

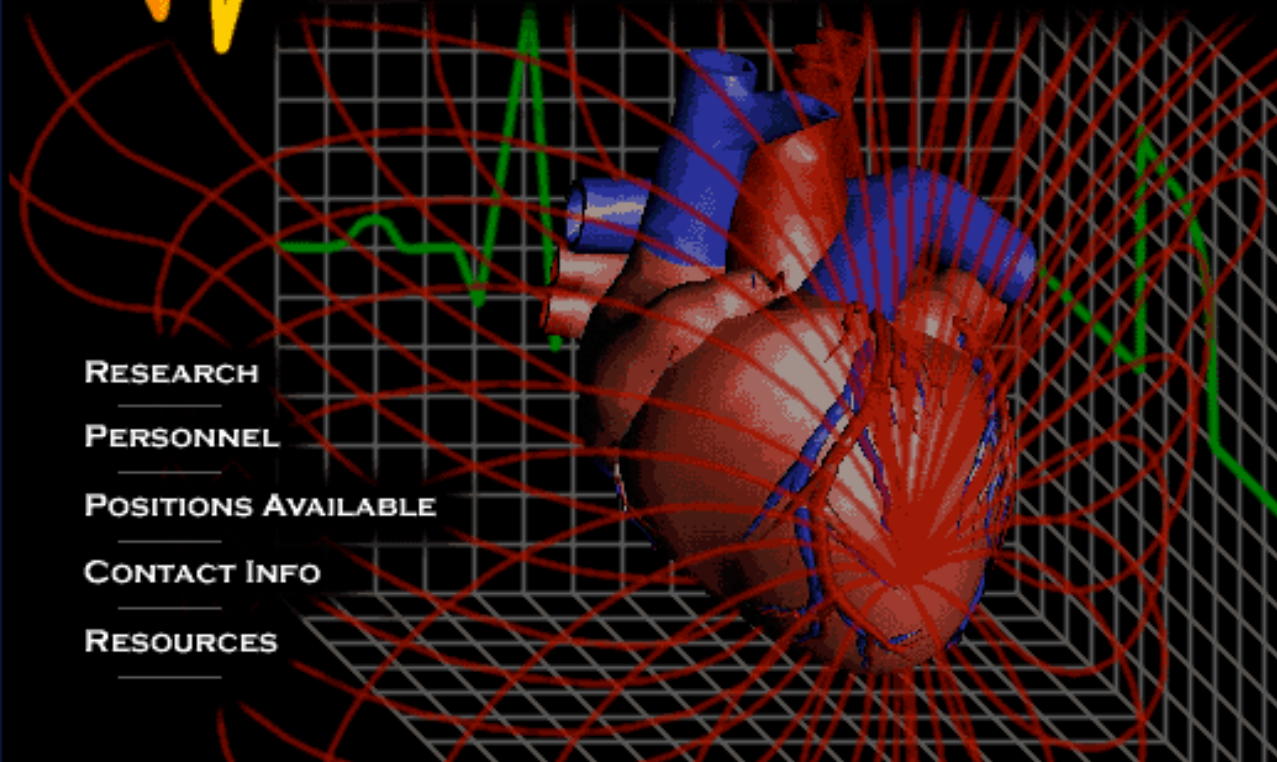


Netboot Services At CVRTI



CVRTI


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CARDIOVASCULAR RESEARCH
& TRAINING INSTITUTE**



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RESOURCES

Why Use Netboot?

- Simplify OS upgrades
- Keep all machines up to date
- If the user “trashes” the system or the system otherwise gets corrupted a reboot immediately restores sanity to the machine
- Allows more mature users to test new system software or configurations

