

Using Munki to Automate the Service Bench

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Documentation & Support for Watchman Monitoring



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Automating Updates on the Service Bench

Why?

Automate installation of Apple updates.

Normalize the update process.

Provide better service by updating common applications.



Agenda

- Set up Server
- Configure AutoPkg
- Configure Manifests
- Run on-boarding script on client
- Remove tools at end of service



What the heck is Munki?

Munki is a set of tools that, used together with a webserver-based repository of packages and package metadata, can be used by OS X administrators to manage software installs (and in many cases removals) on OS X client machines.

Munki can install software packaged in the Apple package format, and also supports Adobe CS3/CS4/CS5/CS6 Enterprise Deployment "packages", and drag-and-drop disk images as installer sources.

Additionally, Munki can be configured to install Apple Software Updates, either from Apple's server, or yours.



AutoPkg & AutoPkgr



AutoPkgr

AutoPkg is an automation framework for OS X software packaging and distribution, oriented towards the tasks one would normally perform manually to prepare third-party software for mass deployment to managed clients.

AutoPkgr is a free Mac app that makes it easy to install and configure AutoPkg.



Munki & AutoPkg Automation

Server Requirements:

- OS X 10.10.5 or 10.11.x
- Server.app 5.x
- 500GB Free Space

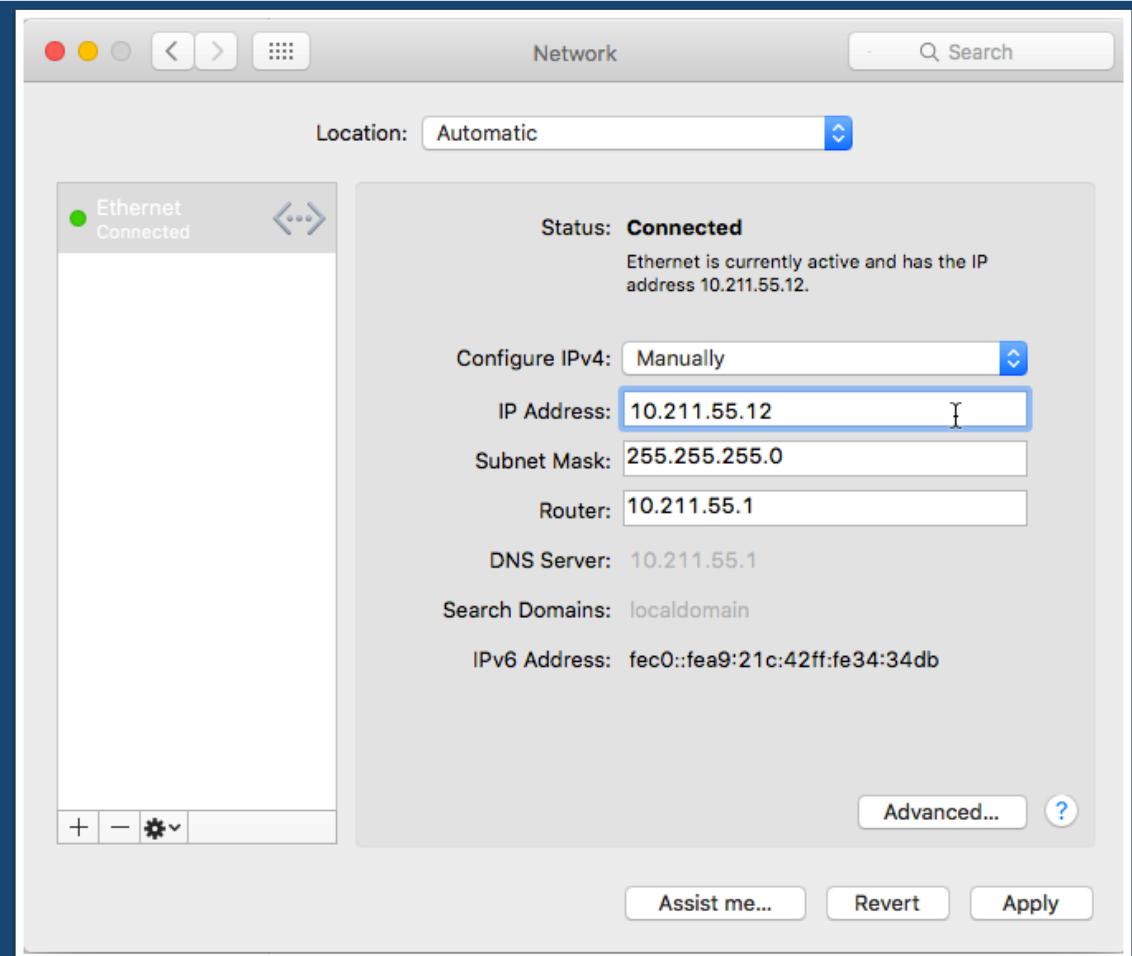
Client Requirements:

- OS X 10.6.x or greater
- Free Space for updates



Set a Static IP Address

Set a static IP for your internal network.

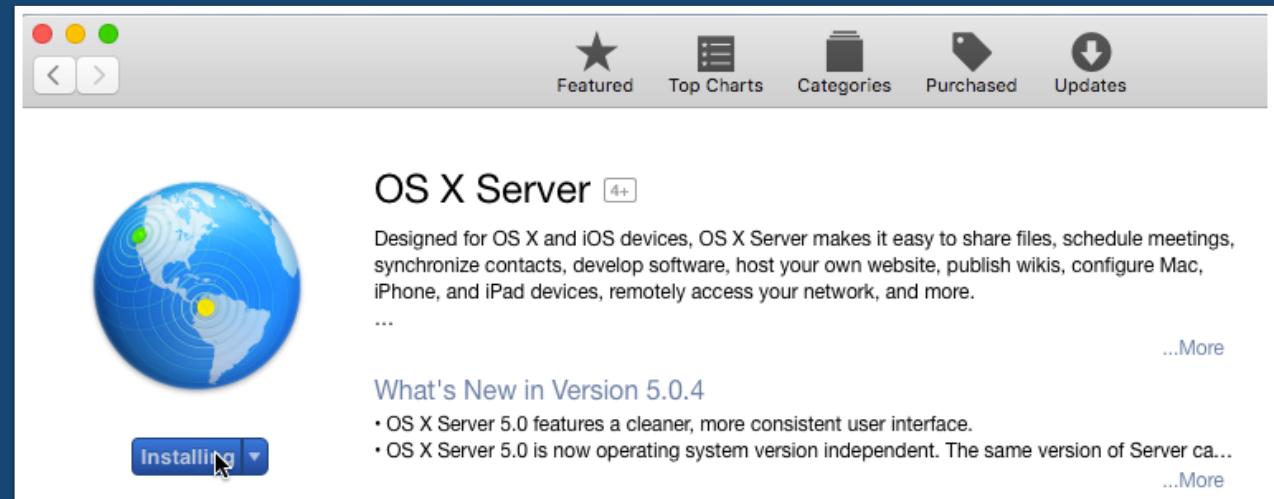


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Install OS X Server

We will need Server for
Web Services
Caching Server
Software Update Server (SUS)



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Install OS X Server



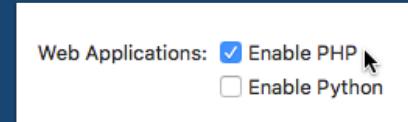
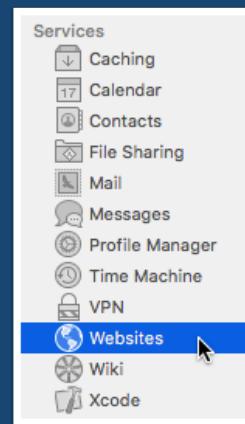
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Configure Web Services

Two settings before turning
on Web Services:

