

# Calico

## User's Manual



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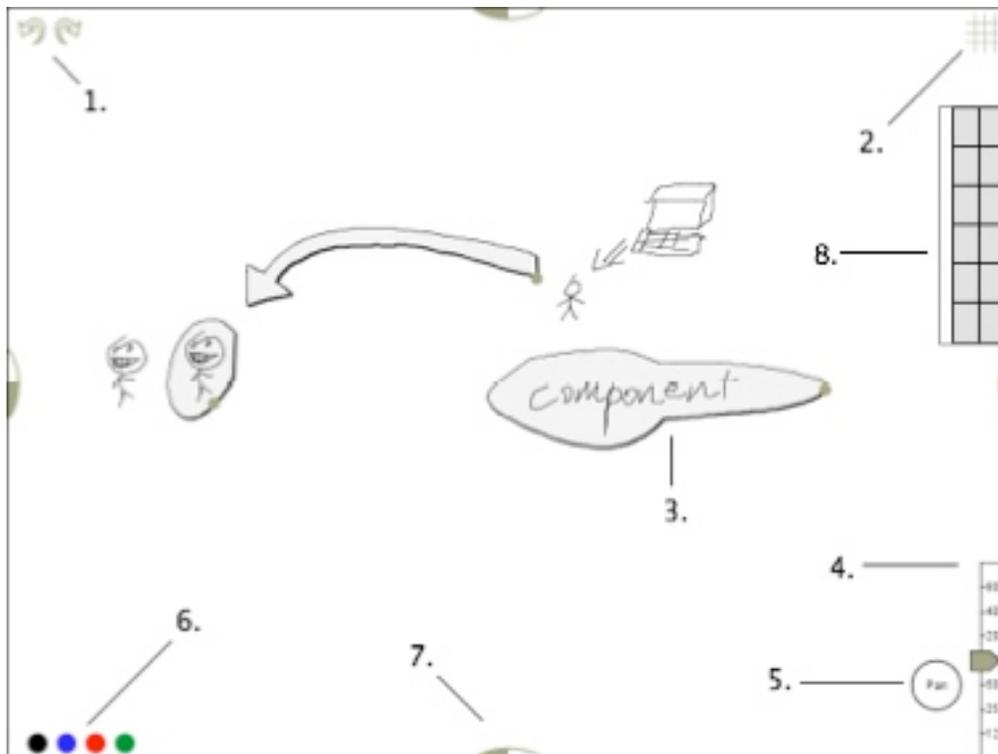
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## Overview

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Calico is a sketching tool for software design that runs on an electronic whiteboard or Tablet PC. The primary function of Calico is to support the flexible and rapid creation of hand-drawn sketches, but “scraps” can be used to approximate elements of common software engineering diagrams. Each drawing in Calico takes place in the context of a large grid of canvases, each of which can be moved, copied and saved as a separate entity.



**Calico Canvas 1**

1. *Undo* – Undoes the previous action.
2. *Grid* – Loads the grid.
3. *Scrap* – A flexible component for manipulating sketched items.

4. *Zoom* – Increases or decreases the size of all items on the canvas depending on the slider.
5. *Pan* – Shifts all objects on the canvas.
6. *Pen Colors* – Changes the currently active pen color.
7. *Grid Navigation* – Moves the user to an adjacent canvas with respect to the grid (in the direction of the nubs, nubs reside on the top, bottom, left and right Of the canvas).
8. *Palette* – Stores template of a scrap or group of scraps, which can be reused multiple times.

