

Slide copying

Do you have a large legacy of 35mm transparencies which never see the light of day? We look at two different ways you can convert these images to digital files for viewing and printing.



If you have been taking photographs for more than ten years, you probably have some 35mm transparencies. You might have hundreds or thousands of them.

When was the last time you looked at these transparencies? Do you still have a slide projector to view them? Are they sitting neglected in a cupboard? The obvious answer is to convert the 35mm transparencies to digital images. There are two main methods to do this and we have been looking at both.

Scanning the slides

The traditional way to turn slides into digital images is to scan them. You can do this with a dedicated film scanner or a flatbed scanner. These days a dedicated film scanner is either very expensive or very cheap. The expensive models are designed for high-end professional use; the cheap models are for casual home use. If you are looking for good results at a modest price you need a flatbed scanner that also offers the option for film



This is the Canon FS4000US dedicated film scanner. Introduced in February 2001 it offers a maximum 4000dpi resolution with 14-bit scanning per colour. Long discontinued, it has been replaced by flatbed scanners which can offer equivalent or better results.

scanning. Improvements in flatbed scanners are the reason that mid-range dedicated film scanners have disappeared – the results from the more versatile flatbed scanners are now very good. Flatbed scanners also give you the option of creating digital files from negatives, prints and documents.

Using your camera

However, you already have a device which will create digital copies of 35mm transparencies – your EOS camera. Is this a good alternative to a flatbed scanner?

If you have a macro lens, or a lens and extension tubes that will give you life-size images, you can shoot without any other accessories. Place the slide on a small lightbox and position the camera and lens so that the 35mm frame fills the viewfinder. You will need to use a tripod to eliminate the risk of camera shake during the exposure.

It is important that no light falls on the front of the slide during the exposure as this will degrade the image. Either work in a dark room (switch any lights off before you make the exposure), or build a tunnel of card or material to shield the front of the slide from light. If the slide is bigger than the lightbox, cut a mask from black card to cover the box, leaving an aperture just big enough for the slide frame. This will eliminate the risk of flare in the lens from the extraneous light.

Instead of a lightbox, some photographers tape the slide to a window with a background of sky. Drawing the curtains up to the edges of the slide gets rid of the extraneous light. Good results are possible, with practice.

However, we prefer the easier route of using a dedicated slide duplicator. It is simple to use and gives almost instant results.

The digital advantage

One advantage of making digital copies of slides is that you can correct some mistakes made at the time of shooting. Horizons can be straightened, colour balance changed, brightness adjusted and contrast improved.

The scanning solution



Canon makes a range of flatbed scanners suitable for film scanning. The CanoScan 9950F (above), now discontinued, has been our office scanner for quite a while. We also tried the new CanoScan 8800F. Both offer up to 4800x9600dpi scanning with 48-bit colour depth. One advantage of the earlier 9950F model is that it will scan up to 12 35mm mounted slides in one pass using the holder. The holder for the 8800F holds four slides.

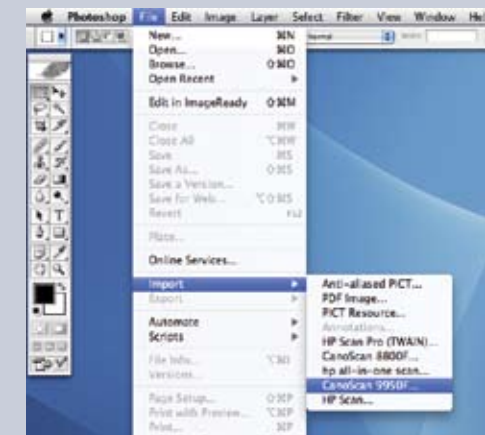
Software

A Canon scanner comes with all the software you need. Scanners usually work through imaging software such as Photoshop Elements or PhotoStudio. A complete version of a suitable program is on the CDs supplied with the scanner, along with the scanner driver. Once installed, you open the main imaging program and access the scanner from the 'import' or 'acquire' option (usually in the 'File' menu of the software). The scanner driver will also work with imaging programs other than the one supplied. We scan from within Photoshop as we are familiar with this software. Although there are variations between programs, the main principles of scanning are the same.

