Running Linux in a Windows World: Interoperability in Formats, Protocols, & Software

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It is easily possible
for Linux & Windows
to coexist & even work together.

1. Cross-platform software
2. File formats
3. Remote control
4. Samba
5. Running Windows in Linux
6. Running Linux in Windows

A lot of software
will run on both Windows & Linux.

Most is open source.

This software covers most basic business needs.

Examples:

Mozilla/Netscape/Firebird (Web)
Thunderbird (email)
OpenOffice.org (office)
Adobe Acrobat Reader (PDF)
Gaim (IM)
Dia (diagramming)
Audacity (sound editing)
The GIMP (image editing)
Nmap (port scanning)
Real Player (sound)
Doom & Unreal Tournament (you know what)

In the area of Web development,

you can go LAMP
(Linux, Apache, MySQL, PHP or Perl or Python)

or WAMP
(Windows, Apache, MySQL, PHP or Perl or Python).

Of perhaps more importance
is the ability to share file formats
between Windows & Linux.

With true file format compatibility,
it shouldn’t matter if you’re using
Windows, or Linux, or Mac OS X.

As the Internet becomes more and more
inextricably part of our daily lives,
the increasing usage of the Web, email, & IM
only benefits interoperability.

With one caveat:
software creators have to value interoperability.

Examples of file format interoperability:

TXT
HTML, plain text email, IM
PDF
DOC, XLS, PPT
CSV, TSV
ZIP
JPG, GIF, PNG, TIFF, PSD
MPG, AVI, WMV
MP3, OGG, WMA, RA

Every office needs an office suite –
word processor, spreadsheet, presentations.

OpenOffice.org is an open source office suite
that runs on Windows & Linux.

www.openoffice.org

OpenOffice.org is powerful,
easy to use,
& feature-complete.

You can create PDFs from any document.

And, OOo has one particularly killer feature:

it can read *and* write
Microsoft Office file formats!

Open and read,
or create and save,
files in these formats:

Microsoft Word 6.0, 95, or 97/2000/XP
Microsoft Excel 5.0, 95, or 97/2000/XP
Microsoft PowerPoint 97/2000/XP

Some caveats:

Conversion is not 100%.
Microsoft has not opened its file formats,
so all work is reverse engineered.
Even so, OOo is pretty darn accurate.

VBA-based Excel macros don’t work at this time.
They’re not discarded, but they don’t work either.
Fixing this is a target of OOo 2.0.

Of course,
many prefer using OpenOffice.org's
default file formats.

They're based on XML,
they're open,
& they're well-documented.

Here's a statistic that may interest you.

One of my presentations contains over 200 slides,
with 25 embedded images.

When saved as an OpenOffice.org file,
it’s 400 kb.

When saved as a PowerPoint file,
it’s 800 kb.

However, for some strange reason,
Microsoft won't build support for
SXW, SXC, & SXI
into Microsoft Office.

I wonder why ...?

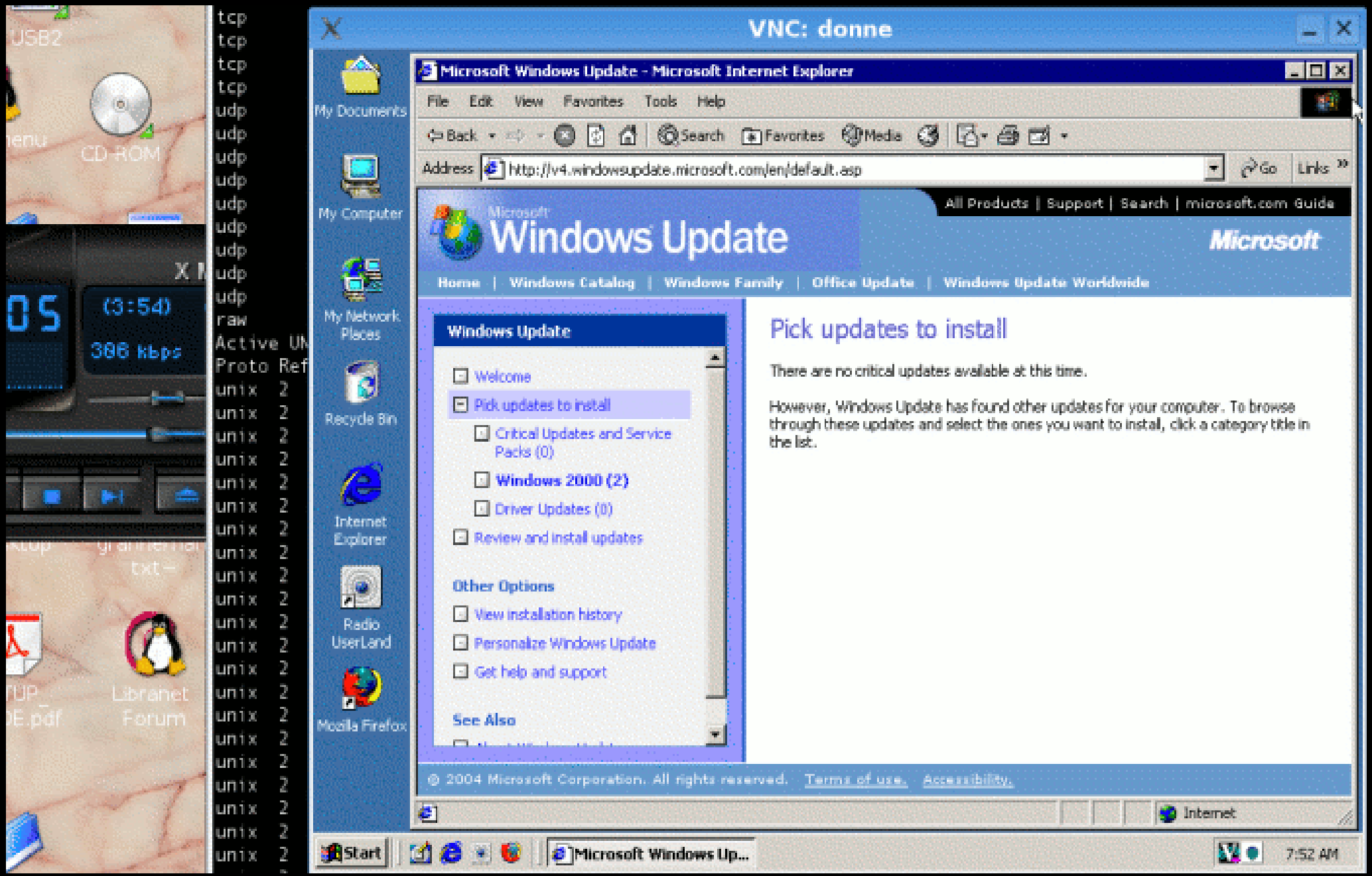
Using VNC,
it's possible to remotely control
Linux & Windows (& Mac OS X) machines.

VNC is free, open, & works well.

www.tightvnc.com
www.realvnc.com

VNC stands for
Virtual Network Computing.

You can log in
(securely, using SSH, if you'd like)
& control
Windows from Linux,
Linux from Windows,
Mac OS X from Windows or Linux,
& on & on.


VNC: donne
Microsoft Windows Update - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://v4.windowsupdate.microsoft.com/en/default.asp
Go Links
Windows Update
All Products | Support | Search | microsoft.com Guide
Microsoft
Home | Windows Catalog | Windows Family | Office Update | Windows Update Worldwide
Windows Update
Welcome
Pick updates to install
Critical Updates and Service Packs (0)
Windows 2000 (2)
Driver Updates (0)
Review and install updates
Other Options
View installation history
Personalize Windows Update
Get help and support
See Also
Pick updates to install
There are no critical updates available at this time.
However, Windows Update has found other updates for your computer. To browse through these updates and select the ones you want to install, click a category title in the list.
© 2004 Microsoft Corporation. All rights reserved. Terms of use. Accessibility.
Internet
Start
Microsoft Windows Up...
7:52 AM
My Documents
My Computer
My Network Places
Recycle Bin
Internet Explorer
Radio UserLand
Mozilla Firefox
CD-ROM
Libranet Forum
(3:54)
386 kbps
tcp
udp
raw
unix

Samba
is one of the most important pieces of software
in existence today.

www.samba.org

It's an open source reverse engineering
of Microsoft's SMB (now CIFS) protocol.

In simpler terms,
it allows Windows & Linux (& Mac OS X)
to share files, share printers, & authenticate.

Linux machines can act as
file servers,
print servers,
or PDCs/BDCs,
serving to Linux or Windows clients.

Linux clients can connect
to Windows shares,
Windows printers,
Windows Domains,
or Windows ADS Domains.

Got a Windows file server?

Replace it with a Linux box running Samba.

Your Windows clients will never know.

And Samba is a superb file server.

Free. Easy. Stable.
And 100% as fast
as the same machine
running Windows 2000!

www.itweek.co.uk/News/1131114

Or, if you're allowing client machines to serve files,
Windows machines can share files & folders,
Linux machines can share files & folders,
& everyone can play nice together.

To configure Samba server on a Linux box,
you're really editing
/etc/samba/smb.conf.

It's a well-documented, well-commented
text file
which you can edit by hand.

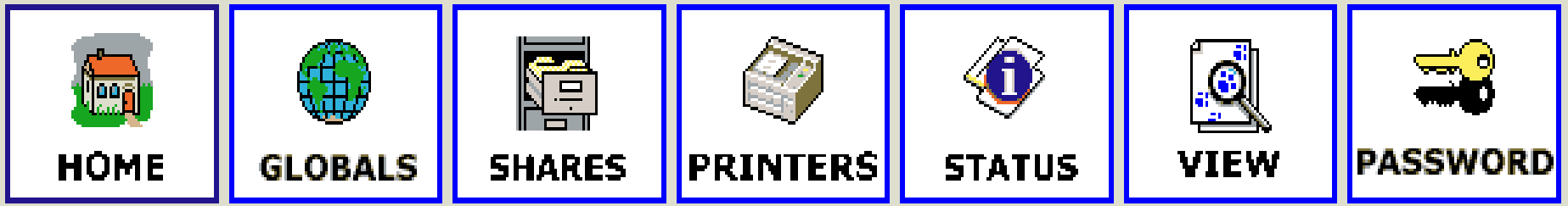
However, a variety of GUI tools are available to make editing smb.conf easier.

SWAT
YAST
Webmin
KSambaPlugin

SWAT is provided by the Samba group.

Also free,
it’s a Web-based tool for editing smb.conf.

us4.samba.org/samba/docs/man/howto/SWAT.html



Welcome to SWAT!

