checkbox.

The pages will be printed in reverse order.

### ***Printing registration marks***

If required, you can print crop marks at the corners of each printed page to show the edges of the drawing area.

**To print pages with registration marks**

- In the **Drawing Size** dialog, click the **Print Registration Marks** checkbox.

## **Printing a document**

Before you print, make sure that you have chosen the printer you want to use, and have specified appropriate **Page Setup** options.

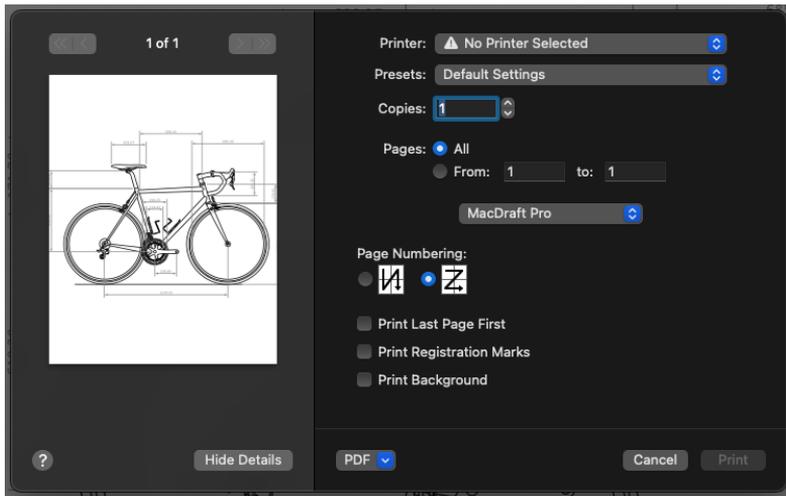
### ***Choosing your printing options***

The printing options available will be determined by the printer selected in the **Print Center**. See your printer or printer driver documentation for details.

**To choose your printing options**

1. Open the **File** menu and choose **Print**.

A dialog similar to the one over the page appears.



2. Set the print options according to your requirements then click the **Print** button to produce your printed document.

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# Chapter 9

## The report feature

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PRO ONLY

Often, you may want to extract information from your drawing in the form of a report (a Bill of Materials, for example), or you may need a report detailing the properties of objects in your drawing, such as perimeter, area, length, or other measurements.

FLOORT COVERING	
Room:	Floor
Living Room	Carpet
Bedroom-1	Carpet
Bedroom-2	Carpet
KLitchen	Tile
Entry	Tile
CONCRETE	
Description:	
Foundation	

BILL OF MATERIALS			
The Elkgrove Building			
Concord, California			
ELECTRICAL:			
Description:	Type:	Part Number:	Total:
Outlet	Duplex	123-456-000	87
Outlet	Duplex/GRD	123-456-000	10

Reports can be very useful for such things as determining the cost of a project or counting items in a drawing, such as furniture in an office layout or components in a mechanical drawing.

Any change made to your drawing will be reflected in your reports. Once you create a report, you don't have to remember if you've changed the length of a wall or added furniture or fixtures to a layout. MacDraft's automatic updating of any data you've designated for a report can save you hours of work and prevent many mistakes.

MacDraft reports can include data about any objects to which you've assigned object information, such as name, type or manufacturer. In the Report Format window, you designate which items of object information you want to include as criteria, which functions (Count, Height, Length, Width, X Dimension, Y Dimension, Area, Perimeter, or Total) you want performed on the data, label the items if necessary.

# Setting up a report PRO ONLY

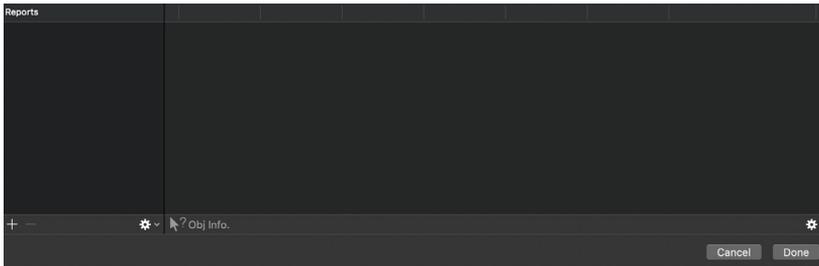
## Getting started PRO ONLY

### *Displaying the Report Formats dialog* PRO ONLY

Most report actions, including creation of a new report, begin with the **Report Formats** dialog. The dialog shows the names of all a drawing's reports, an area for creating the contents of the report, as well as loading reports in from other drawings.

To display the **Report Formats** dialog

- Choose **Report Formats...** from the **Data** menu.

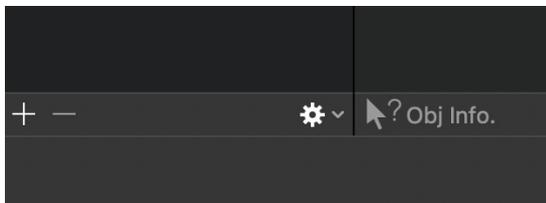


### *Creating a new report* PRO ONLY

To create a new report

- Click the **Plus** button in the **Report Formats** dialog.

A default name for the report appears in the list box and the text field.

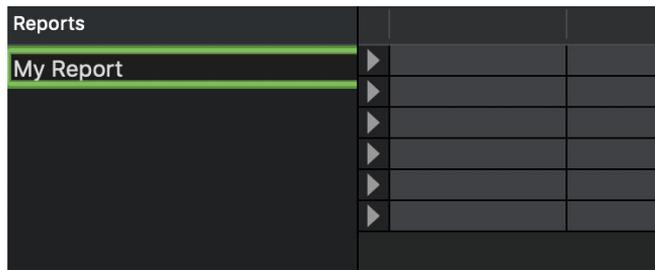


## Renaming a report PRO ONLY

It may often be helpful to have a more descriptive name for a report than the default name provided.

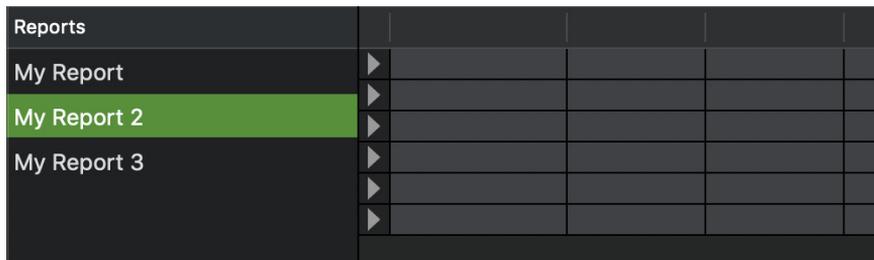
### To rename a report

1. Select the name of the report that you wish to rename from the report list in the **Report Formats** dialog.
2. Either
  - Type a new name into the text field.
  - Choose **Rename** from the gear symbol at the bottom of the reports list.
3. The report's name in the list box will be updated.



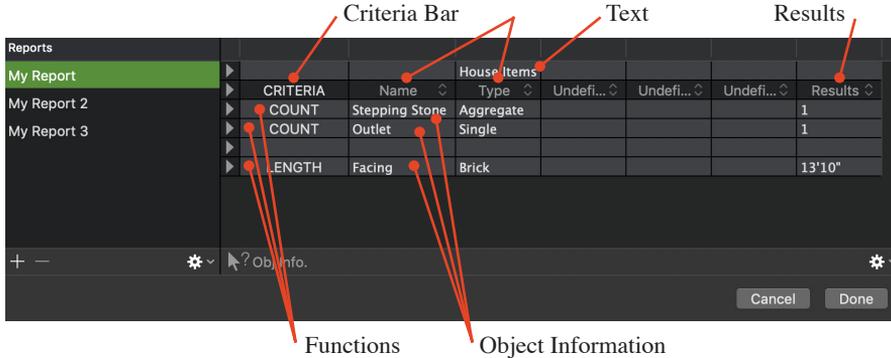
## Opening a report PRO ONLY

- Select a report name from the report list in the **Report Formats** dialog. The report format window for the selected report appears.

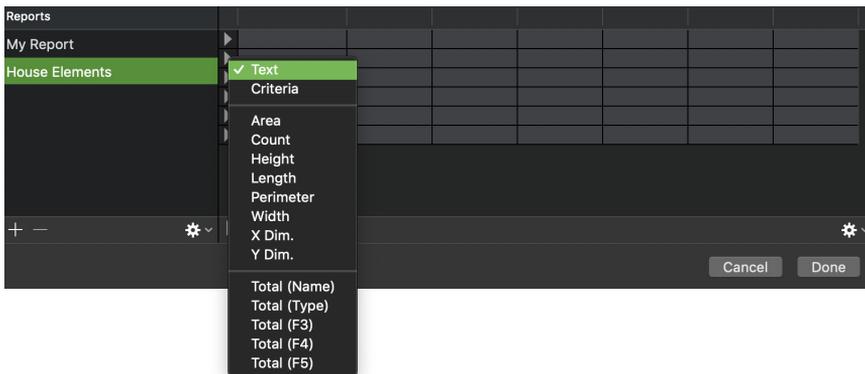


## Defining the report PRO ONLY

Reports include three basic elements: Functions, such as COUNT; Criteria for the functions (for example, you can COUNT all objects with Name = Stepping Stone and Type = Aggregate); and text for headings and notes. You must specify what you want each report to contain.



You set up a report mainly by using the row pop-up menus in the **Report Format** window. These let you quickly define whether a row will contain text, criteria, or a function. All you need to do is click at the end of the row and make your choice from the pop-up menu that appears.



## Specifying a report's text fields PRO ONLY

The default condition for rows is text; any row not marked otherwise in the left-most column is a text row. You can enter text in the row's cells just by clicking and typing.

You can also choose Text from the row menu to define a text row. Text is used for any headings and comments you wish to appear on the report.

### To set up a report's text

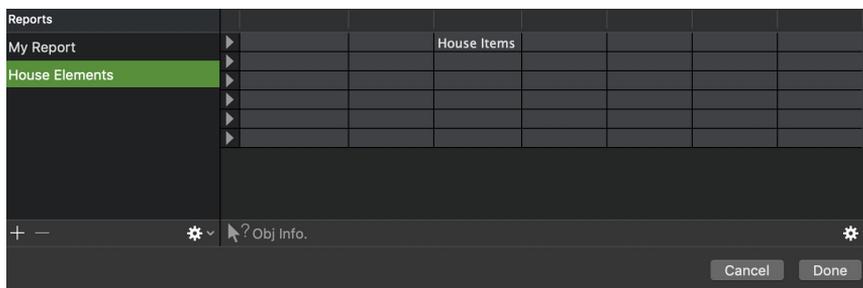
1. In the report format window, choose a row you want to use for text.

In a new report, each row will be blank in all columns, showing that they are text rows.

2. Click in the cell where you want to have text, then type the text, except for the first column which is reserved for criteria.
3. Move to the next cell, if necessary, by pressing the Tab key.

