



Photographs & Linux Overview / Intro

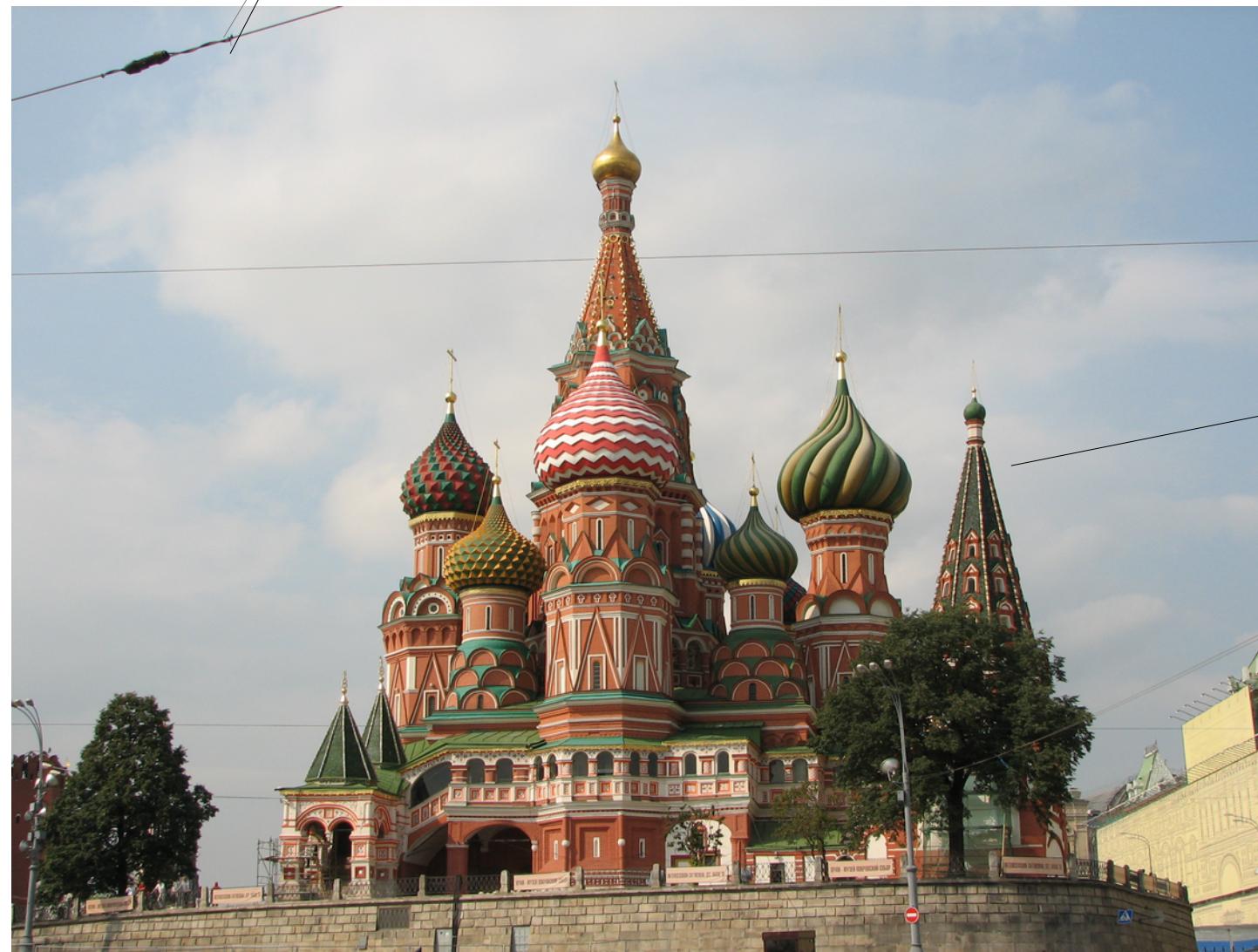
<https://novalug.org/docs/gimp.odp>

- First-order management of photos
 - Many Images – cull / sort with gThumb
- Edit photos – The GIMP
- Album Creation – jAlbum
- Upload – Filezilla
- Presentation:
 - Posted: NoVaLUG [Presentations](#)
 - Composed with open source software
 - Hardware: Appendix 8



Wire

The Power of The GIMP



St. Basil's Cathedral, Red Square, Moscow

Wire

St. Basil's Cathedral
Moscow

*Removed wires, street
light*

Improved color balance

Street
Light

St. Basil's after Edits



(Really) Fake News 1



N. Korea's supreme leader, Kim Jong-un, was in the news for purging his uncle – erased from history.

Photo from the front page of the Wall Street Journal

(Really) Fake News 2



Another Miraculous Change . . .

Lady in Museum
[Uglich, Russia](#)
(before)



. . . (cont.)



Lady in
Museum
(after)

It's Not Just About Editing (post processing) Organize / Sort Images

- Managing large number of images
- Create a set (copy) of originals
 - Recover from mistakes, e.g., accidental deletions
- Culling / Sorting
- Organize / create albums – jAlbum 
- Appendix 1. – Description / Discount for NoVaLUG
- Alternatives
 - gThumb – simple viewer 
 - DigiKam (KDE app) – it appears to have matured
- Filezilla for uploads to web site – Appendix 2. 





The GIMP



- GNU
- Image
- Manipulation
- Program
- Standard in many Linux distros
- Ports to Windows, MAC, and (reportedly) Android
- **GIMP: \$ 0**
- **Photoshop: \$ 1k**
 - Subscription – \$ 20+ / mo, plus for on-line storage
 - Cloud dependent for some applications



The GIMP

- Very powerful photo editor
- Pre-installed on many Linux distros
 - Ubuntu/Debian, SUSE, Fedora, BSD systems, Windows, etc.; flatpak, .deb, RPM, even zipped for java-enabled systems
- Downloads – <http://www.gimp.org/>
- Active development
 - Version 2.10.24 Released 2021-03-29
 - Last presentation in 2013 based on Ver. 2.8
- Many alternate language versions



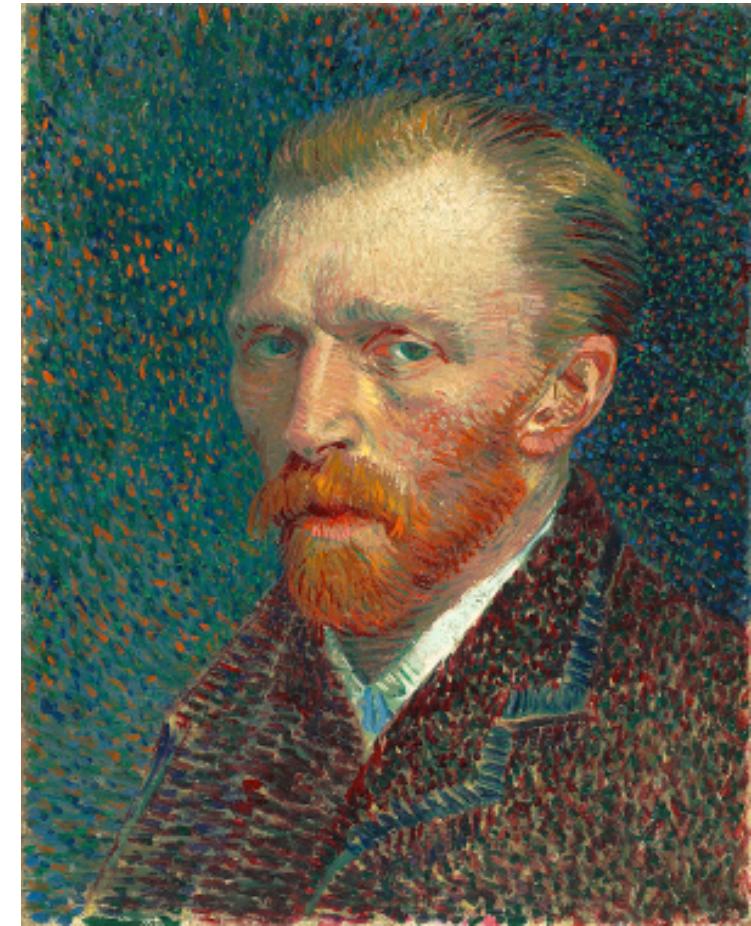
GIMP Documentation

- Extensive on-line help available
- User Manual / tutorial
 - <https://docs.gimp.org/2.10/en/>
 - Step-by-step procedures illustrated
- Tutorial
 - <https://www.gimp.org/tutorials/>
- Grokking the GIMP (book)
 - Google for free versions
- YouTube Videos – a plethora

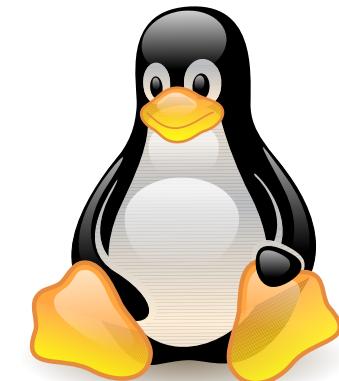


Bitmap vs. Vector Images

- GIMP: edit raster graphics file formats (bitmap images, e.g., .jpg, .gif)
- Think *pixels* (digital “pointillism”)
- SVG – Scalable Vector Graphics
 - XML-based vector image format
 - 2-D graphics
 - Support for interactivity and animation
 - Edit with Inkscape – highly regarded drawing application

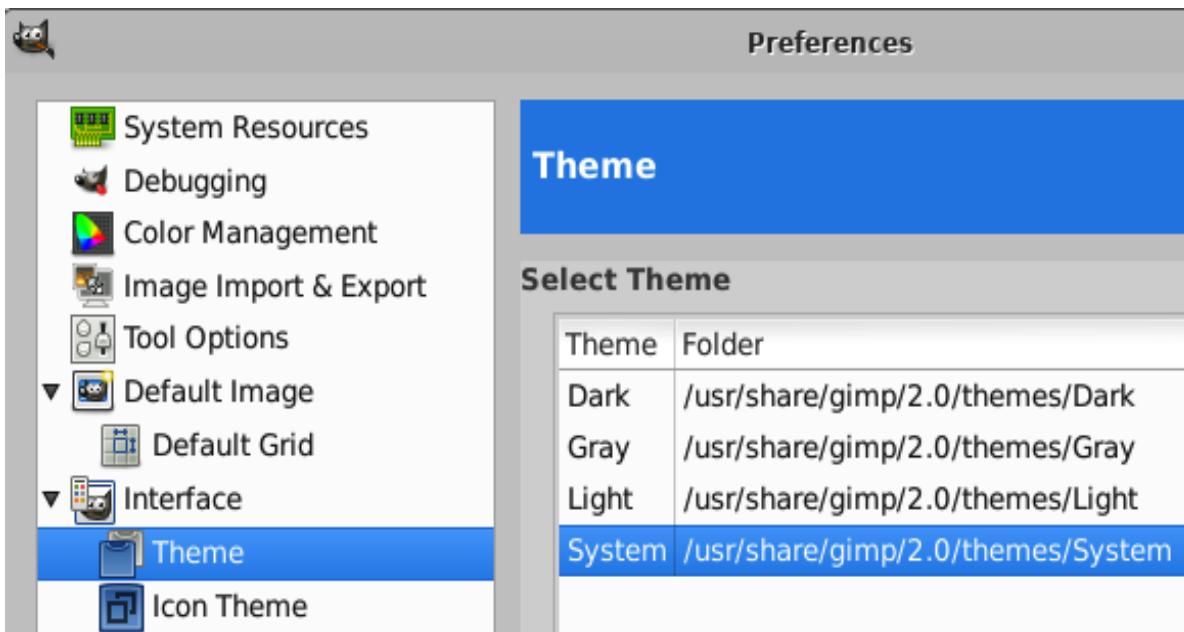


Vincent van Gogh, Self Portrait, 1887, pointillist.

