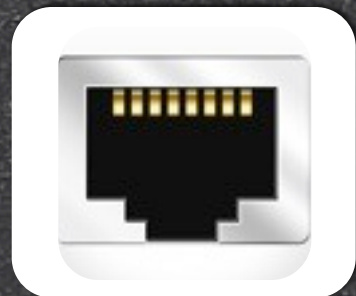
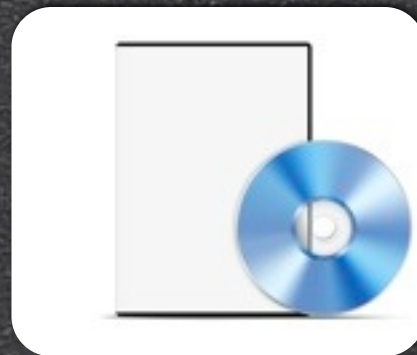




Troubleshooting



Network



Software



Hardware



P R E C I S I O N
C O N S U L T I N G

Adam

Schechter

MindSet| No GPS

Constants & Variables

Proper Diagnosis

Logic Flow



MindSet | Rinse & Repeat

Consistent Testing
Look for inconsistencies

Remember to listen and look for
oddities

Mindset | See the whole Image

What is the REAL issue
Listening if this is a
technical, political or
emotional issue

Try not to be an
“emotional couch”.



Mindset | what is your role

Client may already have
the answer but need you
to agree

“My Internet is Slow”