**Note:** Text can be wider than a single column, if the next cell in the row is empty.

4. Repeat steps 2 and 3 until all the text is in place.

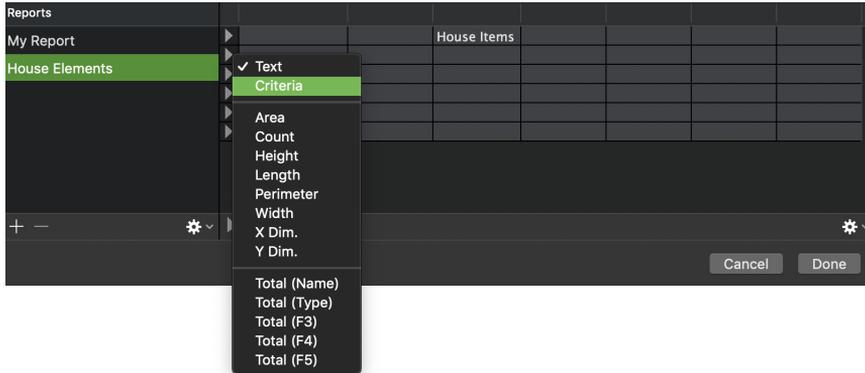


## Setting up a report's criteria bars PRO ONLY

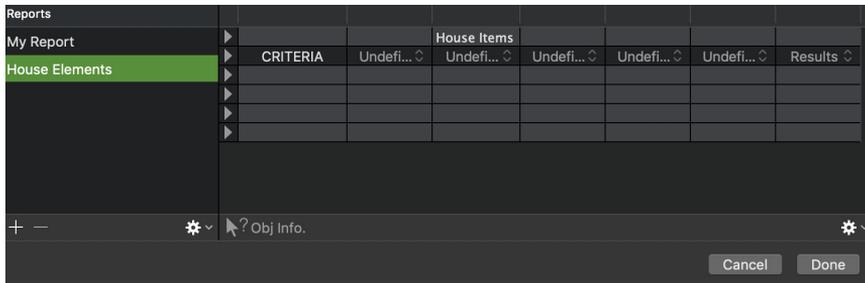
Choosing Criteria from the row menu makes that row a criteria bar. Each column in the criteria bar will have a menu containing the list of object field names you can use for criteria. You can choose a field name for a column or leave it undefined.

To set up a report's criteria bars:

1. In the **Report Format** window, choose a row you want to use for criteria.
2. Open the **Row** pop-up menu at the left end of the row and choose **Criteria**.

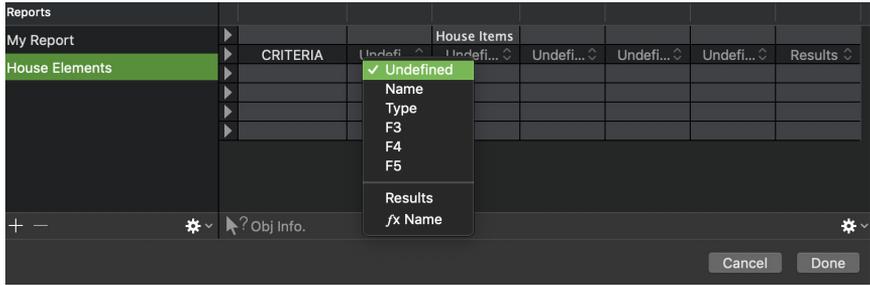


The row will read CRITERIA in the first column, showing that it is a criteria bar. All the cells in the bar will read Undefined.



3. Move the cursor to a cell in the criteria bar where you want to enter a criteria, and click it.

A pop-up menu listing the drawing's field names, Results and fx Name appears.



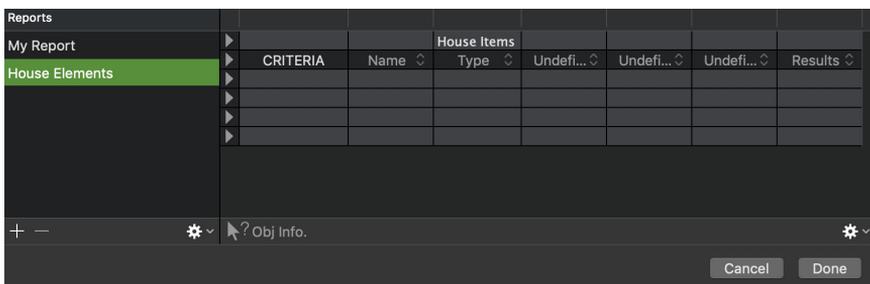
**Note:** The field names will be either the default field names or the field names you have defined for the drawing

4. Choose the field you want for the criterion in this column.

The field name appears in the criteria bar.

5. Repeat steps 3 and 4 until you have entered all the criteria required for this criteria bar.
6. If you want more than one criteria bar in the report, repeat steps 1 through 5 as needed.

The report format window below shows the criteria Name and Type in the criteria bar.



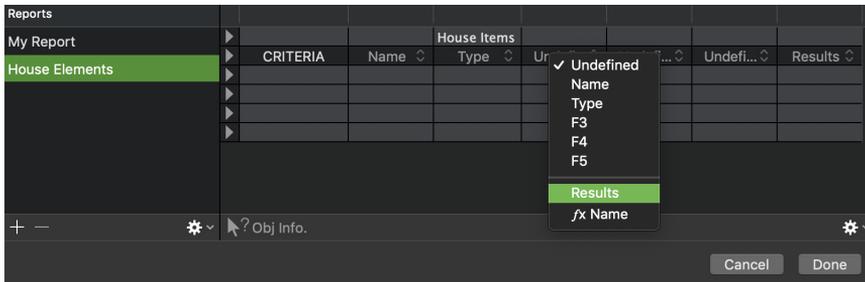
## The results column PRO ONLY

Sometimes not all the columns in the Report Format window are needed, or the Results column may be required to appear before other columns in a report. The position of the Results column can be adjusted using the pop-up menu in any Criteria Bar.

To make a report with fewer than six columns, one of the middle columns can be changed to Results and the column on the right of the report changed from Results to Undefined.

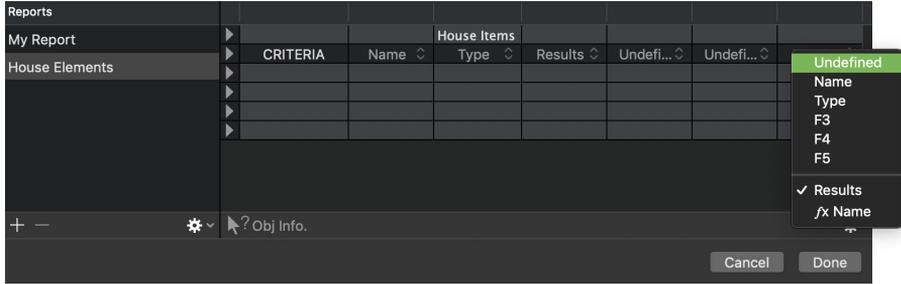
### To move the results column

1. Move the cursor to the column in the criteria bar in which you want to display results, and click it.
2. Choose **Results** from the pop-up menu that appears.

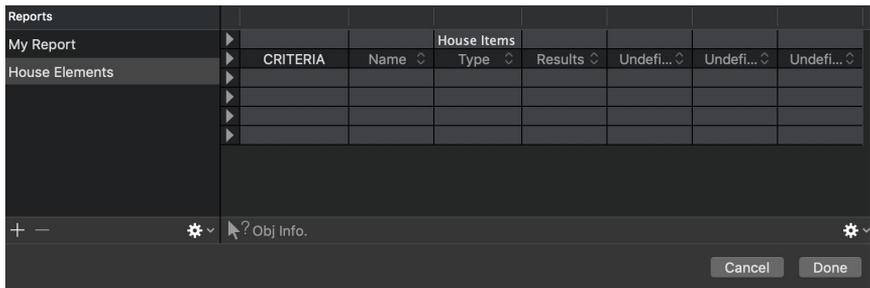


“Results” appears in the criteria bar.

3. Move the cursor to the column in the criteria bar in which the results were previously to be displayed, and click it.
4. Choose Undefined from the pop-up menu that appears.



“Undefined” appears in the criteria bar.



### **Displaying and printing report function names** PRO ONLY

In some MacDraft reports, you may want to display the names of the functions used (Area, Count, and so on). The current function’s name can be automatically inserted in any cell of a function row using the “fx Name” option in the Criteria Bar’s pop-up menu. The function name then appears automatically in that cell when the report is printed.

**Note:** Once a function name is inserted, it can be edited like the content of any other text cell (for example, abbreviating “Perimeter” to “Prmtr”). However, if the function of a row is changed, the name of the new function will overwrite whatever was in that cell.

## To insert the name of a function

- In the desired column of the Criteria Bar, open the criteria pop-up menu and choose *fx* Name.

The function names appear in that column in all function rows controlled by that Criteria Bar.

My Report	CRITERIA	fx Na... ⌵	Name ⌵	Type ⌵	Results ⌵	Undefi... ⌵	Undefi... ⌵
House Elements	COUNT	COUNT			3		

Obj Info. Cancel Done

## A report's function rows PRO ONLY

MacDraft's report formats can display the individual or total lengths, widths, heights, areas, and perimeters of objects, or sets of objects, chosen by the object information you specify. The reports can also display the count, or total number, of objects that match your criteria.

Adding a function to your report is as easy as choosing it from the row menu. Once you've done so, the name of the function will be displayed at the beginning of the row. To set the criteria for the function, you enter the desired Object Information into the column under the appropriate field name.

## Functions

MacDraft's reports extract different types of information from different types of MacDraft objects. All the functions except Count give results measured according to the scale and units of the layers containing the objects.

### Area

Shows the area of an object, or the sum of the areas of multiple items or items in a group. (This function does not show a value for text objects and dimension objects.)

**Count**

Shows the total number of objects and groups that meet the criteria

**Height**

Shows the unrotated vertical size of an object or group, or the sum of vertical sizes of multiple items. For example, if a one-inch square has been rotated 45 degrees, this function will still show its height as one inch. (This function does not show a value for text objects and dimension objects.)

**Length**

Shows the longest measurement of an object or group, or the total of the longest measurements of multiple items. For lines, linear dimension objects, and radial dimension objects, this is the distance between the two ends or reference points. For most other objects, the length is the longer of the horizontal or vertical (X or Y) extents of the object; if the object has been rotated, the value is determined as if the object had not been rotated. (This function does not show a value for text objects and angular dimension objects.)

**Perimeter**

Shows the length of a line, the perimeter of any other object or group, or the total of these measurements of multiple items. (This function does not show a value for text objects and dimension objects.)

**Width**

Shows the unrotated horizontal size of an object or group, or the sum of horizontal sizes of multiple items. For example, if a one-inch square has been rotated 45 degrees, this function will still show its width as one inch. (This function does not show a value for text objects and dimension objects.)

**X-dimension**

Shows the horizontal size, measured along the horizontal axis, of an object or group, or the sum of horizontal sizes of multiple items. For example, if a one-inch square has been rotated 45 degrees, this function will show its X-dimension as about 1.4 inches. (This function does not show a value for text objects and dimension objects.)

## Y-dimension

Shows the vertical size, measured along the vertical axis, of an object or group, or the sum of vertical sizes of multiple items. For example, if a one-inch square has been rotated 45 degrees, this function will show its Y-dimension as about 1.4 inches. (This function does not show a value for text objects and dimension objects.)

