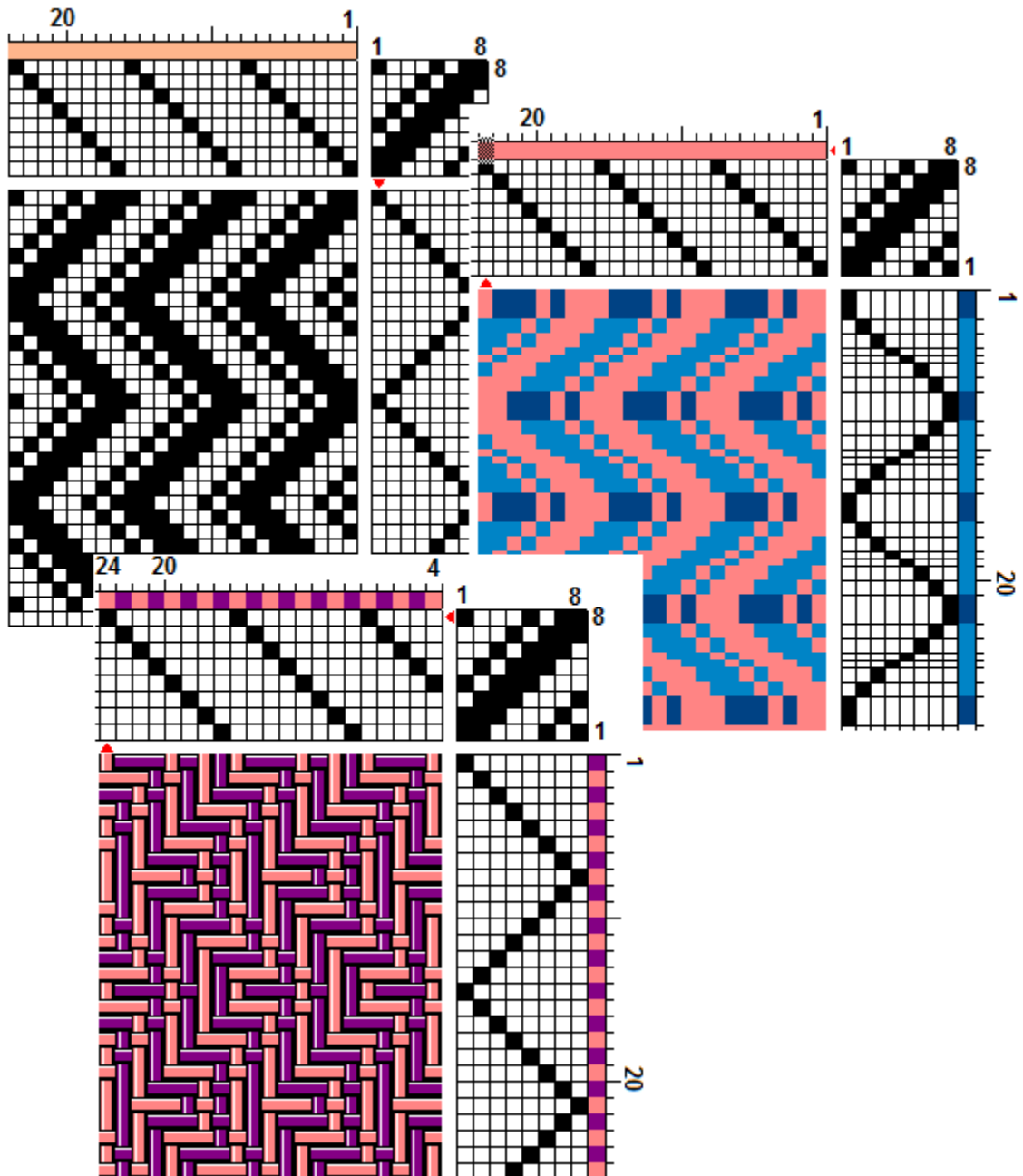


Fiberworks Bronze 1.4

for Apple Macintosh®



Using Fiberworks Bronze for Mac

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Chapters start with a pink bar with the title of the chapter. Headings within the chapter are **bold lettering** larger than the paragraph font. Subheading are **bold**. Paragraphs contain bold words are usually **functions or items on the menu**.

A note is something we want you to pay attention to. It is usually slightly indented and headed by bold red word such as **Note**, **Hint** or **Tip**. **A sidebar** is a more detailed explanation relating to the current topic.

Menu commands are indicated by the following format: **File > Open**. This means **first choose** the File menu from the menu bar, and **then choose** Open.

Help refers to pages that are displayed on-screen when you go to the Help item in the Bronze main menu and select **Bronze Help**. Fiberworks Help is laid out like a web site, with multiple linked pages. The **Search** menu item in the Help Menu lets you type in a keyword, and will locate topics that contain that keyword. If you type weaving related terms, the topics will be contained in Fiberworks Help, but if you type computing related terms, you may get topics from Mac Help as well.

Help within the program is distinct from the Bronze e-manual included with your program.

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Installing Fiberworks Bronze

You may need to provide your normal Mac password to install Fiberworks.

From DVD or USB: Insert Fiberworks DVD or USB open the folder. Create a new folder on you Mac Hard disk, and drag or copy the files from the USB or DVD to the new folder. These will now be resident on your Mac.

From a download: Open the file Bronze140.zip. It contains Bronze.app, a folder called My Weaving, a manual in pdf format, and a file called ReadMeFirst.pdf. Drag or copy the zip file to a new folder on your Mac, then double click the zip icon to expand it.

Double click the shuttle icon to open Bronze. The shuttle icon should now appear in the Dock. If you wish to show the icon in the Dock permanently, Ctrl+click the icon to bring up a popup menu. Choose **Options**, and in the secondary menu, choose **Keep in Dock**. The zip package also includes the pdf of the Silver Manual and Looms Manual. The two manuals will open in the Mac Preview application.

The new folder also contains a folder called My Weaving. This contains sample files as well as a place to save your own work, My Designs.

Validating Fiberworks Bronze

Open the Bronze program either from its icon in the dock (or wherever you have placed it). You will see a panel that shows **Your program ID** at the top. It is a 6 to 10 digit number with a letter in the middle. This number is **unique to this particular computer**.

Installing on another computer gives a different program ID, even with the same USB or DVD.

NOTE: Don't copy the example on this page. Use the Program ID that appears when you start your own copy of Bronze.

A previous Program ID, or a Program ID from another computer, will not be valid.

Copy your Program ID carefully, paste it into an e-mail message and send it to us at: **info@fiberworks-pcw.com**. We will send you the **Validation Code** by email as soon as possible.

123 231 132 213

Using Fiberworks Bronze for Mac

If you are a **new user** or have upgraded from a previous version, contact us to **purchase** your copy of the program. No validation will be sent until payment has been received.

When you receive your **Validation Code**, open the application, carefully enter the code into the respective boxes in the lower part of the Validation panel. Make sure that there are no extra "0"s or spaces around the numbers you enter, and that there are no more than 3 digits in each box (see the panel above). When done, Close the panel.

If you validated successfully: A confirming message sheet should appear after the Validation code has been entered successfully. Close the sheet with the OK button, then close the application by choosing **Bronze > Quit Bronze**. This will set the validation into the computer's memory. When you restart, you will have full use of the Fiberworks Bronze application, including Print and Save.

If you did not validate or your validation entry failed: A message sheet appears that says that Fiberworks Bronze has **not** been validated. Check that you put in the validation code correctly. If it still fails, check the program ID again and contact us with the program ID and version. It is also possible that we made a mistake. Meanwhile, the program can be used as a **Demo**. All features of the program are available for you to try out, but it won't **print** or **save** until it is validated.

Folders for your Designs

The installation process creates a folder called **My Weaving** within your Documents folder, and two more folders within My Weaving, called **Samples** and **My Designs**. **Samples** contains designs provided by Fiberworks for you to use as test examples. Use **My Designs** to store the designs that you create yourself. You may add additional folders within My Designs so as to organize your design files in an orderly manner.

Other Computers

If you want to use the application on more than one computer, install Fiberworks Bronze from the CD, or copy the downloaded file FiberworksBronze140.zip onto the other computer.

Note: *Each computer will generate its own unique program ID, and needs a separate Validation code.*

To get a validation code for the new installation, you will need to send the **new** Program ID with your customer number, version of the program to be validated and the operating system you are using. We will provide you with a new validation code. There is no charge for additional computers if you are already a registered user.

Computer repairs may generate a new Program ID, so again we will need your name and address, customer number, and Program ID to issue you with a new validation.

Uninstalling Bronze

If you no longer require this application and wish to remove it from your computer, simply drag all icons to the trash. You do not need to trash My Weaving and the designs it contains if you are also using them on a different weaving design program.

Using Fiberworks Bronze for Mac

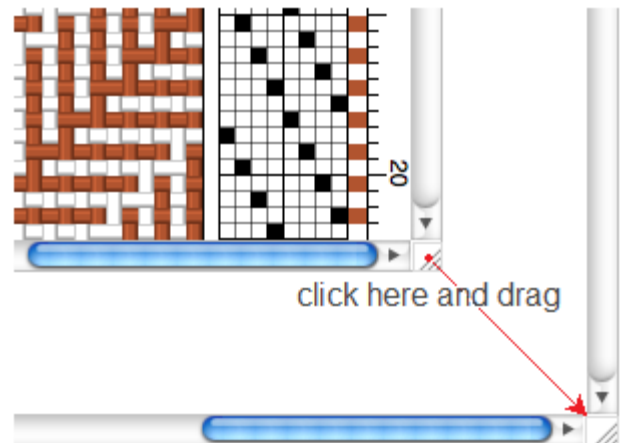
Getting Started

Open the Bronze application and examine the various components on your desktop.

The **Main Menu** runs across the top of the screen in normal Mac fashion. Just underneath you will find a **Design Window** occupying much of the screen. This window contains the Bronze **Drawdown frame**. The **Color Palette** floats separately off the right side of the Design Window.

You can adjust the size of the Design Window by clicking and dragging any edge or corner of the Bronze window. The cursor takes the shape of a double ended arrow when it's ready to drag and re-size the window.

Bronze for Mac follows the standard Mac practice of making separate floating windows for each design that is open, unlike the Windows version where individual design windows are enclosed in a single outer window frame.



The **Main Menu Bar** at the top of the screen stays in place so long as Bronze is the current active application. The menus **Bronze, File, Edit, Drawing, View, Cloth, Colors, Threading, Tieup, Treadling, Tools, Window** and **Help** are all found there. Pop the menus open to see what they contain, and rest the mouse cursor on individual menu items to read a brief explanation of what they do. Click on each menu item and explore it. A detailed explanation of each menu item follows later in this manual.

Note: Some menu items appear in gray. This means they are inactive, or 'grayed out' because there is nothing for them to act on. For example, **Block Substitution** needs at least a threading to use as a profile. **Cut and Copy** are grayed if there is no selection, and **Paste** is grayed if there's nothing in the clipboard to copy.

Rest the mouse cursor on each toolbar item to pop up a small text box that explains what the tool does. Feel free to play around in the drawdown frame. Click things and see what happens. You don't have to save your first explorations, and it's hard to do any permanent harm.

Help menu

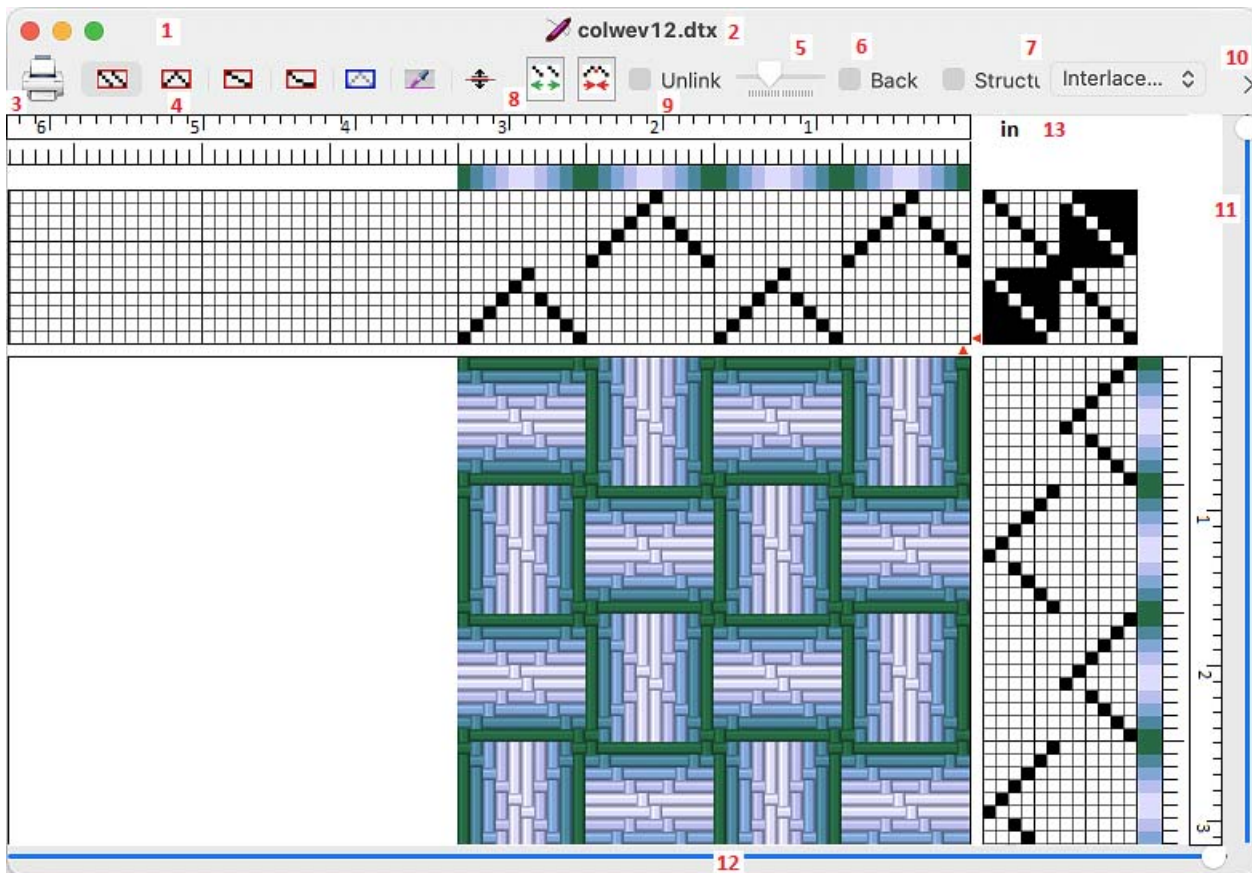
The **Help Menu** has only two items, **Search** and **Bronze Help**.

Type a keyword or phrase into **Search**, and a list of topics will appear. If your keyword is too general, topics in Mac Help may be listed as well as Bronze Help.

Bronze Help is laid out like a website with multiple links to different topics.

Using Fiberworks Bronze for Mac

Elements of the Bronze Application Window

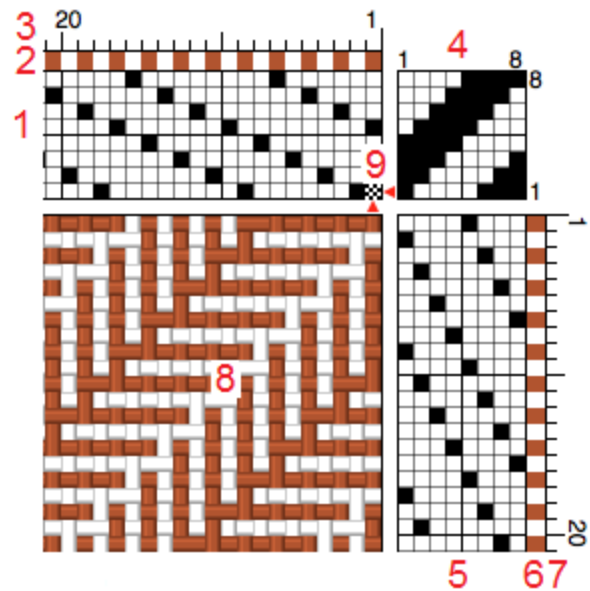


1. Title bar with red Close, yellow Shrink and green Zoom buttons on the left
2. Filename of the design
3. Toolbar, starting with the Print Button
4. A set of Drawing Tools for the mouse
5. Slider control for magnification
6. Front/Back view selector
7. Cloth Display mode selector
8. Insert and delete buttons
9. Link / Unlink button
10. >> symbol indicating more items in the toolbar
11. Vertical Scroll bar
12. Horizontal Scroll bar
13. Optional rulers showing physical size in inches.

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Within the Bronze drawdown frame

1. **Threading draft** on shafts 1-8, showing 21 warp ends, reading **right to left**.
2. **Warp color bar**, in the strip immediately above the threading draft
3. **Warp thread thickness bar**, immediately above the color bar, showing up-pointing tick marks
4. **Tieup** for 8 shafts and 8 treadles
5. **Treading draft** showing 21 picks, immediately below the tieup
6. **Weft color bar** to the right of the treading area
7. **Weft thread thickness bar** immediately to the right of the weft color bar
8. **Drawdown area**, which can be shown with or without a grid.
9. **Insertion point**, a blinking checkered square, marked with tiny red triangles under warp end 1 and beside shaft 1. This is where keyboard entries will appear.



Threading, treading, color bars, thread thickness bars, tieup and drawdown are all live editing areas. The cloth drawdown area can be edited, with some limitations.

The Color Palette

The Color Palette floats as a separate window off to the side of the Design Window. The palette contains 42 or more available colors, shown as two or more columns of small color patches. Two larger patches at the top of the palette indicate the current active colors that can be applied by the mouse. The symbols next to each color indicate the keystroke assigned to that color.

A single color palette is shared when two or more design windows are open. However, each window can show its own colors in the palette, so you may see the colors change as you switch between windows.

Multiple Design Windows

You may open as many designs as you like and each can be individually sized, and contain different designs (or the same ones) views, colors, thicknesses or magnifications. Each design window can be changed independently of the others. Each design window consumes working memory and slows your system slightly. Try opening a large number (50-100) of designs to see how your system is affected. Normally be conservative, so try not to open more than 4-12 windows to maintain a good response while working.

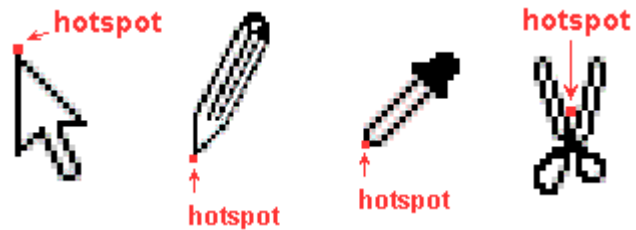


Mouse Actions

Mouse terms defined

The **Cursor** is the symbol that moves on the screen, tracking movements of your mouse. The cursor may take different shapes that indicate its current function, e.g. a **pointer** to point and select, a **pencil** to draw, **scissors** for cut and paste etc. Each

cursor has a **hotspot** which designates where the action will take place on the screen. Hotspots are invisible, but placed logically, as in the examples above.



Point: Place the active cursor hotspot over the target.

Hover: Set the pointer cursor over an object like a toolbar button and rest it there for about a second. A text explanation of the item should pop up.

Click: Push and release the mouse button while pointing at the target. This is the most common action, and usually has some immediate effect. If you have a two button mouse, simple **click** and **double click** always refer to the **left** button. Clicks are used for drawing, selecting regions of a draft to cut or copy, and to choose actions from menu, toolbar or panel buttons.

Double Click: Initiates an alternative action that differs from single click. The cursor should not move more than a pixel or two between clicks, and the two clicks must usually be less than half a second apart, otherwise it registers as two separate single clicks. You can adjust double click timing in the System Preferences. If you find double click awkward, you may substitute Option Click instead. Hold down one of the option keys while performing a single click, and it will act like double click.

Right Click: If you have a two-button Apple Magic Mouse, you may use single right click instead of double-click.

Click and drag: Place cursor over the target, push the mouse button and **without releasing the button**, move the cursor, so that the point is in the new target area. This is used for drawing, and for selecting areas in drafts.

Drag and drop: Refers to the action of clicking on an object to pick it up, holding the mouse button down, dragging it elsewhere and releasing the mouse button at the destination. A selected area can be moved from place to place this way. Files can be dragged from one folder and dropped in a different folder. Dropping a file onto a program icon causes the program to open that file if the file is an appropriate type.

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Mouse Action	In the Design Window	In the Color Palette
Single click (Left button if you have a two button mouse.) Often just referred to as click.	Makes a black mark in draft Applies main color in warp or weft color bar Doubles a thread thickness	Selects main color
Double click (Left button if you have a two button mouse.) Or Option-Click Or Single Right Click *	Makes a white mark in draft or erases black Applies alternate color in warp or weft color bar Halves a thread thickness	Selects alternative color
Click and drag (Click on the start position, and without releasing the button, drag the mouse to the finishing point, and then release the button.)	Creates drawing rectangle (red) and selection rectangle (blue) in threading, treadling, tieup, color bars and thickness bars. When initiated by a double click (or alternatives given above left) contents of the rectangle erase or apply alternative color.	No assigned action
Shift-Click	When a selection already exists, resizes the selection rectangle.	No assigned action
Ctrl-Click	Brings up a context menu where applicable	
Double right click	No assigned action	No assigned action

*Some **Macbooks** can be set to use a two-finger touch to generate a right click. Under certain conditions, a second finger merely hovering over the touchpad is enough to convert a left click to a right click when you don't intend it. This can cause confusion, so test this feature thoroughly before you adopt it in Mac Preferences. A Magic Mouse is recommended if you wish to use the right-click method on a regular basis.

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Keyboard Actions

Many functions in Bronze may be controlled by the keyboard, as well as by mouse. Any part of the design screen is accessible from the keyboard. The **insertion point** (described on page 5) designates where keystrokes will be applied.

Navigation

The **arrow keys** move the insertion point around **within** any one component of a draft, e.g. Within the threading draft, within the warp color bar, etc

Tab and **Shift+Tab** jump the insertion point from one draft component and into another.

Home: Jumps one screen width of draft right if the threading is wider than the window.

End: Jumps one screen width left.

PgUp: Jumps one screen up if the treadling is taller than the window

PgDn: Jumps one screen down

Cmd + → Moves the insertion point to beginning of threading.

Cmd + ← Moves the insertion point to end of threading.

Cmd + ↑ Moves the insertion point to the beginning of the treadling.

Cmd + ↓ Moves the insertion point to the end of the treadling draft.

Note: Actions that need a modifying key to be pressed at the same time as another key, are written as two symbols joined by a + sign. For example **Ctrl+↑** means press the Ctrl key and ↑ key **simultaneously** rather than Ctrl key, + key and ↑ key one after the other. You don't press the + key at all! Modifying keys are **Cmd**, **Ctrl** (Control), **Option** and **Shift**.

Typing In Drafts

The keyboard can be used to create drafts by typing in sequences of shaft or treadle numbers. In **single digit** entry, the keyboard represents **shaft or treadle numbers greater than 9** as shown on the right. Colors are typed in using symbols next to each color in the palette bar.

1	2	3	4	5	6	7	8	9	0
1	2	3	4	5	6	7	8	9	10
q	w	e	r	t	y	u	i	o	p
11	12	13	14	15	16	17	18	19	20
a	s	d	f	g	h	i	k	l	;
21	22	23	24	25	26	27	28	29	30
z	x	c	v	b	n	m	,	.	/
31	32	33	34	35	36	37	38	39	40

You can also use **double digit entry**: type “ (double quote) enter this mode. Every two digits typed represents a shaft or treadle number, e.g. 01170218 sets shafts 1,17,2,18 into the threading. You have to type 01-09 for shafts 1-9 to stay consistent with the two digit mode. The insertion point automatically advances with each shaft or treadle entered. Type ‘ (single quote) to go back into single digit entry.

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How To Draw

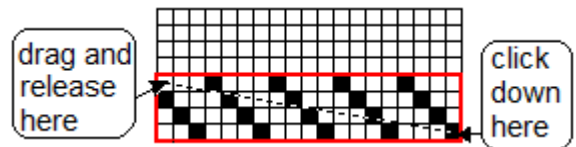
The mouse drawing tools are the most common and direct way to draw in drafts in a design. Choose your active tool from the



Tool Bar and or from the **Drawing menu**. Drawing modes include **straight draw** (shown in **selected** state above), **point draw**, **line draw** and **freehand draw**. When a drawing tool with a **red** outline rectangle is active, your mouse cursor appears as a **pencil** in the drafts, and will make entries into the drafts. The three rightmost tools in the strip have special functions (see the Drawing menu, pp.20) and these show an arrow pointer or other cursor shape.

Start now with the **straight draw** tool selected. To enter threading, treadling or tieup, you may click individual grid squares one square at a time. **Single click** draws (makes a white square black), and **double click** erases (makes a black square white). You may also use Option click or Right click instead of double click. This can be done with any of the first four drawing tools.

In many cases, it's more efficient to draw by the **click and drag** method. Continue with the straight draw tool selected, click at the start of your drawing area, and drag out a rectangle.



