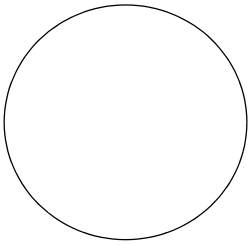
10

FLATBED MEMORIES

Working with Your Scanner



Scanners are both extremely useful and about as cheap a peripheral device as you can get. They allow you to take either images or pages of text and input them in digital form into your computer in much the same way as you duplicate a document on a copy machine. However, even as digital cameras are rapidly overtaking traditional film cameras as the photographic device of choice for the masses, the number of people using scanners to transfer their non-digital images into digital form is slowly decreasing. Despite this trend, scanners are not in immediate danger of extinction because there are more images around than those you take yourself.

Even though scanners have been around for a relatively long time, support for them in Linux is still a bit spotty. Fortunately, this is changing for the better with every new Linux release. The *backend*, the essentially hidden part of your system that handles scanner recognition and support in Linux, is called *Sane*. If you are wondering whether Linux will be able to recognize your scanner, or if you are trying to figure out what type of scanner to buy, you will probably want to go to the Sane website, www.sane-project.org/sane-mfgs.html.

There you will be able to see if your scanner is supported or to get tips as to what scanner to buy. As I have mentioned before, you can also try out the Xandros User Forums (http://forums.xandros.com) and ask for Xandros-specific recommendations there.

Project 10A: Scanning

For those of you who have a scanner, now is the time to get a feel for how to use it with Xandros by following along with this project. To get started, make sure your scanner is plugged into your computer and turned on.

After that, here's what you have to do:

1. Go to the **Launch** menu and select **Applications ▸ Graphics ▸ Scanner**. This will launch the scanning application known as *Kooka*.

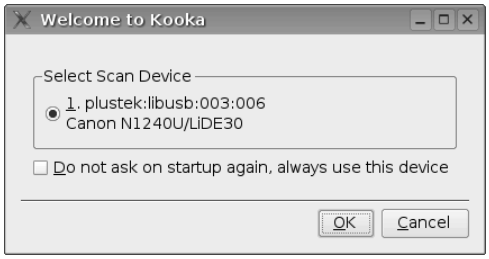


Figure 10-1: The Kooka Welcome window

2. The Kooka Welcome window (Figure 10-1) tells you which scanning devices you have connected to your machine and asks you to pick one. Assuming you have only one, just click **OK**.

NOTE *If the scanner you are using is the only one you are likely to connect to your machine in the near future, then go ahead and check the box next to the words* "Do not ask on startup again, always use this device," *which will allow you to bypass this phase of the startup in the future. If you do happen to add, or switch, scanners in the future, you will be able to make the appropriate changes in the Kooka Preferences window at that time. Once you click OK, the main Kooka window will appear.*

Now that Kooka is up and running, you can get down to some scanning. The first thing we'll do is perform a preview scan. This is a quick, low-resolution scan, which allows you to see a thumbnail, a small version of the image you will be working with.

3. Choose a photo you would like to scan, place it on the scanner bed, and then close the cover.
4. Click the **Preview Scan** button in the main Kooka window, after which a small window (Figure 10-2) will appear showing you the progress of the scan.

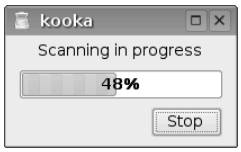


Figure 10-2: Kooka shows your scanner's progress

Once your scanner has finished doing its thing, the progress window will disappear, and you will see a thumbnail of your image in the right pane of the main Kooka window, which at that point should look like Figure 10-3, though your preview image will (unless we move in surprisingly similar circles) be different.

