

*2014 Mac Admins Conference at Penn State*

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# Performance Automation with Munki

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**2014** **MACADMINIS**  
**CONFERENCE**  
AT PENN STATE

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# Mac Management Lifecycle

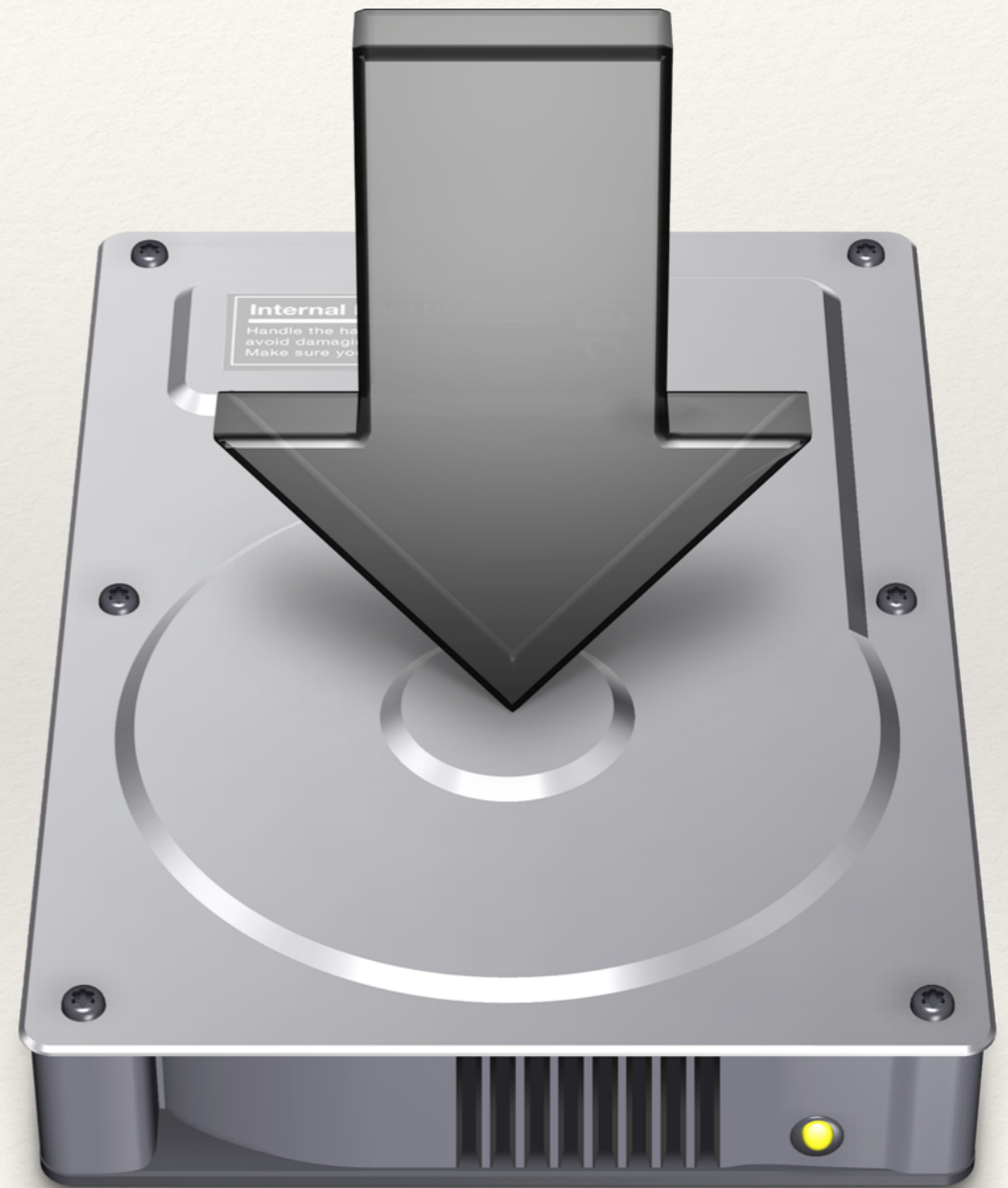
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- ❖ Restore a Known Good OS
- ❖ Apply System Settings
- ❖ Deploy & Update Software



# Restore OS

- ❖ Goal
  - ❖ Install Mac OS X
  - ❖ Quickly support new models
  - ❖ Add only modifications required for your software distribution system
- ❖ Strategies
  - ❖ Vanilla Image
  - ❖ Using the Mac OS X Installer



