

# Lab: Working with Graphics

**Course Listing:**        **CS1**

**Last updated:**        **Fall, 2006**

This is not a graphic arts course, so we won't be going into sophisticated graphic technology such as Adobe Photoshop. We will have the digital camera available so that you can take your own photographs. Scanners will be available at the library and Art computer room if you have images you would like to scan.

If you get any images off of web sites, they need to be properly cited. The complete web address must be given somewhere on your submitted web page (usually in a separate citation page or just underneath the image in smaller font).

**Note:** Search engines such as [www.google.com](http://www.google.com) are **not** your web source address. These sites only take you to other sites that have the images that you request. You must cite the actual site with the image. Also, you must have the complete address. No "... " should be included in any web citation.

In this lab, you will learn how to do a screen capture, how to modify that image with Paint, and how to download images from the web. We will be using my sister's website since she has given us permission to use her images: nibbles.miniature.net

***This lab assumes you have done all previous labs.***

## Capturing a Screen

Before starting, you should understand the terminology used with respect to screen captures, or capturing the image you see on screen. When the computer captures the screen information, there are two basic modes possible:

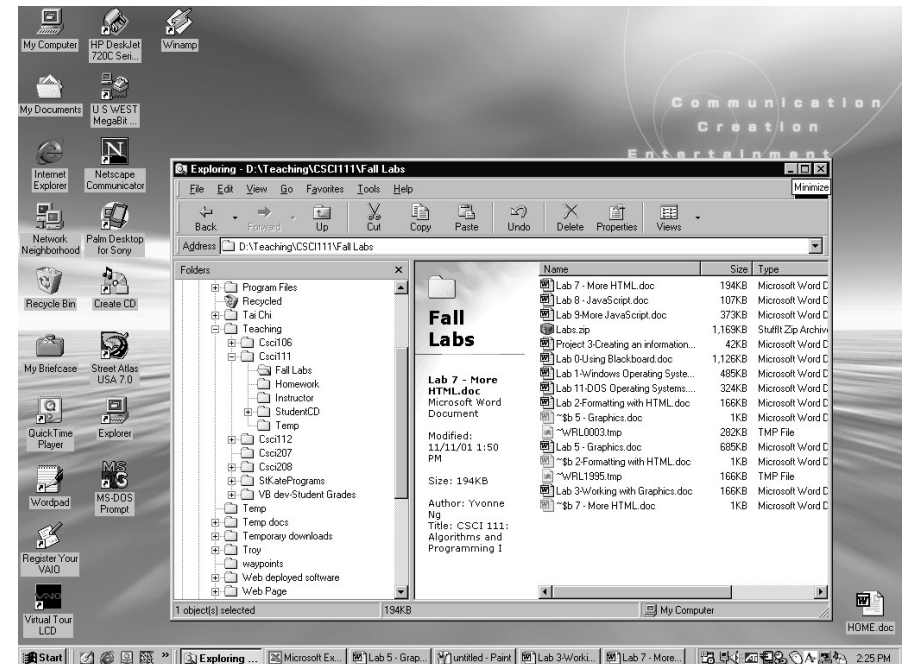
- **Current screen capture.** This captures only the window that is current (active).
- **Entire screen capture.** This captures the entire screen. If several windows are open, it will capture a picture of the entire layout.

### Capture the screen

1. Close all your extra programs. Make sure your desktop has no active windows in it.
2. While on the Desktop, hold down the “Alt” key, then the “Print Screen” button.
3. If a dialog box appears (something about saving information to the clipboard), click the “OK” button.
4. If nothing happens, don't worry. That is okay.

The image of your active screen (the empty Desktop) has been saved to the Clipboard.

## Full Screen Capture



Normally, I have been including the current screen capture images in the labs. This is so that the image of the current screen is larger. If I had taken a current screen capture with my desktop looking like this, I would have captured the Windows Explorer window.

To get this image, the whole desktop as I, the user, see it, I had to use the entire screen capture mode. Both kinds of screen capture are useful when you document programs that you have created. These are especially useful so the reader can check to see if her screen looks as it should.