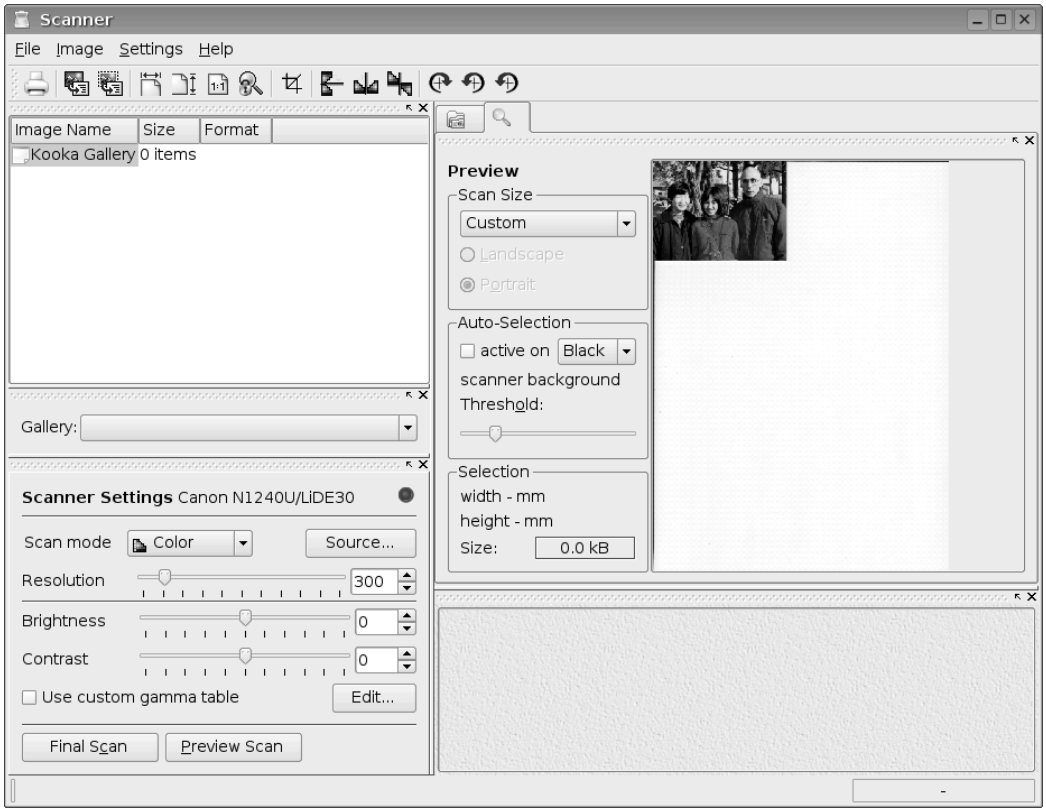


Figure 10-3: The main Kooka window after performing a preview scan

After the thumbnail preview of your image appears, you must select the part of it you want to scan. This can be a very handy feature, as it allows you to perform some after-the-fact digital magic. Imagine, for example, that you have a killer photo of yourself that you want to include in a digital photo album. The only problem is that standing at your side in that photo is your ex, Chris, who, given the course of things in your life, you would rather place squarely into the trash bin of your memory. Of course, rather than stave off a bout of heartbreak by removing your ex,

you might, as is the case with my happily married friend in Figure 10-4, just want to isolate a portion of a photo for use as a headshot in a web page or on a letterhead.

Even if you have no need to erase or isolate someone in your image, and you instead want to scan the whole image, you still have to make a selection, in this case from image border to image border. If you don't do this, your scanner, not knowing any better, will scan the entire area of its scanning bed, thus producing an image with an enormous amount of empty white space. In all likelihood, this is something you want to end up with about as much as eggshells in your omelet.

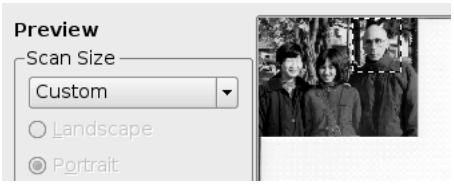


Figure 10-4: Selecting the portion of the image you want to scan

5. To make the selection, place your cursor at one corner of the image or part of the image you want to scan (the cursor's shape will change from the traditional arrow to a crosshair), press and hold down your left mouse button, and then drag the cursor until you have surrounded the area you want to scan with the dashed selection box (sometimes referred to as "marching ants") that then appears (Figure 10-4). Release the mouse button.

   If you are selecting only a relatively small area of an image, as in the example we're using, it would behoove you to increase, perhaps by twice, the resolution so as to end up with a clearer final image. You can adjust resolution settings by using either the slider or the up arrow in the main Kooka window next to the word *Resolution* (Figure 10-5).

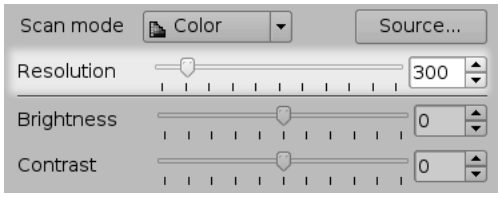


Figure 10-5: Changing the resolution for the final scanned image

6. Now that you have selected the area you want to scan, click the **Final Scan** button to seal the deal.

   A progress window like the one you saw during the preview-scan phase of things will appear again, and, after your scanner spurts out a few tugging sounds, you will hear the long, steady hum of your scanner doing its job. During this time the progress bar will begin its mercurial

journey to completion. When the scan is indeed complete, the progress window will disappear, and a Kooka Save Assistant window (Figure 10-6) will open in its place.