YES YOUR INTERNET IS SLOW



**“Honey the consultant
says the Internet is slow.
We need to upgrade”**

MindSet | Documentation

LEON'S HOME

— SITTING ROOM

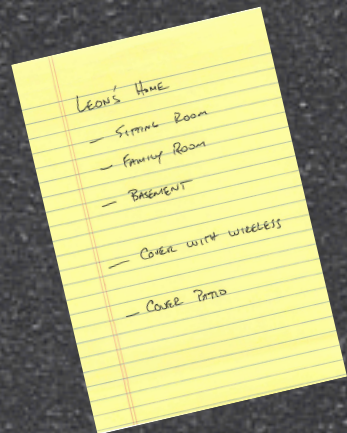
— FAMILY ROOM

— BASEMENT

— COVER WITH WIRELESS

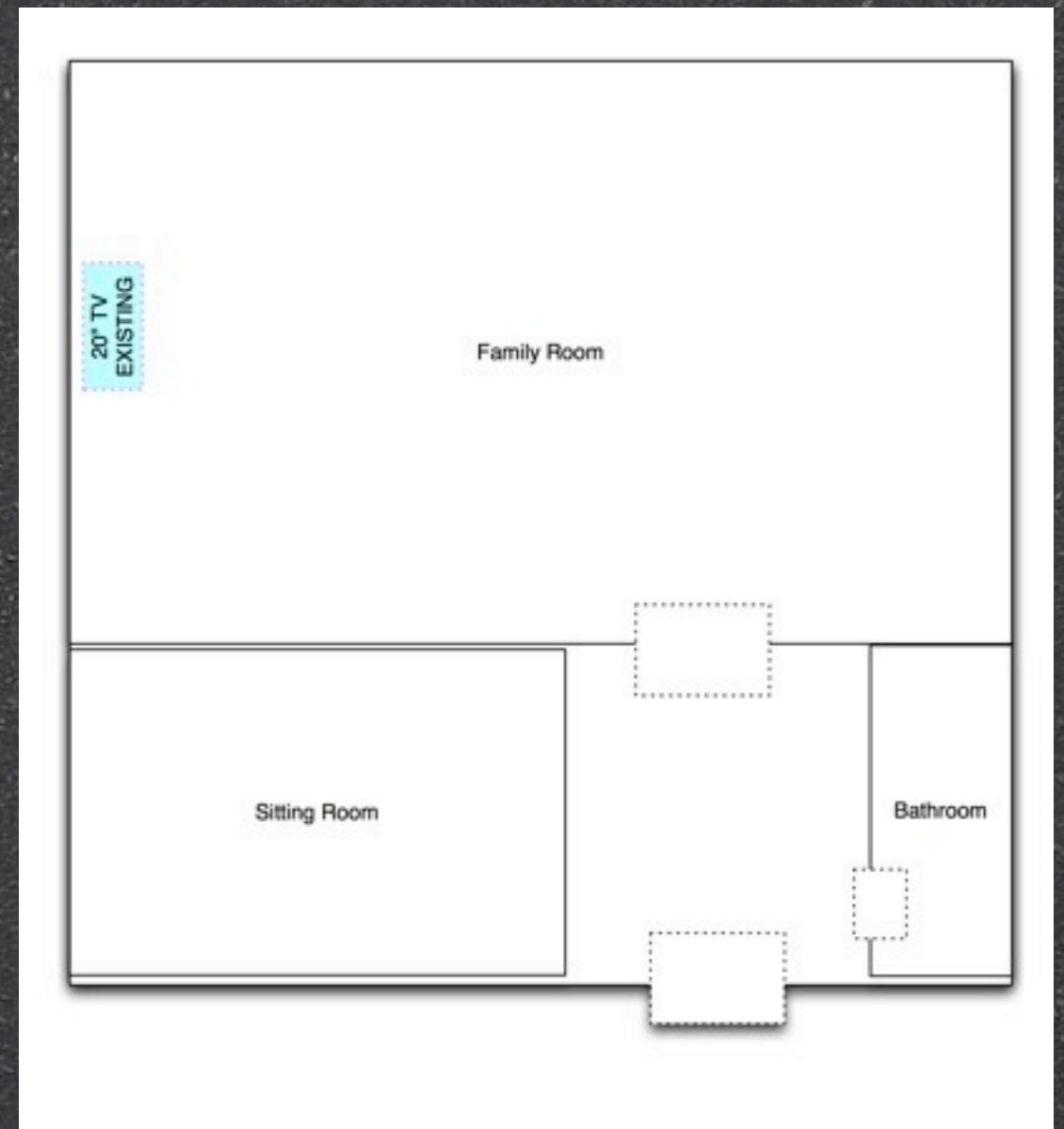
— COVER PATIO

MindSet | Documentation

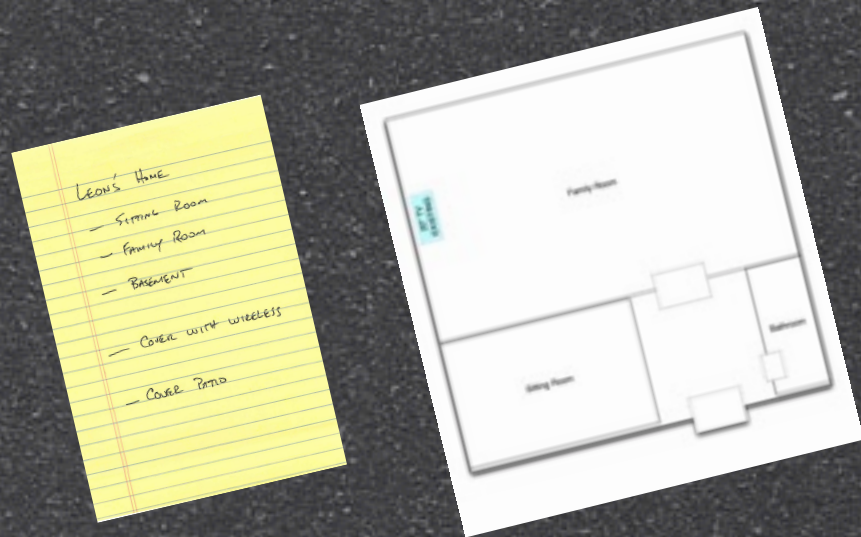


More Accurate
Easier to Share
Future Use

Better Communication for Client



MindSet| Documentation



Wireless
Coverage



Wireless Coverage

MindSet| Documentation

Pictures	iPhone
Diagrams	OmniGraffle
Notes	Evernote Omni Outliner
Screen Captures	CMD-SFT-4
Test Results	Excel
Movies	iPhone

Process | Choosing a path

Testing— follow the data but don't go off the yellow brick road

Questions— don't lead the subject
Not a therapy session.

Process | Following the path

Determine if this is a “group” problem or an isolated issue.

Determine what changes have taken place since your last visit.