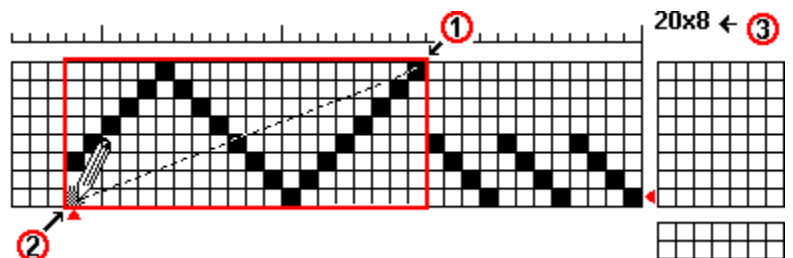
This rectangle shows a **red** outline, and with the straight draw, fills itself with a straight draw threading. If the button is released on shaft 4, then the rectangle and the straight runs inside the rectangle are four shafts high. The track of the mouse (dashed line in the example above) simply makes a diagonal across the rectangle. **It is not necessary to try to trace out the line of the actual threading.**

Now click to choose the **point draw** tool. The selected tool appears shadowed and pushed in.

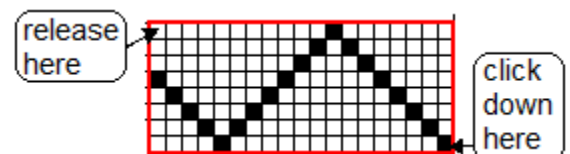


Drawing starts in the square where you click the mouse button down. The height of the points is controlled by the height of the rectangle, and the number of ends threaded by the width of the rectangle. So long as you continue to hold the mouse button down, the rectangle remains fluid, and can be made taller or shorter, wider or less wide until you get the draft you want and you can release the button. In this example, the mouse button was clicked down at top right

(1), and released at bottom left (2). With the point draw tool selected, the rectangle fills itself with point draw threading. If thread numbering is on, an indicator (3) appears next to the tieup and shows the width and height of the red rectangle.



If you click down at bottom right and track the mouse out to the top left corner, the points now face **upwards**.



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Experiment by trying each of the drawing tools in turn: **straight draw**, **point draw** (shown at left), **line draw** and **freehand draw**. Try dragging the drawing rectangle area from bottom to top as shown here or top to bottom as shown on p.9. Make the rectangles different sizes and start them on different shafts. Any of the four drawing tools can be used in threading, tieup or treadling. Straight draw and point draw are generally the most useful for normal weaving drafts, where diagonal lines are common. Line draw and freehand are more useful for profile drafts (see p.59).

Even with these simple tools, surprisingly complex looking drafts can be drawn quickly. On the right is an example of an overshoot draft, which could be drawn as shown with either the point draw or straight draw tool.

If you make an error, you can undraw or erase entries in the draft by **double clicking** on the offending black square. If you double click and drag out a rectangle, the contents of the rectangle will blank out. Alternatively, you can simply draw something new over the section with the error. In threading and normal treadling drafts, the new entry will **replace** the old, because only one shaft or one treadle is allowed per thread.

Tieup or (liftplan p.52) behave slightly differently, because more than one shaft can be tied to each treadle, so more than one black square can be placed in each vertical column. So in the tieup, drawing over an error adds to the error instead of replacing it. Instead, remember - double click (or Option click) to erase or draw white over black.

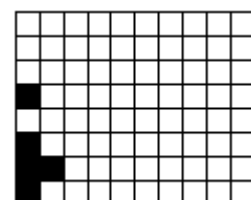
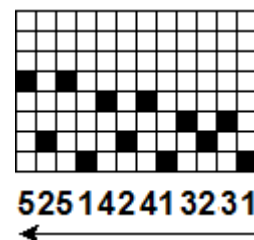
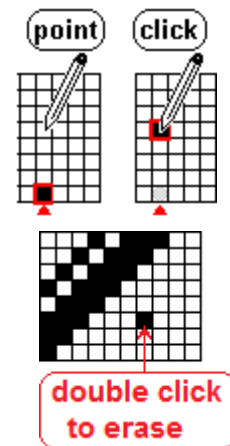
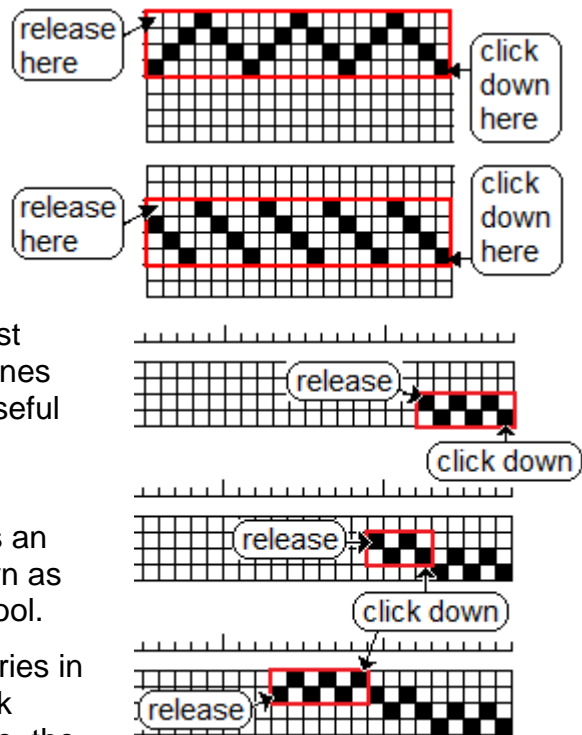
Creating drafts by Keyboard

You can also create drafts by **typing** on the keyboard. Make sure the insertion point (p.5) lies at the start of your draft (see p.8 for navigation by keyboard), and then type the sequence

1 3 2 3 1 4 2 4 1 5 1 2 5

In a right to left threading, the insertion point advances **left** with each keystroke, so there's nothing to interrupt the flow. Great for lace weaves or Summer and Winter! See p.8 for **how to type numbers greater than 9 with a single keystroke**.

Typing also works in treadling and tieup. In the tieup, the insertion point does not advance, since you can tie more than one shaft to each treadle. To get the result shown in the tieup example on the left, first move the insertion point into the leftmost treadle, and then type **1 2 3 5 → 2** where → represents the right arrow key.



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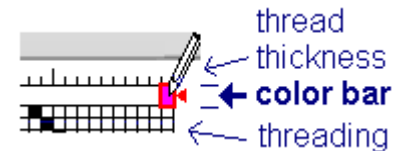
Adding Colors To Your Design

You can apply colors by **Mouse** or **Keyboard** each suited to particular tasks.

Applying color by mouse

Start with a drawing tool such as the straight draw tool.

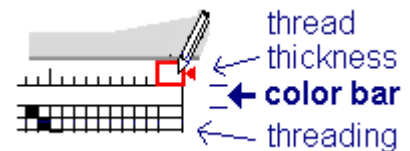
The cursor should look like a **pencil** as it moves over the drafts. “Paint” by clicking the mouse with the **point** of pencil cursor positioned **in the warp or weft color bar**. Click the mouse button to apply a color to the warp end at the pencil point. Click and **drag** to sweep across several warp ends to “paint” a band of a single color.



Oops! *I clicked and the thread went wider instead of colored! What's happening?*

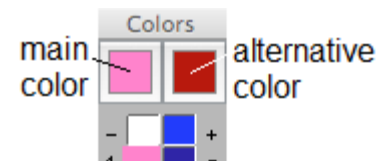
People learning Bronze sometimes click above the color bar, in the thread thickness bar, where a click makes a double-wide thread. Type **Cmd-Z** to undo the double wide thread. Make sure the point of your cursor is **in the color bar if you want to apply a color**.

See p.44 for more about thread thickness.



The working colors and how to choose them

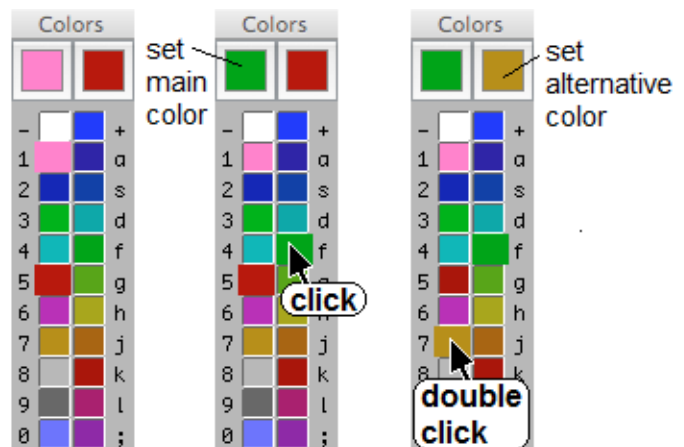
The two enlarged color squares at the top of the color palette **indicate** the **working colors** for the mouse. The left square is the **main** color (pink in the example) and shows what will be applied when you click once into the warp or weft color bar. The right square (deep red in the example) is the **alternative** color and is what will be applied if you double click (or use one of the alternatives to double clicking, pp.6-7).



To choose the main color, single click on any of the color chips in the color palette. The main color indicator will take up that color. Now a single mouse click into warp or weft color bars will apply the new main color. Any threads that you colored previously remain as they were.

Double click on any of the color chips in the palette to choose the **alternative** color. Now any double click into the warp or weft color bar will apply the new alternative color.

You **don't** need to click the main and alternative color squares in order to use these colors. They simply **indicate** what color the mouse will apply when you click in warp or weft color bars.



Using Fiberworks Bronze for Mac

In practice, when you work with many colors, many people find that it's easier to keep selecting different colors with a single click than to fuss with double clicks.

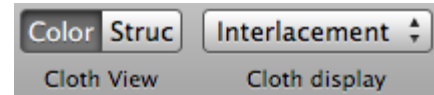
The two working colors are made to appear in the palette bar as if they pop out, like colors 1 and 5 in the example, whereas the unselected colors appear recessed. This helps you to identify the currently selected working colors.



See also: *Colors>Show Color Panel* on p.38 to see how to obtain a color that is not in the current color palette.

Note: *Why don't I see colors in the cloth drawdown?*

The drawdown may be set to show **cloth structure** with black warp and white weft. If you want to see the color in the cloth now, click this optional toolbar button to show **color**. See p.33.



Adding Colors by Keyboard

For complex color sequences, the keyboard can actually be faster and more efficient than the mouse. The symbols next to each color in the palette indicate the keystroke that applies that color.

First, make sure the **insertion point** (the blinking checkered patch, p.8) is **positioned where you want colors to appear**. If it is not in the warp or weft color bar, the keyboard will do something else than apply color. Use the arrow keys as described on p.8 to move the insertion point, or click the mouse where you want the insertion point to start.

As you type, the insertion point will advance, leftwards for the warp color bar, or downwards for the weft color bar. If there's already a color on a particular thread, a keystroke will type over it (as will applying color by mouse).

Exercise: To compare two different ways to enter colors.

Desired color order: **1 1 1 1 2 1 2 1 2 2 2 2 2 w 2 w 2 w w w w 3 w 3 w 3 w 3 3 3 3 3**

By Mouse: Click on color 1 so that it becomes the main color. Double click on color 2 to make it the alternative color. Double click and paint the first 17 threads a solid area of color 2. Go back and add the main color 1 with single clicks where needed. Then click on color w to make a new main color and paint it into the color bar as needed. Finish by clicking color 3 and applying it to complete the sequence.

Keyboard: Now compare to keyboard entry. Type 1 1 1 1 2 1 2 1 2 2 2 2 2 w 2 w w w w 3 w 3 w 3 w 3 3 3 3 into the color bar. Both ways give you the same complex color order, but the keyboard is much easier and faster in a case like this.

The *Threading > Color Fill* or *Treading > Color Fill* menu items (p.42) apply simple repeating patterns of up to four colors in warp and weft. This is quick and easy to use, although less versatile as the mouse and keyboard entry. The Color Fills are most useful for color and weave or double weave designs where there are simple repeats.

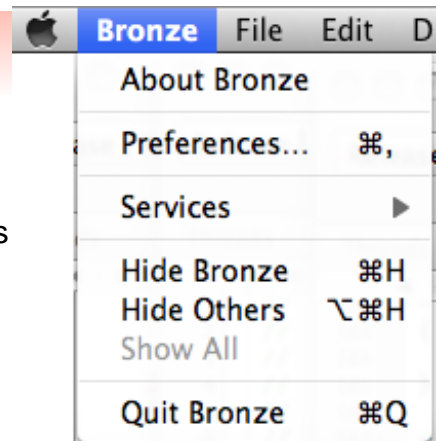
Using Fiberworks Bronze for Mac

The Bronze Menu

Use **About Bronze** to identify the version you are using.

Preferences opens the preferences panel where you set can your own preferred start-up state for new Bronze drafts (see p.65).

Quit Bronze terminates the Bronze application, closing all windows. If contents have been modified, you will be prompted to Save the file.



The File Menu

The **File menu** controls opening, saving and printing files.

New keyboard shortcut: **Cmd + N**

Opens a new blank drawdown with the default settings as determined by your Preferences. When designs are created with **New**, they are initially named **untitled1**, **untitled 2** etc. You will be prompted to **Save As** when you close them.

Open keyboardshortcut: **Cmd + O**

Opens a drawdown from an existing file. For details, see [How to Open Files](#), on p.14.

Open Recent displays a list of files used recently. Pick from this list to resume work on your current projects.

Duplicate opens a second, independent copy of the file in the current open window. Changes made in one window are not reflected in the second window. The duplicate design does not inherit the title of the original to reduce the risk of overwriting it.

Close keyboard shortcut: **Cmd + W**

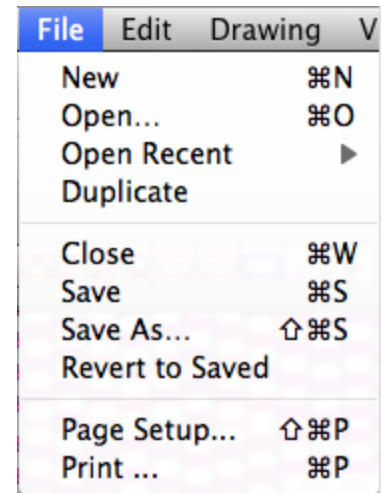
Closes the currently active drawdown window, the topmost if you have a stack of windows open (not the whole Bronze program). If you try to close a design that has not been saved since the last modification, you will be prompted to **Save As**.

Save, Save As keyboard shortcuts: **Cmd + S, Shift Cmd + S**

For details on Save and Save As, see [How to Save](#) on p.15.

Revert to Saved reloads the current window with the last saved version of the file. It obliterates any changes made since the file was first opened.

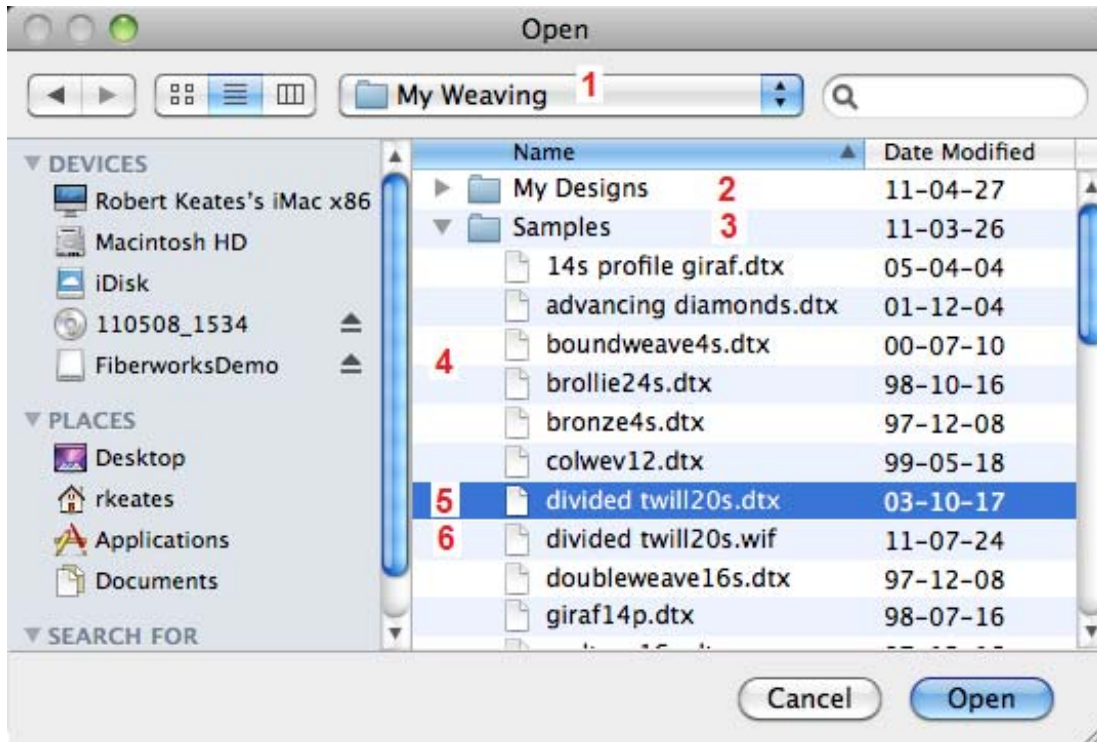
Print, Page Setup For details, see [How to Print](#) on p.16-18.



Using Fiberworks Bronze for Mac

How to Open Files

File Open panel:



To open a design that is stored on your hard drive, external drive or USB memory stick, choose the menu item **File > Open**. A panel comes up that has several elements. At the top (1) the current active folder **My Weaving** is identified. It contains two subfolders, **My Designs** (2) is currently closed (triangle symbol points to right) while **Samples** (3) is open (triangle symbol points down). The blue bar represents the file and its contents (4) are listed below. The file **divided twill 20s.dtx** (5) is currently selected to open.

The panel lists files of type dtx and wif. If the panel is empty, it means the current folder contains no wif or dtx files, and you should look elsewhere. The pane on the left indicates other locations where you may look for folders and files.

Dtx is the private Fiberworks format. Storage is more efficient than the alternative wif file format (6). Wif is a public format that can be shared with other weaving programs.

Click the Open button to open the selected file.

You can also open wif and dtx files by double clicking them in a Mac Finder panel. This will open a new Bronze window containing the draft that you have double clicked.

Bronze for Mac does not open the obsolete des format used by MS-DOS Fiberworks.

Using Fiberworks Bronze for Mac

How to Save Files

Save: keyboard shortcut: **Cmd + S**

This immediately saves the current window contents using the existing filename and folder location. If a design is already titled, you are not given the option to change file name or location. If a design is still untitled, you will be redirected to **Save As**.

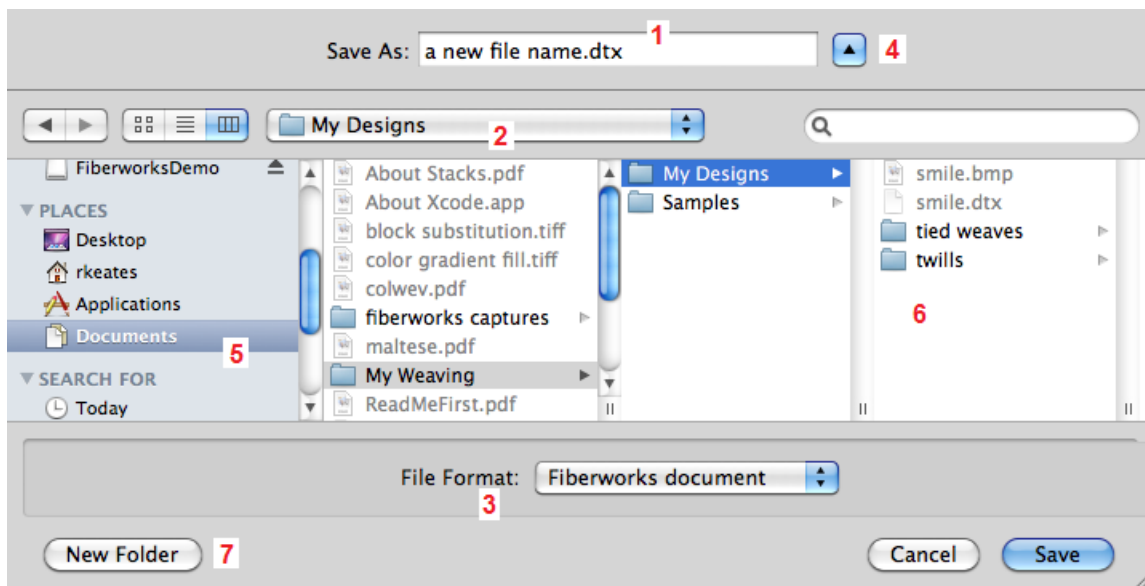
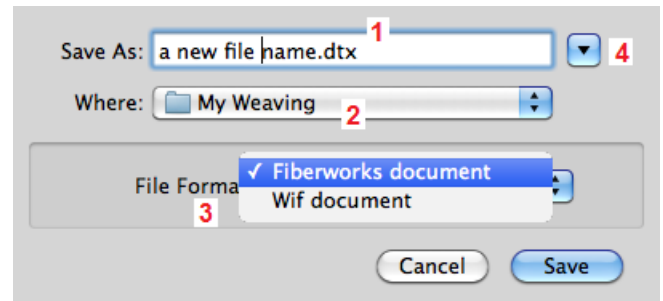
Save As: shortcut **Shift Cmd + S**

Save As brings up the **Save Panel** (see short form at right)

You enter the file name in the uppermost text box (1). The destination folder is shown just below (2).

There are two options for file format (3), **Fiberworks document** saves as dtx, and **wif document** saves as wif.

Only a limited number of choices for destination folder are shown in the short-form Save Panel. For more options, including the ability to create a new folder, switch to the **long-form panel** (below) by clicking the disclosure button at (4).



The long form shows a breakdown of the sequence of folders (5-6) where the file will be stored, and gives access to any folder on the computer. It also includes a button (7) that allows you to create a new folder if desired.

It's a good thing to organize folders into a logical hierarchy. In the example, **My Weaving** contains **My Designs** and **Samples**; **My Designs** contains **Tied Weaves** and **Twills**. Files placed in an appropriate folder will be easier to retrieve in the future.

Using Fiberworks Bronze for Mac

How to Print

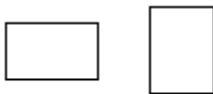
Page Setup

Keyboard shortcut **Shift Cmd + P**

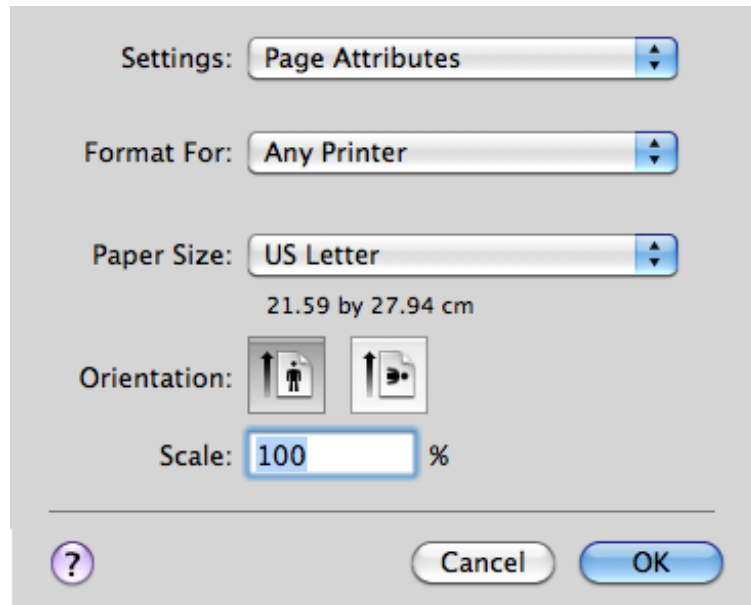
Choose **File > Print Setup** to select **printer**, and **paper size** **before** going to **Print**.

You can also set orientation and print scaling here, but similar controls are available in the **print preview** where they can be set interactively.

Orientation options are **Portrait** and **Landscape**.



landscape portrait



Print

Keyboard shortcut **Ctrl+P**

Printing starts with an interactive preview panel that shows a representation of the printed page on the left side. The full page image will appear fuzzy, because screen resolution is too coarse to render the page properly. Zoom buttons above the preview allow you to see a magnified view to give a better idea of the image quality when printed.

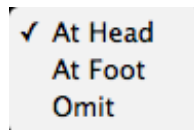
The right half of the panel contains a variety of controls over the printed content.

Include lets you choose which draft elements appear in the preview and final printout.

Title lets you position or omit the title.