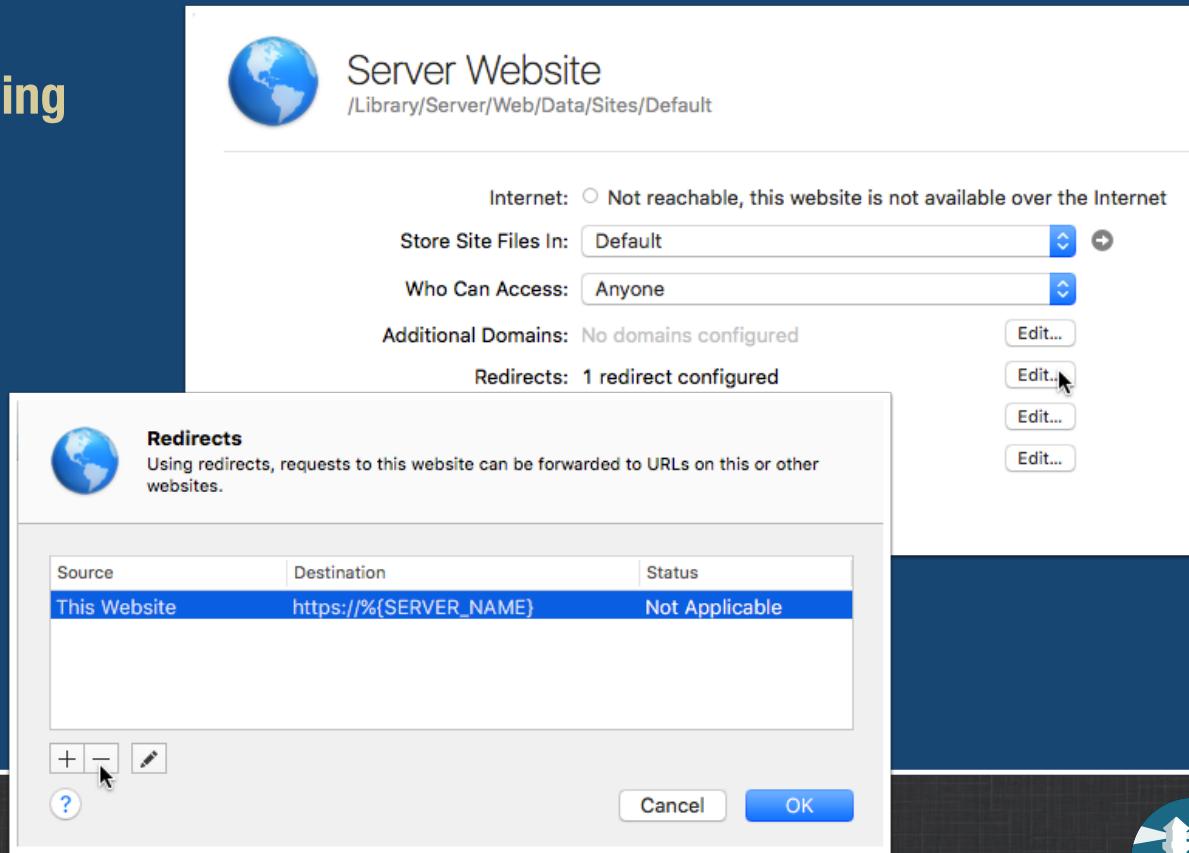
- Enable PHP



Configure Web Services

Two settings before turning on Web Services:

- **Enable PHP**
- **Turn off Redirect**



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Start Up Web Services

The screenshot shows the 'Websites' service configuration page. At the top right is a green 'ON' switch with a cursor icon over it. Below the switch, the status is shown as 'Starting...'. A link to 'Learn about configuring this service' is provided. The 'Permissions' section indicates 'All Networks' with a 'Edit Permissions...' button. Under 'Web Applications', 'Enable PHP' is checked and 'Enable Python' is unchecked. The 'Websites' table lists two entries: 'Server Website' (Address: All IP addresses, Port: 80) and 'Server Website (SSL)' (Address: All IP addresses, Port: 443). At the bottom are buttons for adding (+), removing (-), editing (pencil), and searching (Search).

Name	Address	Port
Server Website	All IP addresses	80
Server Website (SSL)	All IP addresses	443

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Configure Software Update Service (SUS)

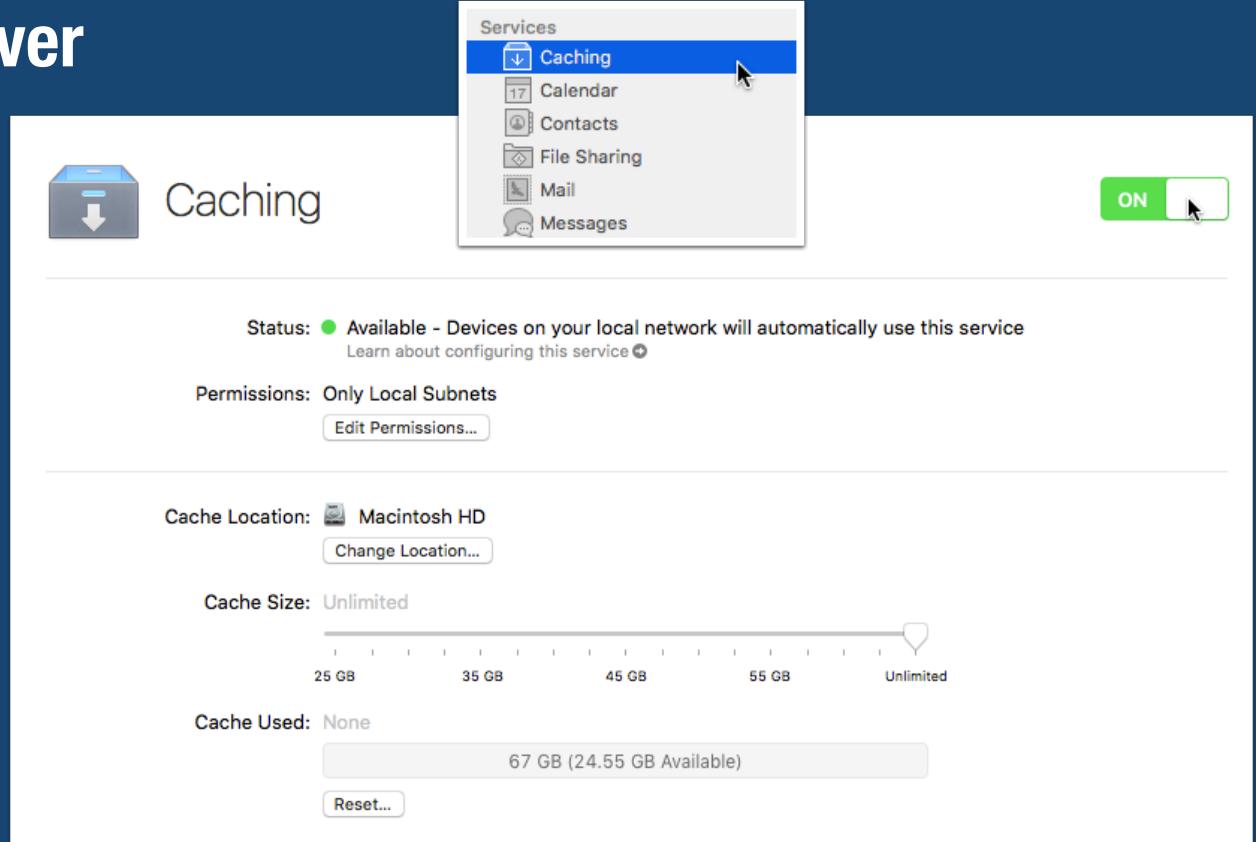
We are caching Apple's updates for speed.
(Optional)

The screenshot shows the 'Software Update' service configuration page. At the top, there is a sidebar titled 'Advanced' with icons for DHCP, DNS, FTP, NetInstall, Open Directory, Software Update (which is highlighted with a blue selection bar), and Xsan. Below the sidebar, there is a status message: 'Status: Offline - Turn on service to download and distribute OS X software updates'. A link 'Learn about configuring this service' is also present. The main configuration area has two tabs: 'Settings' (selected) and 'Updates'. Under 'Mode', the 'Automatic' option is selected (indicated by a blue radio button). The description for Automatic mode states: 'All updates are downloaded from Apple and immediately enabled for clients to install. Updates no longer supported by Apple are removed.' The 'Manual' option is also listed, with a description: 'Choose updates to download and enable. Downloaded updates will be saved until explicitly deleted.'