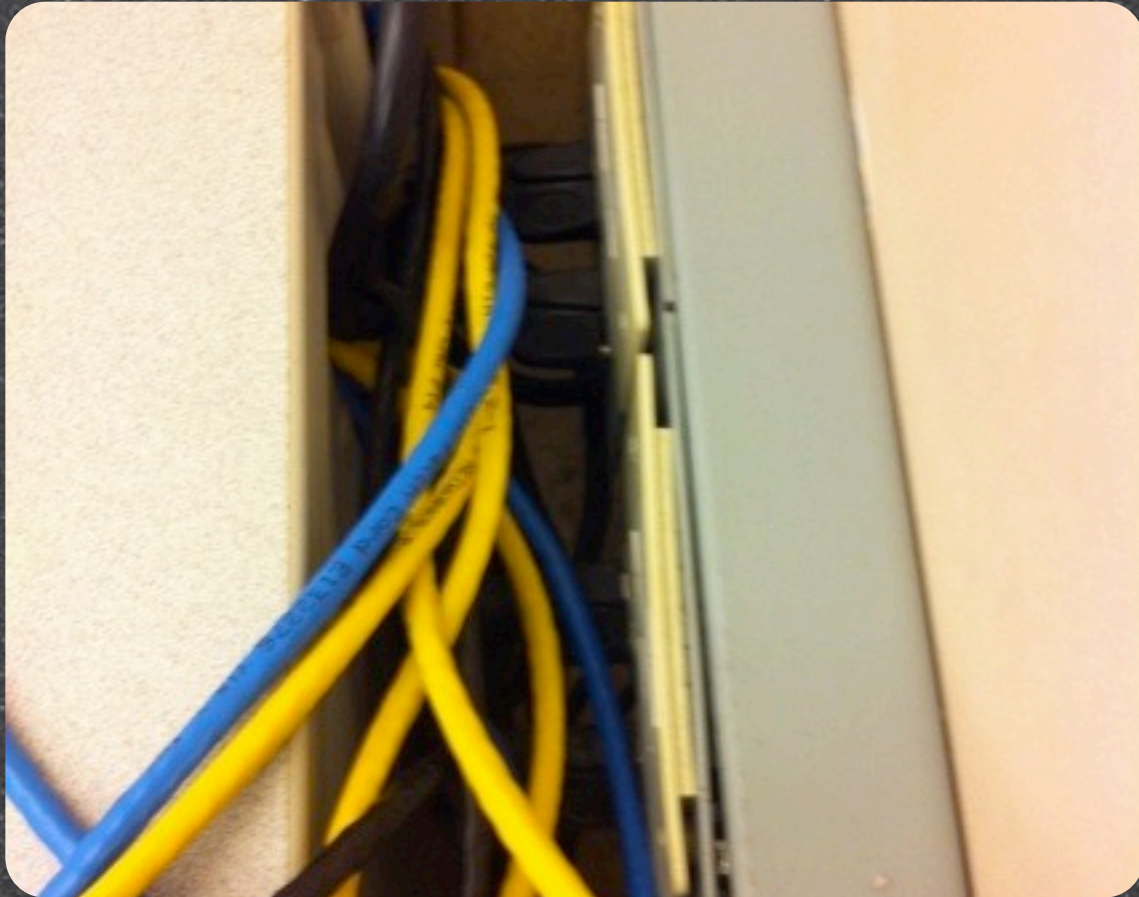
Process | What's Different

- Before going to a clients, take the time to understand the products.



Note the RED light
- The battery is
DEAD

Process | Look Carefully



Network cables are laying on the power outlet



What do the lights mean...?

Process | not Rocket Science

Proper Planning
Proper Equipment
Proper Design

More Billable Hours
More time for You



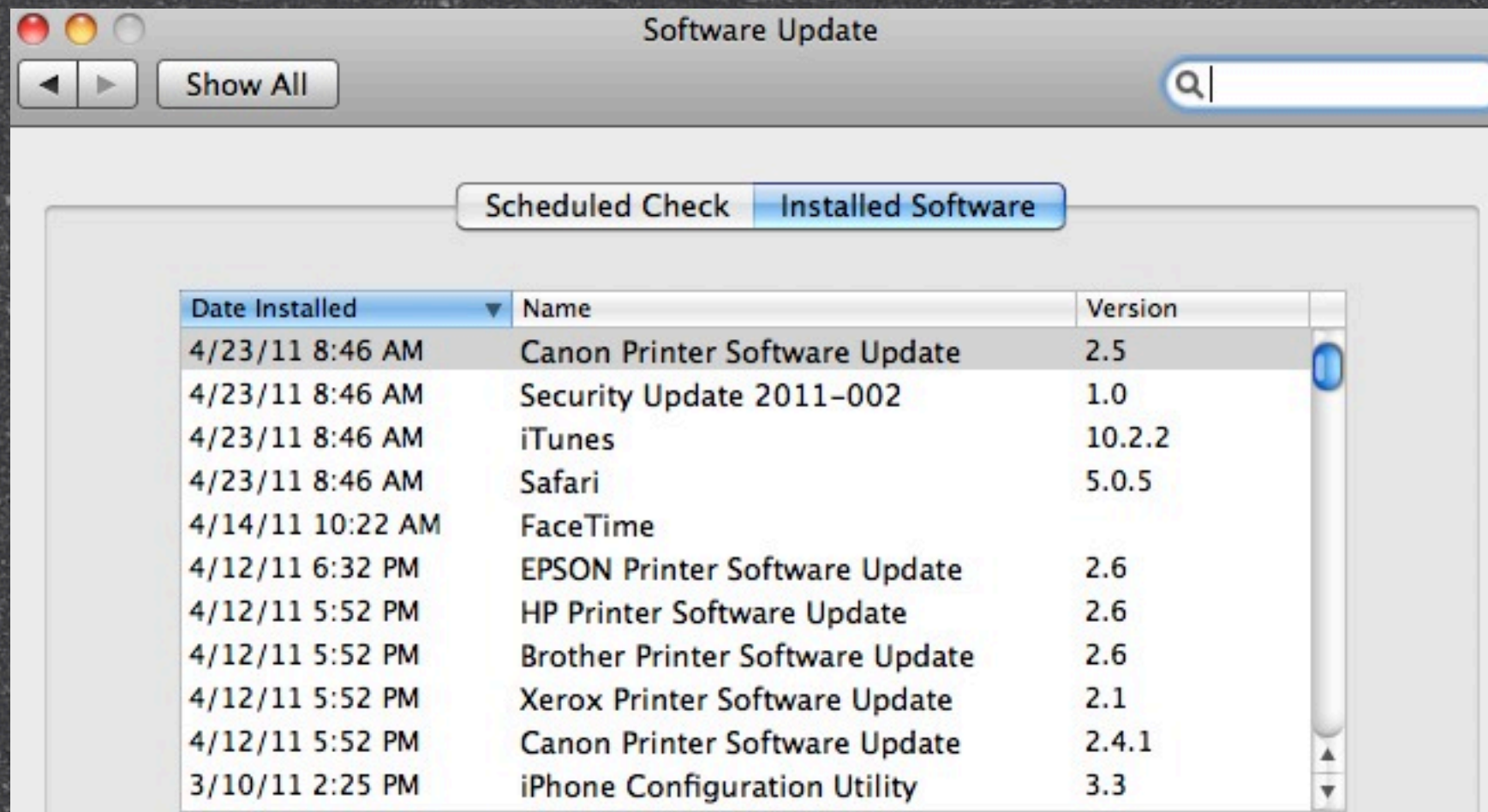
Score:

3 Sections down

2 Remain



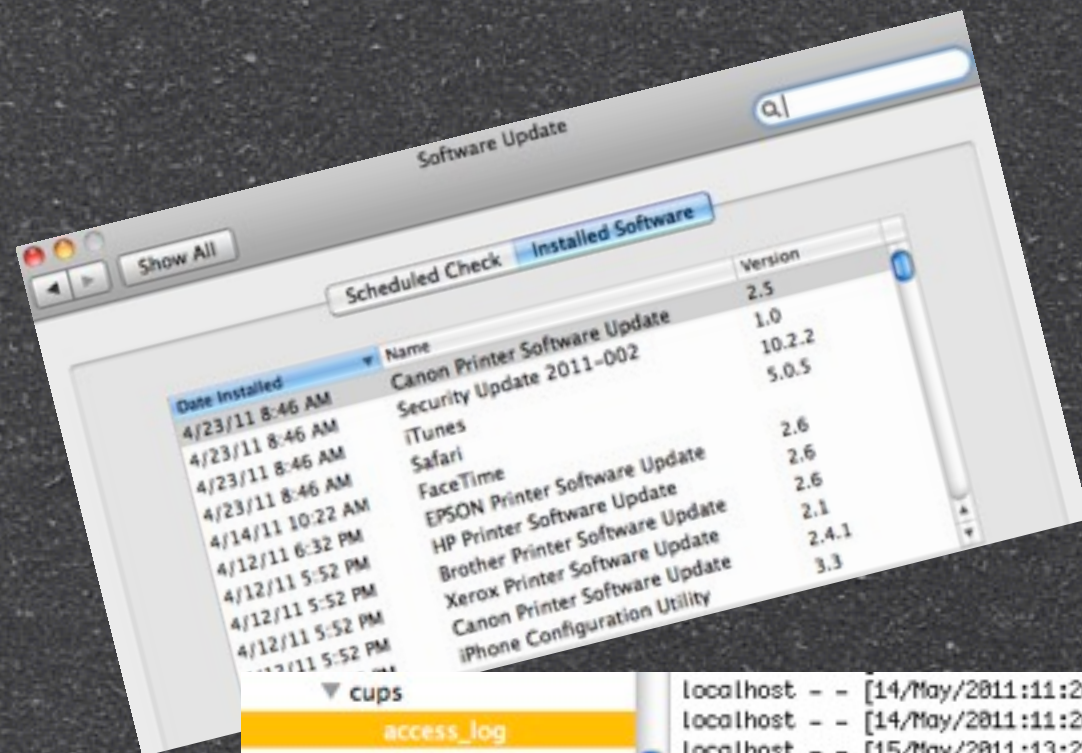
Tools| Choosing a path



Date Installed	Name	Version
4/23/11 8:46 AM	Canon Printer Software Update	2.5
4/23/11 8:46 AM	Security Update 2011-002	1.0
4/23/11 8:46 AM	iTunes	10.2.2
4/23/11 8:46 AM	Safari	5.0.5
4/14/11 10:22 AM	FaceTime	
4/12/11 6:32 PM	EPSON Printer Software Update	2.6
4/12/11 5:52 PM	HP Printer Software Update	2.6
4/12/11 5:52 PM	Brother Printer Software Update	2.6
4/12/11 5:52 PM	Xerox Printer Software Update	2.1
4/12/11 5:52 PM	Canon Printer Software Update	2.4.1
3/10/11 2:25 PM	iPhone Configuration Utility	3.3

