

Linux Printing & Imaging



A Presentation

to

WLU

By

Vince McHugh

NECS \ Canon



TWO PARTS OF THIS PRESENTATION

- **Printing**
- **CUPS**
- **Imaging**
- **Scanning**

*Documents output from your
Linux Computer in the
format You actually want!!!
Double-sided & Stapled
Landscape or Portrait*

*Taking "hard copy" documents and
scanning them to your Linux computer
as
Tiff, Mtiff or PDFs*

PART ONE: LINUX PRINTING

"Unix Printing has been a mess for the last thirty years"

Most Unix/Linux Users and Admins have been satisfied with lp and lpr **IF** it prints.

Unix Sys Admins have often felt that
Printing is too much trouble.

The attitude is usually
"just be thankful that you can print at all".

**Q. What do you think of when you hear
Unix/Linux Printing?**



**If it's *noisy* impact printers
and**

**Green Bar Paper
it's time to take a look at
modern Linux / Unix Printing !**

Why CUPS ???

With the CUPS printing system **Linux users** can have all the Printing functions that their Windows peers have.

The ability to do: Double Sided Printing

To choose Landscape or Portrait

Staple in multiple positions

choose paper size and/or tray

even make booklets

High speed B&W printing (20-105+ppm)

High end Color Printing

You can even *pre-define* virtual printers with specific printing characteristics and have all these features from

The Command Line!

What Is CUPS ?

The Common Unix Printing System

www.cups.org

GPL Software developed by
Easy Software Products
Included in many Linux Distros
based on the IPP print standard

CUPS works with PPDs

PPDs = Printer page descriptions
A PPD tells CUPS what abilities your printer has.
Double Sided? Staple? Reduce / Enlarge?

Q. Where do I find a PPD for my printer?

PPDs installed alongside your CUPS installation:

These will enable you to print to several hundred different printer models, **but will not give you** access to specific capacities of the models
(duplex, input tray selection, smaller margins,...)

PPDs from a Printer Manufacturer:

Those are distributed alongside a PostScript capable printer. Originally they were intended for MacOS or MS Windows platforms only. CUPS can use them without a change.

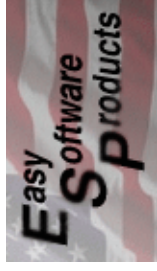
Normally, the Windows NT versions work flawlessly with CUPS.

You get them from **the manufacturer's website** or from a MS Windows PC **PostScript driver disk** for your printer.

Put a copy into your **/usr/share/cups/model/** directory to make it available for installation through the web interface.

PPDs from Easy Software Products:
the creators of CUPS

Those are commercially sold and supported drivers that are supplied (and only work for) ESP PrintPro
<http://www.easysw.com/printpro/>



PPDs from [Linuxprinting.org](http://www.linuxprinting.org):

<http://www.linuxprinting.org/>

PPDs from the Gimp-Print project:

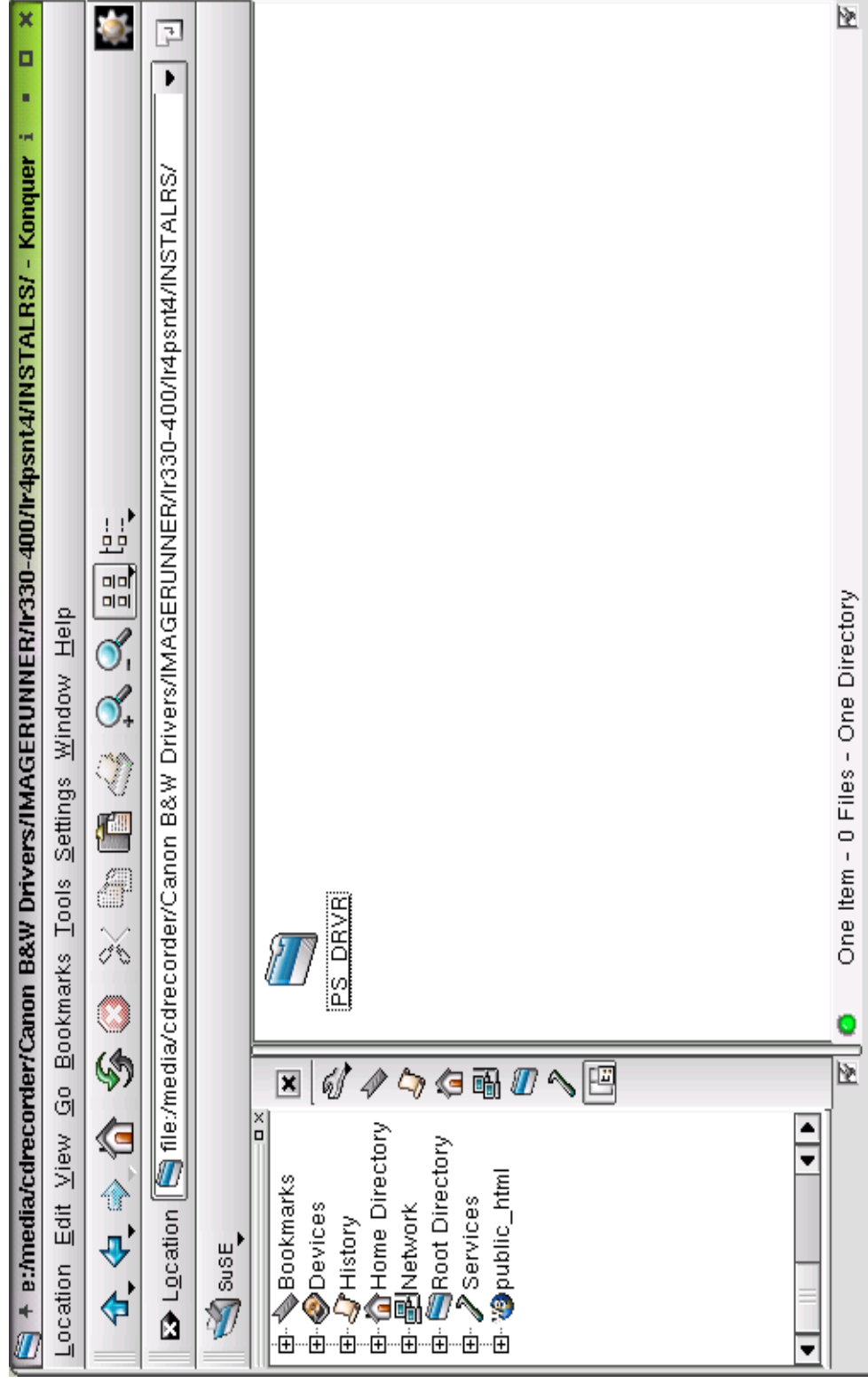
Specific PPDs for around 120 different models of Canon, Epson, HP and Lexmark color printers. The creators of CUPS are founders and still part of the development team of gimp-print project.

Recommendation:

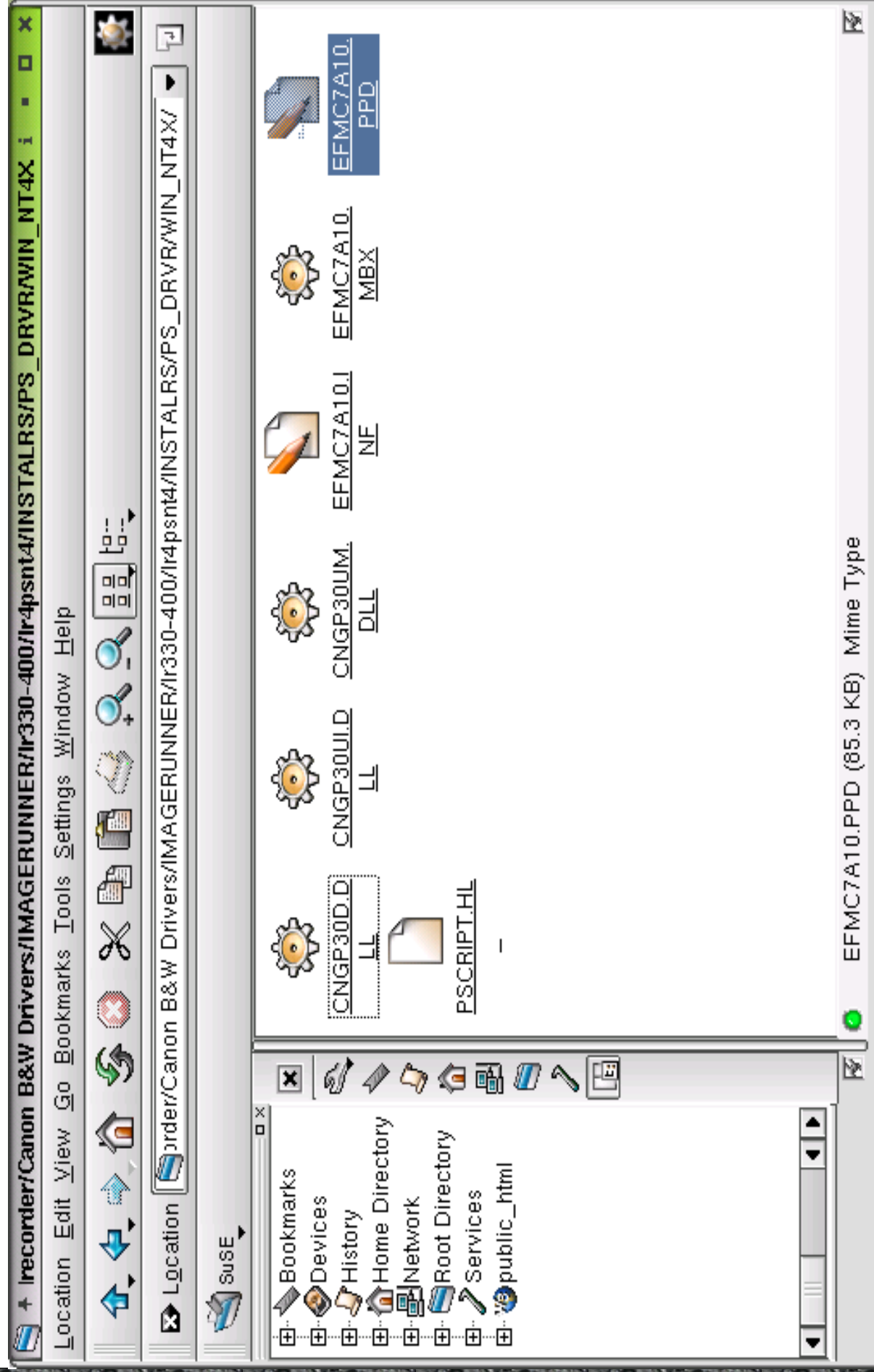
PostScript printers should be installed using the vendor PPD for that model (best to use the one targeted for Windows NT).

