



Standard Operating Practices for Stereophotograph Digitization

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### **Overview.**

This protocol defines procedures for digitizing and cataloguing a physical photographic objects for [www.photoarchive3d.org](http://www.photoarchive3d.org)

### **Naming Conventions.**

Objects are numbered by physical stamp containing a number and collection identifier ("G.L.Mutter")

Objects are identified in the databases by a sequentially assigned 6-digit number:

ObjNr-XXXXXX

Each digitized image deposited into the photoarchive is identified by a sequentially assigned unique 6-digit negative number in the format:

NegNr-XXXXXX

### **Generation of a unique object Identifier.**

Object IDs are assigned in numerical sequence and tracked in the Red Log, and Object database (Obj\_Annotation\_XXX.xls). Refer to Red Logbook for next entry.

GLM series begins with ObjNr-000001 GLM Negatives Begin with NegNr-000001

BPF Series begins with ObjNr-200001 BPF Negatives Begin with NegNr-400001

OTH Negatives Begin with NegNr-600001 OTH Object Numbers are assigned by third party

### **Copystand Photography.**

Camera:

Use Canon EOS 5D MarkII set to capture superfine RAW images

Lens:

Images up to 8" max dimension Use 100mm Lens

Canon EF100mm f/2.8L Macro IS USM

Images exceeding 8" max dimension Use 50mm Macro Lens

Canon EF 50mm f/2.5 Compact Macro Autofocus Lens

This yields 21 MP DNG images (5616 x 3744 pixels)

As of 2/9/2011, 13,000 images of 5860 physical objects occupy 256GB

Average DNG file size is 20MB (actual is 19.7) per image

100 stereos, front and back average 4 GB of file space

Lights:

Reflected Lights: Use dual 4400K diffused snail lamps set up equidistant R&L of center.

Transmitted Lights:

Glass: Use LED Halv 5700 6" x 8" lightbox masked for correct opening

Hybrid transmitted/Reflected Lighting (Tissues)

Fluorescent PortaTrace Box



9Watt natural snail lamps for reflected light

Camera Accessories:

- 90' Angle viewfinder yields 100% field View
- Cord exposure release
- 16GB CF Cards (Transcend Compact Flash Card 16gb 600x)

Standards:

- Reflected: Focusing 7"card & Color Standards
- Transmitted: Transmitted target with grey x-ray film and kodachrome standard.

**ObjNr-NegNr Concordance File: Digital Shoot XXX.xls.**

file: Digital\_Shoot\_XXX.xls

File format: Excel 2003

This file has one unique row for each digital negative and provides shoot date and object number for each digital negative.

Shoot date is actual date of photography as it will appear in Photo Exif

Enter ObjNr in sequence based on logbook

Enter NegNr starting at next negative based on logbook.

Save after advancing one version number

**Object Annotation File: Obj Annotation XXX.xls**

File: Obj\_Annotation\_XXX.xls

File format: Excel 2003

This file has one row for each unique object (ObjNr), and does not cross reference negative numbers

**Directory Structure for Storage:**

Directories:

Systematic\_DNG

> GLM\_DNG\_Vault Starts with Bin20GB\_0001

> BPF\_DNG\_Vault Starts with Bin20GB\_1001

Adobe DNG files will be stored in 20GB subfolders designated: "Bin20GB\_XXX"

Each bin will hold approximately 900 DNG files

Image File Size:

Each 21 MP DNG image (5616 x 3744 pixels) files will be saved

As of 2/9/2011, 13,000 images of 5860 physical objects occupy 256GB

Average DNG file size is 20MB (actual is 19.7) per image

100 stereos, front and back average 4 GB of file space



## Importing Metadata into Lightroom from Excel Database

This is done from an excel exported .csv file using the Lightroom Plug-In LR/Transporter

Lightroom Transporter: available from  
<http://www.photographers-toolbox.com>

In excel, prepare a comma delimited file with relevant fields.