Configure Caching Server

Caches all software updates, App Store purchases, iBook downloads, iTunes U downloads (apps and books purchases only), and Internet Recovery software that local Mac and iOS devices download.



Munki in a Box

**Downloads, installs and configures Munki,
MunkiAdmin, AutoPkg, AutoPkgr,
Munkireport-php, & Munki-enroll in a single
simple script.**

[Download Munki in a Box](#)

GitHub This repository Search Explore Features Enterprise

tbridge / munki-in-a-box

A Quick Setup and Fill Repository for Munki with AutoPKG

73 commits 4 branches 18 releases 6 co

Branch: master / munki-in-a-box / +

tbridge docs update Latest commit 43d

README.md docs update

munkiinabox.sh 1.3.0 release ready

README.md

munki-in-a-box

Post Munki Install Simple Deployment Script

The goal of this script is to deploy a basic munki repo in a simple script based on a set of variables. I have placed defaults in these variables, but they are easily overridden and you s decide where they go.



GitHub This repository Search Explore Features Enterprise Pricing Sign up Sign in

tbridge / munki-in-a-box Watch 19 Star 72 Fork 16

A Quick Setup and Fill Repository for Munki with AutoPKG

73 commits 4 branches 18 releases 6 contributors

Branch: master munki-in-a-box / +

tbridge docs update Latest commit 437dd7 7 days ago

README.md docs update 7 days ago

munkinabox.sh 1.3.0 release ready 7 days ago

README.md

munki-in-a-box

Post Munki Install Simple Deployment Script

The goal of this script is to deploy a basic munki repo in a simple script based on a set of common variables. I have placed defaults in these variables, but they are easily overridden and you should decide where they go.

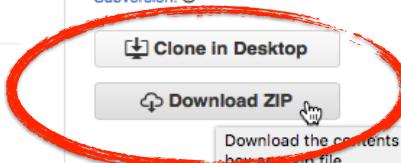
Code Issues 1 Pull requests 3 Pulse Graphs

HTTPS clone URL <https://github.com/tb>

You can clone with HTTPS or Subversion. ?

Clone in Desktop Download ZIP

Download the contents of tbridge/munki-in-a-box as a zip file

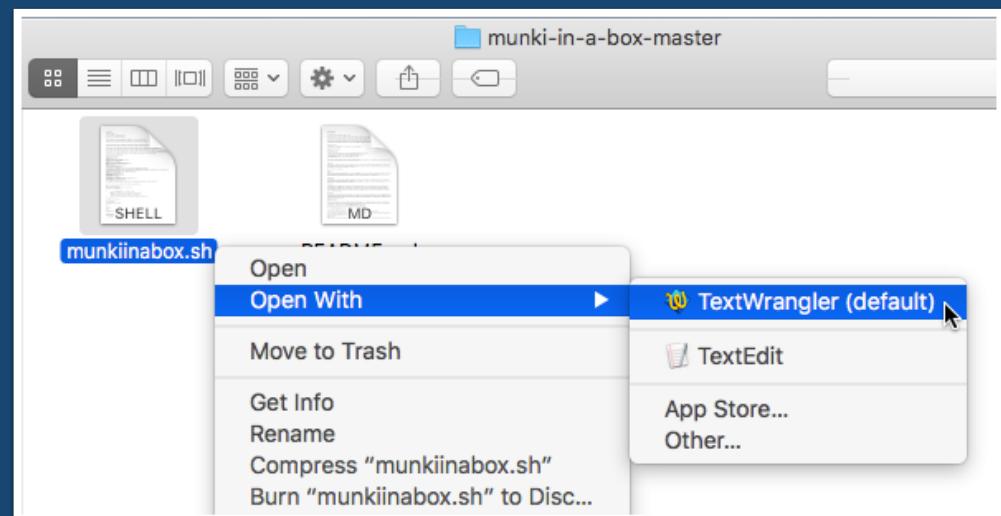


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Munki in a Box

Open up the `munkiinabox.sh` script
in your favorite text editor.



Munki in a Box

We need to set the admin user name.

We will keep all other default settings.

Save this script.

```
35 | MAINPREFSDIR="/Library/Preferences"
36 | ADMINUSERNAME="miabadmin" █
37 | SCRIPTDIR="/usr/local/bin"
```

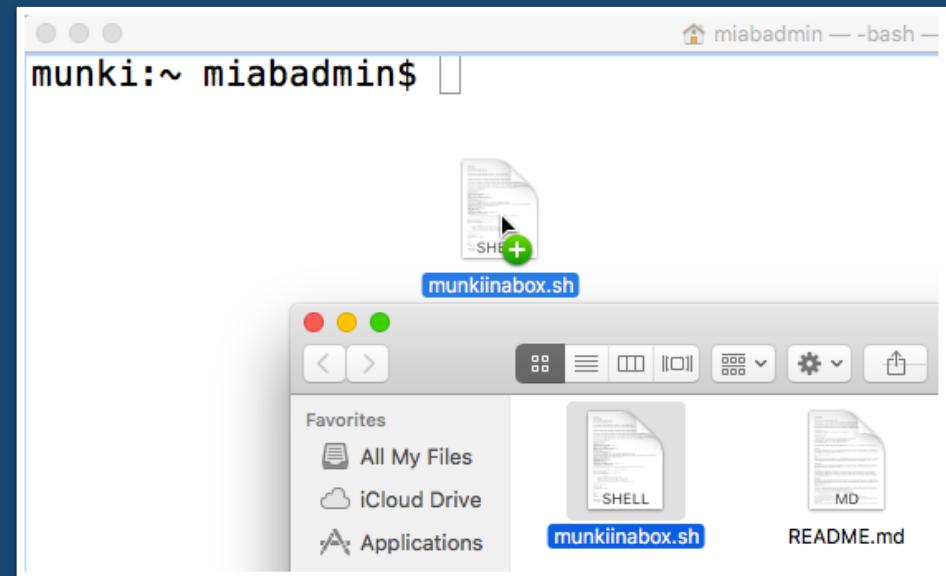


Install Munki in a Box

Open Terminal.app

Drag munkiinabox.sh into Terminal Window

Note that we are not running this script as root.



Install Munki in a Box

After about a 5 minute run, we're all done!

```
#####
Thank you for flying Munki in a Box Air. You now have a working repo, go forth and install your clients.
#####
MunkiAdmin and AutoPkgr are ready to go, please launch them to complete their setup.
#####
MunkiAdmin needs to know where your repo is, and AutoPkgr needs to have its helper tool installed.
#####
Be sure to login to MunkiReport-PHP at http://localhost/munkireport-php and initiate the database, as well change the login password.
munki:~ miabadmin$
```

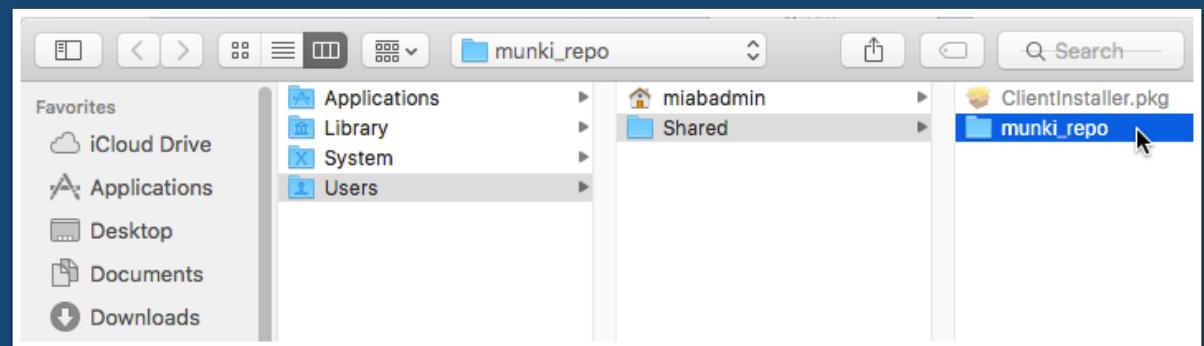


Configure Munki via MunkiAdmin



MunkiAdmin is a GUI for managing munki repositories.

