MUNKI
DAT
WPUNJ

CHRISTOPHER COVER
MacOS Admin
AKA: CMO

WILLIAM PATERSON UNIVERSITY

COVERC@WPUNJ.EDU

WPUNJ Open Sourced Mac Support :

Munki, Autopkg, Munki Web Admin, Reposado, terminal-notifier

OVERVIEW

- **Munki**: Managed Software Center (MSC). Used to deploy software and system configurations.
- **Autopkg**: Automate the packaging of frequently updated standard software for Munki.
- **MunkiWebAdmin**: Web console for client reporting
- **Reposado**: Local mirror of Apple updates.
- **Terminal-notifier**: notification center style notices for MSC updates.

Cost Effective

- None of these items require any licenses to obtain or run. Saves institution and taxpayer money.
- Give a bonus to your admin. :-D

DATE September 28, 2016

PAY TO THE ORDER OF   Mac Sys Admin $ 200,000

Two hundred thousand and 00/100 ————————— DOLLARS

Give Something Back Foundation

PRE MUNKI

- Before Munki we were using RADMIND
- **R**emote **Admin**istrator

Pros of RADMIND

- Tripwire system: Keeps machines in a known state. Great for unchanging labs.
- Automatically removes unwanted, unauthorized installations and hacked files.
- Only needed the space required for update.

Cons of RADMIND

- All installed software must be known
- ahead of time.
- Users are unable to install software into root Applications directory.
- Easy to break machines with ill-prepared transcripts.
- Generally not flexible.

Cons of RADMIND

- Then came the Apple App Store.

Goals for implementing Munki

- Keep Standard OS and Software up to date.
- Allow users to install applications without admin privileges.
- Ability to know the status of any machine.
- Ability to remove unauthorized applications.
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WPUNJ Munki Setup

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- Managed Software Center Client.
- Apache Web Server.
- Reposado Apple Update Mirror.
- MunkiWebAdmin Console for admin.

Managed Software Center

- Munki (Managed Software Center) may be obtained from:
- https://github.com/munki/munki
- Created by Greg Neagle at Disney Corp.
- As a standard pkg installer you can deploy it via whatever deployment method you use or bake into your standard image.
- We used RADMIND to install on previously deployed clients.

Managed Software Center

- MSC requires a preference file(**ManagedInstalls.plist**)
-
- <key>ClientIdentifier</key>
- <string>CH110-Test iMac</string>
- <key>DaysBetweenNotifications</key>
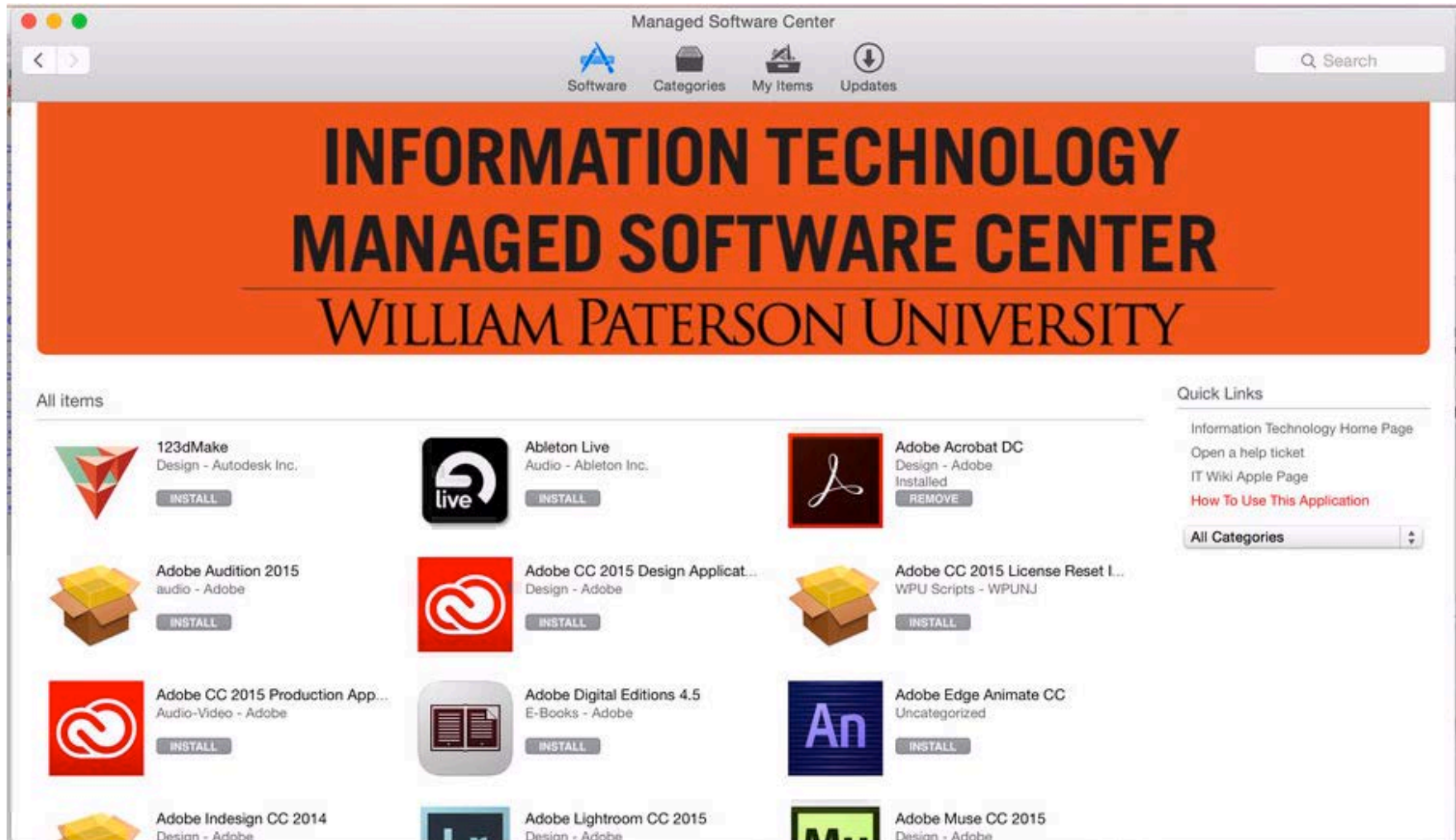>
- <integer>2</integer>
-
-
-

