

Printer Applications

Joint PWG / Open Printing Summit - May 2024
Michael R Sweet (Lakeside Robotics)



Open Printing

making printing just work

Before We Begin...

- PWG Antitrust Policy:
 - https://www.pwg.org/chair/membership_docs/pwg-antitrust-policy.pdf
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- 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)
- *This meeting is being recorded*

Topics

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

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/michaelsweet/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®, VxWorks®, 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
- IPP-USB "gadget" support on Linux

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

- v1.4.0: September 28, 2023
 - "job-retain-until" support
 - PAPPL-Create-Printers IPP vendor extension operation
 - papplDeviceRemoveScheme/Types APIs
 - Suspend/resume of jobs at copy boundaries
 - Server configuration files
 - Printer state preservation
 - Wi-Fi support improvements
 - X.509 certificate generation improvements
 - Other bug fixes/improvements

PAPPL: Recent Releases

- v1.4.1: October 10, 2023
 - Fixed spelling mistakes in new API names
- v1.4.2: October 16, 2023
 - Fixed crash/deadlock bugs
 - Fixed loading of state information
- v1.4.3: November 15, 2023
 - Added "smi55357-device-uri" and "smi55357-driver" Printer Status attributes to Get-Printer-Attributes responses
 - Fixed more crash/deadlock bugs
 - Fixed default "copies" value for locally created jobs
 - Fixed "printer-id" value for new printers

PAPPL: Recent Releases

- v1.4.4: December 21, 2023
 - Fixed "xxx-defaults" bugs
 - Fixed '-n' option support
 - Fixed job file preservation logic
 - Fixed "printer-settable-attributes-supported" value
- v1.4.5: January 26, 2024
 - Fixed --disable-libpam configure option
 - Fixed support for "finishings", "output-bin", and "sides" options
 - Fixed IEEE-1284 device ID generation code
 - Fixed crash in retrofit printer application
 - Fixed some threading issues

PAPPL: Recent Releases

- v1.4.6: February 9, 2024
 - Fixed "printer-strings-languages-supported" value
 - Fixed saving of "xxx-default" values
 - Fixed incoming raw socket support
 - Fixed web interface support for "printer-darkness"
 - Fixed some issues discovered by OpenScanHub
 - Fixed localization of command-line (main loop) interface
- v1.4.7: Soon (May 2024)
 - PAM-based authentication did not work on Linux due to a glibc incompatibility
 - Fixed the web interface for setting the admin and print groups
 - Fixed some USB gadget error conditions
 - Fixed the Wi-Fi configuration web page

PAPPL: v2.0 Feature Release

- Current "master" branch
- Release schedule:
 - v2.0b1: May/June 2024
 - v2.0.0: July/August 2024
- Features:
 - <https://github.com/michaelsweet/pappl/milestone/8>
 - IPP Infrastructure Printing Extensions v1.1 support
 - IPP OAuth v1.0 support
 - IPP System Services v1.1 support
 - "job-password/-encryption" and "job-release-action" support
 - "job-sheets/-col" support
 - "proof-copies" support
 - "ipptransform" support (from libcups v3)

HP Printer Application (hp-printer-app)



- Web site and Github repository:
 - <https://www.msweet.org/hp-printer-app>
 - <https://github.com/michaelsweet/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!
- v1.3.0 released on February 9, 2024:
 - macOS package for Apple Silicon and Intel
 - Snapcraft packages for ARM and Intel - "hp-printer-app"
 - Build from source

LPrint - Label Printer Application



- Web site and Github repository:
 - <https://www.msweet.org/lprint>
 - <https://github.com/michaelsweet/lprint>
- Supports a variety of common label and receipt printers connected via network or USB
 - Currently all DYMO, EPL, SEIKO, and Zebra (ZPL) label printers
 - Experimental support for Brother QL- and PT-series and TSC (TSPL) label printers
- Current release is v1.3.1

Resources (1/2)

- PAPPPL
 - <https://www.msweet.org/pappl>
 - <https://github.com/michaelsweet/pappl>
- HP Printer Application (hp-printer-app)
 - <https://www.msweet.org/hp-printer-app>
 - <https://github.com/michaelsweet/hp-printer-app>
- LPrint - Label Printer Application
 - <https://www.msweet.org/lprint>
 - <https://github.com/michaelsweet/lprint>

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>