Only Print what's visible in the main window

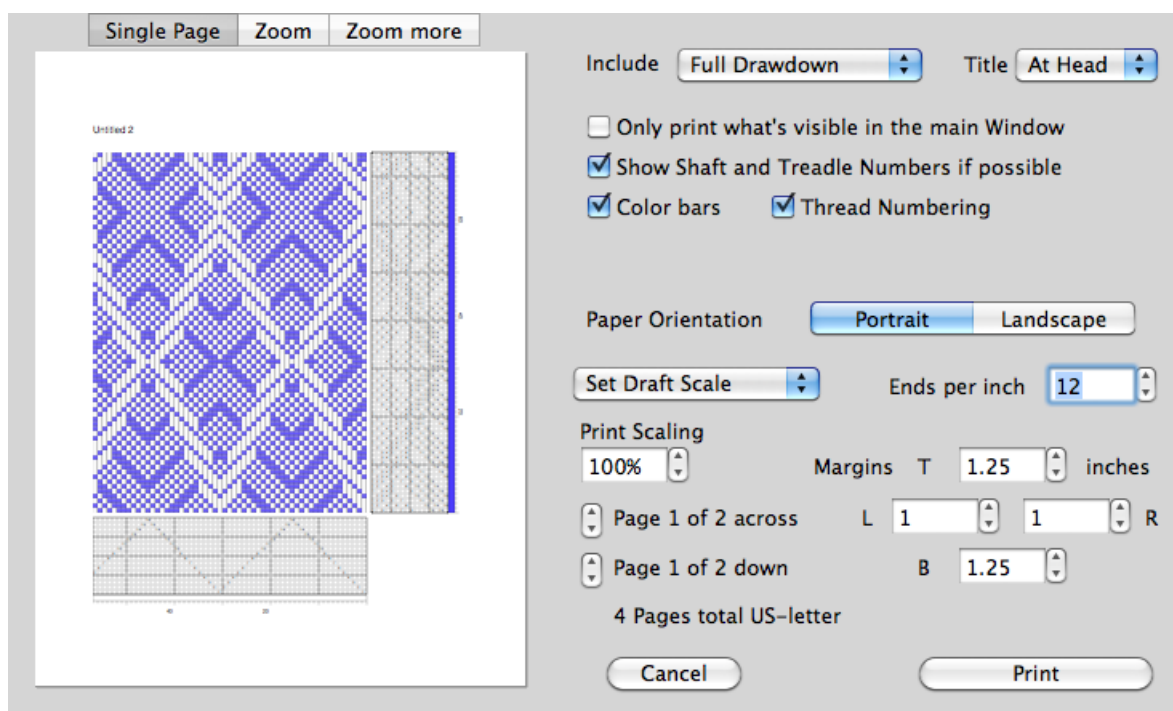
When selected, the printout is limited to the range of ends and picks visible in the main drawdown window. You can select a portion to print by resizing the window, choosing an appropriate magnification, and scrolling to the selection that you want printed. When unselected (default), the entire drawdown will be printed.



Show shaft and treadle numbers where possible

When selected, the grid squares showing threading tie-up and treading will be represented by shaft and treadle numbers instead of solid black squares, provided the grid squares are large enough. The limit is 24 squares per inch.

Using Fiberworks Bronze for Mac



Color Bars lets you choose to include or omit warp and weft color bars with threading and treadling (default is to include).

Thread Numbering lets you choose to include or omit the thread numbering that shows at the edge of threading and treadling drafts (default is to include).

Paper Orientation lets you choose portrait or landscape orientation, overriding Page Setup.

Set Draft Scale is one of four options shown on the right. Set Draft Scale lets you choose the size of your printout and how it fits the page, by adjusting Ends per Inch and Print Scaling.

✓ Set Draft Scale
Fit to Page
Fit Page Width
Fit Page Height

Fit Page Width, Fit Page Height automatically scale the printout so that the draft fits on the chosen dimension of the page. A draft with a long treadling may extend to a second page down if you choose Fit Width, and a wide treadling may extend to a second page across if you choose Fit Page Height.

Fit to page automatically chooses the best fit to get the whole design on a single page.

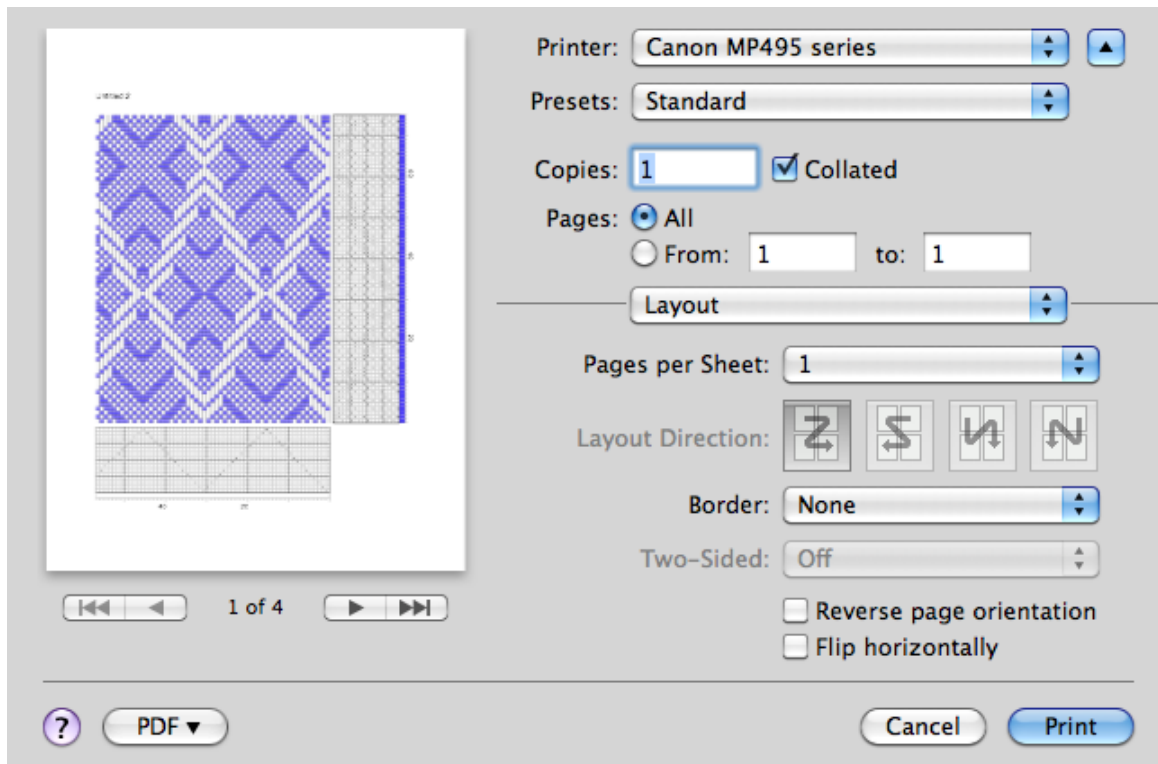
Scaling is controlled by two factors: **Ends Per Inch** and **Print Scaling** (in percent). The separate Print Scaling factor allows you to associate a nominal number of ends per inch with a draft (see p.31), and not have to change that setting to fit the draft on a page.

The stepper control labelled **Page 1 of 2 across** allows you scan the preview across a multipage printout. The second stepper **Page 1 of 2 down** lets you scan up or down. Printing order is right to left for a right to left threading, and bottom up for Draw Up.

Lastly, there are settings for the four **margins**.

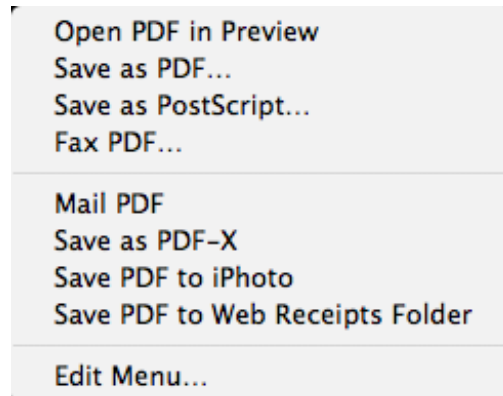
Using Fiberworks Bronze for Mac

Mac Print Panel



The Mac Print panel appears when you select Print in the preview panel. You can select your printer here, set **number of copies**, and the **page range** to be printed. Page order on a multipage printout always progresses vertically first, then across to the next column of pages. The page with the tieup is always page 1.

The PDF button allows you to choose to print to a PDF document instead of onto paper.



Using Fiberworks Bronze for Mac

Edit Menu

Undo shortcut: **Cmd + Z**

Redo shortcut: **Shift Cmd+Z**

You can **Undo** the last actions taken in the design to go back and correct a mistake. The number of steps extends to the last point that the design file was opened or saved.

The particular action to be undone is usually appended to the menu item.

Redo undoes Undo. The Redo queue is empty until you undo one or more steps.

Cut shortcut **Cmd + X**

Copy shortcut **Cmd + C**

Paste shortcut **Cmd + V**

Paste Transparent Shift Cmd + V

Undo Change Print Settings	⌘Z
Redo	⇧⌘Z
Cut	⌘X
Copy	⌘C
Paste	⌘V
Paste Transparent	⇧⌘V
Copy Image	⌘M
Select Drafts ...	⇧⌘A
Transform ...	⌘T
Insert Threads	F5
Delete Threads	⌘X
✓ Link Color Bars	⌘U
Unlink Color Bars	⇧⌘U
Special Characters...	

These items are described in more detail on p.23.

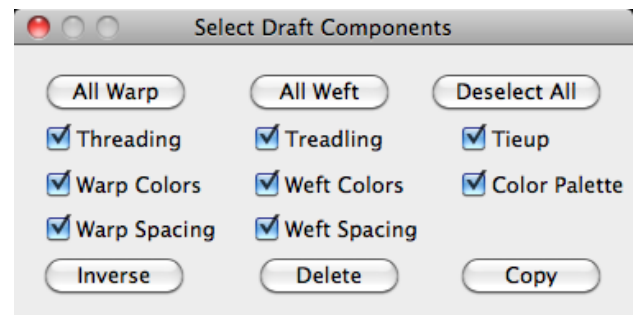
Copy Image shortcut **Cmd + M**

This copies the entire graphic image within the drawdown frame, which can then be pasted as a graphic into programs such as Photoshop®, Pages, Text Edit, Microsoft® Word™ and Powerpoint®. Adjust the size of your window frame and set magnification to include just what you want in the Bronze window beforehand.



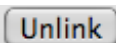
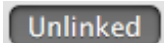
Be cautious about resizing the image after it is pasted, because not all programs handle resizing well. Resizing at screen resolution may result in a degraded image. To check, zoom to a high magnification in the destination program, e.g. 400%, and see if the image improves.

Select Drafts shortcut **Option Cmd + A**

This brings up the panel on the right, allowing you to select the entire threading, entire warp colors, entire treadling etc in one operation without drawing rectangles. It is also the only way to copy multiple components of the design in one operation, e.g. Threading **and** Warp Color **and** Warp Thickness. (Selection rectangles can only be drawn in a single area, and can't span both threading and warp colors). It is the only way the Color palette of one design can be copied easily. Selections made this way can then be pasted into another design (see p.23).



Using Fiberworks Bronze for Mac

Transform	shortcut Cmd + T	is described in detail on p.27.	
Insert Threads	shortcut spacebar or F5 key	toolbar button	
Delete threads	shortcut forward delete	toolbar button	
Link	shortcut Cmd + U	toolbar item	
Unlink	shortcut Shift Cmd + U	toolbar item	

These items are described in more detail on p. 28-30.

Drawing Menu and Toolstrip

The Drawing menu selects the drawing tool currently in effect for drawing with the mouse. The menu duplicates the contents of the toolstrip in the toolbar. The order of menu items corresponds to the left to right order of tool icons in the toolstrip. The menu allows you to work without a toolbar if you choose to, and sets up the keyboard shortcuts for each tool.



✓ Straight Draw	⌘D
Point Draw	⇧⌘D
Line Draw	⇧⌘L
Freehand	⇧⌘F
Select	⇧⌘A
Pickup Color	⌘C
Shaft Shuffler	⇧⌘S

A single item in the toolstrip and menu is always selected. The selection in the menu always matches the toolstrip.

Drawing tool icons outlined in a red rectangle actually draw in drafts. When one of these is selected the mouse cursor takes the shape of a pencil, with a hot spot at the pencil point. A click in threading, tie up and treadling marks a black square. A click in warp and weft color bars apply color. A click in the graduations outside the color bar double thread width. The effect of double click, modifier keys and right clicks are described on pp.6-7 and an explanation of how to draw on pp.9-12.

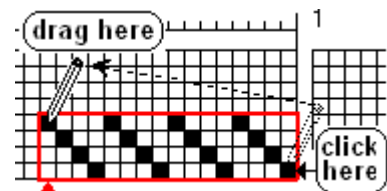
The remaining tools provide special actions for the mouse.

Straight Draw

toolbar:



Creates **straight draw** (in the weaving sense), so shafts or treadles progress in simple diagonals. Use the mouse to control the height of the rectangle outline, dragging the mouse to the opposite corner. You **don't** have to trace the individual steps of the threading.

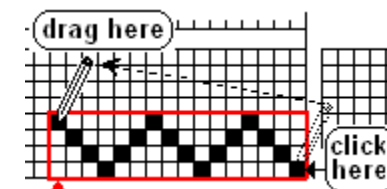


Point Draw

toolbar:




Creates **point draw** (in the weaving sense), so shafts or treadles progress in alternating diagonals.



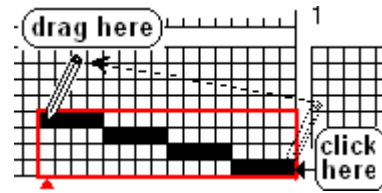
Using Fiberworks Bronze for Mac

Drawing menu continued:


Line Draw

toolbar: 

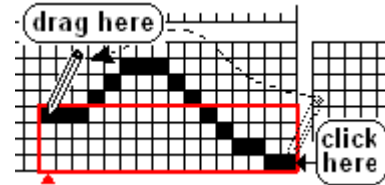
Draws a stepped line along the diagonal of the rectangle from where you clicked down to the current cursor location. This style can be used for profile drafts.




Freehand



toolbar: 

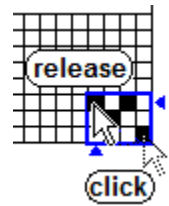
Draws directly into the threading or treadling draft. Unlike the previous modes, in this mode you have to track the mouse exactly on the line you want to draw. This style is used mostly for profiles.




Select

toolbar 

This tool allows you to select a rectangular area in threading, warp color bar, treadling, weft color bar or tieup. A selection rectangle  is outlined in **blue** to distinguish it from a **red** drawing rectangle.  Click down in one corner and drag out until the rectangle covers the desired area.



The contents of the selection rectangle can then be used in **Cut**, **Copy** or **Transform** operations. **Cut**, **Copy** and **Transform** are inactive (grayed out in the menu) if no selection has been made. These topics are described in more detail on p.23 and 27.

To use the **Select** tool, click the toolbar button. The cursor will become a **pointer**  instead of a pencil to indicate that the mouse is **selecting** rather than drawing. While the cursor is a pointer inside the drawdown frame, you can't draw, apply color or change thread thickness with the mouse. When you have completed whatever task required the selection tool, **click a red drawing tool icon when you need to draw again.**


Note: The cursor is always a pointer in toolbars, panels and menus, even when a red drawing tool icon is selected.

Using Fiberworks Bronze for Mac

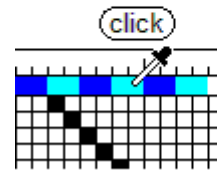
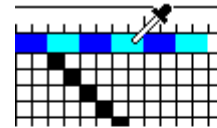
Pickup color

toolbar



This tool is used to **re-select** a color that's already present in warp or weft color bars. When the tool is active, the cursor becomes an **eyedropper** .

Position the eyedropper on the warp or weft color you want to reselect, click, and that color becomes the main working color (upper left square). If you double click, you reselect the alternative color. Use this tool when the palette contains several similar colors, and you can't remember which was used previously.




After you have clicked a color, the drawing tool previously used is restored. You must click the pickup color tool again if you need to select another color.

Shaft Shuffler

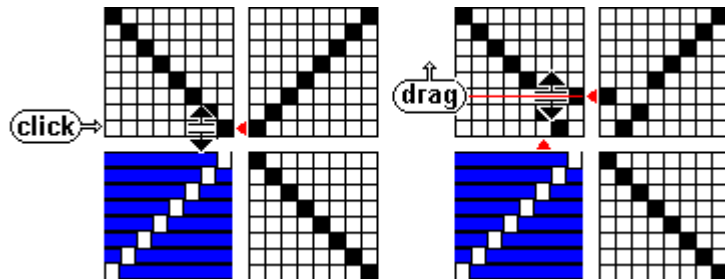
toolbar



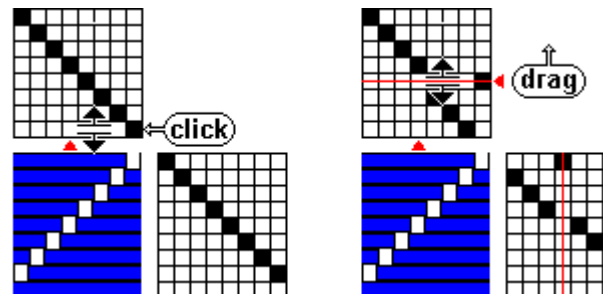
The shaft shuffler is a mouse tool that allows you to **rearrange the order of shafts and treadles** in an existing weaving draft. It coordinates changes in threading and tieup so that the drawdown remains unaffected, and when used in the treadling, coordinates changes with the tieup.

When you select the Shaft Shuffler, the mouse cursor turns into a double pointer  when it lies in the threading. When the cursor is in the treadling, the arrowheads face left and right.

Click down on a shaft that you want to move and drag it to the new location. When you click down, a red line marks the shaft that is being moved. Every warp threaded on that shaft is moved at the same time and the tieup is adjusted to match.



In liftplan mode, shifting a shaft adjusts the liftplan simultaneously so that the drawdown remains unchanged. If you click and drag within the liftplan, the threading will be adjusted also.



While the shaft shuffler is active, drawing or selecting is temporarily suspended. Click on a drawing tool or the selection tool when you want to resume normal work.

Using Fiberworks Bronze for Mac

Select, Cut, Copy and Paste

Many weaving drafts contain repeating features, and Copy and Paste are highly suitable tools to speed up drafting.

The process can be summarized:

1) **Select** a feature to be copied: the select tool does this by outlining the feature in blue. The feature may be a block of threading, treadling or tieup, or a color sequence or a sequence of thread thicknesses.

2) **Cut** or **Copy**; type Cmd+X, **Cut**, if you want to move the selected feature - the original block is emptied. Type Cmd+C, **Copy**, if you want to reproduce the feature - the original block remains in place.

Now move the insertion point by clicking where you want the copy to appear.

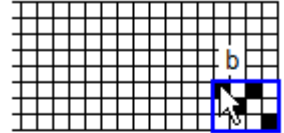
3) Type **Cmd+V** This places a copy of the selected feature at the insertion point. In the a right to left threading, the insertion point marks the **bottom right corner** of where the pasted block will appear, bottom left in left to right threading. In the treadling, it marks the **top left corner** if the orientation is top down, or bottom left if the orientation is bottom up.

4) Click **Paste** again (as many times as desired). The insertion point automatically advances in the threading or in the treadling.

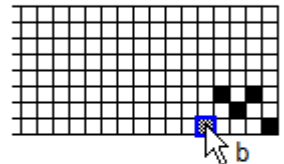
When you Cut or Copy a block, or color sequence, or sequence of thread thicknesses, the information is transferred to an internal location known as the **clipboard**. When you Paste, this information is reproduced in your draft **at the insertion point**.

- If **no selection exists** (no blue rectangle in the draft), you can't cut or copy, so the Cut and Copy and menu items are **inactive** and shown in gray (**grayed out**).
- If there's **nothing in the clipboard**, then the paste menu item is inactive and grayed out.
- You can only paste into an area that contains similar kind of data. You can **copy from the threading** and **paste into threading, tieup or treadling** or *vice versa*.
- You can copy from the **tieup** and paste into the **threading**, however only the lowest shaft in each vertical column will be recorded.
- You **can't** copy a color sequence from the warp color bar and paste it into the threading, tieup or treadling..
- You can copy a block **from one drawdown window** and **paste to another**.

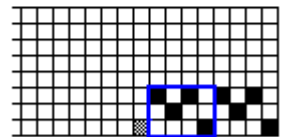
a) click select tool
b) draw rectangle



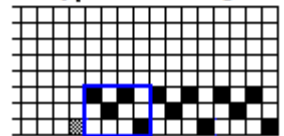
a) type Cmd+C
b) click to locate insertion point



type Cmd+V



type Cmd+V again



Using Fiberworks Bronze for Mac

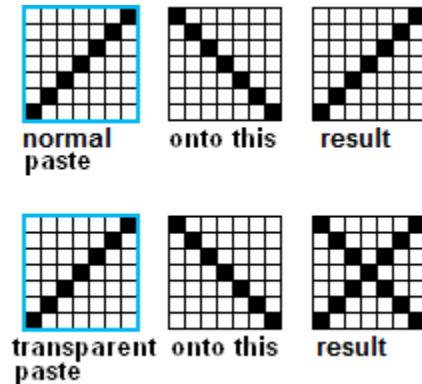
When you cut or copy, what goes into the clipboard is the **underlying weaving information**, not the graphic image. If you paste into TextEdit, you will see the text message that carries the weaving information. Since programs like Photoshop®, Elements or Microsoft® Word™ don't understand the weaving information, they can't reproduce it and their Paste won't work from Copy action in Bronze. Use **Copy Image** (p.19) to copy the entire graphic image from the drawdown window.

If you don't want the entire drawdown image, paste into Photoshop first, and then copy just the part you want.

Transparent Paste shortcut **Shift Cmd+V**

Transparent paste is a variant of paste for tieups or liftplans. (Liftplan: see p.52). The normal Cmd+V paste treats the background of white squares as opaque, and overwrites the previous contents. Transparent paste allows the original black squares to show through pasted areas of white squares allowing you to build up an image.

Transparent paste does not work in the threading, because each warp end is only threaded on a single shaft.

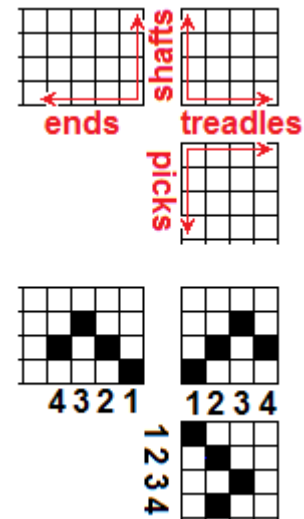


Users of Windows Fiberworks: note the difference in action of transparent paste.

Orientation of the pasted block

Threading, tieup and treadling each have an orientation set by the directions that shaft, treadle end and pick numbers progress. For example, threading may progress from right to left, shafts progress from bottom to top, treadles from left to right, and picks from top to bottom.

Since cut and paste copies weaving information, not the graphic image, a motif will reorient when you paste from threading to tieup (left-for-right flip) or from threading to treadling (flip and 90° turn).



Paste after Select All



Select All allows you to select an entire threading, treadling, etc in one operation without using the Select and Copy toolbar buttons.

Use the toolbar **Paste** button to paste, but be aware that, **after Select All, Paste becomes Paste All**. The Select All threading replaces the entire threading. If the threading you pasted into started with 1000 ends and the threading that was copied by Select All only has 10 ends, you will end up with just the 10 ends.

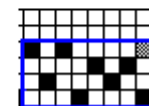
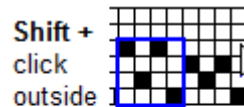
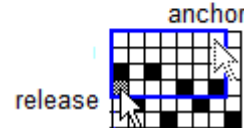
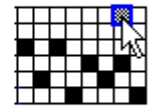
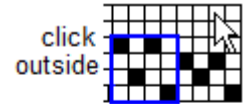
This page reserved for future additions

Using Fiberworks Bronze for Mac

A last word on selection rectangles

When the Select tool is active, the toolbar button appears pushed-in  and the cursor appears as a pointer.  In this state, the mouse is used to **select areas** outlined in a blue rectangle, rather than for drawing which normally uses a red rectangle outline. The red drawing rectangle disappears when you release the mouse button, but the blue selection rectangle stays in place. This allows subsequent actions to make use of the selected block, for example cut and copy.

- Click mouse **outside** selected block - the original blue rectangle **disappears** and the square that was clicked is now outlined in blue. **The insertion point moves to the square that was clicked.** If you hold the mouse button down and drag rather than releasing immediately, you draw a new selection rectangle. The first point clicked is the **anchor point** and always forms one corner of the rectangle. The point where you release the mouse becomes the **diagonally opposite corner**.
- Hold Shift key down and **click outside an existing selected block**. The rectangle **expands** to include the spot you clicked. This is useful if you want to select a large area, and have to scroll the window contents to see the other end of the block.

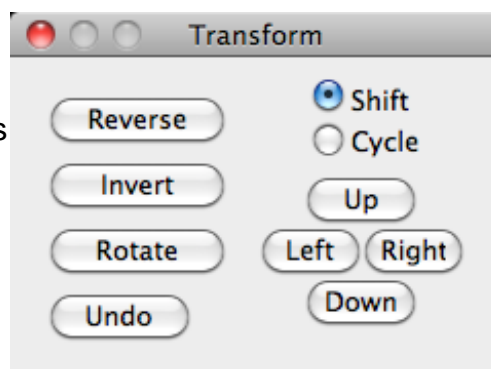
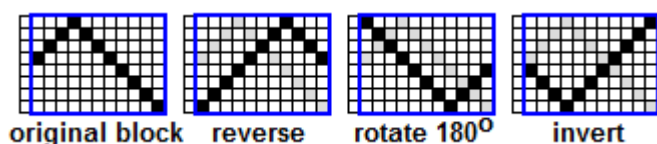


Using Fiberworks Bronze for Mac

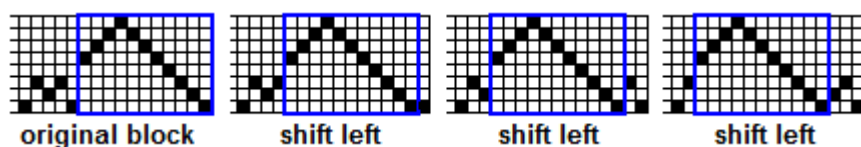
Transform

Transform manipulates the contents of the draft containing the insertion point, or a blue selection rectangle if one has been drawn. Different panels appear, depending on where the selection rectangle is located.