MANAGED SOFTWARE CENTER

- <key>InstallAppleSoftwareUpdates</key>
-
- <key>LogFile</key>
- <string>/Library/Managed Installs/Logs/ManagedSoftwareUpdate.log</string>
- <key>LoggingLevel</key>
- <integer>1</integer>
- <key>ManagedInstallDir</key>

Managed Software Center

- \<key>SuppressAutoInstall\</key>
- \
- \<key>SuppressStopButtonOnInstall\</key>
- \
- \<key>SuppressUserNotification\</key>
- \
-

Managed Software Center

User Facing Application

Managed Software Center

Pending Updates Window

7 pending updates   One or more items must be installed by December 19, 2014 at 12:00 AM   `UPDATE ALL`

Office 2011 14.4.7 Update
Version 14.4.7

This item must be installed by December 19, 2014 at 12:00 AM

This update fixes critical issues and also helps to improve security. It includes fixes for vulnerabilities that an attacker can use to overwrite the contents of your computer's memory with malicious code.... ...More

Safari
Apple
Version 7.1.2

The Safari 7.1.2 update is recommended for all OS X Mavericks users and contains improvements to usability, stability, and security. This update:

... ...More

Adobe Reader
Adobe
Version 11.0.10

Adobe® Reader® is the global standard for reliably viewing, printing, and commenting on PDF documents. It's the only PDF file viewer that can open and interact with all types of PDF content, including forms and multimedia.

Google Chrome
Google
Version 39.0.2171.95

Chrome is a fast, simple, and secure web browser, built for the modern web.

Adobe Flash Player
Version 16.0.0.235

Adobe Flash Player Plug-in. "For a safe a secure society" –Emperor Palpatine

Managed Software Center Server

- Any HTTP server. (we use OS X Server Apache).
- **Required folders:**
- Manifests
- Catalogs
- Pkgs
- Pkgsinfo
- **Optional**:
- Icons -Icons for installers
- client_resources – customized header

Munki Manifests

- Manifests are how machines know what to install, update and remove.
- This is the best way to customize and modularize your update system.
- Manifests can (and should) be nested.

Munki Manifests

- By breaking up manifests we can direct software and updates to specific groups without having to manipulate each computer manifest individually.
- We are able to direct software and settings to labs or faculty.
- We can keep limited license software away from "public".