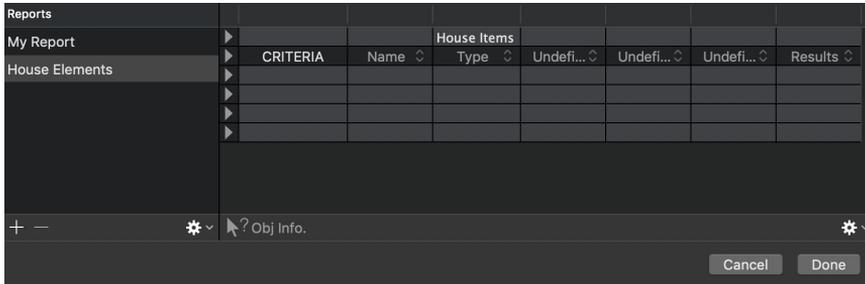
## Total

MacDraft's "Total" function allows an item's object information fields to be treated as a quantity. When the report is run, MacDraft adds up all of the numeric values in that field from the objects that match the criteria specified.

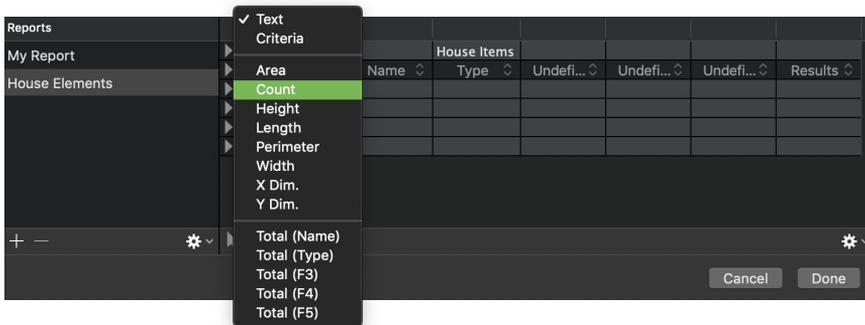
## Setting up a report's function rows PRO ONLY

To set up a report's function rows

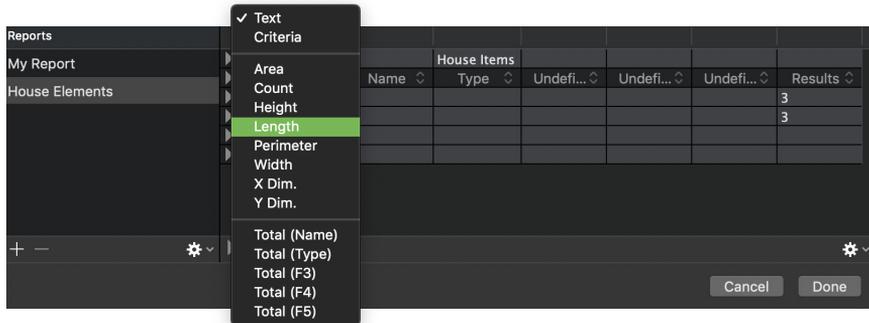
1. In the report format window, choose a row you want to use for a function.



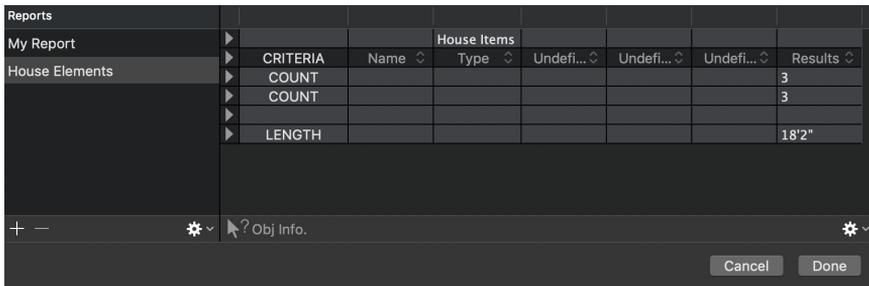
2. Open the Row pop-up menu at the left end of the row and choose a function.



- The row displays the name of the function in the first column, showing that it is a function row.
- If you want more than one function row in the report, repeat steps 1 through 2 as needed.



- In the report format window, the count and length have been selected.



You can continue to define additional rows of functions using the same field names, or insert a new criteria bar to change the field names used in the functions that follow. (Each function row is controlled by the closest criteria bar above it.) Inserting criteria bars and adding functions below them allows you to create comprehensive reports that may extend over multiple pages if needed.

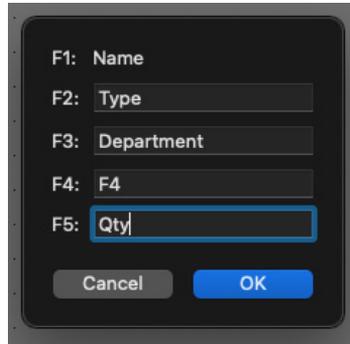
### **The Total function** PRO ONLY

In some MacDraft reports and drawings, one graphical object may be required to represent more than one “real-world” item. For example, to help determine equipment costs, one symbol of a workstation might need to stand for five actual workstations. Then, if ten such symbols are included in a drawing, a report can be set up to show that a total of 50 workstations were used.

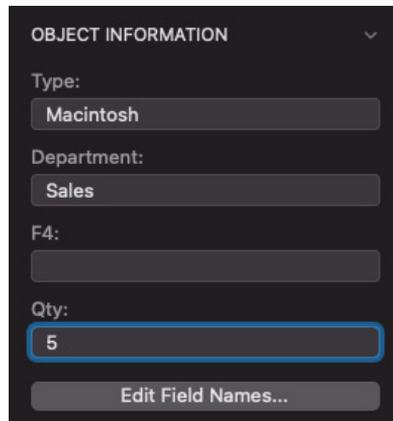
MacDraft's Total function allows an item's object information fields to be treated as a quantity. When the report is run, MacDraft adds up the numeric values in the specified field for objects that match the stated criteria.

**To set up a Total function in a report format**

1. Define one of the drawing's object information field names as "Qty" or some similar term.

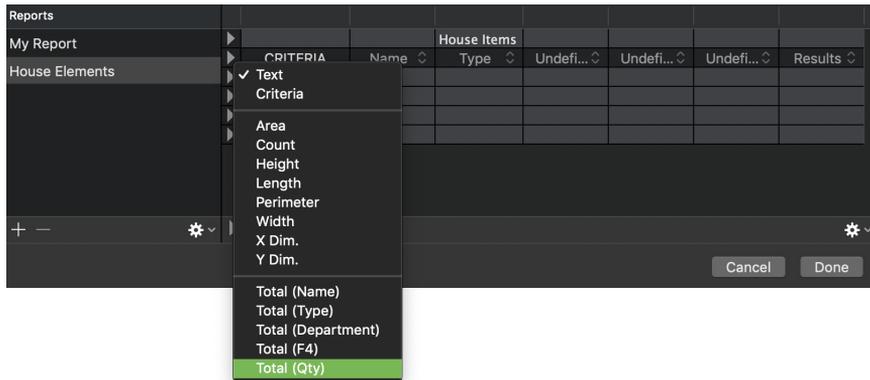


2. Draw a workstation symbol (for example) and give it object information of a certain name, brand, and so on, then assign a quantity of "5" in the Qty field.

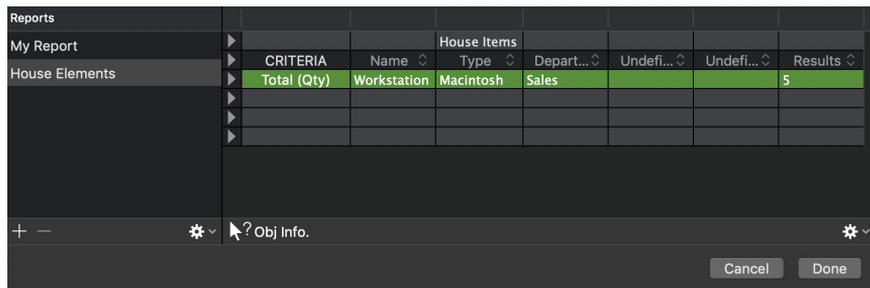


3. Duplicate the symbol as required.

- In a report format, set up a Criteria Bar including the necessary field names as criteria.
- Include the function “Total(Qty)” in the report format.



- Enter the function’s criteria, either by typing or with the Object Information insertion cursor.



- All the numeric values in the field named by the Total function (Qty.) will be summed up and displayed in the Results column.

**Note:** The field used by the Total function does not need to have an identical value for each object, the function will add up all numeric values from that field from all objects that match the specified criteria. If a field contains any non-numeric characters, it will count as zero.

## Adding object information PRO ONLY

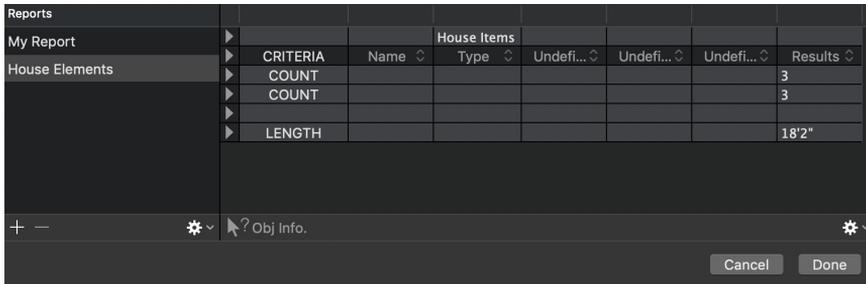
MacDraft uses the field names in the report's criteria bars to search for objects or groups that match object information entered in the function rows. The results of the functions for the found objects are then displayed in the Results column.

Object information must be entered in each function row. If you remember the object information needed (and its exact spelling), you can type it directly into the function row under the appropriate field names (listed in the criteria bar above). However, you can also use the Obj. Info button to select an example of the object in the drawing. The Object Information of the selected object will be inserted into the appropriate criteria fields.

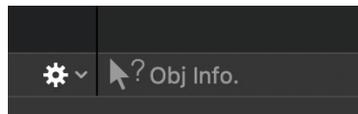
### To enter the object information for an item

1. In the report format window, click in a function row.

A flashing text-insertion cursor appears in the cell you clicked.



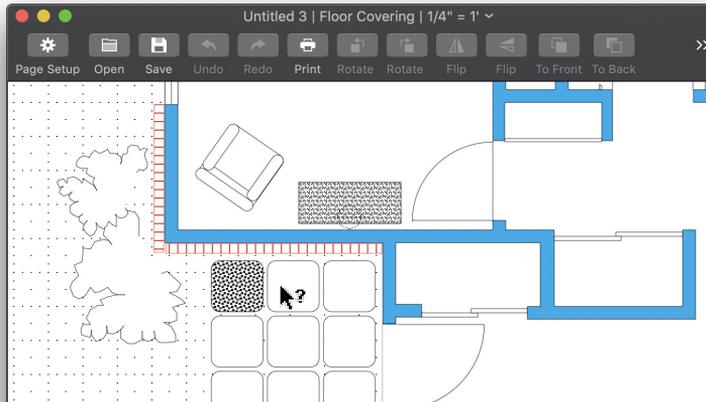
2. Click the **Obj. Info.** button at the bottom left of the report format window.



The report format window temporarily disappears, and the cursor appears with a question mark attached to it.