How to get a PPD

Browse your Windows Postscript Printer driver CD ROM



You may need to "**drill down**" or **search** the Windows Print driver CD for a ppd file. Once you have it copy and paste it to [**/usr/share/cups/model/**](#)



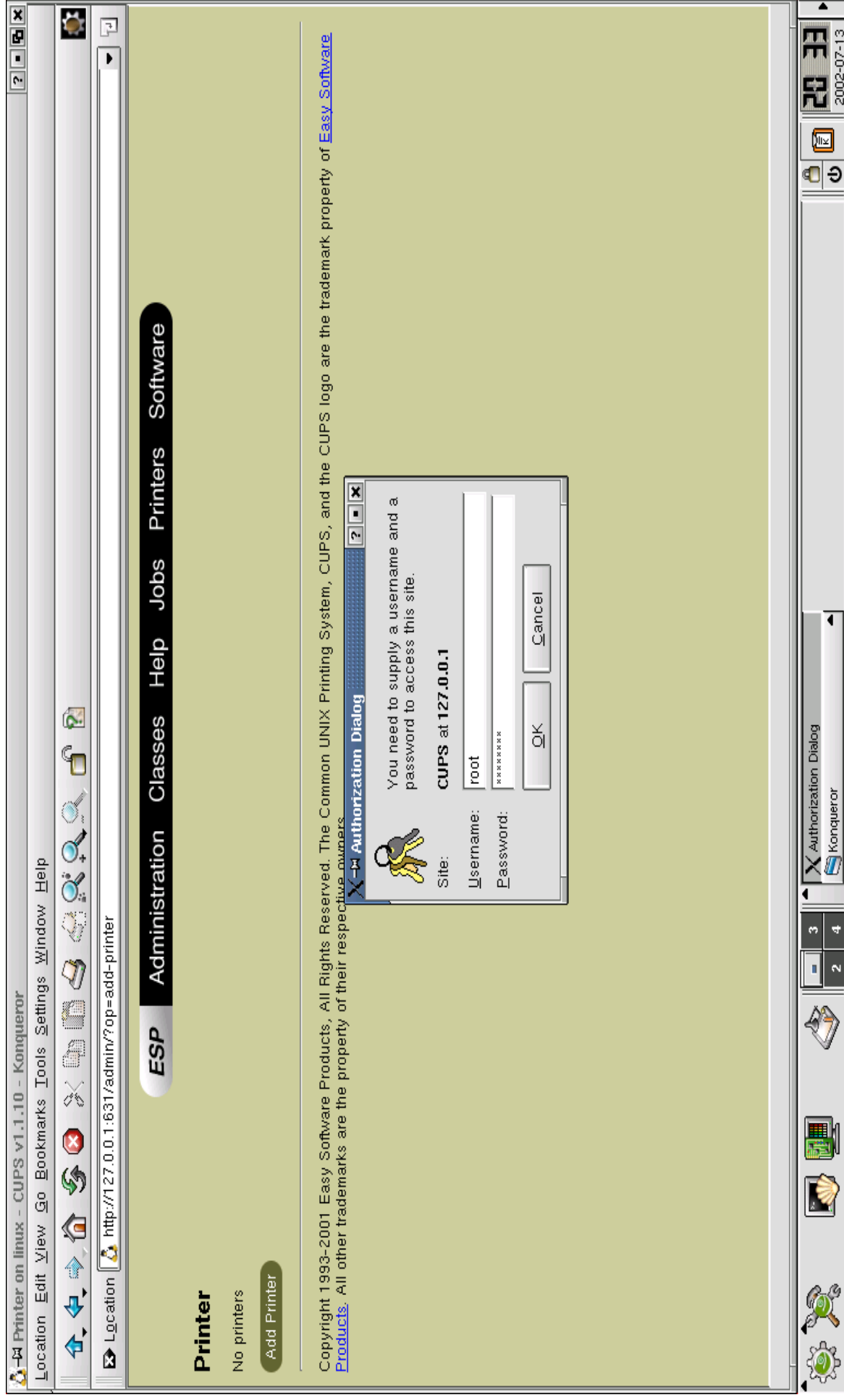
Restarting the CUPS Server

Once you have made a change to a configuration file you need to restart the CUPS server by **sending it a HUP signal** or using the supplied **initialization script**.

The CUPS distributions install the script in the `init.d` directory with the name `cups`. The location varies based upon the operating system:

```
/etc/rc.d/init.d/cups restart ENTER  
/etc/init.d/cups restart ENTER  
/sbin/init.d/cups restart ENTER
```

Now start your favorite web browser and go to 127.0.0.1:631
There are other front end managers for CUPS,
but for this presentation we will focus on the WEB tool



Admin

Add New Printer

Name: Sales1

Location: 1st Floor Sales Office

Description: Canon IR400 Copier Printer

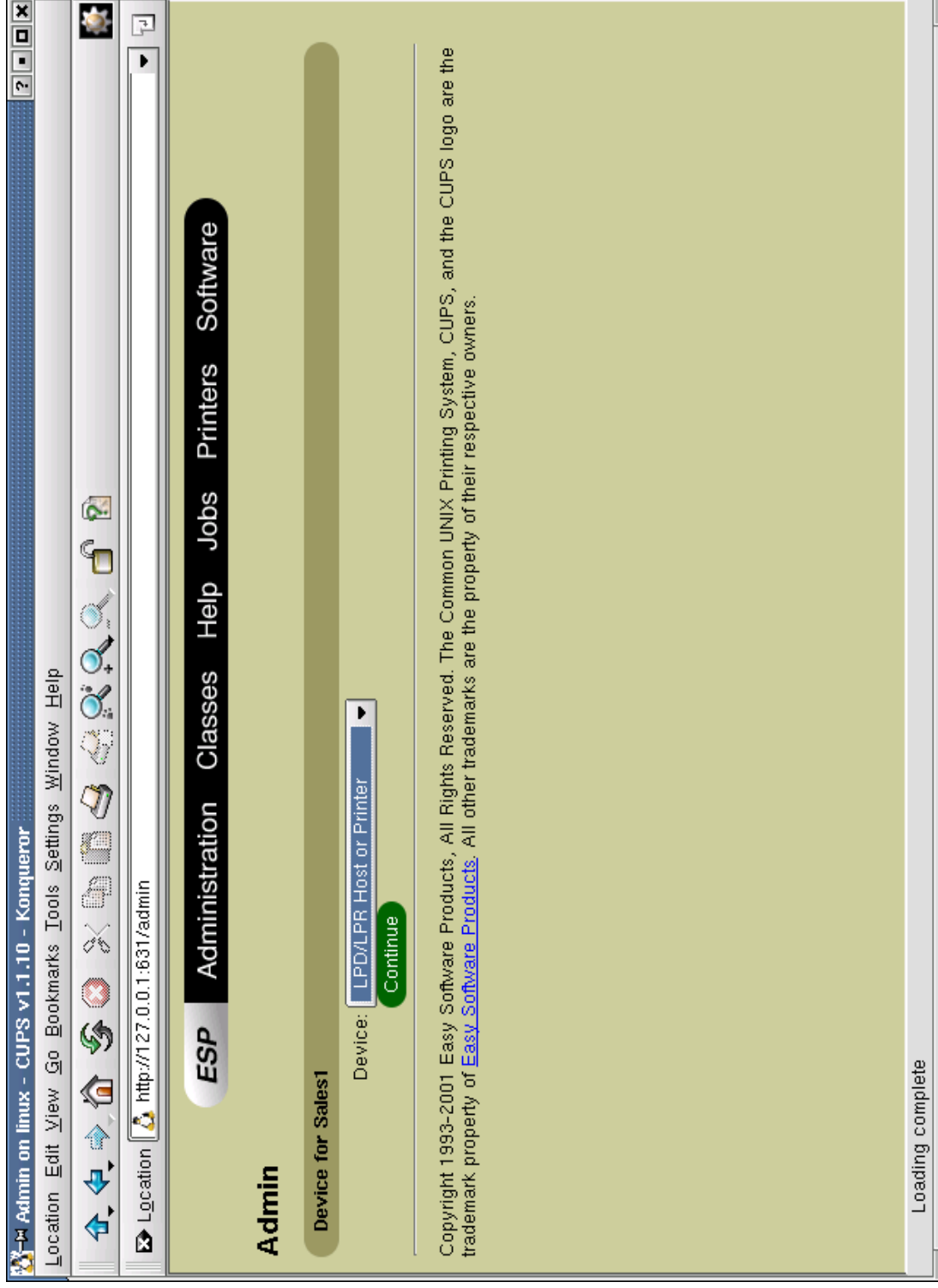
Continue

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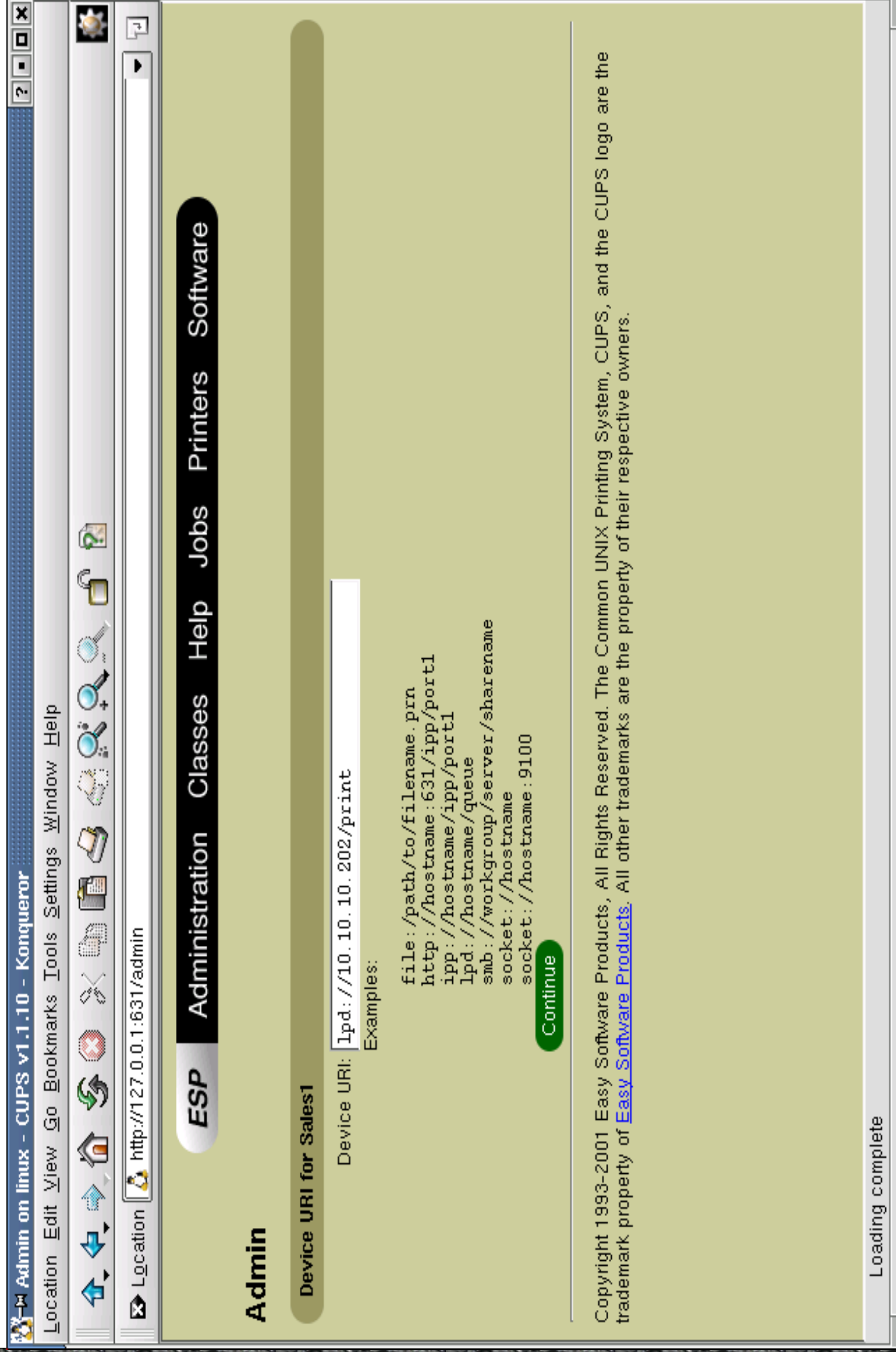
Loading complete

Here is where you set up the "port**" or type of printing.**

You can choose LPR, IPP, SMB, HP JetDirect, Parallel, or Serial printing.