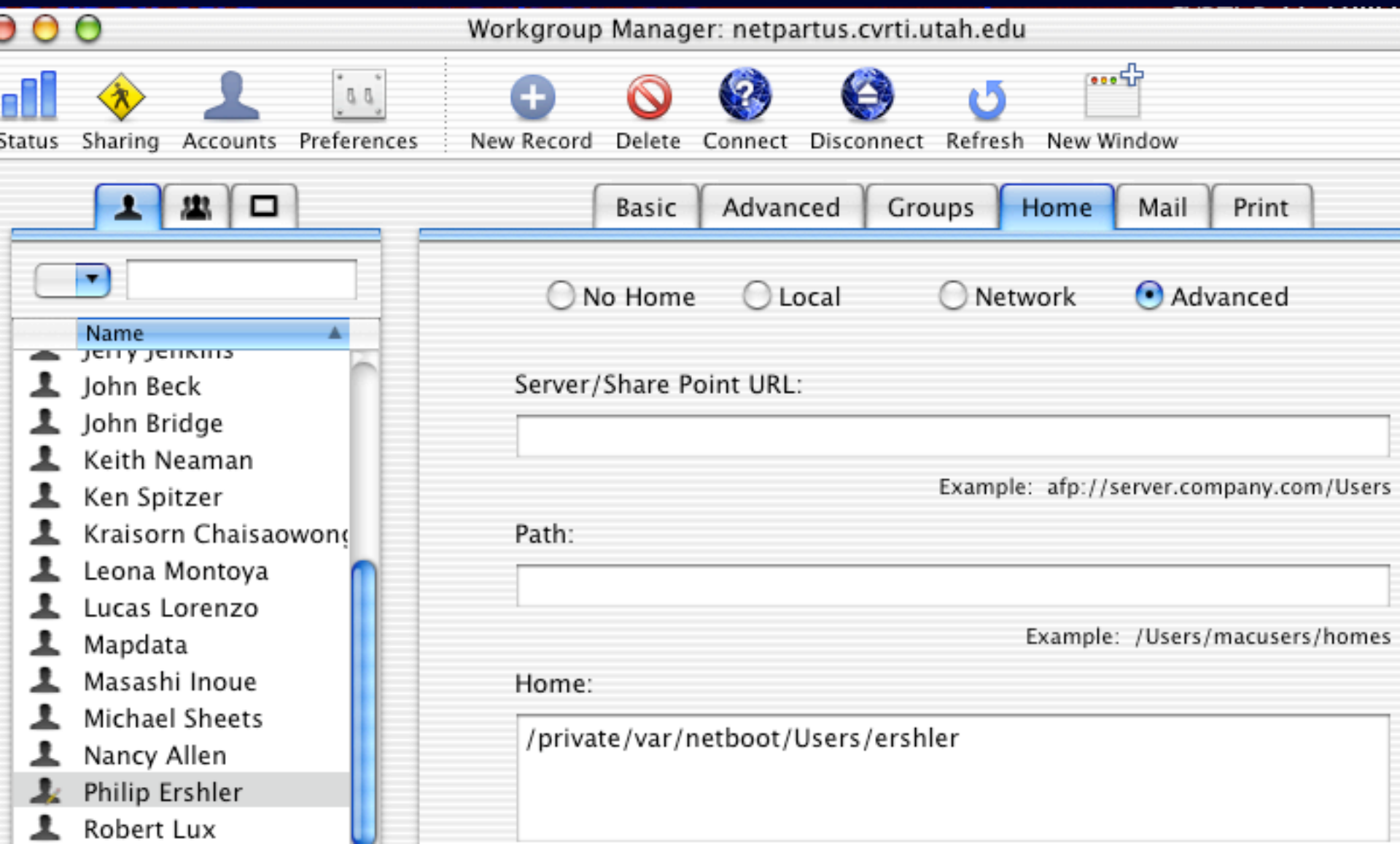
Particular Issues With Netboot In Our Institute

Most people in the lab have their “own” computer

- The user expects the computer at a fixed IP address
- The user wants to be able to recognize his or her computer in a “Connect to Server” dialog listing
- The user expects to have administrative privileges (for better or worse)!
- The user wants access to all the latest software
- Many users want access to ported Unix or Linux programs

Solutions

- Home Directory on Local Disk



Solutions continued

- Rename the computer
 - By way of a freeware utility NCUTIL
 - <http://deaddog.duch.udel.edu/~frey/darwin/ncutil/>

Jeff Frey's Corner of the Internet

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■ Site Areas ▶ Home | Literature | Programming | Research | Darwin | Photo Fakery | Recipes | Star Wars Stuff | Thesis

■ Area Links ▶ [ncutil](#)

■ ncutil Links ▶ Programming Docs | User's Manual | man page

About the ncutil project...