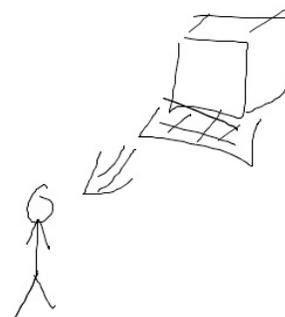
## Pen Interaction

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Most actions taken in Calico involve clicking and dragging with the pen. However, some actions, such as moving scraps or canvases, require you to right-click or right-drag. To do so, hold down the “R” button on the pen (as seen on our Hitachi Starboard Fx-Duo, similar buttons exist on pens for other interactive whiteboards or Tablet PCs). Touching the pen to the board, dragging it, and then lifting it, is collectively referred to as a *stroke*. In this document, “click”, “drag” or “stroke” will refer to physically pressing the pen against the electronic whiteboard or tablet, and we will declare explicitly when a right-click or drag is needed.

### Sketching

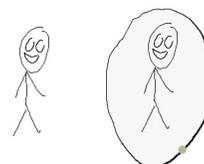
Perhaps the simplest way to use Calico is to drag the pen across the whiteboard surface, creating a freehand drawing. By clicking on the colored circles at the bottom left-hand corner of the screen, you can change the color of the pen.



It should be noted that pen strokes that cross the boundaries of scraps often designate actions to be taken on those scraps (see below). But strokes on the background or within scraps will create freehand drawings as normal.

### Scraps

By right-dragging on the canvas, you can create a “scrap” in the shape of the stroke. You can try this by holding down the right mouse button, drawing a

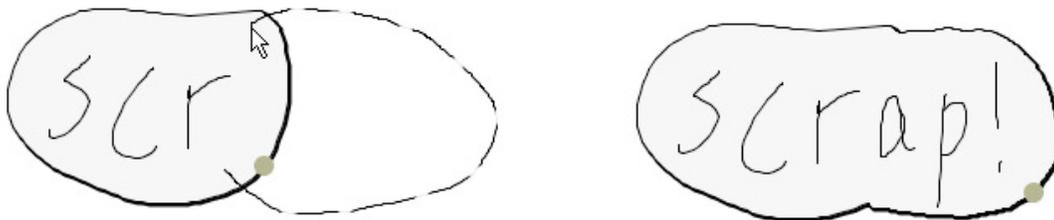


large "C" shape and then releasing the pen. Notice that the scrap closes the incomplete portion – you do not need to actually close the stroke that you use to complete a scrap. When a scrap is created, any drawings that fall inside its boundaries will be "lifted" onto the scrap, and will move around on the scrap as if they were drawn on it in the first place.

Once you have created a scrap, it can be used in a number of ways:

*Drawing:* Scraps can be drawn on in a freehand way, just like the background canvas, through a regular stroke on that scrap.

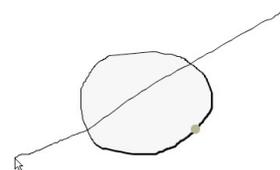
*Expanding:* If you start a stroke inside a scrap, leave that scrap, and then return to the scrap, the scrap will be expanded to include the new area that you delineated. This can be useful if you run out of room for writing on a scrap.



*Moving:* By right-dragging a scrap, you can move it around the canvas.

*Stacking:* When a scrap is moved so that it rests on top of another scrap, those scraps are implicitly grouped. By moving the bottom scrap in a stack, you can move the whole stack as a single object.

*Deleting:* Whenever a stroke crosses over a scrap and then ends outside of it, that scrap is deleted. This can be seen as "striking out" the scrap.



## Scrap Action Menu

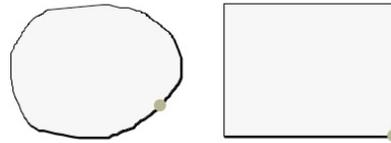
Clicking the small gray circle on the bottom right portion of a scrap, and then clicking on one of the four labels that appear allows access several additional features:



*Duplicate:* This creates a duplicate of the scrap, including any drawings on it.

*Transparent:* This reduces the opacity of the color filling within a scrap. Once a scrap has been made transparent, the scrap can be made solid by selecting *Opaque* in the Scrap Action menu. This enables overlaying of scraps to adjust the content of an underlying scrap without modifying it directly.