Label fields as first row of column

Do not use formulas. Copy and save as values if necessary

csv File format:

<b>ObjNr</b>	<b>NegNr</b>
ObjNr-007461	NegNr-016061
ObjNr-007462	NegNr-016062
ObjNr-007462	NegNr-016063
ObjNr-007463	NegNr-016064
ObjNr-007463	NegNr-016065

Save using “save as” command and naming the file with a .csv suffix.

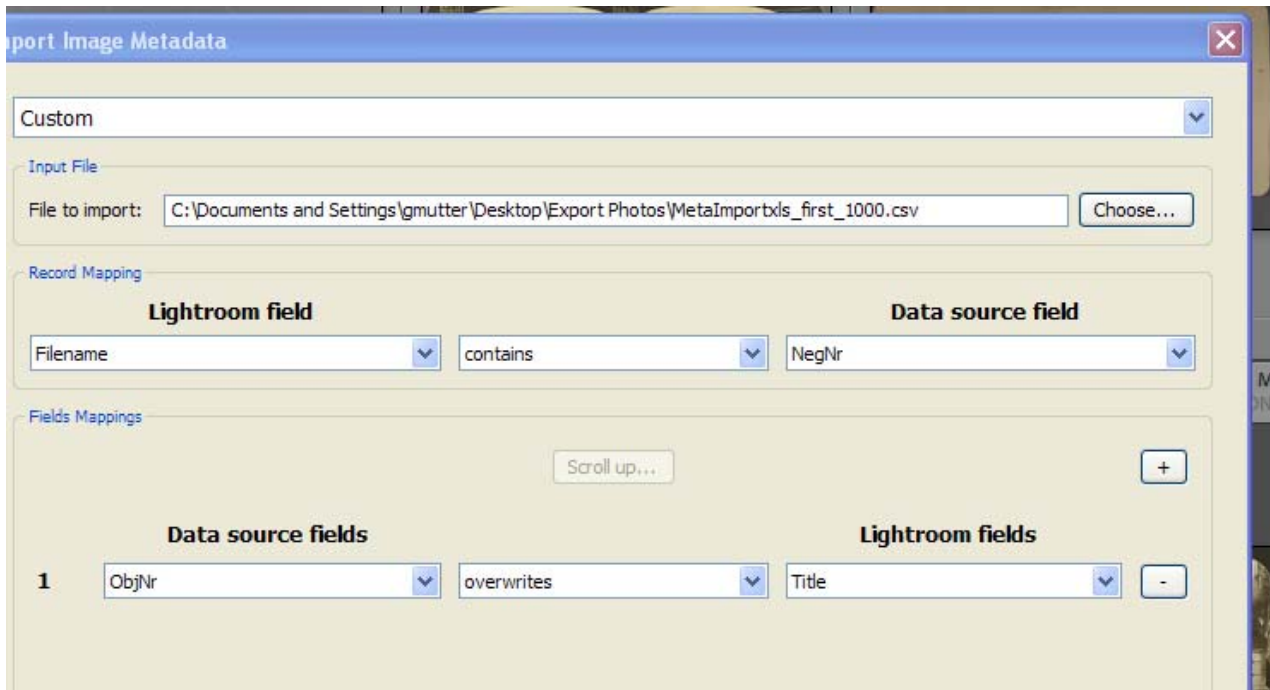
Generally, only 1000 records (file rows) can be imported at one time when matched against all files in the LR database.

Open Lightroom and activate LR/Transporter

Library>PlugIn Extras>Import Metadata using LR/Transporter

This will open a dialog box.

Choose csv file to import



**Record Mapping:**

Match csv file and LR data elements used to identify unique images

Usually use “contains” options to accommodate different suffixes and prefixes.

**Field Mapping:**

Select Data source fields to write to Lightroom Field.

example: Data Source “Obj-Nr” overwrites Lightroom “Title”

Next box: Which Images?