3. In the document window, click the object you want to use for the function's criteria.

**Note:** You can only select an object that has object information assigned to it.



**Note:** The object can be on any visible layer

The **Report Window** reappears, and the selected row shows the object's information in the appropriate columns.

Reports							
My Report							
House Elements							
CRITERIA	Name	Type	Undefi...	Undefi...	Undefi...	Results	
COUNT	Stepping Stone	Aggregate				1	
COUNT						77	
LENGTH						196'11-11/6	

+ - ⚙️ ? Obj Info. ⚙️

Cancel Done

- If you want object information in more than one function row in the report, repeat steps 1 to 3 as needed.

**Note:** If an object's data is in a column that is Undefined in the criteria bar, it will be treated as a text label and will be ignored by the function.

In the report format window below, the following object information has been inserted: name “Stepping Stone”, type “Aggregate”; name “Outlet”, type “Single”; name “Facing”, type “Brick”.

CRITERIA	Name	Type	Undefi...	Undefi...	Undefi...	Results
COUNT	Stepping Stone	Aggregate				1
COUNT	Outlet	Single				17
LENGTH	Facing	Brick				23'4"

## Changing the appearance of a report PRO ONLY

You can make various changes to a report’s appearance, depending on how you want it to be displayed. Report text can have a particular font and size; text can be justified in cells, columns or rows; rows can be inserted or deleted; and the width of columns can be changed.

### Formatting text PRO ONLY

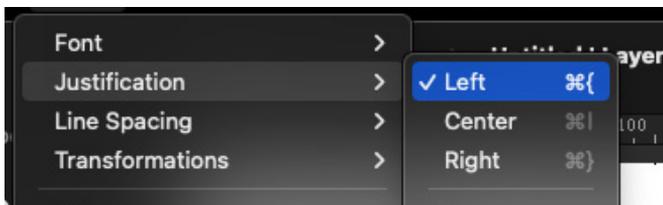
#### Setting the text font and size PRO ONLY

- With the **Report Format** window active, open the **Text** menu and make the appropriate selections from the **Font** and **Size** submenus.

Your choices will be applied to the whole report.

#### Changing the justification of text PRO ONLY

You can apply different text justifications to cells, rows or columns by using the **Text** menu’s **Justification** submenu.



## Justifying text PRO ONLY

To change the justification of text

1. In the **Report Format** window, make a selection.
2. Open the **Text** menu's **Justification** submenu.
3. Choose the desired horizontal Justification.
4. Open the **Justification** submenu again.
5. Choose the desired vertical justification.

The text will be justified as specified.

## Selecting text to justify PRO ONLY

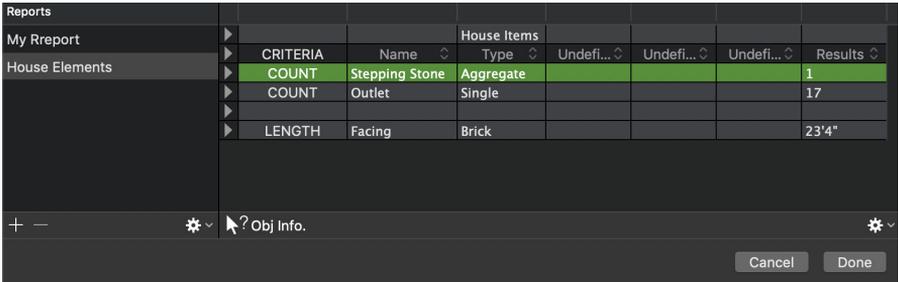
To select the text in a single cell

- In the **Report Format** window, click the cell to be changed.

To select all the text in a row

- In the **Report Format** window, click the first cell in a row, or hold down the **Shift** key and click the row control button.

The row will be selected.



CRITERIA	Name	Type	Undefi...	Undefi...	Undefi...	Results
COUNT	Stepping Stone	Aggregate				1
COUNT	Outlet	Single				17
LENGTH	Facing	Brick				23'4"

To select all the text in several rows

1. In the **Report Format** window, click the first cell in a row, or hold down the **Shift** key and click the row control button.

The row will be selected.

2. Press and hold down the **Shift** key.
3. While holding down the **Shift** key, click the next row's first cell.
4. Repeat step 3 until all the rows needed are selected.

To select all the text in a column

- In the **Report Format** window, click the top cell in a column.

The column will be selected.

CRITERIA	Name	Type	Undefi...	Undefi...	Undefi...	Results
COUNT	Stepping Stone	Aggregate				1
COUNT	Outlet	Single				17
LENGTH	Facing	Brick				23'4"

To select all the text in several columns

1. In the **Report Format** window, click the top cell in a column.  
The column will be selected.
2. Press and hold down the **Shift** key.
3. While holding down the **Shift** key, click the top cell in the next column.
4. Repeat step 3 until all the columns needed are selected.

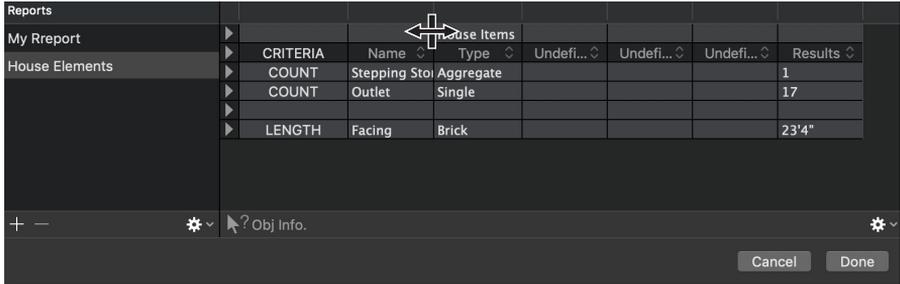
## Changing columns and rows in a report PRO ONLY

### Changing the width of a column PRO ONLY

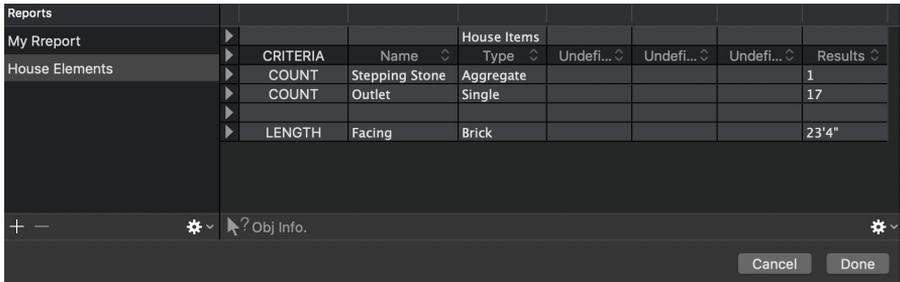
To change the width of a column

1. In the **Report Format** window, move the cursor to the right edge of a column control (the top cell in a column).

The cursor changes to the column adjustment cursor.



2. Hold down the mouse button and drag left or right to define the new column width.
3. When you have defined the width you want, release the mouse button. The column will assume the width you specified.



### Inserting a row PRO ONLY

To insert a row

1. In the **Report Format** window, click the first cell in a row (next to the row control button) or hold down the **Shift** key and click the row control button.  
The row will be selected.

Reports							
My Rreport		House Items					
CRITERIA	Name	Type	Undefi...	Undefi...	Undefi...	Results	
COUNT	Stepping Stone	Aggregate				1	
COUNT	Outlet	Single				17	
LENGTH	Facing	Brick				23'4"	

Obj Info. Cancel Done

- Choose the **Insert Row** from the **Options** menu (gear symbol) in the bottom right hand corner of the **Report Format** window.



A new row appears above the selected row.

Reports							
My Rreport		House Items					
CRITERIA	Name	Type	Undefi...	Undefi...	Undefi...	Results	
COUNT	Stepping Stone	Aggregate				1	
COUNT	Outlet	Single				17	
LENGTH	Facing	Brick				23'4"	

Obj Info. Cancel Done

**Note:** If you select several rows and choose Insert Row, the same number of rows will be inserted above the selected rows. If you choose Insert Row with no rows selected, a new row will be added to the bottom of the report.

## Removing a row PRO ONLY

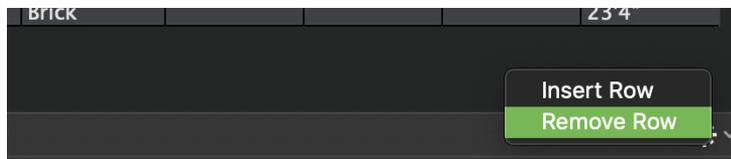
To remove a row

- In the **Report Format** window, click the first cell in a row (next to the row control button) or hold down the **Shift** key and click the row control button.

The row will be selected.

CRITERIA	Name	Type	Undefi...	Undefi...	Undefi...	Results
COUNT	Stepping Stone	Aggregate				1
COUNT	Outlet	Single				17
LENGTH	Facing	Brick				23'4"

2. Choose the **Remove Row** from the **Options** menu (gear symbol) in the bottom right hand corner of the **Report Format** window.



The row is deleted, and the rows below it move up.

CRITERIA	Name	Type	Undefi...	Undefi...	Undefi...	Results
COUNT	Outlet	Single				17
LENGTH	Facing	Brick				23'4"

## Loading a report from another drawing PRO ONLY

Each MacDraft report format is stored as part of a drawing file. After you have created reports for several drawings, you may find that a report format created for one drawing would be useful in another drawing. The Load feature in the Report Formats dialog lets you copy report formats into the current drawing file.

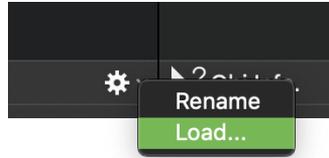
Once a report is loaded into a drawing, it uses the field names defined for that drawing, no matter what the field names were in its source file. However, it retains the order of the fields, and any text-display attributes already defined.

## To load a report from another drawing PRO ONLY

1. Choose the **Data** menu's **Report Formats...** command.

The **Report Formats** dialog appears.

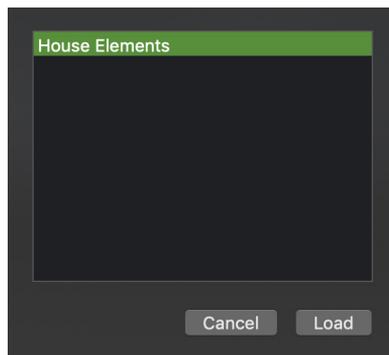
2. Choose the **Load** from the **Options** menu (gear symbol) in the left hand section of the **Report Format** window.



3. A dialog listing the MacDraft drawings in the current directory appears.
4. Locate the file that contains the report you want to open and select it.
5. Click the Open button.

A dialog listing the report formats in the selected MacDraft document appears.

6. Click the name of the report format you want.
7. Click the **Load** button.



The **Report Formats** dialog appears again, with the report you chose displayed in the list of the current drawing's report formats.

Reports							
My Rreport	CRITERIA	Name	House Items Type	Undefi...	Undefi...	Undefi...	Results
House Elements	COUNT	Stepping Stone	Aggregate				1
	COUNT	Outlet	Single				17
	LENGTH	Facing	Brick				23'4"

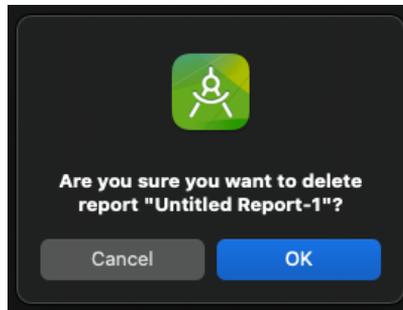
Obj Info. Cancel Done

## Deleting a report PRO ONLY

You can delete a report by using the Minus button in the **Report Formats** dialog.

