Creating Neutered Administrators

Session M214

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Apple Certifications for 10.3.x

Course Names	Certification Level	Length (days)
Mac OS X Help Desk Essentials	ACHDS	3
Mac OS X Server Essentials	ACTC (with Help Desk Essentials)	4
System Administration of Mac OS X Clients	Apple Certified System Administrator	5 days each course
System Administration using Mac OS X Server		

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What We'll Cover

- Securing the system
  - Setting an Open Firmware password
  - Restricting single-user boot
  - Adding a hidden administrator account

And more…

- Adding capabilities to standard users
  - Editing `/etc/authorization`
  - Changing permissions
  - Editing `/etc/sudoers`

Why You Need To Know This

Murphy's Laws of System Administration:

- Everything a user CAN change, he WILL change
- Any changes will break something important
  - At the last second, so you have no time to fix it
  - As far away from you as possible
  - The first things broken will be the tools you need to fix systems remotely

And somehow, it's still YOUR fault!

Why You Need To Know This

- Apple doesn't offer granular permissions
- Two options:
  - Local administrators rule their own boxes
  - Standard users can't even change time zone
- We're looking for a middle ground…

Where this is useful

- Road warriors– laptop users need control over network, time zone, and similar
- Remote sites/branch offices– may not have IT staff on hand
- Management– sometimes the folks who sign the checks want to feel independent

Securing the system

- Setting up an Open Firmware password
  - Prevents users' changing boot device
  - Prevents booting in single user mode
  - Prevents startup in Target Disk mode
- Easily defeated; just add or remove RAM

Demo 1

- Add an Open Firmware password using Apple's Open Firmware Password 1.02
  - Get it at <http://docs.info.apple.com/article.html?artnum=120095>
  - See <http://docs.info.apple.com/article.html?artnum=106482> for details
- Bonus geek points– set at the OF prompt!

Securing the system

- Restricting single-user boot
  - By default, Command–S gives root access, no password required
    - User can edit configuration files such as `/etc/sudoers` to gain privileges
- Wouldn't you rather require a password? (Or disable single-user mode entirely?)

Demo II

- Edit `/etc/ttys` configuration file
  - (AFTER backing it up!)
  - Replace “secure” with “insecure” throughout file
  - Now can’t boot single-user mode without `/etc/master.passwd` root password– which doesn’t exist by default

Securing the system

- Do you WANT `/etc/master.passwd` to contain a root password?
  - If not, can't boot single-user mode at all
  - If so, password hash decryptable offline

Demo III

- Add `/etc/master.passwd` root password:
  - Use openssl passwd command:
    `openssl passwd -salt xx password`
    - xx= any two random characters
    - password = 8-char password (use unique!)
  - Enter result into `/etc/master.passwd`
    - Replace asterisk after “root:” in file

Securing the system

- Adding a hidden administrator account
  - A “back door” if primary admin cracked
  - Hidden to avoid user confusion
  - Can be disguised as (unused) system user to minimize chance of detection
    - e.g. mailman, cyrus or postfix users
  - Easily detected in NetInfo Manager

Demo IV

- Use NetInfo Manager to delete user “cyrus”
- Create new user “cyrus” via Accounts pane
- Edit user “cyrus” with NetInfo Manager:
  - change UID to 98; change GID to 80
  - change home to `/var/imap`
  - delete SharedDir

Demo IV

- Using Terminal:

```
sudo mv /Users/cyrus /var/imap
```

```
sudo chown -R 98 /var/imap
```

- Log out
- On login, use down arrow to select user; then Option-Enter to get to user/password entry blanks
- Log in as cyrus

Upgrading users

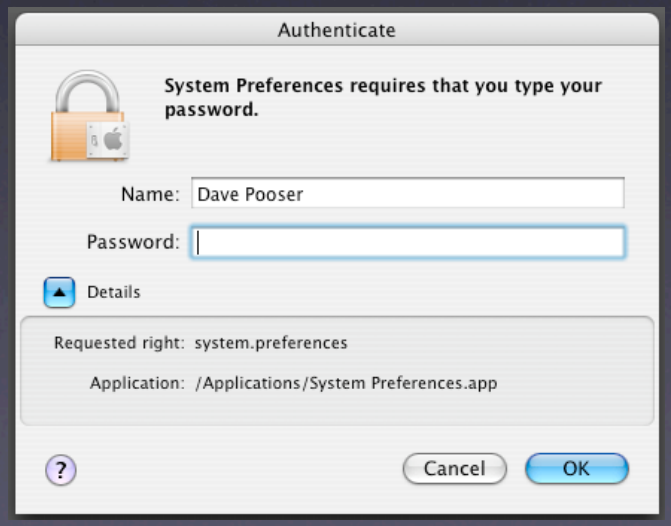
- Create a group for users who'll have some administrative rights
  - Include administrators!
- Reassign some admin group privileges to this powerusers group