# Configuration Management

- ❖ Goal
  - ❖ Enforce mandated settings
  - ❖ Provide users with helpful "just works" settings
- ❖ Strategies
  - ❖ Use MCX or Profiles, please!
  - ❖ Profile Manager, JAMF, Local MCX, Profiles



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# Software Deployment

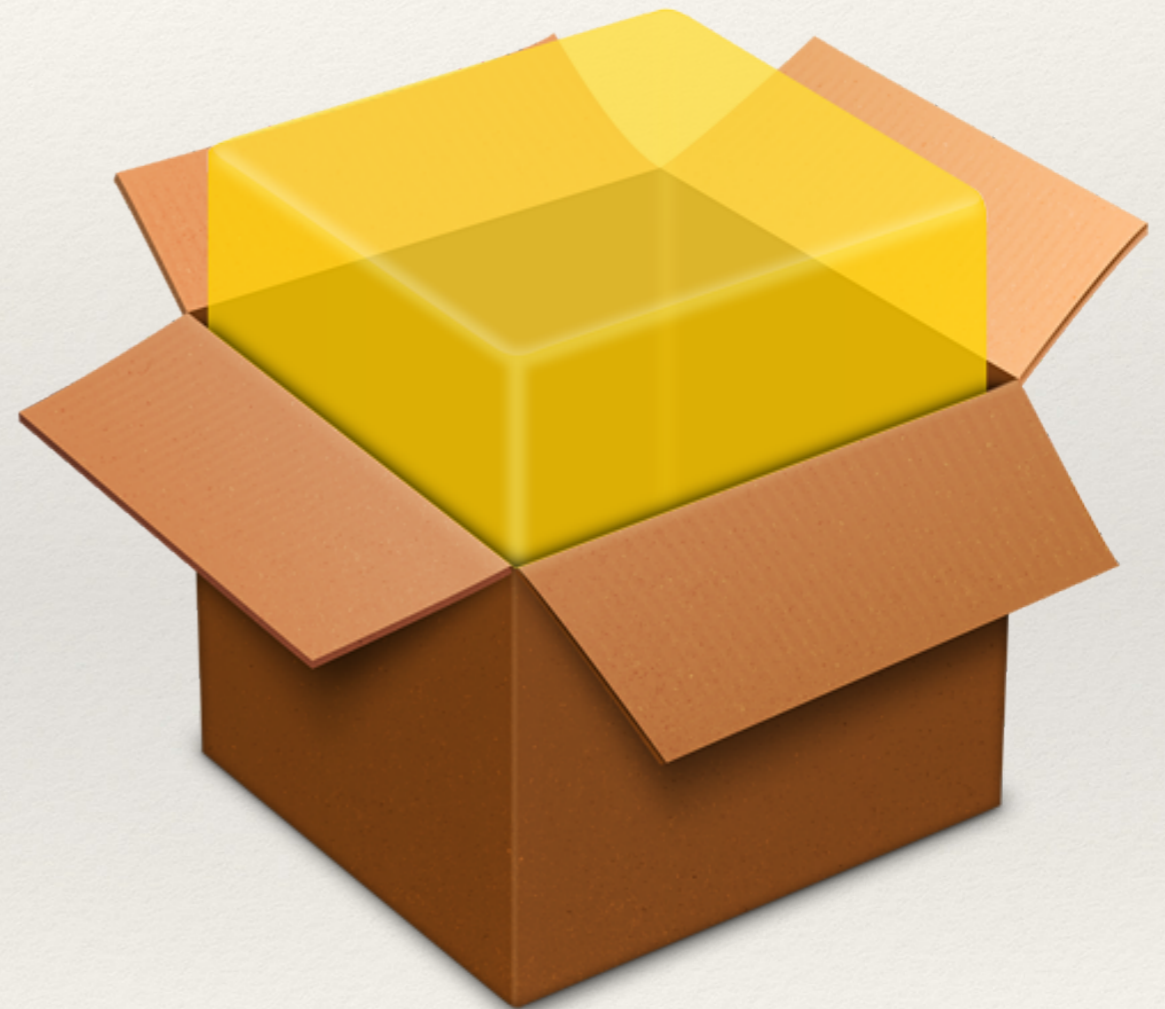
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- ❖ Goals

- ❖ Install required software
- ❖ Ensure all software is up-to-date and patched
- ❖ Provide users with software they might want or need