**Note:** You cannot undo the deletion of reports.

1. Choose the **Data** menu's **Report Formats...** command.  
The **Report Formats** dialog appears.
2. In the list of reports, select the report to be deleted.
3. Click the **Minus** button.



An alert appears asking you to confirm that you want to proceed.

4. Click **OK** to delete the report, or click the **Cancel** button to close the alert without deleting the report.

# Printing a report PRO ONLY

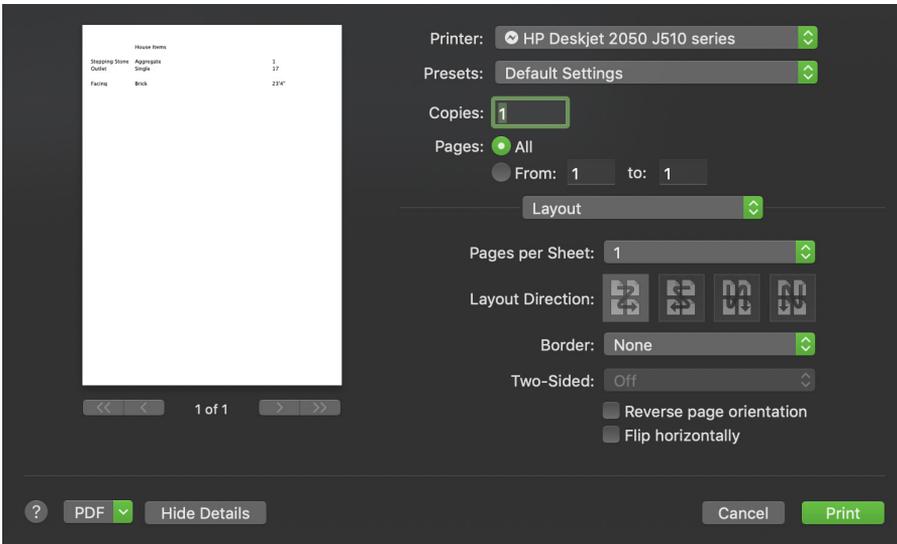
You can print a report by using the standard **Print** dialog.

1. Choose the **Data** menu's **Report Formats...** command.

The **Report Formats** dialog appears.

2. In the list of reports, select the report to be printed.
3. Choose **Print** from the **File** menu.

A dialog similar to the one over the page appears.



4. Set the print options according to your requirements then click the **Print** button to produce your printed document.

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# Chapter 10

## Troubleshooting

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Although we hope that you never have any issues when running your MacDraft application, all computers and software have their own incompatibilities and can sometimes run into issues. This chapter identifies several of the common problems you may run into and includes recommendations to fix them.

If you don't find the answer you are looking for in this section you can contact our support team free of charge, by emailing [support@microspot.co.uk](mailto:support@microspot.co.uk) or by going to the Help & Support section at [www.microspot.com](http://www.microspot.com).

When dealing with technical issues it is important that you make sure that your machines meet or exceed the system requirements for running MacDraft. Also bear in mind that the more data, such as images and objects that you include in your documents the greater the amount of available RAM is used for running MacDraft on your machine.

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### LEGAL DISCLAIMER

IMPORTANT - READ CAREFULLY BEFORE FOLLOWING TROUBLESHOOTING TIPS

Microspot and MacDraft has made every effort to make the information contained in this guide accurate, complete and useful. However, inaccuracies, errors and omissions may occur. All recommendations, statements and procedures are given without warranty of any kind. The user assumes all risks associated with the use of this guide.

# Performance or functionality issues

Because MacDraft has a set of application and new document preferences to refer to, you may encounter some preference-related issues when using MacDraft. Most performance or functionality related issues, such as the speed of loading files, issues with cursors not displaying and redraw problems, can be fixed by deleting your preferences as per the instructions below.

## *How do I delete my MacDraft preferences?*

Before following the steps below to delete your preferences, make sure that you have saved all of your work and quit MacDraft. The following steps will describe how to delete your current preference file, so that MacDraft can create new default preferences.

**To delete you preferences:**

1. Open the **Finder**
2. Click the **Go** menu

The **Go** menu options will appear

3. Hold the **Option (alt)** key down and the **Library** option will appear.
4. Still holding the **Option (alt)** key down, select the **Library** menu item.

NOTE: If running 10.12 Sierra select **Go to Folder** from the **Go** menu and type **~/Library**, then click the **OK** button

The **Library** folder at user level will open.

5. Open the **Preferences** folder.
6. Look for and delete the following files (you may not see them all)
  - uk.co.microspot.md8pro.plist
  - uk.co.microspot.md8pro.lockfile.plist
  - uk.co.microspot.md8pro.plist.lockfile

7. Close the **Finder** Window

## 8. Relaunch MacDraft

MacDraft will run using a default set of preferences

Performing these steps should have fixed most of the performance related issues you may be having. It is also important to note that once you relaunch the MacDraft application a new set of preference files will be created.

## File opening issues

Sometimes you may experience issues with opening particular files in MacDraft. There could be a number of reasons for this and some of which may require a file to be opened in an older version. To determine the issue and in turn the fix for these issues we must first find out the documents file type, then we can look at ways to get the files to open correctly.

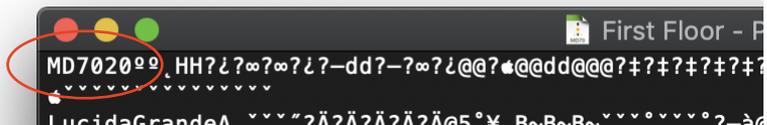
### *How do I know what type of document I have?*

Every document has a specific file extension attributed to it. However sometimes those file extensions are not visible and sometimes they could have been altered by someone else. The true file type extension is stored within the data of the file itself and can be found by viewing the file in a text editing application, such as Apple's Text Edit.

**To find out what the document type is:**

1. Launch a text editing application, for example **Text Edit**.
2. Choose **Open...** from the **File** menu
3. Locate the document you are interested in and select it
4. Click the **Open** button.

The data in the file will open in a new text document. Most of the information will seem to be incoherent letters, symbols and numbers.



5. The important information is located in the first part of the text. Locate the first few characters of the text file and it will tell you the true file extension for the document you have opened.

The following are file types that you may expect to see:

- **MDD:** This is an old MacDraft document type that cannot be opened in MacDraft 7 or higher. You will need to open it in an earlier version and resave it in a newer format.
- **MD60:** This is the previous MacDraft document that can be opened in MacDraft 7 or higher.
- **MD70:** This is the current MacDraft 7 document type and will open MacDraft 7 or higher.
- **AC1032:** This is a DWG 2018 file type and should be able to be opened in MacDraft 7 or higher.

### ***What do I do if my file is an old MDD file type?***

If you have some old files created in MacDraft version 5.5 and below or possibly old PC Draft files, you will notice that their file type is MDD. MacDraft 7 can no longer open MDD files, however you can open the files in an older version of MacDraft, such as version 6.2 and then re-save the file as an MD60 file.

**To open and re-save an MDD file:**

1. Launch MacDraft 6.2.
2. Choose **Open...** from the **File** menu
3. Locate the document you are interested in and select it
4. Click the **Open** button.

The content of the MDD file will display on the screen

5. Select **Save As...** from the **File** menu

The standard Save dialog appears

6. Give the file a name and choose a location to save it in (make sure that MacDraft is selection in the format pop-up).

## 7. Click the **Save** button

A copy of the MDD file will now have been saved as an MD60 file with the name you chose and in the destination you specified.

You can now open the MD60 file as normal in MacDraft 7 or higher. Please note that depending on the age of the MDD file, there may be some items that are lost or slightly different when you save it as an MD60. If this is the case you, may need to redraw or add certain parts to the drawing once opened in MacDraft 7 or higher. Always check the content of your files before saving them.

## File corruption issues

There are some instances where a file can become damaged or corrupt. This can be caused by many different factors and without looking deep into the data structure its often difficult to determine the cause. However there is one thing that you can do to maybe recover some of the data before sending the file to our support team for testing.

### ***What do I do if my file is an MD60 or MD70, but still wont open?***

The first thing you can do is make sure that the file is actually an MD60 or MD70 file, by following the steps in **File Opening Issues - How do I know what type of document I have?**

If you find that the files are actually MD60 or MD70 files, but they still do not open, then one thing you can do is attempt to load the content of the layers into MacDraft Pro separately.

**To load a layer into the active MacDraft document:**

#### 1. Open the **File** menu and choose **Load Layer**.

A standard open dialog appears.

#### 2. Locate and select the document you want to load.

#### 3. Click the **Open** button.

A dialog listing the layers in the selected document appears.

#### 4. Select the layer you want from this list and click the **Load** button.

The layer you have chosen will be loaded into your open document as the active layer.

If the above steps worked then the data in that layer has successfully been recovered and placed in another document. If there are other layers, repeat the steps for each one until all are loaded or it is unable to load one of them.

## Serial number and version issues

If you are having trouble locating your serial number for upgrading or support purposes or you are unsure as to what version of MacDraft you are running, there are some quick and easy steps to follow to get the information you need.

### *How do I find the serial number I'm using in MacDraft?*

The serial number you are using in MacDraft can be found in the Enter Serial Number dialog.

**To find your serial number:**

1. Launch MacDraft.
2. Choose **Enter Serial Number...** from the **MacDraft** menu.

Note: If you don't see the Enter Serial Number option, you are running an Mac App Store version, and therefore will need to provide your App Store order ID#

The **Enter Serial Number** dialog appears.

You can see the serial number you are using in this dialog. Copy the serial number and maybe store it in a secure text document in case you need it at a later date.

3. Click **Cancel** when ready to return to using MacDraft.

### *How do I find out what version I am running?*

There are 2 ways to find out what version of MacDraft you are running. The first is to check the About dialog and the second is to decode part of the serial number.

**To find what version I am running in the About dialog:**

1. Launch MacDraft.
2. Choose **About MacDraft** from the **MacDraft** menu.

The **About MacDraft** dialog appears and you can see the version of MacDraft you are running.

3. Close the dialog when ready to return to using MacDraft.

**To find what version I am running from my serial number:**

The two most important parts of the serial number, to determine the version and product are the first two blocks. In the example below you can see which of the blocks we mean and how to determine what they mean.

**MDFT - V800 - XXXX - XXXX - XXXX - XXXX**

In the above example the first section of the serial number **MDFT** tell us that it is a MacDraft Professional serial number. The second section of the serial number tells us the version. Therefore **V800** means that this is a MacDraft version 8.0 serial number.

## Library content issues

Sometimes users have noticed that their library files and content are not showing up when they select them. This could be caused by a couple of things. The first being that the library has been removed from the list (if its a custom library) and the second being that you have a search term entered in the Library search field.

### *How do I add my own library to the Library panel?*

Sometimes if you have moved a library that you created you will find that the content does not display correctly in MacDraft. This means you will need to re-add the library to the library panel so that you can access its content again.

