Pictures of Pictures
Digitizing Slides with a DSLR

Objectives

Image Quality	- obtain the best digital copy of the slide as possible
Speed of Conversion	- so the project actually happens
Inexpensive	- so we can process thousands of slides

Gear *
• Nikon full frame camera (D600)
• Nikon 60mm macro lens
• Nikon Copying Adapter ES-1 or ES-2
• Nikon Flash with off-camera remote capability, or
• A colour balanced light source, (macro/video light)

• Adobe Lightroom, or other management tool

* Other camera / lens and lighting options available

Camera Settings

Raw Format
• use the dynamic range available in slides
• raw allows the best possibility for correction of highlights and darks in later processing
• storage is cheap compared to the time required to capture the images

ISO 100
• maximize image quality.
• the slide is attached to the lens so camera shake from a slow shutter speed is not typically a problem

F8 Aperture
• this is typically the sweet spot for lens image quality
• has a reasonable depth of field, so curvature of the slide itself isn't a problem

Aperture Priority
• let the camera do the exposure work to set the shutter speed
• use +/- EV to correct individual slides as needed

Stationary-Auto Focus
• the image on the slide isn't moving (no kidding!), and you want to focus on the slide itself where ever the camera can find enough contrast

White Balance - Flash Setting
• the light will be a 5,000K balanced flash or video light
• use the White Balance setting to match your light source (typically Flash Setting)

Using the Flash or Video Light

You need a bright colour balanced light source to light the slide. (off-camera flash or video light)

Off-Camera Flash

Setup the camera and flash for off-camera operation. *(for the Nikon D600)*

• Camera Setup for Remote Flash Commander Mode
  • `Camera Custom Setting Menu > Bracketing/Flash >`
    `Flash control for built-in flash > Commander Mode`
  • Built-in flash = Off (you don't want any flash power from the on-camera flash)

- Group A = TTL (the off-camera flash will operate in TTL mode)

- Flash Setup for Remote Mode
  - Set to Remote Mode
  - Match the Group (A) and Channel (1) set in the camera

- Using the off-camera flash
  - the camera pop-up flash is the trigger (commander) for the other flash (remote)
  - point the remote flash directly at the lens that is holding the slide. (approximately 12" away)
  - close your eyes and take the picture (the blinding flash in your eyes will remind you if you forget)

Video Light

- Point camera with slide directly at the video light
  - Fairly close to the light for even lighting of the slide

Workflow

- Ensure slide adapter is not rotated and is at right depth for accurate focus
  - test images are required
  - tape adapter ring in place (hockey tape for knee pads works well - doesn't leave a residue on gear)
- Organize the slides in sorted order based on the slide number
- Ensure slides are in their original horizontal orientation, even if it is a vertical picture
- The non-emulsion side of the slide goes towards the camera.
  - This is the shiny surface of the slide that slightly curves towards you.
  - The emulsion side of the slide is slightly dull and is curved away. This is towards the flash.
- Take a photo of all slides.
  - it is much faster to process all slides and review them later than to sort them in advance

Lightroom

I recommend taking the pictures directly into Lightroom using Tethered Capture
- reduces processing steps later
- allows you to immediately see results so the slide can be re-taken if necessary with different settings

Setup
- Connect the camera to the computer with a USB cable
- Lightroom Menu: File > Tethered Capture > Start Tethered Capture…
- Set the Session information to match the box you are shooting
  - Session Name = "Box 01" (the name or date on the box)
  - Template = "Session Name - Sequence"
  - Start Number = 1
  - Keywords = "Box 01" (typically same as session name)

Workflow
- shoot the first slide - it should show up in Lightroom
- go to Full Screen (F key) and enjoy the slideshow as you work
- use +/- EV and retake slides with poor exposure (can correct surprisingly bad slides)

- Reset the Lightroom Session and keywords for the next box
  - allows you to organize the digital images to match the slides