Select “All”



## Pulling Pics from a file list: using LR Transporter

1) Create an ms-dos text file (txt) in which each line contains one file name. Not necessary to add suffix filetype.

file “NegNr-015436.dng” is entered in txt file as “NegNr-015436”

2) Open Lightroom Transporter Module:

Library >

PlugIn Extras

> Mark Images using LR/Transporter

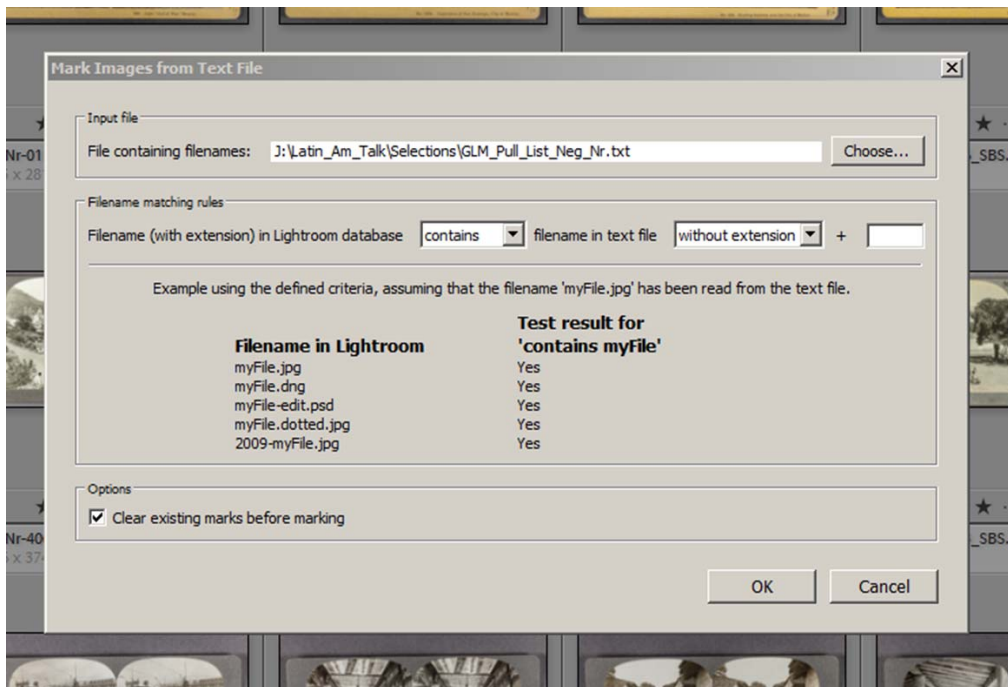
3) Adjust settings:

txt file location

database “contains”

in text file “without extension”

“Clear existing marks”



4) Press “OK” and wait. It is pretty fast, and can handle up to about 1000 file requests at a time.

5) View selected files by using Attribute filter



## **WEB PRODUCTION**

### **Image Resizing**

Maximum dimension for web display is 600pixels (6.25inches at 96dpi)

Best Thumb size is 200 pixels

### **Inserting Frontpage Gallery into Dreamweaver:**

#### **[Re: How can I place a Lightroom 3 image gallery in a Dreamweaver page?](#)**

You'll need to work in CodeView.

Copy the relevant code from your image gallery page into your site page. Adjust paths to images & scripts as necessary.

Another simpler approach, insert an iframe into your site page. Point the iframe **src** to your gallery.html page. Adjust iframe **height** and **width** to accommodate the size of your gallery page.

[http://w3schools.com/html/html\\_iframe.asp](http://w3schools.com/html/html_iframe.asp)

Nancy O.

Alt-Web Design & Publishing

Web | Graphics | Print | Media Specialists

<http://alt-web.com/>

<http://twitter.com/altweb>

### **Syntax for adding an iframe:**

```
<iframe src="URL"></iframe>
```

The URL points to the location of the separate page.

---

### **Iframe - Set Height and Width**

The height and width attributes are used to specify the height and width of the iframe.

The attribute values are specified in pixels by default, but they can also be in percent (like "80%").

