How the Pros Troubleshoot Macintosh

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This Presentation Always Runs Long

Please try to hold questions until the end
Or...if we're too brief and something doesn't make sense, ask for more detail and we'll try to accommodate
We have a vague idea of upcoming topics in the presentation, so we may wait for a more full explanation.

Updated presentation is available on the web in PDF form for easy download:
http://www.rockinbeat.com/resources.html
http://www.callandy.com/seminars
http://www.goodmanconsulting.com/seminars

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Director, BMac User Group
Gold medalist, Solo Synchronized Swimming,
1984 Olympics
Does not eat vegetables or any fancy food

Brains.
Body.
Personality.
Presenting Panther
Mac OS X version 10.3.
The evolution of the species.

Why Are You Here?

To learn a troubleshooting methodology
To develop your troubleshooting skills
To determine software vs. hardware problems
To learn what tools are available
To learn how to find answers
To avoid having to call us!

It's Probably Not Your Fault

You probably didn't break anything
Software may not be up-to-date
You may have a software conflict
Something may not be plugged in all the way
Take notes of what happened prior to the problem occurring
Keep a written log of problems (very useful)

Troubleshooting Paths

Approach the problem with a clear head
Determine if your annoyance is hardware or software
Boot from a CD or a Firewire drive
Log in as another user
Eliminate variables
Disconnect external devices
Start with kernel extensions off (“safe mode”)
Pull out Preferences folder
Isolate the problem’s appearance

Troubleshooting OS X

Problems Before Login
Broken System (10.1)
Prohibitory Sign (10.2, 10.3, 10.4)
Kernel Panic

Who is Kernel Panic
and Why is He inside My Mac?

```
panic(cpu 0): Couldn't register lo nodules

backtrace: 0x000894c0 0x0002dee8 0x000dbe68 0x000dc03c 0x00188fd0 0x0003d264 0x0003b404 0x0003b330

No debugger configured - dumping debug information

version string : Darwin Kernel Version 1.2:
Fri Nov  3 13:34:08 PST 2000; root:xnu/xnu-109.5.obj~3/RELEASE_PPC


DBAT0: 00000000 00000000
DBAT1: 00000000 00000000
DBAT2: 80001FFE 8000003A
DBAT3: 90001FFE 9000003A
MSR=00001030
backtrace: 0x000895ec 0x0002dee8 0x000dbe68 0x000dc03c 0x00188fd0 0x0003d264 0x0003b404 0x0003b330
panic: We are hanging here...
IDATAPIDVDDrive: Using DMA transfers
IOUSBHub: USB Generic Hub @ 2
IOUSBHub: Hub attached - Bus powered
IOUSBHub: USB Generic Hub @ 3
IOUSBHub: Hub attached - Self/Bus powered, power supply good
AppleKeyboard: USB Generic Keyboard @ 4
AppleMouse: USB Generic Mouse @ 6
IDATAHDDrive: Using U-DMA/66 transfers
IDATAHDDrive: Using U-DMA/66 transfers
```

Kernel Panic

You need to restart your computer. Hold down the Power button for several seconds or press the Restart button.

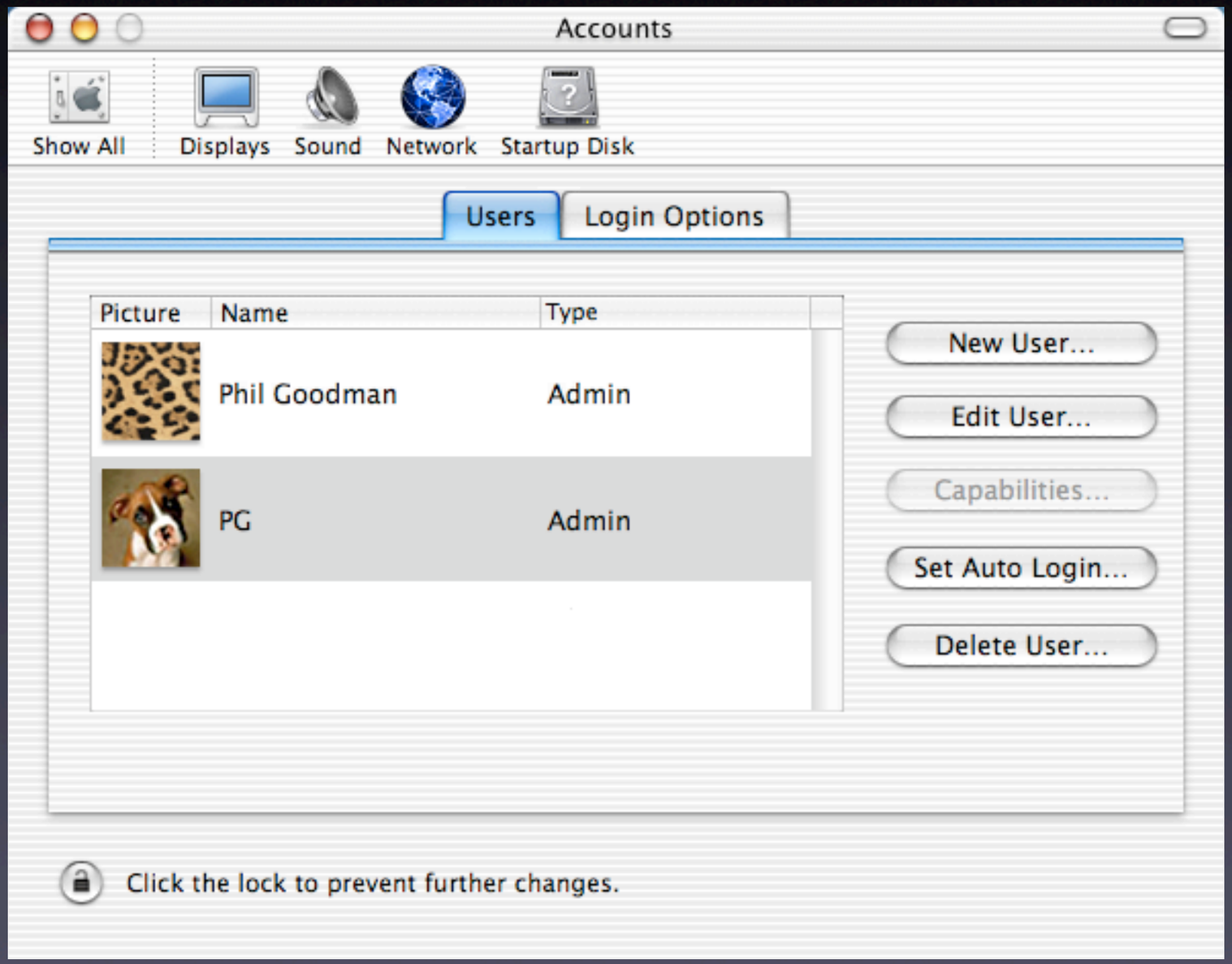
Veuillez redémarrer votre ordinateur. Maintenez la touche de démarrage enfoncée pendant plusieurs secondes ou bien appuyez sur le bouton de réinitialisation.

Sie müssen Ihren Computer neu starten. Halten Sie dazu die Einschalttaste einige Sekunden gedrückt oder drücken Sie die Neustart-Taste.

