

# Colour Managed Print Paths

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# Colour Managed Print Paths

## Intro

- Why colour management for printing?
  - Media/Driver/Settings are relevant to Colour
  - Input gamut does not fit printer gamut
  - Vendor requirements != customer requirements
  - ICC colour correction is very powerful

# Colour Managed Print Paths

## Intro

- ICC ISO standard predominant for printing
- PDF primary print spool format for Linux and OS X
- Driver Vendor provided ICC profiles solved
- User ICC profile selection debatable

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## PPD Expressions

- cupsICCProfile
  - three qualifiers „ColorModel,MediaType,Resoultion"
    - adaptable
    - drivers offer more than three colour related options
    - three qualifiers are broken for important drivers
  - natively support by CUPS for PPD
- ColorKeyword
  - adds more qualifiers
  - don't integrate with cupsICCProfile qualifiers
  - PPD only

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## Solutions

- Single Profile per Print Queue
  - lock down of colour related options
  - detect colour options during installation from
    - ColorKeyword
    - ICC meta tag
  - needs PPD modification support in setup tools
  - breaks paradigm of PPD as vendor only thing
  - needs Administrator rights
  - native cupsICCProfile
  - works remote flawless

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## Solutions

- colord hook inside CUPS server
  - Session based CMS
    - works locally
    - applies client/user side device settings
    - Job independent
    - Print Queue independent
  - Sidesteps CUPS server with per user settings
    - needs to manage lots of client/server complications
  - difficult to debug for users
  - supposed to override PPD cupsICCProfile

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## Solutions

- ICC profile inside PDF OutputIntent
  - Print ICC Profile embedded in spool PDF/A,E,X
    - Colour Management completely defined
  - User print chain support needed
    - inside print dialog
  - local CMS can lookup profile search
  - works remote flawless
  - GSoC project 2012 @ OpenICC
    - Colour Management for Krita Printing
    - successor of 2011 XCPD (now libCmpx)

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## Solutions Comparison

Property	Single Profile Per Print Queue	colord hook inside CUPS server	ICC Profile inside PDF OutputIntent
Standard	cupslCCProfile	none	PDF/A,E,X
Location	only remote	only local	local and remote
Profile selection	Per queue	If user session and document originator coincide - fine; otherwise undefined	Document defined
Multi user sessions	No interference	Interference likely	No Interference
Time dependent	no	yes, actual session	no
Availability	manual setup possible, GUI support planed	Integrated inside CUPS	GUI support worked on in libCmpx

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Status

- Vendor side ICC profile selection solved
  - Affects most users needs
- User side ICC profile selection still work in progress
  - Conceptual and architectural design flaws
  - Work needs to be done, to get it right
  - Most desired by passionate users

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Thanks