Please choose a configuration action using one of the above buttons

Documentation

- **Daemons**
  - smbd - the SMB daemon
  - nmbd - the NetBIOS nameserver
- **Administrative Utilities**
  - smbstatus - monitoring Samba
  - SWAT - web configuration tool
  - smbpasswd - managing SMB passwords
  - make_smbcodepage - codepage creation
  - testparm - validating your config file

Share Parameters

Choose Share | homes | Delete Share

Create Share

Commit Changes | Reset Values | Advanced view

Base Options

Help comment: Heimatverzeichnis Set Default

Help path: Set Default

Security Options

Help guest account: nobody Set Default

Help read only: No Set Default

Help create mask: 0750 Set Default

Help guest ok: No Set Default

Help hosts allow: Set Default

Help hosts deny: Set Default

Browse Options

Help browseable: No Set Default

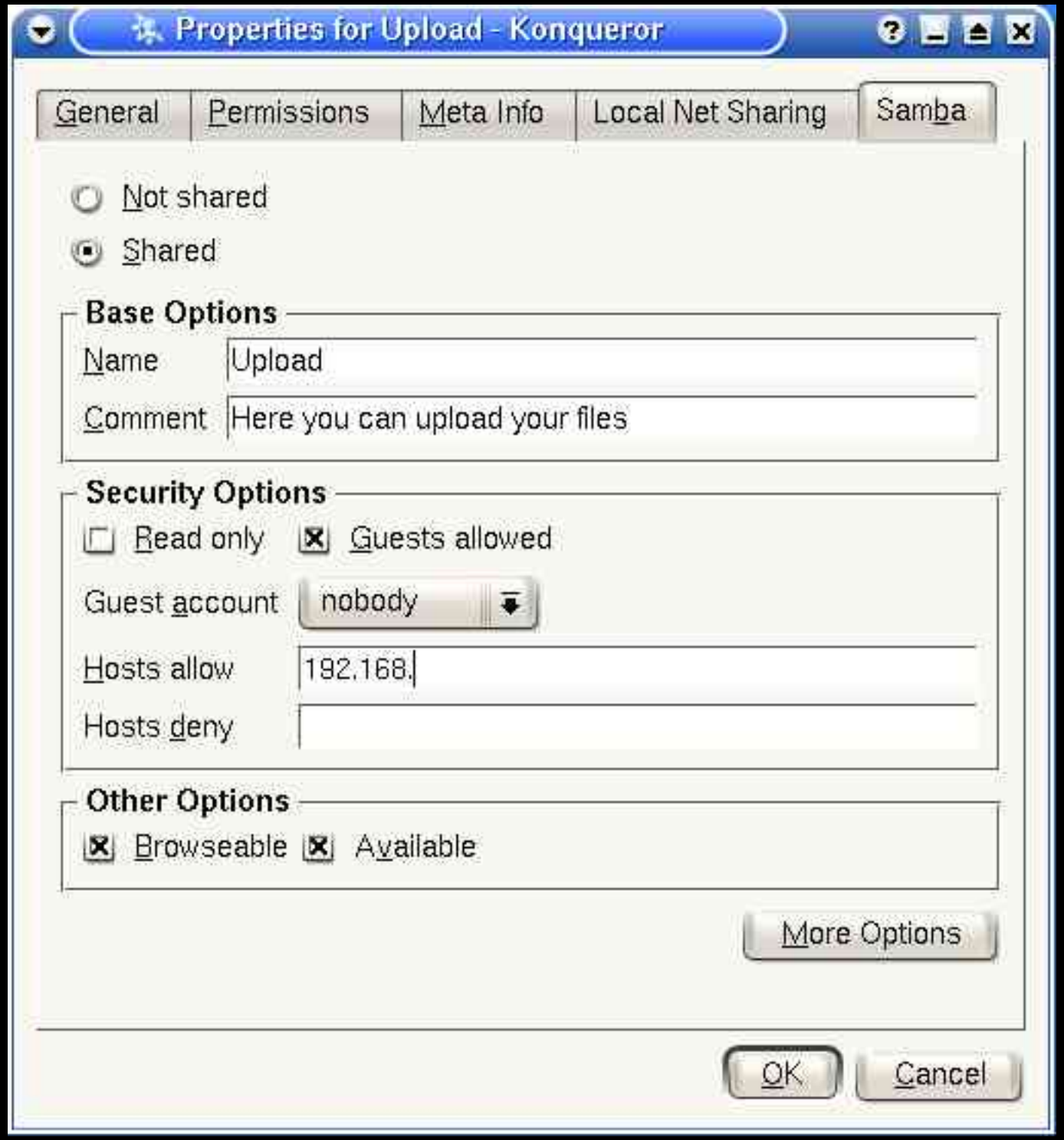
Miscellaneous Options

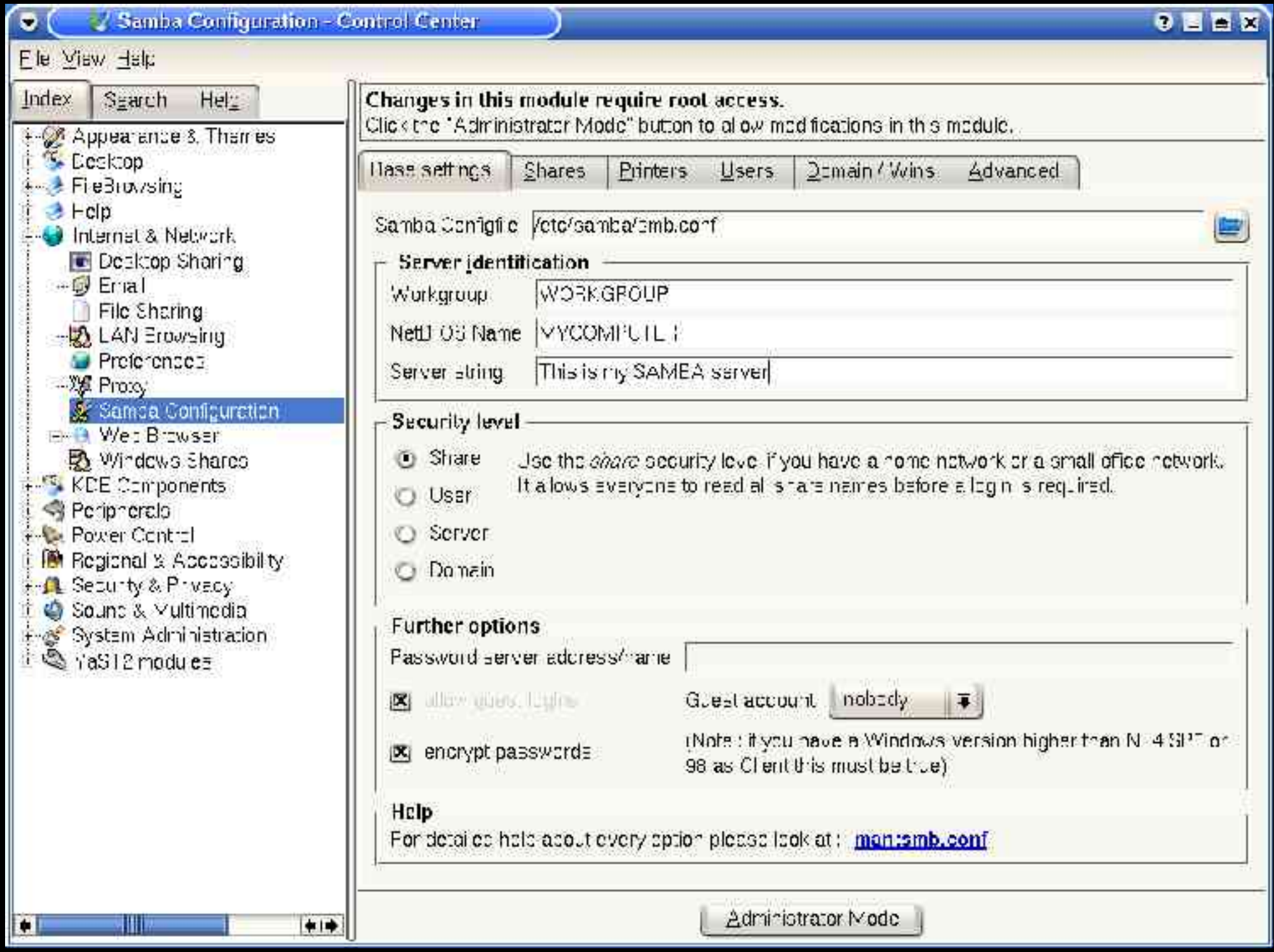
Help available: Yes Set Default

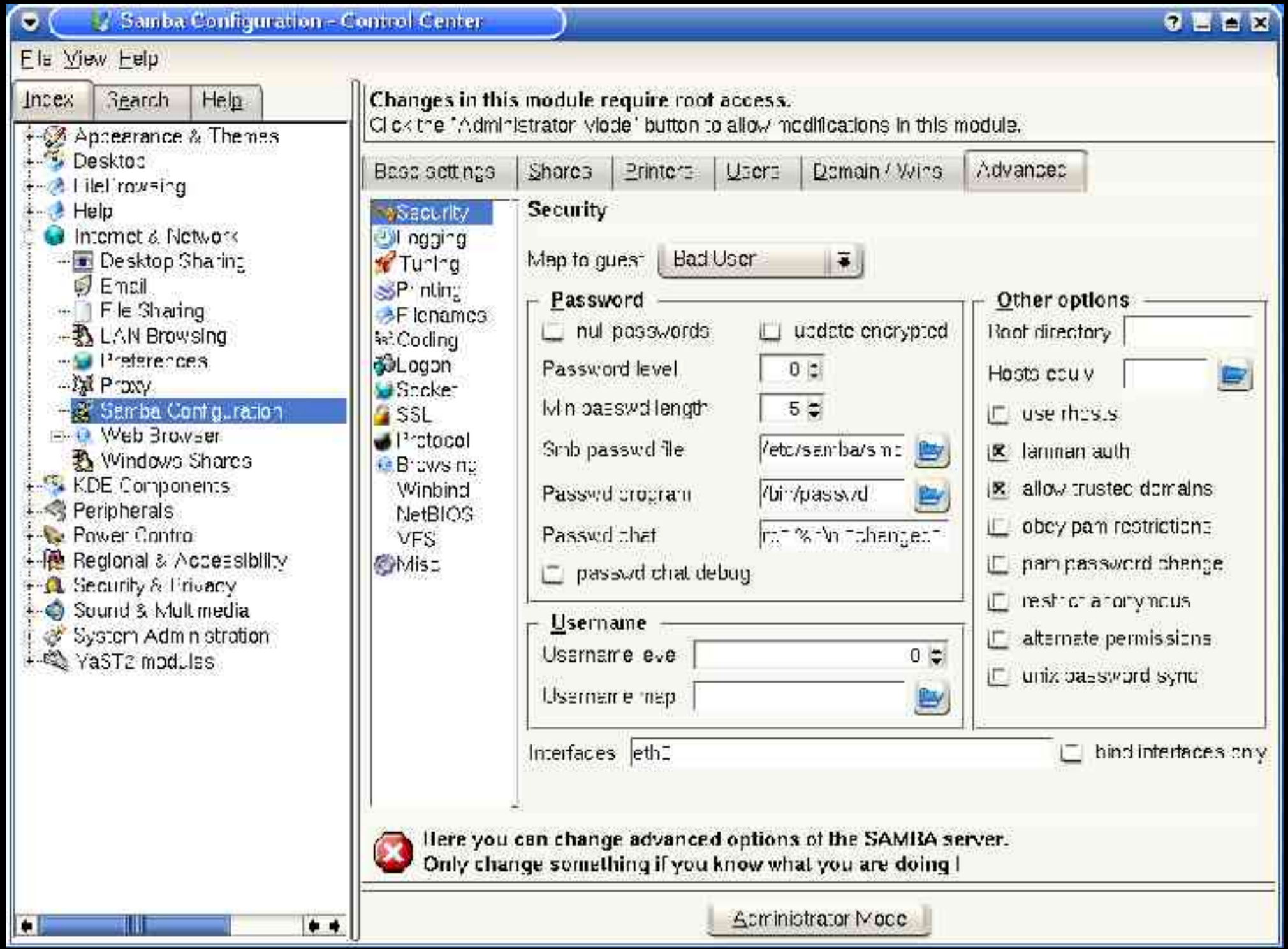
KSambaPlugin is a free,
open source add-on
for KDE.