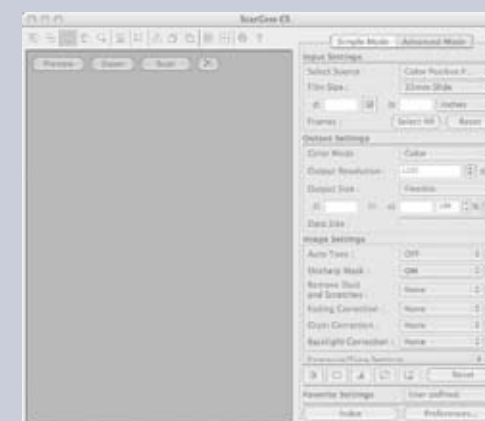
Scan settings

Switch the scanner on. A window will open, allowing you to select the options for the type of scan you want. Choose 'Platen' as the source if you want to scan prints or documents – place the print face down on the glass, where it will be illuminated from the base of the scanner.

For slides, choose 'Color Positive Film' – remove the insert from the lid of the scanner so that the transparencies can be illuminated from above. You can also choose 'Colour Negative Film' or 'Monochrome Negative Film' and scan them in the same way. Once set, with the transparencies on the scanner, click 'Preview'. This gives a quick scan and brings up the image in the software window. If everything looks fine, select all the slides and click 'Scan'.



Above Canon scanners operate from within imaging applications. Once the scanner software is installed, you will be able to access the scanner through the application's 'File' menu.



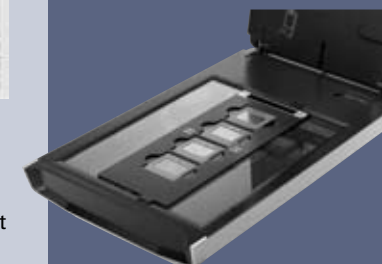
Above The scanner window offers a range of options. Once you have chosen the source (print or transparency) and the output resolution, we suggest that you leave other options at their default settings and experiment with them one at a time after you have a few basic scans for comparison.



Above Clicking 'Preview' gives you quick, low resolution scans. If these are correct you can click the box under some or all of the images to make high resolution scans.

Resolution

One of the settings you have to make in the scan window is 'Resolution'. On the scanners we used this went from 75dpi to 4800dpi. If you are scanning prints, and want to make duplicate prints of similar size, a resolution of 300dpi is fine – or 600dpi if you want the duplicate prints to be a little larger. For transparencies (and negatives) any prints you make will be much larger than the original image, so scanning at a higher resolution is recommended. However, the higher the resolution, the slower the scanning process and the larger the file. We found that 2400dpi was a good compromise between speed and quality. It is worth making tests at different resolutions to see what suits your own needs.



The CanoScan 8850F will scan 12 transparencies at a time (left), while the 8800F (above) handles four. After you have done the full scan, each image will appear in its own window within your imaging application on your computer desktop. Here you can modify the image (if required), name the file and save it to your computer hard drive.

Copying with your camera

If you already have a macro lens, or a set of extension tubes, you can try setting up your back-lit slide in front of the camera. The results can be very good, providing you keep stray light off the front of the slide.

However, the easy way to copy slides with your camera is by using a duplicator unit. We have been using the Ohnar Zoom Slide Duplicator. These units have been around for many years – originally introduced for copying slides to film, so duplicating the original image. With the introduction of digital photography they have taken on a new lease of life for creating digital files from both slides and negatives.

Two sizes

The original Ohnar slide duplicator gave a 1:1 reproduction. This means that when used with a 35mm camera it copies the entire 35mm slide. Later came the Ohnar Zoom slide Duplicator. This zooms from 1x to 2x, which means that you can select just part of the slide to copy – a very useful feature when copying to film.

With the introduction of APS-C size sensors on digital cameras, the 1:1 reproduction is less useful. It means that only part of a slide can be copied (APS-C is smaller than 35mm). However, this problem has been overcome with the Ohnar Zoom Reverser. This reduces the size of the 35mm slide to fit the APS-C sensor (in effect, a 0.6 zoom). The zoom range now runs from 0.6x to 1.6x.

Do you need a zoom for digital copying? Most of the time we copy the full area of a slide and crop the image, if required, on the computer. However, if you know that you only want part of the image, zooming in when you make the copy will make better use of your camera resolution.

T-mount fitting

The Ohnar units are self-contained with a built-in lens – they fit directly to the camera without the need for a camera lens. Well, almost directly. They use the long-established T-mount system. You need a T-mount adaptor for EOS. This attaches to the camera body. The Ohnar unit screws into the adaptor. This means that, with the appropriate adaptors, the same unit will fit different makes of camera.