Select the repo located at
`/Users/Shared/munki_repo`



Configure Munki via MunkiAdmin



MunkiAdmin - Packages

Name	Display Name	Version	Modified
AdobeFlashPlayer	Adobe Flash Player	19.0.0.226	10/18/15, 8:39...
AdobeReader	Adobe Reader	11.0.10	10/18/15, 8:39...
Dropbox	Dropbox	3.10.8	10/18/15, 8:40...
Firefox	Mozilla Firefox	41.0.2	10/18/15, 8:40...
GoogleChrome	Google Chrome	46.0.2490.71	10/18/15, 8:40...
munkitools	Managed Software...	4.1.2531	10/18/15, 8:41...
munkitools_admin	Managed Software...	2.3.1.2535	10/18/15, 8:41...
munkitools_core	Managed Software...	2.3.1.2535	10/18/15, 8:41...
munkitools_launchd	Managed Software...	2.0.0.1969	10/18/15, 8:41...
OracleJava7	Oracle Java 7	1.7.79.15	10/18/15, 8:41...
TextWrangler	TextWrangler	5.0	10/18/15, 8:41...

Summary

- Pkginfo keys: 17
- Architectures: 0
- Blocking apps: 0
- Catalogs: 2
- Choices XML: 0
- Installs: 1
- Items to copy: 1
- Receipts: 0
- Requires: 0
- Update for: 0

Pkginfo

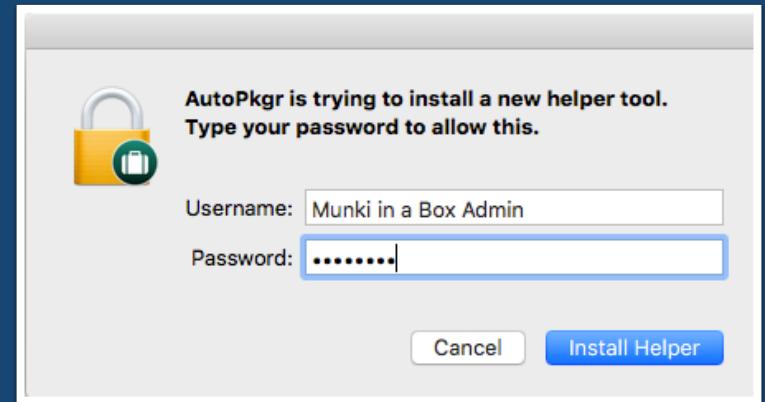
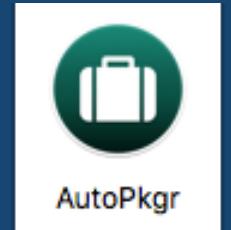


Configure AutoPkg via AutoPkgr

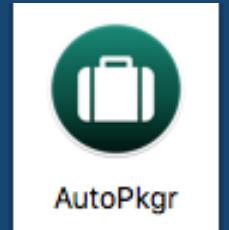
AutoPkgr is a free Mac app that makes it easy to install and configure AutoPkg.

AutoPkg is an awesomely powerful tool for automating OS X software packaging and distribution.

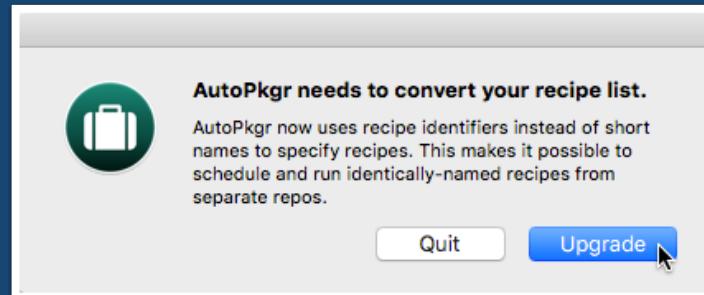
First Step, install the helper tool...



Configure AutoPkg via AutoPkgr

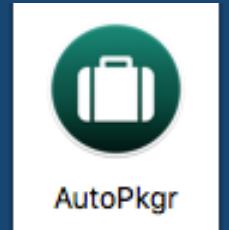
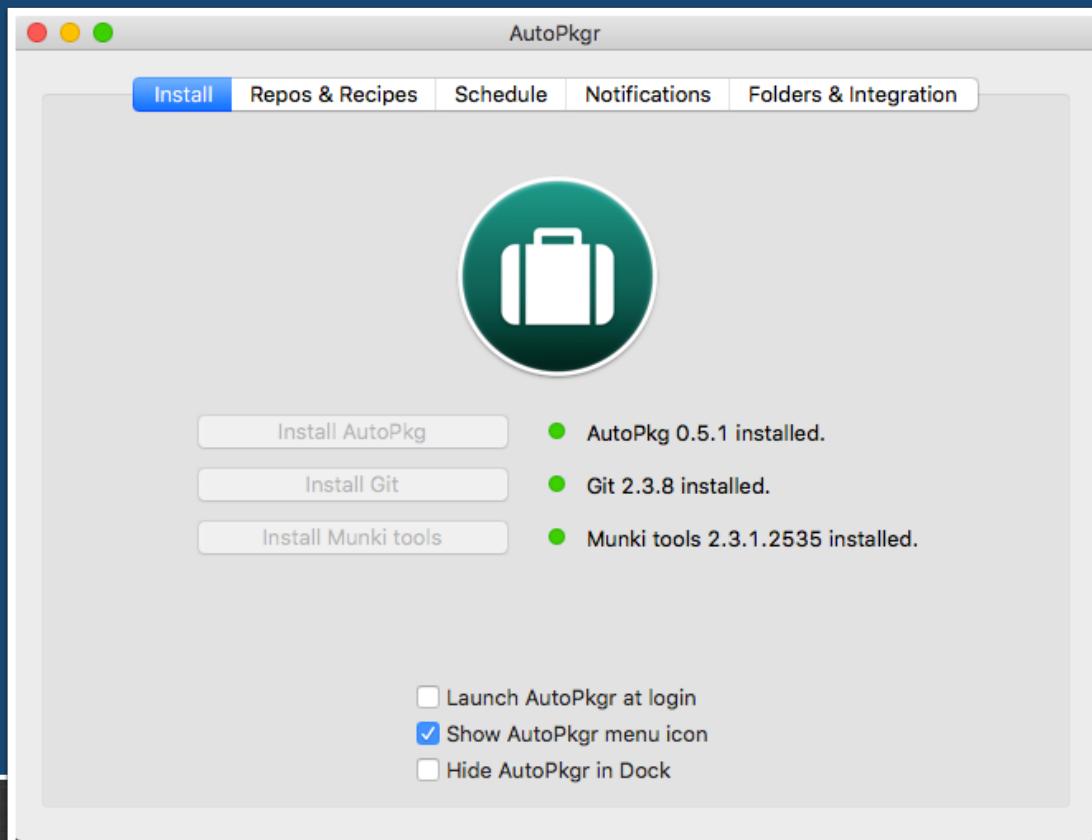


Next, Convert the recipe list...



Configure AutoPkg via AutoPkgr

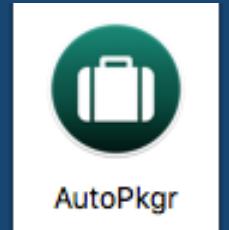
We have
AutoPkg
& AutoPkgr!