1. Open the **Library** panel by selecting **Show Right Panel** in the **View** menu.

The right panel will appear and the Library is at the bottom.

2. Once the Library panel has opened, click the **Options** pop-up menu (Gear Symbol) at the bottom of the library.

The standard **Open** dialog appears.

3. Locate the library you want to open and click the **Open** button.

The library will open and be added to the list.

4. Click the pop-up at the top of the library section and select the library you have just added.

### ***Removing a search term from the Library panel?***

Sometimes if you have searched for a particular item in the Library panel, you leave the text you entered in the search field. This will cause only those items to display, so later when you select a library to use its content, but forgot to remove the search term, it will seem as if all your library content has disappeared. Simply delete the search term from the search field and all your items should reappear.

## **PDF exporting issues**

There have been some questions regarding how to export the whole page of a document as a PDF, or simply the content itself.

### ***How to export the whole page as a PDF***

1. Go to the **File** menu and choose **Export...**
2. Choose PDF
3. A window will appear allowing you to choose how you wish to export your PDF, choose 'Whole Document'.

### ***How to export the content only as a PDF***

1. Go to the **File** menu and choose **Export...**

2. Choose PDF
3. A window will appear allowing you to choose how you wish to export your PDF, choose 'Content Only'.

***How to export a Page-by-Page PDF***

1. Go to the **File** menu and choose **Export...**
2. Choose PDF
3. A window will appear allowing you to choose how you wish to export your PDF, choose 'Page-by-Page'.

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# Appendix

## Menus, Shortcuts and File Format Support

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### Menu Commands

#### File Menu

##### ***New***

Use to create a new or display the Template Chooser. How this behaves will depend on the options you have chosen for Application and Document defaults.

##### ***Open...***

Opens the standard Open dialog allowing you to locate and open your documents.

##### ***Open DWG/DXF with options...*** PRO ONLY

Opens the standard Open dialog allowing you to locate and open your DWG or DXF files and then define the options for opening the files.

##### ***Load Layer...*** PRO ONLY

Opens the Load Layer dialog used to load a layer from another document into the current document.

## ***Close***

Closes the document. Before closing, a dialog will ask if you want to save the changes made to the document.

Hold down the **Option** key and this command changes to **Close All**. Use to close all open documents. Again dialogs appear asking if you want to save any changes made to documents.

## ***Save...***

Saves your drawing to disk. If the drawing has not been saved before, you will be asked to name the document and specify a location to save it. The drawing remains open.

## ***Duplicate***

Duplicates the current document and its contents and allows you to save it under a different name.

## ***Revert To***

Gives access to a revert system, giving you access to multiple iterations of your file, which you can choose from to revert to.

## ***Save As Template...***

A special save dialog for putting your templates in the correct place, so they are usable in the template chooser dialog.

## ***Import Image...***

Opens the standard Open dialog allowing you to locate and open your images.

## ***Export***

Opens the Export submenu used to export a file in PDF, image formats, DWG and DXF.

## ***Page Setup***

Opens the Page Setup dialog used to specify how you want your document to appear on the printed page. Options include paper size, orientation and scale.

## ***Print***

Opens the Print dialog used to print out the drawing. The printing options available will be determined by the selected printer, but usually include page range, number of copies and so on.

## ***Print Active Layer*** PRO ONLY

Opens the Print dialog used to print out the currently active layer only. The printing options available will be determined by the selected printer, but usually include page range, number of copies and so on.

## **Edit Menu**

### ***Undo/Redo***

Undo reverses the last operation performed. Redo performs an operation that was reversed by using the Undo command. There are 100 levels of Undo in MacDraft.

### ***Cut***

Removes a selected object from the drawing and places it on the Clipboard.

### ***Copy***

Copies a selected object from the drawing and places it on the Clipboard.

### ***Paste***

Pastes an object from the Clipboard onto the drawing at the point where you click.

Hold down the Shift key and this menu item changes to Paste Unscaled.

Use this command to paste an object into a document and have it appear at its original size, regardless of any differences in view scale between the object and the destination document window.

### ***Clear***

Removes a selected object from the drawing.

### ***Repeated Paste***

Use to repeatedly paste an object onto a drawing.

### ***Copy Attributes***

Use to copy an object's graphic attributes (fill, pen color or pattern, line weight and line style... etc) and object information.

### ***Apply Attributes***

Use to apply copied attributes to selected objects.

### ***Duplication***

Allows you to duplicate selected objects with or without offset and in linear and circular arrays.

- ***Duplicate***

Creates a duplicate of the selected object with an offset.

- ***Duplicate Without Offset:***

Creates a duplicate that is placed directly on top of the original.

- ***Duplicate Unlocked:*** PRO ONLY

Use this command to avoid duplicating locked objects. All other objects in the selection will be duplicated.

- **Duplicate Unlocked Without Offset:** PRO ONLY

Use this command to avoid duplicating locked objects. All other objects in the selection will be duplicated in the same place as the originals.

- **Linear:** PRO ONLY

Use this command to display the linear duplication dialog for defining duplication in a linear array.

- **Circular:** PRO ONLY

Use this command to display the linear duplication dialog for defining duplication in a circular array.

### **Select All**

Selects all the objects on the active layer.

Hold down the Shift key and this menu item changes to Select None. Use this option to deselect all selected objects.

### **Select Special** PRO ONLY

Opens the Select Special dialog which allows you to select objects according to their type, graphical attributes or object information.

### **Move**

Opens the Move dialog which allows you to move objects or groups with precision by entering values from the keyboard.

### **Expand/Contract**

Opens the Expand/Contract dialog used to increase or decrease the size of an object by multiplying its dimensions by specified values.

### **Reshape**

Use the commands in the Reshape submenu to reshape an object so that straight

lines and sharp corners become curved lines and rounded corners, or to reverse the smoothing action.

### ***Edit Datum***

Allows you to define a new datum point for a selected object.

## **Text Menu**

### ***Font***

The Font submenu lists Show Fonts dialog, Bold, Italic and Underline styles, and Bigger and Smaller text size steps.

- ***Show Fonts***

Displays the system Fonts panel for choosing the font you would like to use, the size and other font related options.

- ***Bold, Italic and Underline***

Sets the font style to Bold, Italic or Underline. For more style options attributed to the fonts you have chosen, use the Show Fonts command.

- ***Bigger and Smaller***

Increases or decreases the font size incrementally, each time you click these commands.

### ***Justification***

The Justification submenu provides options for justifying text. Select a horizontal and/or vertical justification option for text.

### ***Line Spacing***

The Line Spacing submenu lists line spacing options for text. Select the line spacing you want to use from the list.

## ***Transformations***

The Transformations submenu lists the case options available for text. Select the case option you want to use from the list.

### ***Mirror Text***

Mirrors the text currently selected.

### ***Select All Text***

Selects all text objects in the current layer.

### ***Hide Text***

Hides text on the drawing. When this option is on, text is also omitted from printed output.

### ***Hide Text On Active Layer***

Hides text on the currently active layer.

### ***Highlight Clipped Text***

If text is likely to overflow the text box then with this option turned on the text box will be highlighted in red. The text box should be increased in size to accommodate all of the text, and the red outline will disappear.

### ***Create Outlines***

Use this options to turn your selected text objects into vector shapes.

### ***Spelling & Grammar***

Use to check spelling and grammar across the document.

## **Options Menu**

### ***Border Position***

Opens a submenu that lists the options available for border positions. Choose the desired option from the submenu.

### **Pen Style** PRO ONLY

Opens a submenu that lists the options available for pen styles. Choose the desired option from the submenu.

### **Zoom Line Weights** PRO ONLY

Choose to turn Zoom Line Weights on or off. When Zoom Line Weights is on, lines and borders are magnified in proportion to the current zoom factor. When Zoom Line Weights is off, line widths are displayed as they would appear at a normal view, regardless of zoom factor.

### **Hide Line Styles** PRO ONLY

Choose to turn Hide Line Styles on or off. When Hide Line Styles is on, lines drawn with line styles will be displayed as plain lines. When Hide Line Styles is off, lines appear drawn with the line style applied.

### **Edit Line Styles** PRO ONLY

The Edit Line Styles submenu lists the available line styles. Select a line style from the list to edit it.

### **Add Horizontal Guide**

Adds a horizontal reference guide to the center of the document.

### **Add Vertical Guide**

Adds a vertical reference guide to the center of the document.

### **Add Guide by Position...**

Opens a guide by position dialog, that allows you to choose which guide to add and the exact position it should be placed in the document.

### **Grid Type**

Opens a submenu that lists the two grid type options. Use this to select either a dotted grid or square grid.

### ***Interface Colors***

Opens a dialog that allows you to choose the colors you want to use for background, grid and page breaks, guides and smart snap lines.

### ***Include Background Color when Printing***

Choose to allow the background color of the document chosen in the Interface Colors dialog, to be printed or not.

### ***Hide Fills*** PRO ONLY

Choose to turn Hide Fills on or off. When Hide Fills is on, fill colors and patterns applied to objects are not displayed. When Hide Fills is off, fill colors and patterns are displayed.

### ***Cross Cursor***

Choose to activate and deactivate the crosshair-style drawing cursor. When Cross Cursor is active, the cursor appears as a crosshair which extends into the drawing's rulers. When Cross Cursor is off, the cursor will be a small cross.

## **View Menu**

### ***Show Tab Bar***

Choose to turn the tab bar on or off. When Show Tab Bar is on, all documents will be opened as tabs instead than new windows. When Show Tab Bar is off, documents will be opened in new windows.

### ***Show All Tabs***

Use to display all of the tabs currently open in MacDraft.

### ***Zoom In***

Use this option to increase the magnification of the view in increments.

### ***Zoom Out***

Use this option to decrease the magnification of the view in increments.

### ***Restore Prev. Zoom***

Changes the view back to the previous level of magnification.

### ***Home View***

Changes view to display unmagnified in the upper left corner of drawing.

### ***Show Cursor Position***

Choose Show Cursor Position to show or hide the cursor position indicator. When Show Cursor Position is on, the X and Y coordinate position of the cursor will be displayed at the bottom left of the document window. When Show Cursor Position is off, this information does not appear.

### ***Show Size Cursor***

Choose to turn the Show Size cursor information on or off. With the Show Size options turned on the cursor information will display the position and size of objects as they are drawn, moved or resized. With the Show Size option turned off, the cursor information will not display.

### ***Show Rulers***

Choose to turn the rulers on or off. With Show Rulers turned on the rulers will be visible. With Show Rulers turned off, the rulers will be hidden.

### ***Show Guide Lines***

Choose to turn the guide lines on or off. With Show Guide Lines turned on the guide lines will be visible. With Show Guide Lines turned off, the guide lines will be hidden.

### ***Show Grid Lines***

Choose to turn the grid lines on or off. With Show Grid Lines turned on the grid lines will be visible. With Show Grid Lines turned off, the grid lines will be

hidden.

### ***Show Page Breaks***

Choose to turn the page break reference lines on or off. With Show Page Breaks turned on the page break reference lines will be visible. With Show Page Breaks turned off, the page break reference lines will be hidden.

### ***Switch to Single Screen / Floating Palettes***

Choose this to display MacDraft in single screen mode or with floating palettes.