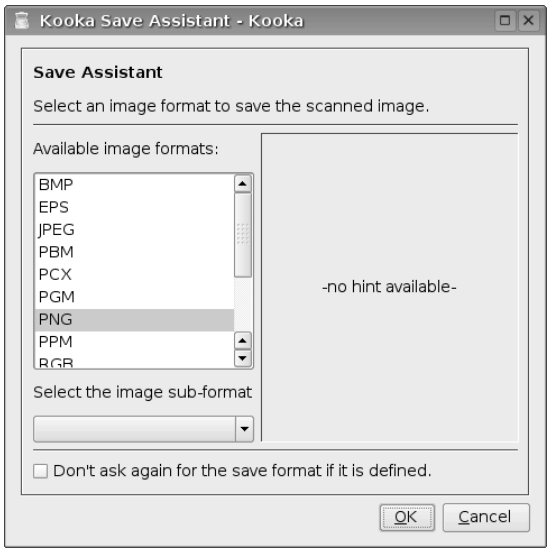


Figure 10-6: The Kooka Save Assistant window

7. Choose a format in which to save your image (I use *JPEG* for images I will use on a web page and *PNG* for everything else), and click **OK**.

Viewing the Results

To see the results of your final scan, you will need to move your mouse over to the right pane of the main Kooka window (Figure 10-3), and then click the tab showing an icon of a folder and file. Since this might be a bit hard to make out, I've highlighted it for you in Figure 10-7.

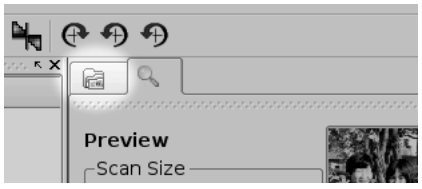


Figure 10-7: Finding your final scan results

Once you click that tab, the results of your final scan will appear in the right pane of the main Kooka window, as you can see in Figure 10-8.

You will also notice that a thumbnail of the image will appear at the bottom of the pane and that the default filename for that file will be listed in the left pane (in this case, *kscan_0001.png*).

Figure 10-8: The final result of your scanning efforts

Getting a Fuller View

Of course, especially when dealing with larger images or images scanned at much higher resolutions, most often only a part of your final image will be visible in the right pane, as you can see in the left part of Figure 10-9. This is simply because the final image is too big to fit in the relatively small area provided in the Kooka window.

Figure 10-9: Viewing a scanned image before and after scaling

In order to see the entire image, go to the **Image** menu of the main Kooka window, select **Scale to Height** or **Scale to Width**, depending on what is appropriate in your case, and presto! You will then be able to see the whole image that you've just scanned (as in the right side of Figure 10-9).

Where Can I Find My Images?

Once you've finished scanning, you will no doubt want to use your images for purposes all your own. The only problem is that you might not be able to find them. So where are they?

Your images are actually located within your Home folder; however, the folder in which you can find them is hidden from your view and buried in */.kde/share/apps/ScanImages*. You can dig your way to that folder after first going to the **View** menu in a Xandros File Manager window and then selecting **Show Hidden Files**. But there is a simpler way of doing things by which you can save your images to your My Pictures folder (or anywhere else you like), and give each of the files a more meaningful name in the process. After all, an image file with the name Christmas2005.png is certainly more meaningful to you than one called kscan_0076.png, right?

If this all sounds of interest to you, here's what you need to do:

1. Right-click the image you wish to move and rename in the left pane of the Kooka window.

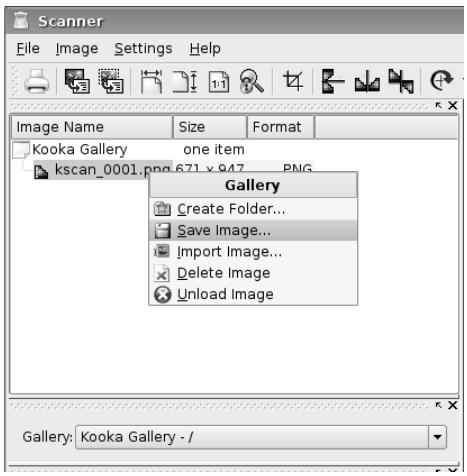


Figure 10-10: Saving your image in a new location (and with a new name)

2. In the pop-up menu that appears, select **Save Image** (Figure 10-10).
3. In the **Save As** window that appears, navigate to the folder in which you wish to save your image.
4. In the **File name** box, give your image file a meaningful (to you) name.
5. Click **Save**, and you're finished.

