Chapter 1 CompositeTool Basics

Chapter Overview

This chapter outlines general information about NCSA CompositeTool such as how to use the mouse buttons, open frames, interpret messages, and retrieve program files. A tutorial which describes how to set up a non-NCSA installation (both personal and system installations) is also included.

This manual assumes you have knowledge of UNIX and the SunView system. Please refer to manuals outlining these items if you are unfamiliar with them.

Installing the Program

You can only invoke CompositeTool from the physical machine that you are logged on to. That is, if you log on to another machine remotely, CompositeTool cannot be invoked from that machine.

For example, if you were to log on to machine "venus," invoke SunView, bring up a shell window, and (within that shell window) remotely log on to machine "newton," you would be unable to invoke CompositeTool from that shell window.

Setting Up aNon-NCSA Installation

To install NCSA CompositeTool, you need to place its files in a directory, modify a Makefile and run Make. CompositeTool uses the Sun User Defaults Database mechanism to specify installation dependent filenames. The Makefile is targeted toward two forms of installation: *personal* and *system*. You should first run a personal installation to produce a working local version of the program. Once satisfied with the local version, you can run a system installation as root for a system wide version. In the steps below, personal installation information is preceded by a star (*).

Install NCSA CompositeTool:

1. Put a copy of `dist.tar.z` in your current directory.

   The directory must contain enough space to include the following:

   - Extracted files from compressed tar file ~1.2 MB (megabytes)
   - *Space for Personal installation:

Sun-3	~ .6 MB
Sun3861	~ .6 MB
Sun-4	~ .6 MB

NOTE: Some of this space is recovered, because the `compositetool.o` object file is removed.

- System installation—no space is used in this directory unless you so designate it in the Makefile.

NOTE: Temporary space is required to do either installation. Consult the Makefile in the distribution for approximate sizes.

2. Enter the following command line to extract the directory `./v1.1.dist`, and place it in your current directory.

```
zcat dist.tar.Z | tar xvfB -
```

3. Enter the following command line and read the documentation in the Makefile.

```
cd v1.1.dist
```

*Personal Installation—Step 4

- Change any required macros (only one at most) in the Makefile, and then enter:

```
make personal
```

CompositeTool displays some messages on the screen.

- The executable, `compositetool`, is now ready to execute in SunView IN THIS DIRECTORY! If you move out of this directory, you will have to change some personal defaults by either editing `$HOME/.defaults` or by entering the following command in SunView to change them:

```
defaultsedit
```

System Installation—Step 4

- Change any required macros (three at the most) in the Makefile.
- Become superuser by entering:

```
su root
password: <fill in>
```

- On the next line, enter:

```
make system
```

CompositeTool displays some messages on the screen.

- Add the system directory where `compositetool` and associated files were installed to your search path, by editing the appropriate startup file for your login shell. For example, if you use the C shell, edit the `.login` or `.cshrc` file in your home directory. If you use the Bourne shell edit the `.profile` in your home directory.

Invoking CompositeTool

Start CompositeTool by following the steps below.

1. Log on to a Sun Workstation. (Enter your name and then your password at the respective prompts.)

2. To invoke SunView (running SunOS 4.x), enter:

   sunview

3. In a shell window, enter the directory location of the desired file.

For example, if you installed CompositeTool in `/usr/local/bin`, then in a window (shell or command), you would enter:

`/usr/local/bin/compositetool`

NOTE: If you plan to use CompositeTool frequently, place its directory in your search path. You can then run the program from any directory of your choice by entering:

compositetool

You are now ready to run CompositeTool. Read the succeeding sections, "Mouse Buttons" and "Composite Tool Messages" for general information on SunView and the program's operation before continuing moving to the tutorial.

Standard Features

Mouse Buttons

The left mouse button is the only one used for CompositeTool functions. Whenever reference is made in this manual to pushing depressing, or clicking a button, the left mouse button is implied.

The middle and right mouse buttons retain their default SunView functions. Typically, the middle mouse button is used to move a window. In order to move a CompositeTool window, place the cursor anywhere within the window (either inside the window or on the window title bar), depress the middle mouse button, and move the CompositeTool window to its new location on the screen.

Typically, the right mouse button is used to invoke the window frame menu. In order to invoke the SunView Frame menu, (which likely contains such options as Done, Resize, Hide, Move, etc.), place the cursor anywhere within the window (either inside the

window or on the window title bar), press and hold down the right mouse button, and make the Frame menu selection.