### ***Show Left Panel***

Choose to show and hide the left panel in the application window.

### ***Show Right Panel***

Choose to show and hide the right panel in the application window.

### ***Show Area***

Calculates the area value of a selected object and displays the result in the center of the object.

### ***Hide Area***

Hides the result of the area calculations for a selected object.

### ***Show Perimeter***

Calculates the perimeter value of a selected object and displays the result in the center of the object.

### ***Hide Perimeter***

Hides the result of the perimeter calculations for a selected object.

### ***Hide Toolbar***

Choose to hide and show the toolbar containing quick access options that you frequently use.

### ***Customize Toolbar...***

Use this options to customize and choose the frequently used commands that are displayed and accessible from the toolbar.

### **Save View** PRO ONLY

Opens the Save View dialog used to name and save specific views.

### **Delete View** PRO ONLY

Opens a submenu that lists the saved views. Select one of the view names to delete it.

### **Delete All Views** PRO ONLY

Deletes all views that were previously saved.

### **[View Names]** PRO ONLY

Saved views are listed at the bottom of the View menu providing a quick method of displaying a view.

### ***Enter Full Screen***

Choose this option to expand the application to full screen mode, which covers the whole screen and hides the menu bar.

## **Arrange Menu**

### ***Bring To Front***

Moves the selected object to the front of the active layer.

### ***Send To Back***

Moves the selected object to the back of the active layer.

### ***Move Forward One***

Moves the selected object forward one level on the active layer.

### ***Move Back One***

Move the selected object back one level on the active layer.

### ***Group***

Links two or more objects so that they can be treated as a single object. Hold down the Shift key and this command changes to Ungroup.

### ***Ungroup***

Converts grouped objects to their original individual state.

### ***Rotate Tool***

Use to freely rotate a selected object.

### ***Rotate Left 90°***

Use to rotate the selection 90 degrees counter-clockwise.

### ***Rotate Right 90°***

Use to rotate the selection 90 degrees clockwise.

### ***Rotate To Zero***

Choose to return rotated objects to their original orientations.

### ***Rotate Options***

Opens the Rotate Options dialog used to specify rotation for a selected object by entering precise units of rotation.

### ***Flip Horizontal/Flip Vertical***

Flips selected objects horizontally/vertically.

## ***Align Again*** PRO ONLY

Use to align objects according to the settings specified in the Alignment Options dialog.

## ***Alignment Options*** PRO ONLY

Opens the Alignment Options dialog which provides controls to specify which part of a selected object should be aligned with which part of a reference object, a reference point or the grid.

## ***Distribute On Line***

Distributes selected objects along a straight line, and spaces them equally about their centers or datum points.

## ***Lock***

Restricts objects so that they cannot be changed.

## ***Unlock***

Returns locked objects to their original condition so that they can be changed.

## **Data Menu** PRO ONLY

### ***Edit Field Names*** PRO ONLY

Opens the Edit Field Names dialog that allows you to label the object information fields according to the information they will hold for your drawing's objects.

### ***Find/Replace*** PRO ONLY

Opens the Find/Replace dialog which provides tools to automatically find and select objects or groups that have names or other object information assigned to them.

### ***Report Formats*** PRO ONLY

Opens the Report Formats dialog which allows you to create, load, delete, rename, and edit report formats.

## **Layout Menu**

### ***Set Scale/Units***

Opens the Set Scale/Units dialog which lets you choose the units, default scale and dimension standards for a drawing.

### ***Set Grid***

This submenu allows you to choose from the various grid snap options available in English or metric scales. The options reflect the current scale and size units chosen.

### ***Set Angle Snap***

This submenu allows you to choose from the various angle snap options available.

### ***Scale Rulers***

When Show Rulers is on, choose Scale Rulers to display rulers based on the current scale of the drawing. The scale rulers also reflect the current size units.

### ***Standard Rulers***

When Show Rulers is on, choose Standard Rulers to display the standard rulers which show the actual size of the drawing in the units specified in the Set Scale and Units dialog.

### ***Snap to Object***

Choose to turn Snap To Object on or off. When Snap to Object is on, objects you draw or move snap to the vertices of nearby objects on the drawing. When Snap to Object is off, objects you draw or move do not snap to nearby objects.

## ***Smart Snap***

Choose to turn Smart Snap on or off. When Smart Snap is on, objects you draw or move snap to reference lines of nearby objects on the drawing. When Smart Snap is off, objects you draw or move do not snap to nearby objects.

## ***Snap to Guides***

Choose to turn Snap to Guides on or off. When Snap to Guides is on, objects you draw or move snap to reference guides you have added to the document. When Snap to Guides is off, objects you draw or move do not snap to the guides.

## ***Drawing Size***

Opens the Drawing Size dialog which allows you to set the size of the drawing.

## ***Position***

Opens the Position dialog which allows you to move all the objects on all layers of a drawing at the same time.

## **Window Menu**

### ***Minimize***

Hides the current window to the dock.

### ***Zoom***

Expands the current window into full screen mode.

### ***Show Previous/Next Tab***

Opens the previous or next document tab if you have Show Tab View turned on and have more than one document open.

### ***Move Tab to New Window***

Use this if you have a document open in a new tab and want to open it as a new window instead.

### ***Merge All Windows***

Use this options to merge all separate windows into a tab view. All windows will now display as tabs in a single window.

### ***Show/Hide Panels***

Use this options to show or hide the left and right panels.

### ***Bring All to front***

Brings all windows to the front.

### ***Show Library***

Choose to bring the Library palette to the front of the screen.

### ***[Drawing Names]***

Open drawings are listed at the bottom of the Window menu. Select the drawing name to make it the active document.

## **Help Menu**

### ***MacDraft Manual***

Choose to open the MacDraft manual in Adobe Acrobat Reader or other PDF viewer (Preview).

### ***Tutorials***

Choose to view tutorials to help you get started with MacDraft.

### ***Registration Information***

Opens the product registration web page on the internet.

### ***Upgrade Information***

Opens the upgrade web page on the internet.

### ***Online Support***

Opens the online support web page on the internet.

### ***Keyboard Shortcuts***

Choose to view the keyboard shortcuts available in MacDraft.

### ***What's New...***

Opens the What's New panel, which describes some of the new features in this version of MacDraft.

### ***Get Started...***

Opens the Getting Started panel, which displays general information and links to MacDraft tutorials and guides.

### ***Welcome to MacDraft***

Choose to launch the welcome window.

### ***Template Chooser...***

Opens the Template Chooser panel, which allows you to choose between the different templates available in MacDraft for open a new document.

You can also access your recently opened documents and open existing documents through the standard open dialog.

## **Menu Command Keys**

### **MacDraft Menu**

Hide MacDraft	Command H
Quit MacDraft	Command Q

## File Menu

New	Command N
Open...	Command O
Open DWG/DXF with Options...	Command Shift O
Close	Command W
Save...	Command S
Duplicate	Command Shift S
Page Setup...	Command Shift P
Print...	Command P

## Edit Menu

Undo	Command Z
Redo	Command Shift Z
Cut	Command X
Copy	Command C
Paste	Command V
Paste Unscaled	Command Shift V
Clear	Command Backspace
Duplicate	Command D
Duplicate Without Offset	Command Shift D

Duplicate Unlocked	Command Option Control D
Duplicate Unlocked Without Offset	Command Shift Control D
Select All	Command A
Select None	Command Shift A
Select Special...	Command Option A
Move...	Command Shift M
Edit Datum	Command E

## View Menu

Zoom In	Command 2
Zoom Out	Command 3
Restore Previous Zoom	Command 1
Home View	Command Shift H
Hide/Show Toolbar	Command Option T
Save View...	Command 0
Enter Full Screen	Command Control F

## Arrange Menu

Bring to Front	Command Shift ]
Send to Back	Command Shift [
Move Forward One	Command ]
Move Backward One	Command [
Group	Command G

Ungroup	Command Shift G
Rotate Tool	Command R
Rotate to Zero	Command Shift R
Rotate Options	Command Option R
Align Again	Command K
Alignment Options	Command Option K
Distribute on Line	Command Shift T
Lock	Command L
Unlock	Command Shift L

## Window Menu

Minimize	Command M
Show Previous Tab	Control Shift Tab
Show Next Tab	Control Tab

## Notes

There are many Command Key, Command Shift Key and Command Option Key equivalents available. The following may be help you to remember them.

A Command Shift Key combination usually denotes doing the opposite of, or something related to, the equivalent Command Key combination. For Example, Command A is Select All; Command Shift A is Select None. Command R is Rotate; Command Shift R is Rotate To Zero. Command P is Print; Command Shift P is Page Setup... Command S is Save; Command Shift S is Duplicate...

A Command Option Key combination usually denotes choosing options for the related Command Key combination. For Example, Command A is Select All; Command Option A is Select Special... Command R is Rotate; Command Option R is Rotate Options... Command T is Align; Command Option T is Alignment

Options...

## MacDraft Tool Shortcuts

The tools in the Drafting Tools section of the Tools (Left) panel have single key shortcuts assigned to them. Some of the tools have sub tools, which can be accessed by clicking the assigned keyboard shortcut key to cycle through them.

Arrow	v
Rotate	r
Marquee Selection	m
Hand	h
Line	l (click to cycle through)
Special Line	s (click to cycle through)
Rectangle	u
Text	t
Rounded Rectangle	o (click to cycle through)
Circle	c (click to cycle through)
Ellipse	e
Arc	a (click to cycle through)
Irregular Polygon	i
Polyline	y
Parallel Line	w (click to cycle through)
Regular Polygon	p (click to cycle through)
Bezier	b

Spline	j
Freehand	f
Freehand Shape	g
Star	k
Registration Mark	x
Paste Repeated	q
Edit Datum	n
Attributes Dropper	d
Zoom	z

## Contextual Menus

MacDraft allows you to access commonly associated options and commands, by using the contextual menu (right-hand mouse click). The contextual menu can be shown by either clicking the right hand mouse button when an object is selected, or by pressing the Control key on the keyboard and clicking an object.

## Application Modifier Keys

Hold down the appropriate key to achieve the following results.

Shift Key	Normally constrains an action
Diagonal Line tool:	Constrains lines to snap at 45 degree increments.
Rectangle tool:	Constrains the shape to a square. (Applies to rounded-corner, square-corner and elliptical-corner rectangles.)