It makes enabling shares
as easy as right-clicking on a folder.

ksambakdeplugin.sourceforge.net


Properties for Upload - Konqueror
General
Permissions
Meta Info
Local Net Sharing
Samba
Not shared
Shared
Base Options
Name
Upload
Comment
Here you can upload your files
Security Options
Read only
Guests allowed
Guest account
nobody
Hosts allow
192.168.
Hosts deny
Other Options
Browseable
Available
More Options
OK
Cancel


Samba Configuration - Control Center
File View Help
Index
Search
Help
Appearance & Themes
Desktop
FileBrowsing
Help
Internet & Network
Desktop Sharing
Email
File Sharing
LAN Browsing
Preferences
Proxy
Samba Configuration
Web Browser
Windows Shares
KDE Components
Peripherals
Power Control
Regional & Accessibility
Security & Privacy
Sound & Multimedia
System Administration
YaST2 modules
Changes in this module require root access.
Click the "Administrator Mode" button to allow modifications in this module.
Base settings
Shares
Printers
Users
Domain / Wins
Advanced
Samba Config file
/etc/samba/smb.conf
Server identification
Workgroup
WORKGROUP
NetBIOS Name
MYCOMPUTER
Server string
This is my SAMBA server
Security level
Share
User
Server
Domain
Use the share security level if you have a home network or a small office network. It allows everyone to read all share names before a login is required.
Further options
Password server address/name
Allow guest logins
Guest account
nobody
encrypt passwords
(Note: if you have a Windows version higher than NT 4.SP3 or 98 as Client this must be true)
Help
For details help about every option please look at: man:smb.conf
Administrator Mode


Samba Configuration – Control Center
File View Help
Index
Search
Help
Appearance & Themes
Desktop
File Browsing
Help
Internet & Network
Desktop Sharing
Email
File Sharing
LAN Browsing
Preferences
Proxy
Samba Configuration
Web Browser
Windows Shares
KDE Components
Peripherals
Power Control
Regional & Accessibility
Security & Privacy
Sound & Multimedia
System Administration
YaST2 modules
Changes in this module require root access.
Click the 'Administrator Mode' button to allow modifications in this module.
Basic settings
Shares
Printers
Users
Domain / Wins
Advanced
Security
Logging
Tuning
Printing
Filenames
Coding
Logon
Socket
SSL
Protocol
Browsing
Winbind
NetBIOS
VFS
Misc
Security
Map to guest
Bad User
Password
null passwords
update encrypted
Password level
0
Min passwd length
5
Smb passwd file
/etc/samba/smb
Passwd program
/bin/passwd
Password chat
passwd chat debug
Other options
Root directory
Hosts equiv
use rhosts
lanman auth
allow trusted domains
obey pam restrictions
pam password change
restrict anonymous
alternate permissions
unix password sync
Username
Username level
0
Username map
Interfaces
eth0
bind interfaces only
Here you can change advanced options of the SAMBA server.
Only change something if you know what you are doing !
Administrator Mode

Linux boxes can also connect to SMB shares,
whether served by Linux or Windows.

In addition to on-the-fly connections,
it's easy to mount shares.

There are a variety of tools
that makes this a simple process:

LinNeighborhood
Smb4K
xSMBrowser
Konqueror

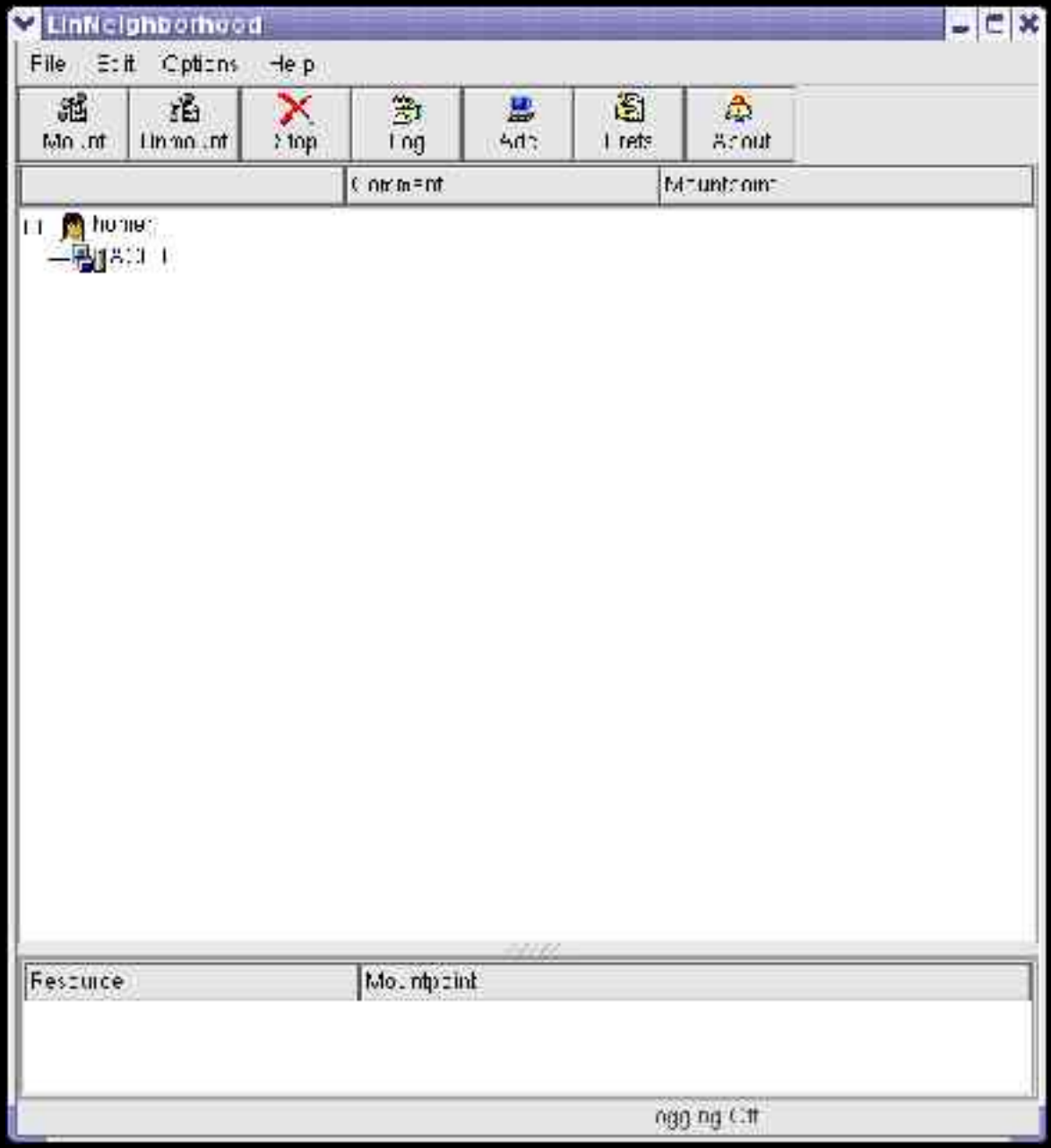
LinNeighborhood is free,
open source,
and easy to use.