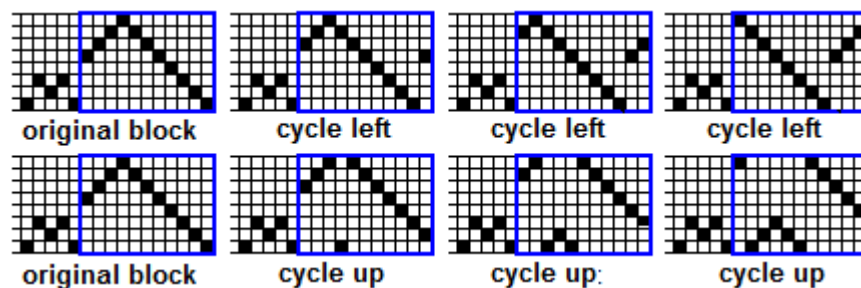
In threading and treadling, you can **Reverse**, **Rotate** by 180° and **Invert**.



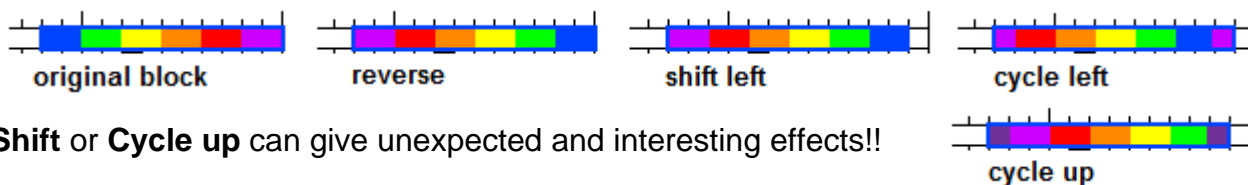
Shift and **Cycle** move the block, **Up**, down (**Dn**) left (**L**) or right (**R**) as selected by the direction buttons. **Shift** moves the entire block through the draft in the direction that has been selected. In the **Shift Left** example, each click on the shift button moves the thread on the left **outside** the block to the opposite side of the block. The result is that the block “walks” left.



Cycle moves the internal contents of the block. Cycle left moves the leftmost thread **inside** the block to the opposite side, so the contents of the block shift **within** the block. Cycle up moves the topmost shaft inside the block down to the bottom.



Selected blocks in color bars allow you to **Reverse**, **Shift** and **Cycle** Left and Right.

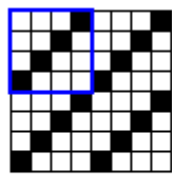


Shift or **Cycle up** can give unexpected and interesting effects!!

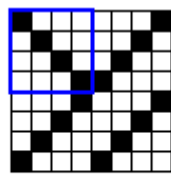
Using Fiberworks Bronze for Mac

Transform in the Tieup or Liftplan

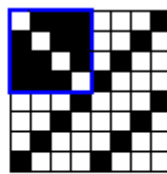
More transformations are possible in the tieup and liftplan (p.52), because the tieup can have multiple shafts per treadle, whereas threadings only have one shaft per warp end. The added degree of freedom allows for **90° Turns Left or Right**, and for **Change Face**, which exchanges black for white in the selected block.



original block
in tieup



turn 90°
right



change face



Insert threads, Delete threads, Link and Unlink

Found a mistake in a draft? It's easy to correct if the number of threads stays the same - just draw over or type over the offending section. Otherwise, **Insert** allows you to add extra threads in the middle of a draft, and **Delete threads** allows you to remove unwanted threads from the middle of a draft.

Insert threads

keyboard: **Spacebar**

toolbar:

Delete threads

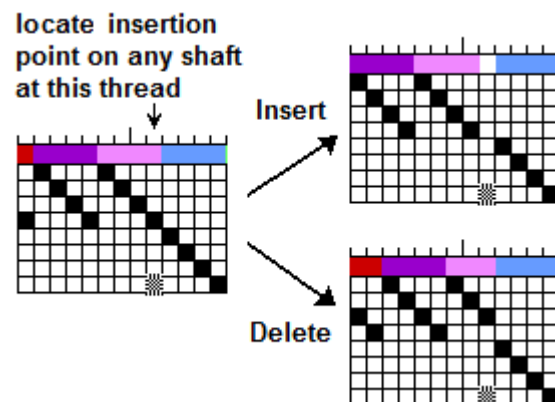
keyboard: **Forward Delete**

toolbar:

Fn-Delete (keyboards with back delete key only)

Read the toolbar buttons as *push threads apart to make a gap* for Insert, or *pull threads out and close up the gap* for Delete.

First **move the insertion point*** onto the thread you want to remove or where you want the extra thread to appear. The insertion point is usually wherever you last clicked or released the mouse button. Each click of the toolbar button or each keystroke either **adds one empty thread** (**Spacebar** or insert button) or **removes one unwanted thread** (**Delete** key or button).

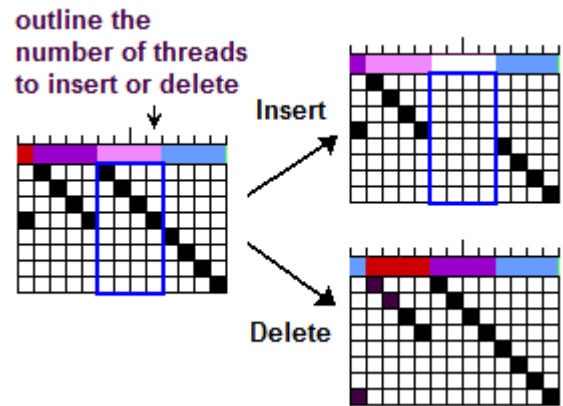


* To locate the insertion point by mouse, **click on the intended thread**, on an existing black square if a drawing tool is active, or anywhere if the Select tool is active, or see p.8 for how to move the insertion point by keyboard.

Using Fiberworks Bronze for Mac

If you have to insert or delete two or three threads, click the button or type the key two or three times. (There is always **Undo**, p.19, if you go too far!) If you have to insert or delete a large number of threads, there's a better way.

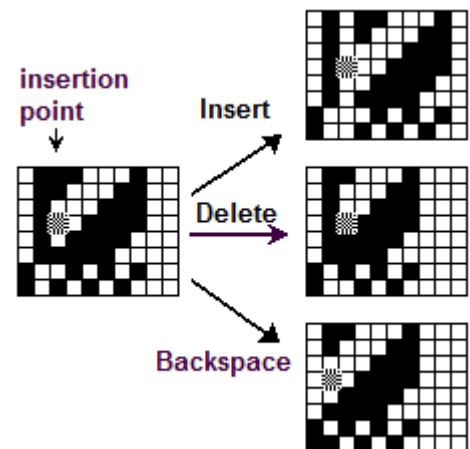
Outline a block with the **Select** tool that encloses **the number of threads** you want to insert or delete. Click the **Insert** toolbar button or press the spacebar to fill the outlined block with empty threads, and push existing threads over (to the left if threading is right to left, to the right otherwise). Click the Delete button or type the Forward Delete key to delete the outlined block and close the gap.



In the treadling, Insert pushes threads below the insertion downwards in top-down orientation, or upwards in bottom-up orientation. Forward Delete works by moving threads below the deletion up to fill the gap.

In the tieup, Insert/Spacebar adds a new treadle, and pushes the remaining tieup rightwards. Forward Delete (Fn Delete) removes a treadle, and the remaining treadles move left to fill the gap.

The back **delete** key can also be used: in the tieup it has the same effect as **left arrow key** followed by delete, so it deletes the treadle left of the insertion point. In the threading, back delete moves **right** one step, then deletes. In each case the move is **one step back** in the draft sequence, then delete, where **back** means towards warp end 1 at the right end of the threading, towards treadle 1 at the left end of the tieup or towards weft pick 1 at the top of the treadling. There is no toolbar button for back delete. Back delete is most often used when you are typing in a sequence and hit a wrong key. Then back delete takes you back to eliminate the keystroke that you have just mis-typed.



Other useful editing keys include the **+** key and the **-** key. **+** marks black in threading, treadling and tieup at the current insertion point, just as if you clicked the mouse on the insertion point. You don't need to press the shift key for **+**, because Bronze interprets **=** as equivalent to the **+** key.

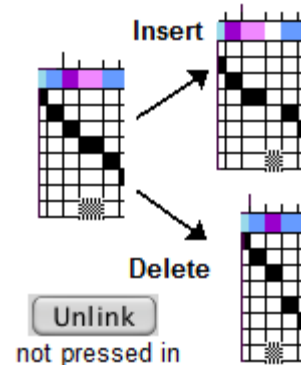
The **-** key (minus key) marks white or erases black at the current insertion point **without closing the gap**. The **+** and **-** keys are particularly useful in the **tieup**. The insertion point advances **up one shaft** at each keystroke, and after the topmost shaft, it moves back to shaft 1 on the next treadle.

Using Fiberworks Bronze for Mac

Link shortcut **Cmd + U** toolbar: 

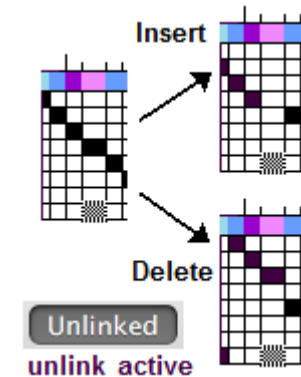
Unlink shortcut **Shift Cmd + U** toolbar: 

A warp thread, is represented by three components, **shaft number** threaded, **color**, and **thickness**. Normally (when not unlinked) the warp thread is treated **as a unit**, so if you insert or delete in the threading draft, the corresponding warp color and warp thickness are inserted or deleted **at the same time** as the shaft number. In the example, the fat mauve thread is on shaft 5, and contains the insertion point in the draft. With unlink inactive, Insert adds a new thread, normal width, white, shaft number blank, and the fat mauve thread on shaft five moves right. Delete takes out the mauve fat thread on shaft 5, and the gap is closed.



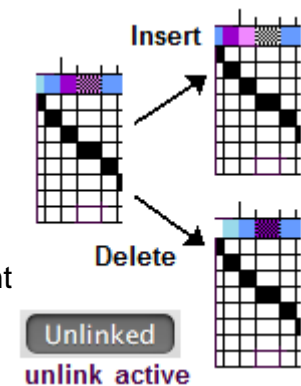
Nothing obvious happens when you click the **Unlink** button or select it in the Edit menu, but unlink is now in its **active** state. There is a check mark in the menu and the toolbar button stays pressed-in..

With **Unlink active** and the insertion point in the threading, click **Insert**. A space appears in the threading draft under the fat mauve thread, but the color and thread thickness sequence remain unchanged. With Unlink active, the insertion is isolated to the threading sequence and does not affect colors or thicknesses.



Similarly if you had clicked **Delete**, the thread on shaft 5 is taken out, but colors and thickness don't change. Making unlink active **breaks the link** between threading, warp color and warp thread thickness.

With unlink **active** and the insertion point located in the warp color bar, click **Insert**. A white thread is added to the color sequence above shaft 5, and but the threading and thickness sequence don't change. This isolates the insertion to the color bar. If you click **Delete**, the mauve color is taken out, but threading and thickness sequence are unaffected. When **unlinked**, Insert and delete act **only in the color bar** if the insertion point is located there.



The same applies if the unlink button is active and the insertion point is in the warp thickness strip. Insertion and deletion act only on the thickness sequence, leaving threading and warp colors unaffected.

The unlink button also controls Insertion and deletion into **Treading, weft colors and weft thicknesses**.

Making **Unlink** active only affect Insert and Delete functions, and drawing or typing numbers into drafts behave as normal.

Using Fiberworks Bronze for Mac

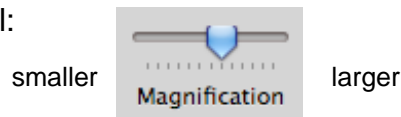
View Menu

The view menu contains items controlling the general appearance of the design window.

Make Larger shortcut: **Cmd +**

Make Smaller shortcut: **Cmd -**

Toolbar control:



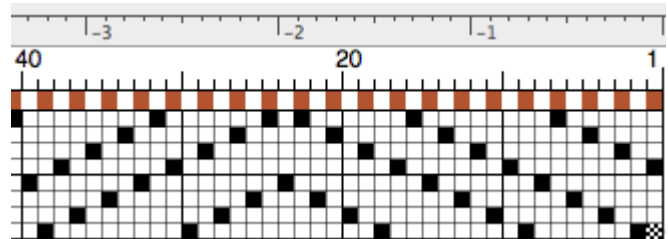
Make Larger	⌘ +
Make Smaller	⌘ -
Rulers ...	
✓ Show Thread Numbering	⇧ ⌘ N
Info ...	⌘ I
Draft Layout ...	⌘ L
Hide Toolbar	⇧ ⌘ T
Customize Toolbar...	

These items control **magnification** on-screen. They work in conjunction with the magnification control on the toolbar. If you make things appear larger, you will see fewer threads in warp and weft. If you make things smaller, you can stand back and view more of the cloth, but individual threads will be smaller. You can draw and edit at any magnification, but at lowest magnification, it can be difficult to know exactly where the mouse cursor is pointing or where the insertion point lies.

Rulers

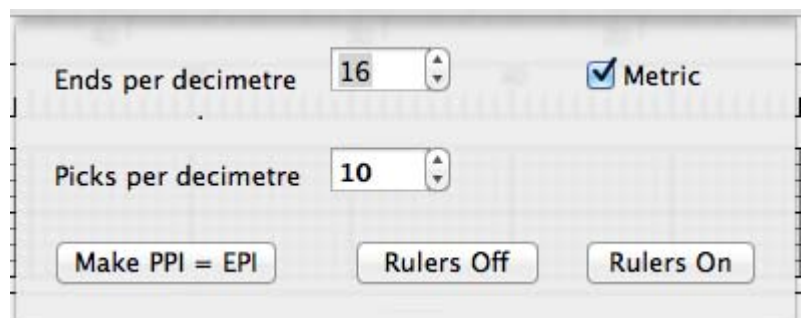
shortcut **Cmd + R**

These give you the option to display rulers in physical dimensions alongside the threading and treading drafts.



The Rulers panel

This panel controls the scaling of the rulers in Ends or Picks per inch. Click the Metric button on to display scaling in ends or picks per decimeter (the actual ruler will display in centimeters). Click **Rulers On** to display the rulers with your drawdown.

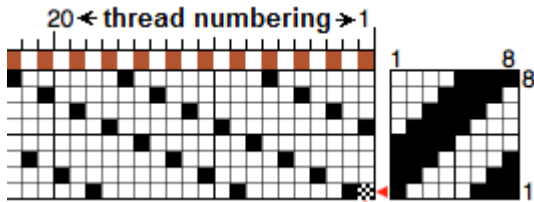


Setting a scale does not change the viewing magnification. The inch or centimeter tick marks will expand or shrink as you change the screen magnification.

Using Fiberworks Bronze for Mac

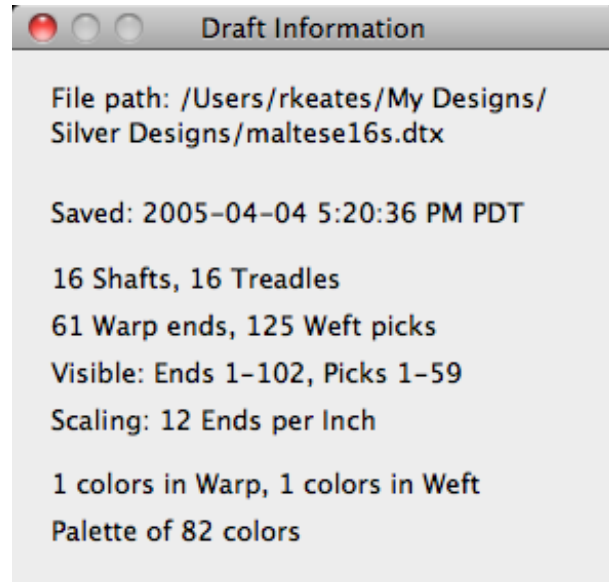
Show / Hide Thread Numbering

This menu item turns the thread numbering on or off. When numbering is on, every 20 threads in warp and weft are numbered. The location of the insertion point is numbered (shown at warp end 1 in the illustration below). The first and last shaft and treadle of the tieup are also numbered.



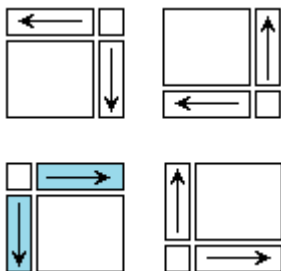
Info shortcut **Cmd + I**

This brings up the information panel for the current draft, as shown on the right.



Draft Layout shortcut **Cmd + L**

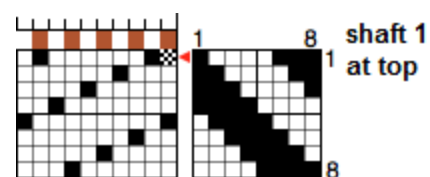
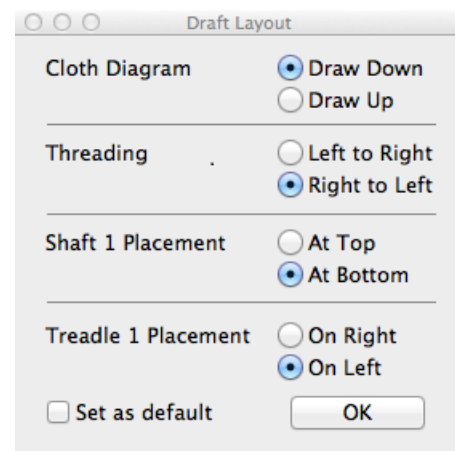
The draft layout panel lets you choose the orientation of the draft components of your design frame. The four possible orientations are shown below, highlighting the selection represented by the panel shown at right.



The order of shafts within the threading can also be set in Scandinavian style, shaft 1 at top, or in the Anglo-American style, shaft 1 at bottom.

Treadle 1 may be placed on the left or right.

Click the Set As Default button to make the current setting your preferred layout.



Using Fiberworks Bronze for Mac

Show / Hide Toolbar

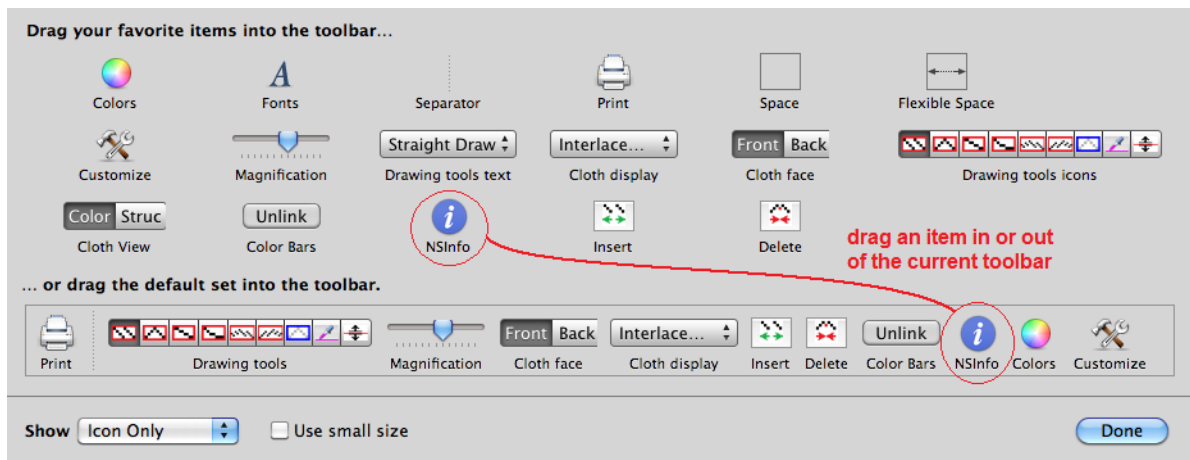
Select this menu item to show or hide the toolbar. You might want to do this to increase the vertical extent of the draft visible on the screen.

Customize Toolbar

toolbar icon:



This menu item lets you add or remove tools from the toolbar. The dropdown panel lets you drag items into or out of the current toolbar selection shown in the panel. The current selection is shown inside the marked rectangle.



A dropdown menu at the bottom left corner lets you choose to show icons with or without a text description. The text description makes the toolbar occupy more vertical space. A third option, **Text Only**, is not very useful, because clicking a text label does not perform the action, but instead pops open the full toolbar with icons plus text.

The button labelled **Use Small Size** reduces the size of the toolbar icons so less space is consumed, but the icons may be harder to distinguish.

If your design window is not wide enough, some toolbar items may not be visible. The symbol >> at the right-hand end of the toolbar indicates additional icons have dropped off the end. Clicking the >> symbol produces a menu of these missing items.

Using Fiberworks Bronze for Mac

Cloth Menu

This menu controls attributes of the cloth drawdown.

The first eight options can also be selected from the Cloth Mode drop-down icon in the tool bar:

Interlacement

The first two options represent views that emphasize **woven structure** rather than color in the cloth, followed by six display modes for displaying the cloth in color.

Warp drawdown

shortcut: **Cmd + 1**

This is a structure mode which shows **black where warp covers weft**, and white where weft threads cover warp.

Weft drawdown

shortcut: **Cmd + 2**

is the opposite, and shows **black where weft covers warp**, and white where warp threads cover weft.

Color Drawdown

shortcut: **Cmd + 3**

shows the color of the thread visible on the surface of the cloth, front or back, depending on the state of the Back View button, p.36. This rendering of the sample appears **flat**.

Interlacement

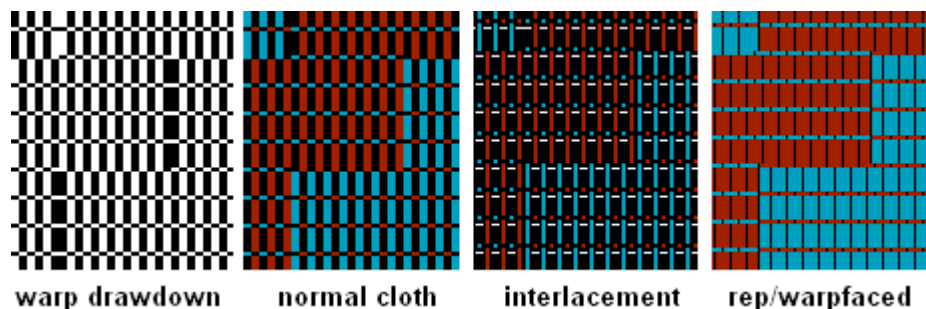
shortcut: **Ctrl Cmd + I** (letter I, not number 1)

also shows the color on the surface, but distinguishes warp and weft, and is **shaded** to give the appearance of **depth**. This is the most generally useful view.

Rep/Warp Faced

Ctrl Cmd + R

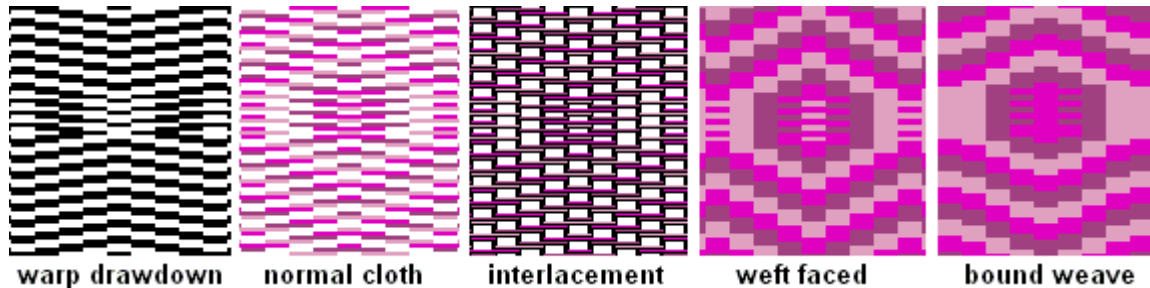
Renders the drawdown as warp-faced or rep, with warp emphasised and weft hidden.



Warp Drawdown	⌘ 1
Weft Drawdown	⌘ 2
Color Drawdown	⌘ 3
✓ Interlacement	⌘ I
Rep/Warp Faced	⌘ R
Weft Faced	⌘ W
Bound Weave	⌘ B
Double Weave	⌘ D
✓ View Front	⌘ F
View Back	⌘ B
Show Grid	⌘ G
✓ Hide Grid	⌘ G
Notes and Records ...	

Using Fiberworks Bronze for Mac

Weft Faced shortcut **Ctrl Cmd + W**, **Bound Weave** shortcut **Ctrl Cmd + B**, also render particular methods of weaving. An example of **bound weave** is shown below in different display modes: interlacement shows fat warps and narrow weft. In actual weaving, normal width weft threads are beaten very densely to hide the warp. The effect is shown in the weft faced mode, and with greater emphasis in the bound weave mode.