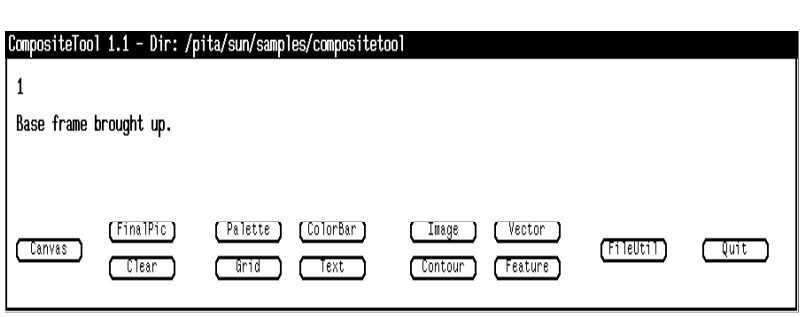
Title Bars

All CompositeTool frames except for the Canvas frame contain title bars. *Title bars* are located at the top of the frames and contain the name of the frame, as well as information on current options you have chosen within the frame; e.g. tag numbers change as successive ones are chosen, palette names change, etc. The title bar in the Base frame reflects the application name, its version number, and the name of your current directory.

CompositeTool Messages

Each time CompositeTool performs an operation, a uniquely numbered message is generated. These messages are displayed on the Base frame (Figure 1.1).

Figure 1.1 Base Frame



Most messages simply echo the operation performed (for example, when CompositeTool is invoked, message number 1 tells you that the CompositeTool Base frame is displayed). These messages also serve to jar your memory. Once you are familiar with CompositeTool, you should be able to run the program using these messages and not have to refer to the manual. While you are learning the program you are advised to glance at these messages frequently.

When you make an error (for example, refer to a file that does not exist or that you cannot read), an error message is generated. You are invited to test CompositeTool by entering illegal data (for example, entering a letter where an integer is expected, or vice versa). Please report any problems you encounter to NCSA Software Tools (See Bugs and ReadMe pages of this manual).

Working with CompositeTool

Opening a Canvas

Open a new canvas by selecting the Canvas button from the Base frame (Figure 1.1). By default, the canvas only partially covers the screen. You may adjust the canvas size by moving the mouse pointer into the canvas window and holding down the right mouse button. The SunView Frame Selection menu appears on the screen. Select a screen size from the submenu located under the Resize option. For this tutorial, select FullScreen. The canvas now covers the entire screen.

Move the canvas into the background so that the Base frame again appears on the screen. Once again, hold down the right mouse button until the menu box appears on the screen. Select the Back option.

Changing the Canvas Color

The default color of the canvas is pixel value 0, which is always set to white by CompositeTool. Other pixel values in the range
(0-255) are available for use. (Refer to Chapter 2 the section "Raw Palette Files" and Chapter 3 the section "Palette Frame" for more detailed information on pixel values and color mapping.)

Change the canvas color by following the steps below.

1. Select the Palette button from the Base frame. Notice that the Palette button disappears from the Base frame. It reappears when the you close the Palette frame. (See Appendix A, "Limitations of NCSA CompositeTool.") The Palette frame in Figure 1.2 appears.

Figure 1.2 Palette Frame

2. Position the cursor after the "Load background color:" option and click or simply press RETURN. A prompt appears.

3. Enter the pixel value 75.

4. Click the Load background color button and wait for the message "Program setting read from file" to appear in the Base frame. CompositeTool has now read the file.

5. Click the Done button to close the frame.

NOTE: You do not have to click the Done button immediately after entering options. Doing so simply closes the window, thereby allowing an unobstructed view of the image.

5. Click the FinalPic button on the Base frame. The canvas is now blue.

NOTE: Unless you select this button after frame entries, stored data will be used to display your image, instead of what was just entered.

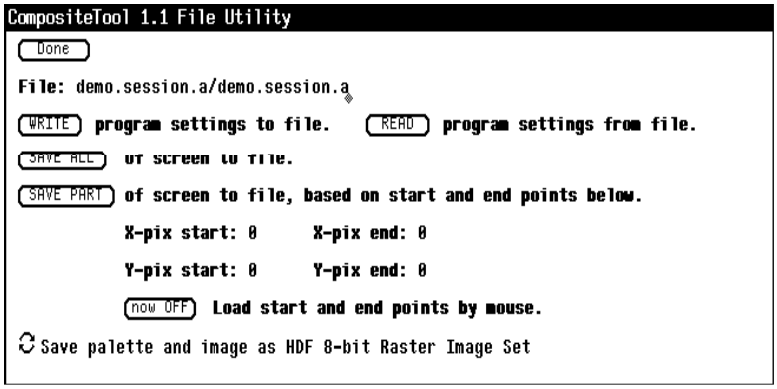
NOTE: A canvas must be displayed before CompositeTool draws in an image, contour, or vector.

Loading an Image

NCSA CompositeTool contains some sample files for you to load in for viewing and manipulation. A list of the files contained in CompositeTool are listed in Appendix B, "CompositeTool Files."
For now you will load an image entitled, `demo.session.a`.

1. Select the FileUtil button from the Base frame. The FileUtil frame appears as shown in Figure 1.3.

Figure 1.3 File Utility Frame



2. Enter the command line below at the "File:" entry.

```
demo.session.a/demo.session.a
```

NOTE: We assume here that CompositeTool was started in the present working directory which contains the `demo.session.a` directory. See Appendix A, "Limitations in NCSA CompositeTool" for information about specifying paths.