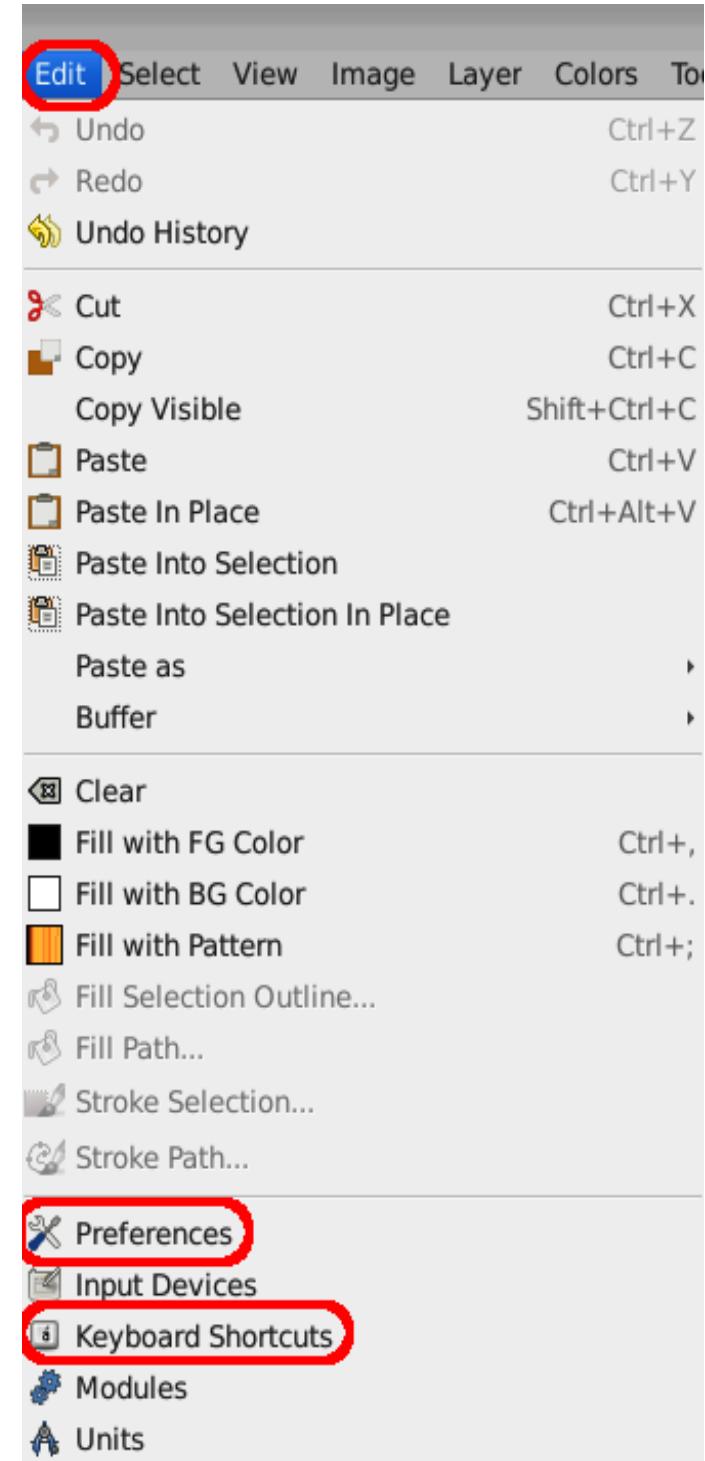


Customize GIMP

- GIMP can be highly customized
 - Preferences
 - Keyboard Shortcuts
- Choose System Theme –



- Maximum contrast for presentation
- See Appendix 3 for more example Prefs



Tips: Keyboard Shortcuts

- Keyboard shortcuts – useful for
 - commonly repeated actions
 - Quick access to menu items
 - Change with: Edit > Keyboard Shortcuts
- Appendix 4. Default Shotcuts
- Next slide – most used shortcuts
- Note: commonality across applications, e.g.
 - `ctrl-c`: copy `ctrl-v`: paste `ctrl-x`: cut & copy
 - `ctrl-shift-v`: paste w/o formatting



Favorite GIMP Short Cut Keys

<i>Key</i>	<i>Function</i>
ctrl (control)	Pair w/ other key(s) to give it alternate function
shift	Pair w/ other key(s) to give it alternate function
alt	Pair w/ another key(s) to give it alternate function
ctrl-a	Select all
shift-ctrl-a	Deselect active selection
ctrl-z	Undo last operation
Shift-+ / - (shift-plus / minus)	Zoom-in (enlarge) / zoom out
*ctrl-0 (ctrl-zero)	*Zoom to orginal size
ctrl-s	Save (.xcf)
shift-ctrl-s	Save as (xcf)
shift-ctrl-e	Export as, e.g., .jpg, .png
ctrl-i	Scale image
*shift-ctrl-i	*Invert selection
ctrl-m	Merge all layers
* ctrl-g	* Toggle grid display
ctrl-q	Close GIMP
ctrl-w	Close current window
ctrl-, / ctrl-. (ctrl-comma / ctrl-period)	Fill active area with foreground (,) / background color (.)

* Custom short-cut assignment

shortcut.favs

Tips: File Types

- File formats .xcf files – GIMP's **loss-less file format**
 - Intermediate edits / layers / undo are saved to .xcf
 - No side-car files as opposed to other apps, e.g., Pshop
- “Lossy” formats – .jpg, .gif
 - Lossy image file compression
 - Do not save and re save in lossy formats
 - Lost: pixels (resolution), intermediate edits (no undo), layers (merged)
 - .png – not lossy but no edit / undo data as compared with .xcf
- RAW – all of photo data retained – more color “depth”
- Edit w/ other apps, e.g., Darktable
 - **Darktable** – links directly into GIMP
 - **RawTherapee** (available as an appimage)

Tips (Cont.)



- Always use sRGB color profile for web (default)
- Setting sRGB color profile
 - Image > Mode > Assign / Convert to Color Profile, or
 - Select sRGB if GIMP prompts when image is opened
 - See Appendix 5. for choosing colors, hex codes
- Color profiles with greater color depth are used for high quality printing, e.g., 16 rather than 8 bit

Tips (cont.)

- Think ahead
- Optimize framing – avoid too tight
 - Leaves room for cropping and other image edits
- Shoot at high resolution
 - Preserves detail / facilitates “digital zooming”
- Make sure in-camera GPS is locked onto satellites
 - To insure location of shot is correct
- Polarizing filter – circular for digital cameras
 - The one filter to have
 - Remove haze / glare / reflections



Using Tools

- Open file: File > Open (ctrl-o)
- View grid: View > Show Grid
- Rotate 
 - Drag handles / fine tune with “Angle” / Click Rotate to commit)
- Crop 
 - Icons may differ depending on theme, e.g., crop: 
 - Drag handles to adjust
 - <enter> to commit
- Adjust color levels: Colors > Levels
- Save as .xcf file to retain changes

Selection Tool – Options

- Rectangular



- Rounded corners
 - Feather Edges

- Elliptical



- Hold SHIFT to get circle
 - Feather edges

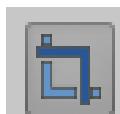
- “Free” Select / “Lasso”



- Selection can be drawn free-hand

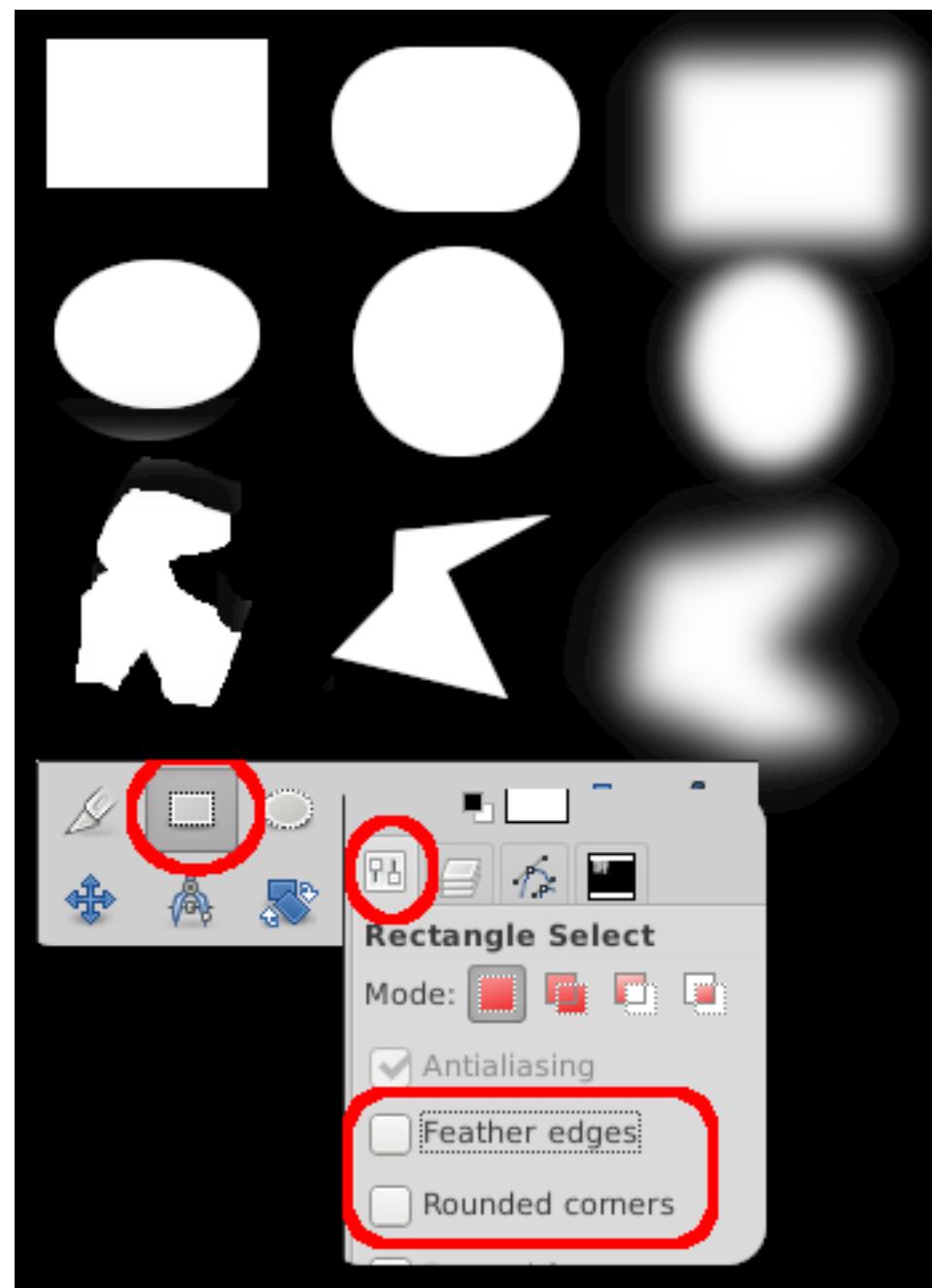
- Successive shift-clicks for polygon
 - Feather edges

- Concatenate Shift & select



- Crop – trim off edges

- Hint – *when shooting*, frame w/ extra space to allow for adjustments later



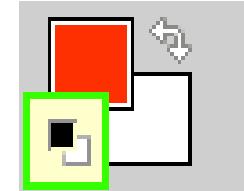
Selections

Creating / Co-joining / Excluding

- Demo with colored layers
 - Top layer: black (w/ white dot for positioning)
 - Bottom layer: white
- Create a selection, e.g., w/ rectangle select 
- Add to it with Shift-drag for a chosen tool
 - Can be different
- Omit an area from a selection with ctrl key
 - ctrl-drag a selection tool
- Fill selected area with foreground color, black
 - ctrl-, (ctrl-comma)
 - ctrl-z to reverse change

Color Selectors

- Color Selection Dialog – change foreground and background colors 

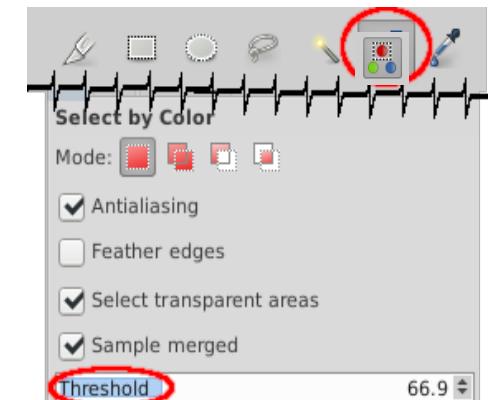
 - Swap color combo w/ small, overlapping boxes 

- Color Picker – select (change) *foreground color* 

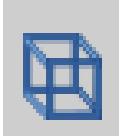
 - *Radius option* determines how many pixels are selected
 - Monochrome selection: use very small radius

- Fuzzy select tool – select *one region* by color 
- Select by Color – select *all regions* of a color 

 - *Threshold option* changes “purity” / monochromacy of color used for fuzzy and select by color
 - Practical example: vary amount of non-uniform sky captured. Demo: later.