There are even examples of the syntax for different types of printing ports





Location http://127.0.0.1:631/admin

ESP Administration Classes Help Jobs Printers Software

Admin

Model/Driver for Sales1

- Raw
ALPS
APOLLO
APPLE
AVERY
BROTHER
C.ITOH
CANON
CITIZEN
COMPAQ

Make:

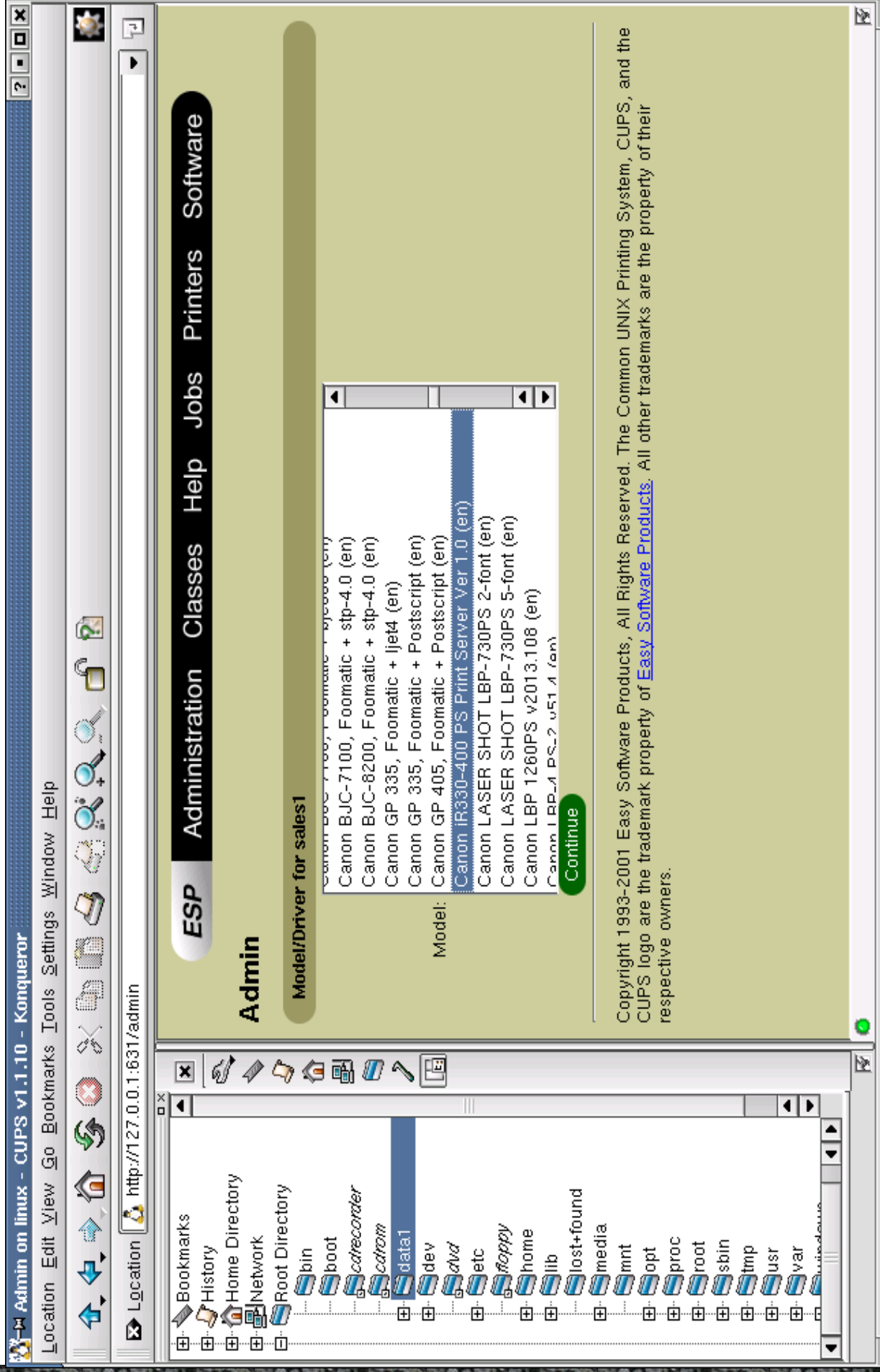
[Continue](#)

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Loading complete

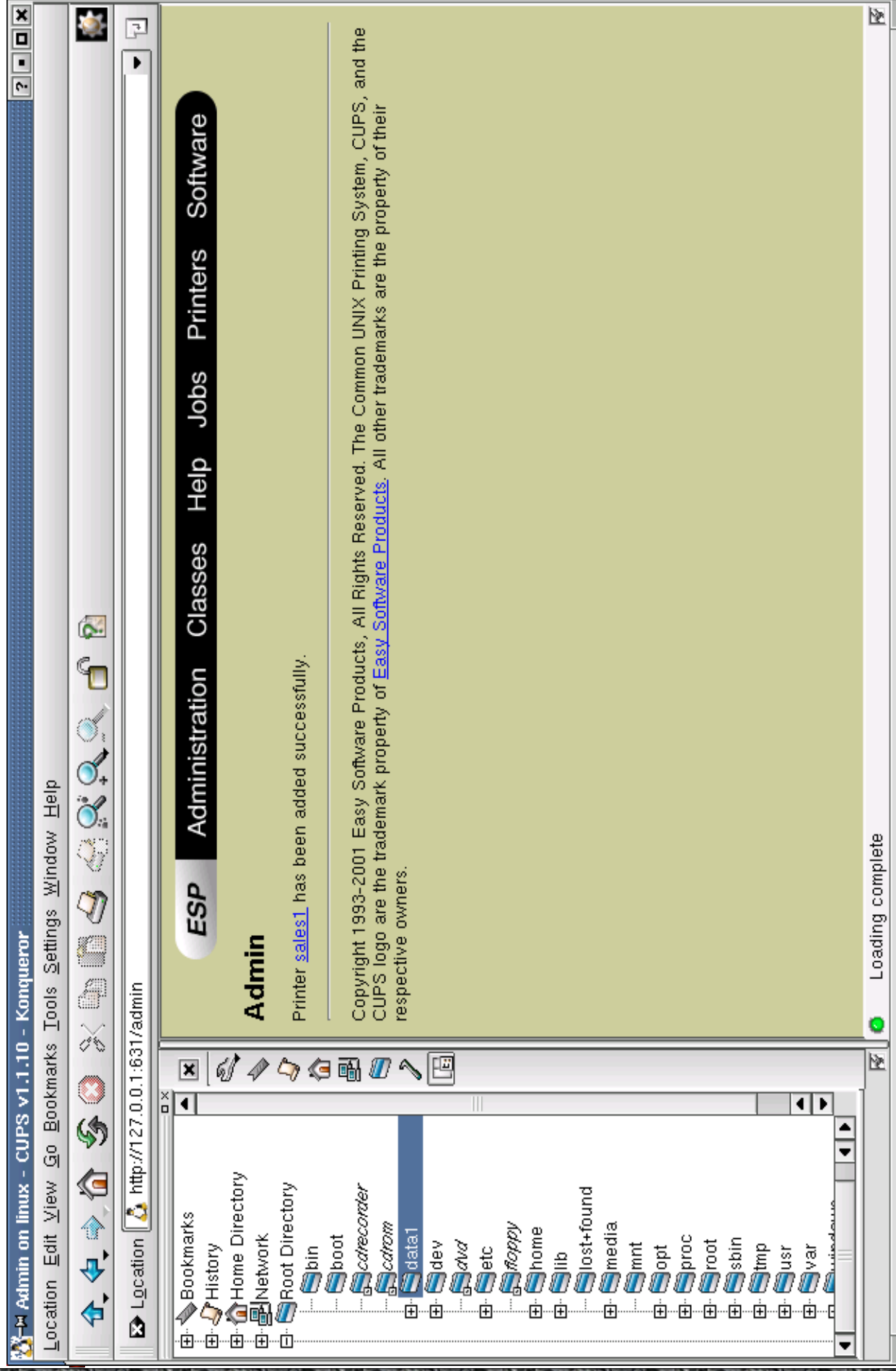
This is where we find the Manufacturers PPD that we added earlier

**Note: If you don't see your PPD that you added
you probably forgot to re-start CUPS**



The WEB tool is very intuitive

You could even have your "less technical" people manage your printers



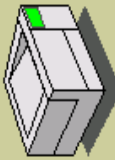
Easy Printer Set up & Management

Printer on vmchugh-lnx - CUPS v1.1.10 - Konqueror

Location Edit View Go Bookmarks Tools Settings Window Help

Location http://127.0.0.1:631/printers

ColorPASS-Z650 Color Server



Description: Canon ColorPass 650 CLC1180

Location: Demo Room

Printer State: idle, accepting jobs.

Device URI: http://CP_Z650:631/ipp/print

Print Test Page

Stop Printer

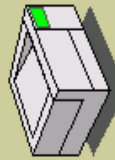
Reject Jobs

Modify Printer

Configure Printer

Delete Printer

Canon iR105-M1 PS Ver 1.1



Description: Canon iR105 High speed B&W Copier printer

Location: Demo Room

Printer State: idle, accepting jobs.

Device URI: smb://WORKGROUP_DR/IMAGEPASS-M1/print

Print Test Page

Stop Printer


Reject Jobs

Modify Printer

Configure Printer

Delete Printer

Canon iR C2000 series PS



Description: Canon Color/B&W Copier Printer

Location: Demo Room

Printer State: idle, accepting jobs.

Device URI: lpd:10.10.5.167/print

Print Test Page

Stop Printer


Reject Jobs

Modify Printer

Configure Printer

Delete Printer

Canon iR330-400 PS Print Server Ver 1.0



Description: Canon iR400 Copier Printer

Location: 1st Floor Sales Office

Printer State: stopped, accepting jobs.