コンピュータを再起動する必要があります。パワーボタンを数秒間押し続けるか、リセットボタンを押してください。

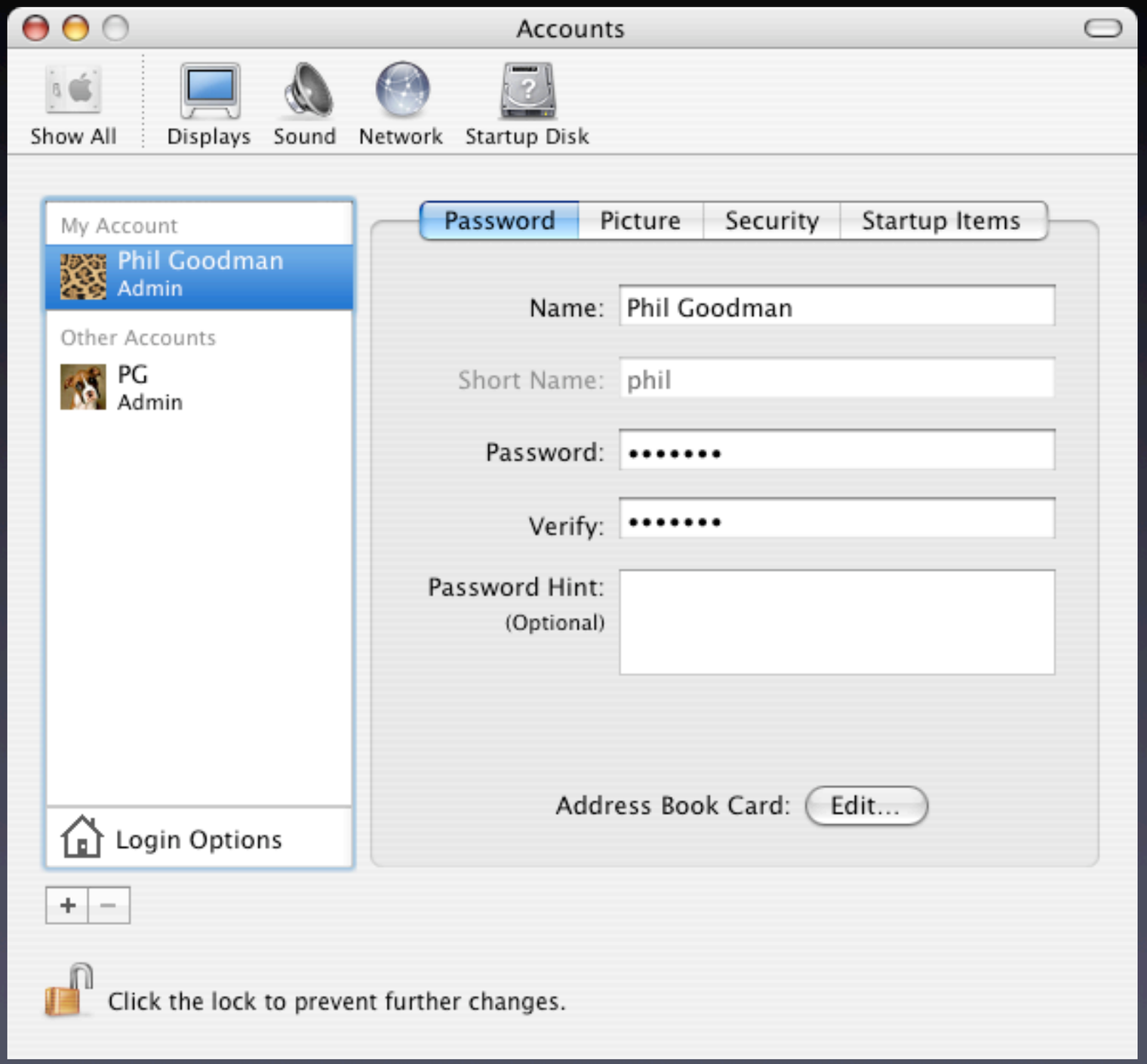
OS X Techniques, Tips & Solutions

Multiple Admin Accounts, 10.2



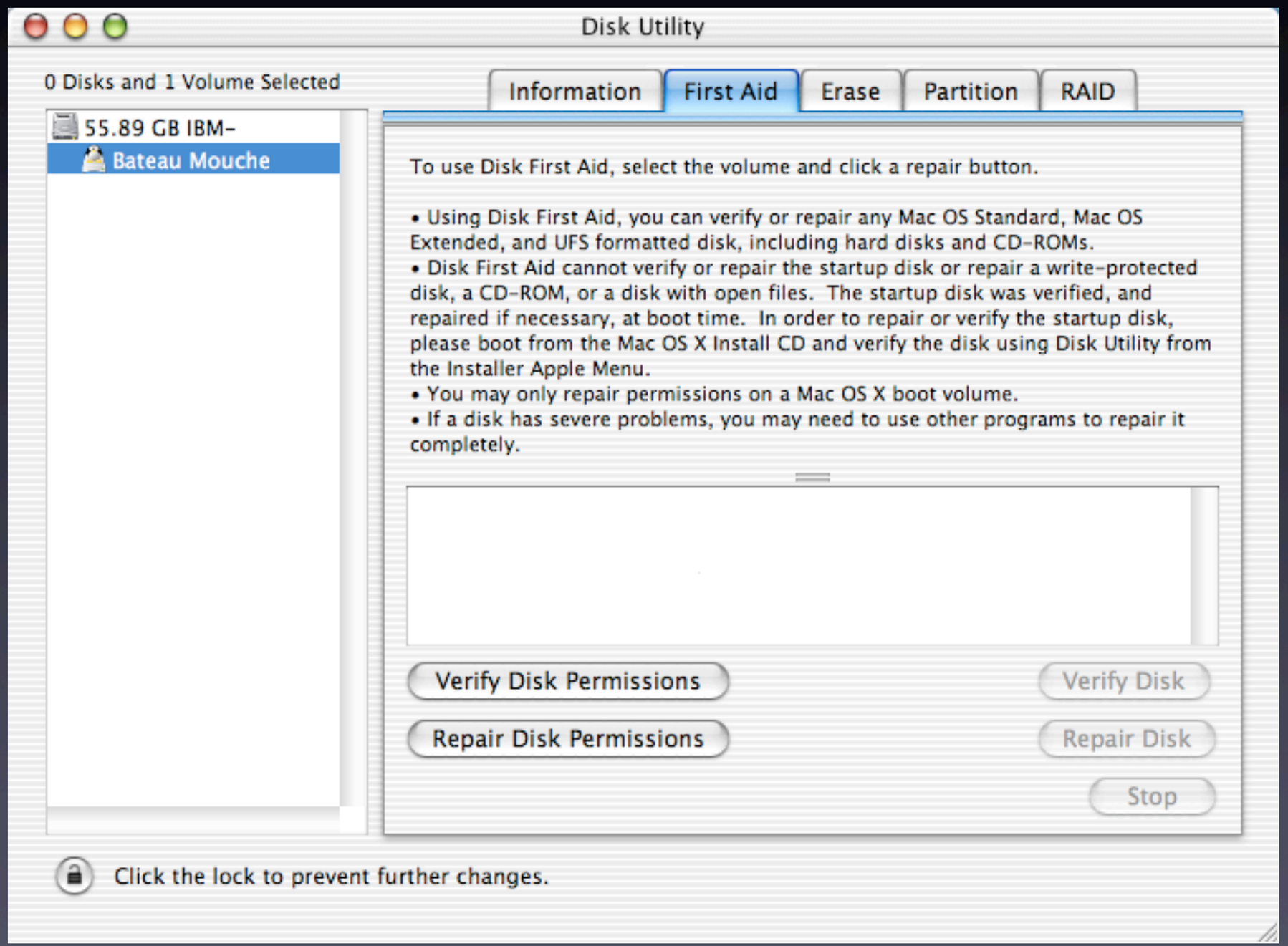
OS X Techniques, Tips & Solutions

Multiple Admin Accounts, 10.3, 10.4



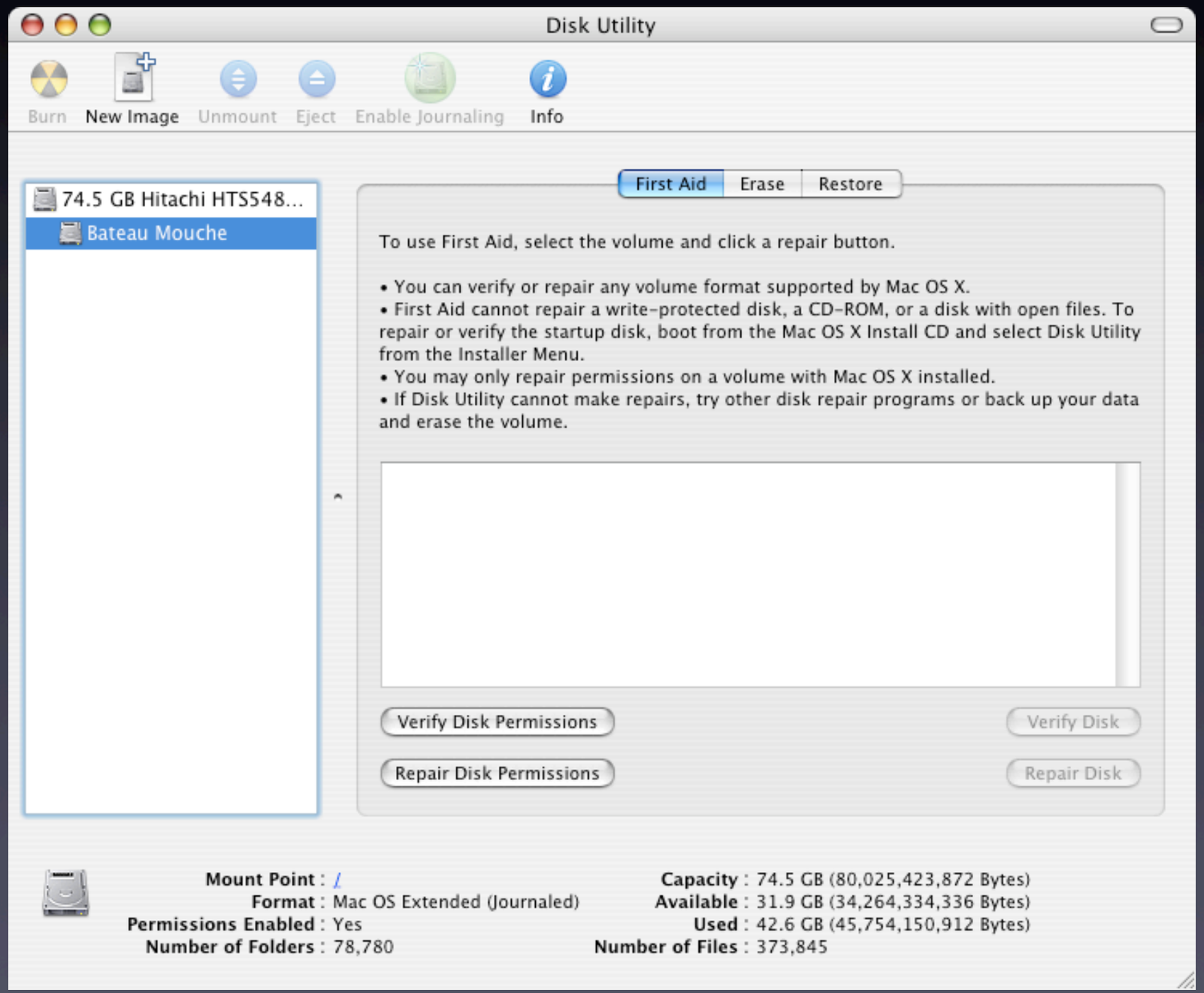
OS X Techniques, Tips & Solutions

Repair Privileges, 10.2



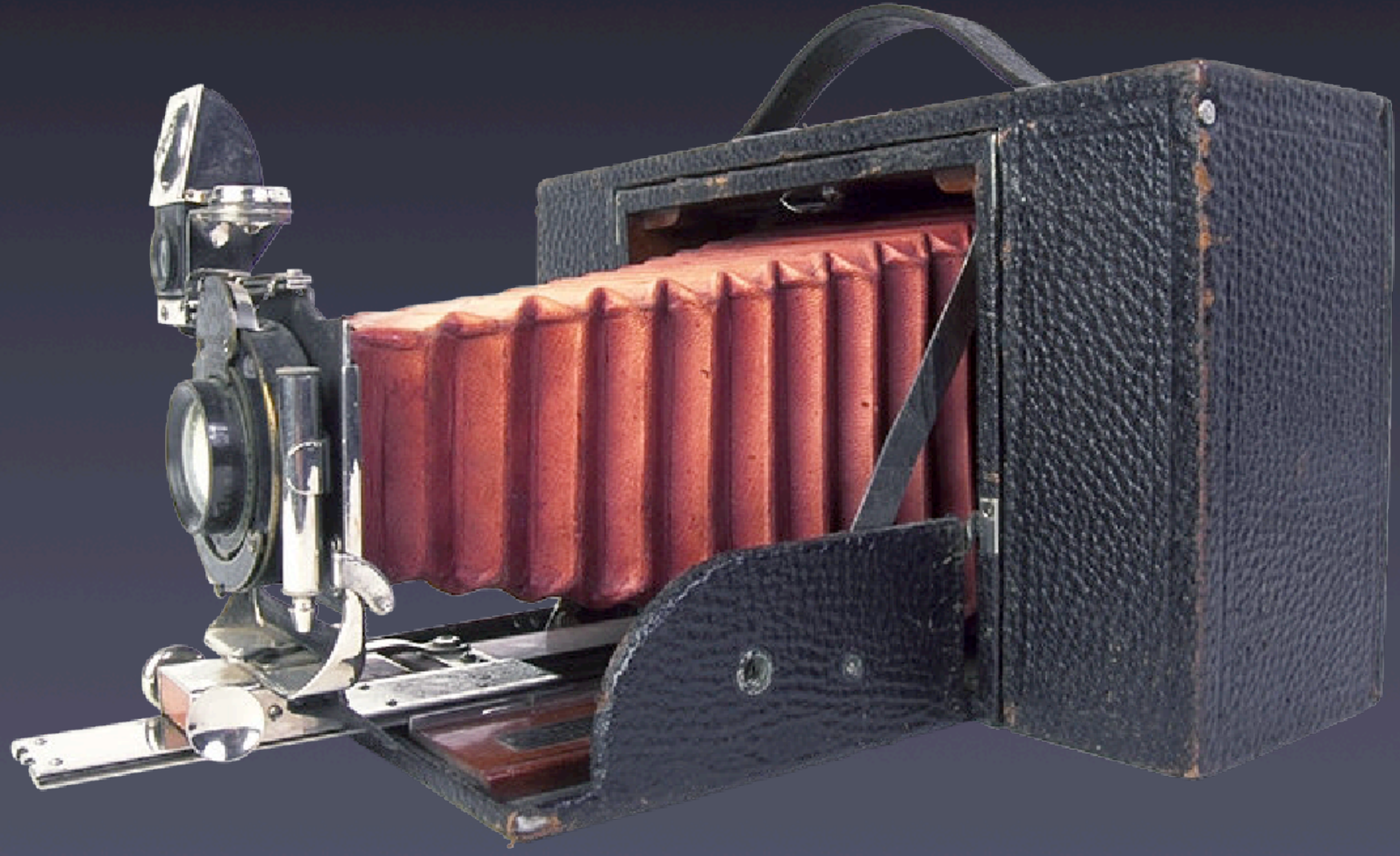
OS X Techniques, Tips & Solutions

Repair Privileges, 10.3, 10.4



OS X Techniques, Tips & Solutions

Verbose Mode
Command-V at boot
Kernel Panics and your Digital Camera



OS X Techniques, Tips & Solutions

Single User Mode and File System Check on 10.2

Command-S at boot

```
fsck -y
```

Repeat until disk OK

```
reboot
```

Not necessary with 10.3. Journaling will bring system back to consistent state.