Your scanned image will now actually be residing in two locations: the location to which you just saved it and the original Kooka Gallery location buried in the hidden-from-view .kde folder (/.kde/share/apps/ScanImages).

Since you don't really need to have that copy in the Kooka Gallery anymore, you can save some disk space, and keep the left pane of your Kooka window a bit tidier, by deleting that original copy of the image.

Accomplishing this is very similar to what you just did when you saved the image—just right-click the image you want to delete, select **Delete Image** in the pop-up menu (you can see the choice in Figure 10-10), and then in the window that appears asking you if you really want to delete it, click **OK**.

Why Are My Scanned Images So Big?

This is a point that seems to confuse a lot of people, so I'll talk about it a bit. One of the first areas of confusion is that there is a general blurring of how the terms *ppi* (pixels per inch) and *dpi* (dots per inch) are used. Most applications use these terms interchangeably, and yet they aren't really the same thing. To make things simple, when you are talking about images on your screen, you are talking about *pixels* (the little dots that make up your screen image) per inch, and when you are talking about printer resolution, you are talking about *dots* (of printer ink) per inch.

Your computer screen in general has a resolution of 76 ppi, while most modern inkjet and laser printers have a resolution range of 300 to 1200 dpi, sometimes even more. This means that a photo scanned at 76 ppi that looks just fine on your screen ends up looking pretty lame when you print it out. On the other hand, when you scan a picture at 300 ppi, the image will look much better in your printout but will seem gigantic on your screen. This makes sense, as the resolution of your image is more than three times that of your computer's screen resolution. The result is that your computer can accommodate the higher resolution of the image only by displaying that image at three times its original size.

Figure 10-11: Same image scanned at three different resolutions

As an example, have a look at Figure 10-11, where you can see the identical image scanned at three different resolutions: 76 ppi, 150 ppi, and 300 ppi. As you can see, the 76 ppi image at the far left (measuring 132 × 156 mm—about the size of the hardcopy itself) is the smallest, while the other two images are proportionally bigger (265 × 313 mm for the 150 ppi image and 550 × 627 mm for the 300 ppi image).

So What Resolution Should I Use When Scanning?

What resolution you use when scanning really depends on a variety of factors, the most important of which is what you plan to do with the image when you're finished. When I look at Figure 10-12 on my computer screen, the smallest image looks best, the middle image looks okay, and the largest looks a bit odd, not as sharp as the other two. Basically, when scanning images for display on a computer, on web pages for instance, it is probably best to stick with a ppi similar to typical screen resolutions or slightly larger (76 to 150 ppi).

When it comes to printing, a whole new set of considerations comes into play. First of all, there are the limitations of your scanner, different models having different maximum resolutions. The resolution limits of your printer itself are also, naturally enough, a major consideration. These include the type of printer you have, since laser printers and inkjets have different characteristics; laser printers will produce better-quality images than inkjet printers, while inkjet output will be more greatly affected by the type of paper used than will a laser printer. In either case, there is always the question of the printing resolution you ultimately select. Of course, your printed output is not going to suffer if you scan your images at higher resolutions than those at which you plan to print them out, but you will end up with a lot of files taking up too much disk space. Remember: *the higher the resolution of a scanned image, the greater the file size in terms of disk space.* If this is of concern to you, and you would prefer not being so cavalier with your use of disk space, you can follow these very general guidelines:

- If you are using a laser printer, scan at the same resolution at which you are going to print.
- If you are using an inkjet printer with regular paper, scan at about 65 percent of your target printout resolution, about 195 ppi for a 300 dpi print.
- If you are going to use an inkjet printer with photo-quality paper, scan at about 80 percent of your target printout resolution, about 240 ppi for 300 dpi.

Needless to say, these are just suggestions to get you started. What works best for you and your particular scanner/printer setup may be slightly different. That said, it's worth driving home the fact that nothing works better than a bit of experimentation and trial and error. In this case, you can't really go wrong. Just give yourself some time, don't get frustrated, and, most important, don't wait until you desperately need to scan something before trying things out—stay ahead of the game.