Device URI: lpd://10.10.10.202/print

Print Test Page

Start Printer













Reject Jobs

Modify Printer

Configure Printer

Delete Printer

2 4

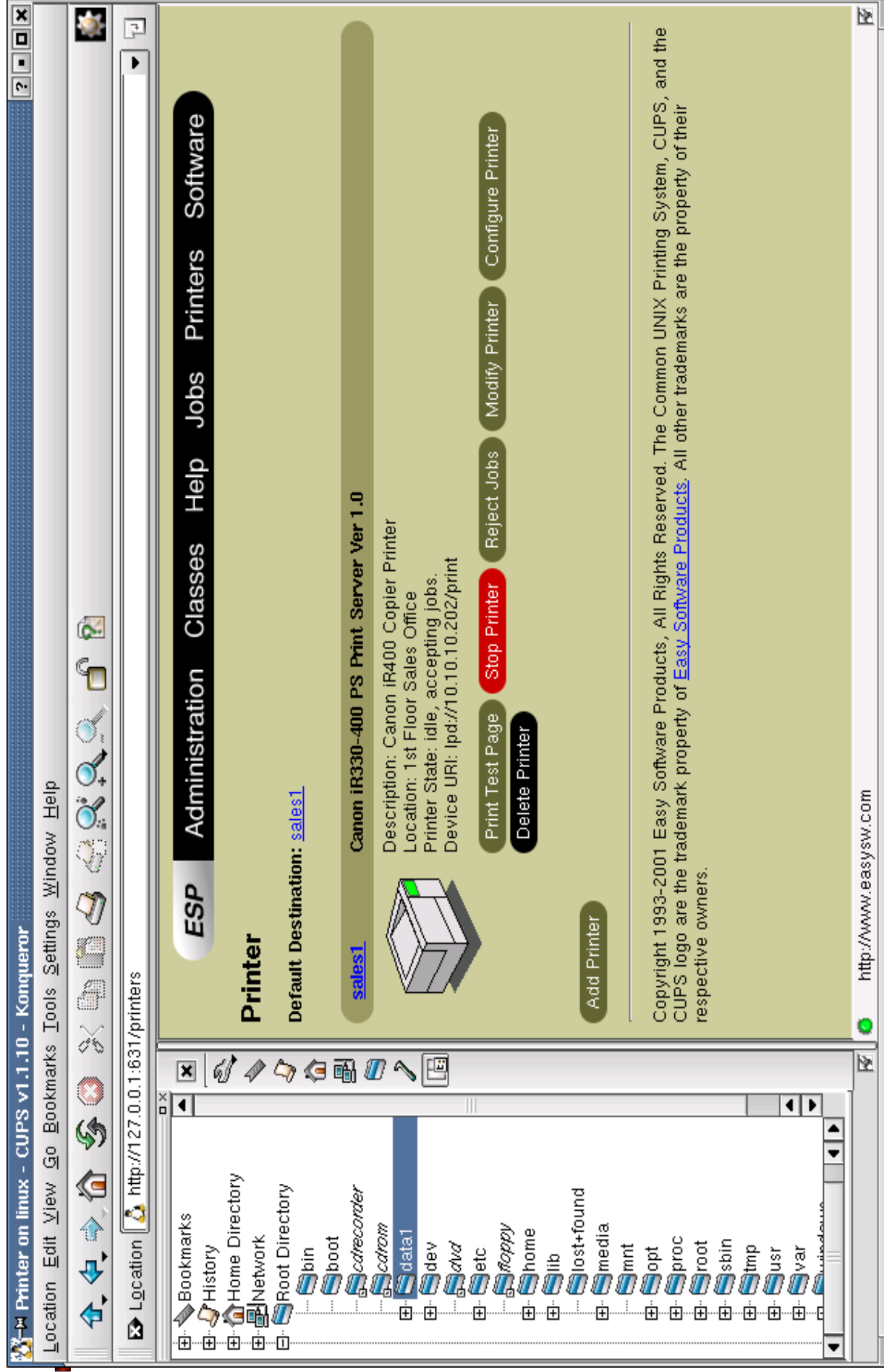


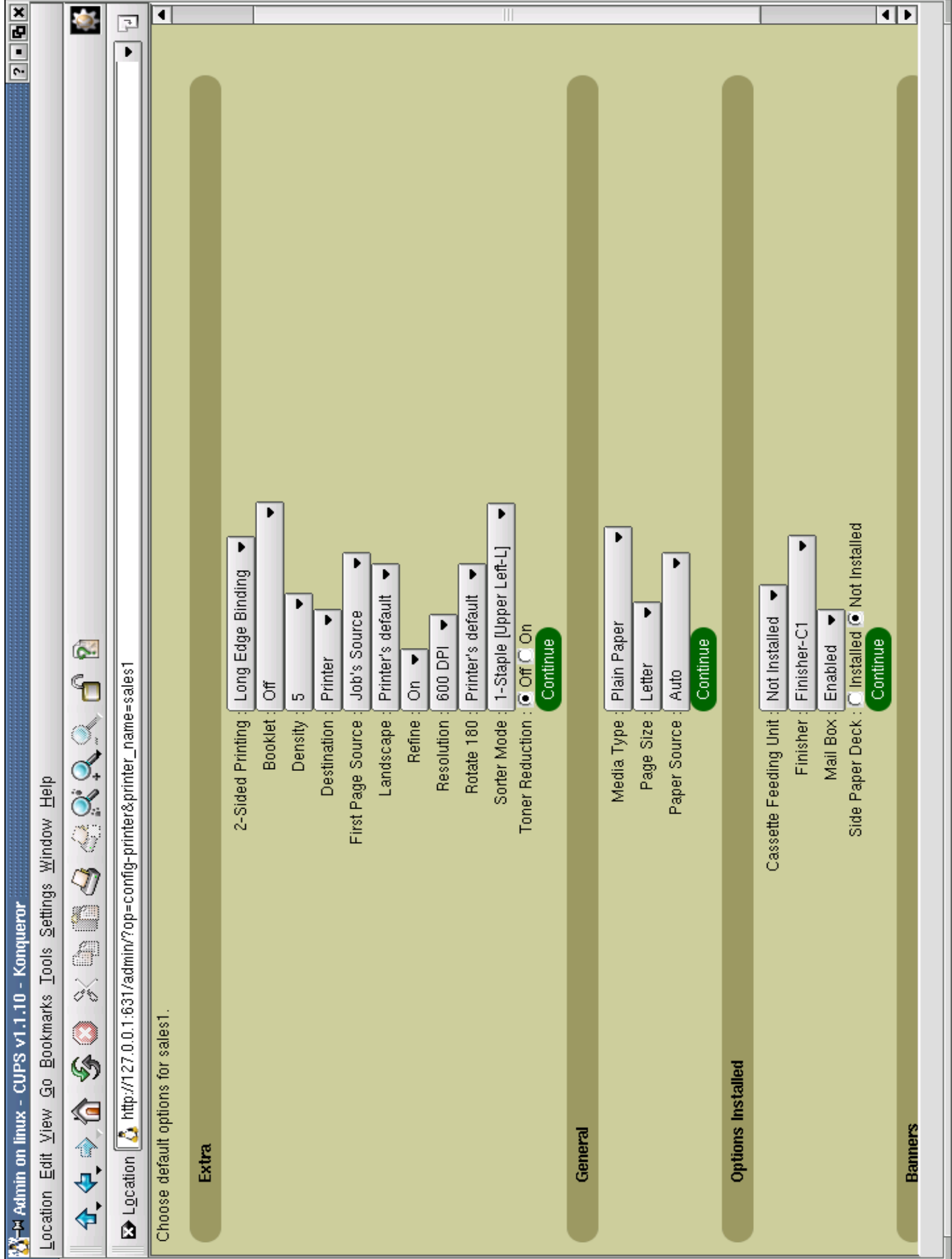
(Konsole)
(StarOffice 5.2 - Introducing the Col
Konqueror

21:14
2002-07-16

Now we are ready to configure the printer and take advantage of our PPDs features.

Select **"Configure Printer"** to access the PPDs Features





Choose default options for sales1.

Extra

2-Sided Printing : Long Edge Binding ▾
Booklet : Off ▾
Density : 5 ▾
Destination : Printer ▾
First Page Source : Job's Source ▾
Landscape : Printer's default ▾
Refine : On ▾
Resolution : 600 DPI ▾
Rotate 180 : Printer's default ▾
Sorter Mode : 1-Staple [Upper Left-L] ▾
Toner Reduction : ☐ Off ☒ On Continue

General

Media Type : Plain Paper ▾
Page Size : Letter ▾
Paper Source : Auto ▾ Continue

Options Installed

Cassette Feeding Unit : Not Installed ▾
Finisher : Finisher-C1 ▾
Mail Box : Enabled ▾
Side Paper Deck : ☐ Installed ☒ Not Installed Continue

Banners

**We looked at a simple set up of CUPS
as the Printing System of a single Linux PC**

Advanced CUPS features

- ◆ CUPS can be set up in a **Server \ Client** environment (one or more print servers)
- ◆ CUPS offers **"Printer Classes"** - the ability to cluster several like printers together
- ◆ CUPS will accept LPR jobs (you do lose most of your PPD features) Still supports "printer classes"

Cluster Like Type Printers with Printer "Classes"

Class on vmchugh-Inx - CUPS v1.1.10 - Konqueror

Location Edit View Go Bookmarks Tools Settings Window Help


Location <http://127.0.0.1:631/classes>

ESP Administration Classes Help Jobs Printers Software

Class

Default Destination: [sales1](#)

[cluster](#)




Printer Class

Description: High Speed B&W Cluster (2 105s & 1 8500)
Location: Production
Class State: idle, accepting jobs.
Members: ir105,ir105b,ir8500

[Print Test Page](#) [Stop Class](#) [Reject Jobs](#) [Modify Class](#) [Delete Class](#)

[ColorCluster](#)



Printer Class

Description: CP650 & irC2050
Location: Graphics Arts Dept
Class State: idle, accepting jobs.
Members: Color650,irC2050

[Print Test Page](#) [Stop Class](#) [Reject Jobs](#) [Modify Class](#) [Delete Class](#)

[Add Class](#)

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Konqueror

2 4

(xconsole) (Kconsole)

21:33 2002-07-16

Where to find help - CUPS Documentation "Help"

Documentation - Common UNIX Printing System - Netscape 6

File Edit View Search Go Bookmarks Tasks Help

http://127.0.0.1:631/documentation.html

Search

Home My Netscape Search Shop Bookmarks The Mozilla Or... Latest Builds

ESP Administration Classes Help Jobs Printers Software

Documentation

The following documentation for CUPS is available on this server:

- Whitepaper - An Overview of the Common UNIX Printing System ([HTML](#) | [PDF](#))
- Software Users Manual ([HTML](#) | [PDF](#))
- Software Administrators Manual ([HTML](#) | [PDF](#))
- Software Programmers Manual ([HTML](#) | [PDF](#))
- Configuration Management Plan ([HTML](#) | [PDF](#))
- CUPS Implementation of IPP ([HTML](#) | [PDF](#))
- Interface Design Description ([HTML](#) | [PDF](#))
- Software Design Description ([HTML](#) | [PDF](#))
- Software Performance Specification ([HTML](#) | [PDF](#))
- Software Version Description ([HTML](#) | [PDF](#))
- Software Security Report ([HTML](#) | [PDF](#))

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My... Tabs

Search

Buddy List

Stocks

News

Shopping

Today's Tips

Bookmarks

Add... Manage

Name

Personal To

Mozilla Proj

Document: Done (0.284 secs)

2 4

Star Office 5.2 - [Introducing t... (Konsole)

file:/windows/C:/windows/Desl...