*Rectangle:* This will straighten the edges of a scrap. Specifically, it expands the scrap, taking on the shape of the smallest possible rectangle that could contain the scrap's previous outline.



*Drop:* This deletes the scrap, but drops all strokes drawn on it to the background behind the scrap.

## Arrows

When you draw a stroke that begins in one scrap and ends in another, an arrow is created between them. These arrows are "attached" to their respective scraps, and will redraw themselves as those scraps are moved. Arrows can be modified in the following ways:

*Expanding:* By drawing a clockwise spiral on an arrow, its thickness will be increased.

*Contracting:* By drawing a counter-clockwise spiral on an arrow, its thickness will be decreased.

*Deleting:* As with scraps, drawing a stroke through an arrow will delete it.

## Canvas Components

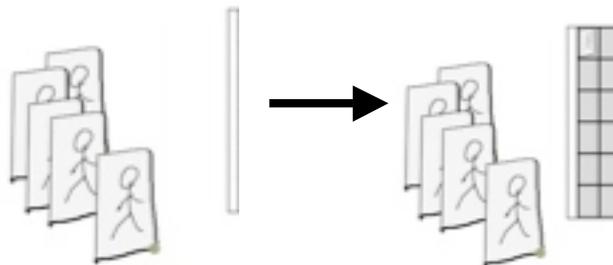
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Calico comes with a variety of tools aimed at enriching the design experience. These tools are located around the periphery of the canvas and may sit on top of the canvas itself when activated.

### Palette

The vertical bar located towards the right side of the canvas can be clicked to pull out the Palette. The Palette offers a set of cells where the user can store a single scrap or set of scraps so that they may be reused. The contents of the Palette remain consistent when moving between cells in the grid (the grid will be introduced later in this section).

*Show/Hide:* The Palette is hidden from view by default. The Palette can be made visible by clicking on the white vertical tab at the side of the screen. The Palette can be hidden by clicking on the white tab again.



*Store Scrap:* One of the main features is the Palette's ability to store scraps within its cells. In order to save a scrap onto the Palette, drag a scrap using right click onto the desired Palette cell. The scrap will return to its original position. Storing a scrap onto the Palette does not modify the original scrap. Once a scrap or a set of scraps are stored onto the Palette, that scrap is now available to be reused until the cell's contents are emptied.

*Load Scrap:* Once a scrap is stored in a cell, it can be copied onto the canvas. In order to copy a stored scrap, press the pen down while holding right-click on the desired cell, continue holding right-click and drag the pen onto the desired position on the canvas, then release the

pen. The stored scrap will be centered on the position where the user released the pen.

## Navigation

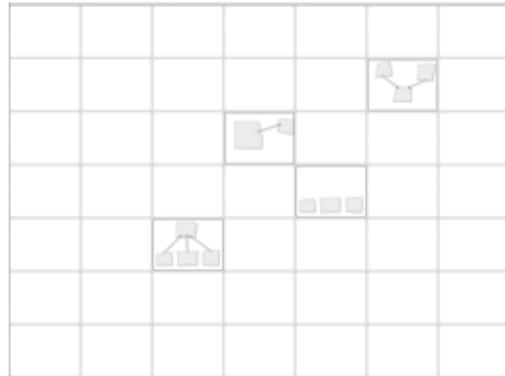
In the bottom right corner of the screen there are two widgets for navigating the canvas. By clicking and dragging the Pan button, you can move around the canvas. To change the zoom level, drag the gray arrow on the zoom meter.

## Undo and Redo

The arrows in the top-left can be used to undo and redo actions. Currently, the maximum undo level is 50 actions.