#### **Example**

```
<iframe src="demo_iframe.htm" width="200" height="200"></iframe>
```

```
<iframe
```

```
src=file:///KMT19_Databox/media/My%20Webs/Photoarchive3D/Galleries/Gallery_01_Test/index.html width=1000 height=2000></iframe>
```





**Photo Types and Abbreviations.**

Abrev	Type	
S	size	standard 3 ½" by 7" view
R	size	Raumbild size; 6x13 cm
O	size	Oversized, generally cabinet
L	size	Lantern Slide (3.5 x 4.0 inches)
CDV,V	size	Carte de Visite
	size	
	size	
F	format	flat mount
C	format	Curved mount
G	format	Glass
	format	Tinted
A	format	Autochrome
	format	Salt Print
	format	Litho or photomechanical
	format	Cabinet Card
PA	format	Photo album snaps
	format	Large Format
T	format	Tissue
M	format	mono
tin	format	tintype
B	series	Set (usually boxed)





**Adobe Lightroom Version**

<b>Lightroom version</b>	<b>Installed</b>	<b>Camera Raw Version</b>	<b>Comments</b>
2.0	09/29/2008		
2.1	10/23/2008		
2.2	12/23/2008		
2.3	03/12/2009		
2.4	06/24/2009		
2.5	09/15/2009		
2.6	03/03/2010		
2.7	04/23/2010		
3.0	06/10/2010		
3.2	08/31/2010		
3.3	12/07/2010	6.3	
3.4.1	5/24/2011		
4.1	8/1/2012	7.1	Requires win 7
5.0	5/25/2013	8.1	Requires win 7
5.2	09/22/2013	8.2	
5.3	02/02.2014	8.3	
5.5	06/20/2014	8.5.0	64 bit
5.6	8/12/2014	8.6	



### Eos 5D MarkII Settings, by Photo Type

<b>Setting</b>	<b>Paper Cards Reflected</b>	<b>Glass-Trans illuminated</b>	<b>Tissues-Trans illuminated</b>	<b>Albums Reflected</b>
<b>Dial Setting</b>	C1	C2	C3	C1
<b>f-stop priority</b>	F16	F13	F13	F16
<b>ISO</b>	400	400	200	400
<b>lights</b>	daylight snail	LED box	flur box+ 9w snail	daylight snail
<b>light temp</b>	4400	4400		4400
<b>Standards</b>	focus target, color palette	focus target, x-ray film gray	focus target, x-ray film gray	focus target, x-ray film gray
<b>Focus</b>	manual	manual	manual	auto on, evaluative
<b>metering</b>	auto (average)	center weighted manual	center weighted manual	auto (average)
<b>Exposure Bias</b>	0	0	0, -2/3, -1 1/3	0
<b>white balance set</b>	4400	4400	4400	4400
<b>File Format</b>	RAW, superfine	RAW, superfine	RAW, superfine	RAW, superfine
<b>Resolution</b>	21MP, 5616x3744	21MP, 5616x3744	21MP, 5616x3744	21MP, 5616x3744