Munki Manifests...Example

- <key>catalogs</key>
- <array>
- <string>production</string>
- </array>
- <key>included_manifests</key>
- <array>
- <string>WPU_App_Kit</string>
- <string>WPUNJ Optional Installs</string>
- <string>WPU_SEP_FAC</string>
- <string>WPU_Publications_Kit</string>
- </array>

Enforcing Policy with Munki

- One of our included manifests has the following:
- <key>managed_installs</key>
- <array>
- <string>Remount WPU-Folders Agent</string>
- <string>Munki Notifier</string>
- <string>Symantec Endpoint Protection UNV</string>
- <string>Block OS X Install</string>
- </array>

Enforcing Policy with Munki

- Block OS X Install: OS updates should only occur when authorized by IT. Many people given admin privileges ignore this policy.
- So our software blocks the App Store download.
- Once we approve OS updates we remove the block.
- <key>managed_uninstalls</key>
- <array>
- <string>Block OS X Install</string>
- </array>

Enforcing Policy with Munki

- Example: Keep SSH enabled:
- <key>installcheck_script</key>
-     <string>#!/bin/sh
- SYSOS=`sudo sw_vers -productVersion | cut -d "." -f2`
- SSH_Access_Exists=false
- echo "checking remote login status.."
- SSHon=`sudo systemsetup -getremotelogin | awk '/Remote Login/ {print $3}'`

Enforcing Policy with Munki

- echo $MN" has had SSH re-enabled."
- mail -s "Enable SSH Notification" coverc@wpunj.edu -- -F$MN -fcoverc@wpunj.edu < $SSHLog
- exit 1 ;;
-
- If a user, given admin privileges disables remote access it is reported to IT for follow up.
- This also means we don't have to send staff to re-image or reset a machine.

AUTOPKG

- Available from:
- https://autopkg.github.io/autopkg/
- This software will automatically download and package software for your Munki repository.
- You can customize the "recipies" to reflect your settings. For example: rather than putting software into "apps" you may use "AppName" or "ManufacturerName".

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AUTOPKG

- Sample "Recipe" snippet:
- <dict>
- <key>NAME</key>
- <string>Microsoft Word 2016</string>
- <key>MUNKI_REPO_SUBDIR</key>
- <string>Office 2016</string>
- <key>pkginfo</key>

AUTOPKG

- Sample "recipe" snippet:
- <dict>
- <key>blocking_applications</key>
- <array>
- <string>Microsoft Word</string>
- <string>Microsoft Error Reporting</string>
- <string>Microsoft Auto Update</string>
- </array>

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- Sample "Recipe" snippet:
-   <key>name</key>
-     <string>%NAME%</string>
-     <key>unattended_install</key>
-     <true/>
-     <key>update_for</key>
-     <array>
-      <string>Microsoft Office 2016</string>
-     </array>

AutoPkg

- Why Use **AutoPkg**: You don't spend your time looking for latest updates and packaging them.
- They are waiting for your testing and approval every morning (or whenever you decide
- to run it).
- Suggestion: Don't run it on your main Munki repo machine.

Reposado

- Available here:
- https://github.com/wdas/reposado
- Host Apple Software Updates on HW and OS of your choice.
- Rather than allow machines to talk directly to Apple for updates which may break university items, update from internal server.
- Hosted on same OS X Server with Apache as our Munki repository.

Reposado

- Beware of "secret" Apple updates:
  - Gatekeeper
  - Xprotect
- These items are usually silently installed by Apple's software update. These files need to be manipulated in the Reposado repo to install with MSC.
- Failure to do so will result in Macs not having the latest Gatekeeper and Xprotect files.

Reposado

- Example:
- Apple released a Xprotect file that disabled ethernet ports. Had we taken updates directly from Apple we would have had all of our labs and faculty machines go down AND require personnel to visit each one.