20 49

2002-07-16

Here is the Help section for Printing via the Command Line

Location Edit View Go Bookmarks Tools Settings Window Help

Location: http://127.0.0.1:631/sum.html#3_1

Common UNIX Printing System

CUPS Software Users Manual - Konqueror

Submit

Print

Find

Home

Back

Forward

Stop

Reload

Print

Find

Home

Back

Forward

Stop

Reload

Submitting Files for Printing

CUPS provides both the System V (`lp` (1)) and Berkeley (`lpr` (1)) printing commands. Type the following command to print a file to the default (or only) printer on the system:

```
lp filename ENTER
```

or:

```
lpr filename ENTER
```

CUPS understands many different types of files directly, including PostScript and image files. This allows you to print from inside your applications or at the command-line, whichever is most convenient!

Choosing a Printer

Many systems will have more than one printer available to the user. These printers can be attached to the local system via a parallel, serial, or USB port, or available over the network. Use the `lpstat` (1) command to see a list of available printers:

```
lpstat -p -d ENTER
```

The `-p` option specifies that you want to see a list of printers, and the `-d` option reports the current system default printer or class. Use the `-d` option with the `lp` command to print to a specific printer:

```
lp -d printer filename ENTER
```

or the `-P` option with the `lpr` command:

```
lpr -P printer filename ENTER
```

Setting Printer Options

For many types of files, the default printer options may be sufficient for your needs. However, there may be times when you need to change the options for a particular file you are printing. The `lp` and `lpr` commands allow you to pass printer options using the `-o` option:

```
lp -o landscape -o scaling=75 -o media=A4 filename.jpg
lpr -o landscape -o scaling=75 -o media=A4 filename.jpg
```

The available printer options vary depending on the printer. The standard options are described in [Chapter 3, "Standard Printing Options"](#).

Printing Multiple Copies

Both the `lp` and `lpr` commands have options for printing more than one copy of a file:

```
lp -n xxx-copies filename ENTER
lpr -#xxx-copies filename ENTER
```

Copies are normally *not* collated for you. Use the `-o Collate=True` option to get collated copies :

```
lp -n xxx-copies -o Collate=True filename ENTER
lpr -#xxx-copies -o Collate=True filename ENTER
```

Checking the Printer Status from the Command-Line

The `lpstat` command can be used to check for jobs that you have submitted for printing:

PART TWO: IMAGING & SCANNING

Why is **S**canning and **I**maging important to **L**inux **U**sers?

Q. Have you ever heard of the "**P**aperless **O**ffice" ?

There were **4 trillion** pieces of paper created in this country last year

Increasing at **22% a year**

Currently **90%** of Corporate America's memory is on paper

93% of documents created this year will be digitally stored

We need to Re-define what a "paperless office" means!

ReDefining the "Paperless Office"

It obviously **doesn't mean** getting rid of all paper in the office.
(I have more paper on my desk than ever before)

Today it means **separating information from paper**.

Giving your users the ability to **EASILY** go from

An electronic document to a paper document AND THEN

To just as **EASILY** go back from a paper document to
an electronic one

**This part of the Presentation
will focus on what We (NECS) have done to
integrate **Canon** Scanning to Linux Desktops**

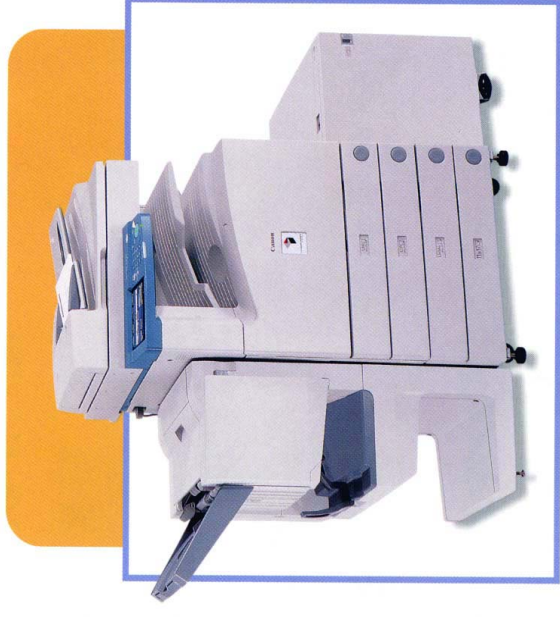
**The reason we can do this is because
Canon chose to use accepted standards like:**

SMB

Email

FTP

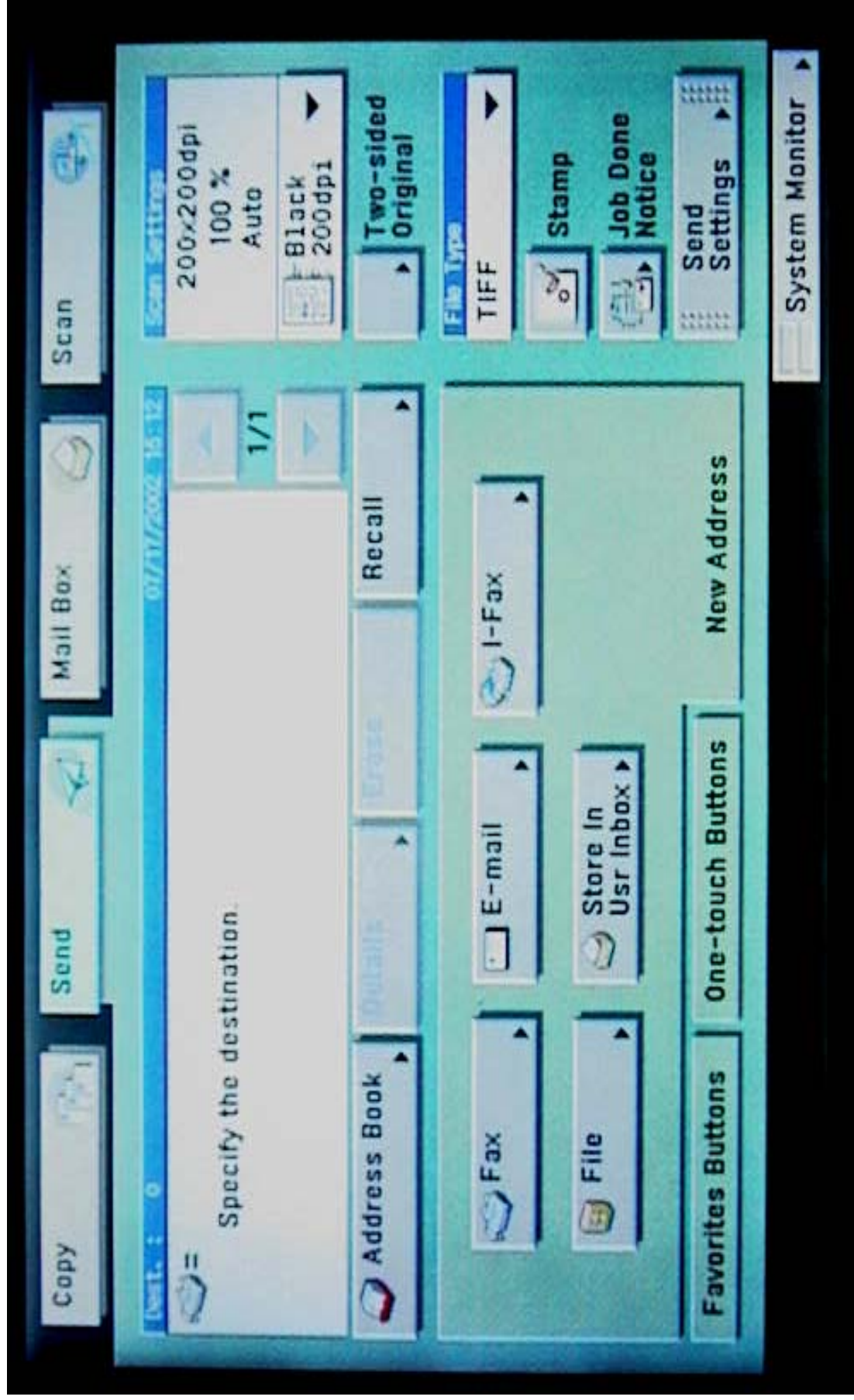
PDF, Tiff, Mtiff



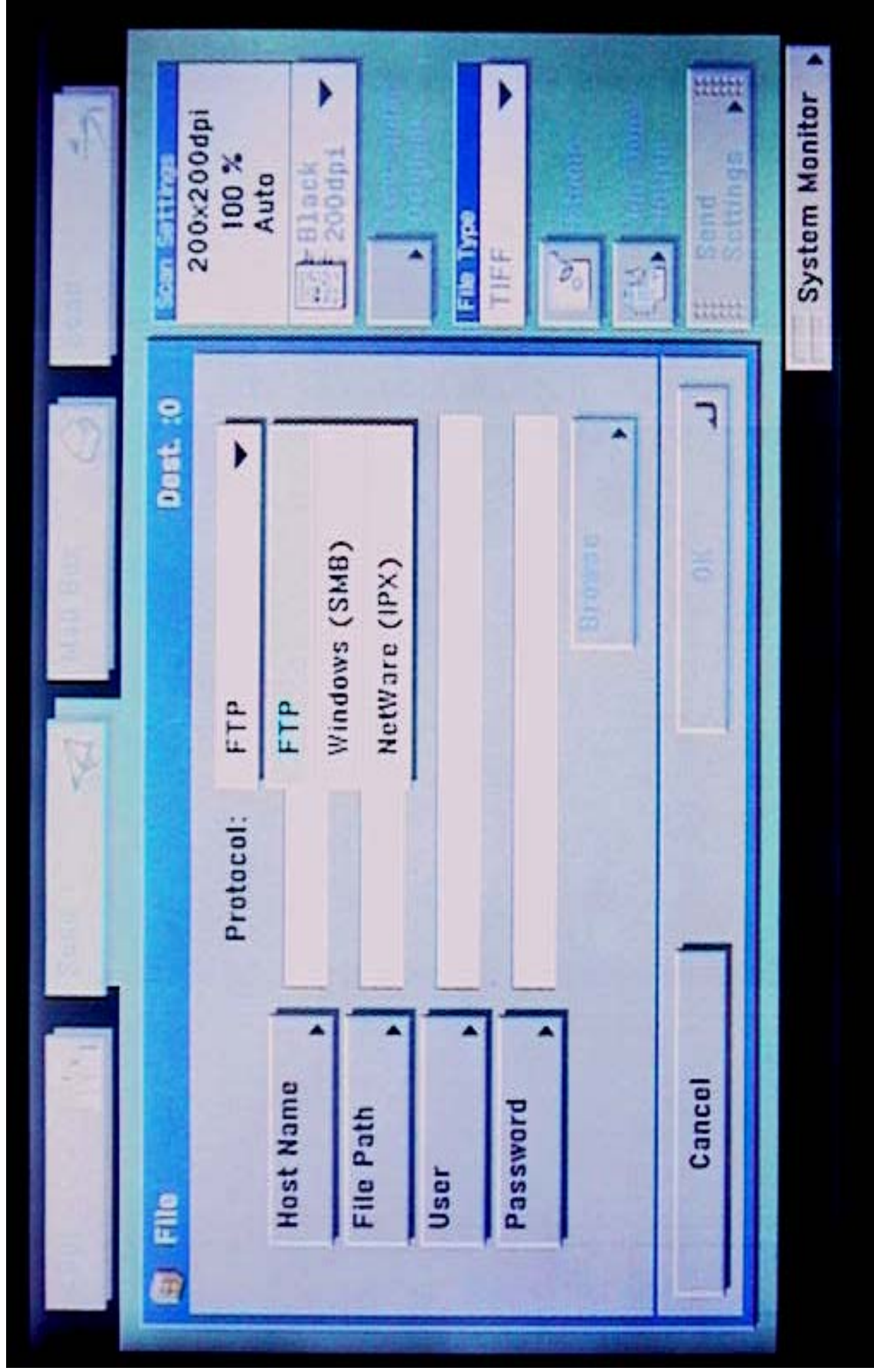
Canon's "Universal Send"

Main screen:

First Let's look at Sending a File



Send File: Protocol types



SOME CURRENT LIMITATIONS

We can only scan to a Linux/Samba box using "Share" level security. We are able to send to both open and closed shares.