### Lightroom Import Settings, by Object Type: New Process (2012)

LR Setting	Paper Cards Reflected	Glass-Trans illuminated	Tissues-Trans illuminated	Autochromes
<b>Auto Tone</b>	OFF	OFF	OFF	OFF
<b>White Balance</b>	Temp 4400 Tint +5	Temp 4200 Tint +2	Temp 4200 Tint +2	Temp 4200 Tint +2
<b>Copyright</b>	from template	from template	from template	from template
<b>Lens Correction</b>	Apply	Apply	Apply	Apply
<b>Tone</b>	Exposure +0.36 Contrast +14 Highlights -36 Shadows +36 Whites 0 Blacks -14	Exposure +0.71 Contrast +7 Highlights -43 Shadows +43 Whites +21 Blacks -7	Exposure +0.36 Contrast +0 Highlights -36 Shadows +36 Whites 0 Blacks -14	Exposure 0 Contrast +21 Highlights 0 Shadows 0 Whites 0 Blacks -29
<b>Presence</b>	Clarity +36 Vibrance +14 Saturation 0	Clarity +36 Vibrance 0 Saturation 0	Clarity +50 Vibrance +14 Saturation 0	Clarity +36 Vibrance +0 Saturation 0
<b>Sharpening</b>	amount 25 radius 1.0 detail 25 masking 0	amount 25 radius 1.0 detail 25 masking 0	amount 25 radius 1.0 detail 25 masking 0	amount 25 radius 1.0 detail 25 masking 0
<b>Noise Reduction</b>	Luminance 25 Detail 50 Contrast 0 Color 25 Detail 50	Luminance 10 Detail 50 Contrast 0 Color 25 Detail 50	Luminance 30 Detail 50 Contrast 0 Color 25 Detail 50	Luminance 0 Detail 50 Contrast 0 Color 25 Detail 50
<b>Profile Correction Basic</b>	Enable Profile Corr (automatic) Remove Chromic Aberr	Enable Profile Corr (automatic) Remove Chromic Aberr	Enable Profile Corr (automatic) Remove Chromic Aberr	Enable Profile Corr (automatic) Remove Chromic Aberr
<b>Format</b>	DNG convert	DNG convert	DNG convert	DNG convert
<b>Rename</b>	NegNr-0XXXXXX	NegNr-0XXXXXX	NegNr-0XXXXXX	NegNr-0XXXXXX

Noise Reduction (Luminance): Extent varies with type of image

Paper views 25

Grainy paper 45

Glass 0-25



### Metadata Mapping

LR Seq	Category	IPTC Field	Annot xls	Value	
1	LR Core	Copy Name			
2	LR Core	Rating			
3	LR Core	Label			
4	LR Core	Caption			
5	IPTC Core	Headline			
6	IPTC Core	Subject Code			
7	IPTC Core	Desc Writer			
8	IPTC Core	Category			
9	IPTC Core	Other Category			
10	IPTC Image	Date Created			
11	IPTC Image	Intellectual Genre			
12	IPTC Image	IPTC Scene Code			
13	IPTC Image	Sublocation			
14	IPTC Image	City			
15	IPTC Image	State/Province			
16	IPTC Image	Country			
17	IPTC Image	ISO Country Code			
18	IPTC Workflow	Title	ObjNr		
19	IPTC Workflow	Job Identifier			
20	IPTC Workflow	Instructions			
21	IPTC Workflow	Creditline			
22	IPTC Workflow	Source			
23	IPTC Copyright	Status			
24	IPTC Copyright	Copyright			
25	IPTC Copyright	Rights usageterms			
26	IPTC Copyright	Copyright URL			
27	IPTC Extended	Person Shown			
28	IPTC Ex Location Created	Sublocation			
29	IPTC Ex Location Created	City			
30	IPTC Ex Location Created	State/Province			
31	IPTC Ex Location Created	Country			
32	IPTC Ex Location	Country Code			



LR Seq	Category	IPTC Field	Annot xls	Value
	Created			
33	IPTC Ex Location Created	World Region		
34	IPTC Ex Location Shown	Name of Organization		
35	IPTC Ex Location Shown	Code of Organization		
36	IPTC Ex Location Shown	Event		



### **Digital Projection:**

#### **Color Balance**

Always use sRGB for jpps to be projected directly  
If in PPT, ok to use sRGB or adobe RGB

#### **Anaglyphs:**

Will ghost if compressed. Always size and crop full sized TIFF when possible  
and convert to color anaglyph (red/cyan) JPG as the very last step.