Move / Arrange / Alter Shape / Measure

- Move 
- Rotate 
- Resize 
- Perspective alteration 
- Flip
 - Horizontal – click
 - Vertical ctrl-click
- Measure 
 - Read angle at bottom of window

Next - Examples - Basics

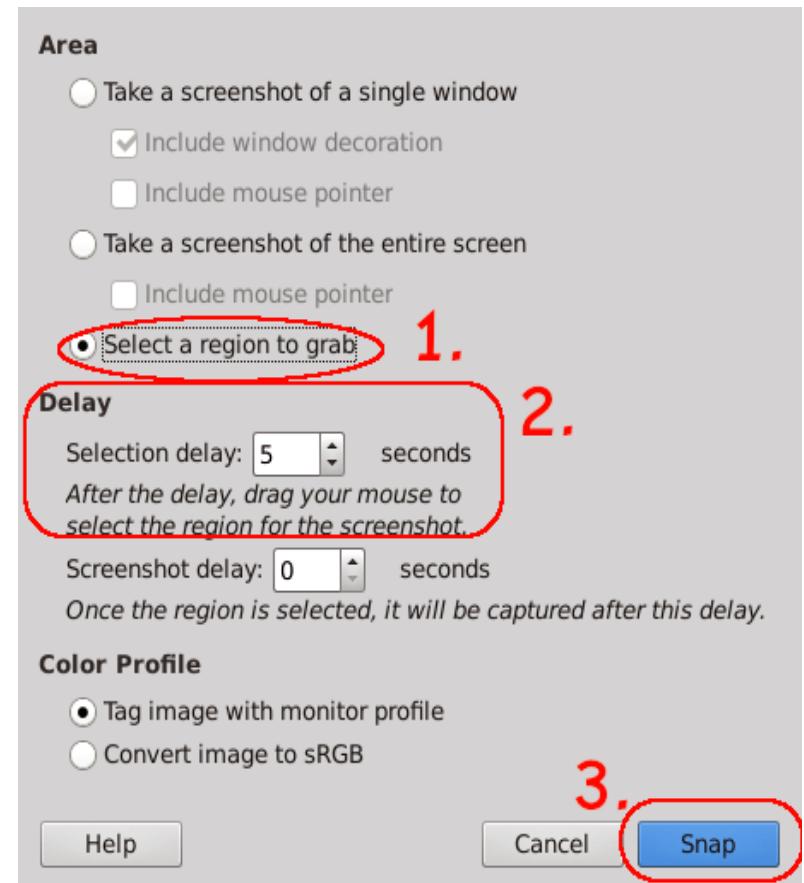
- Screen Capture
- Cropping, rotating / selections
- Color level adjustment
- Highlight an area
 - Line drawing
 - Create vignette
- MORE!

Screen Shots



Screen Capture / Crop

- Bring object to shoot into view (browser)
- Switch focus to GIMP
- File > Create > Screen Shot
 - Note – scan option is under File menu
 - > Select a region to grab
 - > Delay 5 sec
 - > Click Snap
- Crop image
- Use handles to change
 - Size
 - Aspect
- Finish
 - File > Save-as to keep as xcf
 - File Export



Straighten / Rotate / Crop / Color Levels / Drawing

Abu Simbel
(aerial view)

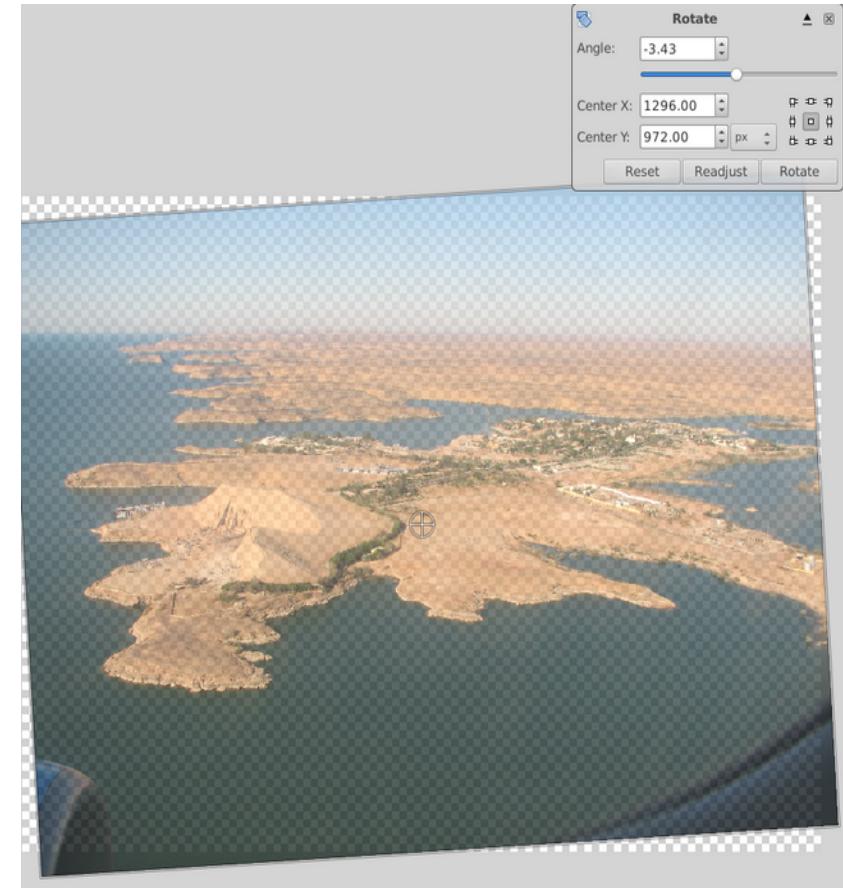
UNESCO site – temples saved from submersion after formation of Lake Nasser by building of the Aswan High Dam.

Temples were massive structures which were cut-up, from solid rock, moved to higher elevation, and pieced back together.



Straighten (Rotate)

- Safety: Duplicate layer, blank it
 - Work on copy
- Use rotate tool – Click to activate
 - Cursor changes to rotate tool
- Click-drag near image corner
 - Image rotates
 - See semi-transparent preview
- Change angle with drop-down / up arrow
- Click Rotate to complete
 - Note empty pixels around edges - no data there
- Crop
- Use corner and edge *handles* to adjust size
- ENTER to complete crop



Problem: hard to align with
rotate alone

Grid Lines can help

More precise: use Measure tool

Reverse changes with Undo –
Shortcut ctrl-z

abu.simbol.jpg

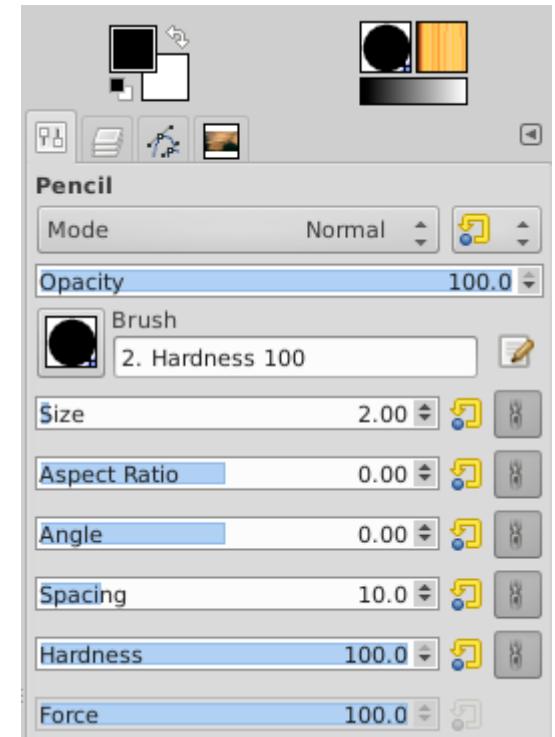
Align – Measure Tool

- Click on Measure tool 
- Right-click-hold-drag along horizon
- See inclination at bottom – 4.2°
- Activate Rotate Tool 
- Left-click on image
- Adjust Angle to -4.2° (minus 4.2°)
- TAB to see effect
- Click *Rotate* to accept
- CROP to area of interest 
 - Removes airplane engine, etc.
 - ENTER to commit



