LINUXWORLD.COM DRIVING ENTERPRISE EVOLUTION

search free newsletter

Core Linux Administration Programming Desktop Downloads

HOME > MORE STORIES

Linux printing made easy, Part 2

Configuring CUPS -- even for unsupported printers

Nov 22, 2000

Summary
In a further exploration of the Common Unix Printing System (CUPS), the Geek tackles configuration -- namely adding and managing printers, even unsupported ones, with CUPS's Web-based interface. *(1,200 words)*

By Joshua Drake

In the last edition of **Ask the Geek**, I talked about the basics of the Common Unix Printing System (CUPS). The CUPS software is unique because it offers a universal, standards-compliant printing system for Linux/Unix. This week, I will discuss CUPS configuration, especially adding and managing printers with the Web-based interface.

CUPS installs with a Web- and console-based interface by default. When you install CUPS via RPM, it should start automatically. To verify that the `cupsd` daemon is running, execute the following as root:

```
/etc/rc.d/init.d/cups status
```

If you receive the following message as output, you are ready to explore the Web interface:

```
cups: Scheduler is running.
```

If not, you can start the scheduler by typing the following as root:

```
/etc/rc.d/init.d/cups start
```

Once the CUPS scheduler is running, you can point your Web browser to `http://localhost:631/`. The `:631` tells your browser to attach to port `631` instead of the standard Web port, `80`. When you connect to the above URL (on the machine you installed the CUPS software on, naturally), you should see the screen displayed in Figure 1.

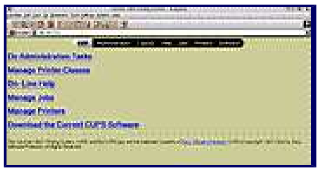

Figure 1. Intro screen for Cups
Click on thumbnail to view full image (21 KB)

In your browser, you will see a variety of options. Click on the first one -- Do Administration Tasks -- and you will be prompted to log in. Log in as root, using your root password.

If you logged in correctly, you should now see the "Admin" screen, as shown in Figure 2.

Figure 2. The CUPS admin screen
Click on thumbnail to view full image (27 KB)

The Classes option allows you to place a series of printers into a pool or *class.* If you print to a class instead of a specific printer, the first available printer in the class will receive the job. This is useful if you do a lot of high-production printing and have a series of printers in a central location.

The Jobs option allows you to manage the print jobs in the queue.

The Printers option allows you to add and manage printers.

To add a printer, click on the Add Printer button. You'll go to a page (see Figure 3) that asks for the following information:

- **Name:** the name of the printer you will print to
- **Location:** the host where the printer is located
- **Description:** a short description of the printer

Figure 3. Adding a new printer in CUPS
Click on thumbnail to view full image (26 KB)

After you've entered that information, click on Continue. You'll come to a screen that asks what type of device the printer is using. Disk File will be the only option, so you can just select Continue.

Next, you will be asked for the device URI. There will be some examples on the screen, including:

- file:/path/to/filename.prn
- http://hostname:631/ipp/port1
- ipp://hostname/ipp/port1
- ipd://hostname/queue
- smb://workgroup/server/sharename

The file option lets you print directly to a file on the hard drive. Many programs let you do this without creating a printer specifically for it.

The http option lets you print directly to the CUPS port.

The ipp option lets you print directly to a port with the Internet Printing Protocol.

The ipd option lets you print to a queue with the Internet Printing Protocol.

The smb option lets you print to printers that are shared and connected to a Windows-based machine. My company uses Windows 98 as its print server -- don't ask me why. Perhaps it's the only thing Windows 98 is stable enough to handle. If you use Windows as a print server, you must have Samba installed to print to a printer that is connected to the Windows machine.

Installing Samba is beyond the scope of this article (see Resources for a fresh article on Samba troubleshooting), but most popular Linux distros include Samba in the default install. To use `smb://`, you must install the smbspool program from Samba as a CUPS backend. To do so, execute the following commands:

which smbspool
ln -s 'which smbspool' /usr/lib/cups/backends/smb

If the `which` program can't find the smbspool command, you'll

have to link it manually with this command:

```
ln -s /usr/bin/smbspool /usr/lib/cups/backends/smb
```

Be sure to replace `/usr/bin/smbspool` with the correct location of `smbspool` on your distribution.

Once you enter the required information, you will receive a message confirming that the printer has been added. Now that you've added a printer, you can click on Administration, then Manage Printers.

The Manage Printers screen (Figure 4) looks like this:

Figure 4. The CUPS Manage Printers screen
Click on thumbnail to view full image (31 KB)

The Manage Printers screen lets you print a test page, start the printer, and perform other administrative tasks. It also shows the print job and printer status.

Two confusing elements of the Manage Printer interface are the Modify Printer and Configure Printer options. If you choose Modify Printer, you will be taken back to the device and URI pages. The Configure Printer option allows you to choose, for example, which DPI you want to print at. It would make sense to keep the two options together to avoid confusion.

The CUPS software comes with printer drivers for only two printer models: the HP and the Epson. If you have different printers, you have two options, as I mentioned in my last column. You can purchase ESP Print Pro from Easy Software Products or check LinuxPrinting.org. (See Resources.) As a test, I installed a CUPS-O-Matic PPD file from LinuxPrinting.org. In my office, we have an HP4 that CUPS supports by default. I wanted to see if a driver from LinuxPrinting.org worked.

Using the alternate PPD files was simpler than I expected. I merely had to install the `cupsomatic` CUPS backend filter (see Resources) and my printer's PPD file.

On Red Hat, I copied the `cupsomatic` filter program to `/usr/lib/cups/filters/cupsomatic` and made sure it was executable by typing:

```
chmod 555 /usr/lib/cups/filters/cupsomatic
```

Once that was installed, I restarted the `cupsd` daemon by typing `/etc/rc.d/init.d/cups restart`. You only need to install the cupsomatic program once.

Installing the PPD file on Red Hat was just as simple. After downloading the file, I copied it to `/usr/share/cups/model` and made sure it was world-readable by executing:

```
chmod 444 /usr/share/cups/model
```

I suggest naming the file after your printer -- in my case, `hp4lj.ppd`. After you've copied the file, you'll have to restart the `cupsd` daemon again.

In the next installment of the **Ask the Geek** series on CUPS, I will discuss ways to remotely manage CUPS and CUPS security issues.

As usual

Do you have a question about Linux that's been bugging you? Post it in the Ask The Geek discussion forum or drop me a line at **Ask the Geek**, and we might feature it! See you in two weeks. ■

About the author
Joshua Drake is an e-commerce and Linux consultant who owns the company Command Prompt. He has been using Linux for 9 years and is the Linux Documentation Project Webmaster. His other projects include the LinuxPorts.Com Website and the OpenDocs publishing company.

Resources

- Part 1 of this article -- "Linux Printing Made Easy," Joshua Drake (*LinuxWorld.com,* November 2000):
http://www.linuxworld.com/linuxworld/lw-2000-11/lw-11-geek_1.html
- CUPS website:
http://www.cups.org
- CUPS-O-Matic backend filter:
http://www.linuxprinting.org
/cupsomatic">
http://www.linuxprinting.org
/cupsomatic
- Custom PPPD instructions:
http://www.linuxprinting.org
/cups-doc.html">
http://www.linuxprinting.org
/cups-doc.html
- "Skirting Some Common Samba Problems," Richard Sharpe (*LinuxWorld.com,* November 2000):
http://www.linuxworld.com/linuxworld/lw-2000-11/lw-11-samba.html
- LinuxPrinting.org:
http://www.linuxprinting.org
- Easy Software Products:
http://www.easysw.com