OS X Techniques, Tips & Solutions

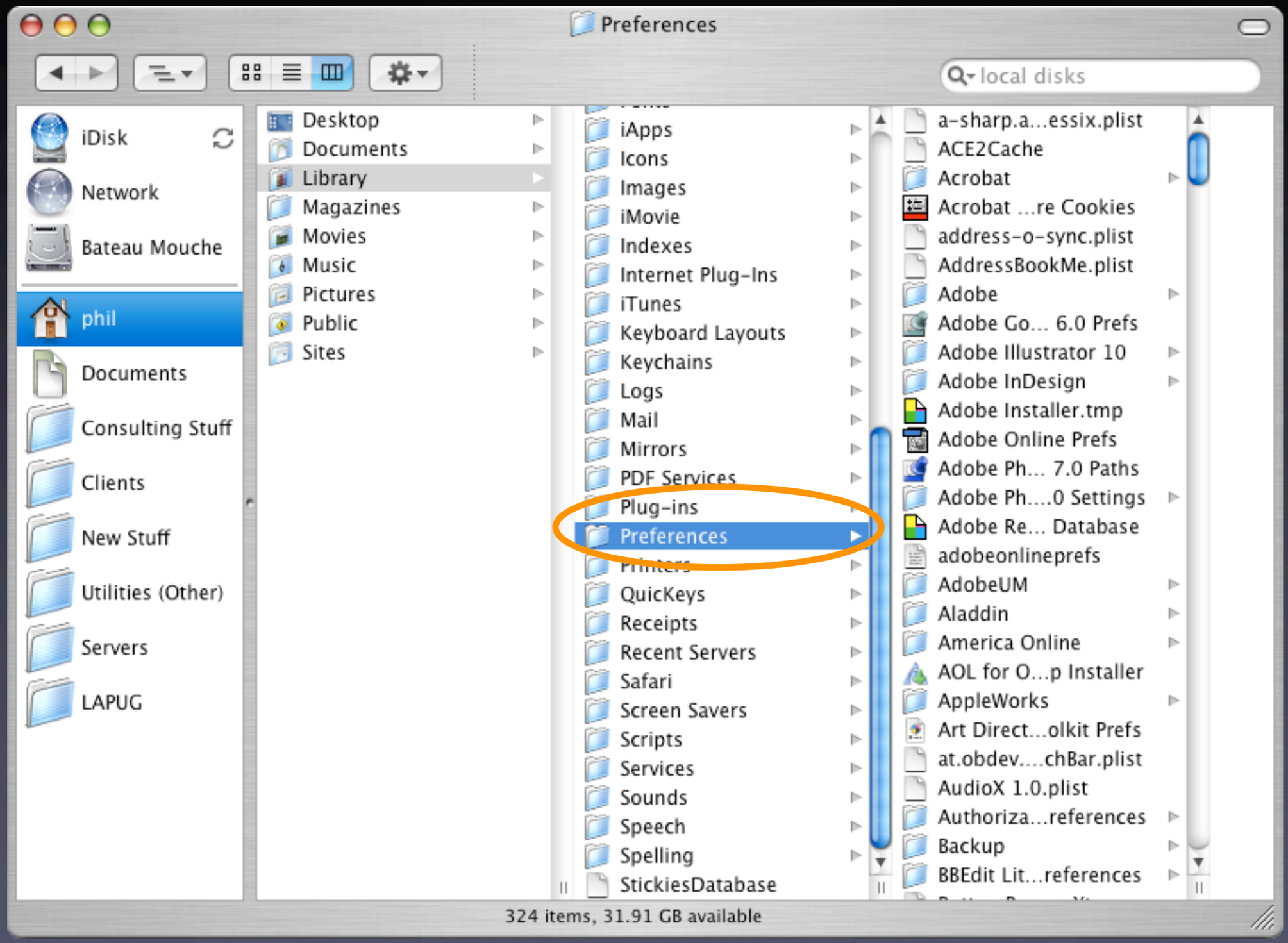
OS X Safe Mode

Hold down Shift key before login to prevent kernel extensions from loading

Hold down Shift key after login to prevent login ite
from starting

OS X Techniques, Tips & Solutions

Preferences, P-Lists and Packages



OS X Techniques, Tips & Solutions

At Least 5 Places to store fonts:

Owned by System
(not modifiable)
All Users
(modifiable by admin)
Specific Users
Network Fonts
OS 9 Fonts Folder
But wait, there's more...

Resetting Passwords

Boot from OS X CD
Reset Password from File menu
Select Drive and user
Type in a new password
Reboot
Open Firmware Password utility can prevent this

OS X Techniques, Tips & Solutions

Invisible destinations and “hidden” preferences
Directory structure of the OS
Staying Up-To-Date
Value of higher release OS CD
Disk and file utilities (we’ll list these later)

Which Problems are "Stumpers"?

- Accessing non-existent servers on login
- Preference corruption
- PRAM corruption
- Bad or intermittent failure of RAM or other hardware
- Operating conditions can have an effect (heat, humidity, etc.)
- Logic board reset — CUDA switch
- Open Firmware

Open Firmware

The Macintosh equivalent to a PC's BIOS (sort of)
Tiny OS that runs the hardware
Addressable and customizable
Powerful security options

To reset Open Firmware
Boot using Command-Option-O-F
reset-nvram
reset-all

OS X Terminal

In /Applications/Utilities
Gives you command line access to Unix
Lets you do things you can't do with the GUI
Allows an "admin" user to issue commands as "root"
`sudo <command>` (SuperUser Do)
Only go here if you know what you're doing!
Read and understand commands prior to issuing them

Firewire Target Disk Mode

Allows Macintosh with New World ROM chipset (iMac and forward) to become an external hard drive for another Macintosh

Power on and hold the “T” key

Wait for the bouncing FW logo

Connect the computers via Firewire

Drive mounts on desktop

Software Tools

Disk Utility

DiskWarrior — Alsoft

Norton SystemWorks or Utilities — Symantec

Tech Tool Pro – Micromat

Data Rescue — ProSoft

AntiVirus Software (Virex with .Mac, Norton AntiVirus)

Font Agent Pro— Insider Software

Cocktail – Kristofer Szymanksi (macoscocktail.com)

Mac OS X CDs (archive and install)

Before Calling Tech Support…

Has it happened before? How did you fix it?
(Look at your error log)
What has changed or been installed lately?
Check the vendor's web site
Is the power on?
Are the cables secure?
Is there enough power to the USB hub?
Read logs kept by the OS for clues

Before Calling Tech Support…

Is the application installed properly or more than once? (Has it been moved from original folder?)

Does it work correctly if logged in as another user or as an Admin user

If you remove the program's preferences, does the problem go away?

Are you using the latest version?

Repair Permissions

Run your utilities (Disk Utility, Cocktail, DiskWarrior)

Does the problem happen with kernel extensions off?

Does it happen when started from another disk?

Hardware Tools

Ethernet cables (normal and crossover)
External hard drives (SCSI, USB, Firewire)
Screwdrivers
Compressed Air
Q-tips
91% Isopropyl alcohol & coffee filters
Anti-Static strap

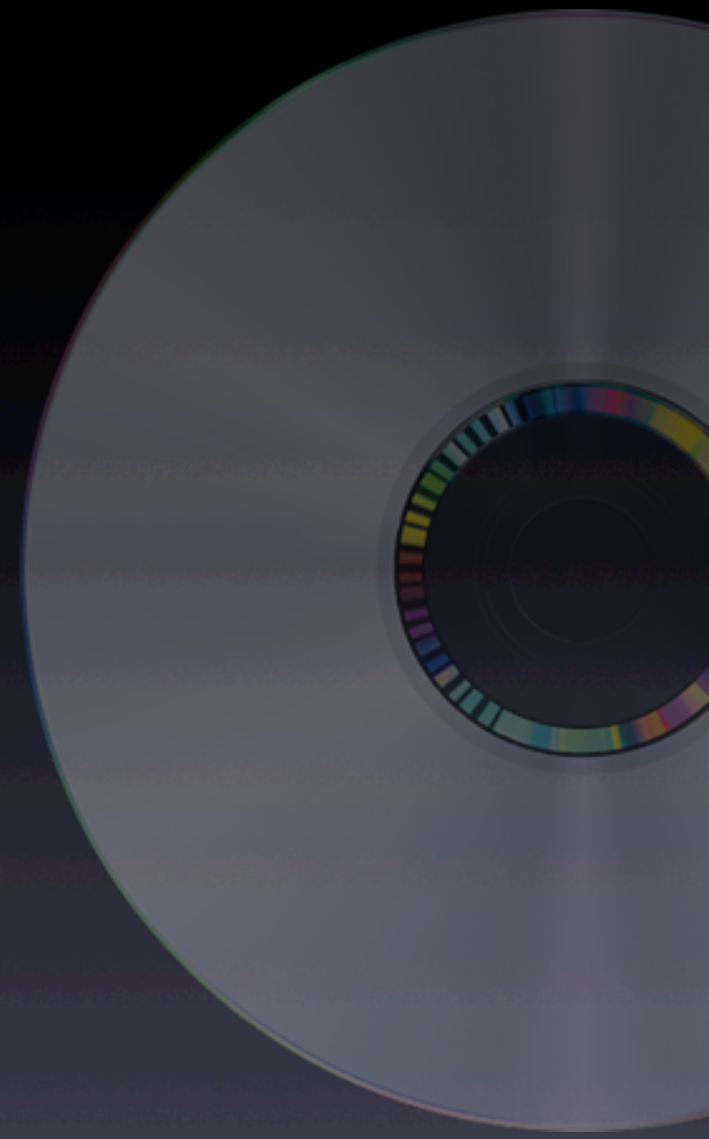
Hardware Toolkit

Long thin tweezers
Extra Zip, Jaz disks, blank CD-Rs
Extra AC power cords / power strips
Extra 10/100 Ethernet minihub
RJ-11 and RJ-45 cable tester
Small telephone
Label maker

Preventing Catastrophes

Regular maintenance (Disk Utility, Cocktail, DiskWarrior)
Have a bootable repair CD or drive
Keep software up-to-date
Make regular backups
Archive onto CD or DVD
Create a backup strategy
Know how to restore!!!
Use a UPS
Consider a spare computer

Is Your Data Backed Up?



Develop a backup strategy. TEST IT!
Use a backup program
Retrospect by Dantz
Synchronize Pro by Qdea
Data Backup by ProSoft
Carbon Copy Cloner by Bombich Software
PSynch
Have multiple backup sets
Have at least one backup offsite
Know how to restore
Troubleshoot damaged file or just restore from backup?

