

# Troubleshooting Methodologies: Hardware, Software and Network Problems

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# Proper diagnosis, then remedy

- Lead the process
- Ask lots of questions, Document
- Listen to your senses, Document
- Gather data with tools, knowledge and “feel” (The Force)
- Explain solution to user/client - Close the loop



# Troubleshooting Mindset

- Work with a calm mind
- Slow down
- Fix root causes
- Multiple causes
- Multiple Interactions



# Soft Skills

- Listen
- Speak at level of user
- Don't boast
- Occam's razor/Gordian Knot



# Best Practice Methodology: Basics

- Reproduce error (PEBCAK)
- Different user/using the system differently - differently than you tested it
- Real life common causes
- Today Hardware is the least likely issue
- Re-seat connections



# Best Practice Methodology: Things to assess

- Familiar issues/Recurring issues
- Network changes
- Hardware/Physical signs
- Software
- Check setting environment variables



# Best Practice Always

- Carefully diagnose problems (Measure twice cut once)
- Backup, Specific Backup, more backups
- Light Footprint at first
- Split-half tests
- Consult others
- Sleep on it



# Troubleshooting Physical Tools

- HD/Target Disk Mode (TB/FW)
- OS
- Diagnostics Apps
- Updaters/Installers
- UPS



# Troubleshooting Tools: Apple Tools

- Command Line Shell
- Directory Services Editor
- Log Reader
- Network tools



# Troubleshooting Tools: Apple Tools

- Server Services
- System Activity
- System & Configuration Data



# Troubleshooting Tools: Third Party

- Command Line Manuals
- Directory Queries
- Files & Permissions



# Troubleshooting Tools: Third Party

- Network Discovery
- Plist Viewer & Editors
- Text Editor
- Disk Utilities



# Troubleshooting Tools: Command line

- DNS & Directory Services
- Files & Permissions
- Network
- System Activity



# Printer troubleshooting

- Printer sharing vs. network printers
- Network Issues - WiFi, DHCP
- Identify origin of issues
- Printing troubleshooting tips
- Unchanging Drivers/OS Issues



# Network troubleshooting

- Isolation of problems
  - WAN vs LAN
  - UDP vs TCP/IP
- Wireless vs. Wired Techniques
- When you need a router expert



# Answers!

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