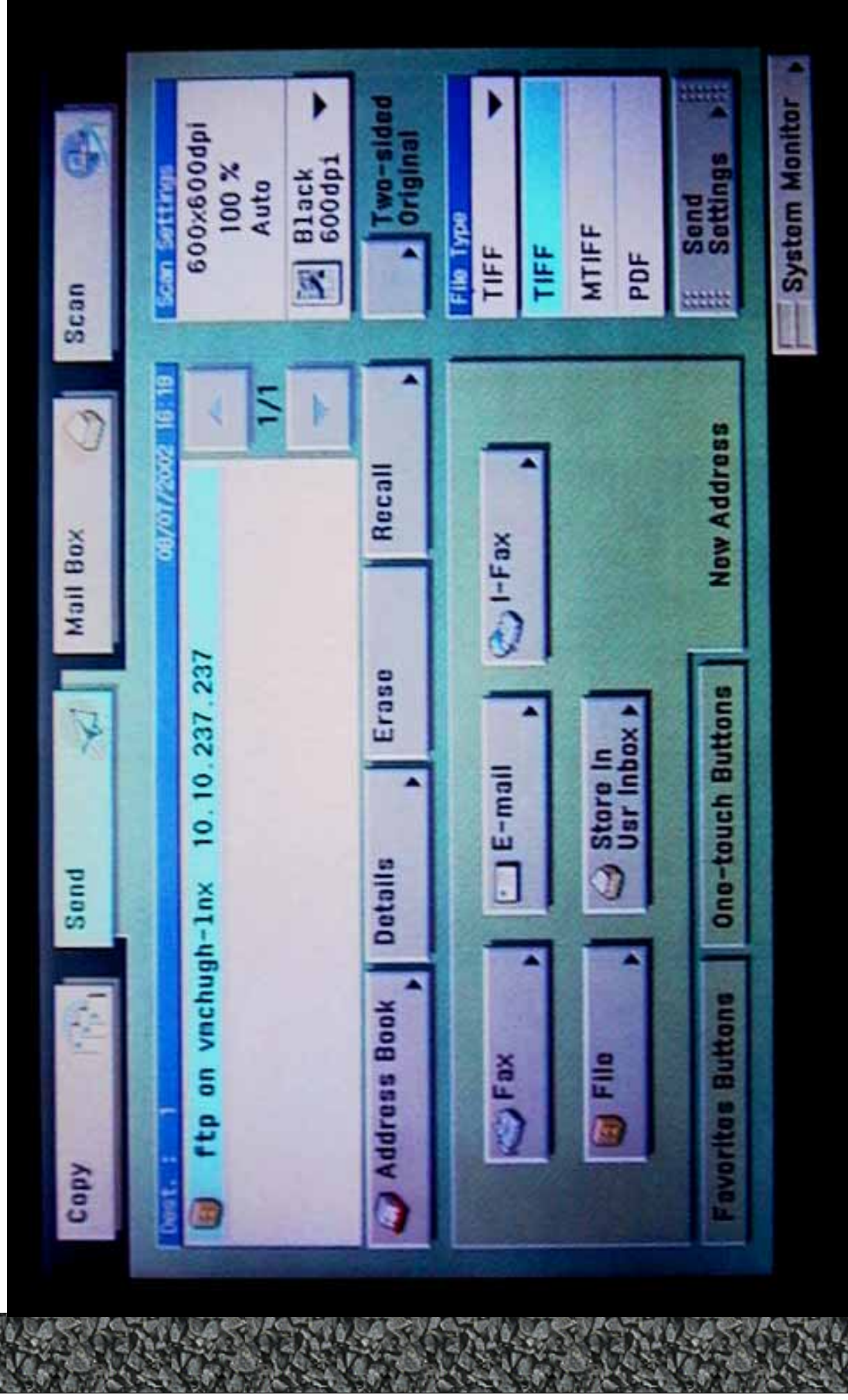
We can not (at this time) push scan using "User" level security.

(We will continue to work on this)

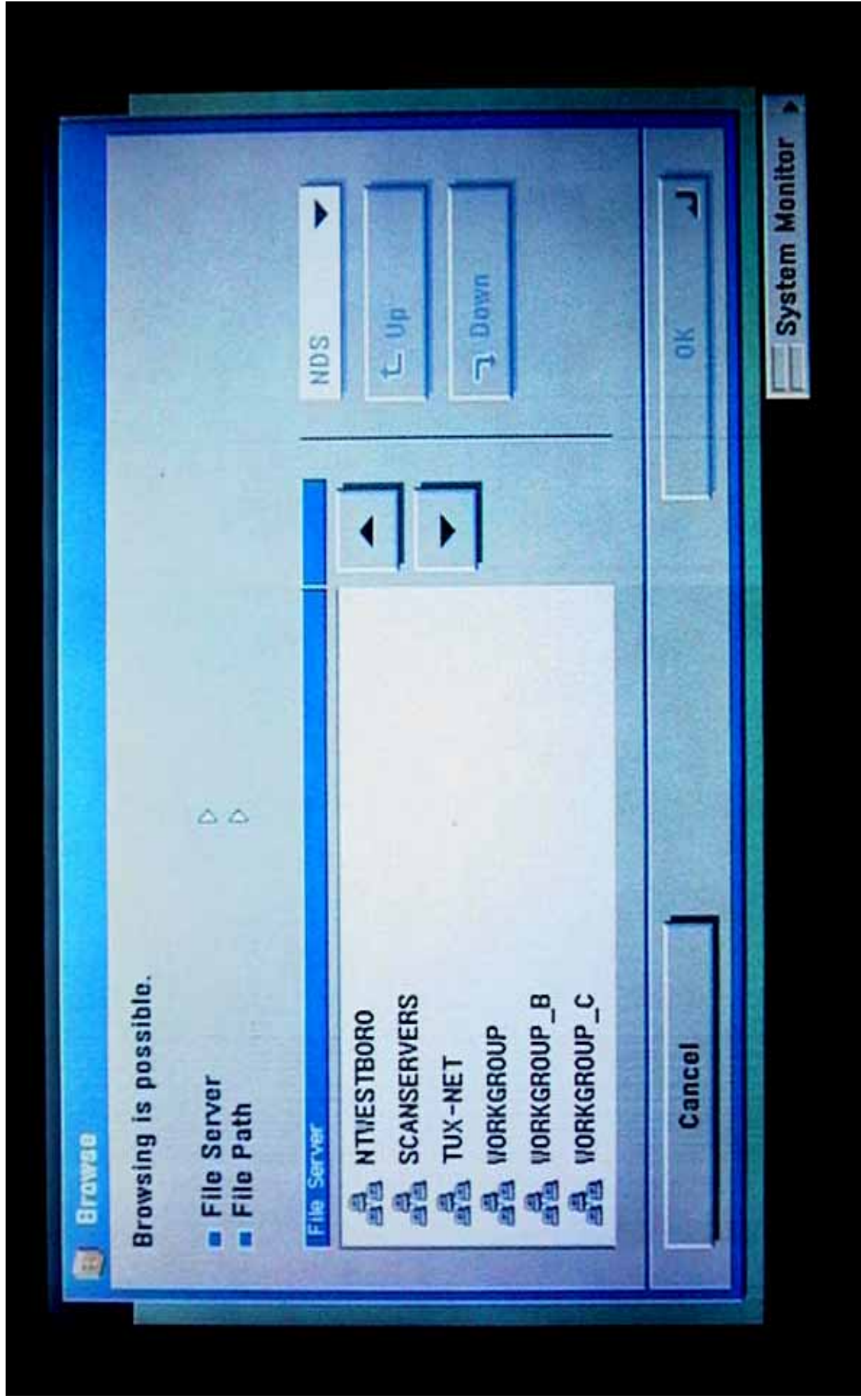
This only applies to smb.

Email & ftp do work with the Canon "i" series with Push scanning

Select Your File type (Tiff, Mtiff, or PDF)

