Printer Applications

Joint PWG / Open Printing Summit - May 2022
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Open Printing

making printing just work

Before We Begin...

- PWG Antitrust Policy:
  - https://www.pwg.org/chair/membership_docs/pwg-antitrust-policy.pdf
  - The IEEE-ISTO Printer Working Group ("PWG") will not become involved in the business decisions of its Members. The PWG strictly complies with applicable antitrust laws. Every PWG meeting attendee shall comply with this policy. The PWG Officers and PWG Workgroup Officers are responsible to ensure that this policy is adhered to in all PWG activities.
- PWG Intellectual Property Policy:
  - https://www.pwg.org/chair/membership_docs/pwg-ip-policy.pdf
  - TL;DR: Anything you say in a PWG meeting or email to a PWG address can be used in a PWG standard
  - (but please do read the IP policy above if you haven't done so)

Topics

- Printer Applications Are...
- PAPPL: Printer Application Framework
- HP Printer Application (hp-printer-app)
- LPrint

Printer Applications Are...

- A replacement for CUPS printer drivers
  - Options are replaced by IPP attributes
  - Driver-specific UI is provided by the Printer Application
- An implementation of an IPP Everywhere™ Printer
  - Basic IPP Everywhere support only requires PWG Raster, plus JPEG for color printers
  - CUPS library and sample code provide an easy-to-use framework for implementations
- Compatible with CUPS 1.4 and later
  - Can be compatible with iOS® 5 and later with a few small additions (DNS-SD subtype and "image/urf" document format)
  - macOS 10.8® and later support IPP Everywhere™ via the command-line, can be used from the GUI with the same changes needed for iOS support

PAPPL: Printer Application Framework

- Web site w/documentation and Github repository:
  - https://www.msweet.org/pappl
  - https://github.com/michaelrsweet/pappl
- A simple CUPS-based C framework/library for developing Printer Applications
- Supports JPEG, PNG, PWG Raster, Apple Raster, and "raw" printing
- Licensed under the Apache License Version 2.0 with an exception to allow linking against GPL2/LGPL2 software

PAPPL: Platform Support

- Runs on desktops, servers, and in embedded environments
    - *BSD, Linux, macOS®, QNX®, Windows® 10+
    - Used in shipping printers
- Works out-of-the-box with AirPrint™ (iOS®/macOS®), IPP Everywhere™ (ChromeOS, Linux), and Mopria® (Android™/Windows® 10+) clients

PAPPL: Key Contributors

- Michael Sweet (Lakeside Robotics): lead developer
- Jai Luthra (GSoC 2020): auto-setup, hp-printer-app, networking improvements, DNS-SD and SNMP discovery, papplMainloop API, snapcraft prototyping
- Sambhav Dusad (GSoC 2020): job persistence, live log viewer, test pages, web interface enhancements
- Didier Raboud (Debian Project): documentation and packaging

PAPPL: Recent Releases

- v1.1.0: December 15, 2021
  - Auto-add/driver lookup features
  - Better multiple printer support
  - USB printer gadget support (legacy printer class and IPP-USB)
  - Wi-FI configuration support
  - Windows® 10 and higher application support

PAPPL: Recent Releases

- v1.2.0: May 15, 2022
  - Full localization support
  - Mainloop API improvements
  - New SNMP supply/state query APIs
  - IPP notifications support
  - Bilinear interpolation support when printing images
  - OpenSSL/LibreSSL support
  - Enable/Disable-Printer support
  - Job persistence API with reprint web interface
  - Client limits API

PAPPL: v1.3 Feature Release

- Current "master" branch
- Hoping to release by the end of 2022
- https://github.com/michaelrsweet/pappl/milestone/6
    - IPP Proxy support
    - OAuth support

HP Printer Application (hp-printer-app)

- Web site and Github repository:
  - https://www.msweet.org/hp-printer-app
  - https://github.com/michaelrsweet/hp-printer-app
- Supports a variety of common PCL 3/5 printers connected via network or USB
- Originally just sample code, but people actually used it!
- v1.2.0 released on May 15, 2022:
  - macOS package for Apple Silicon and Intel
  - Snapcraft packages for ARM and Intel - "hp-printer-app"
  - Build from source

LPrint

- Web site and Github repository:
  - https://www.msweet.org/lprint
  - https://github.com/michaelrsweet/lprint
- Supports a variety of common label and receipt printers connected via network or USB
  - Currently all DYMO, EPL, and Zebra (ZPL) label printers, looking at adding others...
- Current release is v1.1.0, based on PAPPL
- Working towards a v1.2.0 release with bug fixes/improvements soon...

LPrint

Resources (1/2)

- PAPPL
  - https://www.msweet.org/pappl
  - https://github.com/michaelrsweet/pappl
- HP Printer Application (hp-printer-app)
  - https://www.msweet.org/hp-printer-app
  - https://github.com/michaelrsweet/hp-printer-app
- LPrint
  - https://www.msweet.org/lprint
  - https://github.com/michaelrsweet/lprint

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Resources (2/2)

- AirPrint™ information:
    - https://support.apple.com/en-us/HT201311
- IPP Everywhere™ v1.1 specifications:
    - https://ftp.pwg.org/pub/pwg/candidates/cs-ippeve11-20200515-5100.14.pdf
    - https://ftp.pwg.org/pub/pwg/candidates/cs-ippeveselfcert11-20200515-5100.20.pdf
- IPP Everywhere™ printer self-certification tools:
    - https://istopwg.github.io/ippeveselfcert
    - Mopria® information:
    - https://mopria.org