Creating a Bootable Repair CD
or Firewire Drive

Make it generically bootable — Up to Date
May not boot newer machines
Add repair tools
Add installation software
Add virus checking software

Gold Standard Web Resources

Macfixit.com
Macintouch.com
Versiontracker.com
Mac Managers: www.mac-mgrs.org
MacOSXHints.com
AFP548.com
Apple Mailing List: lists.apple.com
Check each company's knowledge base

Other Important Web Sites

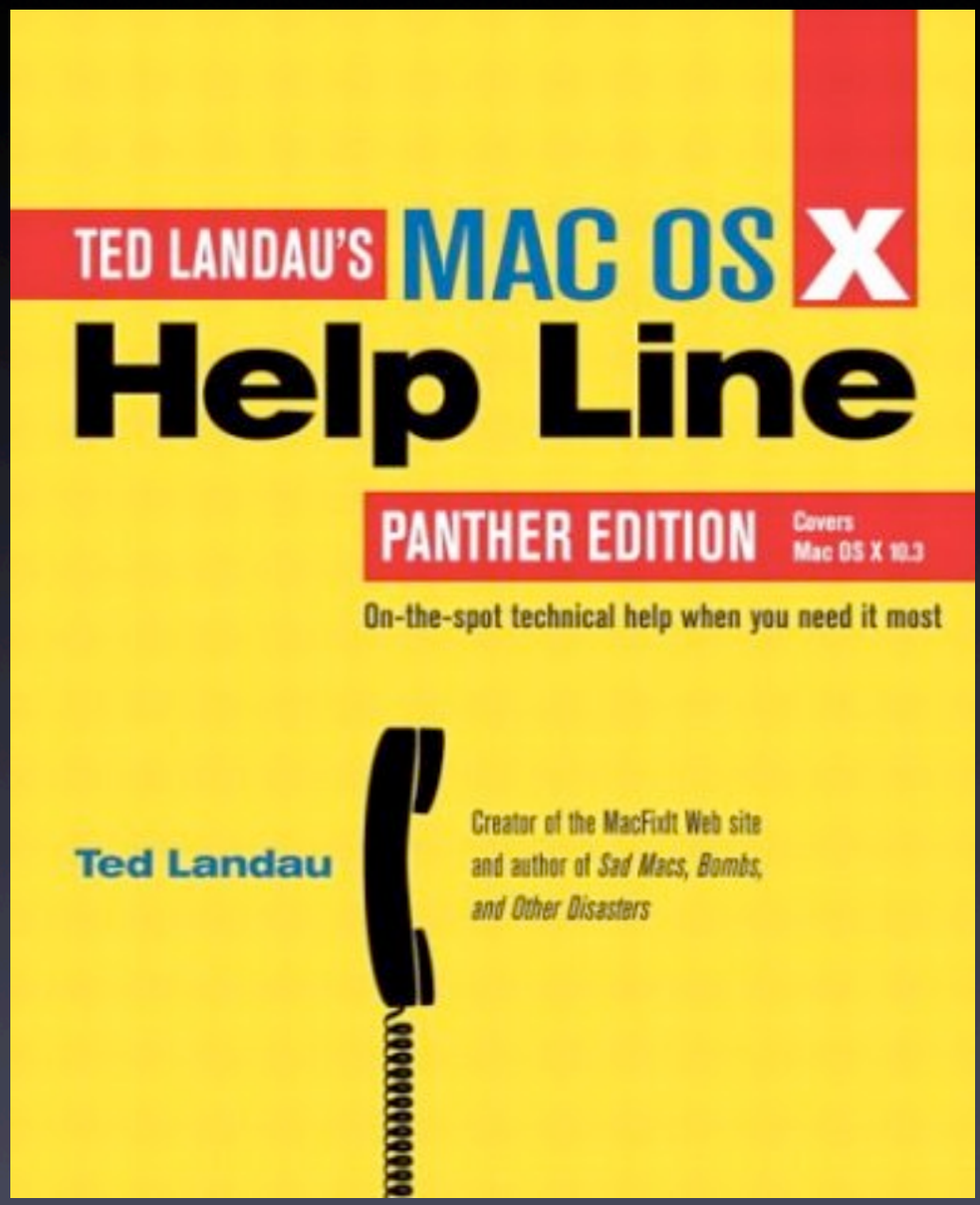
OSXFAQ.com
Maccentral.com
Macworld.com
MacAddict.com
Macnn.com
Macresource.com
Macsurfer.com