www.bnro.de/~schmidjo/

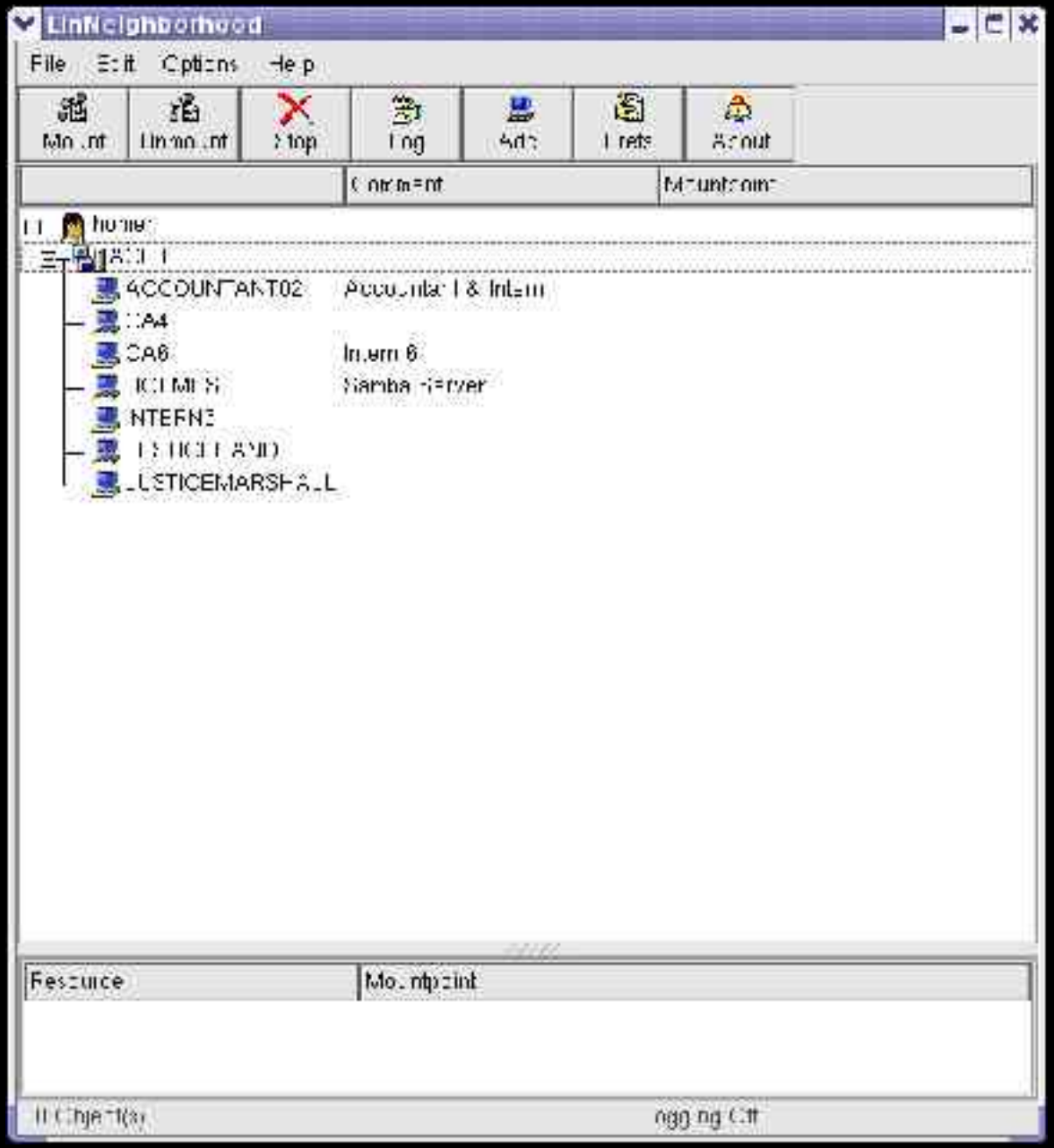
One technical note
(& this applies to many of these tools):

before letting your users start to mount shares,
set suid root on 2 key commands:

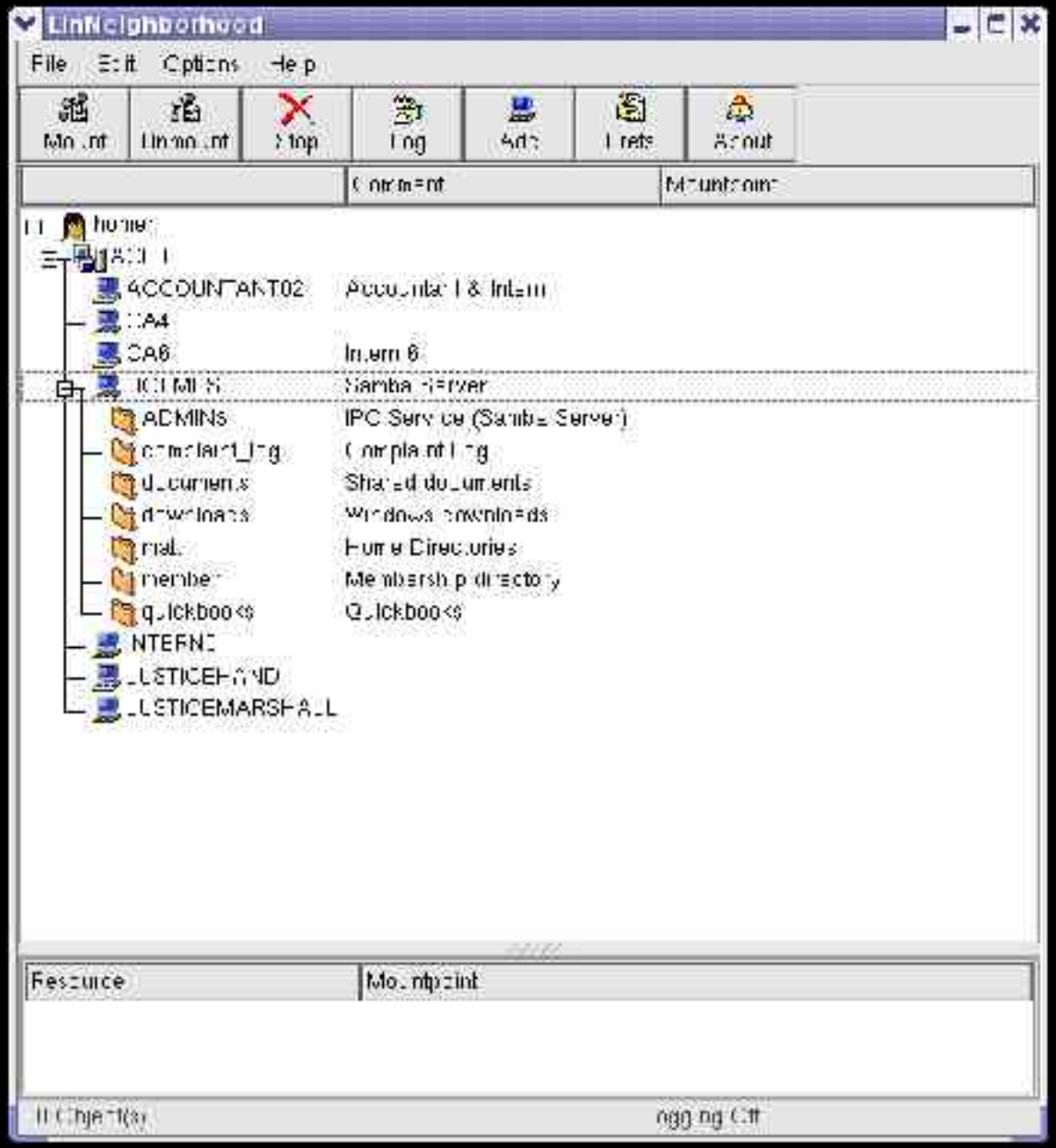
chmod +s /usr/bin/smbmnt
chmod +s /usr/bin/smbumount



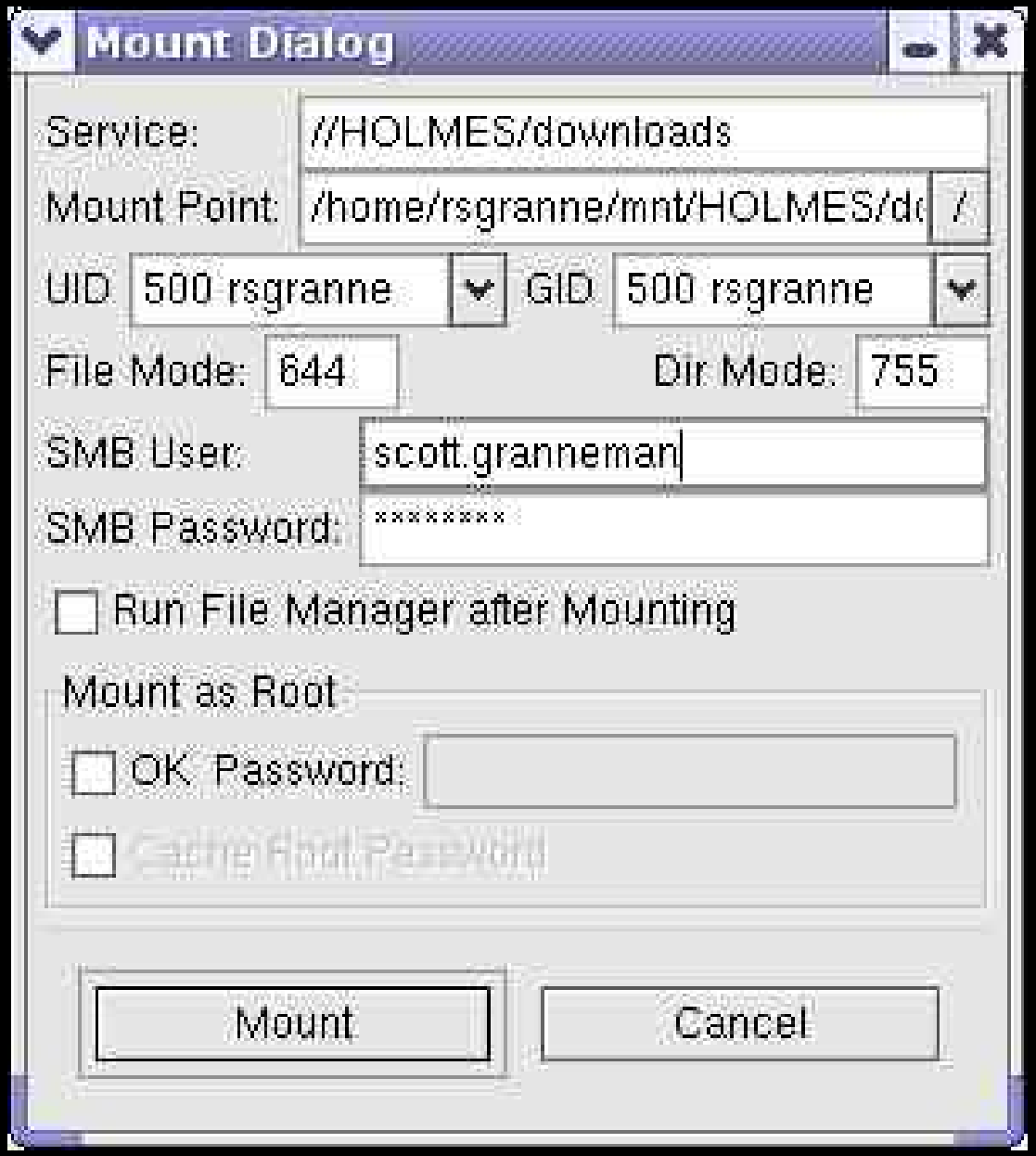
You can see my machine – Homer – and any SMB-based networks my machine is on (ACLU).