Drawing Lines

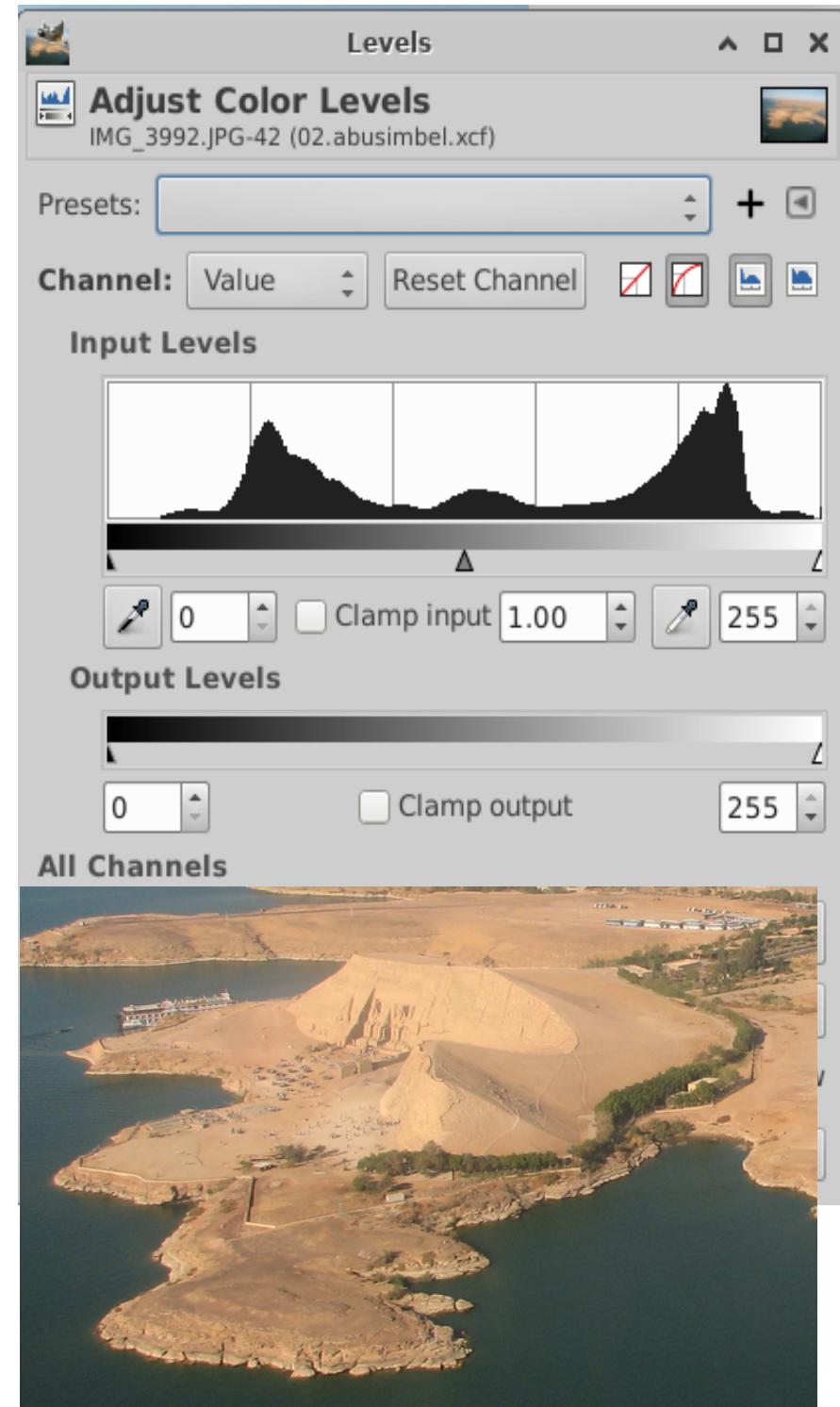
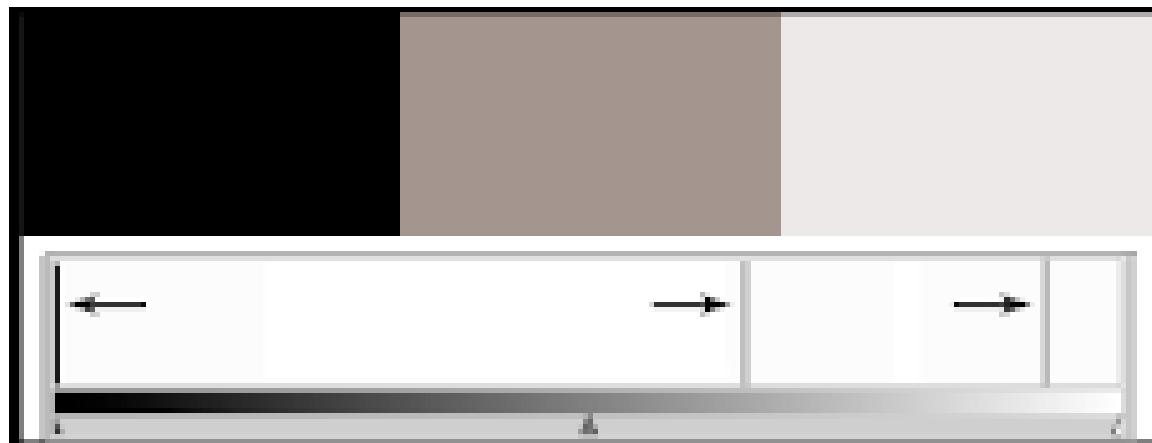
- Activate Pencil tool 
 - Opacity: 100 (not semi-transparent)
 - Hardness: 100 solid (not feathered)
 - Size: adjust with up / down arrows to 3px
 - Color: Black 
- Irregular line: left-click-drag cursor – release
- Straight Line
 - Move cursor to Start Position, cursor and left-click
 - A dot appears
 - Position cursor at end point
 - ctrl-shift to align in 15° increments
 - Left-click to close line
- End-point can be beginning of new line segment



Exposure / Color Adjustments

- Very useful tool – Colors > Levels (my custom shortcut: ctrl-L)
- Adjust overall “lightness” / “darkness”
- Compensate for some exposure problems
- Improve color balance
- Save / Use presets to apply levels to multiple images
- Example – histogram for Abu Simbel image
- Not in-camera histogram – image histogram rendered by GIMP

Histograms: Loaded With Info

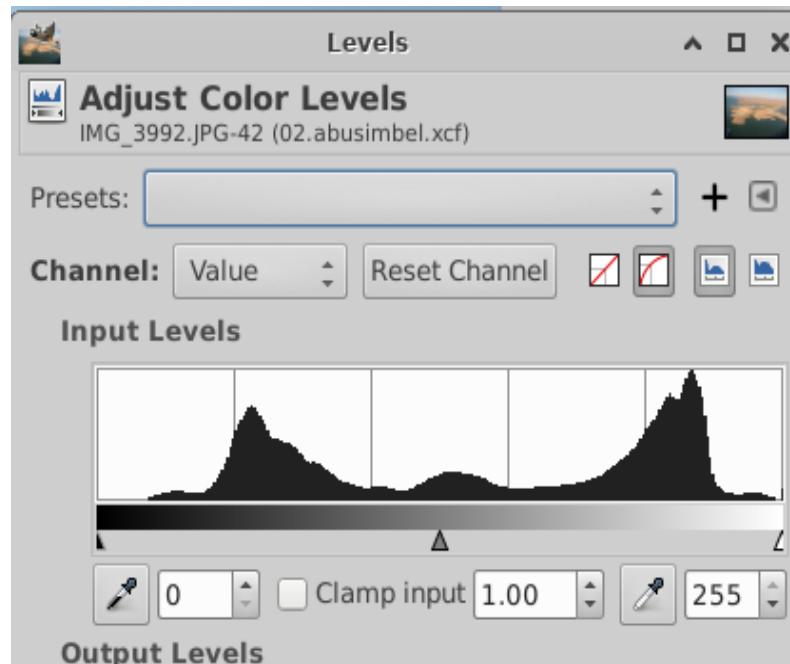


Understanding Histograms

- Horizontal axis:
 - Represents the tone of a color
 - Far right: pure white
 - Far left: pure black
- Vertical axis:
 - Number of pixels for a given tone

Histogram views are built-in to modern digital cameras.

Improve images in post processing using **Levels** to “manipulate” histogram.



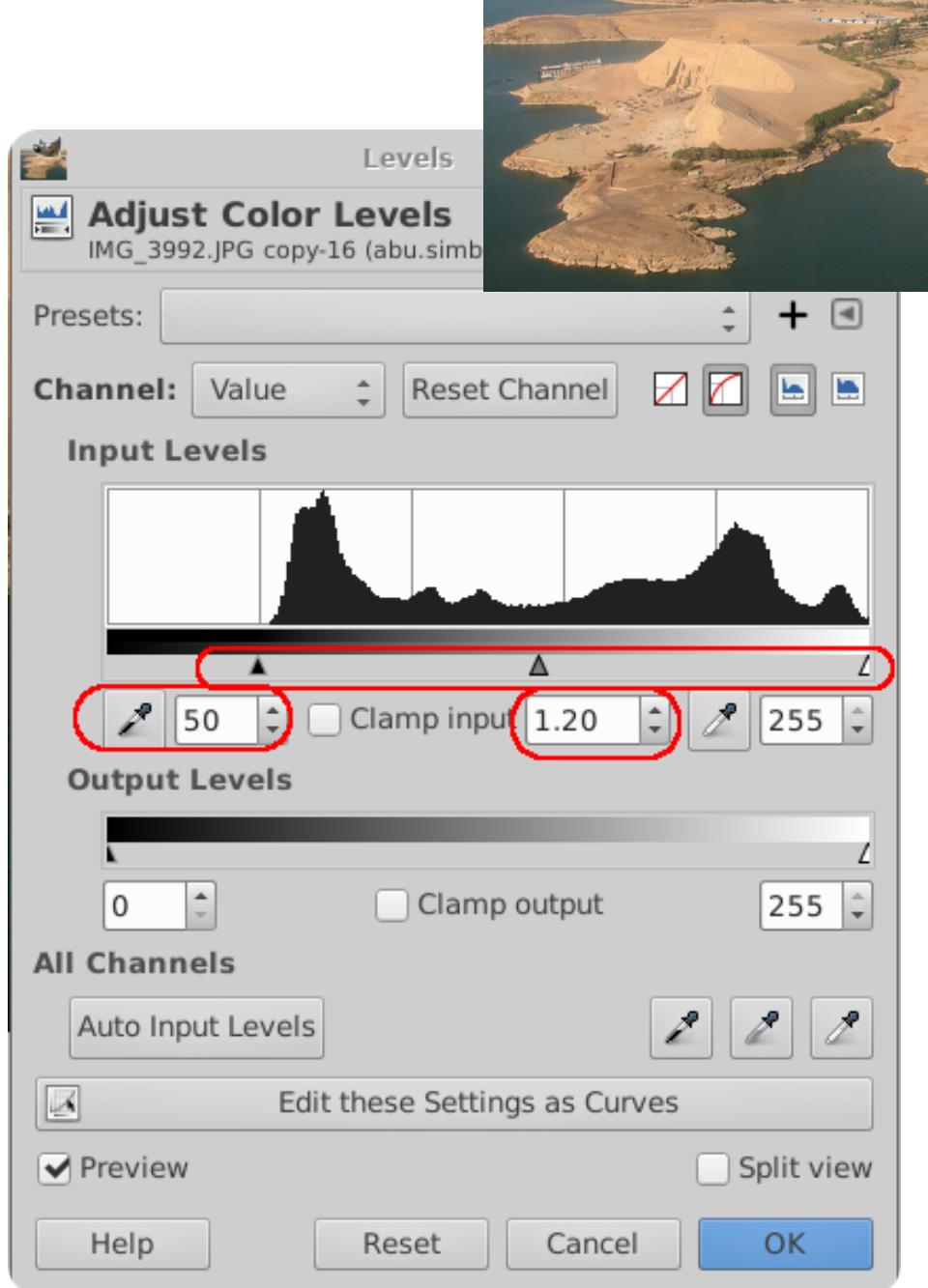
Histogram
(Abu Simbel Image)

IDEAL: Data all in center, tailing off left & right



Levels Color Balance

- Menu
 - Color > Levels
- My Shortcut for a frequently used tool
 - ctrl-L (ctrl - el)
- Drag arrows to adjust tones:
- This example:
 - Dark tones: 50
 - Mid tones: 1.10
 - Light leave at 255
- Note options to toggle Preview, reset, cancel
- Click OK to commit
- More about histograms Appendix 6