Within the heart of the Darwin OS is a beautiful piece of OS engineering called the SystemConfiguration framework, which among other things implements:

- *Dynamic network configuration*: the user can modify parameters on-the-fly and the changes are noted without a restart of the entire OS.
- *Location-based configuration sets*: the user can create multiple sets of parameters, termed "locations," which may be activated dynamically
- *Centrally-defined, XML storage form*: all parameters are stored in a central plist file; the multitude of files in /etc need not be modified

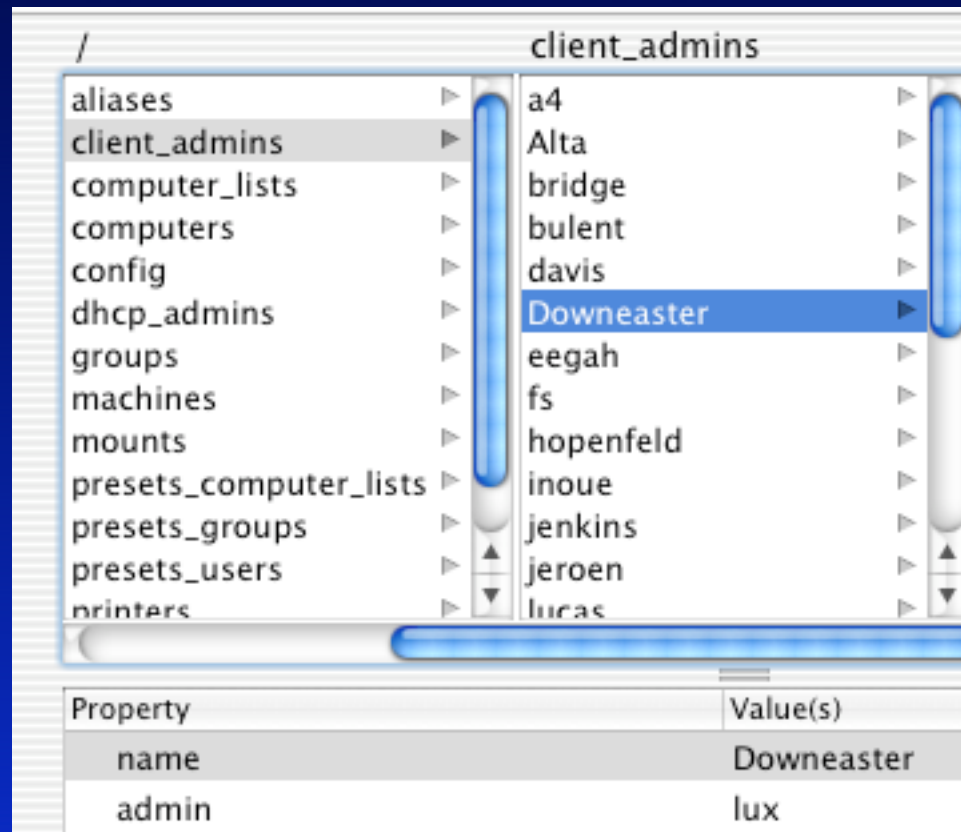
The UNIX-esque method of editing text files with strict, non-uniform text formats is thus replaced with a more standardized method of storing and managing the network configuration.

While this sounds wonderful, there was a key piece of software missing from the picture: a program which allowed the user to actually enter the information and parameters! As a result, old-time configuration methods -- editing those text files in /etc -- have proliferated and presented a general air of disarray in the Darwin community when it comes to network setup under the OS.

The ncutil project is an open source initiative by me to provide that missing piece of software and is provided to you under the [BSD licensing scheme](#).

Solutions continued

- Give the user administrative rights
 - Add a new “directory” to our root level netinfo database