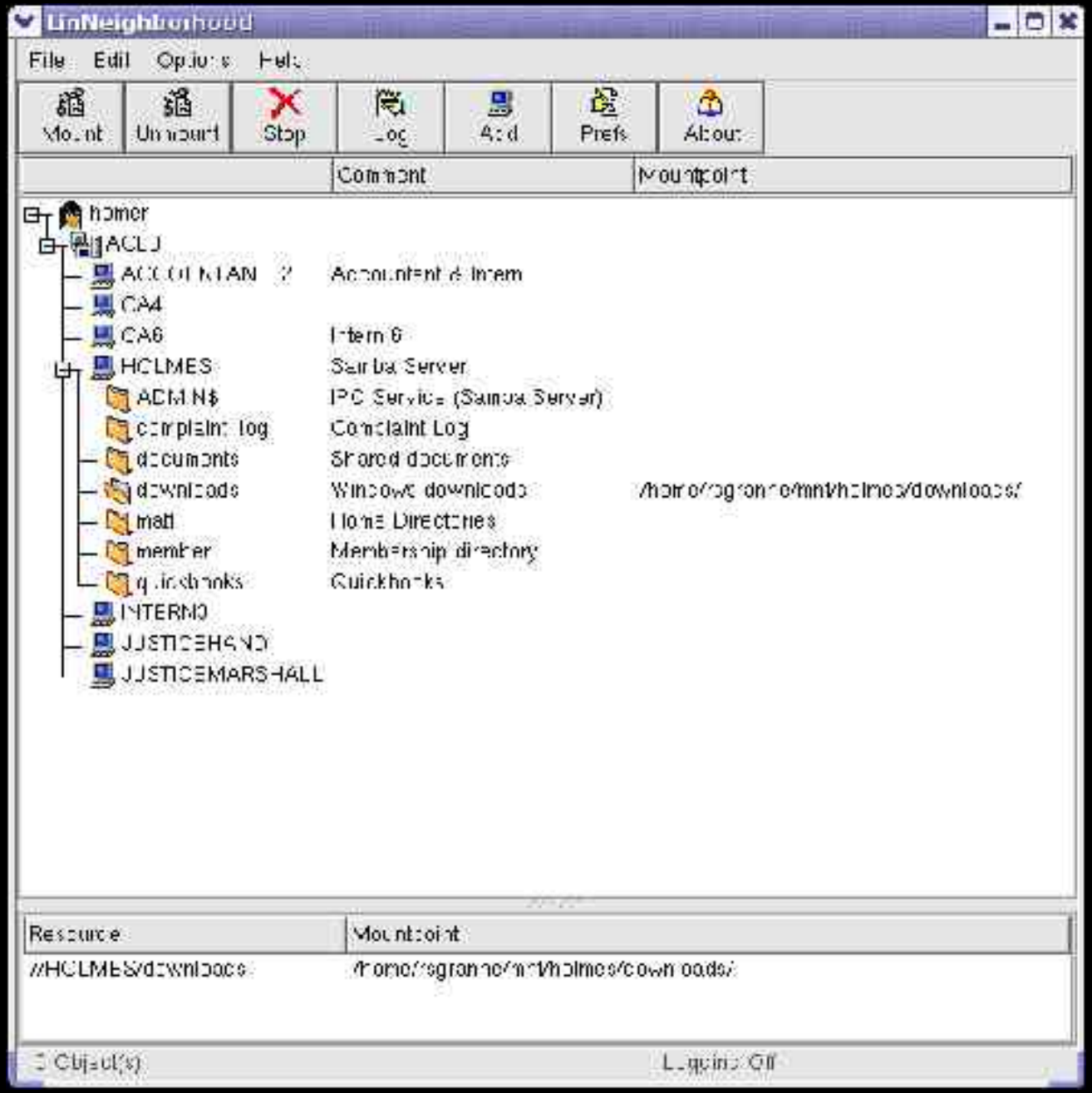
LN shows you a list of all machines sharing files & printers on the LAN. Double-click on the machine you want to access.



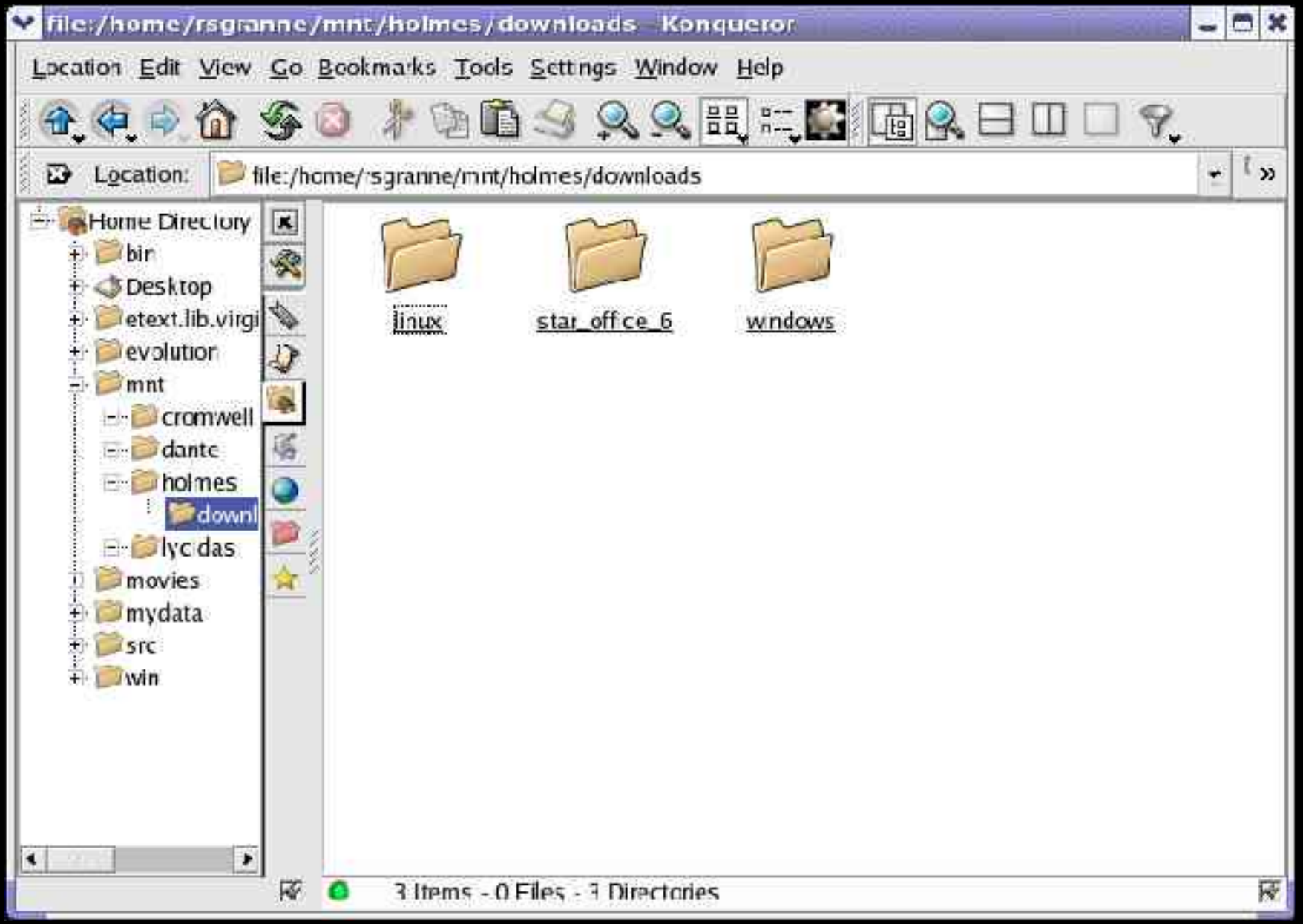
After authenticating, LN shows you a list of all shares on that machine. Double-click on the share you wish to access.



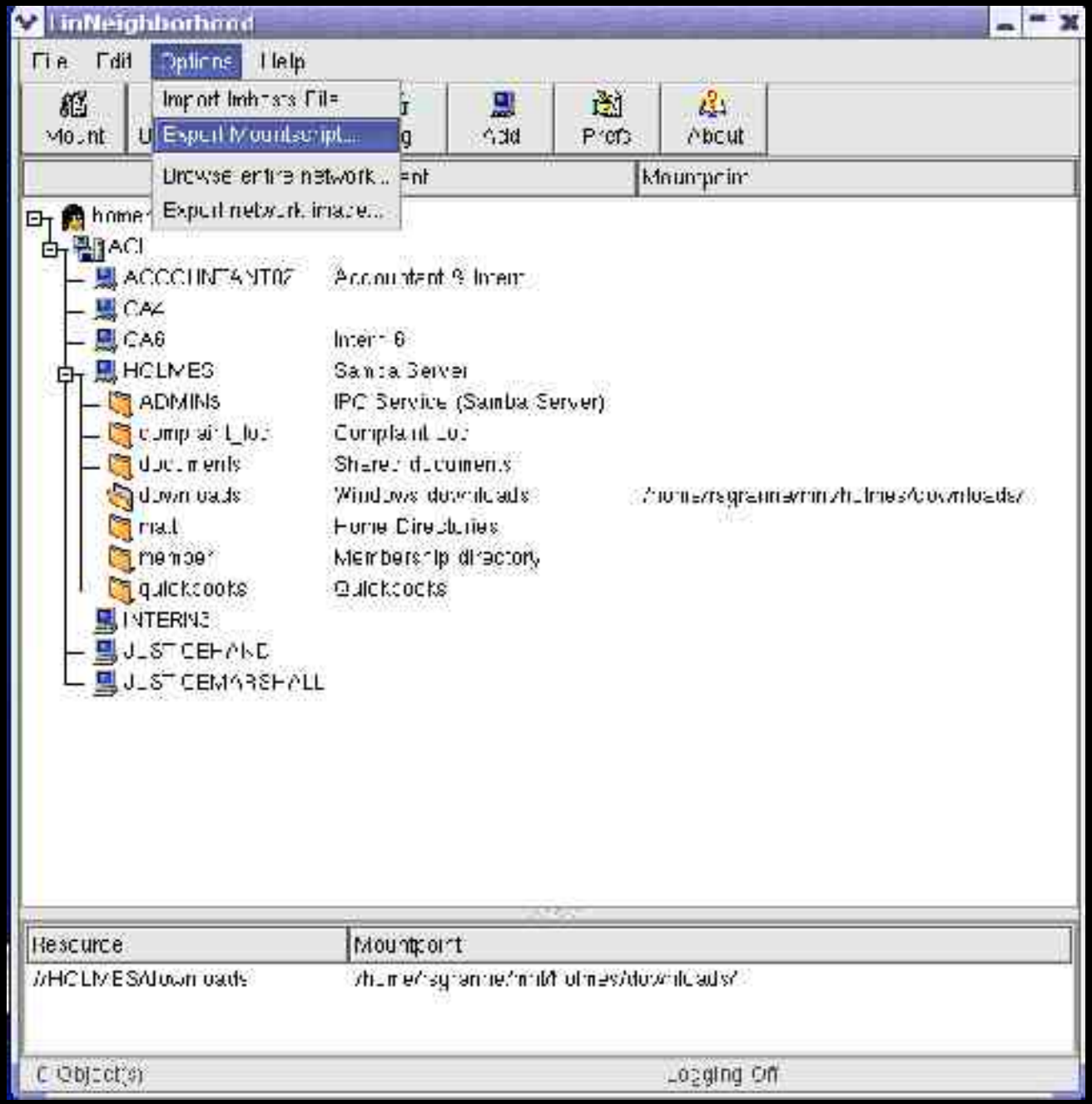
After authenticating, you mount the share on your Linux box. Note Mount Point: where you will access the share. LN creates the mount point for you if it doesn't already exist.