Project 10B: Getting a Grip on Resolutions

If all this talk about scanning versus printing resolutions has left you feeling as if you are locked inside a Dali painting, then you might want to join in on this little hands-on experiment. Once you have completed it, you should have a better idea of how resolutions translate into reality and what resolutions work best with your printer. As a bonus, you'll also get a little experience working with the OpenOffice.org application, Draw. To follow along, you will need one clear snapshot (preferably with at least one large object, such as a portrait) and, naturally enough, a scanner and printer.

1. Scan your image at four different resolutions: 76, 150, 300, and 600 ppi. If your scanner cannot handle resolutions as high as 600 ppi, you can skip that one. Save the files that result as **ex76.png**, **ex150.png**, **ex300.png**, and **ex600.png**. Of course, you can name the files anything you want, but using my suggestions will make it easier for you to follow along.
2. Open a Xandros File Manager window, and navigate to the folder in which you saved the images.
3. Select the four files you've just scanned by holding down your CTRL key and then clicking each file individually. When you are finished, the four files will be highlighted.
4. Now right-click any of the four files, and in the pop-up menu that appears, select **Cut**. The files will not immediately disappear at this point, so don't worry.
5. Navigate to your **Home** folder, and right-click any open space. In the pop-up menu that appears, select **Paste**. The four files will then appear (and, incidentally, disappear from the source folder).
6. Run OpenOffice.org Draw by going to the **Launch** menu and selecting **Applications ▸ OfficeOffice.org Drawing Editor**.
7. Now go to the **Insert** menu in OpenOffice.org Draw, and select **Graphics**. An Insert Graphics window will then appear.
8. In that window, navigate to your **Home** folder by clicking the **Home** button (as shown in Figure 10-12).

Figure 10-12: Navigating to your Home folder in the OpenOffice.org Insert Graphics window

9. In the list within that window, locate and select the first file you scanned, **ex76.png**, by clicking once on its name. The filename should then be highlighted like that in Figure 10-13. If so, click the **Open** button, after which the image will appear at its full size in OpenOffice.org Draw.