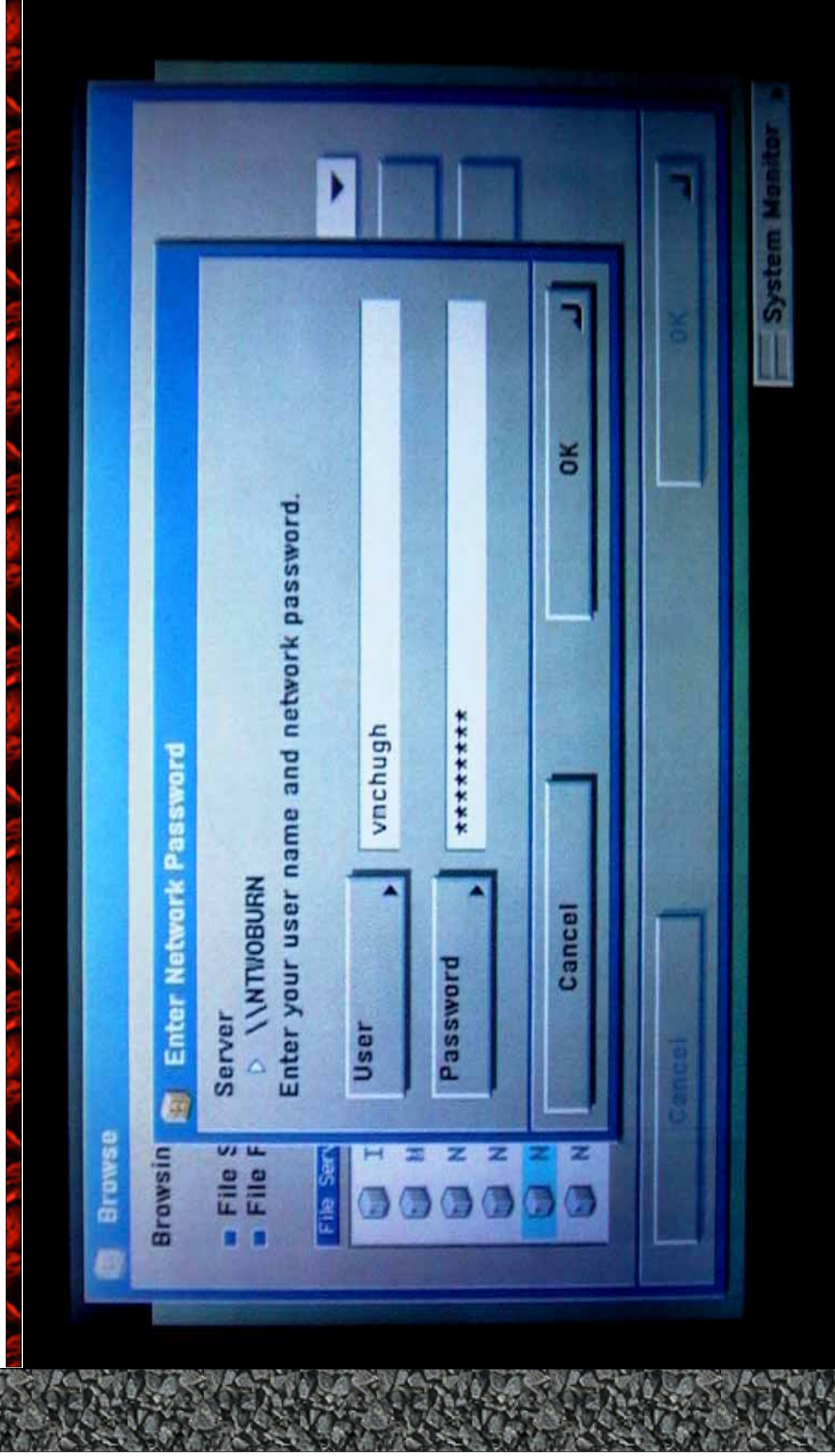


If you choose "**smb**" you can browse to your **samba** share
You can view WorkGroups & Domains



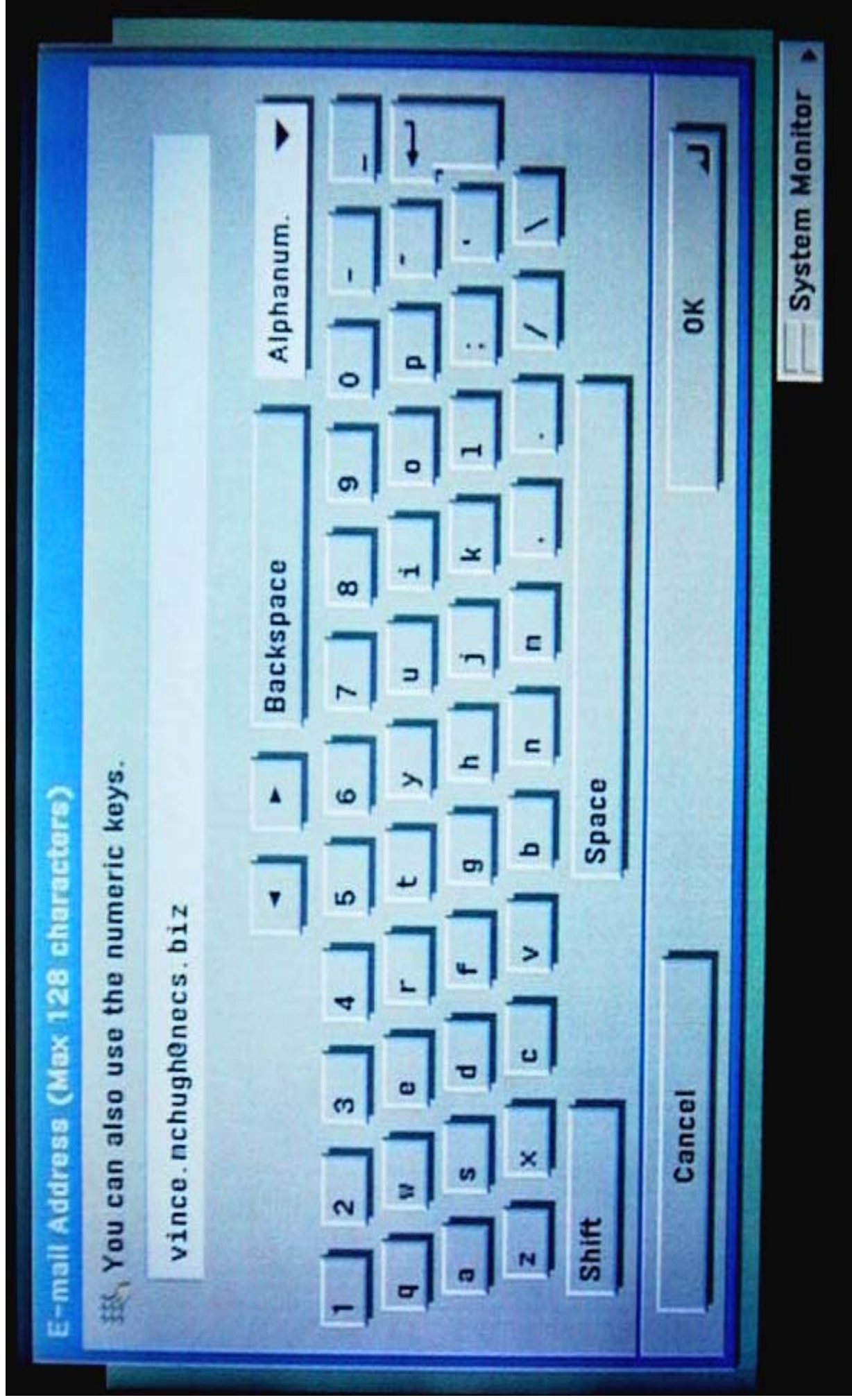
When browsing security is enforced

(**NTWOBURN** is one of our **Linux \ Samba** servers)



You can type in an Email address "on the fly" with the virtual keyboard but...

The 10 built in address books makes it much easier !!!



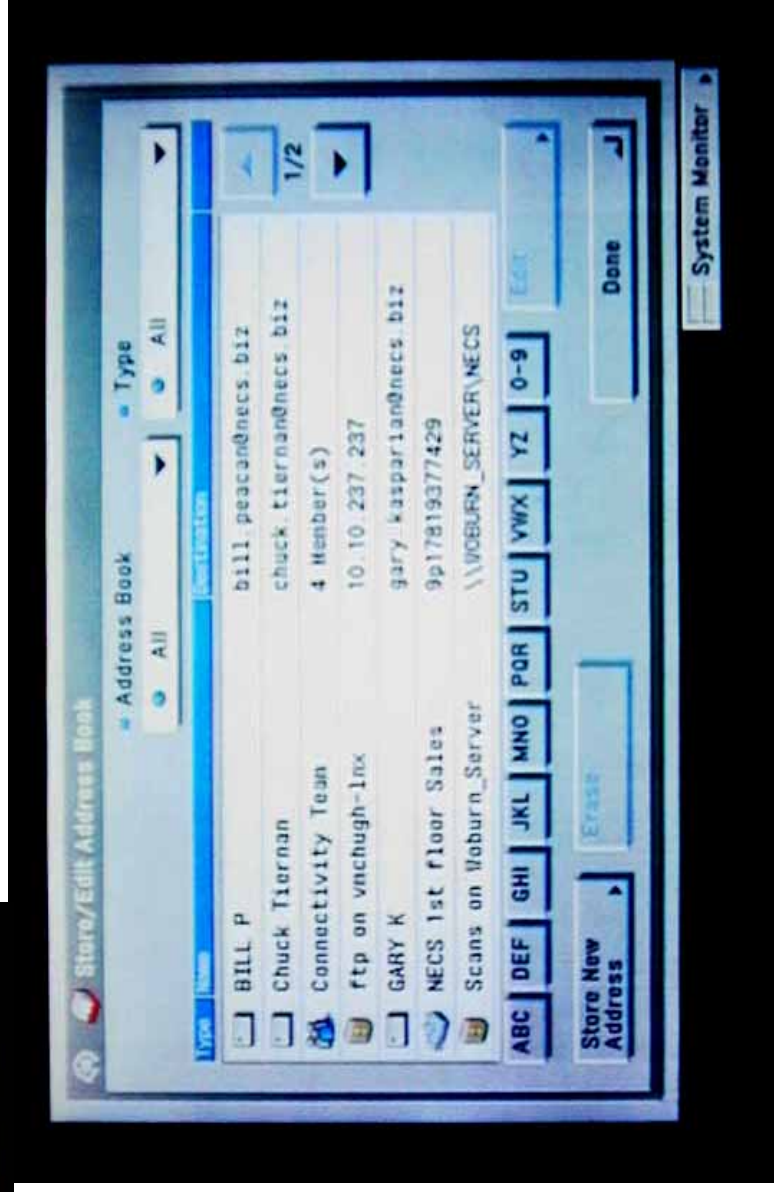
*You can set up
10 different
address books*