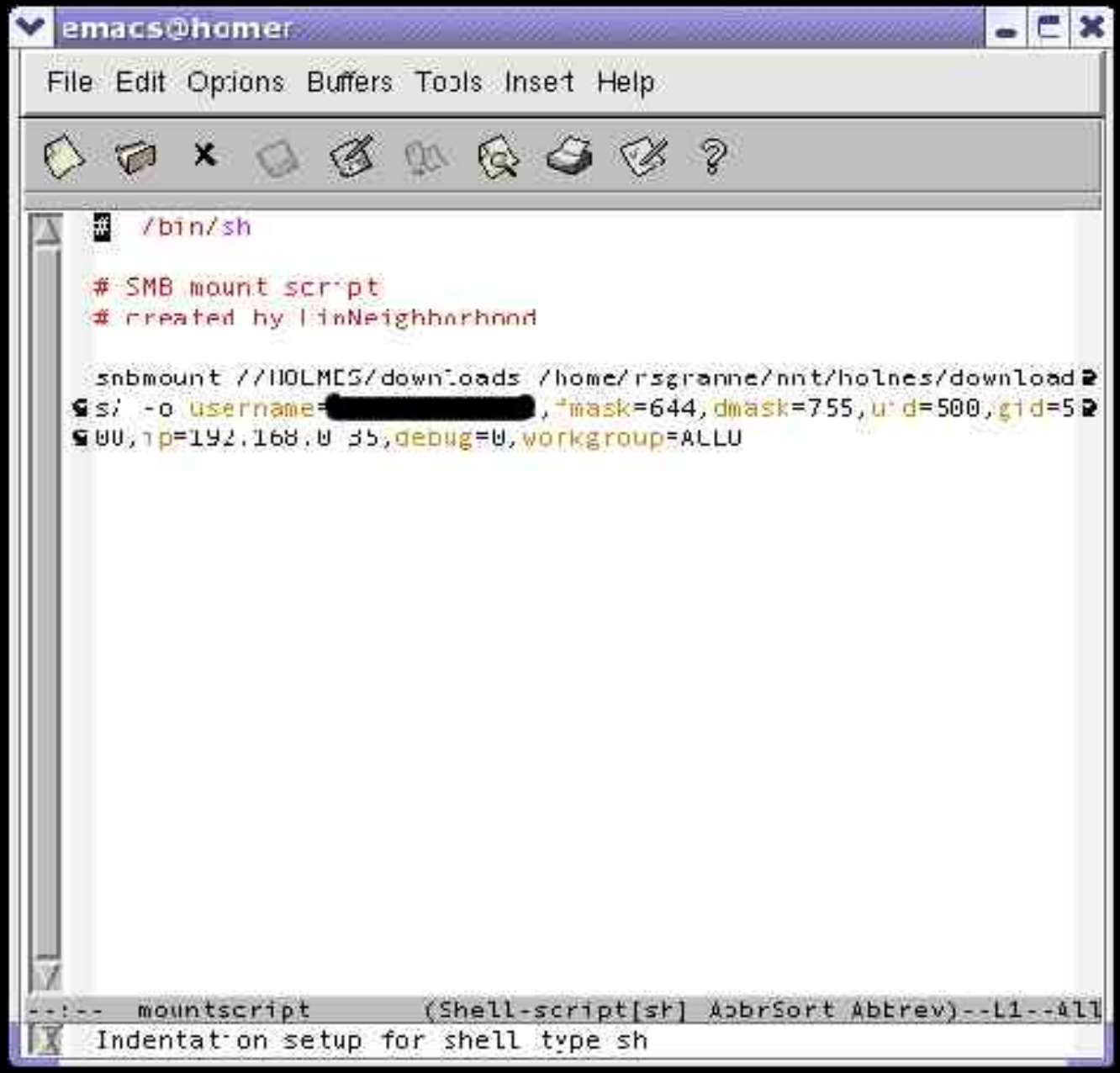
After pressing Mount, LN successfully mounts the share. To mount other shares, repeat the steps.



Open your file manager, & you can now access the shared files & folders like they were on your machine.



Eventually you'll get tired of manually mounting common shares. In LN, select Options, then Export Mountscript.



LN creates a script for you that automates the mounting process. You can have as many mounts in the script as you'd like. Run the script manually, or set it up to run automatically when you log in.

It’s really pretty easy to run Windows inside Linux.

I don’t mean dual-booting.
I mean,
run Windows *as an application* inside Linux.

Several good options:

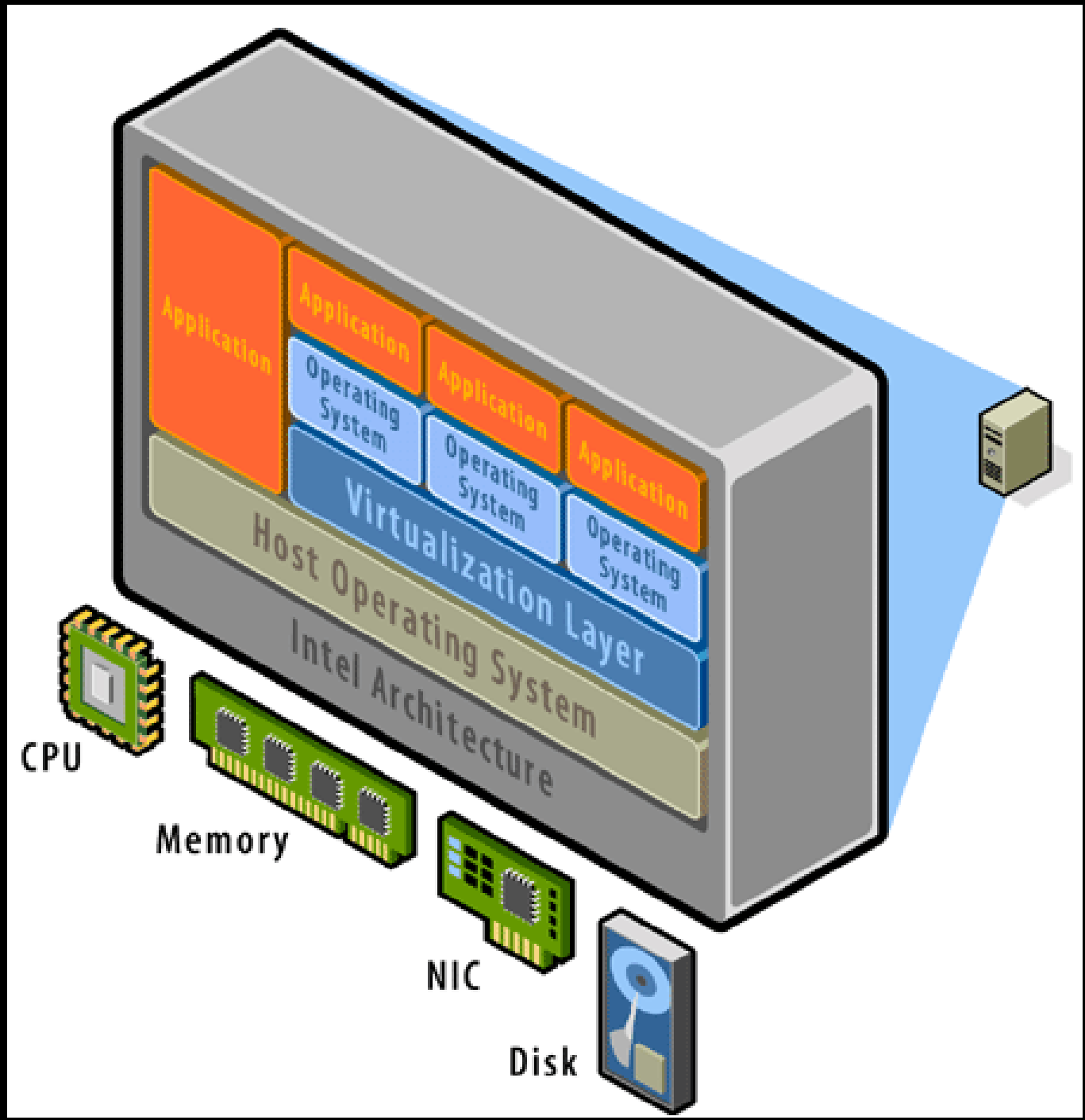
VMWare
Win4Lin
WINE

VMWare is a commercial, proprietary program
that lets you run multiple operating systems
on a single computer.

You can run Windows inside Linux,
or Linux inside Windows.

$189

www.vmware.com


Application
Application
Application
Application
Operating System
Operating System
Operating System
Virtualization Layer
Host Operating System
Intel Architecture
CPU
Memory
NIC
Disk

VMWare is good software if you need it,
but I’ve had issues.