3. Click the Read button and wait until CompositeTool reads in the file.

4. Click the Done button.

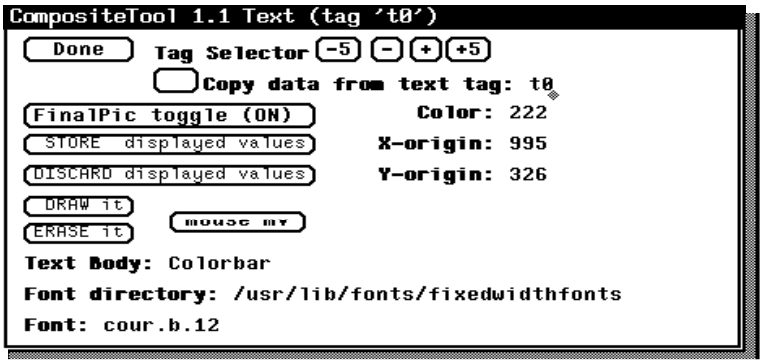
5. Click FinalPic in the Base frame. The image DemoData appears on the screen.

Entering Text

Next, you will enter text on the sample image. (Refer to Chapter 3, the section, "Text Frame" for more detailed information on entering texts and choosing fonts.)

1. Click the Text button in the Base frame. The Text frame in Figure 1.4 appears.

Figure 1.4 Text Frame



Notice that at the top of the window is the line Tag Selector followed by four buttons labeled, -5, -, +, +5. These buttons allow you to move through all of your entered tags (Table 1.1). *Tags* are numbered identifiers that are attatched to each piece of text (numbers, letters, or words) you've entered into the Text frame and which now appear in your displayed image. (For simplicity's sake, entered text will be referred to as tags for the rest of this discussion.)

Table 1.1 Tag Advancing/ Detracting Buttons

Button	Purpose
-5	Moves backwards through tags by 5
-	Moves backwards through tags by 1
+	Moves forward through tags by 1
+5	Moves forward through tags by 5

Assume you have entered twenty tags in your image. Currently you are viewing the first tag you entered. You know this because CompositeTool numbers your tags from 0 upward, and the title bar displays the tag number, `t0`. Also, the Color, X-origin, and Y-origin lines give the color and x, y location of the tag, respectively, while the Text Body line lists the name you assigned the tag. The Font directory lists the directory location of the word's font and the Font line lists the name of the word's font.

You want to view and alter tag 2, (`t2` in the title bar).

2. Click the "+" button twice to move to this tag. "`Y-axis`" should appear on the Text Body line.

3. Move your cursor to this line and click.

4. Enter the word `test` after `Y-axis`. Your tag should appear as follows:

   `Y-axis test`

5. Click the DRAW it button.

6. Save the new text by clicking the STORE displayed values button. If you don't click this, the values will not be entered.

7. Click the FinalPic toggle (OFF) button so that it toggles to FinalPic toggle (ON). The text will now be a part of the new composite.

8. Click the Done button.

9. Click the FinalPic button in the Base frame. The altered tag will appear in your image.

Using the Feature Option

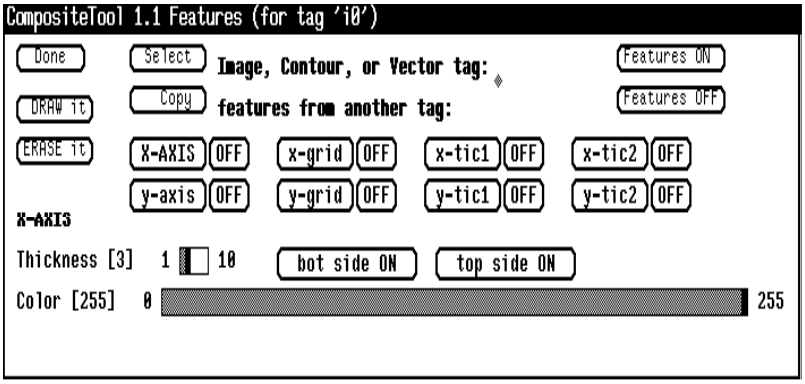
From this point on in the tutorial, you will subtract items from your display instead of add them. Eventually you will exit the application with a blank screen.

The Feature frame allows you to add x and y axes, grid marks, and tick marks to your image. Because the display `session.data.a` already contains these items, you will erase them in order to practice using the Feature frame options.

1. Choose the Feature button from the Base frame. The Feature frame appears on the screen.

2. Select the button Features OFF to turn off the annotation options. Notice the the eight option buttons in the center of the frame automatically toggle OFF as shown in Figure 1.5.

Figure 1.5 Features Frame



3. Select the button DRAW it and click the button Done.

4. Click FinalPic in the Base frame. The image will be redrawn without any axes, grid marks, or tick marks.

Clearing the Display

Choose the Clear button from the Base frame to clear the display on your canvas, but not the actual canvas itself. Click the Clear button now.

Exiting CompositeTool

Exit the CompositeTool application completely by selecting the Quit button from the Base frame. A confirmation box appears on the screen asking, "Are you sure you want to Quit?" Click the Confirm button.