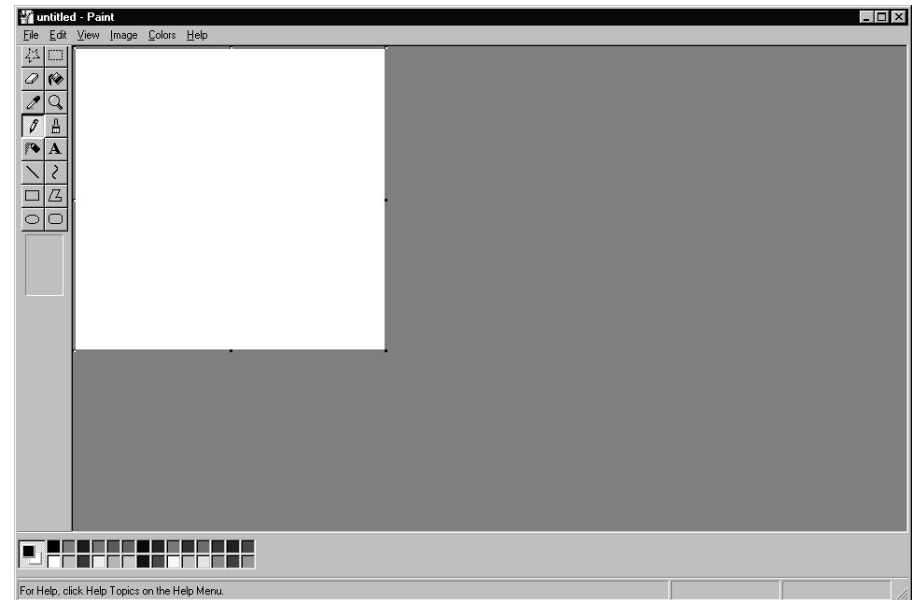
You can see that my desktop has a very pretty background with icons along the left side. Your desktop may look different.

## Microsoft Paint Application

We are going to use the Microsoft Paint application, a basic bitmap editing program. Other graphics programs have the ability to make more sophisticated pictures, but this basic package will give you a good idea of the general capabilities of graphics tools.

1. From the Start menu, select “Programs”, then “Accessories”, then “Paint”.
2. An application should open that looks like the screen on the right. The white area is the “bitmap” or work area.

## Microsoft Paint Screen



The white area may be a different size on your computer. Don't worry about that now. When we paste in the screen image, the bitmap area will grow to the appropriate size.

## Inserting the Screen Capture in Paint

1. Now select “Edit” from the top menu bar and then “Paste”.
2. A dialog box may appear saying, “The image in the clipboard is larger than the bitmap. Would you like the bitmap enlarged?” Select “Yes”.
3. A picture of the Desktop screen should appear inside of the worksheet. (See figure on the right)

To make sure you know how to screen capture, pull up a program and do a screen capture (maybe a web browser or Microsoft Excel). Create a new image in Paint and paste the screen capture in. Make sure you know the difference between the current screen capture and the entire screen capture.

## Paint with Desktop Image



Screen is captured and pasted inside Paint's work area. I have placed a dashed line around the desktop image. You won't see this on your computer.

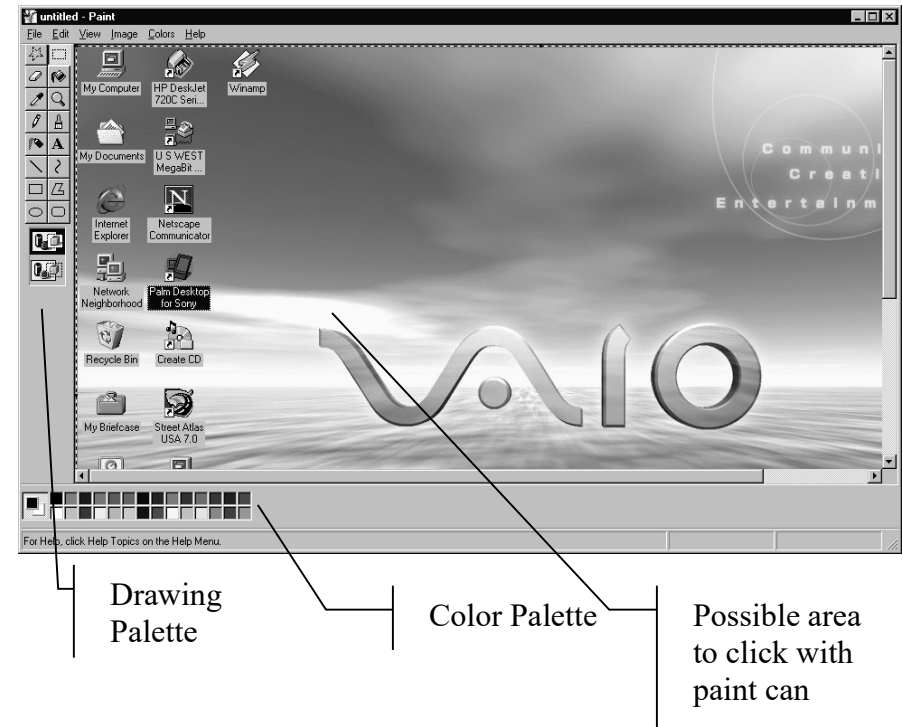
This screen capture shows my desktop after I closed all my extra programs. See how the desktop image and all the icons are shown, just as I would see them on my computer? If I were to scroll down, I would see the Start menu bar at the bottom of the screen.