#### **Software for Anaglyph manipulation:**

Stereophotomaker is the best software for this purpose and it is freeware available at:  
Download and see instructions at

<http://stereo.jpn.org/eng/stphmkr/>

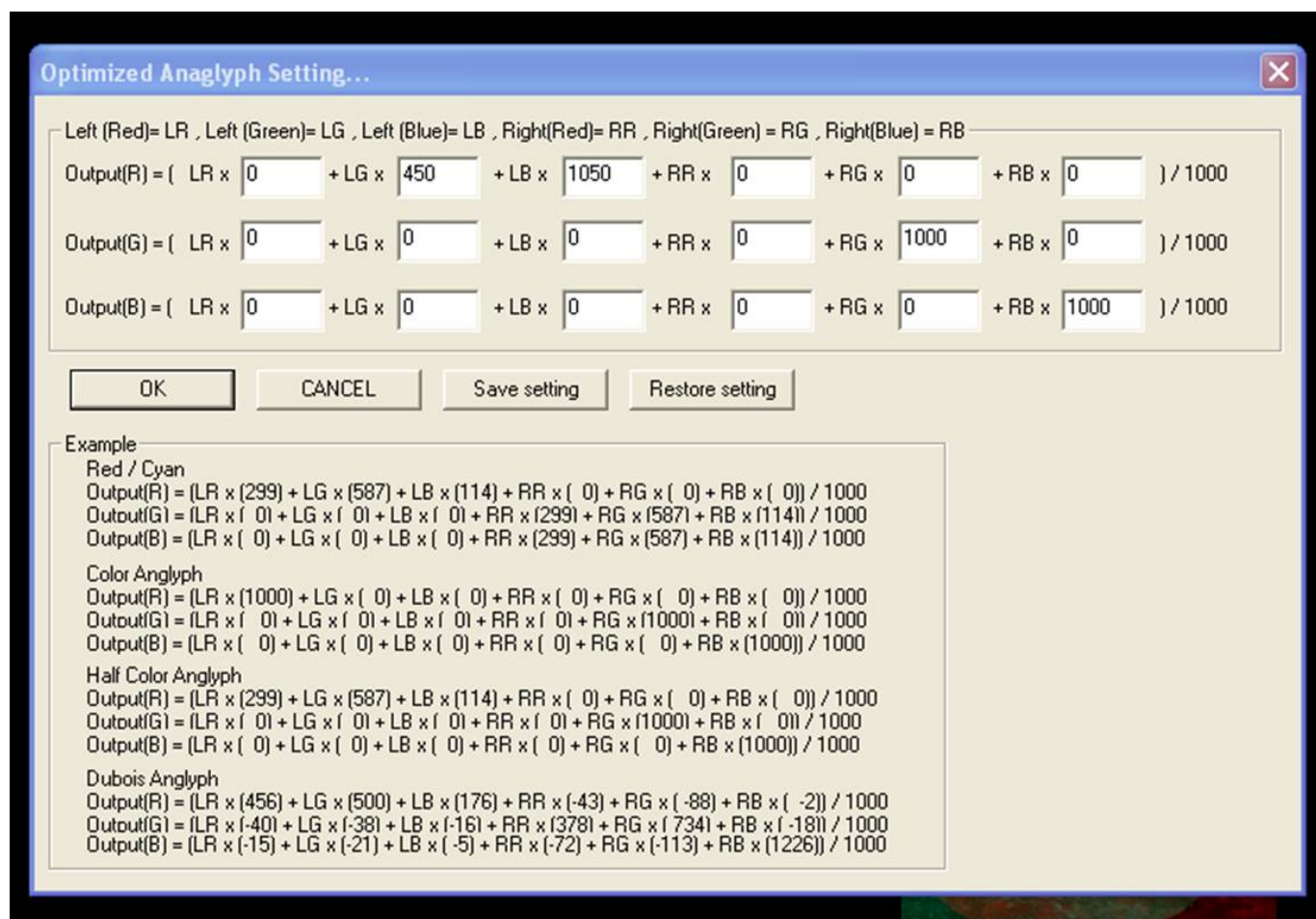


## Optimized Anaglyph Mode

$$\text{Output[R]} = (\text{Left[R]} \times 0 + \text{Left[G]} \times 450 + \text{Left[B]} \times 1050 + \text{Right[R]} \times 0 + \text{Right[G]} \times 0 + \text{Right[B]} \times 0) / 1000$$

$$\text{Output[G]} = (\text{Left[R]} \times 0 + \text{Left[G]} \times 0 + \text{Left[B]} \times 0 + \text{Right[R]} \times 0 + \text{Right[G]} \times 1000 + \text{Right[B]} \times 0) / 1000$$

$$\text{Output[B]} = (\text{Left[R]} \times 0 + \text{Left[G]} \times 0 + \text{Left[B]} \times 0 + \text{Right[R]} \times 0 + \text{Right[G]} \times 0 + \text{Right[B]} \times 1000) / 1000$$