Circle tool:	(By radius or by diameter). Constrains the line used to define the radius or diameter to snap at 45 degree increments.
Arc tool:	Arcs by radius: Constrains the line used to define the radius to snap at 45 degree increments.  Elliptical arcs: Constrains the size of the ellipse that is used to define the arc and allows you to change the starting angle of the arc without changing it's size.
Polygon tool:	Constrains the line segments to snap at 45 degree increments during creation.
Freehand tool:	Activates the eraser, allowing you to delete part of the freehand shape during creation by retracing the last drawn lines.  Constrains a line segment to a straight line.
Rotation:	Changes the rotation units. The first press of the Shift key activates the rotation in minutes; the second press activates the rotation in second.
Moving objects:	When held down after dragging begins, constrains the movement of objects to a horizontal or vertical direction. With multiple objects pressing shift before dragging moves one object independently of other selected objects.
Selecting objects:	Extends the selection to include non-selected objects you click on. Also deselects the selected objects you click on.
Distribute on line:	Constrains the line used to define the distribution of objects to snap at 45 degree increments.
Pattern Editor dialog box:	Constrains the movement of the pointer and the Finger-Painting tool to a 90 degree angle.
Pointer tool:	Activates the alternative Zoom cursor (magnifying glass).
Bezier Curves:	Constrains Bezier handle pairs to move in tandem.
<b>Command key</b>	<b>Normally releases a constraint</b>

Rotation:	Allows rotation in one degree increments. Also returns to the previous rotation units; takes you from rotation-in-seconds to rotation-in-minutes, and from minutes to degrees. Also returns you to the pointer mode when you click on the drawing.
Zoom:	Returns you to the pointer mode when you click on the drawing.
<b>Option key</b>	<b>Normally activates an optional mode or operation</b>
Drag:	Duplicates the selected object you are dragging.
Finger-Painting tool:	(In Pattern Editor dialog box). Resets the Finger-Painting tool color to the color you click on.
Zoom:	Activates the Zoom Out mode.
Add/Delete Handle:	Activates the Delete Handle mode.
Selection Rectangle:	Selects all of the objects that are inside or touching the rectangle.
Align objects:	Aligns selected objects to one element in a group, rather than to the group as a whole.
Line, Polygon, Parallel, Offset and Perpendicular tools:	While drawing, lines, polygon segments, polyline segments, parallel lines, parallel polygon segments, parallel polyline segments, and perpendicular lines, and the offset distance of offset lines, snaps the length to the currently active grid snap increment.
<b>Space Bar key</b>	
Pointer Tool	Activates the Pan feature when you drag while in the pointer mode. This allows you to scroll horizontally and vertically at the same time.
<b>Key Specials &amp; Combinations:</b>	
Pan Feature:	Shift-space bar constrains panning to 90 degree movement when pointer tool is selected.
Deselect All:	Shift - Command - A deselects any selected objects.

Select All Text (In Open Text):	Within a text block, Command - A selects all the text characters.
Cropping:	Shift - Option permits the cropping of a bitmap or pixel map, by dragging any edit handle. (Although it has been cropped, the rest of the image is still retained in memory, so you can resize using Shift - Option, to reveal the rest of the image.)
Drawing Lines/ Objects:	Command releases the active part of the object from the grid snap.
Dragging widget of object to snap to another object:	Command - Option when selecting a widget of an object and dragging allows you to snap that widget to another objects widget, when Snap to Object is turned on.
Moving to snap to Mid, Center and End:	Command-Option drag the handle of an object, then release them and hold the M, C or E key to snap the movement to the Mid point, Center point or End point respectively.

## File Formats

MacDraft supports document files in the formats listed below.

### ***Microspot MacDraft can read files in the following formats***

- MacDraft (MD60 & MD70) /PC Draft (MD60)
- Templates
- Library Files (Spotlibrary)
- DXF PRO ONLY
- DWG PRO ONLY
- TIFF format files, such as scanned images
- PDF and other image formats.

### ***Microspot MacDraft can write files in the following formats***

- MacDraft
- Library Files (Spotlibrary)

**Microspot MacDraft can export files in the following formats**

- DWG PRO ONLY
- DXF PRO ONLY
- JPEG
- JPEG-2000
- PNG
- OpenEXR
- TIFF
- PDF

## DXF Format Documents PRO ONLY

DXF is a standard file type for exchanging images among different graphics and drawing programs. MacDraft lets you save MacDraft drawings as DXF files and open DXF files created with other programs. (The DXF file format was developed by AutoDesk®, Inc., the manufacturer of AutoCAD®.)

### Exporting a document in DXF format PRO ONLY

**To export a document as a DXF file**

1. Choose **DXF** from the **Export** submenu in the **File** menu.

The standard Save dialog appears.

2. Enter a name for the document (if the file is destined for a non-Macintosh computer, you may need to limit the number of characters in the file name).
3. Specify a location to save the document.
4. Choose the **DXF** version from the **File Version** pop-up menu.

5. Click the **Export** button.

The DXF file will be saved with the name and at the location specified.

## DXF export issues PRO ONLY

Because the DXF format does not handle as many kinds of shapes and attributes as MacDraft's own file format, certain attributes in a MacDraft drawing are changed in the resulting DXF file. These changes are defined by the following:

- The image moves to the upper left corner of the drawing window.
- Circles, arcs, and straight lines become one pixel thick. Other object outlines retain their line weights.
- All shapes lose their fills.
- Custom line styles are limited to eleven segments (dashes or blanks).
- Rectangles (including squares) become polygons.
- Rounded-corner rectangles become polygons (with many sides emulating the corner arcs).
- All three types of circles (radial, diametric, and three-point) become radial circles.
- Ovals (ellipses) become polygons with many sides.
- Radial and three-point arcs become radial arcs. Elliptical arcs expand to polygons emulating full ellipses.
- Parallel objects become sets of line segments (one segment per side or end cap).
- Freehand shapes become polygons (mid-segment edit handles added).
- Bezier curves become many-sided polylines (open polygons).
- Splines become many-sided polylines.
- Smoothed freehand lines and shapes and polygons or polylines become many-sided polygons or polylines.

- Dimension objects become simple lines or arcs, with circles, polygons, or lines emulating the end marks; witness lines become simple lines and value text blocks become independent text objects.
- Area calculation text becomes an independent text object.
- Bitmap objects, including high-resolution pixel maps, are omitted.
- Text assumes the default application font, preserving the upper-left position of the original text object.
- Each line of a multiline text object becomes at least one separate text object. Each point at which the text style changes within a line begins a new text object. For example, a line ending with one boldfaced word would become two text objects; a line containing one boldfaced word in the middle would become three text objects.
- Each line of a rotated multi-line text object becomes a separate text object, rotated about its own center. (To line these objects up properly after conversion to DXF, rotate them back to the horizontal, group them, then rotate the group to the desired angle.)

## Opening a document in DXF format PRO ONLY

### *To open a DXF document automatically*

1. In MacDraft, choose **Open** from the **File** menu.

The standard **Open** dialog appears.

2. Locate the file you wish to open.
3. Click the file name to select it.
4. Click the **Open** button.

The DXF image appears in a new untitled MacDraft drawing.

### *To open a DXF document automatically*

1. In MacDraft, choose **Open DWG/DXF with Options** from the **File** menu.

The standard **Open** dialog appears.

2. Locate the file you wish to open.
3. Click the file name to select it.
4. Click the **Open** button.

The **Set Scale/Units** dialog appears.

5. Set the desired scale and units and click **OK**.

The DXF image appears in a new untitled MacDraft drawing.

**Note:** The Set Scale/Units dialog that precedes the DXF import does not recalculate the DXF file into a new scale or onscreen size, it only determines what scale will be applied to the drawing. The onscreen size of the drawing must be determined in the source program.

## DXF import issues PRO ONLY

MacDraft can open DXF files created using other programs, subject to various limitations. Before opening a DXF file with MacDraft, or if you are having trouble opening a DXF file, read over the following list of issues.

- **Scale and Units:** The Set Scale/Units dialog that precedes the DXF import does not recalculate the DXF file into a new scale or onscreen size. It only determines what scale will be applied to the drawing. The onscreen size of the drawing must be determined in the source program.
- These DXF items are not supported by MacDraft: X-Refs (External References); 3-D objects or entities; solid objects or entities; block attributes.
- If a DXF file created using AutoCAD does not open in MacDraft, make sure that all unused items (blocks, layers, and so on) have been purged from the source file. If there is resident information from deleted blocks, the DXF files will not open. Also, before creating the DXF file, it's best to explode and purge nested blocks, as these increase the complexity of files, sometimes

making them unopenable.

- When generating a DXF file select a text DXF export format in your source program. (Some programs offer a binary DXF output, which is not supported by MacDraft.)
- If a drawing opens in MacDraft, but some or all of it is off of the page, use the Layout menu's Position command to properly position the drawing on the page. (Different CAD programs use different X / Y origin points, as well as handling curves differently. The result of these translations can cause the drawing to import partially or entirely off of the page.)
- If some or all of the drawing entities are not visible in the imported file, choose the Edit menu's Select All command, then use the Attribute panel's Pen Color or Pen Pattern pop-up menu to assign the objects a new pen color. You may need to repeat this for each layer. When importing a DXF file, MacDraft matches the objects' original colors to its active color table. Sometimes the result of a color match can be difficult to see (white ink on a white background, for example). Assigning a new pen color remedies this.

## DWG Format Documents PRO ONLY

MacDraft includes a DWG File Exchange Library, so MacDraft is able to read and write files in DWG format.

### Opening a document in DWG format PRO ONLY

#### *To open a DWG document automatically*

1. In MacDraft, choose **Open** from the **File** menu.

The standard **Open** dialog appears.

2. Locate the file you wish to open.
3. Click the file name to select it.
4. Click the **Open** button.

The DWG image appears in a new untitled MacDraft drawing.

### ***To open a DWG document automatically***

1. In MacDraft, choose **Open DWG/DXF with Options** from the **File** menu.

The standard **Open** dialog appears.

2. Locate the file you wish to open.
3. Click the file name to select it.
4. Click the **Open** button.

The **DWG Layout** dialog will appear.

5. Choose which layout you wish to open and click **OK**.

The **Document Scale & Units** dialog appears.

6. Click the button beside English or Metric, depending on the type of units that were used in the document. Whether you use the English or Metric system, you can choose the basic units for the drawing: Decimal Inches, Decimal Feet & Inches, Decimal Feet, Fractional Inches or Fractional Feet & Inches in English drawings; Millimeters, Centimeters, Decimeters or Meters in Metric drawings.
7. If necessary, change the units in the Units pop-up menu.
8. Select the scale you want.
9. Click the **OK** button to close the dialog.

The DWG Unit dialog displays.

DWG files use non-specific units of measurement. Enter a value to specify how many DWG units there should be per foot or per meter in the drawing to be displayed. The document will now continue to open. Various status dialogs will show during the process. If any objects are detected in the drawing that can't be displayed it will show a dialog similar to the one shown below, telling you what it cannot display.

You are given the options of continuing or stopping. You may also ask for the dialog not to be shown again and simply skip other objects it cannot display.

## **DWG import issues** PRO ONLY

Currently MacDraft does not support objects in DWG documents that contain hatches. The first time such an object is encountered during the read process, a dialog appears informing you that the type of object is not supported. These objects will not be read into the MacDraft document.

## Exporting a document in DWG format PRO ONLY

### *To export a document as a DWG file*

1. Choose **DWG** from the **Export** submenu in the **File** menu.

The standard Save dialog appears.

2. Enter a name for the document (if the file is destined for a non-Macintosh computer, you may need to limit the number of characters in the file name).
3. Specify a location to save the document.
4. Choose the **DWG** version from the **File Version** pop-up menu.
5. Click the **Export** button.

The DWG file will be saved with the name and at the location specified.

## Image formats PRO ONLY

MacDraft allows you to open image formats such as PNG, JPEG, PDF etc.

## Opening images PRO ONLY

### *To open images*

1. In MacDraft, choose **Open** from the **File** menu.
2. Locate the file you wish to open and click the file name to select it.
3. Click the **Open** button.

**Note:** You can also drag an image into the document or onto the application icon.