

OpenPrinting

# GNOME/GTK Printing BoF

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# Printer Setup Tool: How it works currently



- **Printer setup tools**
  - CUPS web admin interface <http://localhost:631/>
  - CUPS command line tools: `lpadmin`, `lpinfo`, `lpstat`
  - `system-config-printer` – GUI
  - GNOME Control Center – Print module – GUI
  - `cups-browsed` – daemon – Automation of setup
- Tools **control CUPS**, the running `cupsd`
  - List available printers and drivers and create print queues
  - List queues and jobs
  - Modify queues
  - Server settings: Owner/everyone can cancel jobs, debug mode, ...

# Printer management in the New Architecture



- We assume any form of the New Architecture
  - The **CUPS Snap** - OR -
  - **CUPS 3.x** or newer
- **All Printers are driverless IPP printers**, native or Printer Applications
- CUPS auto-creates virtual queue for each IPP printer → **No manual queue creation required**
- CUPS fully automatic → **Admin action moves to the IPP printers**
- **Tasks**
  - **List IPP services**
    - Buttons to web admin interfaces, IPP System Service, ...
  - **Discover non-driverless printers**
    - Find Printer Applications, local and in Snap Store

# Printer Setup Tool: GUI Design



- **Similarities** between old and new
  - **Main Window**
    - Old: List CUPS queues, buttons/pop-up to modify
    - New: List IPP devices, buttons to web IF/IPP System Service
  - **Add-Printer Window**
    - Old: List printer devices and drivers, create CUPS queue
    - New: List non-driverless printers, install Printer Application, open Printer Application's web interface



# Printer Setup Tool: GNOME Control Center



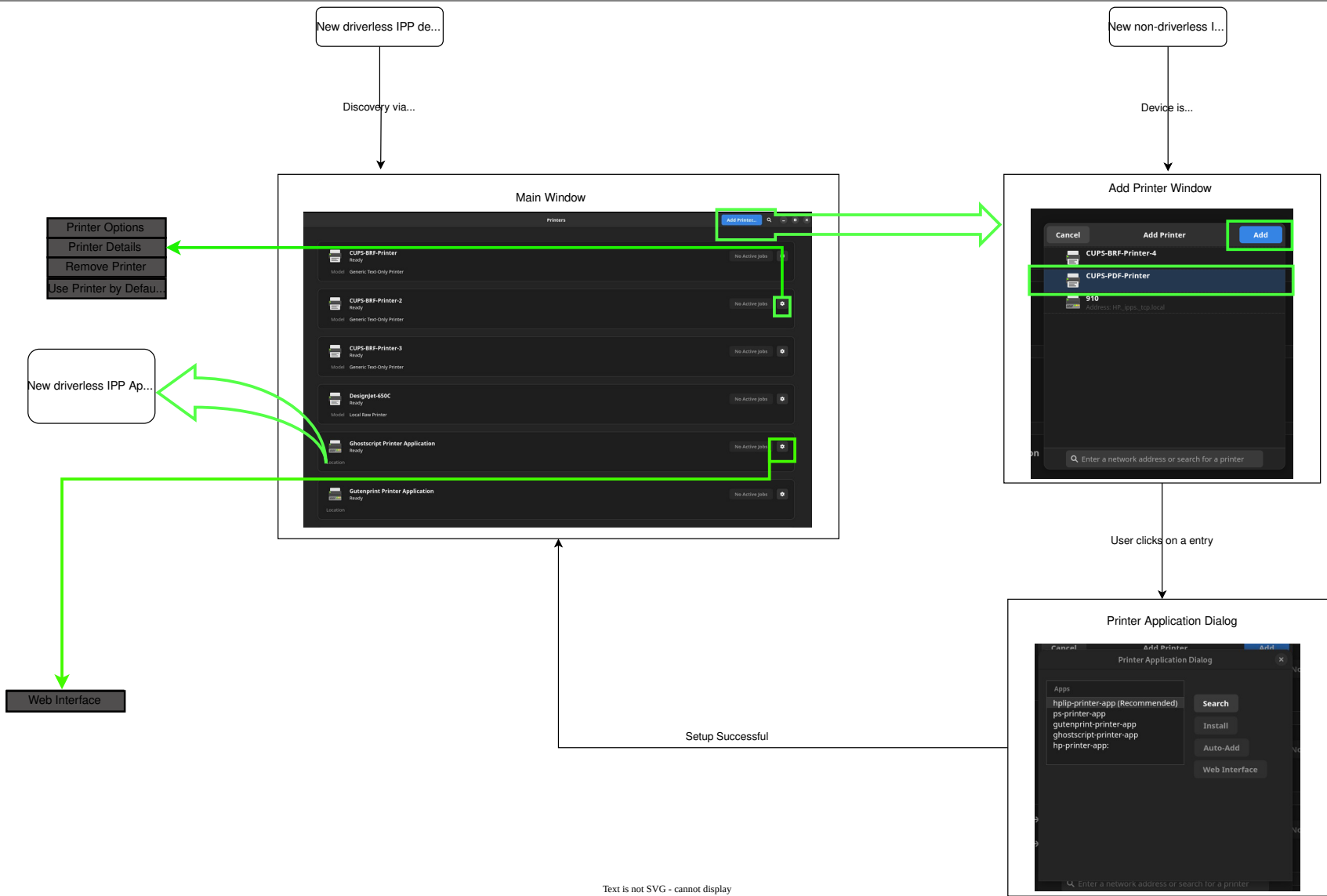
- **Support for classic CUPS AND New Architecture**
  - No hard dependency between GNOME and CUPS versions
  - Current CUPS already supports IPP services, Printer Applications, ...
- **Main view**
  - CUPS queues with “Set options”, “Change driver”, “Remove queue”, ...
  - IPP service with “Open web admin interface”
  - IPP: Group entries of same hardware device/Printer Application
- **“Add Printer” dialog**
  - Discover non-driverless printers
  - Search for both classic drivers and Printer Applications