Bound Weave and weft faced cloth display modes are also useful for showing **supplementary weft** and **polychrome** patterns as well as normal bound weave.

Double Weave

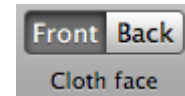
This version uses Interlacement to represent double weave. A more accurate double weave mode will be introduced later.

The special display modes **don't** create the matching structure for you, but if you have prepared an appropriate woven structure, these modes will display it more accurately.

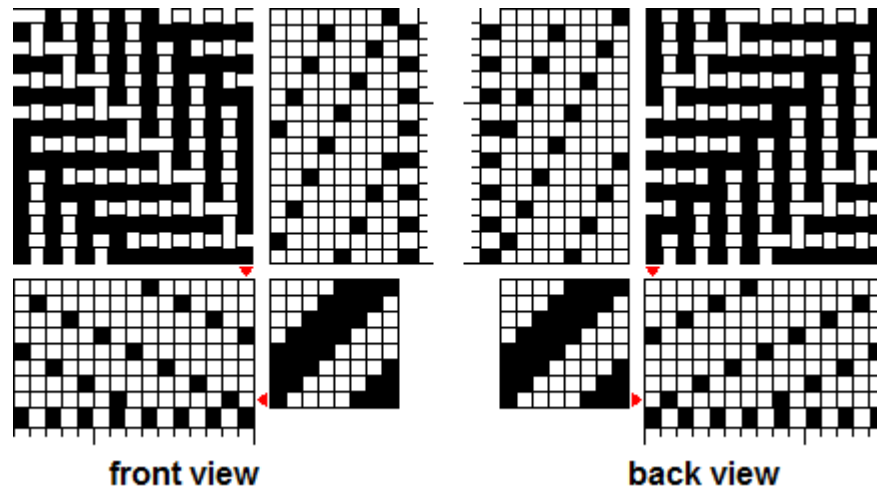
Using Fiberworks Bronze for Mac

View Front shortcut **Option Cmd + F** toolbar

View Back shortcut **Option Cmd + B**



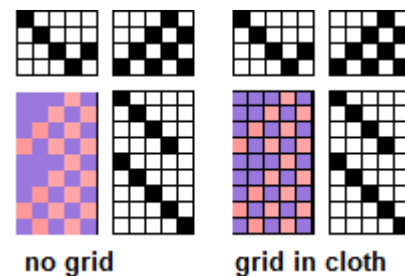
If you click this button, the cloth drawdown displays the **back** of the cloth, in the current cloth display mode. The drawdown is flipped right for left, so the treadling draft moves to the opposite side from your normal layout.



Show Grid Option Cmd + G

Hide Grid Ctrl Cmd + G

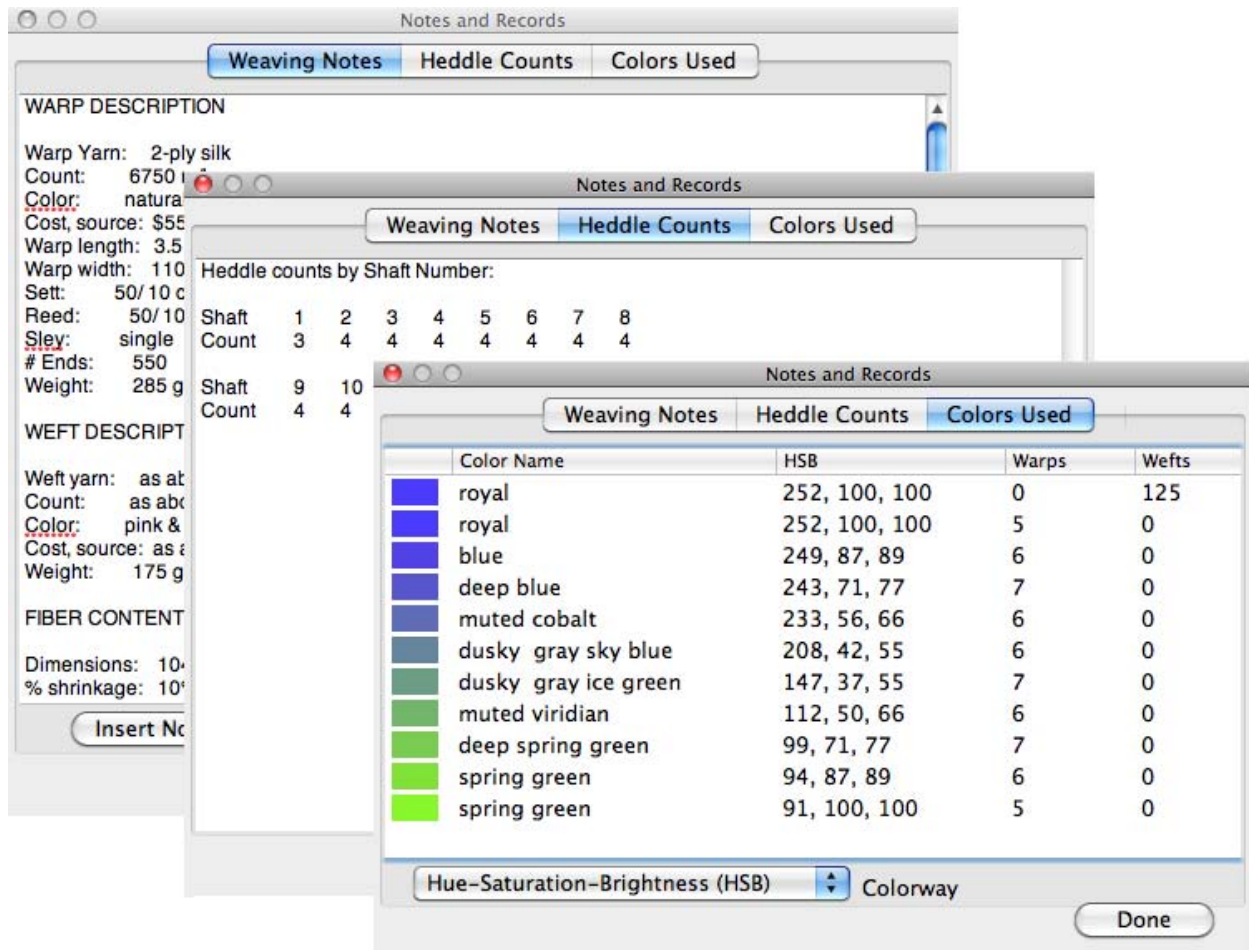
Choose this menu item to put a **grid** over your cloth drawdown. The grid shows up in **structure** views of the drawdown, or the **Color drawdown** view. It does not show in the more complex color views, where the grid would be confusing. Threading, Tieup and Treadling drafts always show grids.



Using Fiberworks Bronze for Mac

Notes and Records

This menu item opens a panel containing **three tabbed panes**.



The Weaving notes allows you to create records for a particular draft. A button allows you to insert a records template.


Heddle counts records the frequency of use of each shaft in the threading.

Color counts records the use of each color in warp and weft. The records can show color as Red-Green-Blue, Hue-Saturation-Brightness, or HTML style hexadecimal RGB.

Using Fiberworks Bronze for Mac

Colors Menu

The Colors menu provides options that control the contents of the color palette.

Show Color Panel shortcut **Shift Cmd+C**
toolbar 

Show Color Panel ... ⌘⇧C
Open New Color Group ... ⌘⇧C
Save a Color Group ...
Remove a Color Group ...
Create Gradient ...
Colorways ...

This menu item opens the Mac Color Panel, allowing you to create new colors or modify existing colors in the color palette.

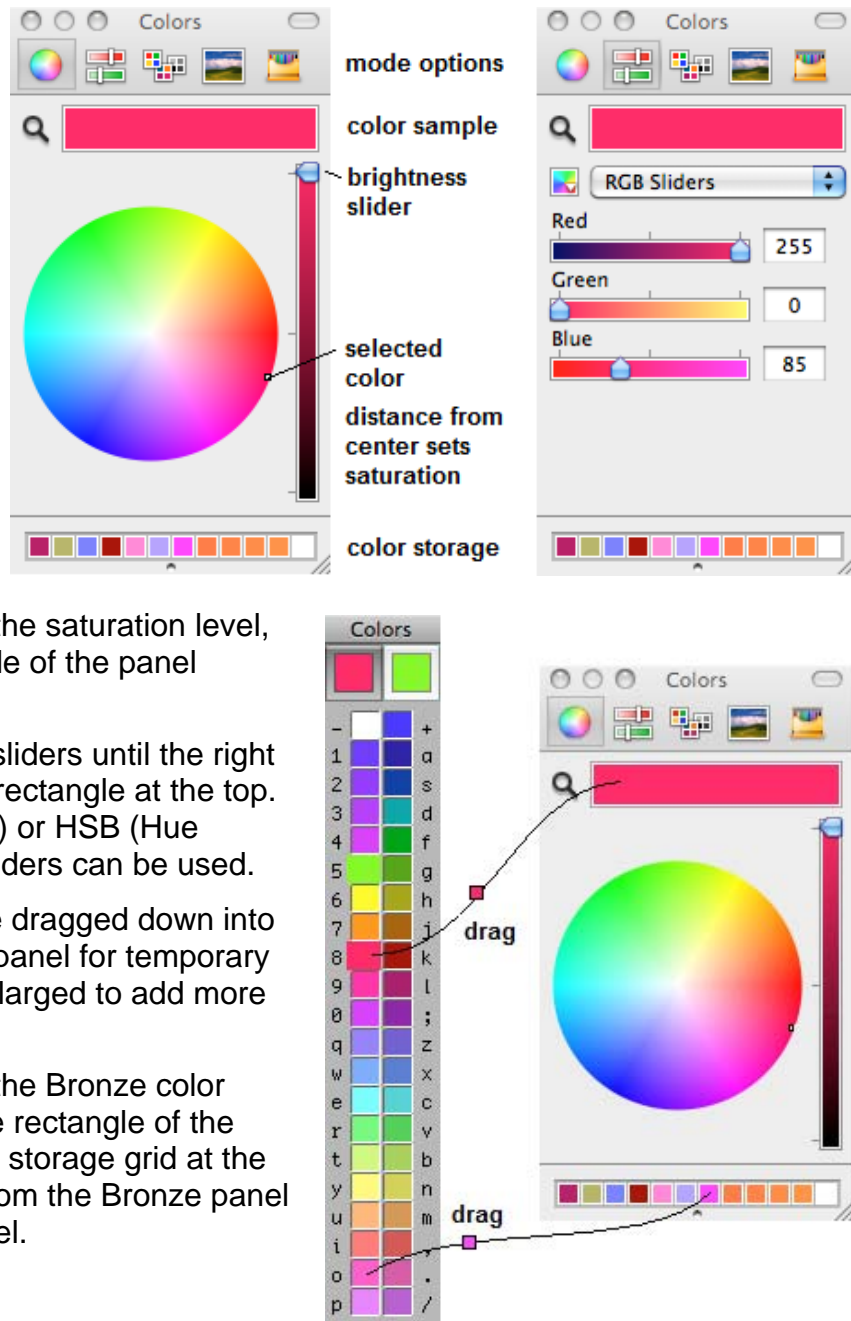
The Mac Color Panel has several alternative views, of which the **color wheel** and **RGB and HSB sliders** are the most useful.

With the color wheel, create new colors by dragging the white dot to the required point on the color wheel. Distance from the center of the wheel sets the saturation level, and the slider on the right side of the panel controls the brightness.

In the slider mode, drag the sliders until the right color appears in the sample rectangle at the top. Either RGB (red, green, blue) or HSB (Hue saturation and brightness) sliders can be used.

A newly created color can be dragged down into the grid at the bottom of the panel for temporary storage. This grid can be enlarged to add more rows if needed.

A color can be dragged into the Bronze color palette from the color sample rectangle of the color panel, or from the color storage grid at the bottom. You can also drag from the Bronze panel back into the Mac Color Panel.



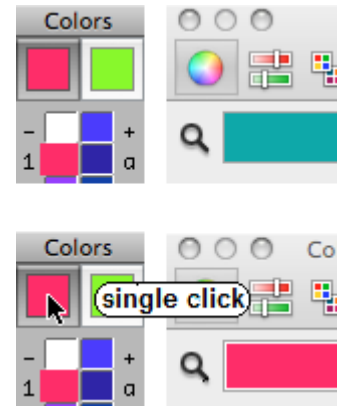
Using Fiberworks Bronze for Mac

Creating a live link between the Color Panel and a color drawdown

“**Live link**” means that changes made in the color panel are immediately seen in the cloth drawdown. This allows you to see how well the new color fits with the other colors present in the color drawdown, while you adjust the color wheel or the sliders.

To create the live link, first click in the color palette on the color you want to adjust so that it is selected as main or alternative color (see p.11 for definition of main and alternative color). You can also use the color pickup tool (p.21) to set main and alternative colors from colors in the warp or weft color bars.

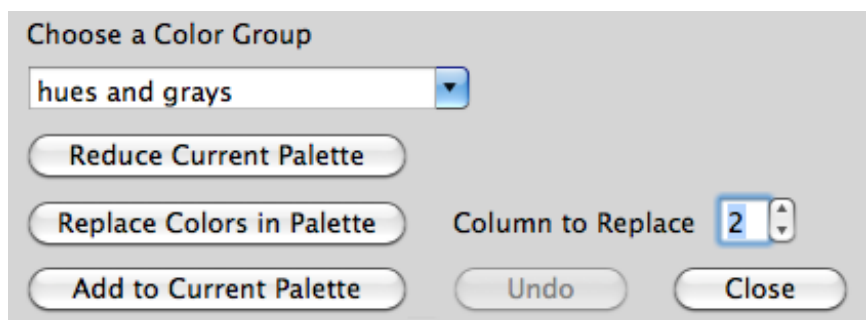
Then **click once** in either the main or the alternative color indicator square. This will pop-up the color panel if it's not already open, and set the selected color in the color sample rectangle of the color panel.



Note: *Don't double click either of the indicator squares: this will set the color into the color sample rectangle, but will **break the live link**.*

Open New Color Group shortcut **Ctrl Cmd + C**

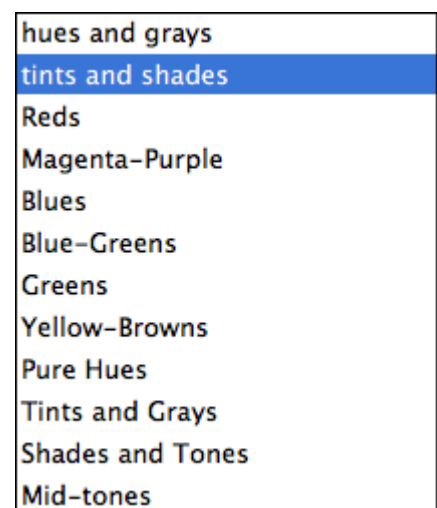
Colors in Bronze are organized into **color groups** of 40 colors. The color palette contains a standard foreground and background pair, normally white and black, plus one or more color groups, so 42 colors, 82, colors, 122 colors etc, to a maximum of 242 colors. The original default is a single color group, the **standard palette**, but you can change this in Bronze Preferences (p.65).



The **Open New Color Group** panel allows you to **select another color group** to add to the existing palette, or to **replace** one of the color groups already in use, or to **reduce** the palette by removing a color group.

The drop-down list shows all the available color groups. The first two items listed are **user-defined** groups. You can create, name and add any number of groups that you assemble (see **Save a Color Group**, p.40). The last ten groups shown are predefined color groups and can't be removed from the list or be renamed.

Clicking **Add to Current Palette** will add the selected group to the current color palette.



Using Fiberworks Bronze for Mac

The default 42 color palette is arranged in two columns of 21 colors, each associated with a key symbol.. When a second color group is added, the columns are lengthened to give two columns of 41 colors. A third and subsequent color groups can be added as additional columns of 40 colors, as shown on the far right for a 162 color palette. The maximum is six color groups for 242 colors.

The Open New Color Group panel contains a button to **Replace Colors in Palette**. Click this button to use a color group from the drop-down list to replace one of the columns in the current palette.

The **Reduce Current Palette** button removes the right-most column from the palette. If colors from this group are currently used in warp or weft, they will be exchanged for unused colors in a column that is being retained.

Palette Management

Very large palettes can be unwieldy, so it's recommended to use working palettes of 42 or 82 colors. It is easy to reorganize the colors in a palette: simply drag a color from one color chip and drop it where you want it to be in the left two columns. The source and destination colors trade places. When all the colors you intend to use are in the left two columns, you can reduce the palette by removing the right-hand columns of colors.

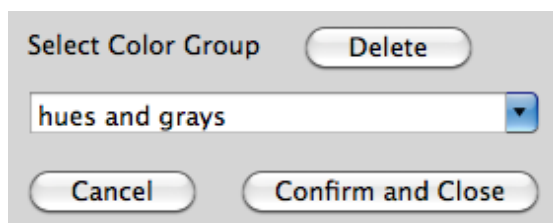
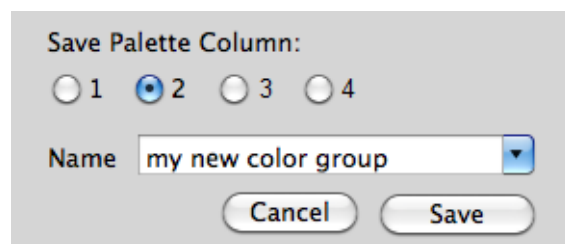
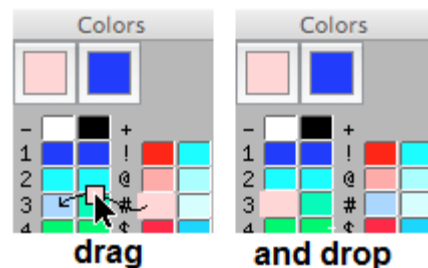
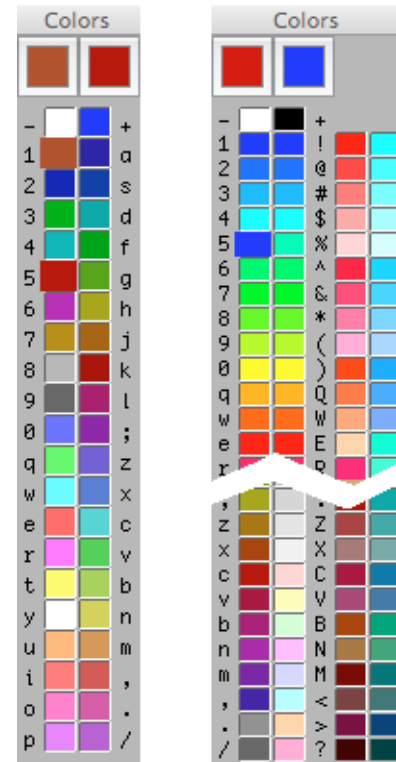
Note: Windows Fiberworks only uses 82 color palettes. If you need to send a Windows user a file with more than 82 colors, send as wif rather than dtx.

Save a Color Group

This menu item lets you choose one of the columns of colors in the palette to save as a named color group. Color groups saved in this way can be retrieved and reused with the Open New Color Group menu item described above. If you save from a palette of 42 colors, only the lower 40 colors are saved as a group.

Remove Color Group

Use this to **delete** an unwanted color group from the drop-down list. This **deletes the color list file**, and is **not undoable**. Don't use this menu item to remove a color group from the current palette, see **Reduce Current Palette** above.



Using Fiberworks Bronze for Mac

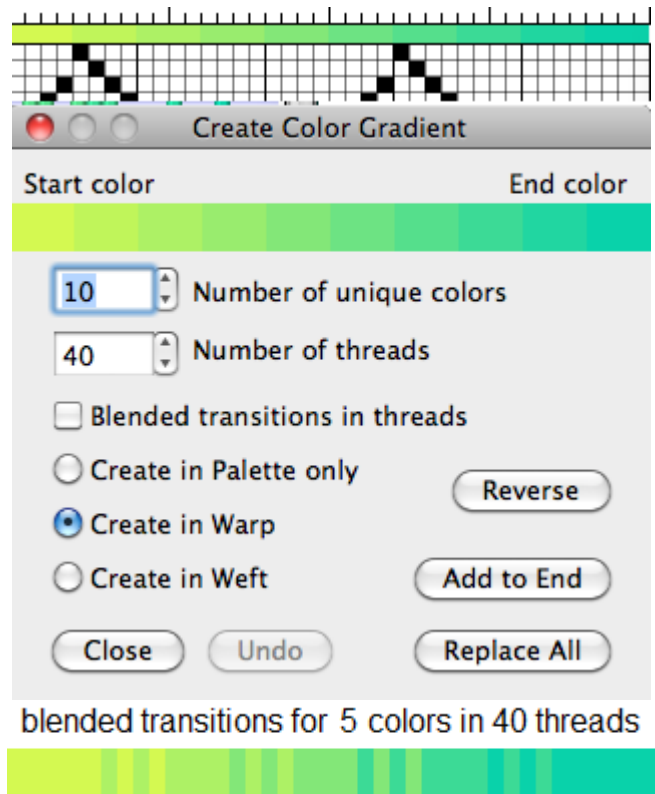
Create Gradient

This menu item and panel lets you create a graded series of colors, which can be placed in the palette alone, or inserted into the warp or weft.

Choose your Start and End colors by dragging from the color palette and dropping onto the left and right end of the gradient strip respectively.

When designing with this tool, bear in mind you have to possess yarn to match the series of colors in the gradient, so don't go too wild with the number of unique colors.

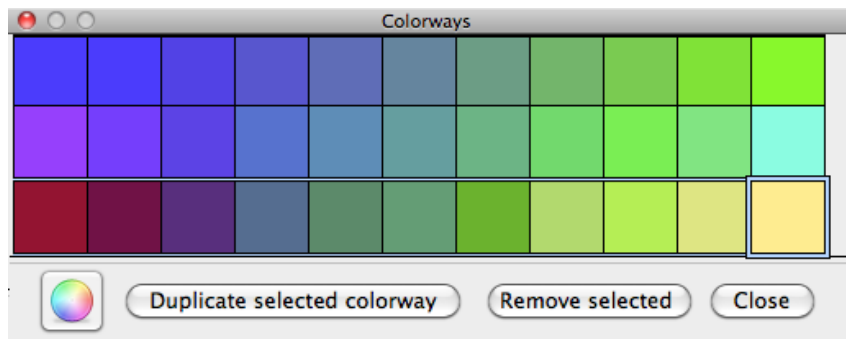
When there are more than four threads per unique color, the option exists to use simple transitions as depicted in the panel, or to choose **blended transitions**, in which the effect of an intermediate color is created by alternating threads of adjacent colors.



Colorways

Start with an existing design with colors in place in warp and weft.

This menu item allows you to store up to six different colorways within a single design. A row of colors in the panel represents a colorway and the number of rectangles in the row shows the colors currently in use in warp and weft.



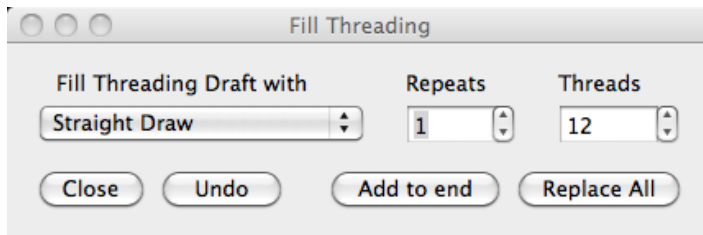
Clicking a color patch selects that row and makes that color the active color; you can also use cursor arrow keys to change selection. The color drawdown and palette adopt the colors of the selected colorway, which is shown with a double enclosing outline. To create a new colorway, click the button **Duplicate Selected Colorway**. This creates a new row in the colorways panel.

The active color in the selected colorway is shown as a slightly enlarged enclosing rectangle. Click the colorwheel icon at bottom left to open the **Mac Color Panel** (p.38). This establishes a **live link** (p.39) between Mac Color Panel, drawdown and colorways panel, and allows you to modify the active color. Repeat for each color in the new row.

Threading Menu

This menu controls attributes of the threading draft.

Fill Threading



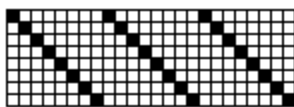
This menu item allows you to fill the threading draft with one of 11 standard repeating threadings. You can set the number of repeats or number of threads to fill. You can **Add to end** of an existing threading draft, or **Replace all**.

Examples below are based on right to left threading.

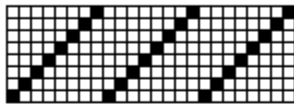
Fill Threading ...
Fill Warp Colors ...
Fill Thickness ...

Repeat in Threading ...
Flip Sequence ...