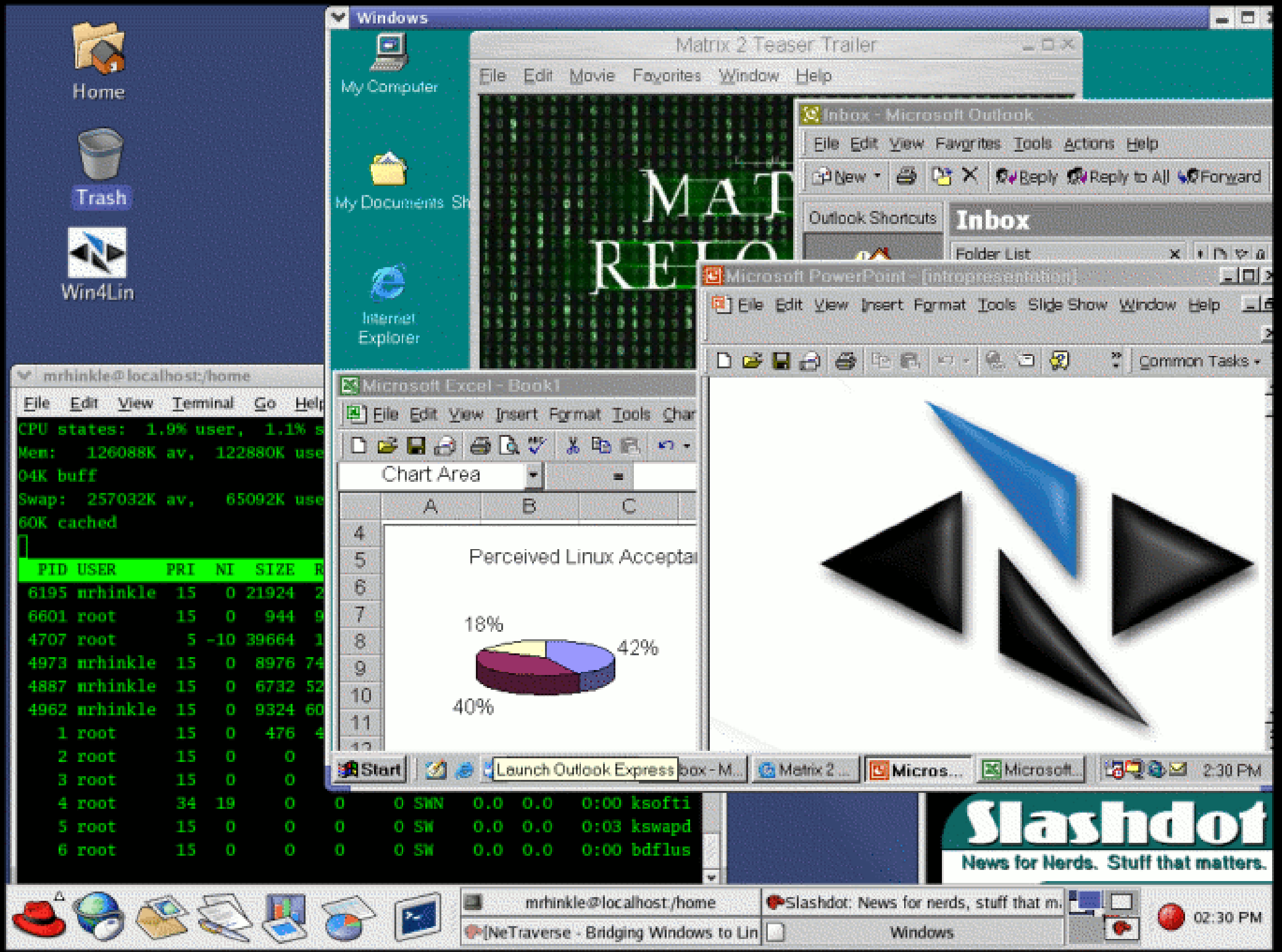
Expensive
Slow
File systems not integrated.

A better option for many people is Win4Lin.

Also commercial, also proprietary.

Win4Lin lets you run Windows 95/98/ME inside Linux.

$80
www.win4lin.com


Home
Trash
Win4Lin
Windows
My Computer
My Documents
Internet Explorer
Matrix 2 Teaser Trailer
File Edit Movie Favorites Window Help
Inbox - Microsoft Outlook
File Edit View Favorites Tools Actions Help
New Reply Reply to All Forward
Outlook Shortcuts
Inbox
Folder List
Microsoft PowerPoint - [intropresentation]
File Edit View Insert Format Tools Slide Show Window Help
Common Tasks
Microsoft Excel - Book1
File Edit View Insert Format Tools Char
Chart Area
A B C
Perceived Linux Acceptar
18%
42%
40%
mrhinkle@localhost:/home
File Edit View Terminal Go Help
CPU states: 1.9% user, 1.1% s
Mem: 126088K av, 122880K use
04K buff
Swap: 257032K av, 65092K use
60K cached
PID USER PRI NI SIZE R
6195 mrhinkle 15 0 21924 2
6601 root 15 0 944 9
4707 root 5 -10 39664 1
4973 mrhinkle 15 0 8976 74
4887 mrhinkle 15 0 6732 52
4962 mrhinkle 15 0 9324 60
1 root 15 0 476 4
2 root 15 0 0
3 root 15 0 0
4 root 34 19 0 0 0 SWN 0.0 0.0 0:00 ksofti
5 root 15 0 0 0 0 SW 0.0 0.0 0:03 kswapd
6 root 15 0 0 0 0 SW 0.0 0.0 0:00 bdflus
Start
Launch Outlook Express
Matrix 2 ...
Micros...
Microsoft...
2:30 PM
Slashdot
News for Nerds. Stuff that matters.
mrhinkle@localhost:/home
Slashdot: News for nerds, stuff that m.
[NeTraverse - Bridging Windows to Lin
Windows
02:30 PM

Virtually any Windows program
will run using Win4Lin ...

with one exception.

Win4Lin doesn't support DirectX 3D yet,
so no games requiring that.

Some of Win4Lin's other features:

Networking via Linux IP Stack
or Virtual Network Card emulation.

Cut & paste between Linux & Windows.

Full file system integration.

Let me illustrate what I mean by
“full file system integration”.

Win4Lin installs 2 directories
in your home directory:
~/win & ~/mydata

~/win = C:\ in Windows/Win4Lin
~/mydata = D:\ in Windows/Win4Lin

Open a file in Linux, edit it;
open the same file in Windows, edit it.

In addition,
since ~/win is just part of your Linux file system,
after you've got Windows in Win4Lin
set up exactly the way you like it,
tar & gzip up the directory
(win.tar.gz)
& back it up.

When (not *if*, but *when*)
Windows freaks out,
just gunzip & untar win.tar.gz,
& you're back up & running in minutes.

To be honest, though,
Windows runs far faster & with more stability
inside Win4Lin
than it ever does on the same machine
running as the sole OS.

I guess Linux's stability
can be a good influence
on Windows!

Win4Lin will run in full-screen mode,
which means that Linux is effectively hidden
behind Windows.

Got a Linux-averse user,
but want Linux's stability & management benefits?

Set up Linux to boot,
& then immediately load Win4Lin full-screen.
They'll never know.

Win4Lin is an excellent tool to help people
transition from Windows to Linux.

They can use Linux,
but they're able to fall back on the Windows apps
they still need.

Although, to be honest,
people use Win4Lin less and less
as they get more and more used to Linux.

WINE
(which stands for “WINE Is Not an Emulator”)
is an open source project
reverse engineering
all the Windows APIs.

It's taken a long time.

(Microsoft hasn’t exactly been helpful)

www.winehq.com

Not all Windows apps work,
but you can run a lot of Windows apps
directly inside Linux.

The Windows apps
think they're on Windows.

They have no idea
they're really running in Linux.

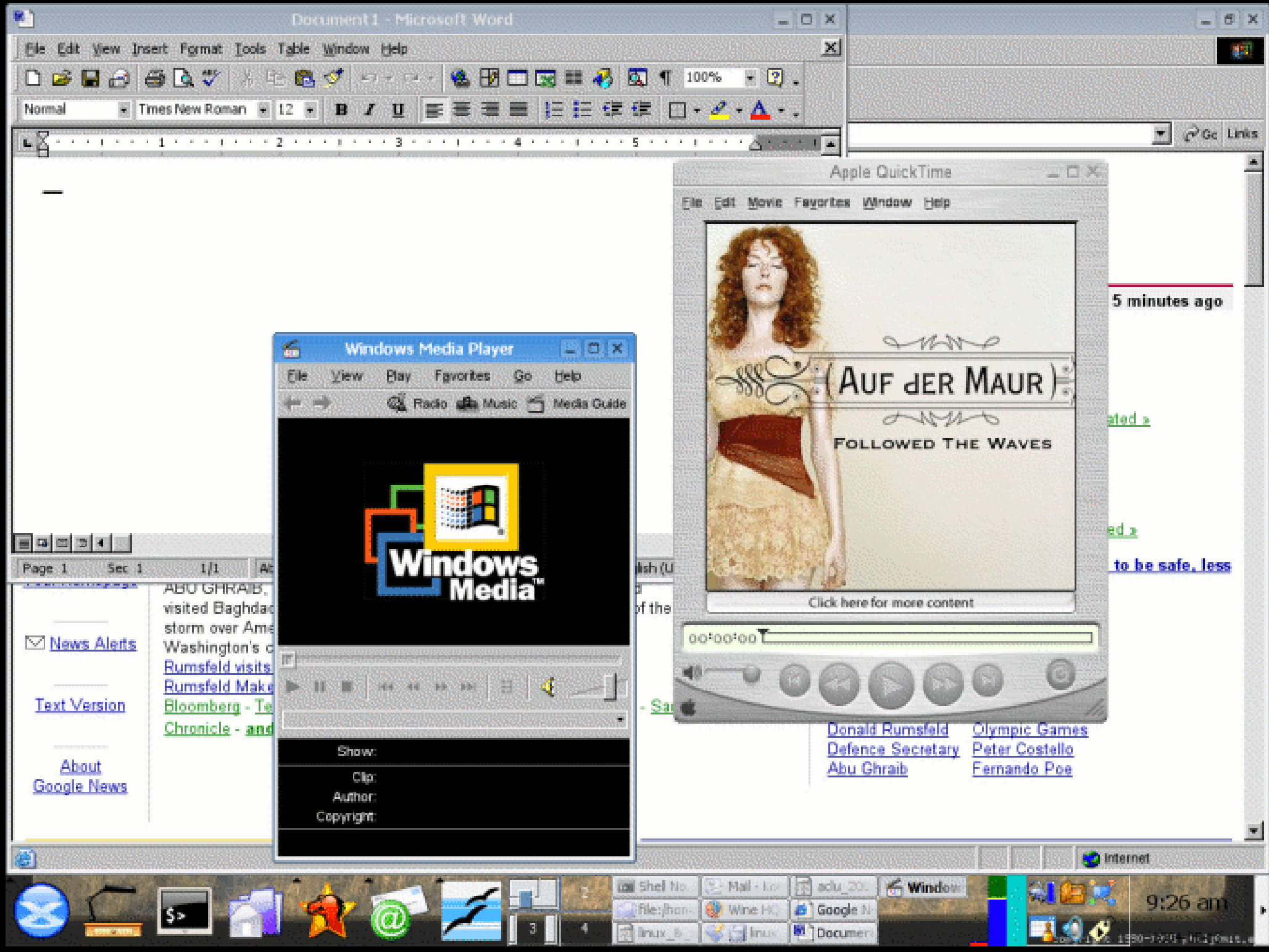
WINE itself can be difficult to set up.

To help alleviate that,
CodeWeavers' CrossOver Office
created a commercial version of WINE
designed to make it easy to install & run
a subset of important Windows programs.

$40
www.codeweavers.com

You can run any of the following using CrossOver:

Word, Excel, PowerPoint, Outlook, Access
Visio
Internet Explorer
Quicken
Lotus Notes
Adobe Photoshop
Macromedia Dreamweaver
QuickTime, Windows Media Player, Shockwave
& more ...


