Linux Printing with CUPS

Introduction and/or Background
Now there were issues with the print process in the development of Unix, which Linux fortunately avoided. The primary one being that at one point there were 80+ Unix variants in the market and each developed additional tools to manage print and none of them were capable of operating on another system! Common Unix Print Service (CUPS) was the solution that was developed.

Now the items in the last lab still apply and so is the flow as described below. What changes is that you can administer printers using a web browser in a GUI like fashion.

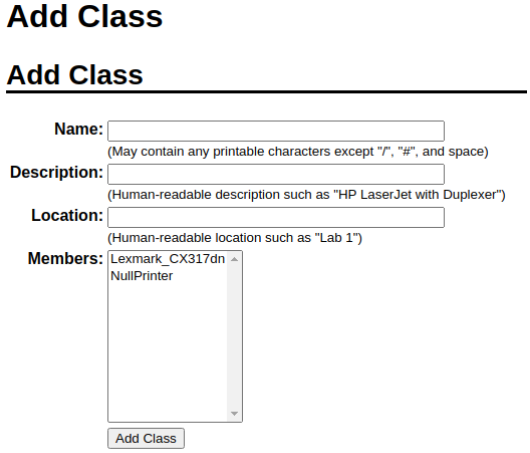
Text –> [Formatter] –> Spooler –> Print Driver –> Print Device

With CUPS however the focus is on management and less on the mangling of text. There are three key components:

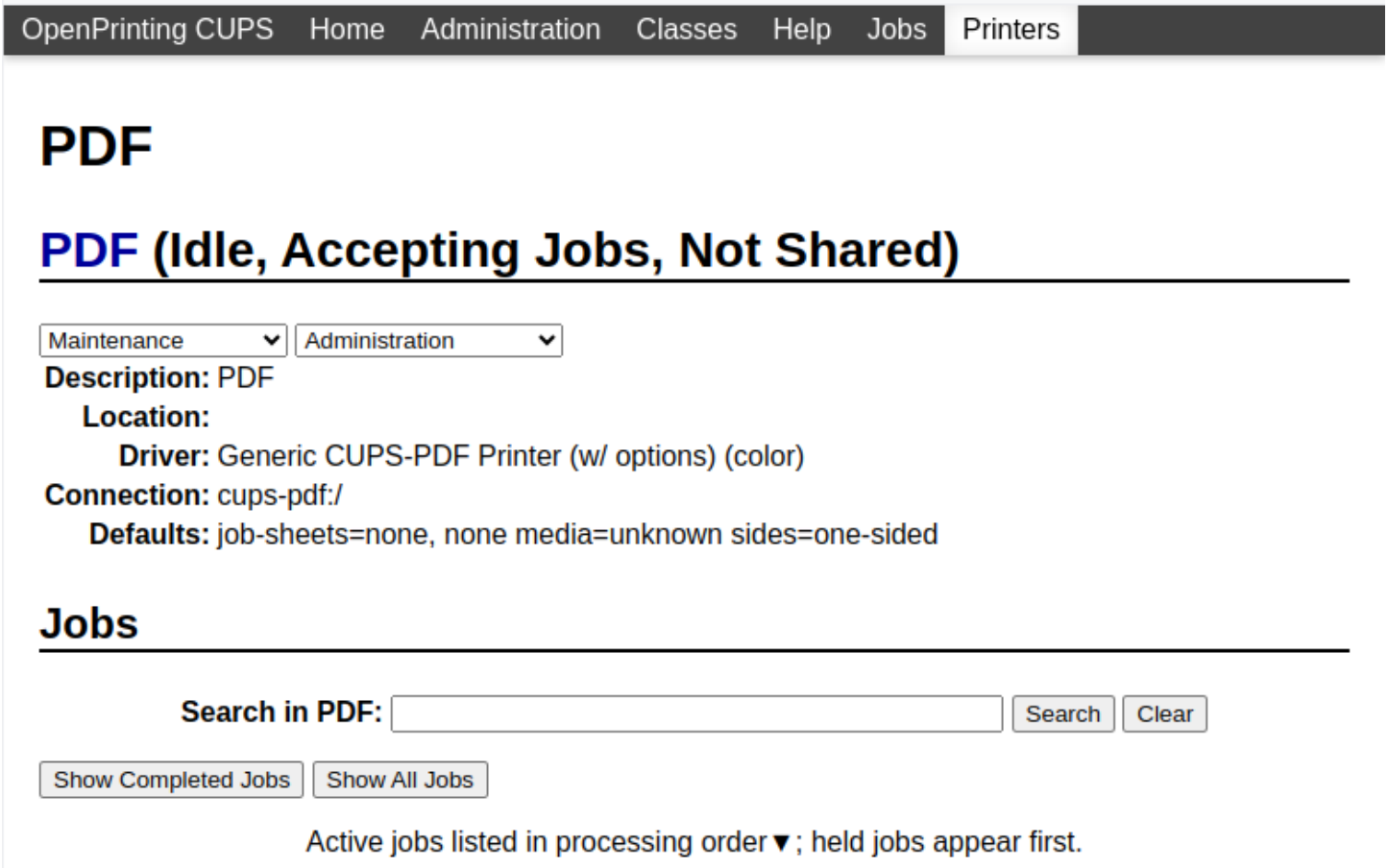
- Classes
- Printers
- Jobs

Classes
Classes are somewhat amorphous in nature. A class could be a location. Or a function. Or a printer type. The definition of a class is up to the administrator to assign. As a general rule classes usually define a particular printer type. Class LaserJet, class Plotter, class Lanier.