# GNOME Control Center “Printers”

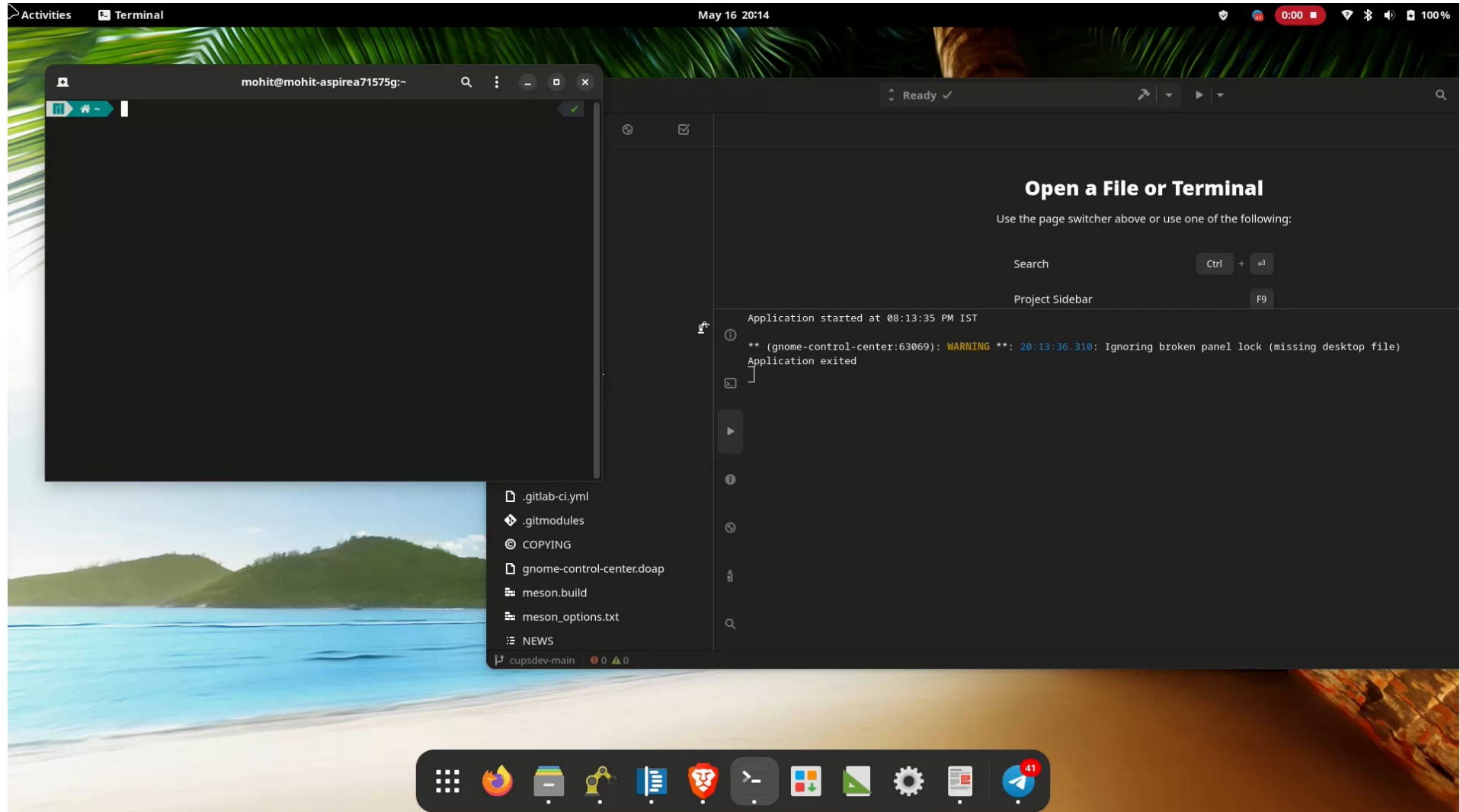


- Main discussion with drawings by Mohit Verma and Elio Qoshi  
[https://github.com/vermamohit13/GSOC\\_2022\\_Summary/issues/1](https://github.com/vermamohit13/GSOC_2022_Summary/issues/1)
- Drawings by Mohit Verma
  - Main View  
<https://drive.google.com/file/d/1hPpdW0icnZIE1nJhw6jRFj9YfmsO70pB/view?usp=sharing>
  - Add Printer  
[https://drive.google.com/file/d/1wg1xxPqM2C2K0H\\_MTA vz RiWDj8fIjgo/view?usp=sharing](https://drive.google.com/file/d/1wg1xxPqM2C2K0H_MTA vz RiWDj8fIjgo/view?usp=sharing)
- Screenscasts by Mohit Verma
  - Main View  
<https://drive.google.com/file/d/1LYw0T150sV3o4vJkkqScmAFz-ThMlsgb/view?usp=sharing>
  - Add Printer  
[https://drive.google.com/file/d/1eSjinN\\_NxyimeTPr\\_ZQDc0omeI-0lZwH/view?usp=sharing](https://drive.google.com/file/d/1eSjinN_NxyimeTPr_ZQDc0omeI-0lZwH/view?usp=sharing)