Magazines

Macworld
Mac Addict
Mac Today
Mac Home

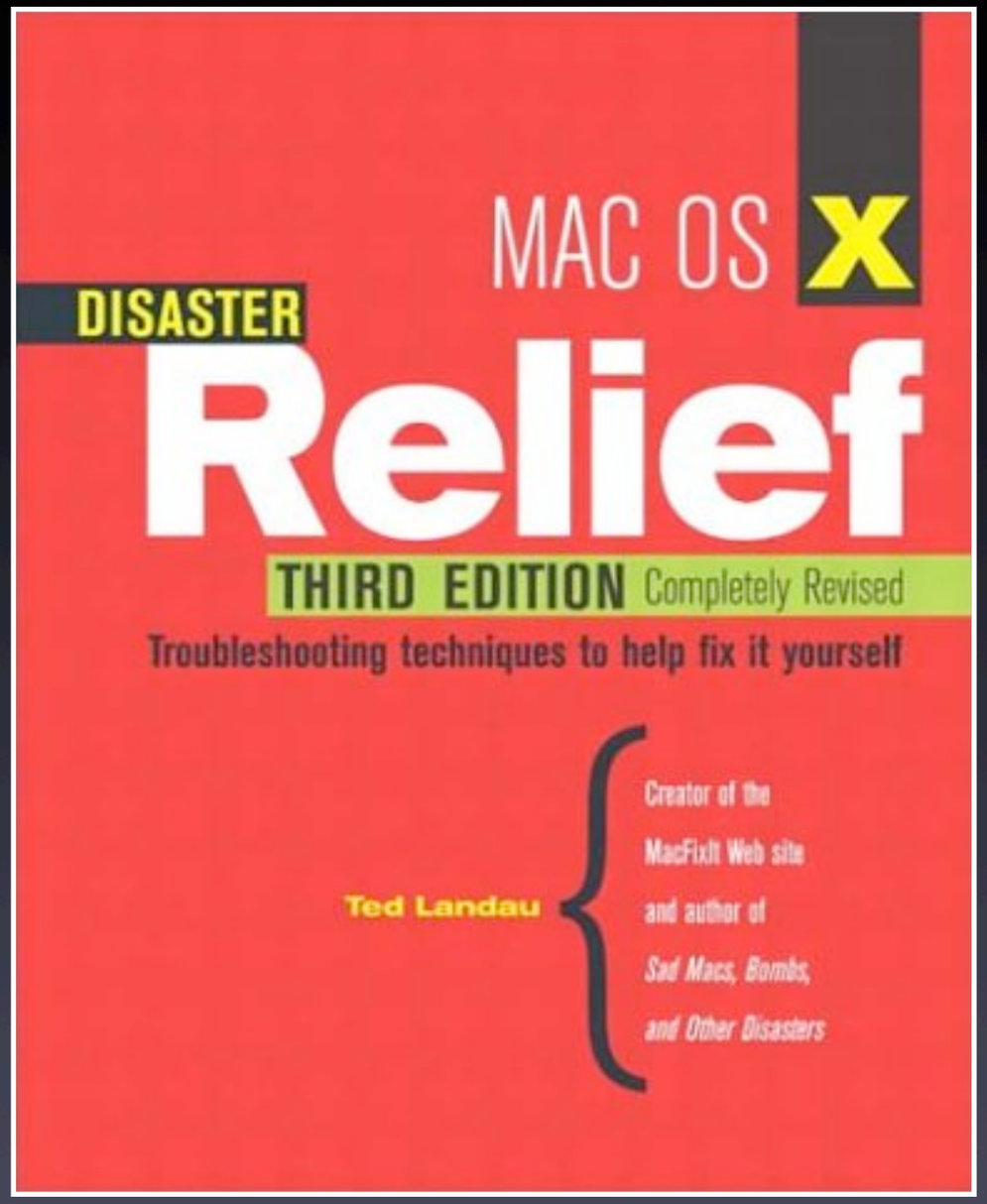
Books

Mac OS X Help Line
by Ted Landau



Books

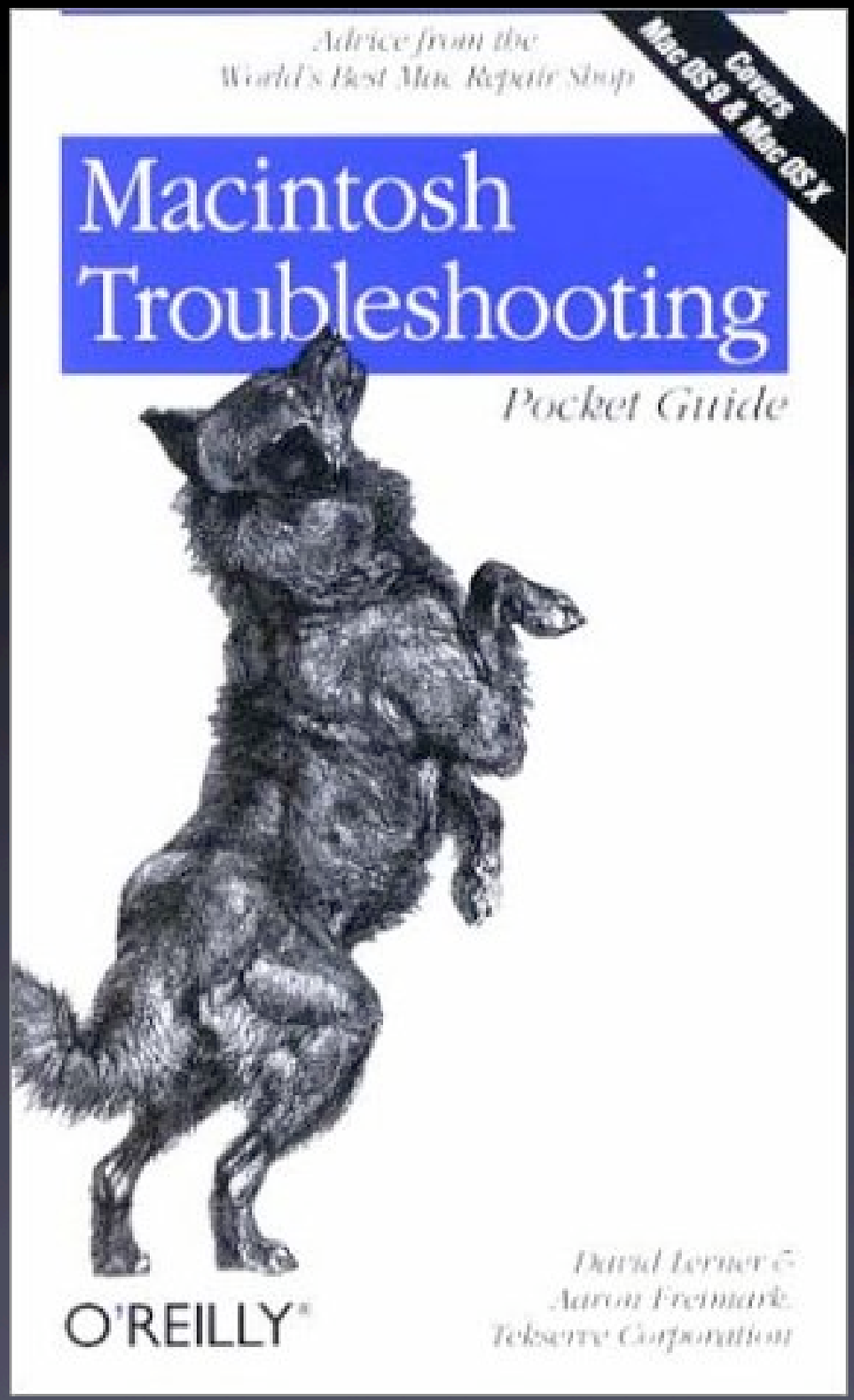
OS X Disaster Relief
by Ted Landau



Books

Macintosh Troubleshooting Pocket Guide