- ❖ Strategies

- ❖ Munki, JAMF, Absolute
- ❖ When possible, software should "just work" on first launch



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# Tools of the Trade

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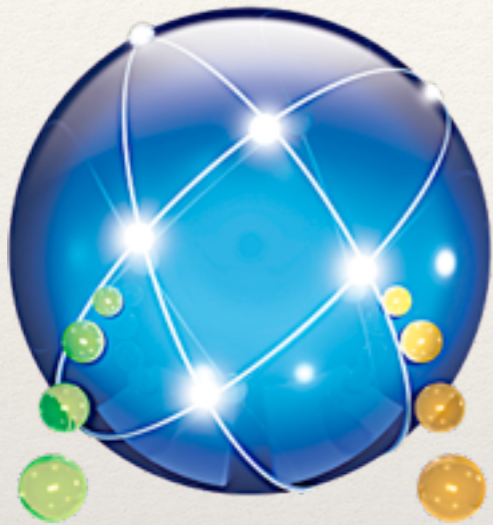
- ❖ System OS Restore
  - ❖ AutoDMG + DeployStudio
  - ❖ System Image Utility / NetInstall
- ❖ Configuration Management
  - ❖ Profile Manager
  - ❖ JAMF Casper Suite
  - ❖ Local Profiles / Local MCX
- ❖ Software Deployment
  - ❖ Munki + AutoPKG / Jenkins
  - ❖ Casper Software Deployment Server
  - ❖ Absolute Manage



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# Creating Synergy

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Restore Vanilla Image



Apply MCX Settings



Trigger Munki Bootstrap

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Post Restore Script

Apply Settings for Munki

Install Required Software

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Directory Binding  
MDM Enrollment

Use Computer Groups,  
Payload Variables

Apply Available Updates  
(Apple & 3rd Party)

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# Break the Silence

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- ❖ "I can't seem to deploy software \_\_\_\_\_."
- ❖ Bug Report
- ❖ Forum Posts
- ❖ Support Incident



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# Deployment Video

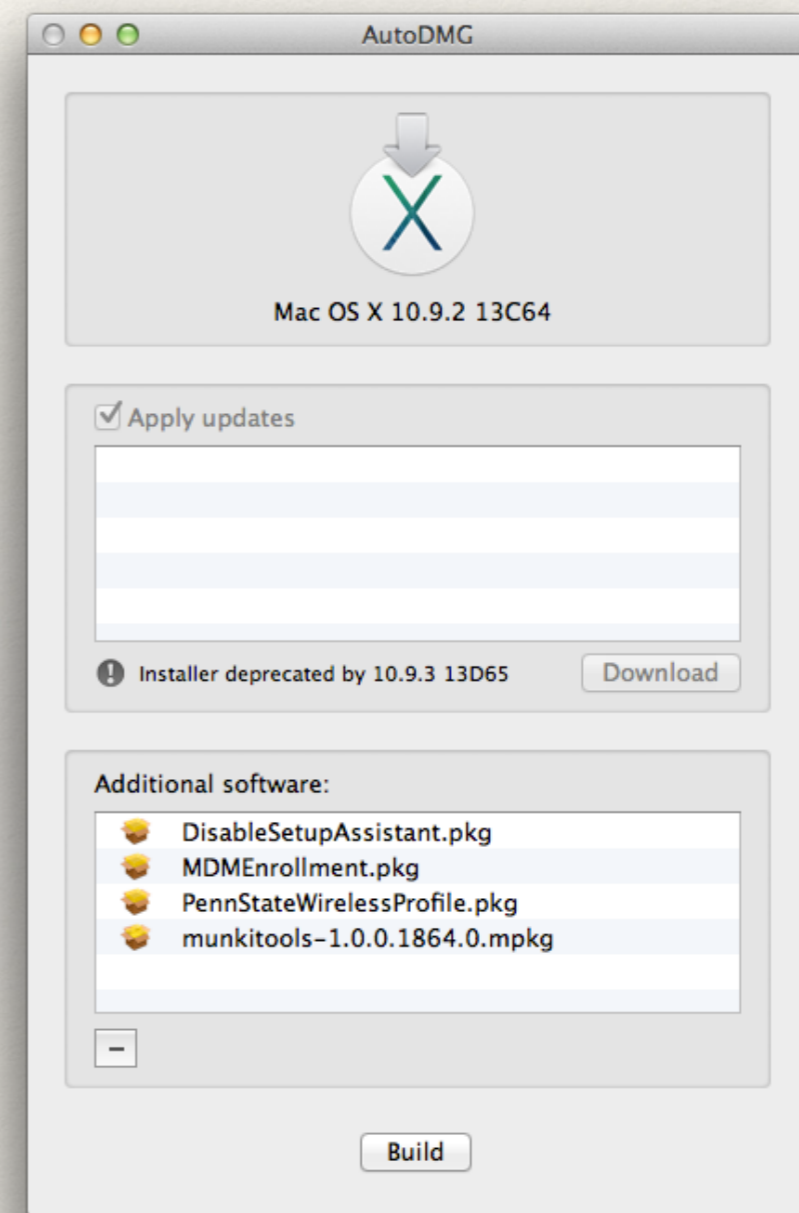
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Let's see the full process in action:

- AutoDMG
- DeployStudio
- Profile Manager
- Munki

# AutoDMG

- ❖ Create un-booted vanilla image
- ❖ Custom packages
- ❖ Automatic Apple updates
- ❖ "Modular Image Creation (Yes, it's still a Thing)" - Anthony Reimer



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# DeployStudio

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- ❖ Network or External Device
- ❖ Imaging, Packages, Scripts
- ❖ "DeployStudio: Advanced workflows and Discussions" - Nathan Felton



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# What is Munki?

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- ❖ A software deployment service that accesses a web based repository of software and software metadata (instructions) to perform installs and uninstalls of OS X software

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# Why Munki

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- ❖ **No administrative privileges required (Yay!)**
- ❖ Self Service (Optional Installs)
- ❖ Easy testing and version control
  - ❖ Create multiple "catalogs", (testing, production)
- ❖ Install Apple Updates
  - ❖ From Apple or your local update server (OS X Server, Reposado, NetSUS)
- ❖ Advanced customization
  - ❖ Utilize pre/post install or uninstall script

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# What Munki Already Knows

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- ❖ Munki does...
  - ❖ disk images, packages, receipts, plists, versions
- ❖ Adobe update "packages" (.ccp files)
- ❖ Uses package receipts, installs keys, or custom scripts to determine if something is installed and what version
- ❖ Only install what is required but update everything

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# Diving In

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- ❖ Join munki-dev mailing list!!
  - ❖ <https://groups.google.com/forum/#!forum/munki-dev>
- ❖ Grab the latest release of munkitools
- ❖ Read and bookmark the Munki Wiki
- ❖ `$ munkiimport --configure`