Upgrading users

- `/etc/authorization` is a collection of rights and rules
  - For example, the right *system.burn* matches the rule *allow*; by default anyone can burn CDs/DVDs
  - Open `/etc/authorization` with Property List Editor (from Xcode) to view all rights and rules

Upgrading users

- To expand users, first identify the capabilities needed
- The Authenticate dialog box hides that information under Details; hit the disclosure triangle to see
  - For instance, to unlock a preference pane the requested right is system.preferences



Demo V

- Using NetInfo Manager
  - Duplicate the admin group
  - Change the name from “admin copy” to “powerusers” and the GID to any unused GID <500
  - Add the users you wish to enhance

Demo V

- Make `/etc/authorization` editable
- Open `/etc/authorization` with Property List Editor
- Find system.preferences and change the group value from “admin” to “powerusers”
- Save changes and set `/etc/authorization` permissions back to root:admin rw-r--r--

Demo V

- Log back in as enhanced user to verify access to… all system panes?
  - Including Accounts, so you can make yourself an administrator…
  - And Startup Disk, so you can boot off another drive…

"Danger, Will Robinson!"

Re-restricting users

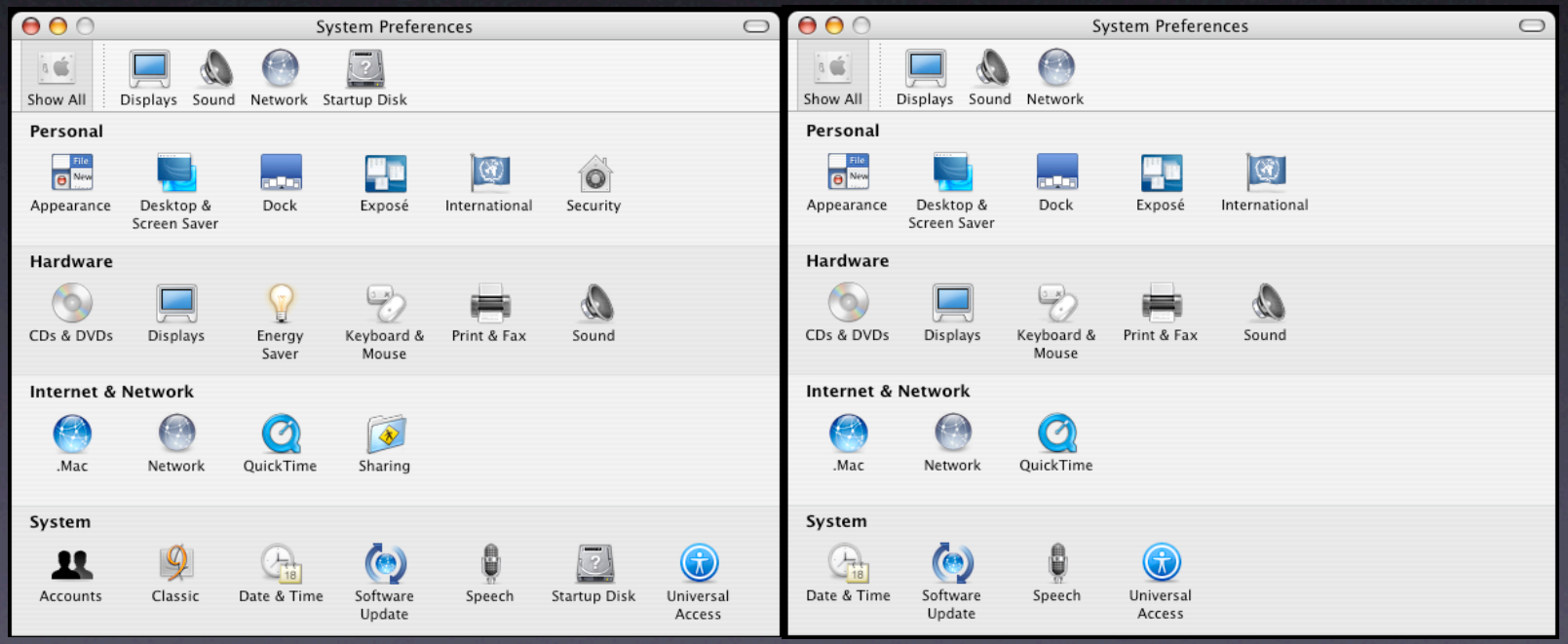
- With the system.preferences right an all or nothing change, we need another way to lock the user out of some preference panes
  - Time to change permissions!
    - But be careful, running Repair Permissions will undo all this work…
- Dangerous panes: Accounts, Classic, Energy Saver, Security, Sharing and Startup Disk