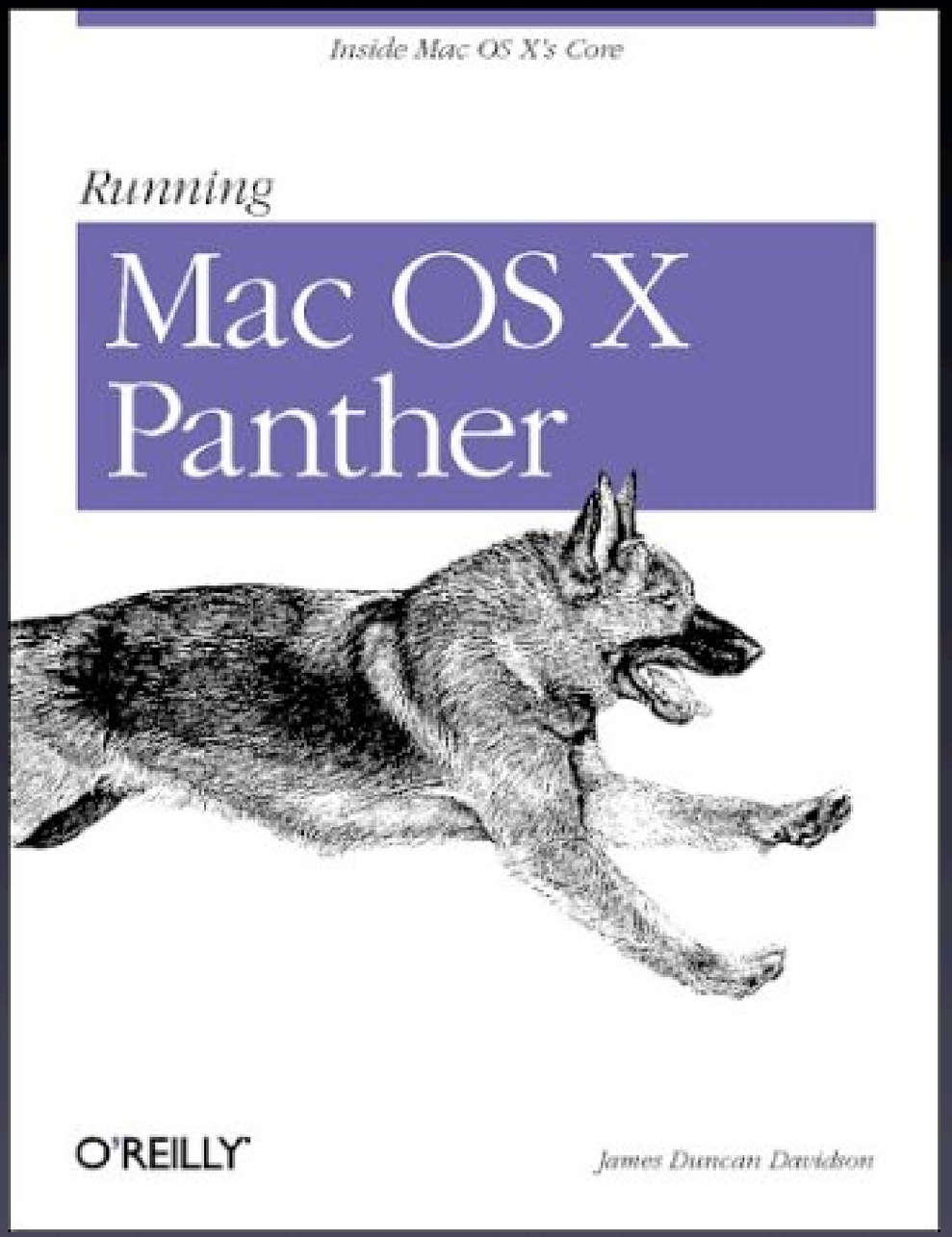
by David Lerner



Books

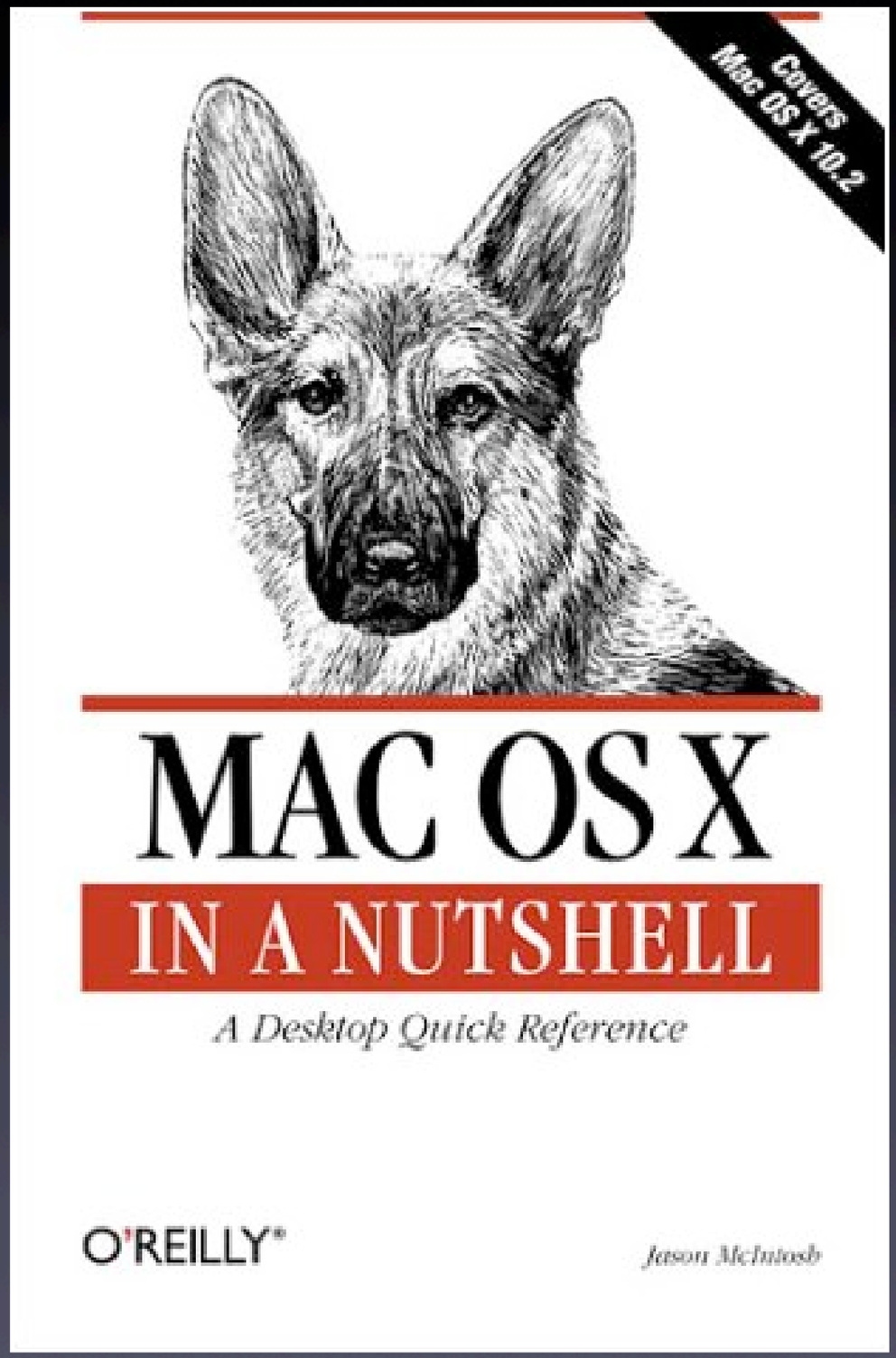
Running Mac OS X Panther

by James Duncan Davidson



Books

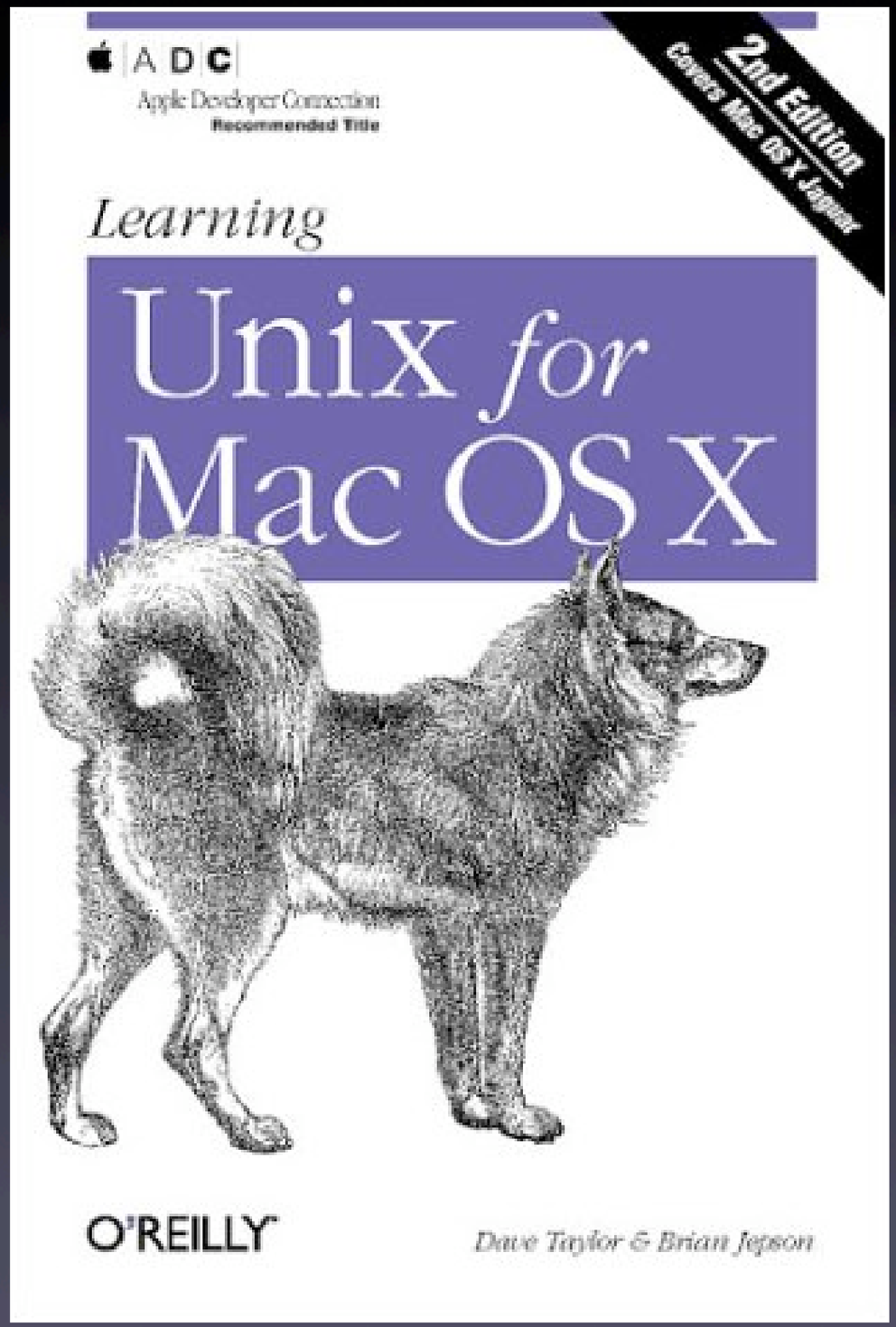
Mac OS X In a Nutshell
by Jason McIntosh