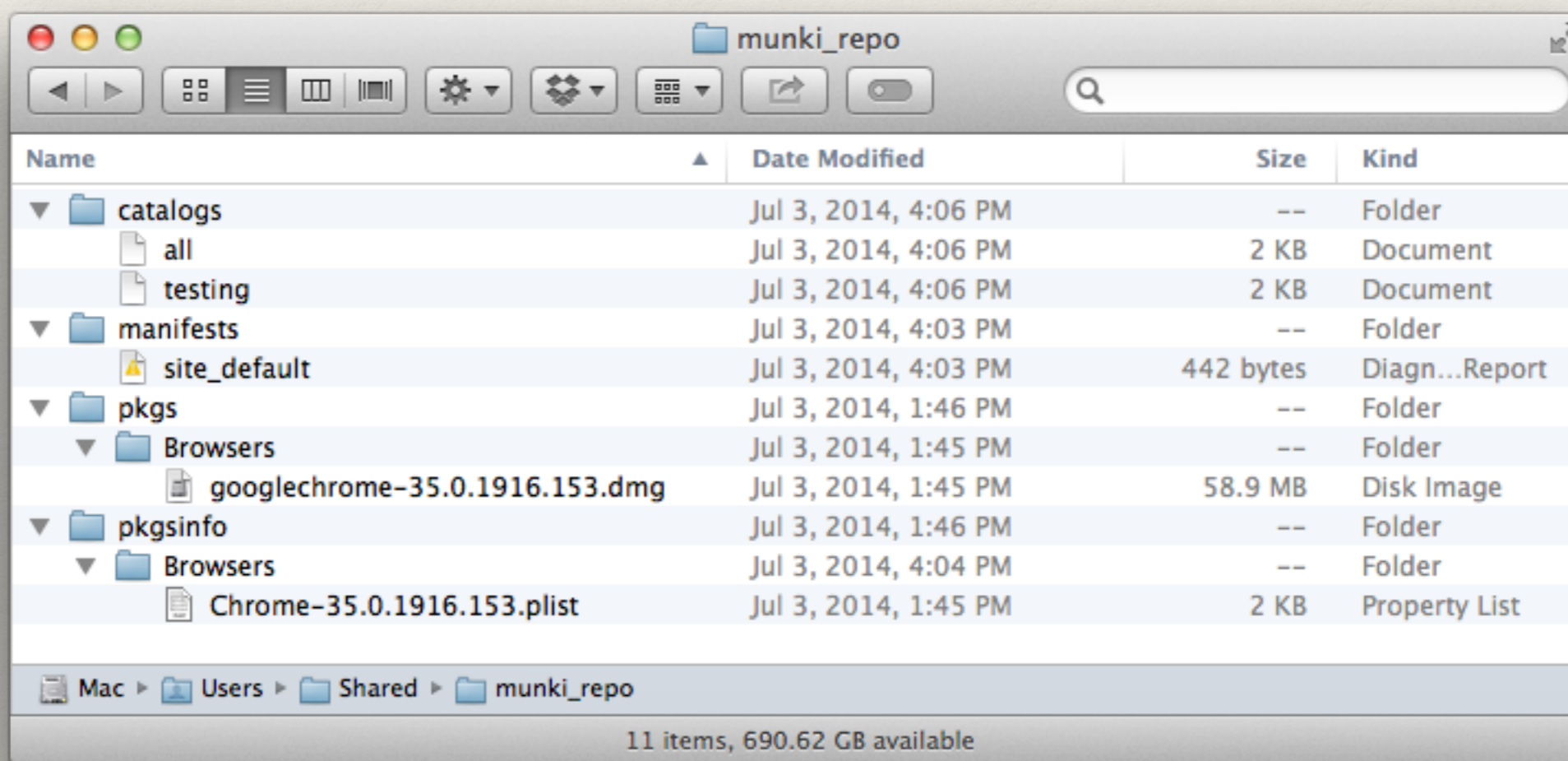
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# Server Setup

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- ❖ A Munki "Server" Repo is just a web server...
  - ❖ Run it anywhere!
- ❖ munki\_repo
  - ❖ manifests
  - ❖ catalogs
  - ❖ pkgs
  - ❖ pkginfo
  - ❖ icons

# Basic Repo



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# Repo Structure

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- ❖ **pkgs** - all actual software installation media (ex. GoogleChrome.dmg)
- ❖ **pkginfo** - metadata corresponding to each item in pkgs, and specify catalogs
- ❖ **manifests** - lists of software items, organized by how they will be offered to clients
- ❖ **catalogs** - compilation of all the pkginfos, and are used to link manifests to software
- ❖ **icons** - stores the software icons used in Munki2

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# Repo Structure Demo

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- ❖ Where are packages or images of software stored?
- ❖ How can I keep software from installing on ALL of my machines?
- ❖ How do I know the packages were installed?
- ❖ How do I remove a package I no longer want?
- ❖ What happens if an installation fails?

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# Admin Tools

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- ❖ `munkiimport` - Import an item into the repo
- ❖ `makepkginfo` - Generate pkginfo for a software item
- ❖ `makecatalogs` - Rebuilds catalogs to reflect any changes that have been made to the pkginfo files

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# More 3rd Party Tools

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- ❖ Munki WebAdmin - Collects inventory data, allows managing of manifests and license seat tracking
- ❖ MunkiReport-PHP - Collects detailed inventory data
- ❖ MunkiAdmin - An application that allows editing of the repo via a GUI (for those of you who do not like the command line)

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# Munki Demo

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- ❖ munkiconfigure
- ❖ munkiimport
  - ❖ Importing pkgs into the Munki repository
- ❖ Manifests and Catalogs
  - ❖ Testing and production catalogs
  - ❖ Installing optional software
- ❖ OS X Upgrades

