

Packaging and Deploying VMware Fusion with the Casper Suite

March 2009



 JAMF Software, LLC
© 2009 JAMF Software, LLC. All Rights Reserved.

JAMF Software has made all efforts to ensure that this guide is accurate.

JAMF Software
1011 Washington Ave South
Suite 350
Minneapolis, MN 55415
(612) 605-6625

JAMF Software, the JAMF Software logo, the Casper Suite, Casper Admin, Casper Imaging, Casper Remote, Casper VNC, Composer, the JAMF Software Server (JSS), JSS Mobile, JSS Set Up Utility, JAMFVNC, Recon and Recon for PC are all trademarks of JAMF Software, LLC registered in the US.

Apple, the Apple logo, AirPort, AppleScript, AppleShare, AppleTalk, Bonjour, Boot Camp, ColorSync, Exposé, FileVault, FireWire, iCal, iChat, iMac, iSight, iTunes, Keychain, Leopard, Mac, Mac Book, Macintosh, Mac OS, QuickTime, Safari, Xgrid, Xsan, and Xserve are trademarks of Apple Inc., registered in the U.S. and other countries.

Contents

Preface	3 Introduction 3 Target Audience 3 How to Use This Guide 3 Acknowledgements 4 Prerequisites 5 Useful Links
Chapter 1	6 Packaging VMWare 6 Preparing VMware Fusion for use in the Casper Suite 8 Create a VMware Fusion Virtual Machine package with Composer 9 Create a VMware Fusion Application Settings package with Composer 10 Configure package options in Casper Admin
Chapter 2	14 Deploying VMWare Fusion
Chapter 3	15 Deploying VMWare Fusion with Casper Remote
Chapter 4	16 Deploying VMWare Fusion with a Policy
Chapter 5	18 Deploying VMWare Fusion During the Imaging Process 18 Create a script to trigger a policy at reboot 20 Deployment options for VMware Fusion when imaging
Chapter 6	21 Deploying VMWare Fusion with the Self Service Application 21 Create a Self Service policy for a VMware Fusion Virtual Machine

Introduction

Target Audience

This paper is intended for system administrators who are planning to deploy VMware Fusion on the Mac OS platform.

How to Use This Guide

This guide is intended to walk you through the steps necessary to build packages of the VMware application and Virtual Machine and then deploy these packages at imaging time, via Casper Remote, a policy or the Self Service application. Following the steps contained herein you should be able to deploy the necessary components to hundreds of machines.

Acknowledgements

JAMF Software would like to thank the VMware Fusion team and is grateful for their aid in the production of this document. The efforts made by VMware in supporting virtualization on the Mac are a critical in the adoption of the platform.

Prerequisites

The Casper Suite allows you to easily package and deploy VMware Fusion along with one or many Virtual Machines to Macs on your network. Deploying VMware Fusion uses the original installer package for VMware Fusion and two packages created with Composer: One for a Virtual Machine and one for the VMware Fusion application settings.

Before you get started, please check the list below and ensure that you have the following components:

Requirements:

- VMware Fusion 2 with license key
- Existing virtual machine or installer media
- Composer.app
- Casper Admin.app
- Access to your JAMF Software Server (JSS)
- Casper Remote (optional)
- Casper Imaging (optional)
- Self Service (optional)

Useful Links on Related Topics

VMWare

For additional information from VMware on mass deployment strategies outside of the Casper Suite, please refer to their document titled "Mass Deployment of VMware Fusion"

www.vmware.com/files/pdf/Mass_Deployment_of_VMware_Fusion_wp2.pdf

Apple Computer

http://www.apple.com/downloads/macosx/system_disk_utilities/vmwarefusion.html

<http://www.apple.com/business/profiles/ocsd/>

Wikipedia

http://en.wikipedia.org/wiki/VMware_Fusion

JAMF Software

http://www.jamfsoftware.com/libraries/pdf_library/VMware_and_CasperSuite.pdf

Packaging VMware Fusion

Deploying VMware Fusion uses the installer package from VMware Fusion and two packages created with Composer: One for a Virtual Machine, and one for the VMware Fusion application settings.

Preparing the VMware Fusion installer for use in the Casper Suite:

1. Create a text file that contains your VMware Fusion license key and save it to your desktop as "license.txt" (see fig.1).

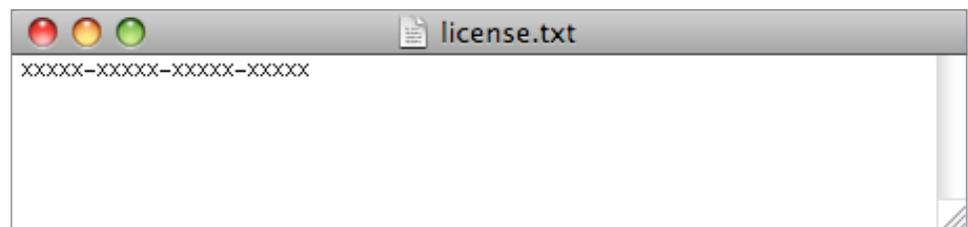


fig. 1

2. Mount the VMware Fusion disk image in the Finder.
3. Navigate to the VMware Fusion disk image and control-click on the "Install VMware Fusion" icon and choose "Show Package Contents".
4. Copy the package named "Install VMware Fusion.pkg" to your desktop.
5. Control-click on the "Install VMwareFusion.pkg" that you copied to your desktop and choose "Show Package Contents" (see fig. 2).