Books

Learning UNIX for OS X

by Dave Taylor &
Jerry Peek

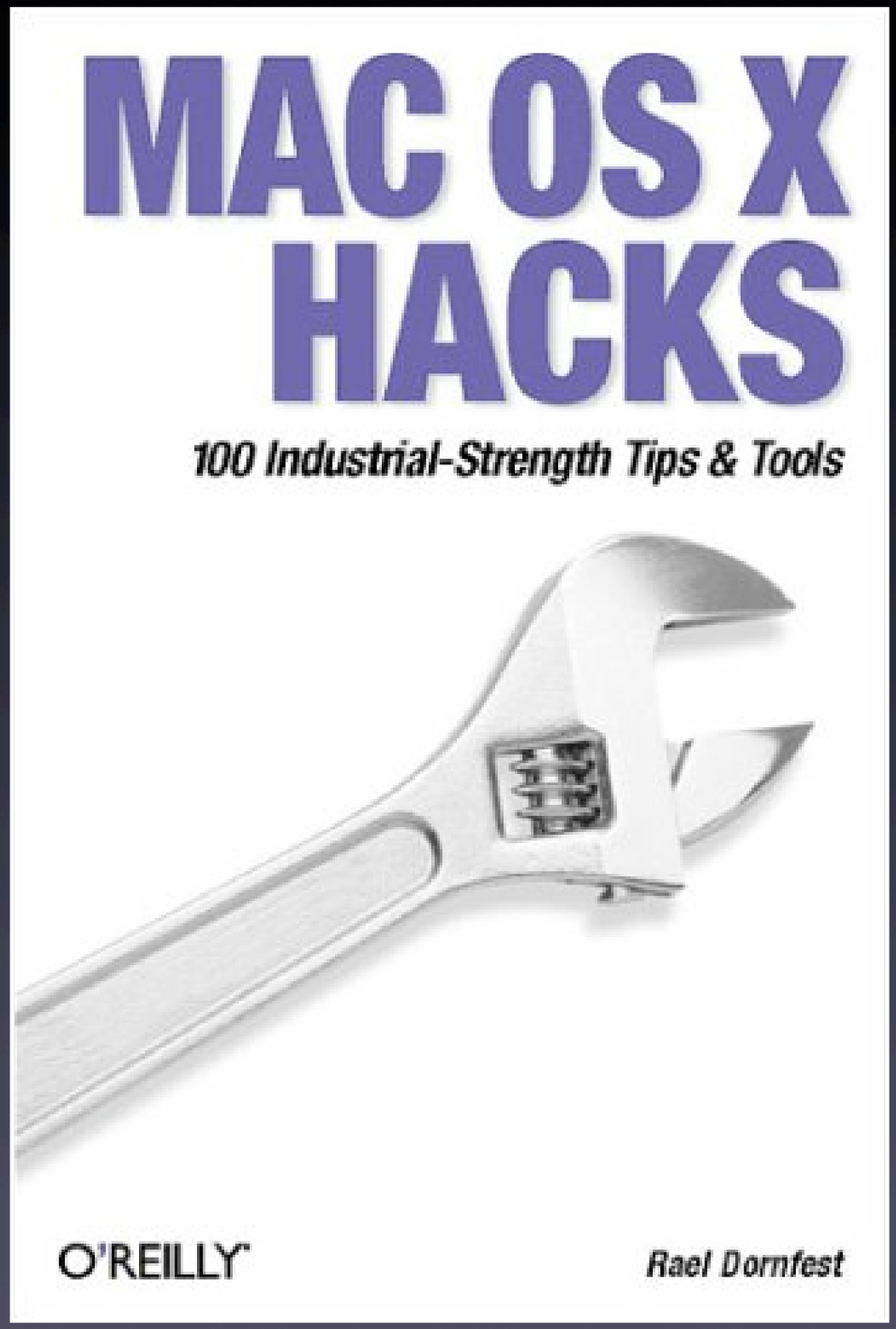


Books

Mac OS X Killer Tips
by Scott Kelby

Books

Mac OS X Hacks
by Rael Dornfest &
Kevin Hemenway

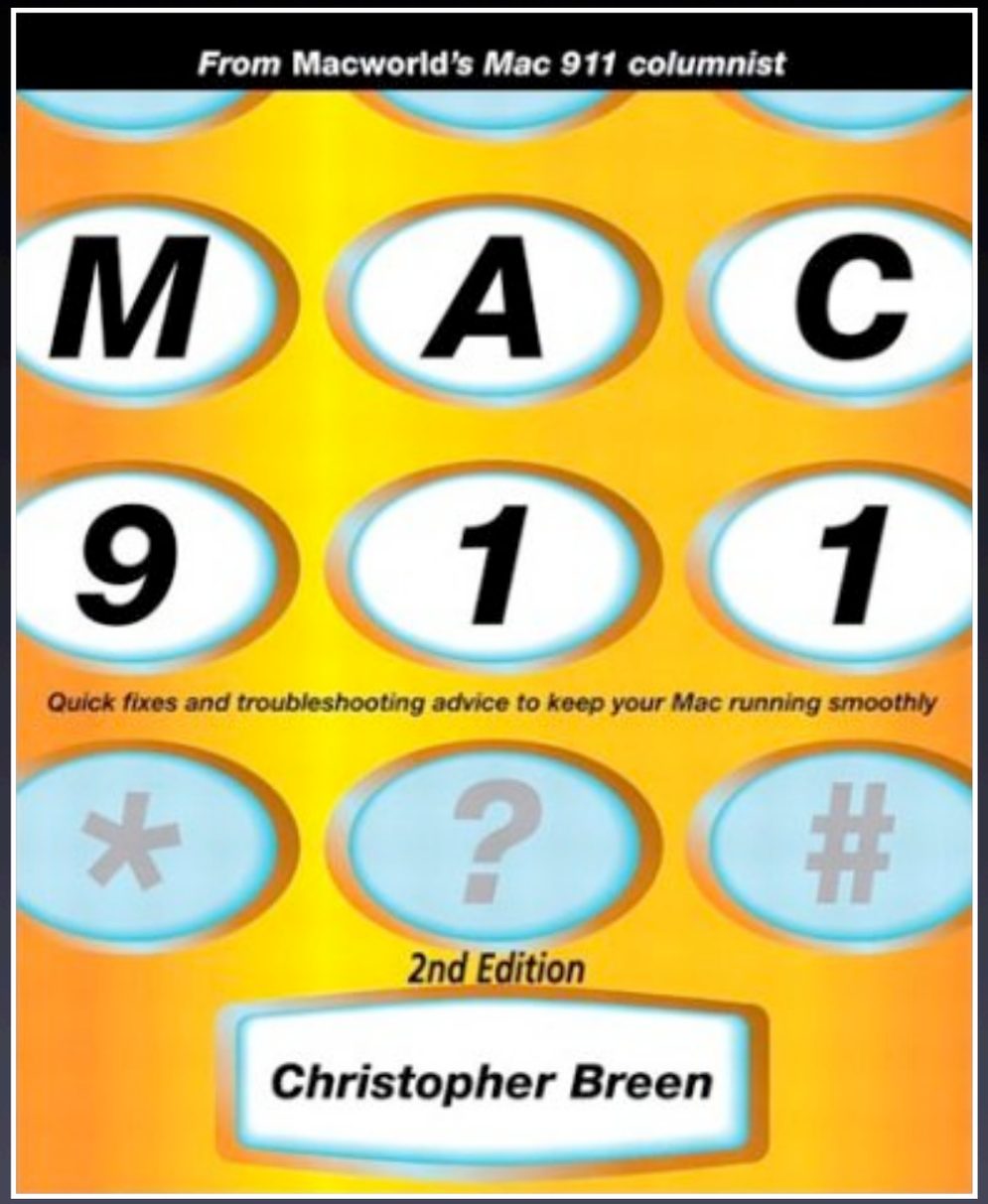


Books

Mac OS X Hints Jaguar Edition,
by Rob Griffiths

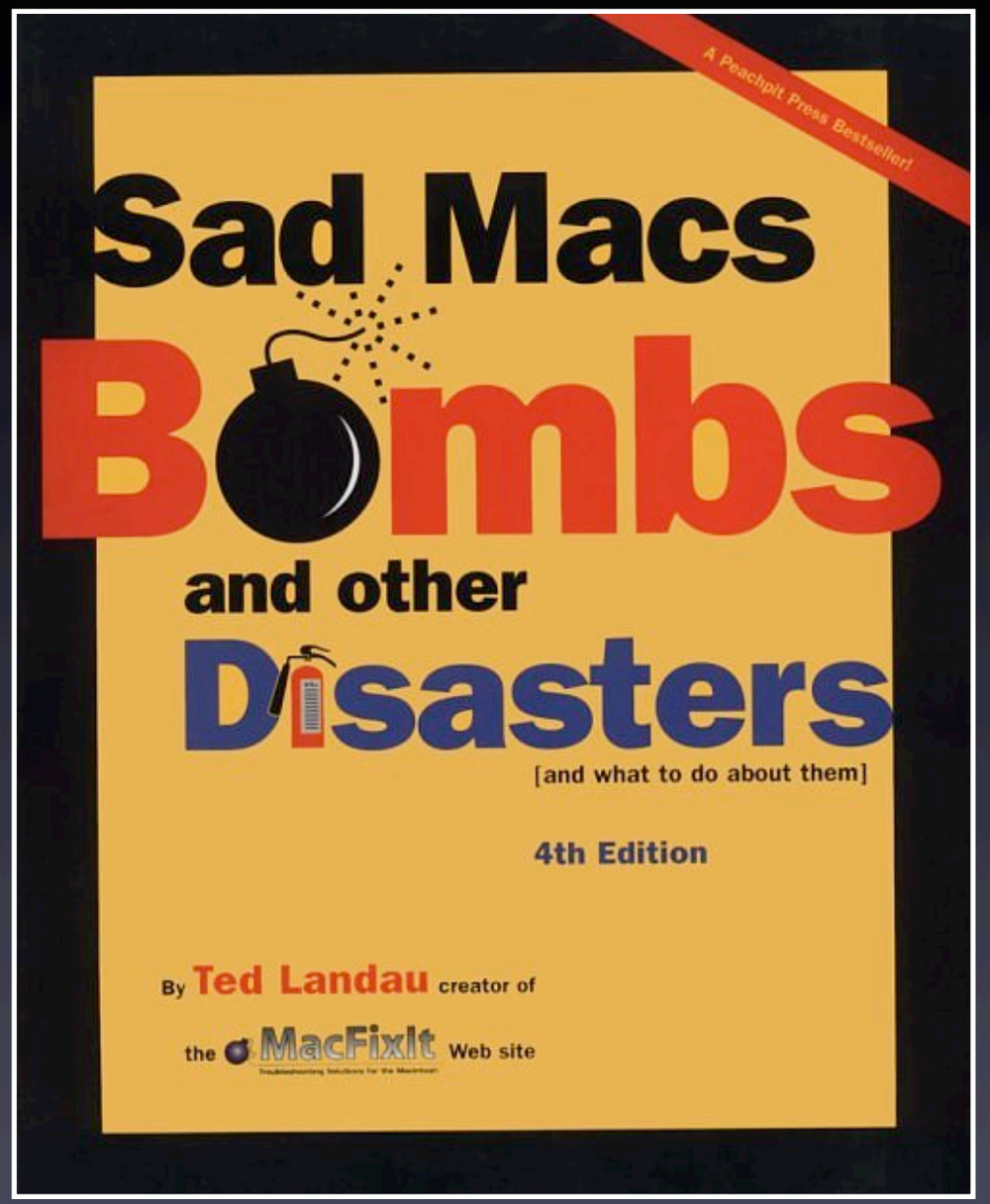
Books

Mac911
by Chris Breen



Books

Sad Macs, Bombs and Other Disasters by Ted Landau



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Q & A