Compare Sky Histograms



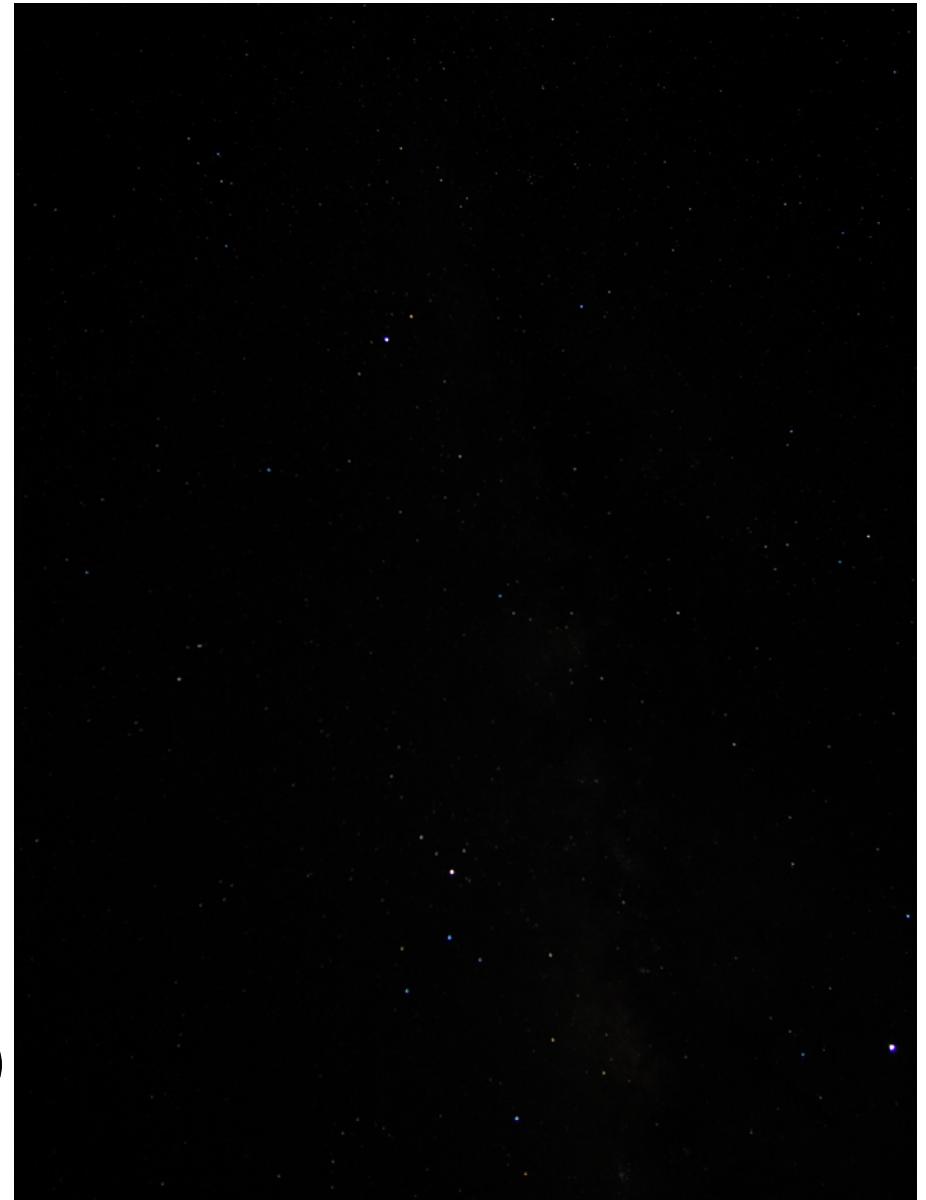
Example – Astro Photography

Wanted:

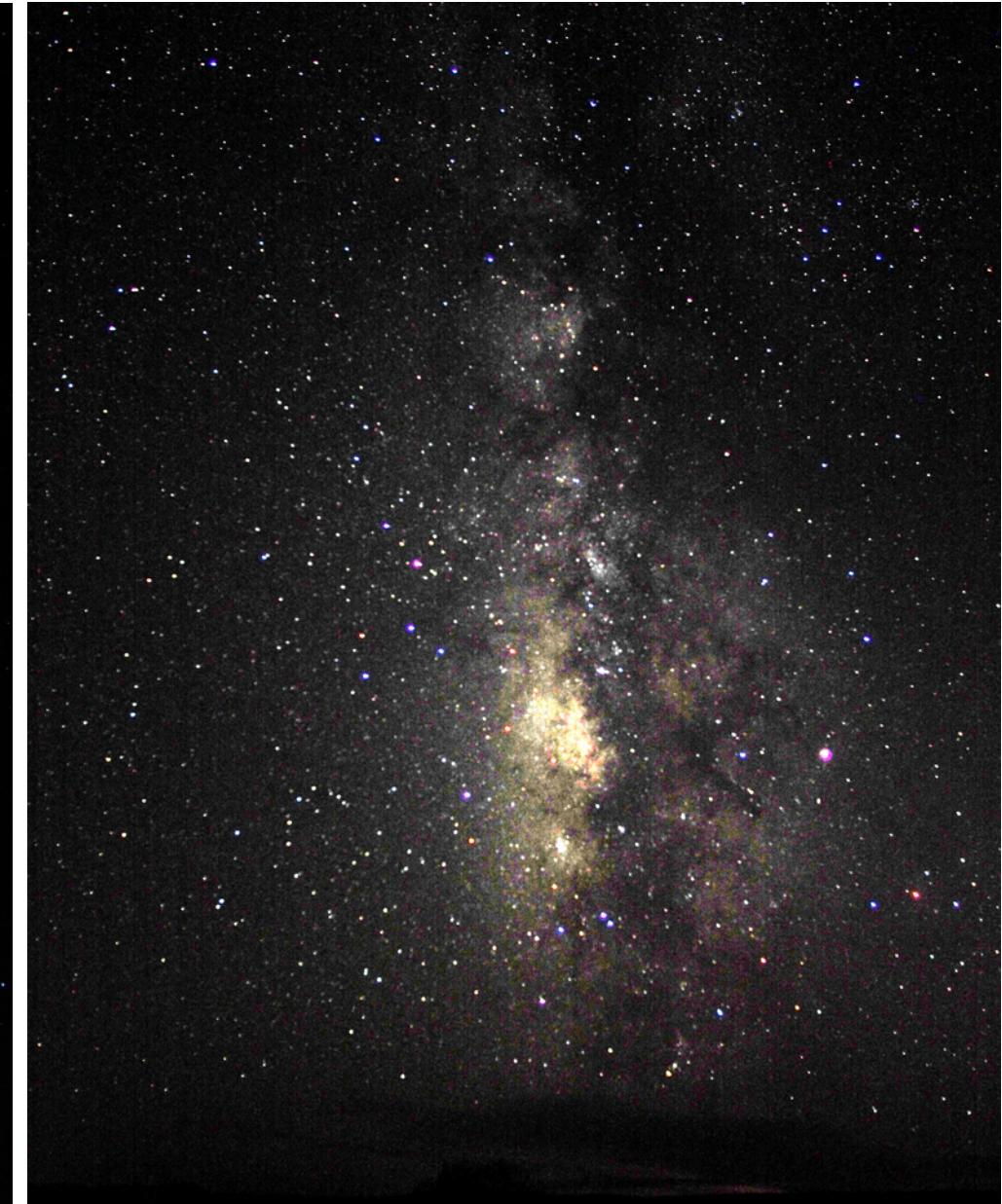
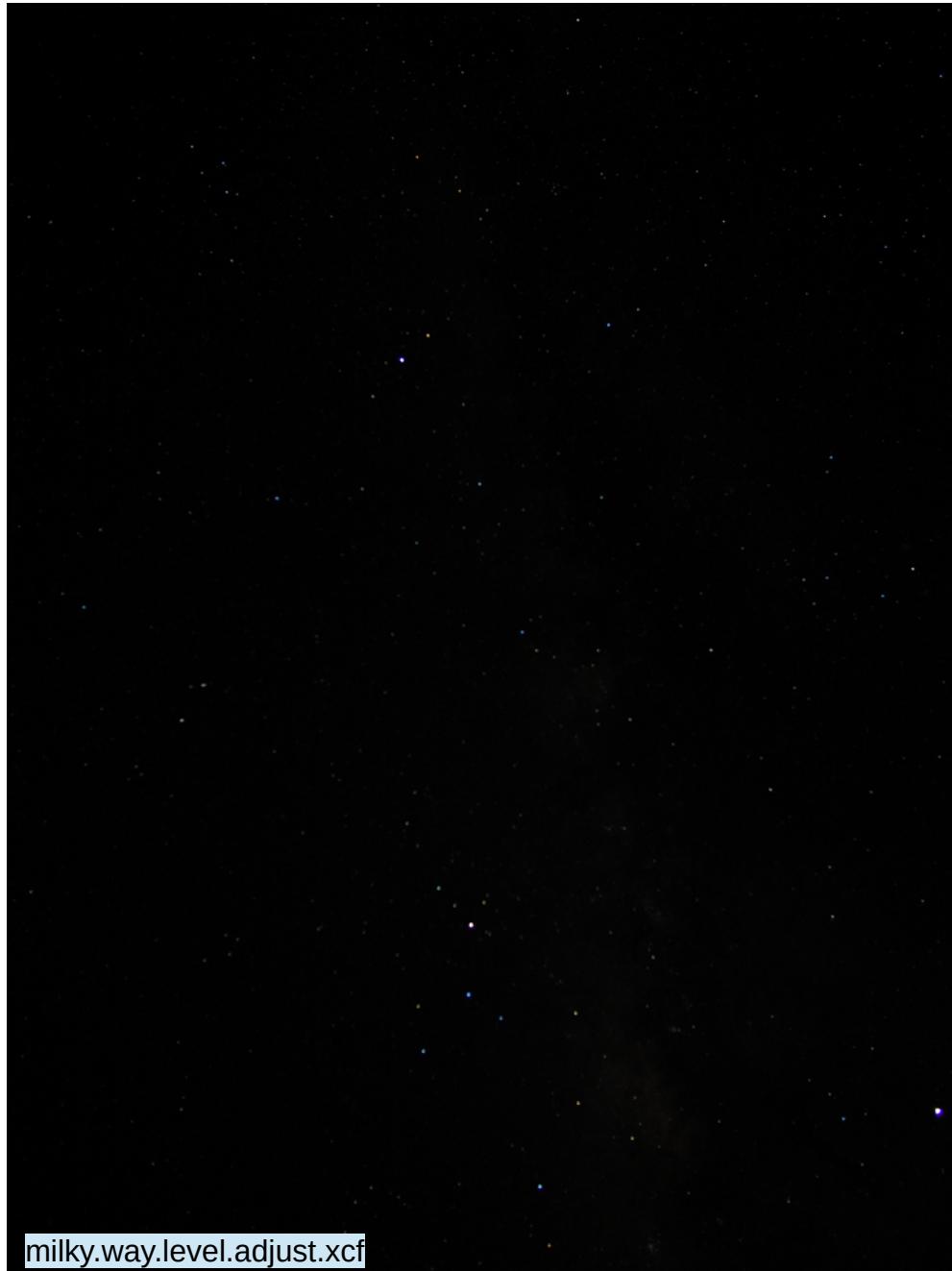


Got:

(White specs are stars)



Before & After Level Adjustment

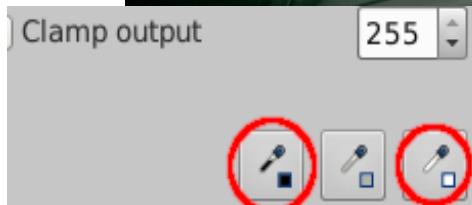


Limitations of Level Adjustments

- Won't compensate for:
 - Excessive under exposure
 - Over exposure ("blown-out" areas of images)
- Common issue in landscape photography
- HINTS:
 - Avoid harsh shadows, extremes of light intensity
 - Shoot w/o direct sunlight – mornings / evenings
- Modern digital cameras – HDR
 - Extend latitude with High Dynamic Range – In Camera!
- Post processing of images
 - Photo stacking multiple exposure shots, but not easily in The GIMP
 - Start post processing with RAW images, switch to GIMP

Clone Tool

- Backup original – dup layer, blank it – focus visible layer (blue highlight)
- Levels (ctrl-l)
- Pick white and black points
 - Small picker size
 - Adjust mid-tones to ~ -1.55
- Correct slight blue cast
- Value drop-down
- Adjust Output Level to ~248
- Continue: remove wires and pole



Clone Tool

- Adjust view: Zoom-in shift +
- Activate clone tool  (icon is like an old rubber stamp)
- Adjust properties
 - Brush hardness: 2
 - feathers edges
 - Brush size – slider: ~32 (or use custom +/- wheel)
- Select area to clone: ctrl-click just below wire
- Left-click to drop cloned area
- Position cursor further along wire, left-click

Clone Tool – Remove Pole (*cont.*)

- Enlarge *selection area* to ~50 (shift-ctrl +/- wheel)
- Left-click near top of pole
 - Don't catch pole in edge of selection area
- Center cursor directly to side of clone area, centered on pole
- Left-click
- Move cursor to bottom / center of pole
- left-click
- pole disappears
- Note also randomness of leaves / soft brush fills-in the pole area
- Illustrate with layers on / off