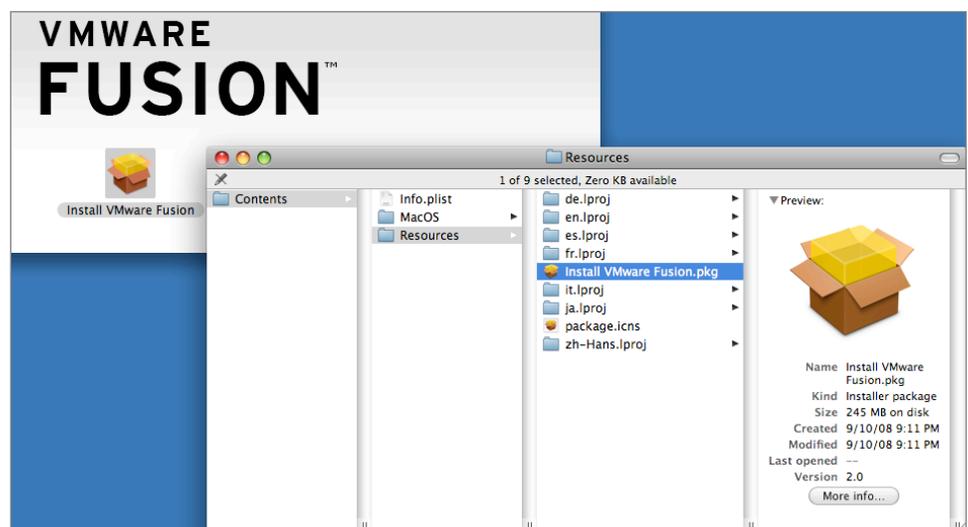


fig. 2

6. Navigate to Contents/Plugins/licensingPane.bundle, control-click and choose "Show Package Contents" (see fig. 3).

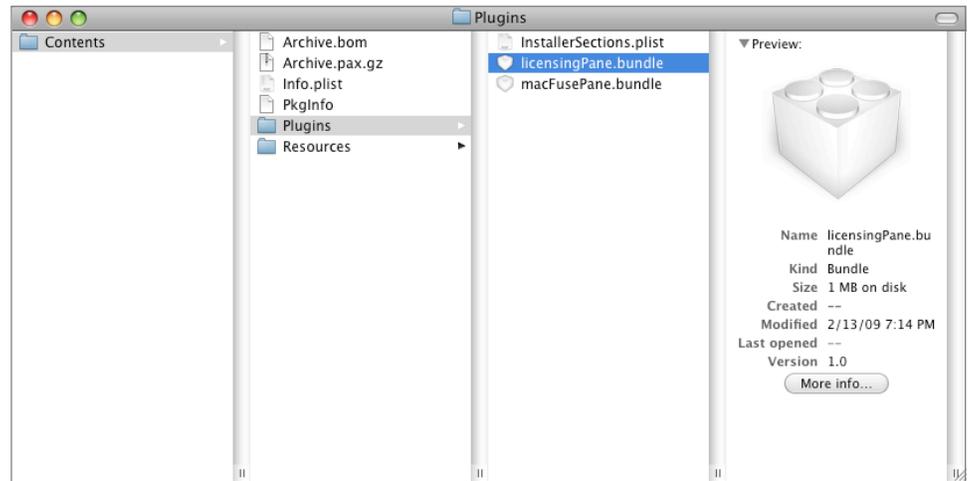


fig. 3

7. Place the license.txt file from your desktop into Contents/Resources and then close all open windows. You can also copy this file using Terminal.app with the following command (see fig. 4):

```
cp ~/Desktop/license.txt ~/Desktop/Install\ VMware\ Fusion.pkg/Contents/Plugins/licensingPane.bundle/Contents/Resources/
```