## Modifying the Picture

We are going to fill in the white area of the screen capture with another color.

1. Locate the color palette at the bottom of the screen. The far left hand section of the palette shows the current color selected. The picture on the right shows black as the current color.
2. Select a color from the palette that is not white.
3. The drawing palette on the left side of the screen shows the drawing tools available to you.
4. Select the paint can (2<sup>nd</sup> column, 2<sup>nd</sup> row). Your cursor should change to a paint can.
5. Move your paint can cursor over an area of the bitmap.
6. Click anywhere inside the area. The entire area should turn the color you selected.
7. Let's say you didn't want to do this. You can undo the most recent action by selecting "Edit" from the top menu bar, then "Undo".
8. Try this again with another color.

## Modified Image



The below image shows what happens when I try to fill the above area with a different color.



## Zooming

### Zooming In

1. Select "View" from the top menu bar, then "Zoom", then "Large Size".
2. The picture inside the workspace should become larger. (See figure on the right)
3. Now that you have zoomed in on this, you can move your paint can fill specific spots. Be sure to click in the area to be filled. If you accidentally click one of the black lines that form a letter, the black will be replaced with your color, and the original color will remain intact. In these cases, use the "Undo" feature.
4. In case you haven't figured it out already, the paint can fills all continuous space. When the color changes to another one, the paint color stops (a virtual wall is created).

### Zooming Out

1. When you are done with the "close up" editing, you will probably want to zoom back to the original magnification. This is called "zooming out".
2. Select "View" from the top menu bar, then "Zoom", then "Normal Size".
3. Your image should return to its original magnification.

## Magnified Image



Notice that I filled in all the shortcut arrows for HP DeskJot, WinAmp and Dial-up Networking to a darker color.



## More Modifications

### *Making Graffiti*

1. Click the spray can in the drawing palette. It is the 5<sup>th</sup> item in the 1<sup>st</sup> column.
2. Your cursor should change to a spray can when you have selected it.
3. Select a different color than what is in the background. For example, I selected purple, to contrast my blue background.
4. Move your cursor to screen. Hold the left mouse key down and move the mouse vertically down the screen.
5. You should see a trail of “paint” splatter left on the screen. This would be equivalent to your holding the spray button of a spray paint can down and moving it down the wall. If you move the mouse quickly, not a lot of paint is left behind. If you move the mouse slowly, more paint is left behind. Lift up on your mouse key when you don't want to spray the paint.
6. Remember, if you make a mistake, you can use the undo feature.
7. Now “spray” your name onto the screen.

## Spraypainted screen



I wrote a little message on my Desktop image. You can write your name or some other message.

## Miscellaneous items

### *Preview the picture*

1. You may want to print this picture. Before actually doing so, you may want to preview the results.
2. Select "File" from the top menu bar, then "Print Preview". A picture of what would be printed on the normal 8 ½ x 11" paper is shown.
3. Notice that the screen picture does not fit entirely on one page. This is because the screen proportions don't fit the normal page size proportions.
4. You can choose to print this or not. When you are done with the preview, click the "Close" button.