Script-Fu Sky Replacement

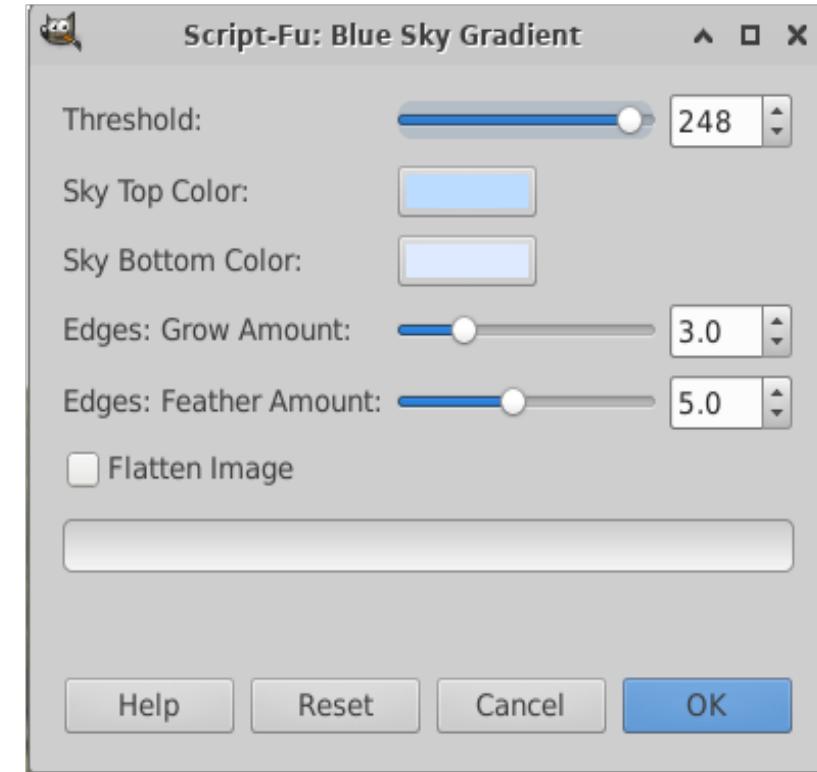
Filters Script-Fu Windows Help

Darla

Blue Sky & Clouds

Blue Sky Gradient

- Script-FU > Darla > Blue Sky Gradient
- OK, nice blue sky, BUT
 - Whiter areas now blue, e.g., spot on cow's hide, car, etc.
- Backing up:
 - Undo: ctrl-z, or, delete top layer
- Select sky: lasso tool, feather ~10
 - Include sky showing thru trees; close selection: click 2x
- Repeat script
 - Merge layers; Crop; Save-as / Export-as
- Obtain / Install info – Darla's script: Appendix 7



Putting It All Together

- Creating selections
- Modify selections
 - Tools
 - Tool options
- Work with Layers
- Create a vignette
 - (from screen shot of a virtual NoVaLUG meeting)



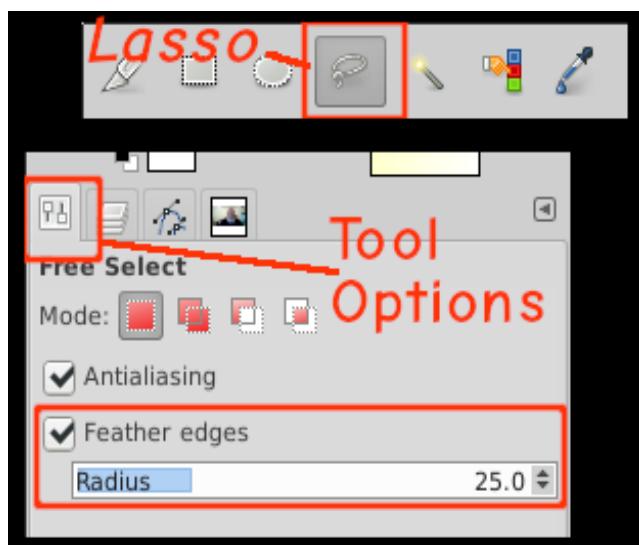
Selection / Modifying



Open image to be edited (a screen shot)

Improving the "look" - transplant some hair

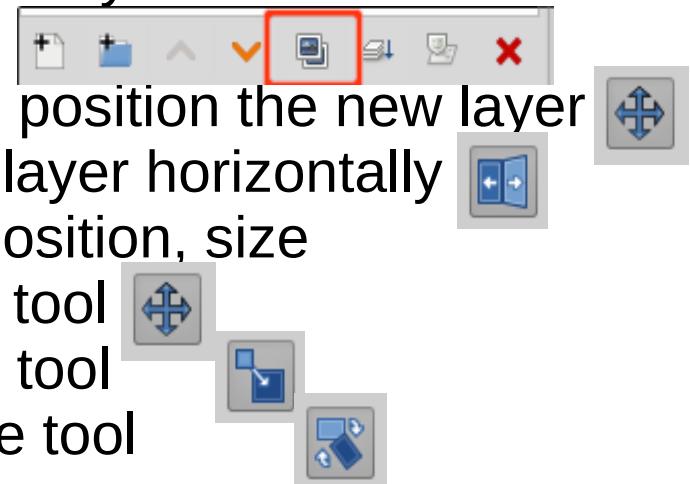
- Free / lasso
- Tool Option > Feather edges (25)



- Select some beard w/ lasso
- ctrl-c copies selection
- ctrl-v pastes

Notice: a new layer appears

- right-click on layer > To New Layer
- Activate Flip tool - click it
ctrl-click inverts selection
- Activate move tool - click it
drag selection to reposition
- Duplicate layer

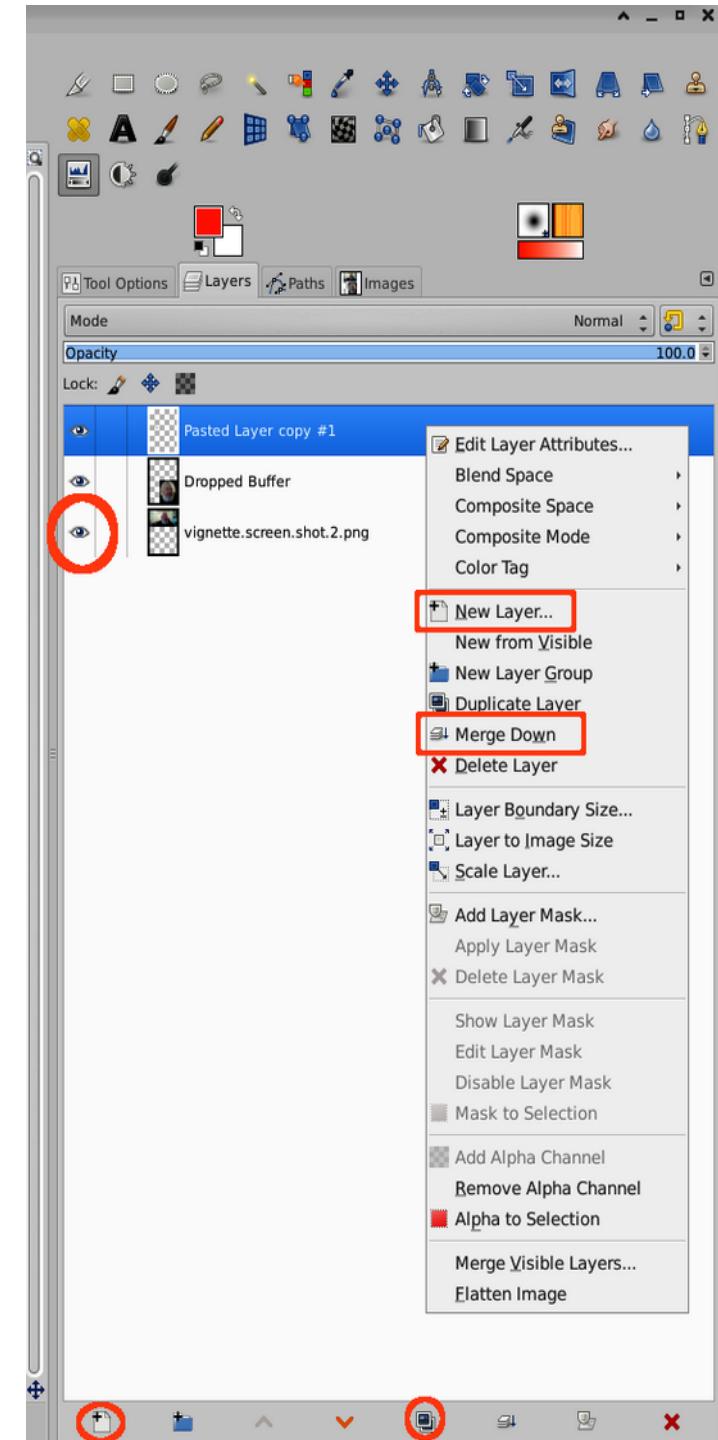


- Move to position the new layer
- Flip the layer horizontally
- Adjust position, size

Move tool
Scale tool
Rotate tool

Consolidate the Image

- Select the Layers Tab
- *Highlight* the layer to merge down
- *Right-click-hold* on the layer
 - Action list appears
- Mouse down to Merge Down
- Release to activate Merge
- Other actions available, e.g.,
 - New Layer from visible
 - Layer Visibility toggle w/ eye icon



Summary

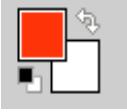
Flip / Move tools

- Paste selection to new image
- Other tools can be applied to *active* selections
- Make a mirror image of selection
 - Duplicate selection: Edit > Paste (ctrl-v)
 - Flip selection (flip tool) 
 - Position (move tool) 
- Can also Resize (scale tool) 

Creating A Vignette

- Ellipse Tool 

 - Tool options > Feather > 100

- Create elliptical selection
- Invert selection
 - Select > Invert
 - Notice dancing ants
- Color Tool: select black 
- Fill w/ foreground color
 - Edit > Fill w/ FG color (or ctrl-,)
 - Unselect: ctrl-shift-a
- Finish: crop, save, print, frame



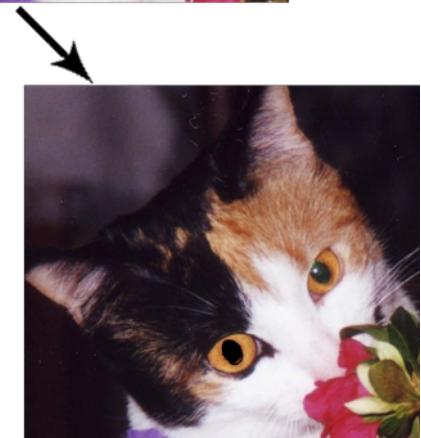
More About Layers

- Layers enable many tricks
 - e.g., re-use of image
- Previously added layers retained in .xcf files
- Create different versions of image
 - Selectively hide / reveal layers
 - Save each as, e.g., .jpg files for later use
- Illustration – map labeling to illustrate trip progression

Reuse “Master” Image



Red Eye Removal



- Zoom-in (shift-+) to area of interest
- Select pupil w/ Ellipse tool (no feather)
- Filter > Enhance Red Eye Removal
 - Adjust Threshold
 - Click OK to commit (accept defaults)
 - Unselect: ctrl-shift-a
- Enhancement – Add sparkle, like left eye

Enhancement (cont.)