Solutions continued

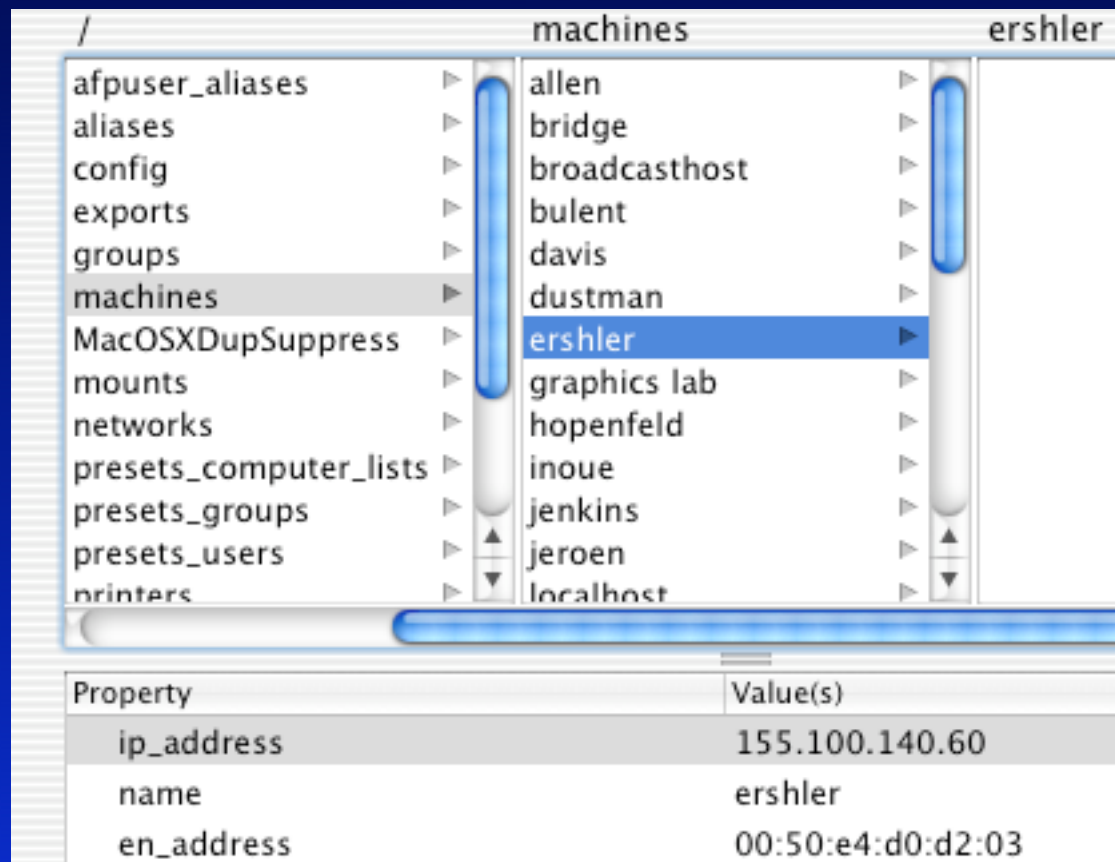
- Phil's Phun Shell Script in /Library/Startup Items

```
#!/bin/sh
##
# CVRTI netboot client initialization.
##
. /etc/rc.common
ConsoleMessage "Starting Phil's Phun"
# Set client name to hostname minus the domain part of the hostname.
client=`hostname -s`
/sbin/ncutil -setprop -activate / computer-name ${client}

# Give client's primary user local admin privileges.
user=`niutil -read //client_admins/${client} | grep admin | cut -d ' ' -f 2`
if [ ! -z "${user}" ]
then
niutil -insertval . /groups/admin users ${user} 1
fi
```

Solutions continued

- Fixed IP addresses
 - Run DHCP on the Netboot Servers
 - Associate Ethernet MAC addresses to desired IP addresses in local Netinfo



The screenshot shows the NetInfo configuration window. The left pane displays a tree view of configuration folders, with 'machines' selected. The right pane displays a list of machine names, with 'ershler' selected. The bottom pane shows the configuration for the selected machine, 'ershler'.

Property	Value(s)
ip_address	155.100.140.60
name	ershler
en_address	00:50:e4:d0:d2:03

Solutions continued

- Access to a central Fink installation
 - A shared disk with up to date program builds is set to be automounted at login time
 - The Netboot image contains an alias to the Fink volume

Solutions continued

- Shared applications are located on a share point on one of the servers.
- Most applications run fine this way.
- Microsoft Word is troublesome.
- Word expects to have the application on the same physical partition as the user's home directory. If not Word will crash as fast as it is launched,

Solutions continued

- Fixing Word
 - The file **Carbon Registration Database** located in `/Users/username/Library/Microsoft` has to be deleted before each time Word is launched.
 - Launch Word AppleScript

```
try
    do shell script "rm ~/Library/Preferences/Microsoft/'Office Registration Cache X'"
end try
tell application "Microsoft Word" to activate
```

Solutions continued

- The OS expects to find the crontab in /etc on the boot volume.
 - Create a soft link /etc/crontab in the Netboot image that points to /etc/crontab on the user's local disk.

Netboot Annoyances

- In machines with only one hard disk, the disk will always mount on /private/var/netboot. On machines with more than one disk, “some disk” will get mounted on /private/var/netboot. Any other disks will get mounted on /Volumes.
- If a Netboot server must be taken down, any client machine Netbooted from that server will crump. Fortunately the Netboot servers only have to go down for software or hardware updates. We have never had one of our Netboot servers crash. (One Xserve and one older G4)