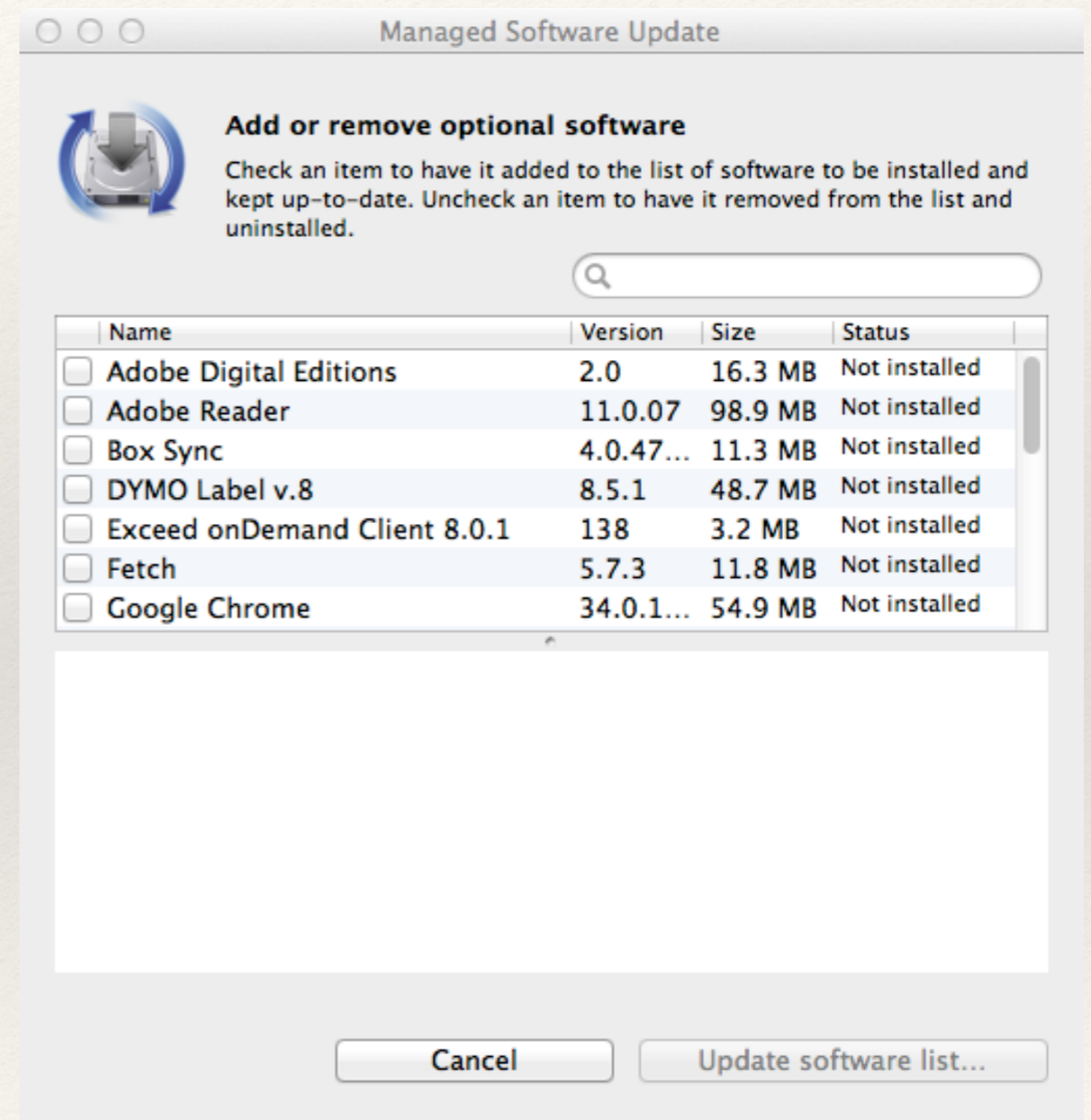
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# Additional Demos

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# Client Tools

- ❖ Managed Software Update.app
- ❖ managedsoftwareupdate
  - ❖ Command-line
- ❖ Users install approved software at their convenience via "Optional Software"



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# Client Configuration

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- ❖ ManagedInstalls.plist
  - ❖ ClientIdentifier (manifest)
  - ❖ SoftwareRepoURL
  - ❖ SoftwareUpdateServerURL

# Munki 2

- ❖ Now known as Managed Software Center
- ❖ Mac App Store-like interface
- ❖ No support for 10.5 Leopard
- ❖ NSURLConnection
- ❖ Applications can be installed on-demand vs. selecting from a list and installing



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# AutoPKG

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- ❖ Automatically download updates for software.
- ❖ "You oughta check out AutoPkg" - Greg Neagle

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# Jenkins

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- ❖ Software Development Continuous Integration System
- ❖ Web application for scheduling custom jobs
- ❖ Schedule autopkg checks to run automatically
- ❖ Allow you to fully automate checking, building and importing software into your deployment system

# Questions?



# Feedback

<http://j.mp/psumac40>