- Zoom-in / sliders – center eyes in view
- Select highlight from left eye
 - Ellipse tool, feather 5 (no sharp edges)
- Copy / Paste selection: ctrl-c, ctrl-v
- Layers: notice floating selection
- Position over right eye: move tool
- Merge down: ctrl-m
- Zoom to original size: ctrl-0 (ctrl-zero)
- Done: Save

Free Select / “Lasso” Tool



- Free select tool
- “lasso tool”
- polygonal segments or irregular shapes
- Select modes
 - Freehand
 - Polygonal segments
 - Point-to-point
- Complete selection by “closing” selection
 - Or, do final click on first selection handle

Demo – Free select (and copy)

- Freehand: just drag cursor around area to select
- Polygonal: do a series of shift-clicks
- Irregular: do a series of clicks
 - Allows finer control of selection area
- Edit > copy or ctrl-c to copy selection while it's active

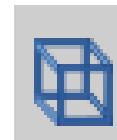
Perspective – Before Changes



Improved
Perspective



Perspective Tool



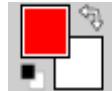
- Useful to correct distorted perspective, especially in images with obvious right-angles
- Helpers
 - Expand window (grab a corner and drag)
 - Grid lines: View > Show Grid (my custom: ctrl-g)
- Adjust perspective: drag corner handles
 - Perspective parameter box appears
- Commit: click on Transform button
- Some of image is lost – null / checkerboard areas
 - Hint: loosely framed image when shooting to allow room for adjustments
 - Crop to finish
 - Adjust Levels to “brighten” 0 / 1.15 / 225
 - File > save-as (xcf to retain edits) or File > export as other format.

Geometric Shapes

GIMP is not a “drawing” program

- GIMP: raster graphics vs. vector graphics (Inkscape)
 - Ref: [vector vs. raster graphics editors](#)
- Construct geometric figures using built-in tools
- Example: area of interest – Abu Simbel
- Activate Ellipse tool 

 - Drag cursor, encircle area of interest, change shape
 - Shift-drag to create circle

- Make it red – Color selector, chose red 
- Edit > Stroke selection
 - Line width: 4
 - Click Stroke to commit
- Oops: too thin – ctrl-z
 - Edit > Stroke selection > Line width 6 > Stroke
 - ctrl-shift-a to deselect; save for posterity
- Option: Enlarge area of interest: Zoom-in (Shift +); avoid pixelation; crop to area of interest; save-as or export-as.



Other Shapes

- Create a Green Square
 - New image
 - ctrl-n
 - Ok
- Rectangle select, option Expand from Center
- Color: green – by name in HTML box; Enter; OK
- Edit > Stroke Selection > Line width: 5; Okay
- Unselect: ctrl-shift-a
- Use on another image: ctrl-a; change focus to other image; ctrl-v
- Ovals: Stroke Ellipse selection
- Concentric circles – brute force: do concentric circle selections and fill thin gap with a color
- Imaginative use of selectors to make interesting shapes
- Graphic pens work well with GIMP

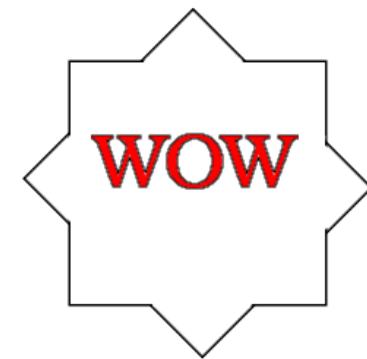


Green
Square



Shape Creation with Selectors

6-Point Star / Highlighted Text

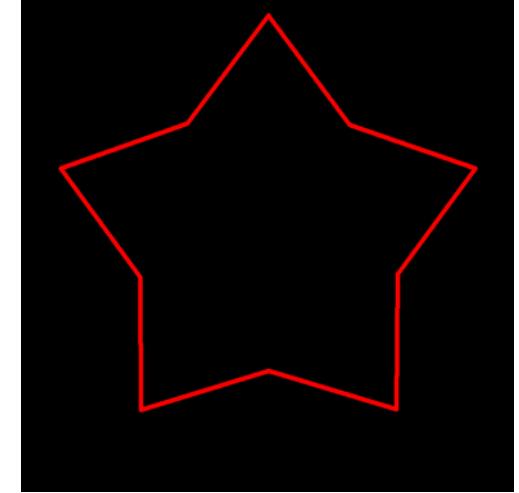


Create star in steps using rectangular selector and Edit > Stroke – steps illustrated with layers

- Trim insides
- Text-tool to create WOW (black) in new layer
- Select-by-color black text
- Change color to red
- Stroke selection – Edit > Stroke
 - Line width: 1 > Stroke
- Finish: ctrl-shift-a; save (preserves .xcf); export as; ctrl-q (quit)

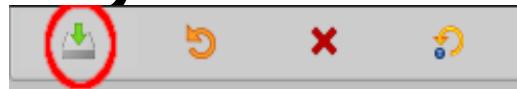
Five Point Star

- Created with a combination of lines radiating from a point at successively increasing 36° angles
- Draw point-to-point lines from vertices delineated by intersection of lines with circles
- Will briefly illustrate but details are left as an exercise for the “student”



Water Mark

- Create new layer



- Text Tool

- Click image where text is desired
 - Blank image layer

- Choose font attributes

- Size: ~ 70 Color: Blue



- Click font attributes

- Bold, Italic, Underline

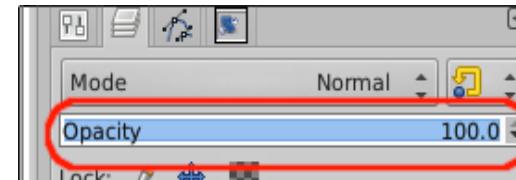
- Tab to enter text box



Water Mark (cont.)

- Adjust text box position – drag corners and edges

- Adjust Opacity: ~ 60



- Change angle – Rotate Tool – shift-drag rotates in 15° increments
- Position with Move Tool
- Save-as; export-as; ctrl-q



Color to Black & White

- B&W sometimes better than in color
- Compensate for severely distorted color balance
- Fix by changing to B&W
- Example: old photo color distorted due to age

Example – Before and After



Convert with

Image > Mode > Grayscale

Adjust color Levels

Fuzziness: camera limitations



cousins.original.jpg

The End - Acknowledgments



Appendix 1. jAlbum

Create / Organize Albums



- Powerful, feature laden
- Final organize re-arrange photos
- Annotate with comments visible to viewer on web
- Numerous [skins](#)
- Favorite skin: Tiger, ZigZag, Atom (simple, quick)
- Responsive design – view on tablets, smart phones
- Geo-location: location of photo on Google Maps
- Handles videos
- Some editing capabilities built-in

App. 1. jAlbum (Cont.)

- Active user forums w/ answers
- Server side software not required
- One month free trial 2 GB on-line storage at jAlbum.net
- Free to use / license to get rid of ads (see [FAQ](#))
 - jAlbum.net
- Fast / smart upload tool
 - Doesn't re-load existing images

App. 1. jAlbum (Cont.)

- 40% discount code
 - **novalug21**
 - Valid until 2021.08.10
 - A “rare” discount, courtesy of David Elkholm, jAlbum developer

App. 1. jAlbum (Cont.)

- Use jAlbum for album creation and cull / sort / order in jAlbum.
- Can jump directly to GIMP when set as external editor
- Images commonly download from camera arranged by date, usually OK. One can also move images into folders with appropriate names using tools for viewing folders – such as Konqueror or Nemo. Then jump to jAlbum.
- Jalbum has options to tag photos, including a “star” rating, helpful when culling.
- What method is chosen for various tasks, don’t jump around – interface confusion ensues
- Be sure to make a backup copy of originals as a first step.

Appendix 2.

Album Uploads – Filezilla

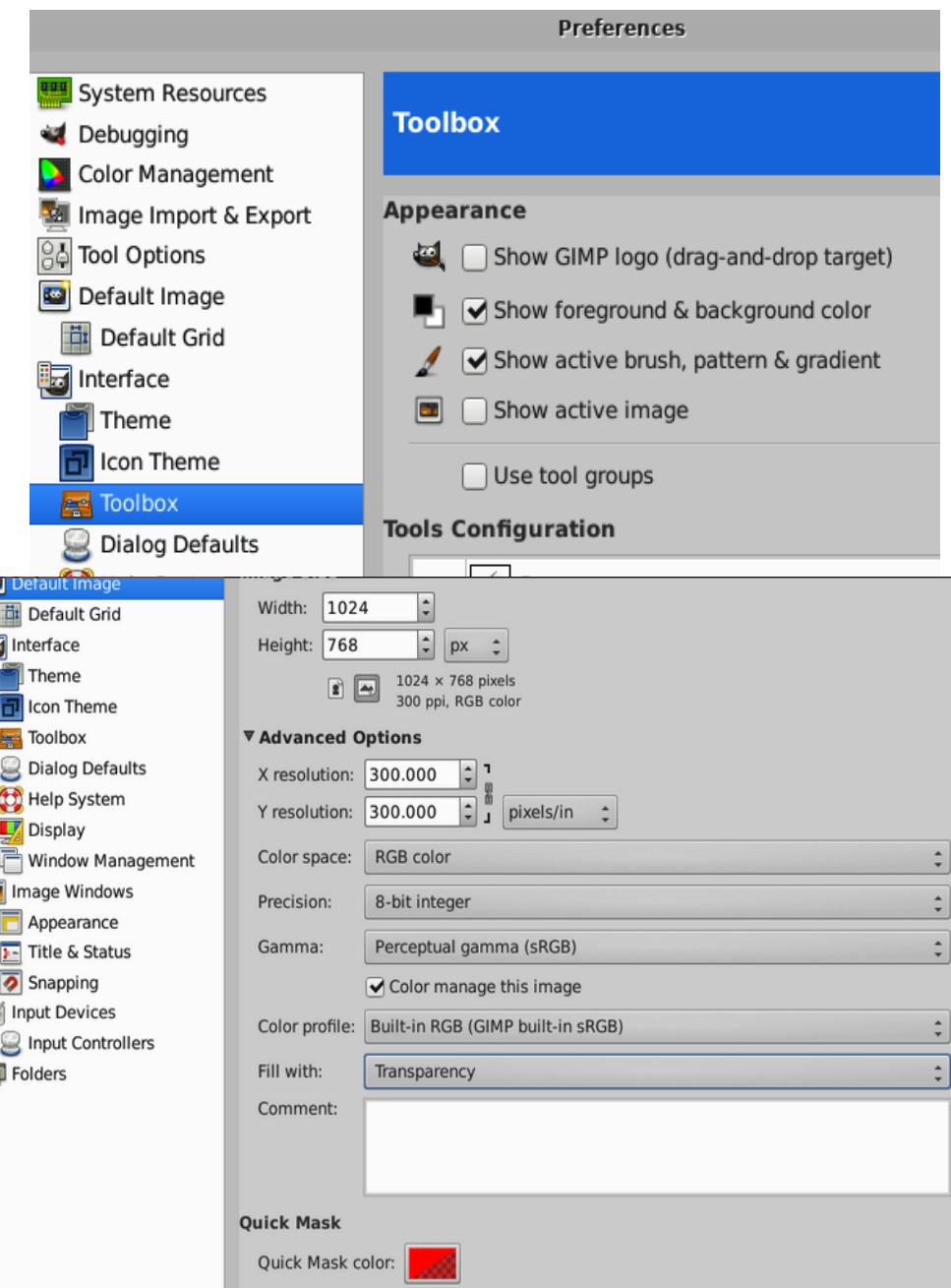


- Fast – multiple upload “threads”
- Nice GUI
- Site manager – set i.p., etc., forget
- Secure connections –
 - SFTP
 - Public / private key
- Selectively upload only new files
- If uploading jAlbum – all files in
 - /MyAlbums/<album name>/album