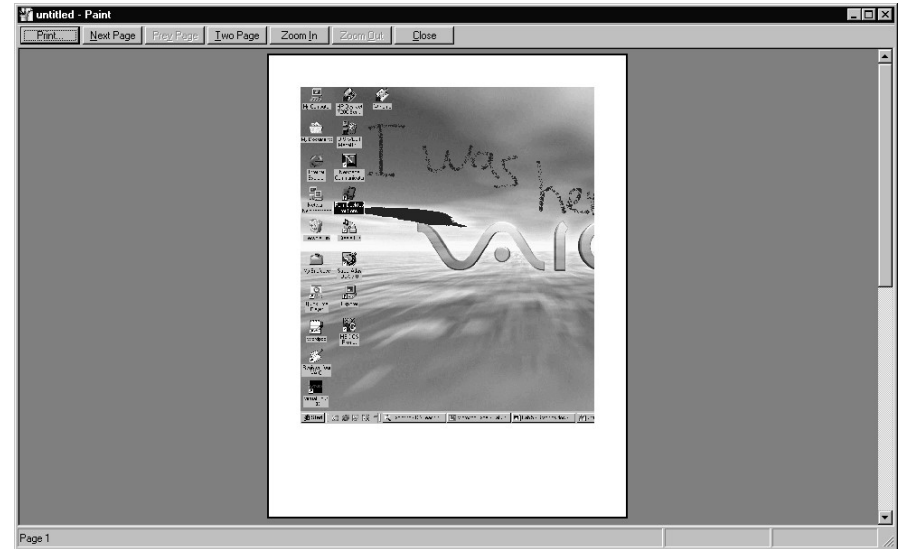
### *Save the file*

1. You may want to use your creation in something later on. Let's save it to your U: drive for future use.
2. Select "File" from the top menu bar, then "Save As".
3. The mini-Explorer appears. Select the U: drive, then the "CSCI111" directory.
4. In the "File Name" box, type "Altered Screen Capture".
5. The "Save as Type" box shows "240-bit Bitmap" and if selected, will store your picture as a .bmp file. (This stands for Bitmap, but some people call it "bump" file.) Other save formats can be seen by clicking the down arrow next to the "Save as Type" box. We will save this as a .bmp file.
6. Click the "Save" button to save the picture.

### *Create a new picture*

1. You can clear this picture safely because it is now saved to the disk.
2. Select "File" from the top menu bar, then "New".
3. The picture of the screen should be replaced with a blank workspace area.

## Preview of My Picture



I didn't make the image compatible with the normal letter size page so it got cut off. Saving it as an image won't cut it off, though, so I don't really have to worry about damaging my picture for my web page.

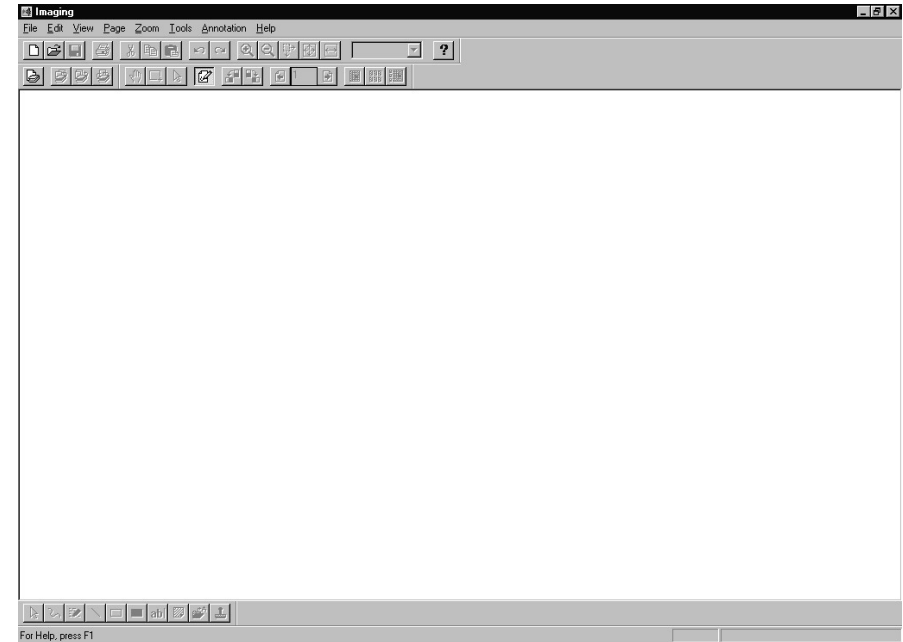


## Preparing a bitmap for the web

Now we will prepare your graphic so we can include it in your Web page. Web browsers can only read JPEG (.jpg extension) and GIF (.gif extension) files. We need to convert your bitmap (.bmp extension) format to these.