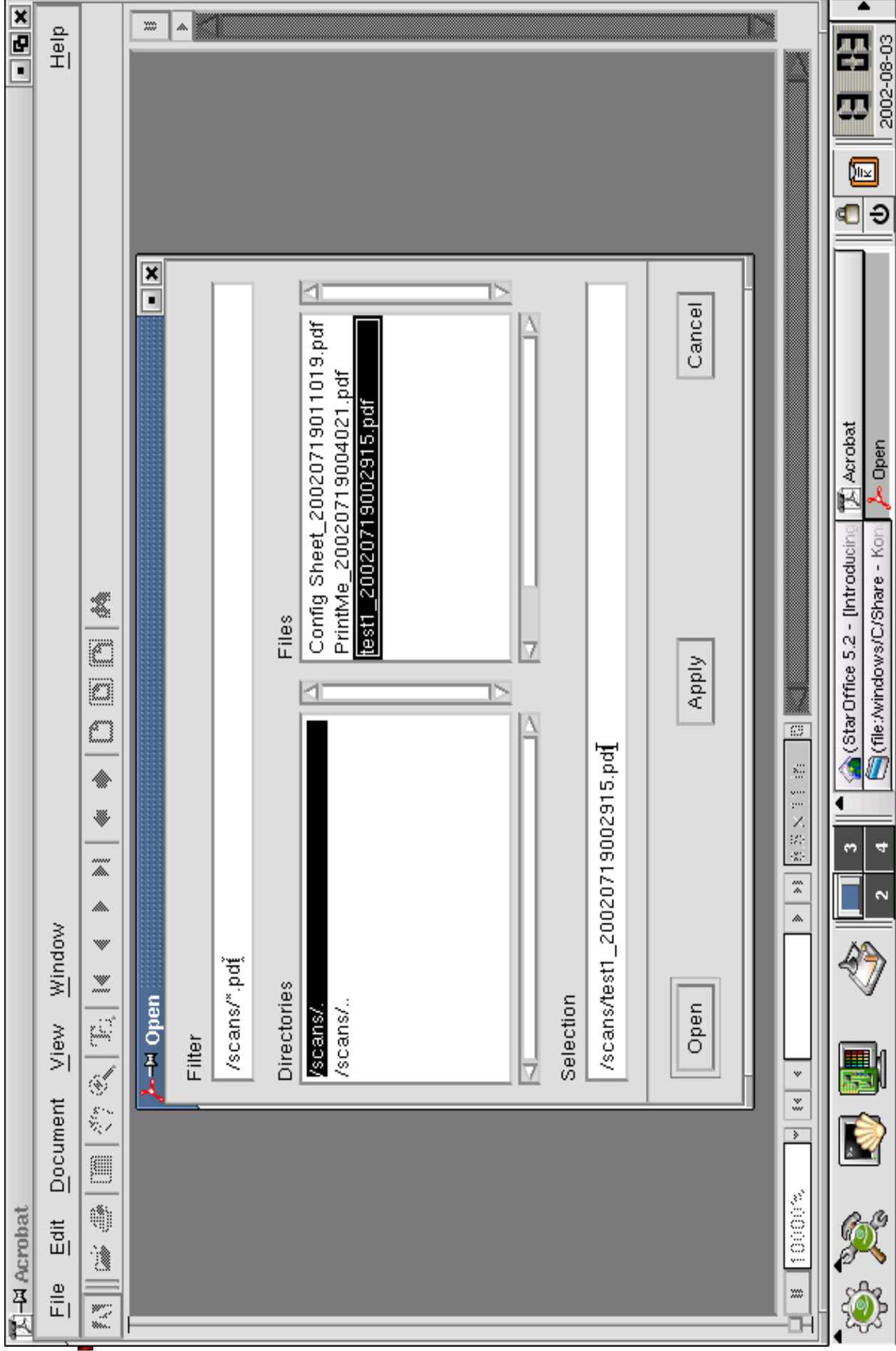
*You can mix and match any
of the address types in any
address book.*

Email, smb, ftp, fax, i-fax

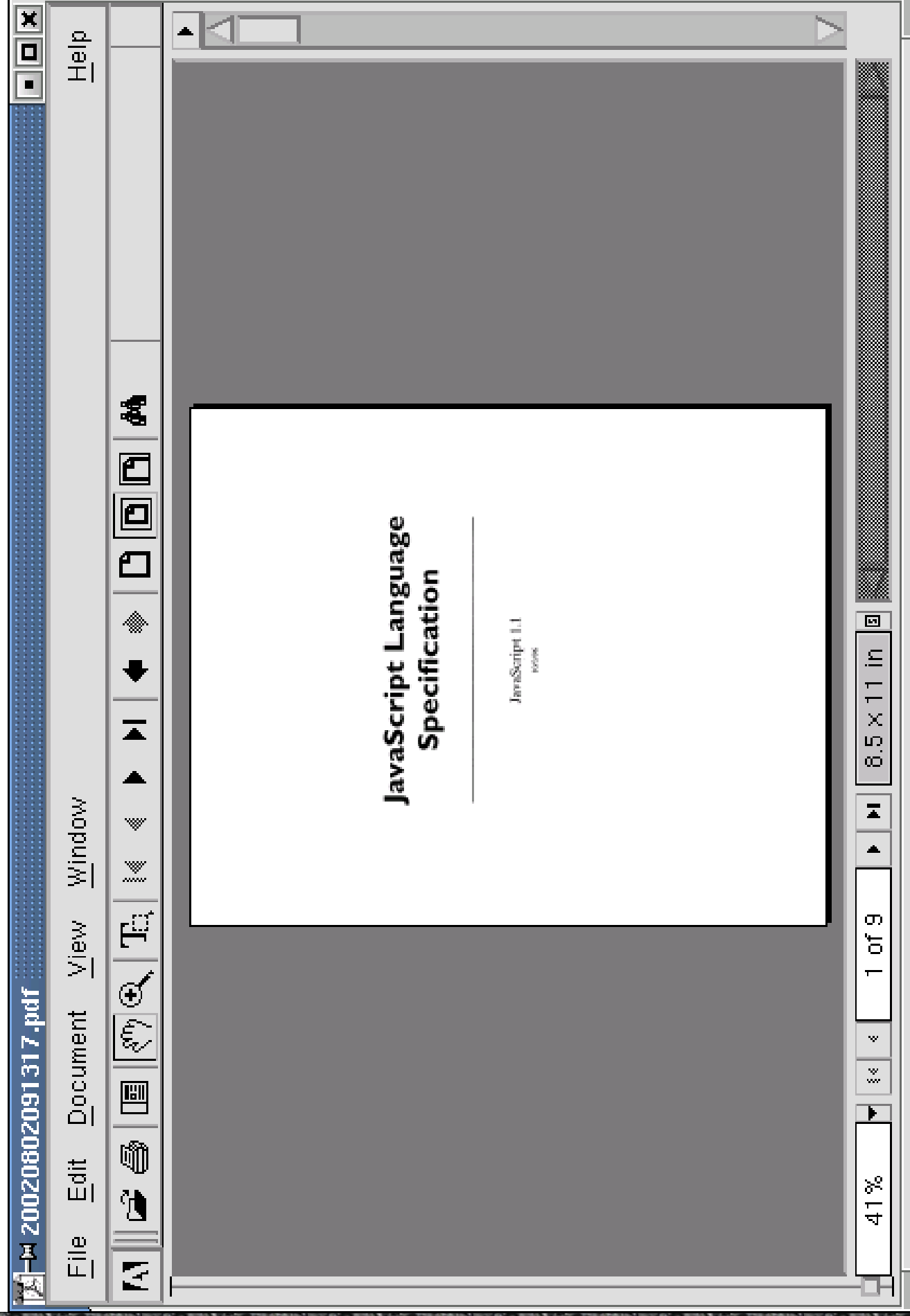
**You can even mix address
types in a single "Group"
send**



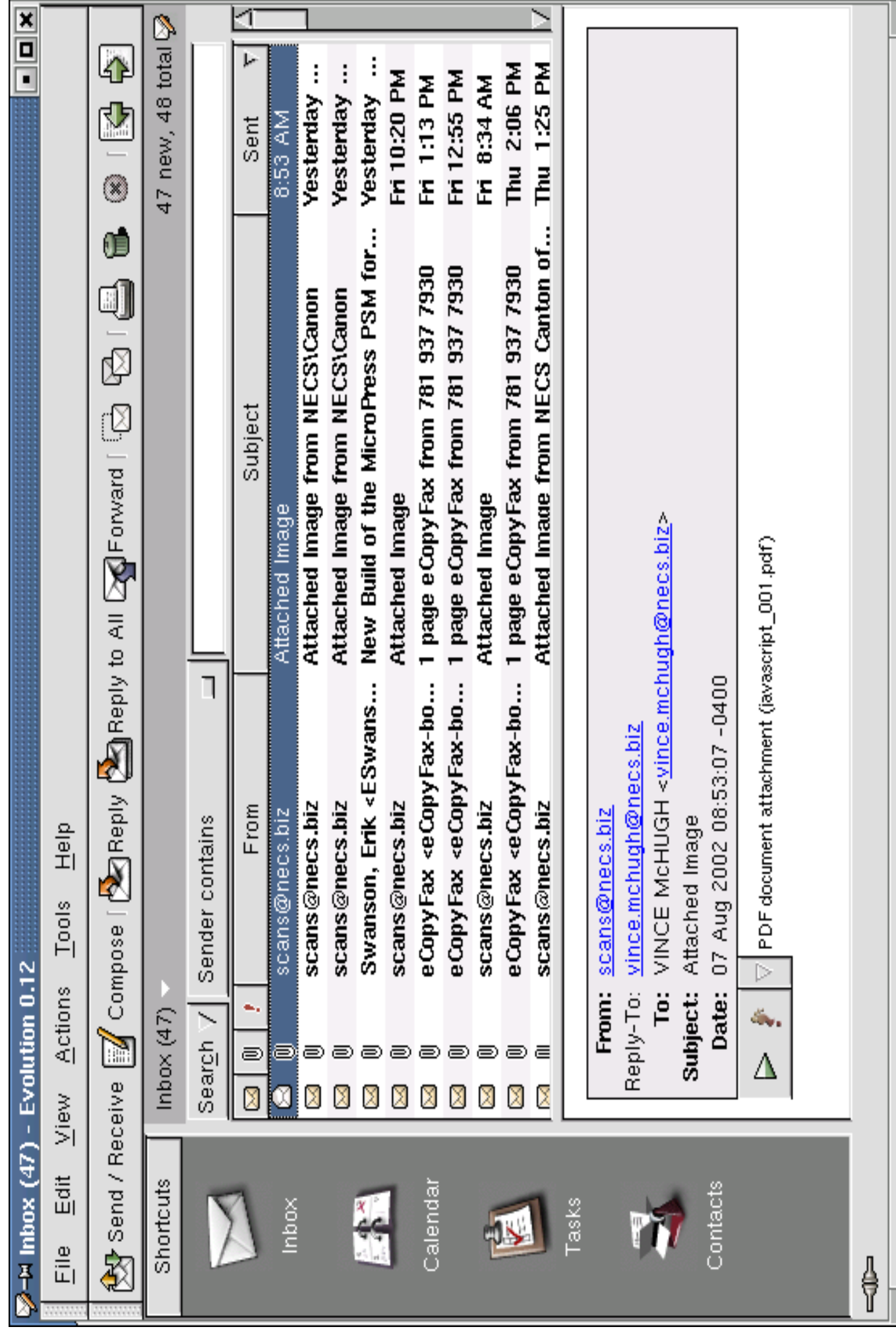
Once You've sent the file to your Linux Work Station, you can open it with Your favorite PDF or TIFF Viewer.




Acrobat Reader on my Linux Work Station



You can also use Your Linux Email to route your documents



Easy Email set up

 E-mail/Internet-Fax

☒ SMTP Receipt ☒ On ☐ Off ☒ POP


SMTP Server ▶ 10.10.25.11


E-mail Address ▶ scans@necs.biz

POP Server ▶ necs.biz

POP Address ▶ 10.10.25.11

POP Password ▶ *****

☒ POP Interval (0=off, 1-99) 10 min 

 System Monitor ▶

WRAP UP

With CUPS you get both **lp** and **lpr** with added modern print features.

And *Best of All* CUPS makes it **easy to manage**.

Scanning & Imaging are here to stay!!!

Choose companies that use standard (non proprietary) technologies, protocols, and file formats.

Then you can easily implement **Linux Scanning**.

VINCE MCHUGH

I am currently The **Systems Support Manager** for the largest independent Canon dealer in New England.

I have been working with **Linux** for about **4 years**.

I am a member of the Greater New Hampshire Linux User Group (**GNHLUG**).

I also read the mailing lists for **blu.org** and **linuxprinting.org** (general and sometimes canon)

I also hold a **Novell CNE** and a Microsoft MCP.

I can be reached through the above mailing lists or if it's off topic **vince_mchugh@yahoo.com**