Document1 - Microsoft Word
File Edit View Insert Format Tools Table Window Help
Normal
Times New Roman
12
Windows Media Player
File View Play Favorites Go Help
Radio
Music
Media Guide
Windows Media
Show:
Clip:
Author:
Copyright:
Apple QuickTime
File Edit Movie Favorites Window Help
AUF DER MAUR
FOLLOWED THE WAVES
Click here for more content
00:00:00
5 minutes ago
News Alerts
Text Version
About Google News
Donald Rumsfeld
Defence Secretary
Abu Ghraib
Olympic Games
Peter Costello
Fernando Poe
Internet
9:26 am

One caveat:
WINE apps can take a while to load.

If you want to play Windows games on Linux, WineX is another commercial version of WINE dedicated to gaming.

Subscribe for $5 per month
www.transgaming.com

Supported games:

Half Life
Warcraft III
The Sims
Hoyle Card Games
Max Payne
Diablo 2
& more

Vote for the games
you want WineX to support next!

Similar to WINE, software can even help
Windows networking drivers
to run & work with networking hardware
that is otherwise unsupported on Linux.

Linuxant makes a commercial, proprietary
“wrapper” for Windows NDIS drivers
for modems & wireless cards
to work on Linux.

$20
www.linuxant.com

The following wireless chipsets are supported:

Atheros
Broadcom (AirForce)
Cisco (Aironet)
INPROCOMM
Intel (PRO/Wireless 2100, 2100A, 2200BG - Centrino)
Intersil (Prism GT/Duette/Indigo)
Marvell (Libertas)
Realtek (RTL8180L)
Texas Instruments (ACX100, ACX111/TNETW1130)

I use it, and it works ... flawlessly.

It allows me to use my 802.11g wireless card
on my Linux laptop.

There's also a free, open source project providing the same thing as Linuxant: NdisWrapper.

It's just a bit harder to install & setup, but I know folks that are happily using it.

ndiswrapper.sourceforge.net

Finally, you can run Linux inside Windows.

A variety of projects & software
make this possible:

VMWare
Cygwin
coLinux

Cygwin is a free, open source
“Linux-like environment for Windows”.

You can run a huge number of Linux tools,
even GUIs like KDE and GNOME.

It’s a great way to provide SSH access
to a Windows box.

www.cygwin.com

Cooperative Linux (AKA coLinux)
is a new free, open source project
for running Linux inside Windows
at native speeds.

www.colinux.org

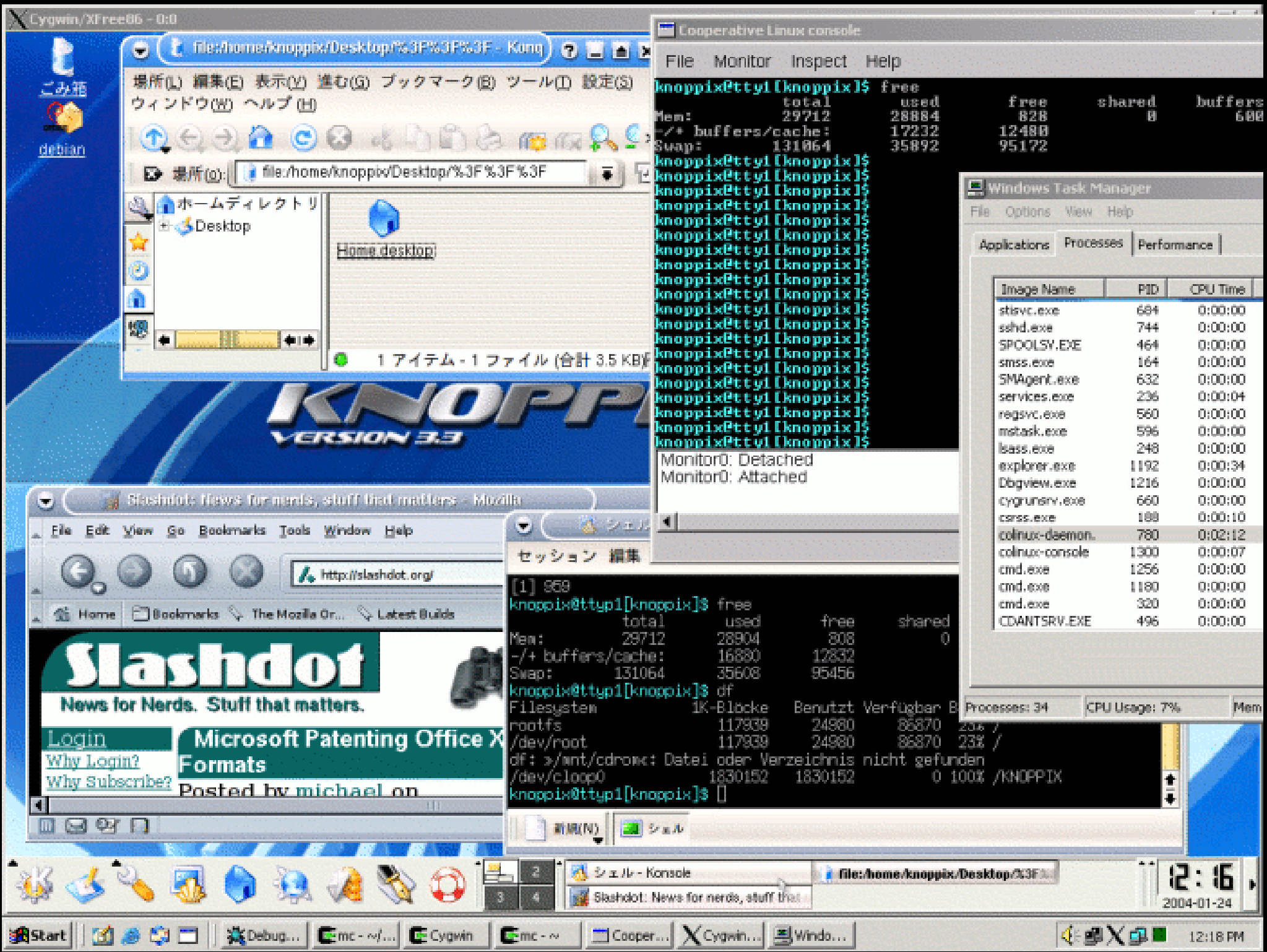
There are pre-built binaries
allowing you to easily run
Fedora Core, Debian, & Gentoo
right inside Windows.

You can run other Linux distros,
but you have to make slight modifications
to get them to work.

More info at the coLinux Web site.

A friend of mine is running coLinux
inside Windows
running inside Virtual PC
running on his Mac OS X laptop!

It actually all works, and works well.


Cygwin/XFree86 - 0:0
ごみ箱
debian
File:/home/knoppix/Desktop/%3F%3F%3F - Konq
場所(L) 編集(E) 表示(V) 進む(G) ブックマーク(B) ツール(T) 設定(S)
ウィンドウ(W) ヘルプ(H)
場所(O): file:/home/knoppix/Desktop/%3F%3F%3F
ホームディレクトリ
Desktop
Home desktop
1 アイテム - 1 ファイル (合計 3.5 KB)
KNOPPIX
VERSION 3.3
Cooperative Linux console
File Monitor Inspect Help
knoppix@ttyl[knoppix]$ free
total used free shared buffers
Mem: 29712 28884 828 0 600
-/+ buffers/cache: 17232 12480
Swap: 131064 35892 95172
knoppix@ttyl[knoppix]$
Monitor0: Detached
Monitor0: Attached
Windows Task Manager
File Options View Help
Applications Processes Performance
Image Name PID CPU Time
stisvc.exe 684 0:00:00
sshd.exe 744 0:00:00
SPOOLSV.EXE 464 0:00:00
smss.exe 164 0:00:00
SMAgent.exe 632 0:00:00
services.exe 236 0:00:04
regsvc.exe 560 0:00:00
mstask.exe 596 0:00:00
lsass.exe 248 0:00:00
explorer.exe 1192 0:00:34
Dbgview.exe 1216 0:00:00
cygrunsrv.exe 660 0:00:00
csrss.exe 188 0:00:10
colinux-daemon. 780 0:02:12
colinux-console 1300 0:00:07
cmd.exe 1256 0:00:00
cmd.exe 1180 0:00:00
cmd.exe 320 0:00:00
CDANTSRV.EXE 496 0:00:00
Processes: 34
CPU Usage: 7%
Mem
Slashdot: News for nerds, stuff that matters - Mozilla
File Edit View Go Bookmarks Tools Window Help
http://slashdot.org/
Home Bookmarks The Mozilla Or... Latest Builds
Slashdot
News for Nerds. Stuff that matters.
Login
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Microsoft Patenting Office X Formats
Posted by michael on
セッション 編集
[1] 969
knoppix@ttyp1[knoppix]$ free
total used free shared
Mem: 29712 28904 808 0
-/+ buffers/cache: 16880 12832
Swap: 131064 35608 95456
knoppix@ttyp1[knoppix]$ df
Filesystem 1K-Blöcke Benutzt Verfügbar B
rootfs 117939 24980 86870 23% /
/dev/root 117939 24980 86870 23% /
df: »/mnt/cdrom«: Datei oder Verzeichnis nicht gefunden
/dev/cloop0 1830152 1830152 0 100% /KNOPPIX
knoppix@ttyp1[knoppix]$
新規(N)
シェル
シェル - Konsole
file:/home/knoppix/Desktop/%3F
Slashdot: News for nerds, stuff that
12:16
2004-01-24
Start
Debug...
mc - ~/...
Cygwin
mc - ~
Cooper...
Cygwin...
Windo...
12:18 PM

We've looked at interoperability between
Linux and Windows
in several areas:

1. Cross-platform software
2. File formats
3. Remote control
4. Samba
5. Running Windows in Linux
6. Running Linux in Windows

Some of the software we've looked at:

OpenOffice.org
VNC
Samba
(& SWAT, KsambaPlugin, & LinNeighborhood)
VMWare
Win4Lin
Codeweavers CrossOver Office
Linuxant DriverLoader
Cygwin
coLinux

There's a lot of great software,
& a lot of very smart, dedicated people
working to increase the interoperability
of *all* operating systems,
not just Windows & Linux.

They deserve our support,
by using, paying for, testing, or helping their efforts.

Keep your eyes open:
you ain’t seen nothin’ yet!

(As long as patents
& a desire by some companies
to decrease interoperability
don’t get in the way)

Thank you!

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Visit my Web site: www.granneman.com

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Questions? Email scott@granneman.com