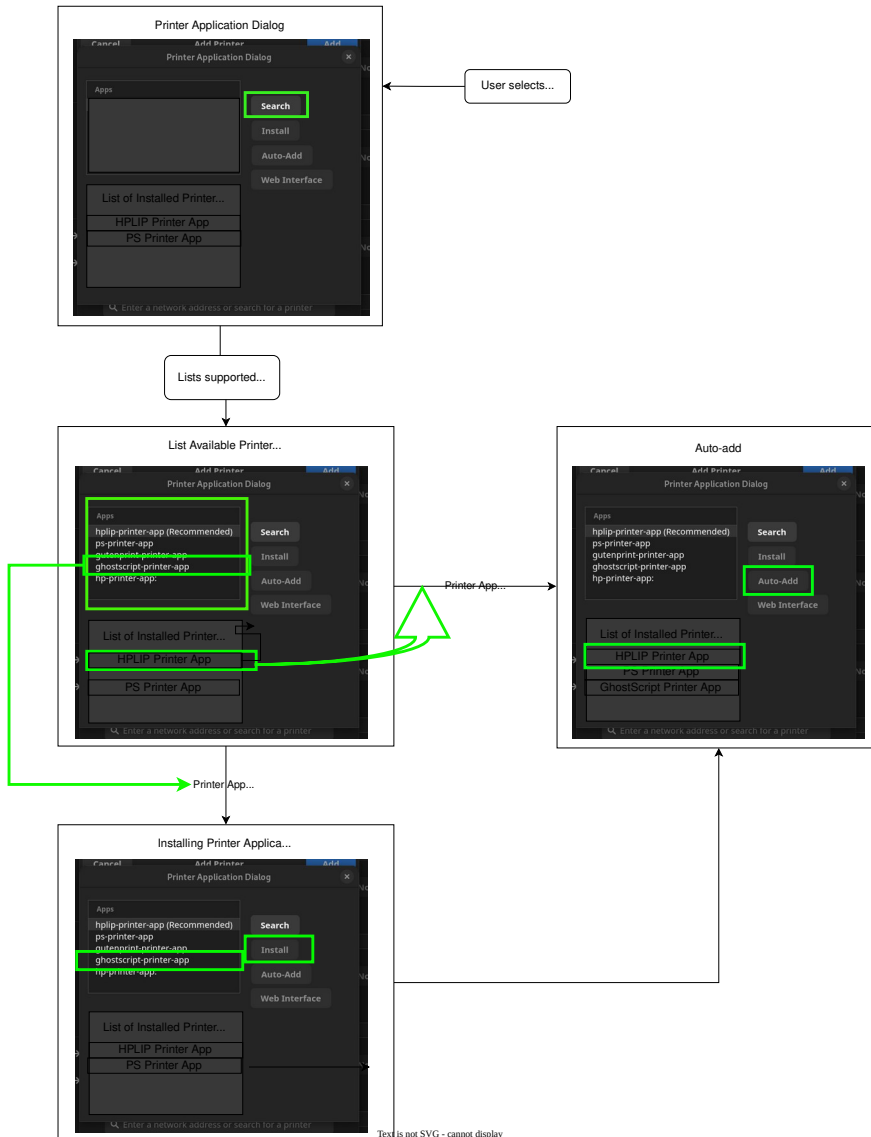
# G-C-C “Printers” – Main View – Mohit



# G-C-C “Printers” – Main View – Mohit



# G-C-C “Printers” – Add Printer – Mohit



Text is not SVG - cannot display

# G-C-C “Printers” – Add Printer – Mohit



The screenshot displays a development environment with a code editor, a project tree, and a console. The code editor shows a C file named `panels/online-accounts/cc-online-accounts-panel.c` with a license header and a `#include "config.h"` statement. The project tree on the left lists various files and directories, including `.gitlab`, `build-aux`, `data`, `docs`, `gettext`, `man`, `panels`, `po`, `search-provider`, `shell`, `subprojects`, `tests`, `.gitignore`, `.gitlab-ci.yml`, `.gitmodules`, `COPYING`, `gnome-control-cente...`, `meson.build`, `meson_options.txt`, `NEWS`, and `README.md`. The console at the bottom shows error messages: "Child process killed by signal 1", "The build target failed to build: Child process killed by signal 1", and "Operation was cancelled". A "Blue Recorder" window is open in the top right, showing settings for recording a video of the "openprinting" window. The recorder is configured to record video at 60 frames per second with a delay of 0. A file overwrite dialog is also visible, asking "Would you like to overwrite this file?" with "Cancel" and "OK" buttons.

# G-C-C “Printers” – Add Printer – Elio



## Select Printer Application UX

12 Jun 2023 - Ubuntu Desktop

Select an already installed printer application (default selection)

The screenshot shows the 'Add CUPS-IPP printer' dialog box. It has a title bar with a close button. The main content area has a heading 'Choose an option how to set up this printer.' followed by three radio button options. The first option, 'Select an already installed printer application', is selected. Below it is a dropdown menu showing 'HPLIP Printer Application'. The second option is 'Select printer application from the internet:' with an empty list box below it. The third option is 'Select a classic driver for this printer (legacy)' with a subtext 'Set up this printer with the manufacturer's driver interface'. At the bottom are two buttons: 'Configure via web interface' and 'Set up printer'. Annotations with arrows point to various elements: 'Specify printer name more semantically in the title bar' points to the title bar; 'Short explanatory sentence' points to the heading; 'Radio button selection for selecting preferred method to add printer' points to the first radio button; 'Dropdown to select from a list of installed printer application' points to the dropdown menu; 'Set up printer automatically based on selection' points to the 'Set up printer' button; and 'Configure printer via web interface of the printer application' points to the 'Configure via web interface' button.