Note the date things were
installed : Were you there...
Who Was

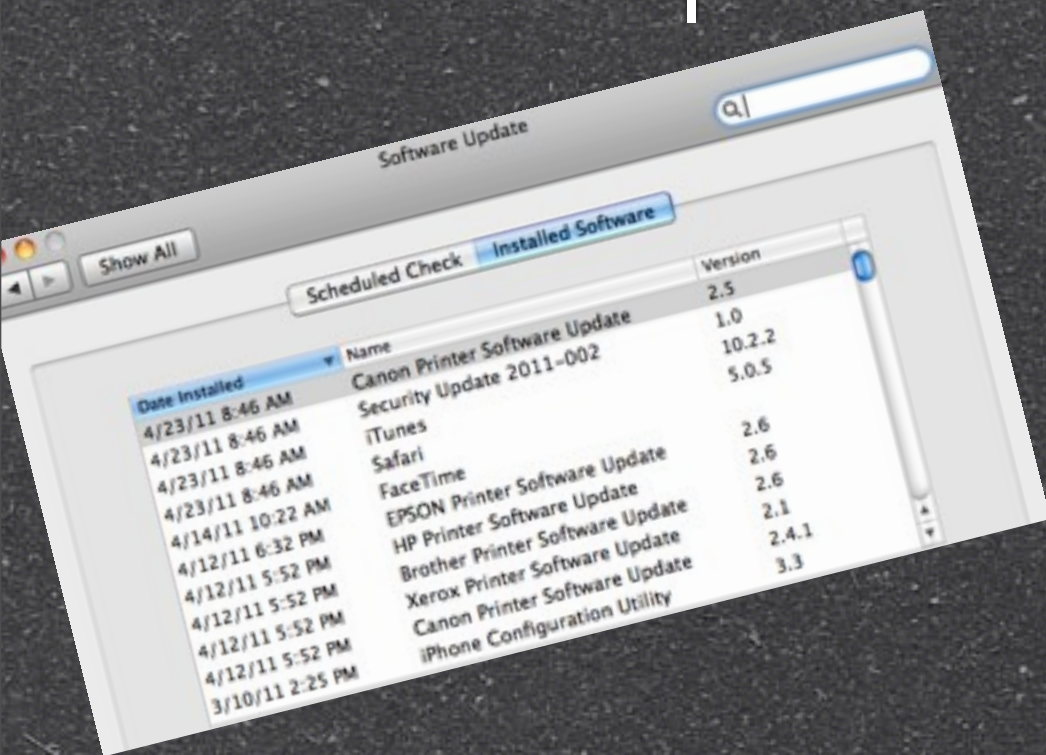
Tools| Choosing a path



```
localhost - - [14/May/2011:11:26:47 -0400] "POST /printers/Brother_HL_2170W_series HTTP/1.1" 200 233588 Send-Document successful-ok
localhost - - [14/May/2011:11:26:47 -0400] "POST / HTTP/1.1" 200 316 Set-Job-Attributes successful-ok
localhost - - [15/May/2011:13:27:30 -0400] "POST /printers/Xerox_Phaser_6280DN__ac_b4_b0_ HTTP/1.1" 200 2331 Create-Job successful-ok
localhost - - [15/May/2011:13:27:30 -0400] "POST /printers/Xerox_Phaser_6280DN__ac_b4_b0_ HTTP/1.1" 200 472637 Send-Document successful-ok
localhost - - [15/May/2011:13:27:30 -0400] "POST / HTTP/1.1" 200 316 Set-Job-Attributes successful-ok
localhost - - [15/May/2011:13:28:04 -0400] "POST /printers/Xerox_Phaser_6280DN__ac_b4_b0_ HTTP/1.1" 200 2359 Create-Job successful-ok
localhost - - [15/May/2011:13:28:04 -0400] "POST /printers/Xerox_Phaser_6280DN__ac_b4_b0_ HTTP/1.1" 200 124634 Send-Document successful-ok
localhost - - [15/May/2011:13:28:04 -0400] "POST / HTTP/1.1" 200 316 Set-Job-Attributes successful-ok
localhost - - [15/May/2011:13:58:05 -0400] "POST /admin HTTP/1.1" 401 195 CUPS-Add-Modify-Printer successful-ok
localhost - - [15/May/2011:13:58:06 -0400] "POST /admin HTTP/1.1" 200 195 CUPS-Add-Modify-Printer successful-ok
localhost - - [15/May/2011:14:02:46 -0400] "POST /admin HTTP/1.1" 401 195 CUPS-Add-Modify-Printer successful-ok
```

Look at the logs to see when
the last job printed correctly.
Note date and time

Tools | Choosing a path



Tools | Choosing a path

If the logs show good printing and no issues, perhaps software may not be the issue