A Class can have multiple printers contained within it. But a printer can belong to only one Class. In the case of a single use device, a class does not even need to be defined



.



Printers

Should be pretty obvious, it refers to a single print device. A LaserJet4, or a Lexmark T632. The profiles if any are managed by this section.

Jobs

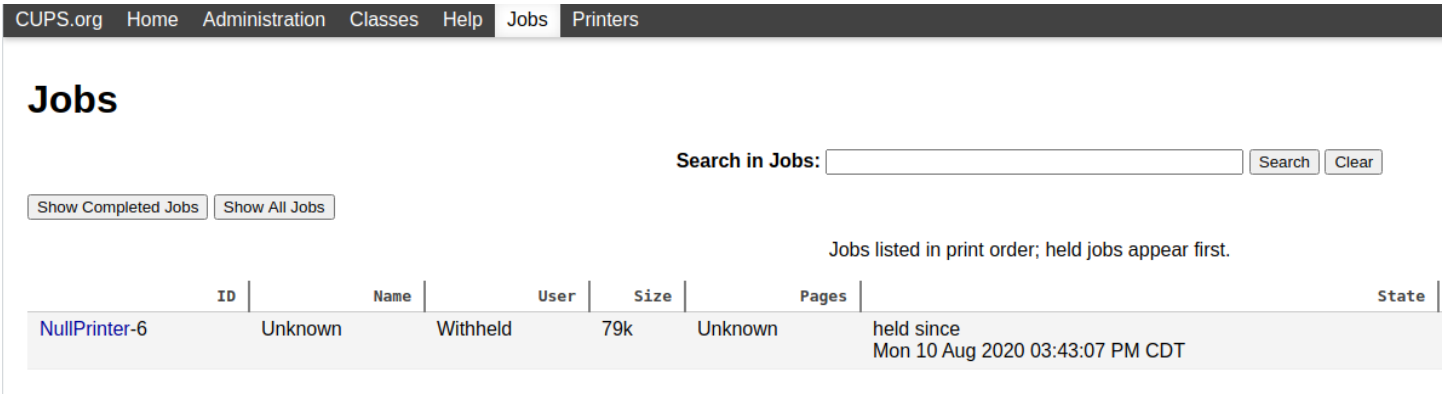
No different than the last print lab. Jobs are managed via the queues for individual printers. CUPS lists all jobs past, current and present known to the system.
Access

One accesses CUPS by –

- Opening a web browser.
- At the address bar enter localhost:631

That is suitable on a local machine to access the local CUPS service. In a larger environment the 'localhost' id may be replaced by an IP address or host name of a given remote CUPS server. e.g. http://PrintSvr:631.

Why the 631 number? That is the defined port number that CUPS listens on to field requests. It can be changed but I recommend against it. Another tech would generally assume the default port number and be denied access.



Objectives
In this project/lab the student will:

- Gain familiarity with Linux printing using CUPS

Equipment/Supplies Needed

- As specified in Lab 0.0.1.
- Installtion of Cups if not already installed.
- Installation of cups-pdf from repository.

Procedure
Perform the steps in this lab in the order they are presented to you. Answer all questions and record the requested information. Use the Linux Virtual Machine to perform lab activities as directed. Unless otherwise stated, all tasks done as a non-root user. If root access is needed use the sudo command.

Assignment

Setup CUPS

1. Open a Word or Writer document.

2. Fortunately when you did the install for Debian it should be loaded CUPS by default. Did you get the home page for CUPS displayed? If not it will be necessary to install CUPS from the repositories.

Set Up a Class

1. See the example Class screen.

    - Provide a unique name for the class
    - Provide a description for the class (optional)
    - Provide a location (optional)
    - Select members (aka printers) to the class.
    - Click 'Add Class'.

    Keep in mind that printers of the same type/manufacturer should be in a given Class.

    Create a Class called 'Test' and add your PDF print device to the class. The description and location can be your choice. When complete take a snapshot of the completed class and include your answer in the document.

    You will be asked when a change is made to your login and password. Use the account and password you used to login into your computer.

Printers

CUPS will recognize printers attached to the system. At a minimum your PDF should be present. Click on the PDF link. You should receive a new page. Record your screenshot in the document.

2. Your PDF should have a queued job still present. Click the 'cancel job' button to flush the job. Record your screenshot in the document.

    Take a look at the 'Maintenance' and 'Administration' buttons as well. Tools are included that allow a technician to test, clean heads, move jobs, pause the printer, etc. all remotely if need be.

Jobs

3. This screen as a default shows all current jobs in the queue for all printers. For a different view, click the 'Show Completed Jobs' and 'Show All Jobs'.

4. Record 'Show Completed Jobs' screenshot in the document.

Finish

For the lone Linux user CUPS is useful for clearing stuck jobs mostly. In an enterprise setting, using CUPS as a standalone print server permits centralization of the print management function. No need to run to the 5th floor and clear a job unless it's a physical jam.

Lab Submissions Proof: Provide screenshots as indicated in the lab; upload your proof to Canvas for grading.

Rubric

Checklist/Single Point Mastery

Concerns Working Towards Proficiency	Criteria Standards for This Competency	Accomplished Evidence of Mastering Competency
	Criteria #1:Recorded screenshot completed class named “Test” (33 points)	
	Criteria #2:Recorded screenshot PDF printer with print job cancelled (33 points)	
	Criteria #3: Recorded screenshot of “Show Completed Jobs” (34 points)	