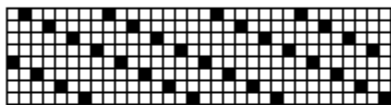
✓ Straight Draw
Straight Draw Reversed
Straight Draw Parallel
Point Draw
Point Draw Parallel
Rosepath
Summer and Winter Base
5-thread Advancing Twill
5-thread Advancing Point
9-thread Extended Twill
13-thread Extended Twill



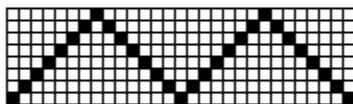
straight draw



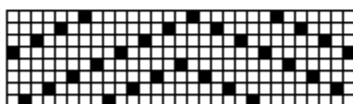
straight draw, reversed



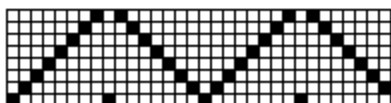
straight draw, parallel



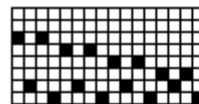
point draw



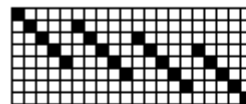
point draw parallel



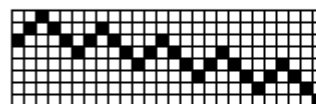
rosepath



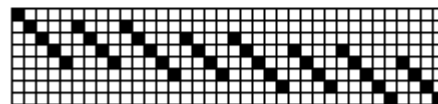
summer and winter base



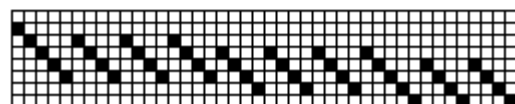
5 thread advancing Twill



5 thread advancing Point



9 thread extended Twill



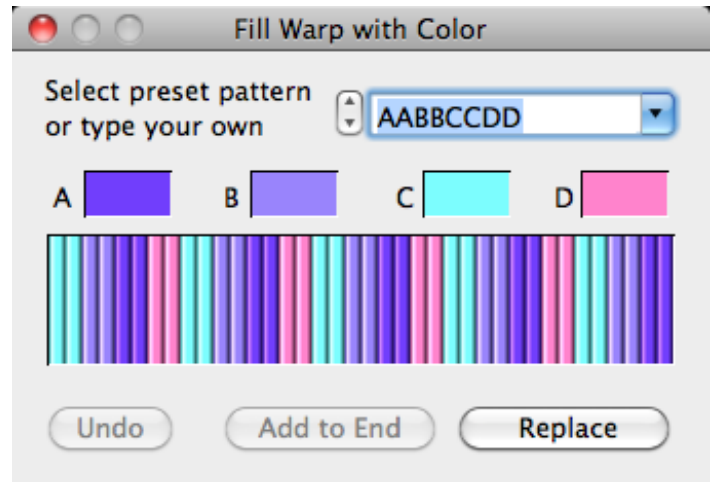
13 thread extended Twill

Using Fiberworks Bronze for Mac

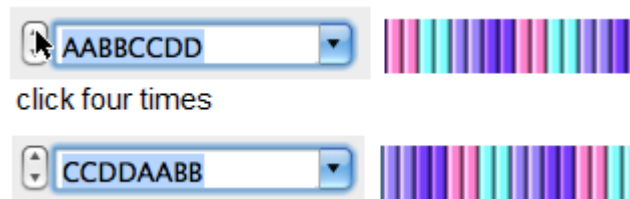
Fill Warp Colors

Fill Warp Colors provides a quick way to fill a warp color bar either with a **single solid color** or **up to four** selected colors in **simple repeating patterns**.

To set the colors, drag colors from the color palette and drop them into boxes A-D. To set the pattern, either select from the drop-down list (shown at far right), or type in your own sequence using the letters A B C D.



The stepper control next to the sequence lets you cycle through the selected sequence to allow different starting points.



Single Color A	
A B (odd-even)	
A A B	
A A A B	
A A B B	
A A A A B B	
A A A B B B	
A A A A B B B B	
A B C	
A A B C	
A B A C	
A A B B C C	
A B C D	
A B A C A D	
A A B B C C D D	

For example, to use the sequence A B A, select A A B and click the stepper until it shows A B A.

Colors appear in the warp when you click **Add to end** or **Replace**.

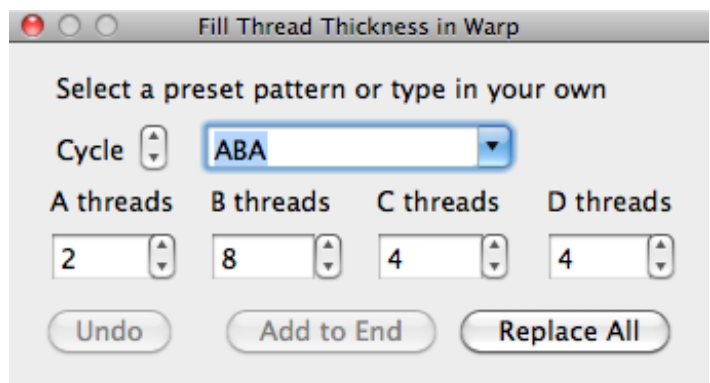
For more complex repeating patterns, use the **Threading Repeat** panel described on p.46.

Fill Thickness

This panel allows you to set patterns of thread thickness in the same way as the patterns of thread color.

Click the drop-down list to see the patterns, which are exactly the same as for the Color Fill panel above, and can be retyped or adjusted in the same way.

The number values express thread thickness in **relative** values based on units of a quarter of a 'normal' thread, not absolute ends per inch. A thickness value of 4 represents a 'normal' thread. Thickness **2** is a **half** width thread, thickness **8** is **double** width, thickness **12** is **triple** width, and so on to a maximum of 64 (16 times normal).



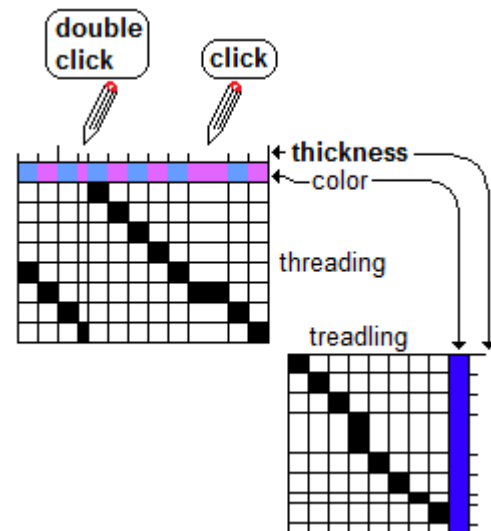
Using Fiberworks Bronze for Mac

Sidebar: Entering thicknesses into a draft on a thread by thread basis

For drafting purposes on the screen, thread thickness is expressed in **relative** values based on units of a quarter of a 'normal' thread, rather than absolute ends per inch. You can record an absolute value for ends per inch by setting Ruler Scale in the View menu (p.31), and print exactly to this scale.

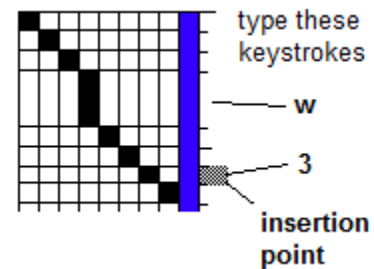
A numeric thickness value of 4 represents a 'normal' thread, so 8 represents double wide, and 2 represents half wide. In addition to the Threading Fill Thickness panel described on the previous page, thread thickness can be set on a thread-by-thread basis, either by mouse or by keyboard. With the mouse, **click into the thickness zone**. The thickness zone lies **just outside** the warp color bar or the weft color bar. A drawing tool must be active and the cursor must be a **pencil** for changes to the draft. Make sure the pencil **point** is in the thickness zone and on the thread you want to modify.

- A **single click doubles** the current thread width.
- A **double click** or **option-click** halves it.
- **Click again** on a doubled thread and it becomes **4x normal**.
- Double click on a double-width thread, and it shrinks back to normal, and so on.



To use the keyboard, first set the **insertion point into the thickness zone** and move to the thread you want to modify (see p.8 for how to move the insertion point by keyboard, or click the mouse on the spot you where you want the insertion point to start).

Then **type in numbers** using the same keyboard layout that you use for threading and treadling drafts (p.8), 4 for normal thread thickness, 8 for double thick, 2 for half thick, and so on. The insertion point advances with each keystroke.



The keyboard offers greater scope for variation than the mouse, letting you set values like three-quarter width (keystroke 3) or triple width (keystroke w, which represents numeric value 12). Maximum thickness number is **64**, keystroke upper-case F.

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Warp Repeat

Any component of the threading (threading draft, warp colors or thickness) can be expanded by repeating in one of seven different ways. The repeat can apply to the whole threading as it currently exists, or a preselected block. To repeat the whole threading, make sure that the button labelled **Repeat current selection** is either grayed out or not checked. To repeat a **selected block from the threading**, draw the selection rectangle **before** opening the Warp Repeat panel, and then make sure that the **Repeat current selection** is check-marked.

Repeats can be applied to any combination of **Draft**, **Colors** or **Thickness**, by selecting the buttons for the components you want repeated. These options allow you to repeat more complex patterns of color or thickness than is possible with Fill Color or Fill Thickness panels.

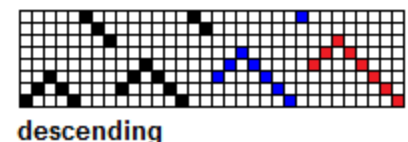
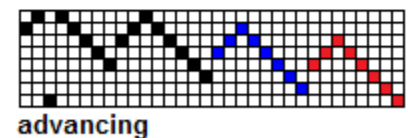
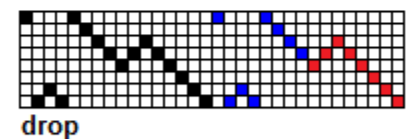
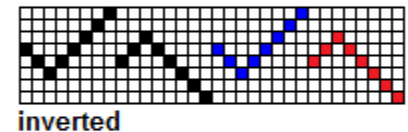
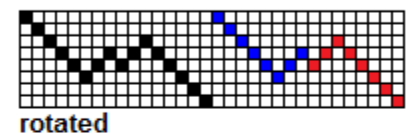
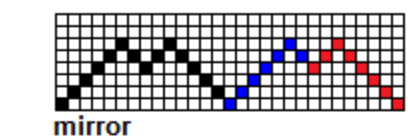
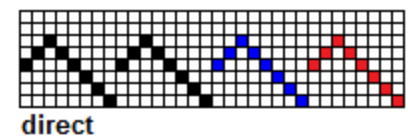
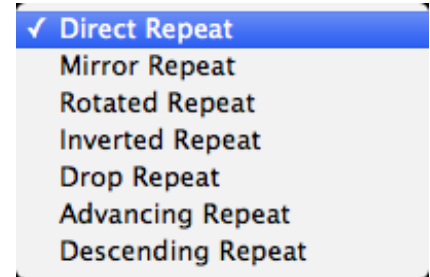
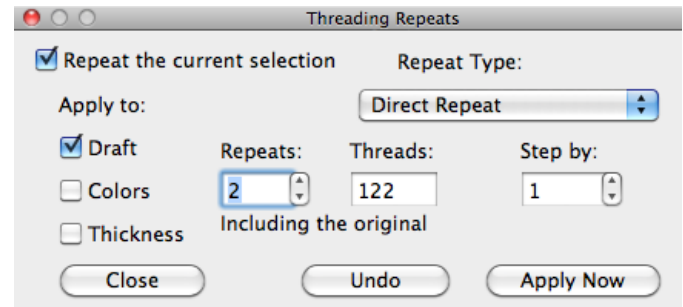
Select **Repeat type** from the drop-down list. Examples of each repeat type are shown on the right. The original motif being repeated is shown here in **red** (for illustration purposes), and the first repeat is in blue.

If the last thread of one repeat unit ends up on the **same shaft** as the first thread of the next unit, as in **mirror repeat**, the units **overlap** one thread so that you don't get two threads together on the same shaft.

When the motif being repeated does not occupy all the available shafts, repeats that invert or step up will use all the available shafts. If you want the six shaft motif to stay within a six shaft limit, outline the motif in a blue selection rectangle six shafts high, and put a check-mark in the Repeat Current Selection button.

Drop, Advancing and Descending repeats make the motif **shift up or down on each repeat**. Drop repeats shift by exactly **half** the number of shafts, so in this eight shaft example, the shift at each repeat is four shafts.

Threads that shift outside the available range of shafts wrap around, so a thread that would be shifted onto shaft 9 instead wraps around back to shaft 1. For Descending repeats, thread that shift below shaft 1 wrap around back to shaft 8.



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Threading repeats continued

The Advancing and descending repeats shown in the examples shift by one shaft at each repeat. The **Step by** control lets you choose degrees of shift. Half drop repeat is a shift by exactly half the number of shafts.

Finally, set the **number of repeats** required. In weaving terminology, **four repeats** means the **original plus three copies**. The required number of threads is calculated for you. Click **Apply now** to see the effect in your design. If you don't like it, click **Undo**, and try another setting.

Flip Sequence

This operation takes your existing threading components, and **flips the sequence left for right**.

Two possible actions follow.

Make Symmetrical appends the reversed sequence to the end of your current draft, to give a **Mirror repeat** effect. The sequence **1 2 3 4 5 6** becomes **1 2 3 4 5 6 5 4 3 2 1**.

Reverse Sequence replaces the original, rather than appending. The threading sequence **1 2 3 4 5 6** changes to **6 5 4 3 2 1**.

Flip sequence acts on the **entire** threading, not selected blocks. You can choose to apply this action to the individual components, threading draft, warp colors or thicknesses, or to any combination, by selecting the buttons for Draft, Colors and Thickness as needed.



Using Fiberworks Bronze for Mac

Tieup Menu

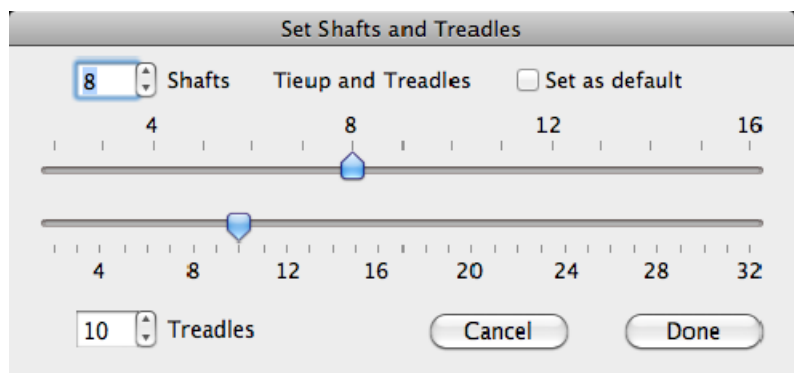
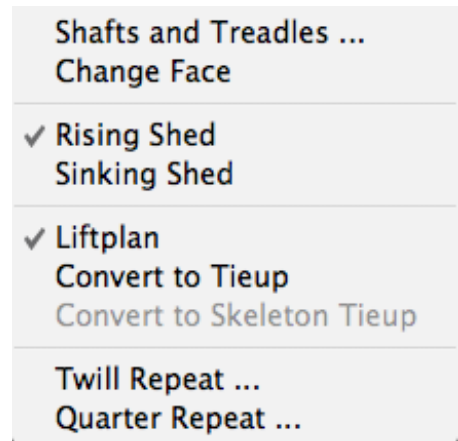
This menu controls attributes of the tieup.

Shafts and Treadles

This panel allows you to adjust the **number of shafts and treadles** in a drawdown window that is already open*. Drag each slider to the number you want. Normally, when you adjust the upper shafts slider, the treadles slider will match the change. Once you have set the number of shafts, if you still need to adjust the number of treadles, drag the lower slider to the desired value. The shafts slider will stay where you set it, and does not follow the movement of the treadles slider. You can also make fine adjustments with the stepper controls next to the boxes that report shaft and treadle numbers.

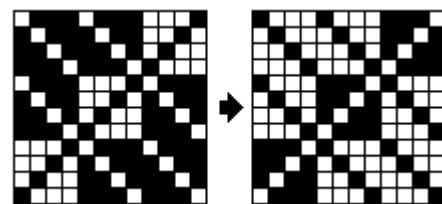
Click the Set As Default button to make the current setting your preferred combination for New drawdowns.

If your design is a **liftplan**, there are no controls to change or report the number of treadles. The width of the treadling/liftplan draft is always the **same as the number of shafts**, since each pick contains exactly one shaft per square in the treadling grid. Changes take effect when you close the panel.



Change Face

This function switches the black and white marks in the tieup. Shafts that were originally tied to the treadles are now not tied and those that were not tied, now are tied up. If you weave with the new tieup, you will be weaving with the opposite face of the cloth on top. You may want to do this on unbalanced weaves to reduce the number of shaft you have to lift.



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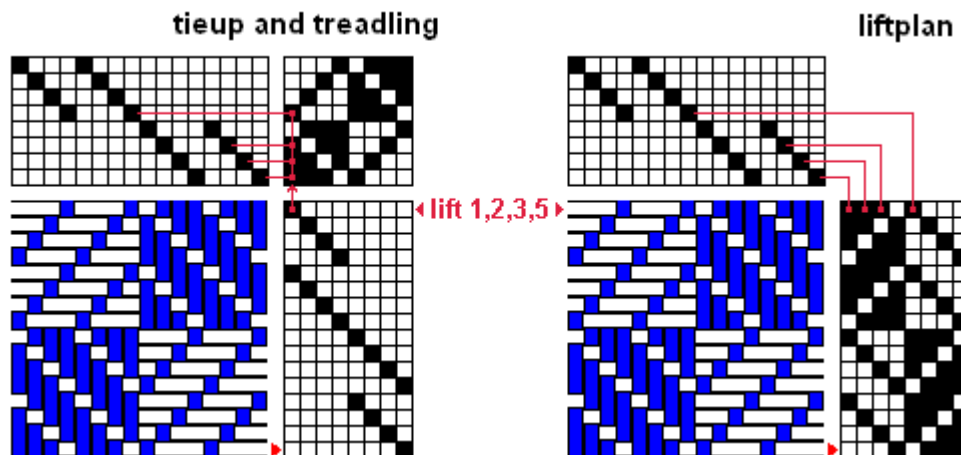
Rising Shed, Sinking Shed

Select Rising Shed for a loom such as a jack loom that raises warp threads when treadled. Select **Sinking shed** to represent the action of a **counterbalance** loom where treadling pulls warp threads down instead of up, leaving weft exposed on the surface instead of warp.

Liftplan, Convert to Liftplan, Tieup, Convert to Tieup

On a conventional loom, one treadle can control several shafts. The **tieup** represents the way **treadles are linked to particular shafts**, but the number of treadles is limited.

On a table loom or a dobby loom, shafts are controlled individually, either by levers on the front panel, or by pegs in the dobby bar or by computer controlled solenoids. There is no tieup, and **each pick** can show **exactly which shafts are lifted**. Many more combinations of shafts are possible with a liftplan - **254** combinations on an **8 shaft** loom, **65534** on a **16 shaft** loom. This allows for **long non-repeating patterns**.



Interconversion of tieup-treadling and liftplan

Starting with a tieup and treadling, select **Convert to Liftplan** in the Tieup menu. Conversion happens immediately and without problems, for both simple and skeleton tieups. After conversion to Liftplan, the menu item becomes **Liftplan**, and the former **Tieup** menu item becomes **Convert to Tieup**.

Starting with a liftplan, select **Convert to Tieup** in the Tieup menu. Conversion occurs with the following qualifications:

- The end result is **always a simple tieup** and treadling. **It is not always possible to convert** when the liftplan contain **more shaft combinations** than 64, the maximum number of treadles available.
- **An original treadle order may not be maintained.** Treadles are **numbered in the order that they are found** in the liftplan. If the original treadling started 4 3 2 1, and is converted to first to liftplan and then back to tieup, the new treadling sequence will be 1 2 3 4. No matter how treadle order changes, the cloth drawdown is unaltered.

Using Fiberworks Bronze for Mac

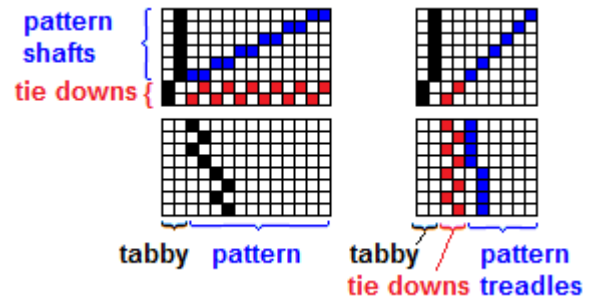
Convert to Skeleton Tieup

This menu item attempts to convert a simple tieup into a **skeleton tieup**. The menu item is not available when the treadling takes the form of a liftplan. Generally, the conversion only works for **tied weaves** such as Summer and Winter, or Lampas, where weave structure is divided into primary and secondary cloth layers.

Skeleton tieup

The tieup of tied weaves such as Summer and Winter can be separated into **tabby** (shown in black), **tie-down** (red) and **pattern** regions (blue).

Tied weaves often need large numbers of treadles, because each pattern combination requires more than one treadle, one for each tiedown. The number can be reduced by treadling with both feet simultaneously, one foot controlling the tiedown treadles and the other foot controlling the pattern treadles. For 8 shaft summer and winter, the conventional tieup needs 14 treadles, but with skeleton tieups, 10 treadles allows the same range of treadle combinations.



Convert to Skeleton Tieup analyzes your tieup to see if the treadles can be segregated into two groups as for the summer and winter example above, and carries out the conversion if it is possible. You only need to use this menu item to try to convert an existing tieup. If you create the skeleton tie up from scratch, use normal tieup mode.

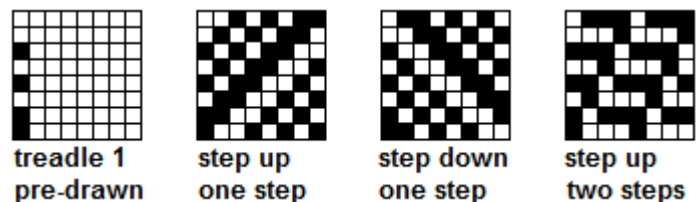
A skeleton tieup can always be converted to a liftplan. It can be converted back to a conventional tieup provided that the maximum of 64 treadles is not exceeded.

Twill Repeat

This menu item will repeat a pattern that you have drawn on the first treadle. For each subsequent new treadle, the previous pattern is shifted up or down by a preset amount, usually one shaft. The result can be applied, previewed and undone if not satisfactory.



Enter the pattern for the first treadle **before** opening the Twill Repeat panel. Make sure that the **remaining treadles** are **blank**. Start with at least as many treadles as shafts. Go to **Shafts and Treadles** (see below) to change the number of treadles if you need to. Choose **Twill repeat**, and click Apply to preview the result.



Using Fiberworks Bronze for Mac

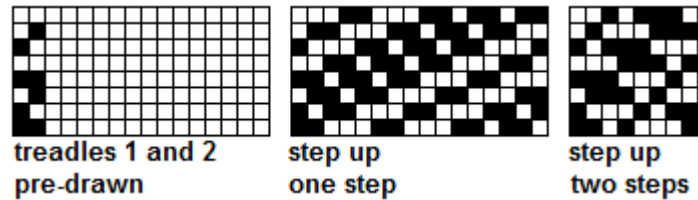
For **normal twills**, set to **step by 1**. For **flat twills** (twill line in the cloth drawdown less than 45°) set **step by 2**, but the right half of the treadling is redundant and duplicates the left half. For flat twills, you only get **half** the number of unique treadles.

For **steep twills** (twill line in the cloth more than 45°) start by drawing your basic treadle pattern into the **first two treadles**, and set **Treadles per repeat group** to 2. Make sure you have enough treadles, normally double the number of shafts. Go to

Twill Repeat, choose **Step up** or **Step down** as you wish, choose **one step** for steep twill, and let's hope you can handle the number of treadles on your loom. If you use a **dobby** loom or **table** loom, you can convert the tieup to a **liftplan** (see below).

If you set **step by 2** option with **two initial treadles**, you get a **fancy twill**, with the number of unique treadles equal to the number of shafts, and with a normal 45° twill line.

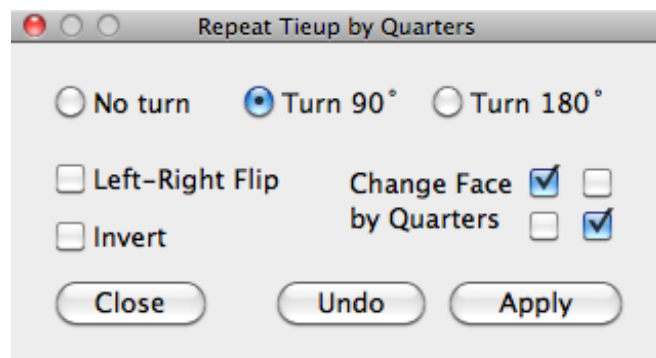
If you can weave from a liftplan, you can also experiment with 3 or 4 initial treadles.



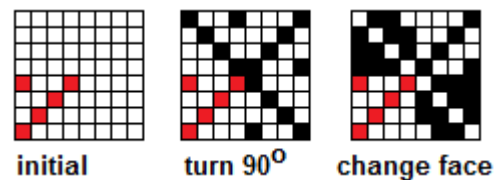
Repeat by quarters

This menu item will repeat a pattern that you have drawn into the lower left quarter of the tieup. Settings in the panel modify each repeat so that the quarters are not mere duplicates.