Tools| Network

```
PING 192.168.22.1 (192.168.22.1): 56 data bytes
64 bytes from 192.168.22.1: icmp_seq=0 ttl=64 time=0.910 ms
64 bytes from 192.168.22.1: icmp_seq=1 ttl=64 time=0.983 ms
64 bytes from 192.168.22.1: icmp_seq=2 ttl=64 time=1.089 ms
64 bytes from 192.168.22.1: icmp_seq=3 ttl=64 time=0.996 ms
64 bytes from 192.168.22.1: icmp_seq=4 ttl=64 time=0.839 ms
^C
--- 192.168.22.1 ping statistics ---
5 packets transmitted, 5 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 0.839/0.963/1.089/0.084 ms
intelmbpro-5:~ aschecht$
```

ping 192.168.xxx.xxx

Basic: Ping the device

Tools | Network

```
intelmbpro-5:~ aschecht$ host www.apple.com
www.apple.com is an alias for www.isg-apple.com.akadns.net.
www.isg-apple.com.akadns.net is an alias for www.apple.com.edgekey.net.
www.apple.com.edgekey.net is an alias for e3191.c.akamaiedge.net.
e3191.c.akamaiedge.net has address 96.16.197.15
intelmbpro-5:~ aschecht$
```

host www.apple.com

Basic: Test DNS with HOST

Tools | Network

```
intelmbpro-5:~ aschecht$ sudo tcpdump -vv -i en1
tcpdump: listening on en1, link-type EN10MB (Ethernet), capture size
15:49:48.235619 IP (tos 0x0, ttl 64, id 61348, offset 0, flags [DF],
    192.168.22.1.http > intelmbpro-5.hollydale.com.55964: Flags [.],
15:49:48.235743 IP (tos 0x0, ttl 64, id 61349, offset 0, flags [DF],
    192.168.22.1.http > intelmbpro-5.hollydale.com.55964: Flags [P.]
15:49:48.235780 IP (tos 0x0, ttl 64, id 1576, offset 0, flags [DF],
    intelmbpro-5.hollydale.com.55964 > 192.168.22.1.http: Flags [.],
15:49:48.248703 IP (tos 0x0, ttl 64, id 63414, offset 0, flags [DF],
    192.168.22.1.http > intelmbpro-5.hollydale.com.56160: Flags [.],
15:49:48.248914 IP (tos 0x0, ttl 64, id 63415, offset 0, flags [DF],
    192.168.22.1.http > intelmbpro-5.hollydale.com.56160: Flags [P.]
```