Appendix 3

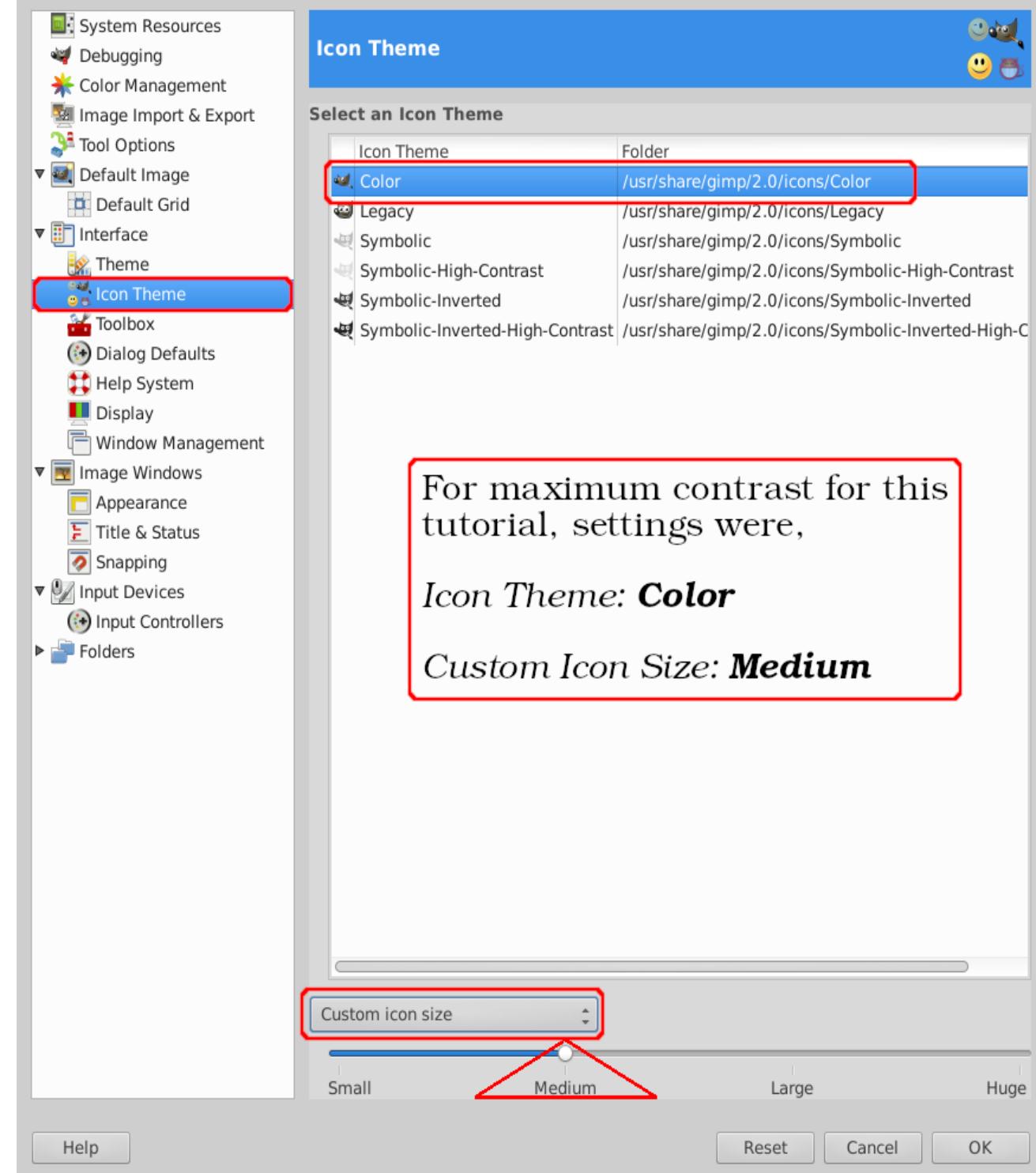
Example Preferences

- Toolbox
 - Tools to display
 - Arrange tools
- Default new image
 - Size, Resolution
 - Color space profile
 - My preferred fill: transparent
- Policy, File open
 - Default for web work
 - Convert to sRGB



App. 3 – Prefs (cont.)

- Maximize contrast:
 - In addition to setting the *Interface Theme* to “System”
 - Also adjust *Icon Theme*



Example Preferences (cont.)

The screenshot shows the 'Additional Input Controllers' preferences window. On the left, a sidebar lists various preference categories: System Resources, Debugging, Color Management, Image Import & Export, Tool Options, Default Image (selected), Default Grid, Interface (selected), Theme, Icon Theme, Toolbox, Dialog Defaults, Help System, Display, Window Management, Image Windows, Appearance, Title & Status, Snapping, Input Devices (selected), Input Controllers (highlighted in blue), and Folders. The main window title is 'Additional Input Controllers'. It has two sections: 'Available Controllers' (Linux Input, MIDI, Mouse Buttons, Mouse Wheel, Keyboard) and 'Active Controllers' (Main Mouse Wheel, Main Keyboard). A large red text overlay on the right reads 'Even the mouse wheel can be configured.' followed by '(Beyond the scope of this presentation!)'. The number '2' is in the bottom right corner.

System Resources
Debugging
Color Management
Image Import & Export
Tool Options
Default Image
Default Grid
Interface
Theme
Icon Theme
Toolbox
Dialog Defaults
Help System
Display
Window Management
Image Windows
Appearance
Title & Status
Snapping
Input Devices
Input Controllers
Folders

Additional Input Controllers

Available Controllers

- Linux Input
- MIDI
- Mouse Buttons
- Mouse Wheel
- Keyboard

Active Controllers

- Main Mouse Wheel
- Main Keyboard

Even the mouse wheel can be configured.
(Beyond the scope of this presentation!)

2

Appendix 4. Shortcuts (default)



gimp 2.6 Keybindings

Tools		Editing		Navigation
Select Rectangle		R	Undo	^Z
Select Ellipse		E	Redo	^Y
Select Free		F	Strong Undo	^Shift+Z
Select Fuzzy		U	Strong Redo	^Shift+Y
Select by Color		10	Cut Selection	^X
Intelligent Scissors		I	Copy Selection	^C
Paths		B	Copy Visible	^Shift+C
Color Picker		O	Paste Clipboard	^V
Move		M	Paste as New Image	^Shift+V
Crop and Resize		1C	Clear Selection	Del
Rotate		1R	Fill with FG Color	^,
Scale		1T	Fill with BG Color	^.
Shear		1S	Fill with Pattern	^:
Perspective		1P	Selection	
				Show Guides ^Shift+T

Appendix 5. Color Chart Refs

- Color charts / color hex codes
- [Html color chart](#)
 - Chart
 - Color picker
 - Color code theory
 - Examples – next slide
- [Color Picker](#)
- Color wheel
 - Hex codes for color
 - Several color tools

Examples:

#FF0000 - With this HTML code we tell browser to show maximum of red and no green and no blue. The result is of course pure red color: 

#00FF00 - This HTML code shows just green and no red and blue. The result is: 

#0000FF - This HTML code shows just blue and no red and green. The result is: 

#FFFF00 - Combination of red and green color gives us yellow: 

#CCCEEFF - Take some red a bit more of green and maximum of blue to get color of sky: 

App. 6 Understanding Histograms

- Camera Histograms reveal underlying *data* about exposure of a photograph. Understanding of them can extrapolated to editing (Color > Levels)
- Over exposure: histogram touches the right edge of the graph for some areas of image.
- Under exposure: histogram touches the left edge of the graph for some areas of image.
- Photos are composed of pixels. The camera picks up the *tone* of each of those pixels, regardless of color. Tone / luminosity – bright? Dark?
- In a camera, software changes pixels to white, black or different shades of gray, depending on the brightness or darkness of a tone. Normally up to 256 light values – levels – are used to generate the histogram.
 - Lastly, the camera's software algorithm counts the number of pixels of each tonality and builds a bar chart – the histogram.

App. 6 Understanding Histograms (cont.)

- A camera's histogram shows all the light values it has capture. It shows the tones that fit within the *dynamic range* of the camera are distributed.
- Between the tone located at the left and right ends of a histogram there are a certain number of stops, which correspond to the dynamic range of a camera.
- The aim is to avoid blown out highlights and clipped shadows. Likewise, a GIMP histogram reveals the areas that are over exposed and under exposed.
- Adjusting Color Levels in GIMP can bring out data in underexposed areas. Parts of an image that are “blown out” are lost.
- A GOOD histogram shows peaks towards the center of the graph from left to right. The majority of the pixels in the image are mid-tones; fewer pixels makeup the shadows and highlights. It's a great histogram.
- Ref: photopills.com – Milkway Guide

App. 7. Darla's Sky Replacement Scripts

- Instructions / obtain Darla's sky scripts
 - [Blue Sky Gradient](#)
 - [Blue Sky Clouds](#)
- Installation, clouds script
- Downloaded script from [github](#)
- Copied text of scrip, while displayed in browser
- Saved as sky.clouds.scm to /home/roger/.cconfig/GIMP/2.10/scripts/
- More tips on installing GIMP plugins
 - [plugins on-line-tech](#)

App. 8 PC Used for this Project

Parts List

CPU: AMD Ryzen 7 3700X Matisse 3.6GHz 8-Core AM4 Boxed Processor with Wraith Prism Cooler

MOTHER BOARD: ASRock B550M Steel Legend AMD AM4 mATX Motherboard

STORAGE:

Primary (Operating Systems) – Samsung 970 EVO+ 250GB SSD V-NAND M.2 2280 PCIe NVMe 3.0 x4 Internal Solid State Drive (SSD)

Secondary: (/home, /swap) – Crucial P2 500GB Micro 3D NAND PCIe Gen 3 x4 NVMe M.2 internal SSD

Backup: HGST Travelstar (Hitachi) – for backup. 1 TB 2.5" HD, 6 Gb/s SATA, 7,200 rpm.

RAM: Crucial Ballistix Gaming 16GB (2 x 8GB) DDR4-3600 PC4-28800 CL16 Dual Channel Desktop Memory Kit BL2K8G36C16U4W

VIDEO: PowerColor Radeon RX 570 Red Dragon AXRX Dual-Fan 4GB GDDR5 PCIe 3.0 Graphics Card

ADDITIONAL COOLING: Corsair ML120 Pro White LED Magnetic Levitation 120mm Case Fan

PSU: PowerSpec 750 Watt 80 Plus Bronze ATX Semi-Modular Power Supply

ETHERNET ADAPTER: TP-LINK Gigabit PCI Express Network Adapter, TG-3468

CASE: SilverStone Grandia GD09B ATX Mini-Tower Computer Case

Lessons Learned

1. Do thorough research on compatibility – the ASRock MB does not support Linux for Ethernet, leading to head scratching and delay.. It took a bit of research, after assembly, to determine this. An Ethernet adapter card solved the problem — it was easier to buy and install the adapter than to rip the whole assembly apart and replace the MB.

2. Get a larger case – more room is needed to work inside. Making connections was quite hard, both for power and SATA cables to drives and for headers (USB, on/off, etc.), and, to accommodate the large CPU cooler.

3. Spend a few extra bucks on the PSU!

Building the PC

Appendix 9.

My Equipment

- Olympus micro four-thirds
 - Light weight
 - Compact
 - Shirt pocket size (almost)
 - Highly recommended for travel photography
- Tripod; Monopod; Filters: star; circular polarized; spare batteries, charger

(Appendix continued – next slides)



App. 9 (cont.)

OM-D E-M10
Mark III, 16 Mega
Pixel

Newer, Mark IV:
20 Mega Pixel



App. 9 (cont.)

Lenses: Multiply focal length 2x to get approximate 35mm camera equivalents. The pancake lens (zoom) focal length is 14 – 42mm, ~equivalent to 28 – 50mm focal length for a 35mm camera.

The 40 – 150 zoom lens is ~equivalent to 80 – 300mm.

These are lower priced lenses. “Prime” lenses are higher quality.



Olympus OM-D E-M10 Mark III
Mirrorless Micro Four Thirds
16 Megapixel



M.Zuiko Digital Lens
ED 14-42mm f/3.5-5.6



M.Zuiko Digital Lens
40-150mm f4.0-5.6 R



Samyang Ultra Wide Angle
Lens. 12mm f2.0
SY12M-MFT-SIL for Olympus/Panasonic
Micro 4/3 Cameras