Color Management, Open Source, and Inkscape
Primary goal

- Simple (but not necessarily easy)
- Match output from different devices

Perception

- Only for certain professionals
- Only esoteric experts care
- Many who could benefit are missing out
Color Management Basics

- Quick test
  - Same camera
  - Same tripod

- Problems
  - Lighting different
  - Hue shifted in print
  - Hue shifted in grab
Color Management Basics

- People need it but don't realize they do
  - Businessmen
  - Home users
  - Any company selling product over the 'net

- Current state
  - Main OS vendors have long running solutions
  - Linux has been seriously lagging
  - Even how things relate to X11 complicates matters
Good news
- Quality devices more affordable and common
- End user expectations increasing
- Collaboration across many Open Source projects

Developer momentum
- Picking up significantly around the time of LGM
- More projects adding at least some Color Management
ICC Profiles

- Main focus of current Open Source CMS
- Different types needed
  - Monitor/display
  - Scanner
  - Printer
  - Target
- Knowing ICC profiles are pivotal is the key
Tools

- Common tools for creating, applying and maintaining ICC profiles
  - Argyll Color Management System
    - http://www.argyllcms.com/
  - Oyranos
    - http://www.oyranos.org/
  - LPROF
    - http://lprof.sourceforge.net/
  - XICC
    - http://burtonini.com/blog/computers/xicc
Multi-monitor

- Very tricky
- Different supporting technologies
  - Vendor specific
  - Xinerama
  - XrandR
- Multiple steps
  - Profile
  - Adjust
  - Fetch
Scribus

- Professional PDF/print workflow
- Some drawbacks for SVG
  - Needs to support more SVG features
- Good news
  - Support planned for v 1.3.6
- Info
  - http://docs.scribus.net/index.php?page=cms
  - http://www.gimp.org/release-notes/gimp-2.4-cm.html
GIMP 2.4

- Recent introduction
  - Fall 2007
    - http://www.gimp.org/release-notes/gimp-2.4-cm.html

- Full base features
  - Sets RGB and CMKY working profiles
  - Display profile
  - Soft-proofing profile

- Mixing image colorspace is tricky
Feature Overview

- Implicit working colorspace defined as sRGB
- `<color-profile>` for linking profiles since 0.44
- Features new for 0.46
  - Display Adjustment
  - Soft-proofing
  - CMS-based color selection
Inkscape 0.46

Display Adjustment

- Correcting output data/path to emit proper color
- SVG Data starts as sRGB so only a single profile is needed

Alternative ways to set profile

- Explicitly from those found in expected locations
- Automatically from the display (XICC on X11)
- Automatic not yet supported on Windows
- **Soft-proofing**
  - Used to simulate final target result
    - Target print profile should factor in paper and inks used
    - Target non-print profile may account for other factors
    - A user can switch proofing to different profiles to check the same artwork on different outputs
  - **Out of gamut warning**
    - Marks colors that will be illegal for the final output
    - Warning color is user configurable
- CMS-based color selection
  - Displays a slider per color component
  - Unlike prior HSL and CMYK pickers, values are real
  - Handles main colorspaces (RGB, CMYK, CMY, YCC, Lab, etc)
  - Allows for multiple ICC profiles in a single SVG file
  - Work is preliminary and in need of refinement
Inkscape for Web Graphics

- Most end users do not have corrected displays
  - PC vs. Mac too light/too dark problem
- sRGB is the “close enough” web colorspace
- “Web” workflow
  - Work targeting sRGB
  - Preview with “Mac” profile(s)
  - Preview with “PC” profile(s)
  - Preview with mobile profiles
Most in need of color managed workflow

Desired colors marked with an ICC profile

- A CMYK profile (there is no single CMYK)
- Corrective RGB profile
- Profile listing spot colors (but not named colors)

Multiple color profiles can live in a single SVG

Proofing profile very useful
Inkscape for Mobile Devices

- Good but possibly overlooked use for CMS
- No explicit SVG file profile needed (sRGB)
- Multiple proofing profiles
  - LCD and display differences including bit-depth
  - Backlight on/off
  - Sunlight/artificial light/darkness
  - Viewing angle
  - etc.
Cross Application Integration

- Status
  - As many applications as possible should be managed
  - Many more now support CMS than in 2005
  - OpenICC is helping

- What next?
  - Developers add support to more applications
  - Users ask for support in more applications