sudo tcpdump -vv -i en1

Skilled: Watch the Network Traffic

Tools | Physical Tools

External HD

Quality Cables

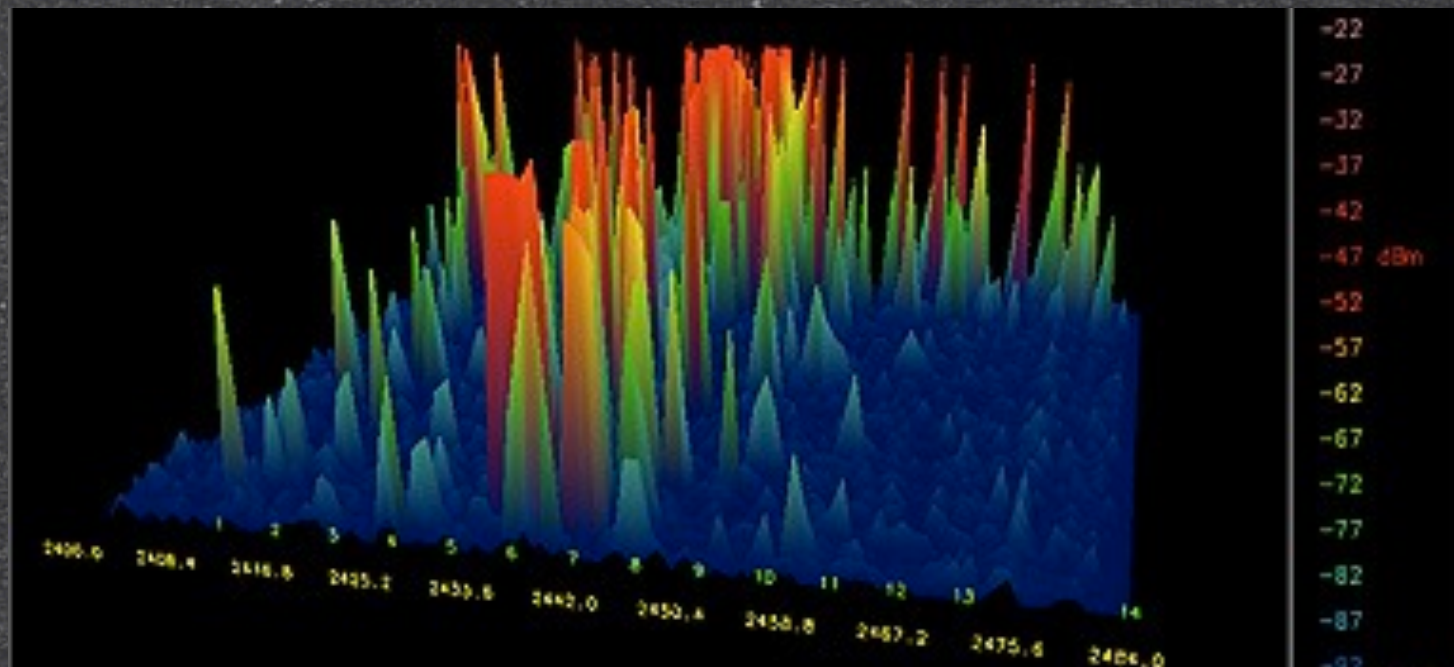
Network Switch

Cable Tester

2nd Laptop for Reference

Screwdrivers & Pliers

Tools | Network



SUBNET Insight



Advanced: Network Analyzer Tools

Tools | Software Tools

Diskwarrior

SubNET Insight

iStat Menus

Bonjour Browser

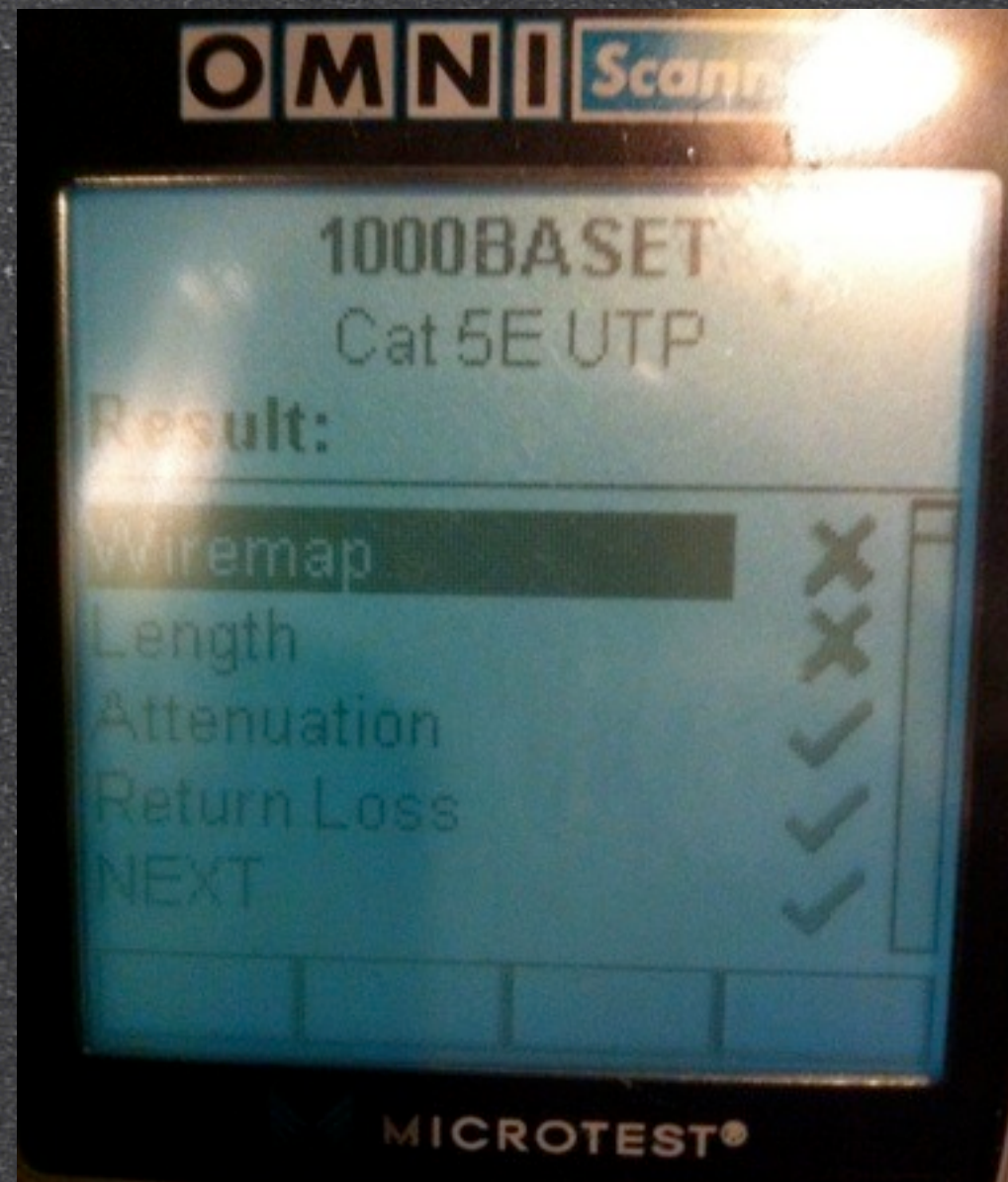
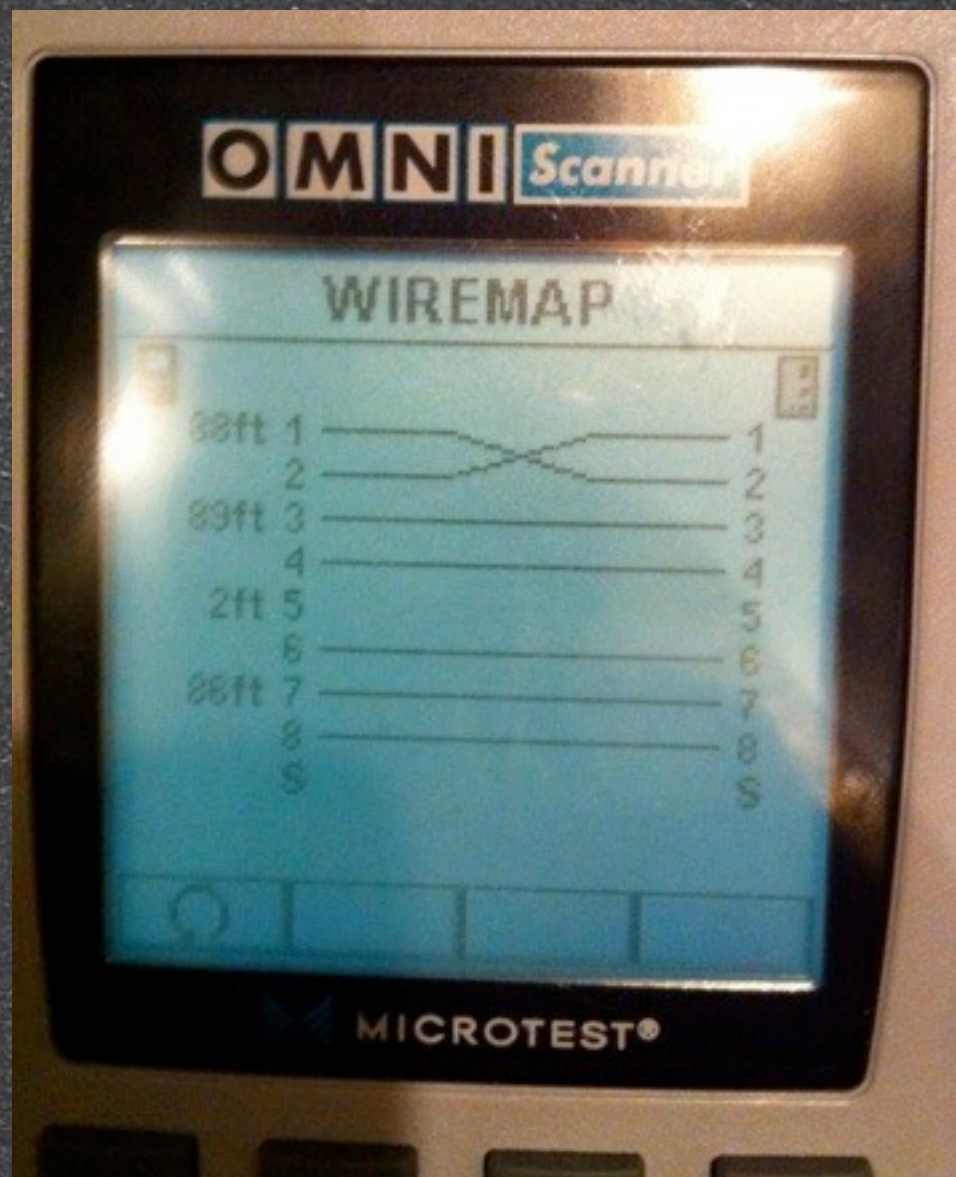
BatChmod

fseventer

TextWrangler, BBEDIT

apcupsD

Tools | Physical Wire Testing



Tools | OS Software Tools

Terminal

Server Admin

Workgroup Manager

Console

Network Utility

Activity Monitor

System Profiler

Apple Remote Desktop

Tools | Network Management



Tools| VOIP

VOIP requires some understanding of how the network operates

SIP Packets

QOS (quality of Service)

Firewall Rules

Unique Hardware Tools

Tools | LDAP Tools

Apache Directory Studio

LDapper

Terminal :

--ID

--Login

Tools | Command Line

changeip -checkhostname

dscacheutil -flushcache

ps auxc

ifconfig

sudo ipconfig getpacket -i en0

sudo ipconfig getpacket -i en1

“tab tab” bring up all options

Tools | Web Resources

Whatismyip.com
speedtest.net

www.afp548.com

google custom search

-- “appletalk site:apple.com”



Done | Go Fix Something



**Thanks to ANDY,
LEON, NEIL**

and the ENTIRE
MACTECH team

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