Camera settings

Once the Ohnar unit is attached to your camera, the first thing to do is rotate the slide holder at the front so that the sides are aligned with the viewfinder frame. If you don't do this, every slide you copy will be at an angle. The front can be locked in place once it is in the correct position.

You can use the zoom if you want to select an area of the image. The slide can be moved



RAW or JPEG?

Is it best to shoot with a RAW or JPEG quality setting? If you only have a few slides to copy and want to adjust each one on your computer, RAW is best. It gives more control over the image. But if you have hundreds (or thousands) of images to copy, use JPEG (Large/Fine will give the best quality). This will give image files which can be used immediately without further processing. However, spend time on the first slide getting the results just right. Experiment with exposure compensation or flash exposure compensation to get the exposure perfect. Check the white balance. Once you are happy with the first image, you can shoot the rest at the same settings.



up or down, and side to side, so you are not restricted to just the centre of the image. And that's about it. There are no other controls on the units.

So how do you focus and get the correct exposure? As far as focusing is concerned, you don't. The built-in lens is pre-focused. It also has a fixed aperture. The T-mount means that there is no exchange of data between the camera and the unit, so you need to use 'stop-down' metering. Switch the camera to Av mode – you will see that the aperture display is '00'. The exposure is now controlled by the shutter speed, which will be set automatically.

The simplest way to shoot is by aiming the camera at the sky, ideally bright cloud (never directly at the sun). Set the white balance to Cloudy. Check the review image after shooting. If it is too light or too dark apply a little exposure compensation and try again.

Shooting at the sky can give good, but not always consistent, results. For more control (or working at night), use an off-camera Speedlite. Aim it directly at the white diffuser screen of the slide unit, ideally from a distance of about 0.5 metre. Use autoflash exposure, applying flash exposure compensation if the review images are too light or dark.



Scanner or camera?

There is no clear winner between slide copying with a scanner and with a camera. It all depends on the number of slides you want to scan, and what you plan to do with the image files.

If getting the best quality reproduction is the most important factor to you, then you should consider a good scanner. The 18 megapixel EOS 7D camera we used for many of our tests gave surprisingly good results, but the scanner at 2400dpi had the edge.

However, if you have a lot of slides to scan, the camera wins hands down. With the CanoScan 8800F at 2400dpi, four slides took five minutes to scan, and longer if you count the time needed to save each file. With the camera fixed on a tripod (to keep your hands

Left and right This portrait was shot in the 1980s. The scanned image (left) was created with a resolution setting of 2400dpi. The second image (right) was captured using a slide duplicator on an EOS 7D. We used flash aimed directly at the diffuser screen of the unit for illumination – this proved to be more consistent and gave better results than aiming the camera and copier unit at the sky. The variation in colour is easy to adjust using imaging software. There is slightly less detail in the image duplicated using the EOS 7D, but it is still a good result. The built-in wireless flash feature of the 7D proved very useful – we were able to position our Speedlite 550EX in front of the camera, pointing towards the diffuser of the slide copier without the need for any trailing cables. With other cameras, the Canon Off Camera Shoe Cord is the accessory you need.



free for changing the slides) it is possible to copy at least six slides a minute, or 30 slides in five minutes.

If you are copying lots of holiday pictures and images of family and friends, the results from the camera will be adequate for viewing on screen, e-mailing and the occasional print. Shoot as Large/Fine JPEG files and the work will be done quickly and efficiently.

We found that time setting up the camera and shooting test exposures was time well spent. Getting the exposure just right in the camera gives better results than trying to correct the images on a computer.

However, if you have some stunning slides which you would like to convert to digital images and print to A3, a good scanner will give you the best results.

Below The scanner image, at 2400dpi, is on the left while the image copied using the EOS 7D is on the right. In terms of quality, there is very little to choose between these images.



Will digital images last?

The colour images on these pages were shot more than 30 years ago. Will we be able to read the digital images we shoot today in 30 years' time? Probably – but only if we keep copying and converting the images to suit new systems and storage media.

We have already encountered this problem at EOS magazine. Some years ago we archived material to Syquest disks – cutting edge at the time, as they had a capacity around 200x that of the ubiquitous floppy disks. However, Syquest disks were a passing phase and we can't read the data with our current computer systems. Similarly, some of the files created with early page design software can no longer be opened with the latest versions of the programs and the earlier versions won't run on the current computer.

There's a lot to be said for a shoebox!