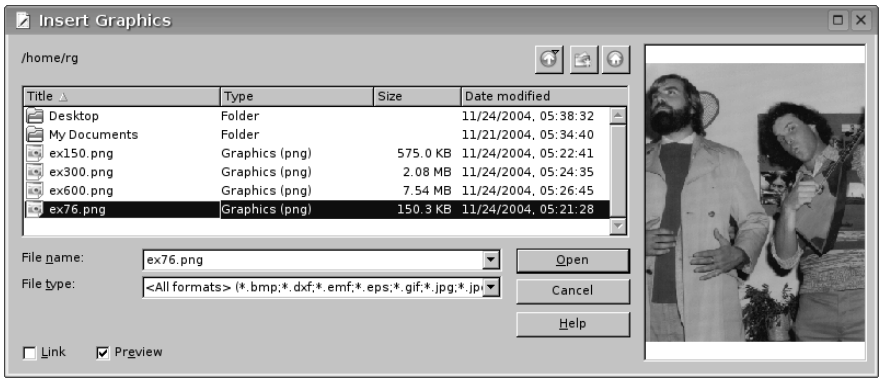


Figure 10-13: Select the file you wish to insert into your OpenOffice.org file

10. Repeat the procedure you just performed in step 9, but this time select the file **ex150.png**.

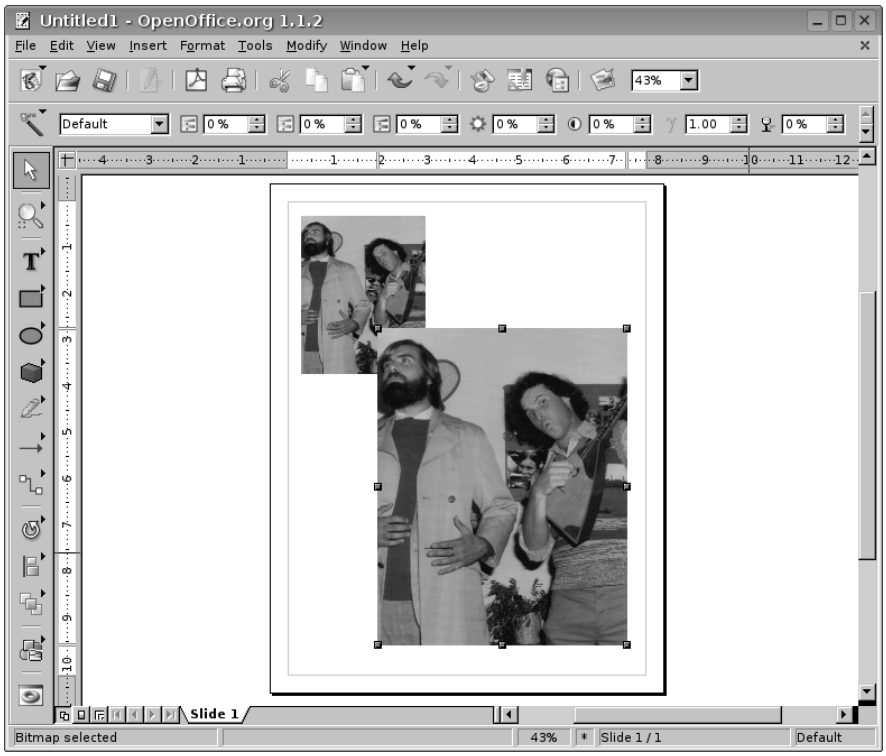


Figure 10-14: Inserted images appear in Draw at their original size

11. When the image appears, it will be noticeably larger than the first, as you can see in Figure 10-14. Resize the image so that it is the same size as the first by holding down the SHIFT key and then placing your cursor at one of the corners of the image. The cursor will then change into a double-sided arrow. When it does, press your mouse button, and drag one of the

raised green squares at the corners of the image until the image is the appropriate size. If you don't see any raised squares, click the image once, after which they will appear. In case you are wondering, holding down the SHIFT key as you do this keeps the proportions of the image intact.

12. Insert and resize each of the remaining two files, **ex300.png** and **ex600.png**, using the methods you used in steps 9 and 11. Once you have completed the insertion process, your OpenOffice.org Draw window should look like that in Figure 10-15. Be sure that your images are placed in the same order as mine so that you will be able to compare your printed results later on.

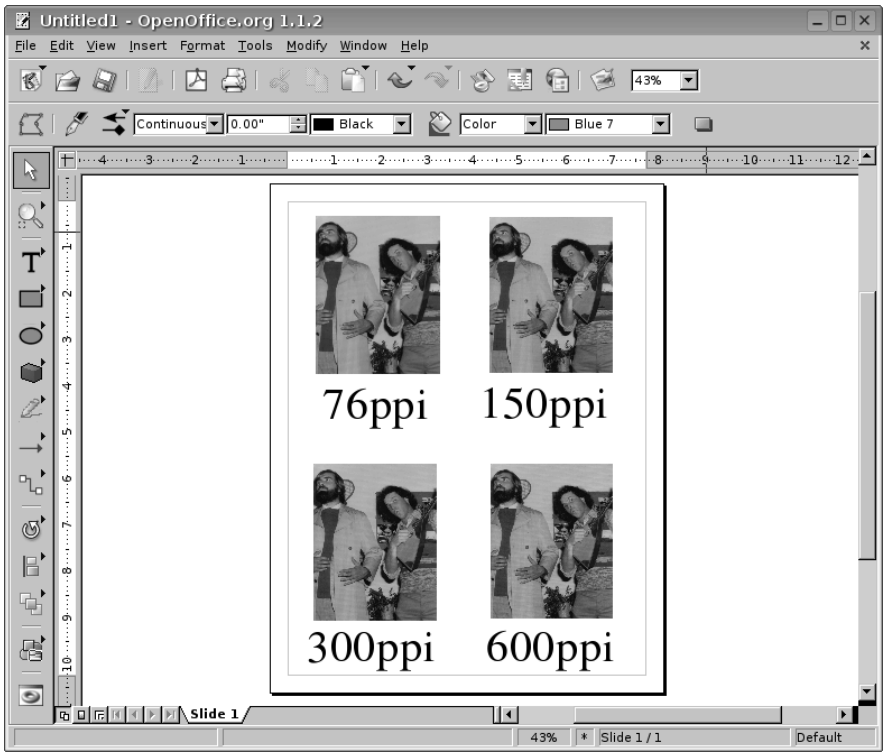


Figure 10-15: Your images set up to print

13. Now that your page is set up, it's time to print it out. Be sure to set your printer's settings to print at 600 dpi, and use a good-quality paper, preferably photo quality. Of course, if you are using a laser printer, your paper choice will matter much less. Once ready, print.

While the four images will probably look more or less the same on your screen, there should be a noticeable difference in your printed output. On the basis of that output, you will be able to see what a difference a few hundred ppi can make and thus have a better idea what scanner settings provide the best results on your printer.