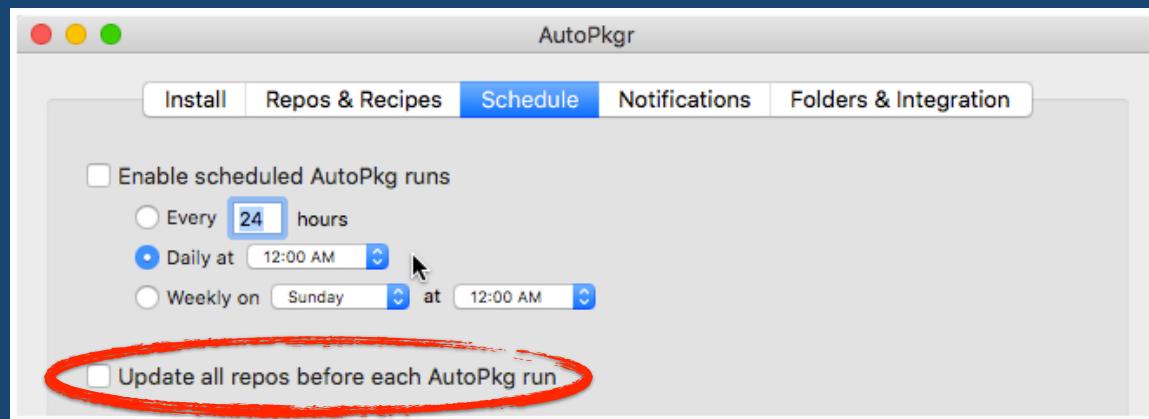
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Configure AutoPkg via AutoPkgr



Enable the schedule to run daily at an off peak hour.

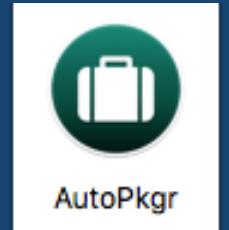


Configure AutoPkg via AutoPkgr

Add Packages:

Click on
Repos & Recipes
and search under
recipes.

The screenshot shows the AutoPkgr application window with the 'Repos & Recipes' tab selected. At the top, there's a button to 'Update Repos Now' and a search bar labeled 'Filter repos'. Below this is a table of GitHub repositories for AutoPkg recipes, with columns for 'Repo Clone URL', 'Stars', and 'Status'. One repository is checked: 'https://github.com/autopkg/recipes.git' (69 stars). Other repositories listed include 'https://github.com/autopkg/nmcspadden-recipes' (22 stars, green status), 'https://github.com/autopkg/hjuutilainen-recipes.git' (19 stars), 'https://github.com/autopkg/keeleysam-recipes.git' (15 stars), and 'https://github.com/autopkg/arubdesu-recipes.git' (14 stars). Below the repository list is a section to 'Add a repo URL manually' with a text input field and an 'Add' button. The main area then shows a table of recipes found in the 'skype' repository, with columns for 'Recipe Name', 'Recipe Identifier', and 'Status'. The recipes listed are: 'Skype.download' (com.github.autopkg.download.Skype), 'Skype.install' (com.github.autopkg.install.Skype), 'Skype.munki' (com.github.autopkg.munki.Skype), and 'Skype.pkg' (com.github.autopkg.pkg.Skype). There's also a search bar at the bottom labeled 'Search for a recipe on GitHub:' with a 'Search' button.



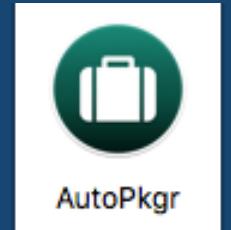
AutoPkgr

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Configure AutoPkg via AutoPkgr

Be sure to select
the .munki recipe



Run Recipes Now ?

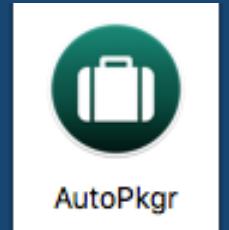
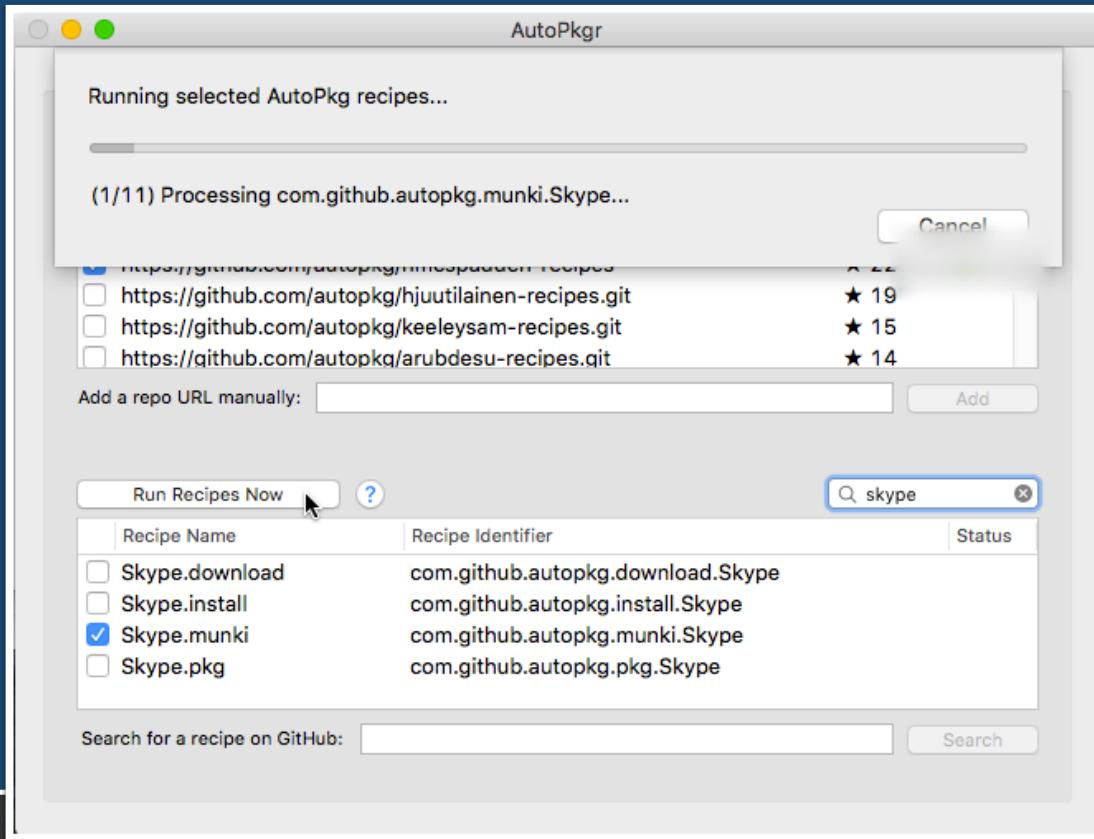
Recipe Name	Recipe Identifier	Status
<input type="checkbox"/> Skype.download	com.github.autopkg.download.Skype	
<input type="checkbox"/> Skype.install	com.github.autopkg.install.Skype	
<input checked="" type="checkbox"/> Skype.munki	com.github.autopkg.munki.Skype	
<input type="checkbox"/> Skype.pkg	com.github.autopkg.pkg.Skype	