In the above example, all of the blue and green information is presented to the right eye but none of the left image red color data has been used in deriving the output red channel. Instead, 30% of the green channel and 70% of the blue channel are used and both are brightened by 50%. This would eliminate rivalry caused by the red component of the image but color reproduction is obviously not accurate. If subjects with saturated blue or green components are causing problems, you could try altering the color mix of the output green and blue channels.

OPTIONAL: Apply a gamma correction (gamma value 1.5) to brighten up final red channel  $r_a$ . This is the LEFT image in Stereophotomaker. To do this in the multiple process menu select adjust gamma and enter 1.5 for LEFT panel.





### Red/Cyan Glasses:

American Paper Optics [www.3dglassesonline.com](http://www.3dglassesonline.com)

1x 3D Anaglyph - Red Cyan - 300 at \$0.35 each for \$105.00 each

**Projection sizes:** Digital projection of jpgs: size depends on projector resolution.

### Digital Projectors:

Some basic choices for native resolution are the following:

1. **SVGA (800x600)** - SVGA projectors are great for those on a tight budget, since prices have dropped dramatically in recent years. While most computers still output in higher resolution, SVGA can be a good option for Powerpoint presentations or other applications that are not heavily dependent on detail.
2. **XGA (1024x768)** - XGA projectors have come down in price over the past few years, and have become the budget standard. Many laptop computers still output in native XGA, and matching an XGA projector to your native XGA laptop ensures you won't lose any detail.
3. **WXGA (1280x800)** - WXGA products are high resolution widescreen products, and usually a bit more expensive than XGA. These products are targeted for use with mid-range widescreen laptops, which often use 1280x800 natively. They are becoming increasingly common and are used as an inexpensive widescreen alternative to XGA.
4. **SXGA+ (1400x1050)** - SXGA+ projectors are becoming more popular, and there are several offerings available in both budget and high-end configurations. SXGA+ resolution is useful for detailed photography and data graphics, but overkill for text display or Powerpoint presentations.
5. **UXGA (1600x1200)** - UXGA is for very high resolution workstation applications that are detail or information intensive. These are expensive projectors that support a broad range of computer equipment. Relatively few products on the market have this native resolution.

Images intended for display on 3D DLP TV's should be 1280x720 or 1920x1080 depending upon the native resolution of your TV.

### Powerpoint onscreen aspect ratio 4:3 width:height

Std PPT "onscreen" is 10" x 7.5" at 96dpi or 960x720

XGA projector is 1024x768 (PPT 1024x768)

XGA PPT is 10.67" x 8" at 96 dpi to get 1024 x 768

Do as TIF

SXGA projector is 1400x1050 (PPT 1440x1080)

Closest PPT SXGA is 15" x 11.25" at 96dpi for 1440 x 1080

Do as JPG



## Powerpoint 2010 Settings (PPTX file) for projection:

Automatic compression in PPT 2010 must be disabled, and output targets set to retain resolution. Otherwise, images will be degraded. File will save as PPTX (v2010).

### Slide Master:

Page setup is 15" x 11.25". This will perfectly fit a 1440 x 1080 pixel image without resizing.

### Turn off compression

File>Options>Advanced>Image Size and Quality

Check "Do not compress images in File"

Set Default Target Output to 96 dpi. This is good for projection, and will prevent compression by the projector

### Set Resolution for Projection

Slide Show>Resolution

"Show On" is hardware selection for projector. Pick attached projector.

Pick highest resolution available

## Powerpoint 2010 Settings for Exporting Slide JPGs

Choose File Format:

File>Save as (usually use tif as jpeg produces compression ghosting in PPT)

Choose Resolution: from "Compress Pictures" dropdown box.

