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Printer Applications: Retro-fitting classic drivers and scanner support

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- **PAPPL**-based library to **retro-fit classic CUPS drivers** (PPDs, filters, backends) into Printer Applications: `pappl-retrofit`
- Functionality to
    - Manage **collections of PPD files**
    - Convert between **PPD options** and **IPP attributes**, for `get-printer-attributes` IPP response and for printing
    - Wrap **CUPS filters and backends**, resembling all CUPS functionality incl. side and back channels
    - Convert **standard IPP data formats** (PDF, Apple Raster, PWG Raster) into **printer's format**

- **Improvements and fixes during the last 12 months**

  - **Human-readable strings** for vendor options

  - Print **photos in original size**

  - **String-type options fixed in PAPPL 1.2.3**, so no patch on PAPPL needed any more

  - Use **PAPPL's function for A4/Letter** default selection

  - Setup of **Legacy Printer Application** as system daemon via **systemd**

  - **Definition of API**, code clean-up

  - **1.0b2** Release

pappl-retrofit library

- We are **nearly feature-complete**, missing parts are due to features added to PAPPL lately (1.2.x):

  - Internationalization/Localization

  - Ink level check, like CUPS does via SNMP in backends

  These features will be added soon

- With **releases of pappl-retrofit and cups-filters** we can start **versioning the Printer Applications Snaps** and introduce a **release process** for them

  - This makes **integration in distros**, both classic and atomic/immutable, easier

Available Printer Applications

- **4 retro-fitting Printer Applications** to include all free software drivers which are included in Debian

  - **PostScript Printer Application**: ~4000 manufacturer PPDs, user can upload own PPDs

  - **HPLIP Printer Application**: Currently print-only, user can load proprietary plugin via web interface

  - **Gutenprint Printer Application**: Full functionality supported, even for PPDs with > 100 options

  - **Ghostscript Printer Application**: All the rest of the drivers: Built-in, Foomatic, filters, unmaintained, …

- **Legacy Printer Application** (not as Snap): Maps classically installed drivers into Printer Application

Scanner Applications

- **Scanning support in PAPPL** is WIP

- Rishabh Maheshwari (GSoC 2022) has created **eSCL parser**

- Akarshan Kapoor (GSoC 2023) is **completing the scanning support** with Rishabh as mentor

  - **Documented** Bhavna Kosta's (GSoC 2021) API work.

  - He **added missing scanning-related functions** to the API

  - Currently **integrating the eSCL parser**. Incoming requests need to be seperated: HTTP (web admin), IPP (print), eSCL (scan)

  - ESCL-parsed requests need to make **callback functions for actual scanner communication** called

Scanner Applications

- Once **PAPPL** supporting scanning, **pappl-retrofit** needs to support **SANE**

- Allows **retro-fitting classic scanner drivers** (SANE backends) into **Scanner Applications** (sane-backends → SANE Scanner Application, `sane-scanner-app`)

- Complete retro-fitting **HPLIP Printer Application** with **scanning support**

- **Motivate HPLIP developers** to develop **native HPLIP Printer Application**

Questions / Comments