Search for a recipe on GitHub: Search



Configure AutoPkg via AutoPkgr

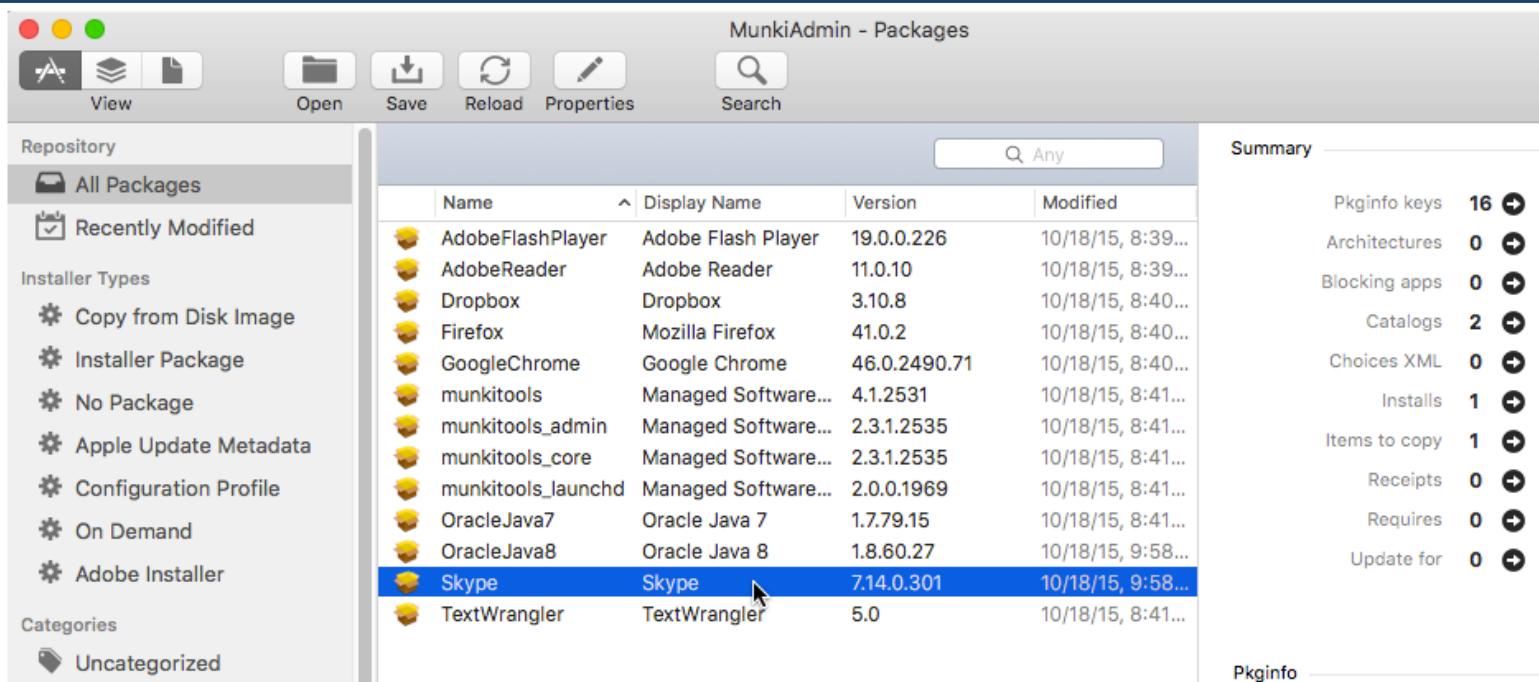
Clicking on
Run Recipes Now
will run all
selected recipes.



Configure Munki via MunkiAdmin

Click Reload in
MunkiAdmin

Skype has been
added to your
repo.



The screenshot shows the MunkiAdmin interface with the following details:

MunkiAdmin - Packages

Repository sidebar:

- All Packages (selected)
- Recently Modified

Installer Types sidebar:

- Copy from Disk Image
- Installer Package
- No Package
- Apple Update Metadata
- Configuration Profile
- On Demand
- Adobe Installer

Categories sidebar:

- Uncategorized

Packages List (Table):

Name	Display Name	Version	Modified
AdobeFlashPlayer	Adobe Flash Player	19.0.0.226	10/18/15, 8:39...
AdobeReader	Adobe Reader	11.0.10	10/18/15, 8:39...
Dropbox	Dropbox	3.10.8	10/18/15, 8:40...
Firefox	Mozilla Firefox	41.0.2	10/18/15, 8:40...
GoogleChrome	Google Chrome	46.0.2490.71	10/18/15, 8:40...
munkitools	Managed Software...	4.1.2531	10/18/15, 8:41...
munkitools_admin	Managed Software...	2.3.1.2535	10/18/15, 8:41...
munkitools_core	Managed Software...	2.3.1.2535	10/18/15, 8:41...
munkitools_launchd	Managed Software...	2.0.0.1969	10/18/15, 8:41...
OracleJava7	Oracle Java 7	1.7.79.15	10/18/15, 8:41...
OracleJava8	Oracle Java 8	1.8.60.27	10/18/15, 9:58...
Skype	Skype	7.14.0.301	10/18/15, 9:58...
TextWrangler	TextWrangler	5.0	10/18/15, 8:41...

Summary sidebar:

- Pkginfo keys: 16 ➔
- Architectures: 0 ➔
- Blocking apps: 0 ➔
- Catalogs: 2 ➔
- Choices XML: 0 ➔
- Installs: 1 ➔
- Items to copy: 1 ➔
- Receipts: 0 ➔
- Requires: 0 ➔
- Update for: 0 ➔

Pkginfo button



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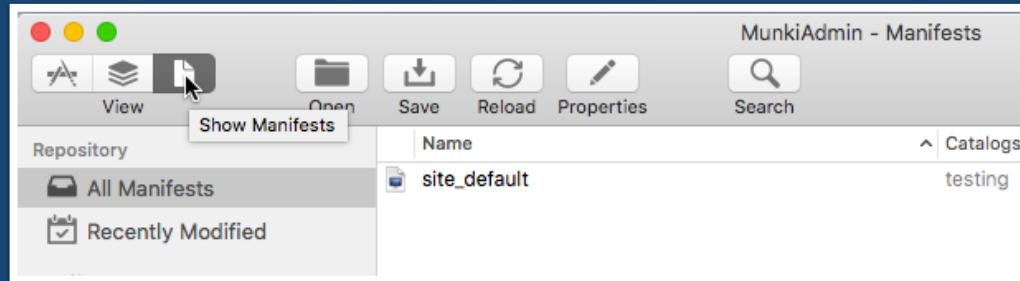


Configure Updates via MunkiAdmin



Show Manifests

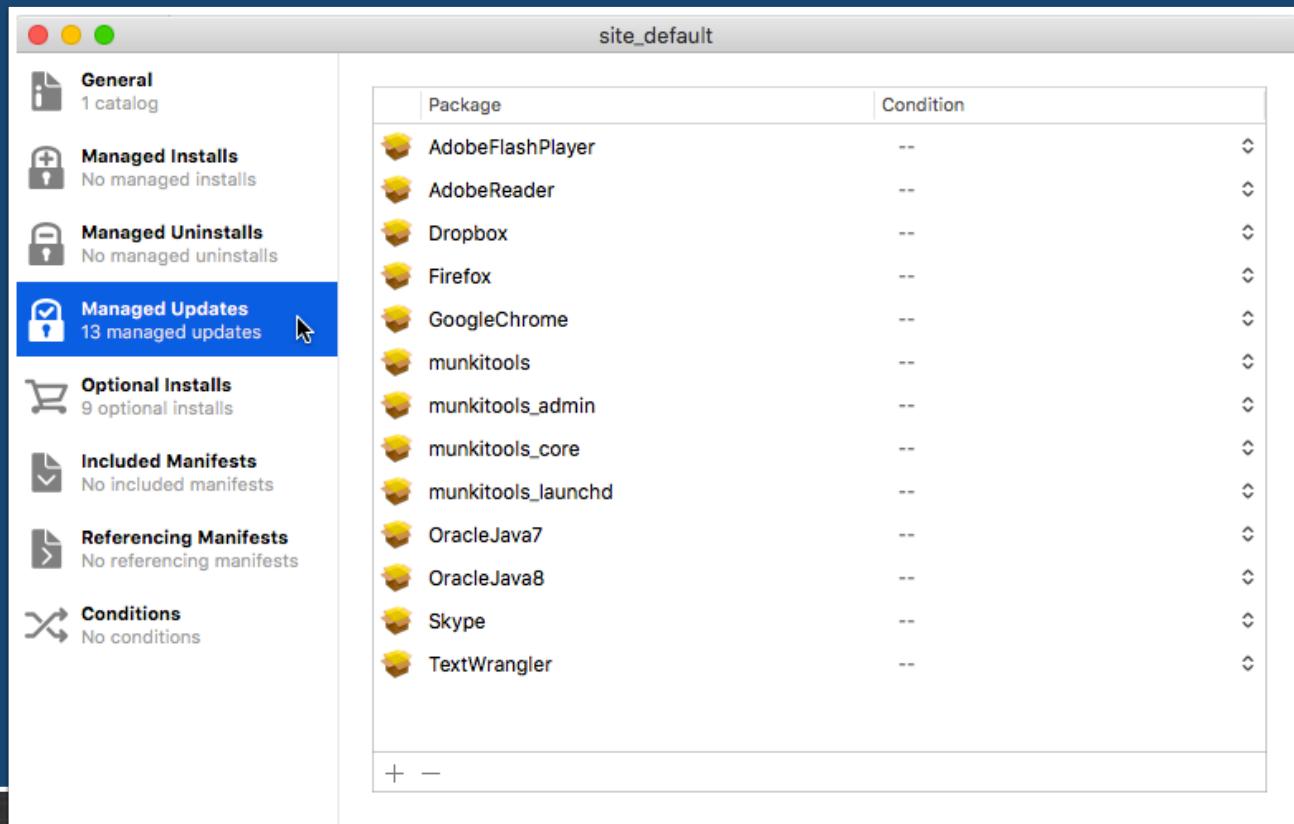
Edit Properties of
site_default



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Configure Updates via MunkiAdmin