## The Grid

All of the drawing actions in Calico take place on a canvas that exists in a grid of many. To view this grid, click on the icon in the top right corner of the screen. Once here, you can click on any cell to enter that canvas. In addition, you can right-drag a canvas to move it to a new location on the grid. Right-dragging a canvas on top of another, existing canvas will delete the latter canvas (and, thus, dragging an empty canvas onto an existing canvas can erase its entire contents). By right-clicking on a grid location you have two main options:



*Change Background Color:* The background color of a canvas can be changed to one of 4 standard colors. These colors do not carry any absolute meaning, but might be used to indicate important, temporary or otherwise unusual drawings.

*Save to Image:* This will allow you to render the complete contents of a given canvas to a PNG image file at a location of your choice. The file name is the timestamp of the save action by default.

## Canvas Navigation Buttons

The grid can also be navigated from within the canvas. By clicking one of the four navigation buttons (see image on right), positioned on each side of the canvas, you can move to an adjacent canvas. When the white side of the button is pressed, you simply are moved to the next grid location in that direction. When the gray side of the button is pressed, the contents of your current canvas are copied into the new grid location and the canvas is moved to the copied cell. If a cell already exists in the direction that the user wishes to copy the cell, each cell in that direction is shifted over one position. If there is no content to be copied, the blank contents are copied to the adjacent canvas and the target cell will have its original contents shifted to an adjacent in the same direction.



## File Menu

When in the grid view, a file menu is accessible in the top left corner. From here, you can save and load the entire state of the grid and all of its canvases.

### File

- *Refresh Grid* – Refreshes the grid to include changes from across the network
- *Save Grid* – Saves the contents of the grid into a \*.cg file.
- *Save Grid as Images* – Saves the contents of the grid as a consecutive series of \*.png image files.
- *Load Grid* – Loads the contents of a previously saved grid, discarding the active session.
- *Exit* – Exits Calico, discarding the active session.

## Tools

- *Connect* – Connects the user to a remote server. *Note: Calico Server is not publicly available.*
- *Disconnect* – Disconnects the user from the remote server. *Note: Calico Server is not publicly available.*

## Palettes

- *Manage* – *Currently unsupported.*
- *Add* – *Currently unsupported.*

## Additional Information

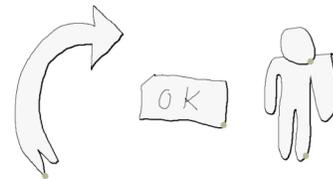
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### Autosave

In the event that Calico is exited without saving, the user can continue their previous session by loading an autosaved grid. Calico periodically saves the contents of the grid in a file named `$CalicoAuto.cg`, which is located in the Calico home directory.

### Tips and Tricks

- There is not a direct way to delete drawings from the background, but they can be removed by drawing a scrap around them, and then deleting that scrap.
- A single delete stroke can move through multiple scraps to clear space, just be sure your stroke begins and ends on the canvas.
- Using the *copy* version of navigation buttons can be a useful way to keep a version history of your diagrams. Copying a diagram before expanding or modifying it will allow you to be more free in your changes, while preserving a record of the original diagram.
- Deleting small scraps may require a slower strikethrough stroke, to ensure that the passing of your stroke through the scrap is detected.
- Scraps are primarily useful as labeled diagram elements, but creatively shaped scraps can also be useful as arrows, UI elements or other objects.
- It is often useful to create elements that you might reuse or move later as scraps from the start and to store those scraps in the palette.



## **Stroke Interpretation Summary**

*Draw* – Start on canvas, stay on canvas

*Draw* – Start on scrap, stay on scrap

*Delete Scrap* – Start on the canvas, cross one or more scraps, end on the canvas

*Delete Arrow* – Start on the canvas, cross an arrow, end on the canvas

*Expand Scrap* – Start on a scrap, leave the scrap, end back on the same scrap

*Create Arrow* – Start on a scrap, end on another scrap

*Expand Arrow* – Start on the canvas, draw clockwise circles around a relationship

*Contract Arrow* – Start on the canvas, draw counterclockwise circles around a relationship

*Erase* – Start on canvas, hold middle click, drag across canvas