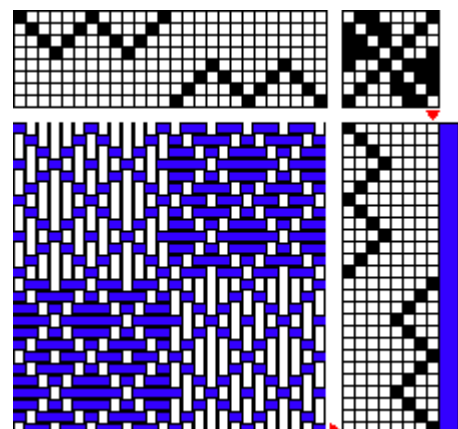
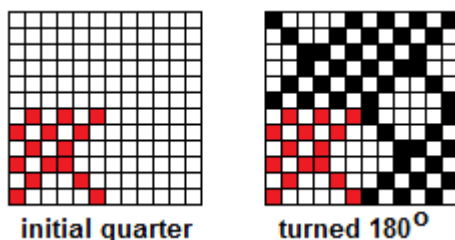
On the right we show how to create a modified turned twill tieup. The initial is shown in red for illustration purposes.



Start by drawing the basic unit in the **lower left quarter**. Choose **Repeat by Quarters**, click on **turn 90°**. Repeats are generated **clockwise from the bottom left**, each turned 90° relative to the previous. Then in the section Change face by quarters, click the buttons for **top left** and **bottom right**.



Quarter repeat tieups are typically used in **two block twill designs**; a simple example is shown on the right. The initial quarter is not limited to four shafts - use six shafts if you have a twelve shaft loom, or eight if you have sixteen shafts.



Using Fiberworks Bronze for Mac

Treadling Menu

The Treadling menu controls attributes of the treadling.

Menu items **Fill Treadling**, **Fill Weft Colors**, **Fill Thickness**, **Interleave Treadling**, **Repeat**, **Parallel Repeat**, **Flip Sequence** and **Redraw on Network** behave exactly as for their equivalents in the Threading Menu (p.42-50) except that they apply to treadling rather than threading.

Details will not be repeated here.

Single Pedal Action Allow Multipedal Action

If **single pedal** action is selected, the treadling behaves exactly like the threading:

Only one treadle allowed per pick

If a second treadle is added, the first one is erased

The insertion point advances automatically when you type treadle numbers.

If **multipedal action** is selected:

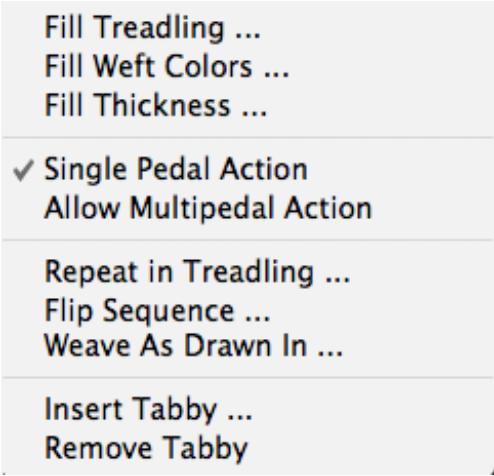
Each pick can use multiple treadles

When a second or subsequent treadle is added to an existing pick, treadles already present remain

The insertion point stays on the same pick when you type treadle numbers, and you must press an arrow key to advance.

The same behaviour applies when **Liftplan** is selected in the Tieup menu.

Multipedal action is automatically selected if you choose **Convert to Skeleton Tieup** in the Tieup menu. It's not necessary to choose **Convert to Skeleton Tieup** if you create your skeleton tieup yourself. However you must then select **Allow Multipedal Action** in order to treadle the skeleton tieup with both feet.

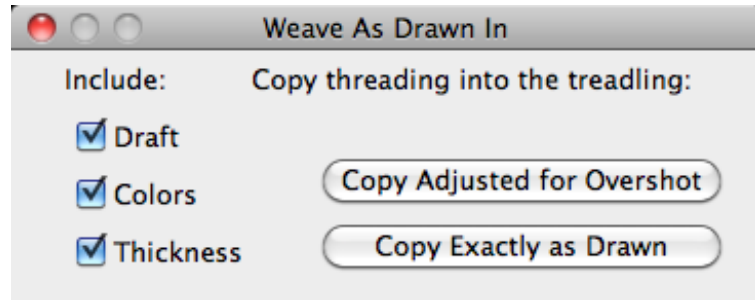


Fill Treadling ...
Fill Weft Colors ...
Fill Thickness ...
✓ Single Pedal Action
Allow Multipedal Action
Repeat in Treadling ...
Flip Sequence ...
Weave As Drawn In ...
Insert Tabby ...
Remove Tabby

Using Fiberworks Bronze for Mac

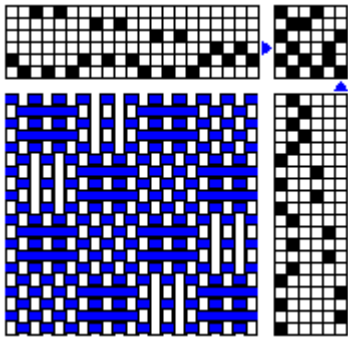
Weave As Drawn In

Select this menu item to **copy components of the threading and draw them into the treadling**. Click the buttons to select any combination of **threading draft, warp colors or thickness** to copy.



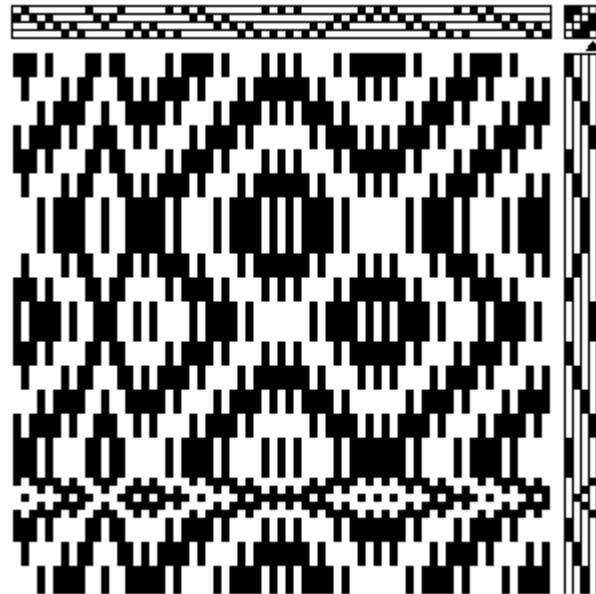
Weave As Drawn In is also known as *Tromp as Writ*

Click **Copy Exactly as Drawn** for most cases, where you want to copy the exact threading sequences. Click **Copy adjusted for Overshot** for overshot, where normally you need to copy the block sequence, not the actual threading.



An example of **Weave As Drawn In, Exactly As Drawn** is shown above.

On the right is an example of **Overshot style Weave As Drawn In**.



Using Fiberworks Bronze for Mac

Insert Tabby

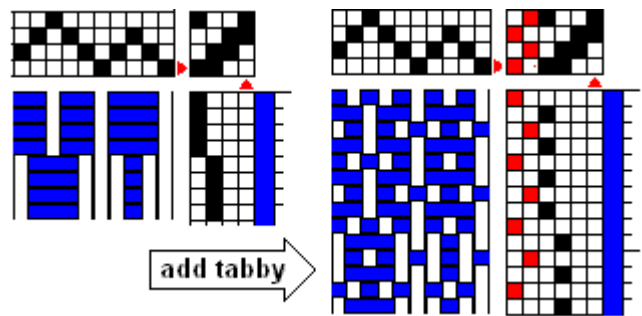
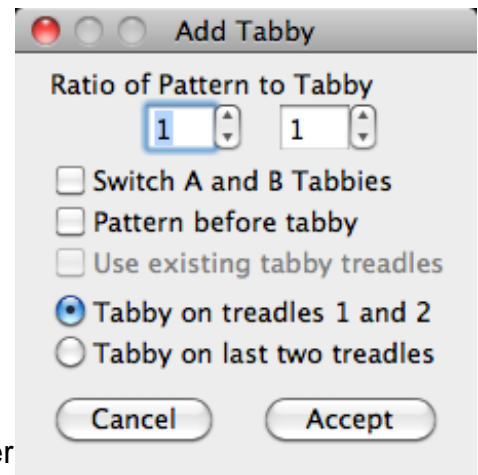
Select this menu item to **add tabby** to your design.

Change the ratio of pattern to ground by adjusting the values in the two boxes; the default is 1 : 1.

Additional options allow you to

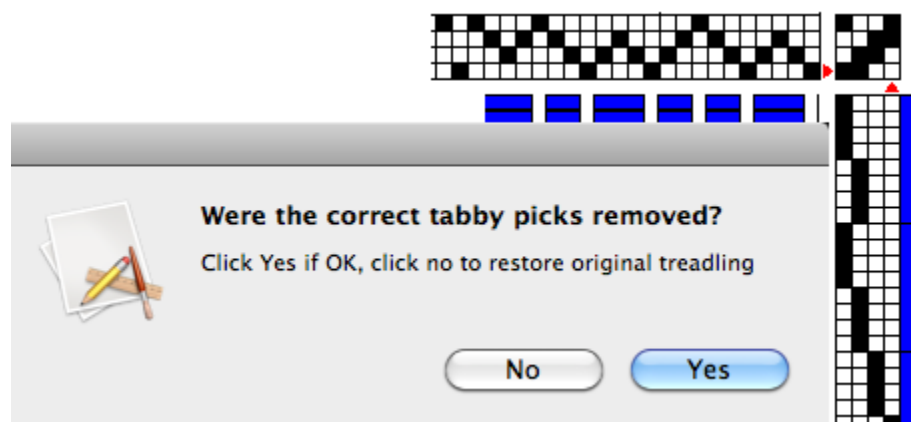
- Switch the calculated A and B tabbies.
- Place the first pattern shot before the first tabby (default is tabby first)
- Use tabby treadles already present in the tieup rather than creating two new treadles
- Place the tabby on treadles 1 and 2 or on the last pair of treadles.

Bronze generates the tabby treadles automatically by **analyzing the threading**. **Not all threadings produce a clean tabby**. Gaps in the threading can create problems for this analysis.



Remove tabby

This menu item analyzes the threading to calculate the tabbies, and **if present, removes them** from your design. Before removing tabbies, it shows you a preview and asks you to **approve the change**. If no tabby is found, a warning is shown.



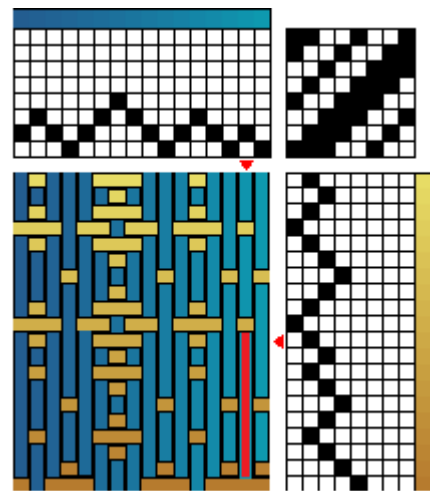
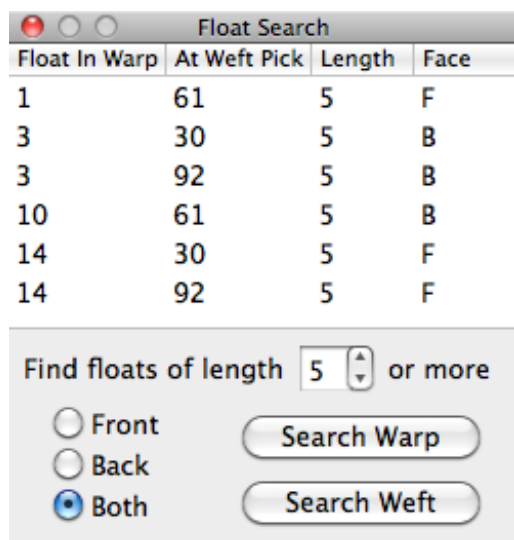
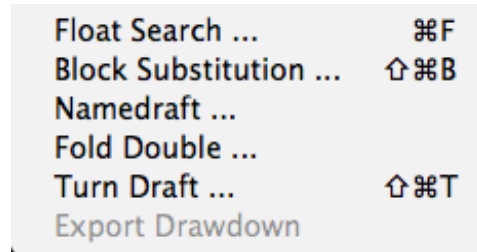
Using Fiberworks Bronze for Mac

Tools Menu

The Tools menu gives access to items that act on the whole design.

Float Search

This tool searches for and allows you to change **long floats**. You can set the minimum float length to search for and choose front, back or both faces. There are separate searches for **warp** and **weft** floats.



The search creates a list of long floats, showing warp and weft location, float length and face, **F** for front and **B** for back. Items are sorted by warp thread location for Search Warp, and by weft pick location for Search Weft.

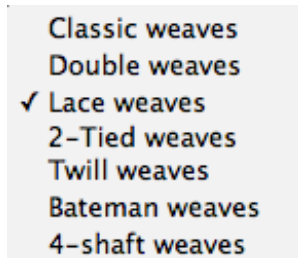
A long list is scrollable. If the list is very long, it may be best to increase the minimum float length and try again. Click on an item in the list, and it will be highlighted in a contrasting color.

***Note:** Float search will give deceptive result with overshoot where floats are intentional and with weaves where tabby has been omitted from the drawdown.*

Using Fiberworks Bronze for Mac

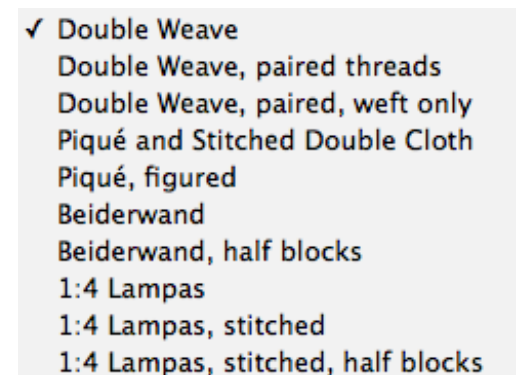
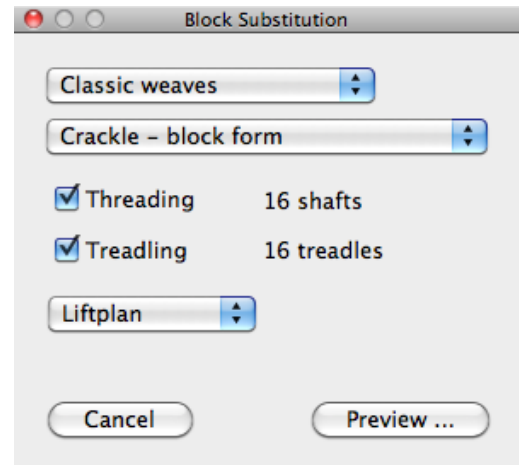
Block Substitution

Block substitution allows you to expand a **profile draft** (see sidebar below) by replacing the blocks of the profile with a weave structure of your choice.



Start with a profile draft which has at least a threading, or better, with full threading, tieup and treadling. You can use **any** design as a profile.

To choose a weave structure from the Block Substitution panel, first pick one of the groups of weave structures (upper dropdown list), then select a particular structure from the second dropdown list. The example shows the Double Weave group.

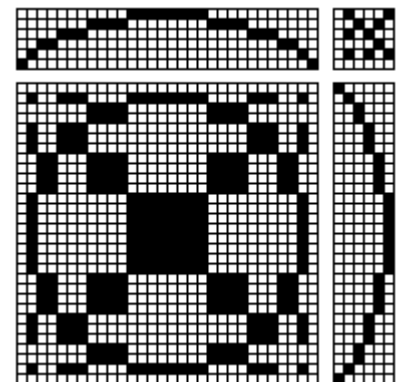


Sidebar: Profile Drafts

A **profile draft** uses the general form of a full **weaving draft** with threading, tieup and treadling or liftplan and drawdown representing the **overall layout** of a weaving design, but giving no details of how threads actually interlace. Unlike a full weaving draft, the columns and rows represent **blocks** of unspecified weave structure rather than individual threads. A block may contain multiple units of multiple threads.

The profile itself **need not be weavable** and may appear to contain horrendous floats and unwoven areas.

Many weave structures present themselves in two forms, one representing **ground** and the other **pattern**, so white areas of the profile drawdown indicate the **ground** version of the structure, and the black areas represent **pattern**. The distinction between ground and pattern can be sometimes be emphasized by use of colors in warp or weft. **Block substitution** fills the blocks of the profile with a **weaving structure** of your choice, following the layout of the profile. Each block will then contain multiple threads making up units of the weave structure.



Pattern may appear in the weft, as in overshoot and tied weaves, or the distinction between pattern and ground may be arbitrary as in twill blocks or double weave.

Using Fiberworks Bronze for Mac

Block Substitution

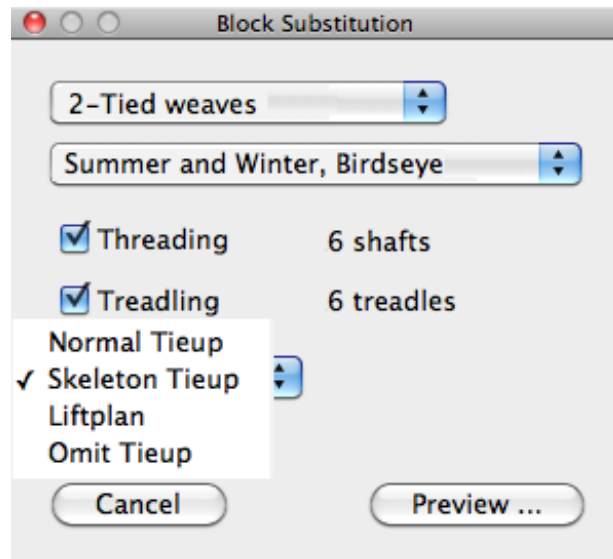
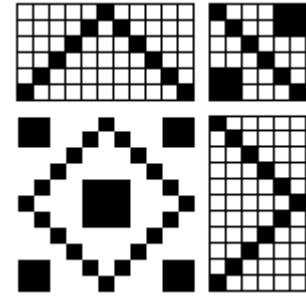
Step 1: Prepare a profile draft. For a first time effort, keep it simple.

Step 2: Click open a group such as Summer and Winter

Select a weave structure, for example Summer and Winter, Birdseye (one of several treadling variants). The buttons for **Threading**, and **Treadling** let you select which components will be substituted. To obtain a full drawdown from the block substitution, make sure that both these buttons are selected.

The number of shafts and treadles required for the chosen weave structure is indicated. For a six block design in Summer and Winter, 8 shafts and 14 treadles would be needed on **Normal Tieup**. This can be cut to 10 treadles if the **Skeleton tieup** option is taken (see panel53). **Liftplan** is another alternative when the treadling sequence is complex.

Click the Drop-down list just above the cancel button, and choose **Skeleton Tieuppanel**

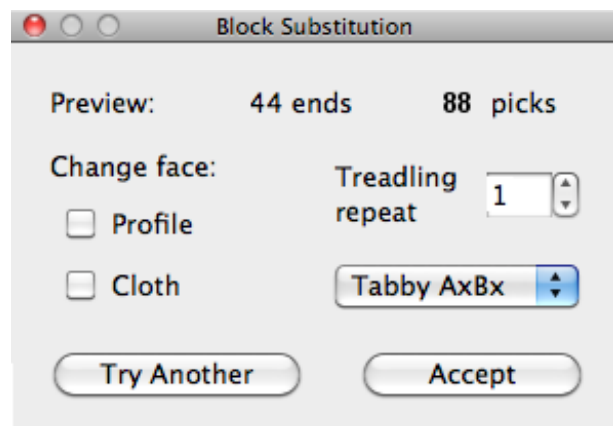
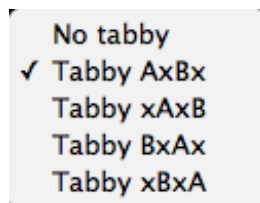


Note: if your profile is a liftplan or if the profile uses skeleton tieup and multipedal treadling, the block substitution **must** be made as a liftplan.

Step 3: Click **Preview** to preview the profile.

The **Preview panel** contains a **Treadling repeat** control which allows you to stretch out a weaving by repeating treadling units.

Tabbies can be added if desired (not all structures need them). Tabby sequence, **AxBx** means tabby A first, a pattern shot, tabby B and another pattern shot. The tabby list box contains sequence variants which place pattern first or tabby B first.

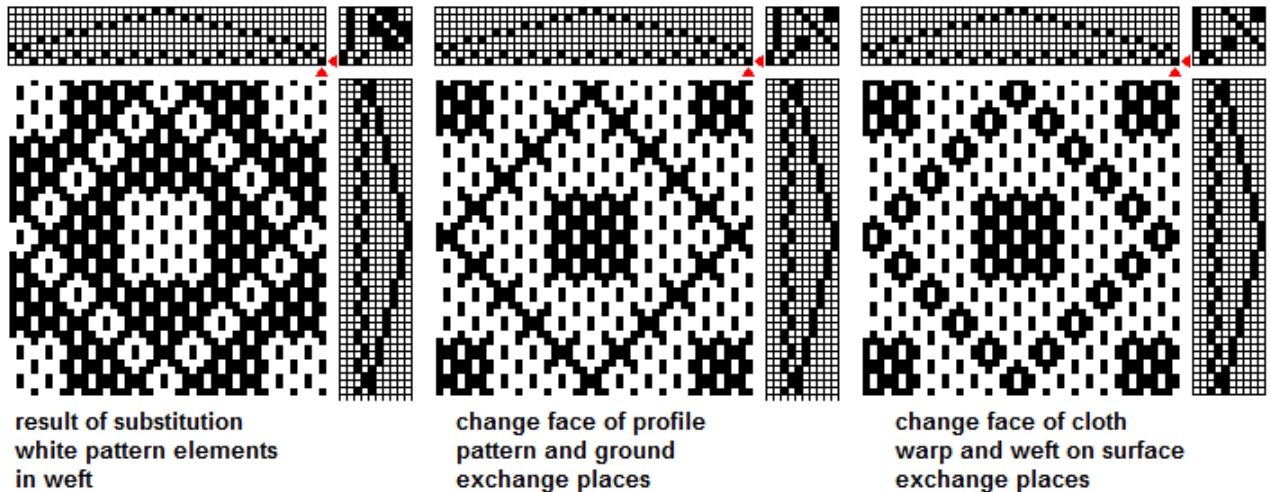


Tabbies are often not shown in drawdowns so as to emphasize the pattern components. Also, the proportions of supplementary weft weaves like summer and winter are better represented with tabbies omitted. If the drawdown seems to have astonishing warp floats, you really do need to include the tabby when you weave!

Using Fiberworks Bronze for Mac

Change Face brings the opposite surface of the woven cloth to the top panel. If you change the face of the **profile, pattern and ground exchange places**. If you change face of the **cloth, warp and weft exchange places**. The difference in effect is most pronounced for **lace weaves**, where ground is composed of plain weave, and pattern is composed of warp or weft spots.

For other weave structures, pattern and ground differ by showing weft emphasis versus warp emphasis. For these structures, the two different **change face** effects are not as extreme, but there is often some difference.



The Preview panel is a 'live' panel: changes made to the panel settings **show immediately in the preview**. Try different variations to see what works best for you. You also have access to magnification, color, thickness and the normal window controls.

Step 4: If you are not satisfied, click **Try Another**, which takes you back to the original profile and list of weave structures to try other options.

If you are happy with the result, click **Accept**. The fully substituted weaving draft is created in a **new window**, leaving your profile draft intact in its original window.

Sidebar: Unit weaves and block weaves

Unit weaves consist of blocks containing specific numbers or warp or weft threads, that weave together in one of two ways which can be described as pattern or ground. The integrity of these blocks is **independent** of adjacent blocks. This means that the blocks of unit weaves can be assembled in any combination, including runs of the same unit of any length, without excessively long floats or discontinuities in the woven cloth. The **tied weaves, twills, double weave, Atwater Bronson** and **Huck blocks** are unit weaves.

For block weaves which are not unit weaves, interlacement of blocks is not independent. This may limit which blocks may be adjacent to each other, or may make long floats in a run of the same block, or may disallow some combinations of blocks in the profile tieup. Most **classic weaves, Bronson Spot, Huck lace** and **Huck Spot** are block weaves but not unit weaves. Not all profiles will not work correctly with these non-unit weaves.

Using Fiberworks Bronze for Mac

Namedraft

This is a popular way to create new overshot designs for four shaft weavers. This tool allows you to create an overshot pattern that represents a name or phrase of importance to you. You can choose any of the seven different coding alphabets to translate text characters into thread or block sequences, and choose rose or star tieuppanel

Step 1: Start with a blank drawdown window and choose **Tools > Namedraft**.

Step 2: Type a name into the indicated text box. You may use characters, numbers, spaces and punctuation in your phrase, up to 40 characters. Short names (less than 8 characters) need to be expanded or the result will contain very short repeats. Choose Blocks rather than Threads in such cases.

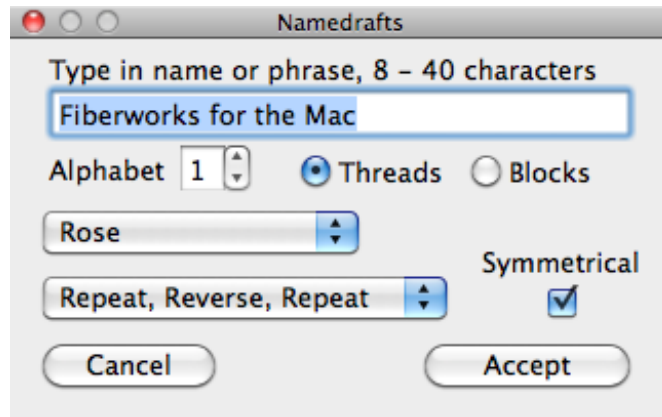
Step 3: Choose one of the 7 coding **Alphabets**, and choose your tieuppanel This gives you 14 different possible basic designs.