Demo VI

- Using Terminal, navigate to `/System/Library/PreferencePanes`
- Type `ls -l` to see that each pane is a directory owned by root with group wheel and permissions rwxr-xr-x
- Use `sudo chgrp -R admin` on a pane to change the group and `chmod -r o-x` to make non-admins unable to see or open the pane

Demo VI

- Log out and log in as the user to see the change…



Permissions Tweaks

- By default, /Applications admin-writeable
  - Make /Applications group “powerusers” to allow drag-and-drop installs
    - (Microsoft Office, OmniWeb…)
    - Why not ~/Applications? Possible version conflicts
    - Licensing compliance may be problem

Permissions Tweaks

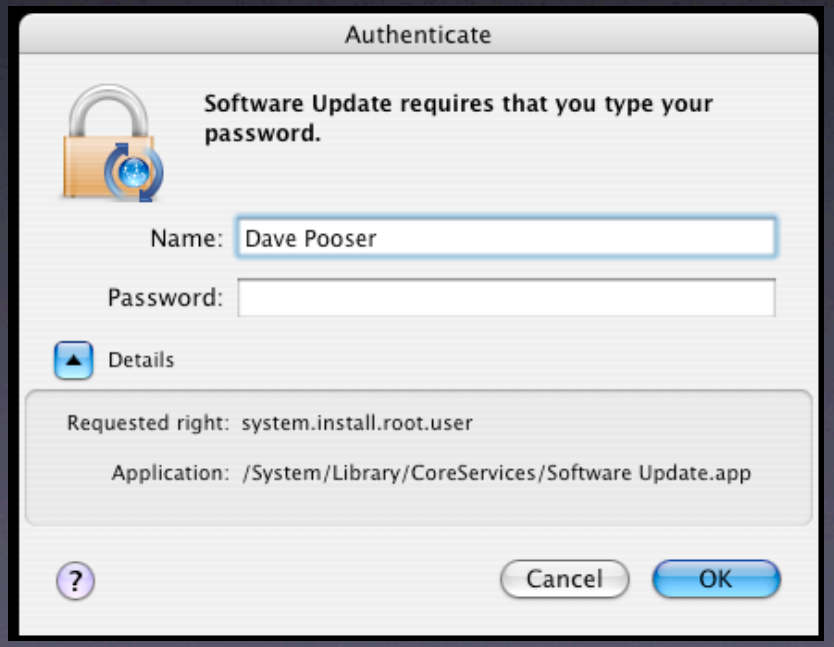
- /Library more dangerous
  - Any script in /Library/StartupItems runs as root
  - Change group on subdirectories only
    - Application Support, Fonts, Preferences
    - Create StartupItems and set ownership root:wheel

Editing `/etc/sudoers`

- /etc/sudoers is a list of users and groups allowed to run commands as root
  - Can allow some users to run any command (by default the admin group)
  - Can also allow users to run a specific list of commands…

Editing `/etc/sudoers`

- Example: You want power users to be able to run Software Update
- The Software Update GUI requires admin privileges
  - Specifically the *system.install.root.user* right…



Editing `/etc/sudoers`

- So why not edit `/etc/authorization` to give powerusers access to that right?
  - Because then they can install any package
    - As root
    - Including pre/postflight scripts

In other words, they could run any script they chose *as root*.

Editing `/etc/sudoers`

- Instead, edit `/etc/sudoers` to give the powerusers group permission to run `softwareupdate`
  - But be careful!
    - Use full path: `/usr/bin/softwareupdate`
    - Make sure the parent directory and the binary are only writeable by root

Demo VII

- Use `sudo visudo` to edit `/etc/sudoers`
  - Feel free to change your editor first: `export EDITOR=/usr/bin/pico`
- Add a line as follows:

```
%powerusers  ALL=NOPASSWD: /usr/sbin/softwareupdate
```

- Translation: Members of the group powerusers can `sudo` to run `/usr/sbin/softwareupdate` as root without a password

Demo VII

- Log out and log back in as the enhanced user
- Open Terminal and type:
  `sudo /usr/sbin/softwareupdate -i -a`
  - Translation: Run Software Update and install all updates
- Can also be created as a one-line script; make it a .command file to have a double-clickable option for Terminal-phobic users

Synopsis

- Secure the system– Open Firmware is key
- Create a powerusers group as admin-lite
- Give powerusers rights as needed
- Restrict dangerous prefpanes with `chmod`
- Use `/etc/sudoers` for specific functions

Thank You!

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