Select printer application from the internet (results dynamically populated)

The screenshot shows the 'Add CUPS-IPP printer' dialog box with the second radio button option, 'Select printer application from the internet:', selected. The dropdown menu now shows 'HPLIP Printer Application'. Below the dropdown is a large rectangular area with a loading spinner, representing the list of available printer applications. The third option, 'Select a classic driver for this printer (legacy)', is also visible. At the bottom, the 'Set up printer' button is now enabled. Annotations with arrows point to: 'List of available printer applications online are automatically populated here as soon as the 2nd radio button is selected' pointing to the loading area; and 'Set up actions disabled as there are no applications selected yet' pointing to the disabled 'Set up printer' button.

# G-C-C “Printers” – Add Printer – Elio



Select printer application from the internet (application selected)

The dialog box titled "Add CUPS-IPP printer" has a close button (X) in the top right. It contains the instruction "Choose an option how to set up this printer." Below this are three radio button options:

- ☐ Select an already installed printer application:  
HPLIP Printer Application (dropdown menu)
- ☒ Select printer application from the internet:  
A list box contains: HPLIP Printer Application, PS Printer Application (highlighted), XYZ Printer Application, and ??? Printer Application.
- ☐ Select a classic driver for this printer (legacy)  
Set up this printer with the manufacturer's driver interface

At the bottom are two buttons: "Configure via web interface" and "Set up printer".

Annotations with arrows:

- Points to the list box: "Once list is populated, a printer application can be selected"
- Points to the "Set up printer" button: "Set up printer automatically based on selection"
- Points to the "Configure via web interface" button: "Configure printer via web interface of the printer application"

Select a classic driver

The dialog box titled "Add CUPS-IPP printer" has a close button (X) in the top right. It contains the instruction "Choose an option how to set up this printer." Below this are three radio button options:

- ☐ Select an already installed printer application:  
HPLIP Printer Application (dropdown menu)
- ☐ Select printer application from the internet:  
A list box contains: HPLIP Printer Application, PS Printer Application, XYZ Printer Application, and ??? Printer Application.
- ☒ Select a classic driver for this printer (legacy)  
Set up this printer with the manufacturer's driver interface

At the bottom are two buttons: "Configure via web interface" and "Set up printer".

Annotations with arrows:

- Points to the "Set up printer" button: "Driver GUI will be initiated"
- Points to the "Configure via web interface" button: "No web-interface configuration possible for classic drivers"



# GTK library – Separate Printing API?



- Matthias Clasen posted issue to suggest **moving printing API** into **separate library** or even **separate project**:

<https://gitlab.gnome.org/GNOME/gtk/-/issues/5816>

- Matthias started work in this merge request **moving printing API code into separate directory** (already **merged**):

[https://gitlab.gnome.org/GNOME/gtk/-/merge\\_requests/6067](https://gitlab.gnome.org/GNOME/gtk/-/merge_requests/6067)

- Matthias suggests to **keep a minimum print API**:

<https://gitlab.gnome.org/GNOME/gtk/-/issues/5562>

# GTK library – Separate Printing API?



- **Why separating?**
  - **Size** of printing code compared to total size of GTK library?
  - **Sophisticated print API rarely needed?**
    - Few apps which print?
    - Minimum API good enough?
  - **Maintainership?** Should be done by separate maintainers?
- **Dependencies**
  - Dependencies on **print technologies** (libcups, cpdb-libs) are print backends.
    - Are the print backends needed for both (included) simple API and (separate) sophisticated API? Do we need new, separate CPDB implementation for the simple API?
  - **Further dependencies:** Rendering? Filtering?