Generally select "document resolution"

This will generate a series of TIFFs which can be projected as is, or converted by a program such as Adobe Lightroom or Photoshop to a jpeg file (NO compression, use 100% quality).

JPGs or TIFs can be projected directly as individual files.



## Digital Watermarking

Using Digimarc: [www.digimarc.com](http://www.digimarc.com)

Go to website and login using user name and PIN  
<https://dfi.digimarc.com/signIn.aspx>

Digital watermark is added using photoshop

Open image in photoshop  
Go to "Filter" menu  
Select Digimarc  
Add watermark at visibility of 3.

## Embossed Watermark with Lightroom:

### Text:

Applied to all online images >300 pixels maximum dimension.  
© Note that the shortcut for the copyright symbol is 00A9 Unicode Hex.  
Invoked by shortcut Alt+0169

### Format:

Best to do as translucent embossed text, including © at beginning  
Matching Color Embossed Text Overlay is exact designation





Printing of Physical Stereocards.

Using procedures in place at [www.civilwarin3d.com](http://www.civilwarin3d.com)

David Richardson.



December, 2012 Update of Equipment for Digitization

Equipment currently in use is specified above, but the below lists comparable equipment updated as to model as available in Dec 2012

Good Vendors:

Good vendors for Digital Cameras and equipment (has prices):

<http://www.bhphotovideo.com/>

<http://www.calumetphoto.com/>

Computer Materials available at PC Connection:

<http://www.pcconnection.com>

The camera has two models, and either is probably ok. There is a mark II (\$2500) and Mark III (\$3500). If you need to reduce budget go for the Mark II.

Digital file storage is a system solution. Those listed here are guidelines. You need an IT person to review and recommend based on your environment. But, definitely go for DNG raw file format storage. It is smallest lossless and proactively compatible format available.

Various copystands are available. Biggest problem is diffusing the light so you do not get shadows or hotspots. I use big reflectors with silver diffuser screens, but if you have a good photographer onsite they may have a recommendation. I do not like halogen point sources, and horizontal linear fluorescent DAYLIGHT (4400K) lamps are ok and sometimes available integral to copystand. These are special bulbs.

Item	Mfr	Mfr#	Price	Note
Adobe Lightroom v4.0	Adobe			Image catalog software
Canon Eos 5D MarkIII, 22.3MP	Canon	5260B002	3449	Camera Back
Canon EF100mm f/2.8L Macro IS USM	Canon	3554B002	1050	Closeup Lens
Canon EF 50mm f/2.5 Compact Macro Autofocus Lens	canon	2537A003	300	Mid dist Lens
4400K snail fluorescent lamps in 13" dome reflector with diffuser	several			Budget \$400 for lights
90' Angle viewfinder Type C	Canon	2882A002	199	Calumet#CA4111
Lightroom Transporter <a href="http://www.photographers-toolbox.com">http://www.photographers-toolbox.com</a>				Metadata importer. to get into lightroom
B6-533 Numbering Machine, Gothic 6-wheel	Reiner	B6		About \$250



Item	Mfr	Mfr#	Price	Note
Remote Switch RS-80N3	Canon	2476A001		
Extra Battery for Canon Eos 5D Mark III	Canon			
Copy Stand such as Beseler CS Digital/Photo-Video Copy Stand	Beseler	4211-02		
Netgear 12TB ReadyNAS Pro 6 Unified Storage System w Desktop-Class Hard Drives	Netgear	RNDP6620D-200NAS	2800	Need 2, back up primary to offsite second
Blue-Ray Disc Writer, for 23 GB discs	any			Internal for your computer. essential backup.
32GB CF Memory cards for Camera	Sandisk	SDCFXP-032G-A91	150	Get minimum of 2
128 GB USB solid state ("thumb drive)	various		300	For file transfers
ViceVersa File duplication utility from <a href="http://www.tgrmn.com/">http://www.tgrmn.com/</a>				Essential to copy big files and verify