The screenshot shows the MunkiAdmin application window titled "site_default". On the left sidebar, under the "Managed Updates" section, there are 13 managed updates listed. The main pane displays a table with two columns: "Package" and "Condition". The packages listed are:

Package	Condition
AdobeFlashPlayer	--
AdobeReader	--
Dropbox	--
Firefox	--
GoogleChrome	--
munkitools	--
munkitools_admin	--
munkitools_core	--
munkitools_launchd	--
OracleJava7	--
OracleJava8	--
Skype	--
TextWrangler	--



Configure Updates via MunkiAdmin



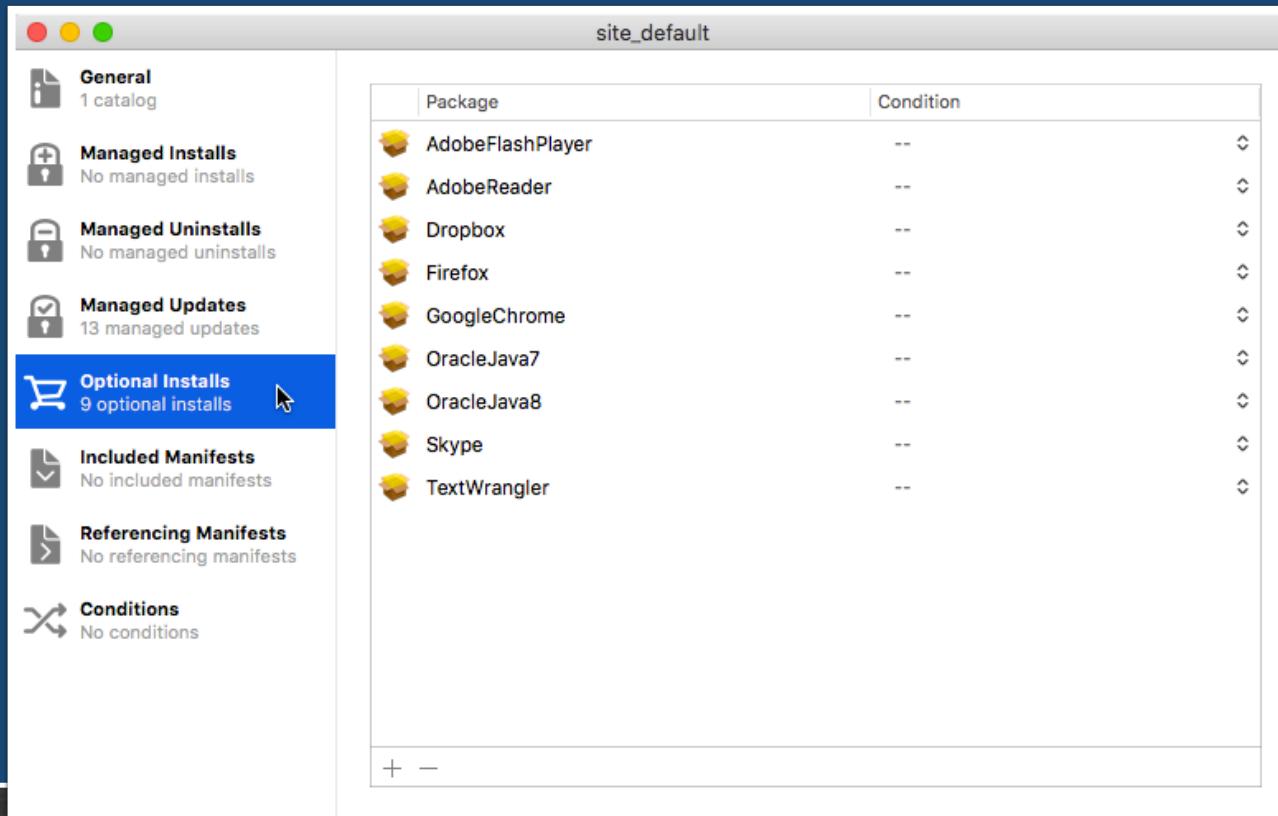
Managed Installs - items installed regardless.

Managed Updates - items will automatically be updated, if installed on the client.

Optional Installs - all other packages should reside to allow you to one-click install software for a customer.

A screenshot of the MunkiAdmin application window. The left sidebar shows navigation options: General (1 catalog), Managed Installs (No managed installs), Managed Uninstalls (No managed uninstalls), Managed Updates (13 managed updates, highlighted with a blue background), Optional Installs (9 optional installs), Included Manifests (No included manifests), Referencing Manifests (No referencing manifests), and Conditions (No conditions). The main right pane is titled "site_default" and displays a table of managed packages. The table has columns for Package (with icons) and Condition (with three dots). The packages listed are: AdobeFlashPlayer, AdobeReader, Dropbox, Firefox, GoogleChrome, munkitools, munkitools_admin, munkitools_core, munkitools_launchd, OracleJava7, OracleJava8, Skype, and TextWrangler.

Configure Updates via MunkiAdmin



The screenshot shows the MunkiAdmin application window titled "site_default". On the left, there's a sidebar with several sections: "General" (1 catalog), "Managed Installs" (No managed installs), "Managed Uninstalls" (No managed uninstalls), "Managed Updates" (13 managed updates), "Optional Installs" (9 optional installs, highlighted with a blue background and a cursor icon over it), "Included Manifests" (No included manifests), "Referencing Manifests" (No referencing manifests), and "Conditions" (No conditions). The main pane is titled "site_default" and contains a table with two columns: "Package" and "Condition". The packages listed are AdobeFlashPlayer, AdobeReader, Dropbox, Firefox, GoogleChrome, OracleJava7, OracleJava8, Skype, and TextWrangler, each with a condition value of "--". At the bottom of the main pane are "+" and "-" buttons.

Package	Condition
AdobeFlashPlayer	--
AdobeReader	--
Dropbox	--
Firefox	--
GoogleChrome	--
OracleJava7	--
OracleJava8	--
Skype	--
TextWrangler	--



Running Updates

Simple on boarding script.

Tells Managed Software Center where your repo is, where to get updates, and runs an initial update.