Reposado

- Web Interface for Reposado (Margarita):

MunkiWebAdmin

- Web based tool that has reporting features.
- Available from:
- https://github.com/munki/munkiwebadmin
- Runs on any POSIX compliant UNIX system.
- 3 files required to be installed on client (/usr/local/munki/):
- -postflight
- -preflight
- -report_broken_client

MunkiWebAdmin

Web interface home screen

Errors 49

Machine	User	IP	Latest Run
CH253-01UFD58(antonaccij)	macadmin	149.151.167.135	2016-10-10 15:51 auto done 1 error
CH140-0PFFH04(CoverC)	coverc	149.151.96.146	2016-10-10 15:48 auto in progress 1 error
HB305-0J2DHJT(PortellaD)	portellad	149.151.183.62	2016-10-10 15:46 installwithnologout done 41 errors
HBCR-060F694(CR1)	fcpadmin	149.151.146.153	2016-10-10 15:41 auto done 1 error
HB209-0SQGG7F(izzop)	izzop	149.151.183.117	2016-10-10 15:21 auto done 1 error

CH140-0PFFH04(CoverC)

Report :: 2016-10-10 15:48 | Inventory

Machine

Model:	MacBookPro11,1 Intel Core i5 2.4 GHz
RAM:	16 GB
Serial:	C02MP0PFFH04
MAC:	3c:15:c2:d1:8e:90
Remote IP:	149.151.96.146
Hostname:	CH140-0PFFH04
OS version:	10.10.5 x86_64
Free disk space:	35.8 GB
Console user:	coverc

Munki

Version:	2.8.0.2810
Manifest:	CH110-Test iMac
Run Type:	installwithnologout
Start:	2016-10-10 19:38:37 +0000
End:	2016-10-10 19:43:23 +0000

Errors 1

Adobe Setup error: 84: Unknown error

Warnings 0

Active Installs 1

Name	Size	Status
Adobe CC 2015 Production Applications 9.4	1.5 GB	pending

Managed Installs 114

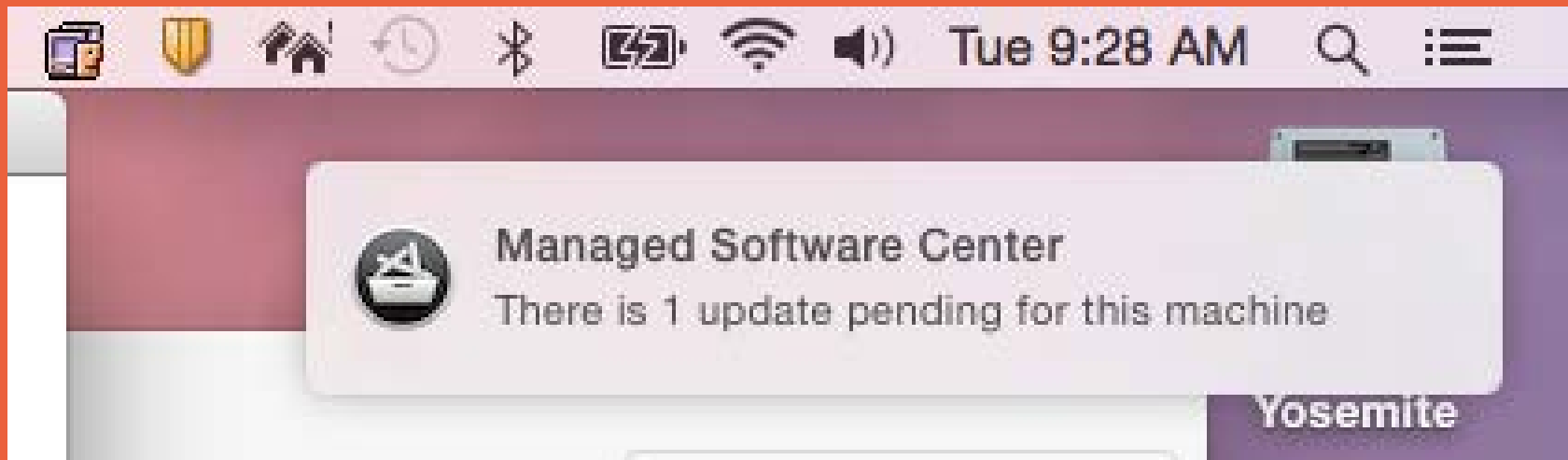| Name	Size	Status

Managed Uninstalls 3

Name	Status

Terminal Notifier

- Available here:
- https://github.com/julienXX/terminal-notifier
- Users have a tendency to put off updates indefinitely.
- Munki allows us to force updates to occur by a certain date and time but sometimes we don't want to be that aggressive.

Terminal Notifier

- **Terminal Notifier** allows us to access apple's notification center and periodically remind a user that there are items to update.

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Fin

Munki, Autopkg, Munki Web Admin, Reposado, terminal-notifier

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