Step 4: To make a complete weaving draft, choose from the **repeat options** in the drop down list. The first two options (One repeat) give a namedraft design that can be used as a profile draft. You can then use Block Substitution (p.59-61) to create weaving drafts based on structures other than overshot. The repeats and reversals provide different ways to assemble the basic namedraft sequence.

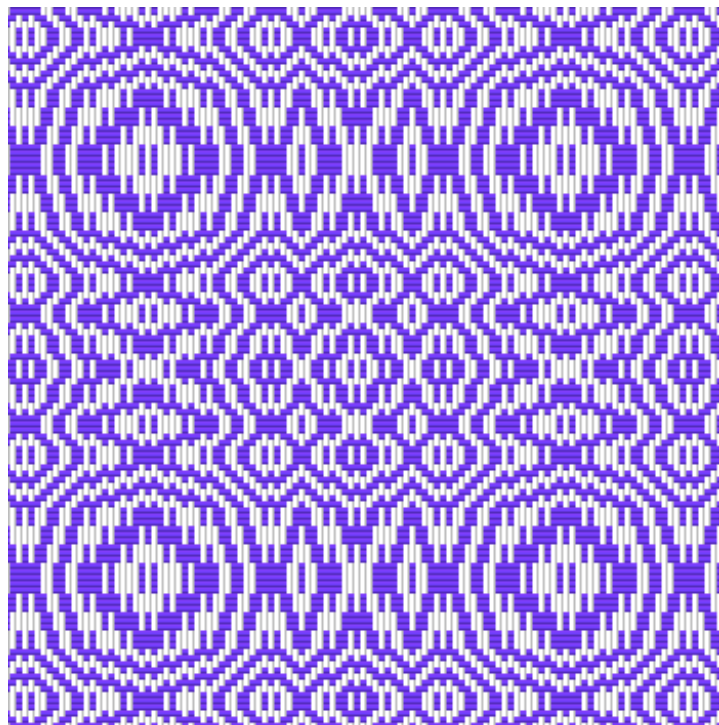
Step 5" Finally, select the **Symmetrical** button to make a full symmetrical overshot design.

You can change magnification while previewing with the normal toolbar slider while working. Click Accept when you are satisfied.

If by mischance you started namedraft in an already occupied drawdown window, the new namedraft will be created in a new window.



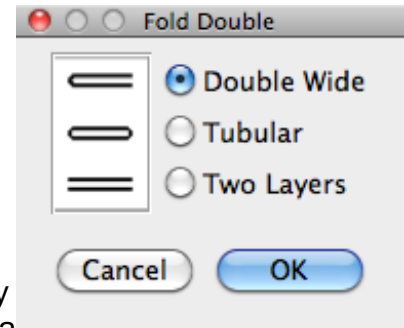
One repeat, threading only
One repeat, complete draft
repeat - repeat - repeat
repeat - reverse - repeat
reverse - repeat - repeat
reverse - reverse - repeat
repeat - reverse - reverse
repeat - repeat - reverse
reverse - repeat - reverse
reverse - reverse - reverse



Using Fiberworks Bronze for Mac

Fold double

Any pattern up to 32 shafts can be folded on itself to **Fold Double**, **Tubular** or **Separate layers**. This is a quick easy way of making that wide afghan on the narrow loom. **Fold double** needs double the original number of shafts and treadles. If you have a four shaft loom, you can only weave plain weave folded double, but with any color sequence you like. If you have an eight shaft loom, you can fold double any four shaft pattern. To fold 8-shaft designs double, you need a 16 shaft loom.

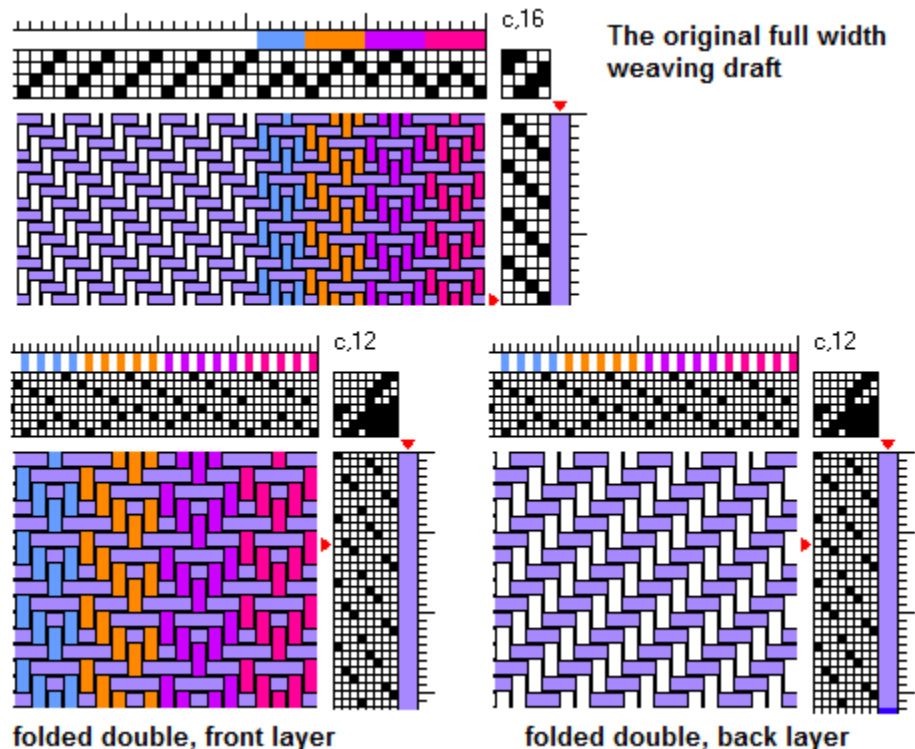


Fold Double is double wide, open on the right, with one shuttle using the following order: top, bottom, bottom top. For the opening on the other side go to **Warp / Reverse sequence** after **Fold Double** has been completed.

If your draft has 99 ends, then there will be 49 ends in one layer and 50 in the other. Odd numbers are preferable in double wide fabrics. The two modes below may have even numbers of warp threads in each layer.

Tubular is closed both sides with one shuttle used in the following order: top, bottom, top, bottom.

Separate layers is just that, and needs two shuttles, with shuttles used in the following order: top - shuttle 1, bottom - shuttle 2, top - shuttle 1, bottom - shuttle 2. The two layers can have different weave structures (easiest if they share the same tieup) or color design. The layers do not exchange, nor are there stitchers to hold the layers together.

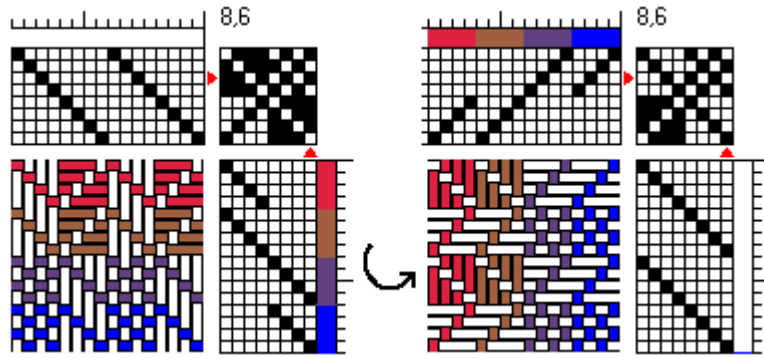


Using Fiberworks Bronze for Mac

Turn Drafts

This menu item takes a threading draft and converts it to a treadling draft, and converts the treadling draft into a threading draft. If unequal, the number of shafts and treadles are switched.

The effect on the sample is to **turn 90° anticlockwise** leaving the same face of the cloth up.



This is a useful trick for multicolored supplementary weft structures, such as overshoot and Summer and Winter, provided you have enough shafts on your loom. All the multicolored pattern threads are in the warp, and you just add ground weave in the weft, so the piece can be woven with one shuttle.

Note: If a treadling uses **more than one treadle per pick**, it cannot be turned. Liftplans must be converted to standard tieup (see p.52). Multi-pedal (skeleton tieups) treadlings must be converted to standard tieup. Having enough shafts is a potential problem in these cases.

Export to Sketchpad

Export to sketchpad takes the weave structure as represented by warp drawdown or weft drawdown, whichever you have selected, and copies it to the clipboard in a format that can be understood by the Fiberworks Sketchpad. The color drawdown is not exported; even if color is currently displayed, the **structure** drawdown is still exported.

Unlike Windows Fiberworks, where the Sketchpad is integrated with the Silver drawdown program, Sketchpad is a separate program on the Mac. Fiberworks Bronze and the Sketchpad exchange patterns through the Mac Clipboard. Export to Sketchpad creates a bitmap image of the drawdown in the clipboard, intended to be read by Sketchpad, but can be pasted into other graphics programs as well. Sketchpad can analyze a graphic, and send the draft information via the clipboard, so that it can be pasted into Fiberworks Panel Bronze.

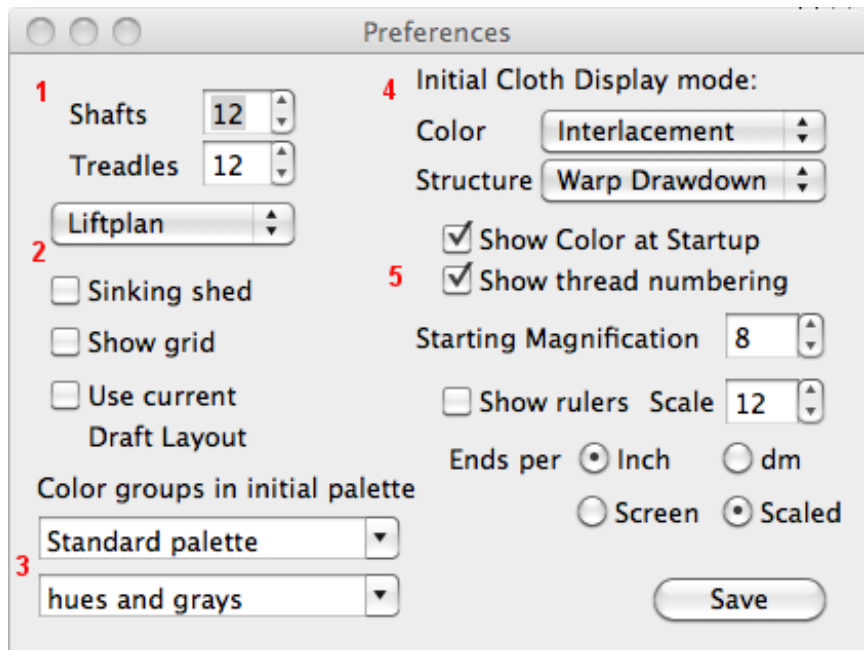
Fiberworks Sketchpad for Mac is still under development.

Using Fiberworks Bronze for Mac

Your Preferences

To make Bronze work the way you want, go to the **Bronze** menu and choose **Preferences**. This panel lets you set standard characteristics for all **new** drawdown windows which are created when you choose **File>New**. **These settings do not affect drawdowns already on the screen.**

Settings for a design opened from an existing file are taken from the file rather than using standard preferences.



(1) Set your preferred initial number of **shafts** and **treadles**. If you sometimes need different numbers, you can change settings for individual designs from the **Shafts and Treadles** item in the Tieup menu.

(2) Indicate the **loom action** you want. Use **Sinking shed** for counterbalance looms. Choose **Liftplan** for dobby looms or table looms. If you typically treadle with both feet and use skeleton tieups a lot, select **multipedal**. If you select it, the disadvantage of multipedal is that drawing over an existing treadling with the mouse will add to rather than replacing any existing drawing, and the insertion point won't advance automatically if you use the keyboard. Select **Grid in cloth** to superimpose a grid onto the cloth drawdown. Threading, tieup and treadling are always drawn on a grid. Select **Use current Draft Layout** to record the layout (left to right, right to left etc, p.32) of your current drawdown window as your preference.

(3) Choose the color groups (p.39) that make up your initial color palette. Set the second group to **Use 42 Color Palette** to limit your initial palette to 42 colors, otherwise the default is 82 colors.

(4) Select how the cloth drawdown is to display. **Interlacement** is probably the most generally useful unless you specialize in something like rep or double weave. Select your preference for structure drawdown. Select **Show Color at Startup** if you want to start with a color view rather than a structure view.

(5) Select **initial magnification** and related display characteristics. Set your default scale factor and ruler option.

Click **Save** to record your settings.

Miscellaneous Mac Terminology


Panels

Panels control the actions performed by many menu items. Panels may take the form of a sheet that drops down from the toolbar/title bar of the window, or may be freestanding. With drop-down sheets, all control goes to the sheet, and actions usually don't take place until the sheet is closed again.

Free-standing panels can be **live**, with the result of actions immediately visible. You can still

access controls such as magnification and color palette outside the panel.

Panels may contain any of the following common control elements:

(1) Numeric boxes where you can type in a number or adjust by clicking a **stepper** **(2)** located on the right side. A slider  is another way to set a number value.

(3) Drop-down Menu: let you select one option out of a preset list, similar to a menu. The current selection shows when the list closes.

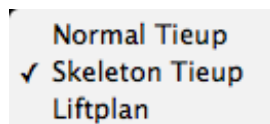
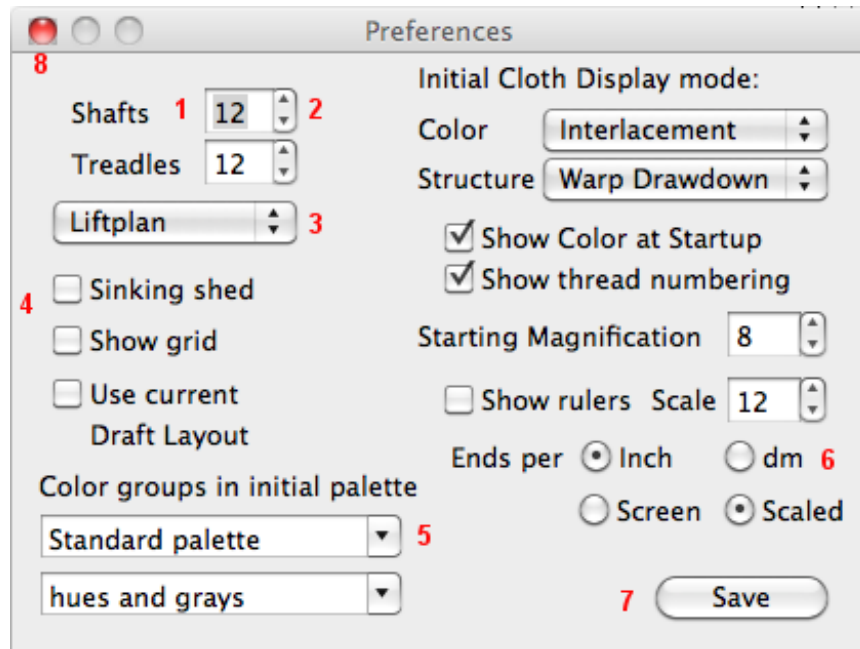
(4) Check Buttons: small square buttons that let you set a property or action as active or not. Each button acts only on the item described in the label.

(5) Drop-down list: similar to the (3), but the contents of the list may vary. For example, color lists may include color groups created by the user as well as the predefined groups. In some cases, you can type directly into the box instead of selecting from the list.

(6) Radio buttons: small round buttons, found in groups for selecting one out of several options. These differ from check buttons (4) because **only one button in a group** can be selected. Clicking a different member of the group deselects the button that's currently active.

(7) Action button: buttons that perform an action when you click them. Buttons labelled Close, Done, OK, or Accept may also close the panel that contains them.

(8) Close button: present in the **title bar** of freestanding panels. If you can't see any other way to close a panel down, click this button.



Using Fiberworks Bronze for Mac

Quirk of OS X and macOS

Resume

affects the way Bronze starts and closes down. Instead of shutting down in the normal way, OS X (10.7 Lion or later) or macOS takes a snapshot of Bronze when you click the red dot to close the drawdown Window. The program disappears from the screen, but **is still active in the background, even after you shut down the Mac**. When you restart, the **Resume** feature restores all your windows the way they were when you turned off the Mac.

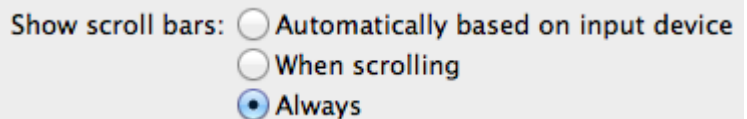
If you use close Fiberworks only by clicking the red dot, small errors accumulate, and may eventually cause the program to crash. It's a good idea to quit the program from time to time (Fiberworks menu, Quit Fiberworks) to ensure a truly fresh start.

If you close all your windows before quitting, Resume restores Fiberworks without any open windows when you restart, not even the normal empty drawdown frame. In fact, even the color palette is blank, because it is not attached to any active window. **Don't panic!** Just click New for an empty drawdown frame or open a file, and the normal drawdown frame will appear.

Another potentially disconcerting effect is that if you quit with the insertion point at the last warp end or pick, **Resume** may restart Bronze with the design scrolled off out of sight. If you have thread numbering visible, it is apparent what has happened but could be alarming if you are not showing thread numbering. **Don't panic!** Just scroll back to the start of the drawdown, and everything will be there.

Disappearing Scroll bars

Lion's scroll bars may hide themselves when not actively in use. This is an option which you can change in **System Preferences, General**.



Disappearing scroll bars are designed to be used with the Magic Mouse or the Macbook's trackpad, where you use a stroking gesture to scroll. This makes the scroll bars appear temporarily. If you use a conventional mouse, you may prefer to choose to **Show scroll bars Always** in your Preferences as shown above. (Note this is System Preferences in the Apple menu, not Bronze Preferences).

Using Fiberworks Bronze for Mac

Switching from Windows to Mac Bronze: New Features

File Menu adds **Duplicate** and **Revert to Saved**

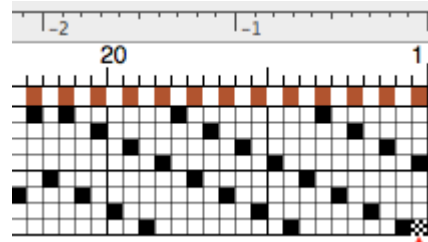
Duplicate opens a second copy of an existing design, allowing you to experiment with variations.

Revert to Saved lets you rewind a design back to the last saved version if you have messed it up by experimentation.

Edit Menu adds **Redo**

View Menu adds **Rulers, Thread Numbering, Layout and Info**

Rulers let you show a scale graduated in inches or cm with zero at the beginning of the threading and treadling. You can optionally set a scaling value for ends per inch (or per decimeter).



Thread numbering of threading and treadling drafts shows thread numbers every 20 threads, helping identify the section on screen when the drafts are scrolled. The location of the insertion point is also numbered (at warp end 1 in the image above).

Layout lets you choose draft orientation: left to right or right to left threading, bottom up or top down treadling.

Info Replaces the status bar and provides information in a panel.

Colors menu is new and adds features that let you control color groups in your palette, as well as to create **Color Gradients** and **Colorways**.

Open New Color Group lets you pick color groups, which are sets of 40 colors, and add to or replace blocks of colors in an existing palette. Palettes can be expanded to 242 colors.

Save a Color Group lets you save a color group that you have created for future reuse.

Delete a color group lets you remove a color group from the list of saved groups when it's no longer needed.

Create Gradient lets you create a graded series of colors in the palette, and optionally use the gradient in warp or weft.

Colorways lets you record more than one colorway for your current design and to switch colorways.

Using Fiberworks Bronze for Mac

Switching from Windows to Mac Fiberworks: Improved features

Fill Threading/Fill Treadling add many more options

Fill Color (Threading/Treadling) allows combinations of up to four colors, type your own repeat patterns as well as a standard list. Colors can be dragged from the main palette to the boxes in the Color Fill panel.

Float Search now lets you optionally search both front and back surfaces together, and lets you set the minimum float length to record. All floats found are recorded as a scrollable list. If you click a float in the list, it will be marked in the drawdown.

Block Substitution adds two styles of Piqué, Diversified Plain weave, and a simplified two-color taqueté. Colors can be added to the preview before it is accepted.

Namedraft adds a seventh alphabet for translating letters into shafts, and gives you the option of translating a name into a profile or directly into an overshot pattern.

The **Toolbar** can be customized.

Where to find things that moved or changed their name

About Fiberworks, Preferences and Quit are in the Fiberworks Menu (standard Mac practice).

The **Drawing tools** have moved from a sub-menu in the Edit menu to their own Drawing menu, and all have a keyboard shortcut. All items in the drawing menu are also represented on the toolbar.

Shaft Shuffler is now classed as a drawing tool, since it takes over the mouse until another drawing tool is selected, and is now available at Bronze level.

Color Modify (formerly Cloth menu) has become **Show Color Panel** in the Colors Menu, and uses the standard Mac Color panels.

Warp and **Weft** menus are now **Threading** and **Treadling** menus.

Multipedal Treadling is in the **Treadling** menu rather than Tieup menu

Turn Draft moved to the Tools menu.

There's no **Insert** key on a Mac keyboard. Use the **Spacebar** instead.

Use **Option-Click** rather than **Shift-Click** as a substitute for double clicking.

The menu item **Export to Sketchpad** will eventually allow Bronze to link to **Sketchpad**. The sketchpad will be made available as a separate program that communicates with Fiberworks Bronze via **Export to Sketchpad** in the **Tools** menu, and to import from Sketchpad via **Paste**.

Resources

Weaving Organizations

Complex Weavers. International organization of weavers interested in unusual and interesting cloth.

<http://www.complex-weavers.org>

Handweavers Guild of America. Publishes of Shuttle, Spindle and Dyepot. Hosts Convergence in even number years. Many member services.

<http://www.weavespindye.org>

Ontario Handweavers & Spinners. Membership benefits include The OHS magazine - Fibre Focus, Home Study Weaving Course.

<http://www.OHS.on.ca/ffhomes.html>

Association des Tisserandes du Québec.

<https://www.associationdestisserandesduquebec.com>

Great Books for Fiberworks Owners

Coe, Margaret. *4-8 ... Weave!.*

Coe Produced, 5200 Mt. Lemmon Short Rd, Tucson AZ 85749. 2013

<http://www.e-weaving.com>

Coe, Margaret. *2 Be Tied or not to be Tied*, e-weaving tutorials. 2012.

Coe Produced, 5200 Mt. Lemmon Short Rd, Tucson AZ 85749.

<http://www.e-weaving.com>

Coe, Margaret. *Designing for the Future.* 2012, a Digital Weaving Primer. 2012

Coe Produced, 5200 Mt. Lemmon Short Rd, Tucson AZ 85749.

<http://www.e-weaving.com>

Inouye, Bonnie. *Exploring Multishaft Design.* Weavingdance Press, 2000.

ISBN: 0-9678489-0-3.

Contact by, e-mail: bonnieinouye@gmail.com

<http://www.bonnieinouye.com/>

Keasbey, Doramay. *Designing with Blocks.* Alta Vista Press, ISBN: 0-9611136-1-8

Available from your favorite weaving supply shop.

Using Fiberworks Bronze for Mac

Books, continued

Schlein, Alice. *Network Drafting, an Introduction.* Bridgewater Press 1994.
ISBN 0-9644474-0-1 www.aliceschlein.com

Schlein, Alice. *The Liftplan Connection.* Greenville South Carolina 2010.
www.aliceschlein.com

Stubenitsky, Marian. *Weaving with Echo and Iris.* Uitgeverij Stubenitsky, Netherlands
2014 ISBN 978-90-822182-0-6. marianstubenitsky@gmail.com

Stubenitsky, Marian. *Stubenitsky Code.* Uitgeverij Stubenitsky, Netherlands 2018 ISBN
978-90-822182-4-4. marianstubenitsky@gmail.com

van der Hoogt, Madelyn. *Complete Book of Drafting.* Shuttle Craft Books/Unicorn Books,
1993. ISBN: 0-916658-51-1

Available from: Unicorn Books 800-289-9276. (Retail: \$23.95)

Email: unicorn@unicornbooks.com or phone: 1-800-BUY-YARN ext 0.

Technical Support

If you can't find it in the manual either hard copy, on this e-manual, or in the help files try our website.

Website: <http://www.fiberworks-pcw.com>

If all else fails, please contact us.

Email: info@fiberworks-pcw.com

Phone: 855-222-6959 (toll free, N.America only) or +1 250-931-5988 for overseas.

Have your registration or customer number handy for help by phone, fax or email.

Remember, if you don't tell us, we don't know that you may have a problem. We will probably be able to help.

Have fun designing with Fiberworks. Have fun weaving your designs.

Occasionally let us know what you are doing. We would love to have a picture of your work with a draft. Perhaps, we can put it up on the Web!

Once you are warped, what's weft

Bob Keates and Ingrid Boesel, Fiberworks

Fiberworks

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Happy Virtual Weaving

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