1. If Microsoft Paint is not open with your image in it, open it by doing the following:
  - a. Go to the Start menu, select Programs, then Accessories, then Paint.
  - b. Open your last graphic by selecting File from the top menu bar, then Open. If you are using the image we created in this lab, remember that it was stored in U:\CSCI111\Altered Screen Capture.
2. You can save this file as as a jpg file if your computer is loaded with the appropriate converters. You can find out if it does by doing the following:
  - a. Select File from the top menu bar, then Save As.
  - b. When the mini-Explorer appears, change to the U:\CSCI111 directory (if it is not already there). Type in the name "Capture" as the file name (we're renaming it) and select "JPEG file interchange format (\*.jpg, \*.jpeg)" from the Save As Type box.
  - c. Click the OK button.
  - d. Now there should be a Capture.jpg file in your U:\CSCI111 directory. Use the Explorer to confirm that it is there.
3. If your computer does not have the converter for Paint, try using the Imaging application.
  - a. At the Start menu, select Programs, then Accessories, then Imaging.
  - b. Open the image.
  - c. Follow the above directions on using the Save As operation.

## Imaging Application



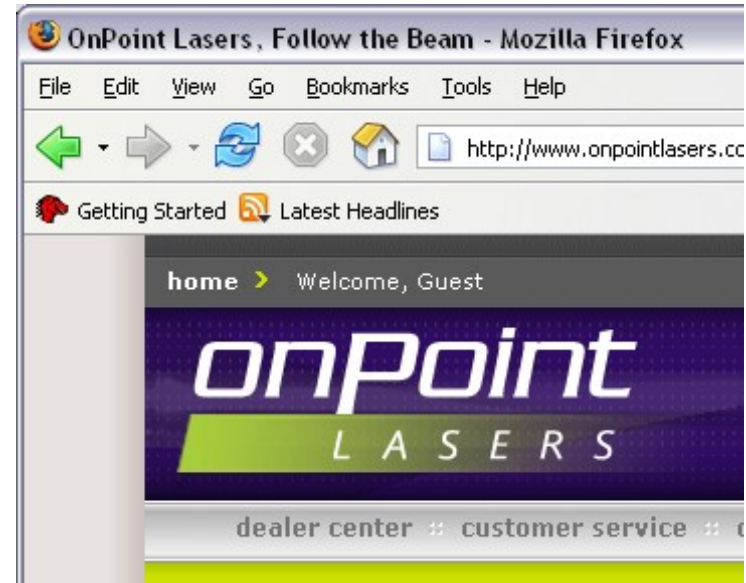
This is what the Imaging Application looks like when I first open it. I can load up the Altered Screen Capture image using the File-Open command and try to save it as a JPEG by using the File-Save As command.

## Downloading images from the Web

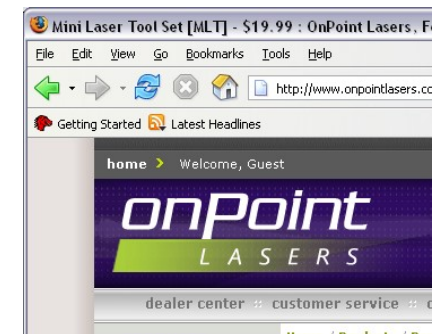
In general, you **should not** use the pictures posted on the web in your own web site without permission from the authors. Citation should be given if you ever do use them, just like you would with any piece of writing. This is a courtesy to respect the creative work of the people posting on the web. We will use my sister's site for now since she has given us permission.

1. Start a Web browser (Netscape or Internet Explorer).
2. Type in the address: <http://www.onpointlasers.com/>
  - a. This is a friend of mine's web site. She has given us permission to use her pictures in this lab.
3. Scroll down from the main screen to see the Showcase option.
4. Click on "Products" and then "Red Laser Pointers." You will be presented with a variety of products. Click on one of the products, for example, "Mini Laser Tool Set"
5. Place your mouse over the picture and press the right mouse button ("right-click" the picture).
6. A menu will appear.
  - a. Select the item "Save Image As..."
  - b. When the mini-Explorer appears, select your U: drive and the CSCI111 directory.
  - c. Type in the new name, for example, "Capture.jpg" and press the OK button.
7. The image saved will be the size shown. My friend has designed her page so that you can select a single picture and see it "blown up" (larger). If you want to save this larger image instead, follow the above instructions to save the file to your directory. Basically, what you see on the screen is what you get when you right-mouse click the image.

## www.onpointlasers.com



If you click on "Red Laser Pointers", you will see a list of products (left). Click on one to get more details on the product (right).



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