Running Updates - AppleScript

Set Munki and SUS Server IP or FQDN

Open with
Script Editor



```
RunUpdates.app — Notepad
AppleScript on run
-- Strong Solutions Run Updates
-- Installs Munki (Managed Software Center) and runs updates.
-- Created 2013.07.29 by Jack-Daniyal Strong.
-- 2013.07.29 - Initial Configuration
-- 2014.07.01 - Modified for Munki Install
-- 2014.08.22 - Checks for clientgroup, starts munki daemon & launches Managed S
-- (C)opyright 2008-2015 J-D Strong Consulting, Inc.

-- Properties you should set:

-- Munki Server IP or FQDN must be set
property MunkiServer : "10.211.55.13"

-- Using a local Software Update Server is Optional, set to "" to use Apple's servers
property SUSServer : "10.211.55.13"
```

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Running Updates - bash

Set Munki and SUS Server IP or FQDN

https://github.com/spokanemac/MIAB_ServiceBench

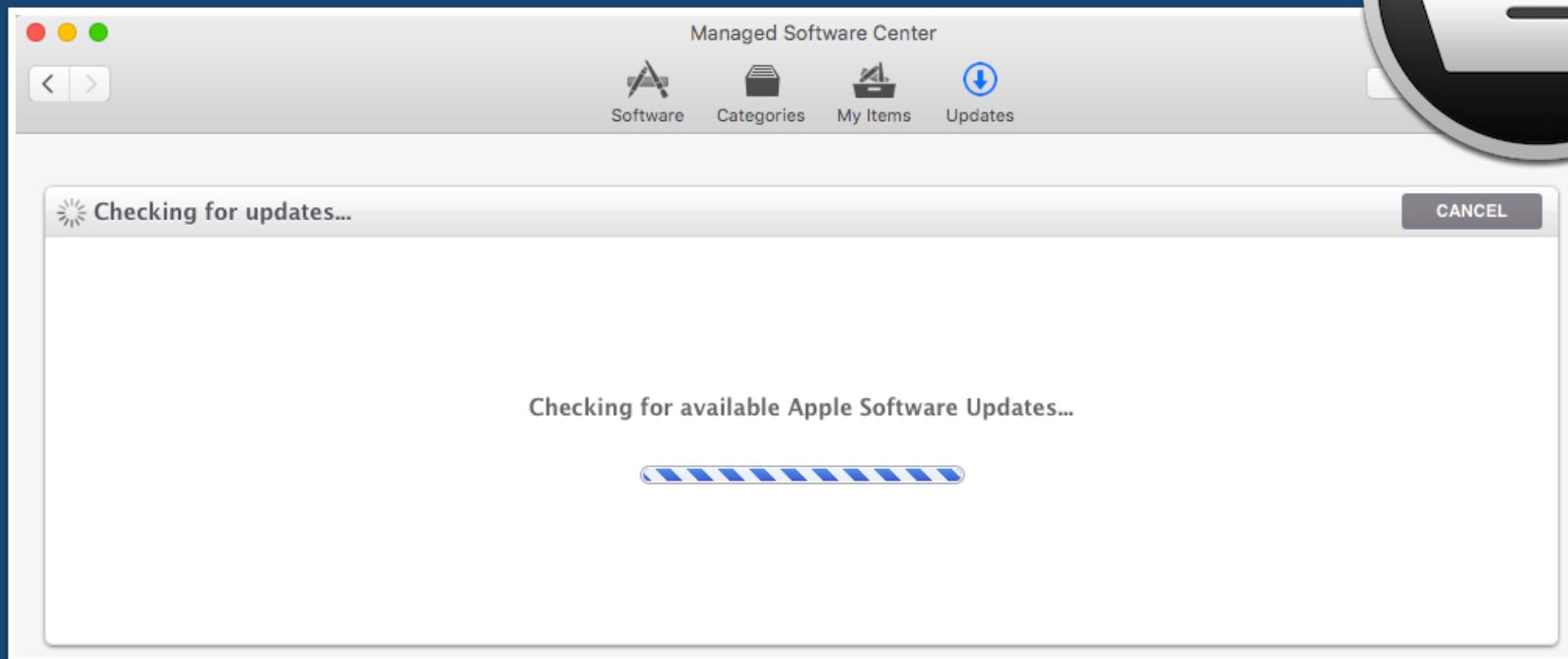


```
91 lines (69 sloc) | 2.79 KB

1 #!/bin/bash
2
3 # Install Munki Client, point it at your munki repo, and run updates
4 # Coded by Jack-Daniyel Strong, J-D Strong Consulting, Inc. & Strong Solutions
5 # Written 2015.07.28, Last Modified 2015.07.28 by Jack-Daniyel Strong
6
7 # IP Address or FQDN for your Munki Repo
8 MUNKISERVER="10.211.55.13"
9
10 # IP Address or FQDN for your Apple Software Update Server
11 # Set to Blank to use Apple's Servers
12 SUSSERVER=""
13
14 # Audible Notifications
15 NOTIFY=1 # set to 0 to not have audible notification
```



Managed Software Center



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Managed Software Center

Click Update All



A screenshot of the Managed Software Center application window. The window title is "Managed Software Center". The menu bar includes standard Mac OS X icons for file operations. Below the menu bar are four buttons: "Software" (represented by a box icon), "Categories" (represented by a folder icon), "My Items" (represented by a person icon), and "Updates" (represented by a circular arrow icon with a number "3"). A search bar with a magnifying glass icon and the word "Search" is located on the right side of the header. The main content area displays two update items:

Item	Description
OS X El Capitan Update Apple Version 10.11.1 Restart Required	The OS X El Capitan 10.11.1 update improves the stability, compatibility, and security of your Mac, and is recommended for all users. ...More
iTunes Apple Version 12.3.1	This update improves overall stability and performance.

A large "UPDATE ALL" button with a hand cursor icon is positioned at the bottom right of the update list. The status bar at the bottom of the window shows "3 pending updates" and "Restart Required".

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Managed Software Center

One-click
installation



The screenshot shows the Managed Software Center application window. At the top, there's a navigation bar with icons for Software, Categories, My items, and Updates, along with a search bar. The main title "Managed Software Center" is prominently displayed, followed by the subtitle "Your source for software for your Mac." Below the title, there are two images of Mac laptops showing software interfaces. The central part of the window displays a grid of software items under the heading "All items". Each item has a small icon, the name of the app, its category, developer information, and status (e.g., Installed or Available). To the right of the grid is a sidebar titled "Categories" listing various software categories. A decorative circular graphic with a lighthouse is visible in the bottom right corner.

All items		
 1Password Utilities – AgileBits Inc. Installed REMOVE	 ack PERL Module Developer Tools INSTALL	 Acorn 4 Uncategorized INSTALL
 Adium Social Media INSTALL	 Adobe Acrobat DC Productivity – Adobe INSTALL	 Adobe Acrobat Reader DC Uncategorized Installed REMOVE

Categories

- Administration
- Art & Graphics
- Browser Plugin
- Developer
- Developer Tools
- Education & Research
- File Sharing
- Media & Browser Plugins
- Music & Audio
- Productivity
- Settings

ASMC FALL CONFERENCE

Removing Updates

Simple off boarding script.

Removes Managed Software Center
and all settings.



Removing Updates



MACDEVOPS:YVR

74 lines (55 sloc) | 2.25 KB

```
1  #!/bin/bash
2
3  # Install Munki Client, point it at your munki repo, and run updates
4  # Coded by Jack-Daniyal Strong, J-D Strong Consulting, Inc. & Strong Solutions
5  # Written 2015.07.28, Last Modified 2015.10.19 by Jack-Daniyal Strong
6
7  # Audible Notifications
8  NOTIFY=1    # set to 0 to not have audible notification
9
10 ##### TOUCH NOTHING BELOW THIS LINE #####
11 ##### Begin Declare Variables Used by Script #####
12
13 DEFAULTS="/usr/bin/defaults"
14 INSTALLER="/usr/sbin/installer"
15 REMOVE="/bin/rm"
16 LAUNCHCTL="/bin/launchctl"
17 CURL="/usr/bin/curl"
18 OPEN="/usr/bin/open"
19 PKGUTIL="/usr/sbin/pkgutil"
20
21 # Declare directory variables.
22 PREFS_DIR="/Library/Preferences"
23 MANAGEDINSTALLS="${PREFS_DIR}/ManagedInstalls"
24
25 ##### End Declare Variables Used by Script #####
```

Caveat Emptor

- How Not To Do Bad Things with Autopkg
- Trust but Verify
- The following is for internal use only



MACDEVOPS:YVR

Final Thoughts

- This demonstration is fastest most direct path.
- Ideally you would employ a testing/production catalog and manifest.
- Internal tools could be added to a Managed or Optional manifest.
- Munki can be used just for Apple Updates.
- Secured, this could serve as a Managed Service.



Thank you

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