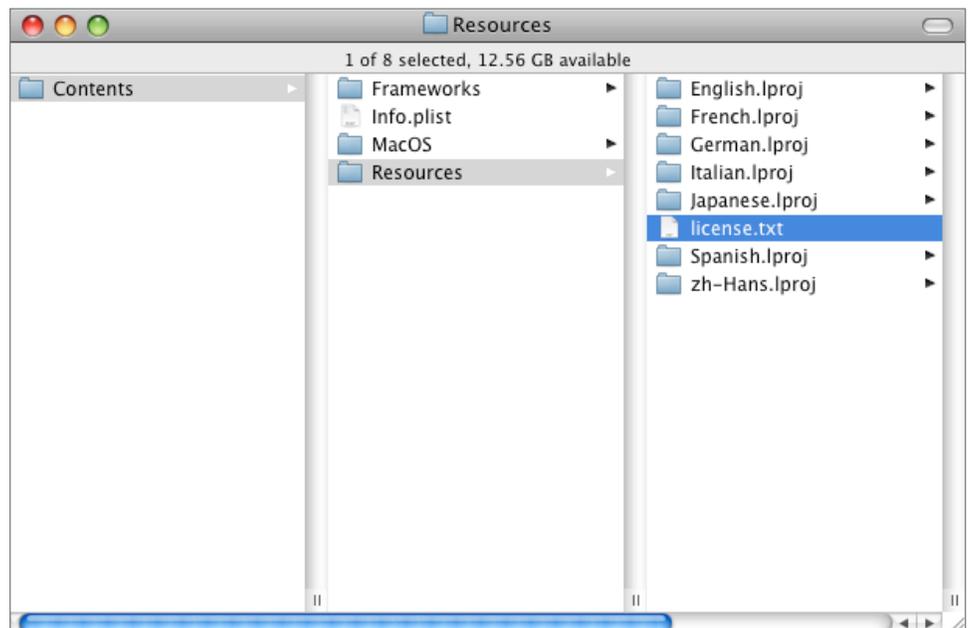


fig. 4

8. Install VMware Fusion by launching the "Install VMware Fusion.pkg".
9. Register VMware Fusion when prompted and configure preferences as necessary.
10. Quit VMware Fusion.

Create a VMware Fusion Virtual Machine package with Composer

1. Launch VMware Fusion from /Applications.
2. Create or add a new virtual machine, ensuring it is saved in /Users/Shared/VM.
3. Configure the virtual machine as desired for deployment. (If you are creating a Virtual Machine for Windows, now is a good time to run sysprep to prepare the Virtual Machine for enterprise deployment.)
4. Quit VMware Fusion and navigate to /Users/Shared/VM.
5. Control-click on the virtual machine file and choose Show Package Contents.
6. Open the file with the suffix ".vmx" (your Virtual Machine settings file) with TextEdit and remove any lines beginning with the following:

```
ethernet0.addressType =  
uuid.location =  
uuid.bios =  
ethernet0.generatedAddress =  
ethernet0.generatedAddressOffset =
```

7. Locate the text:

```
"sharedFolder1.hostPath = "/Users/<username>"
```

8. Replace the path "/Users/<username>" with "~"
9. Save the .vmx file.
10. Launch Composer. (If you are presented with a New Package dialog, click Cancel.)

11. Drag the Virtual Machine file from /Users/Shared/VM into Composer's Sources column.

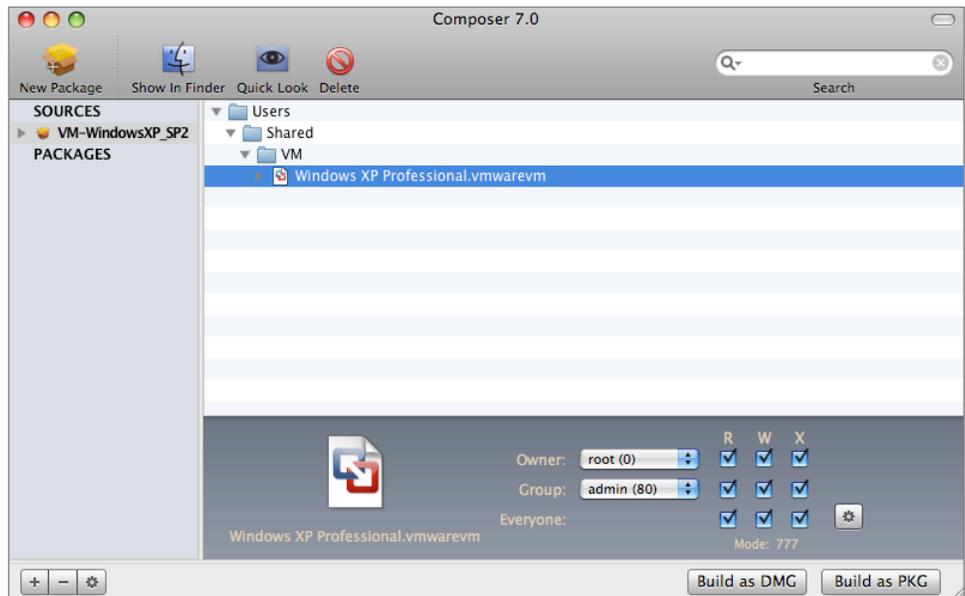


fig. 5

12. When the copy is finished, a package icon will appear in the Sources column. Control-click this icon to rename it to something like "VM-WindowsXP_SP2".

13. Verify the permissions on the Virtual Machine file within Composer and click Build as DMG.

Create a VMware Fusion Application Settings package with Composer:

1. Launch Composer. (If you are presented with a New Package dialog, click Cancel.)
2. Navigate to /Users/<username>/Library/Preferences.
3. Locate the file named "com.vmware.fusion.plist" and the directory named "VMware Fusion".
4. Drag both of these files at the same time into the Sources column in Composer (see fig. 6).
5. When the copy is finished, a package icon will appear in the Sources column. Control-click this package to rename it to "VMware Fusion Settings".

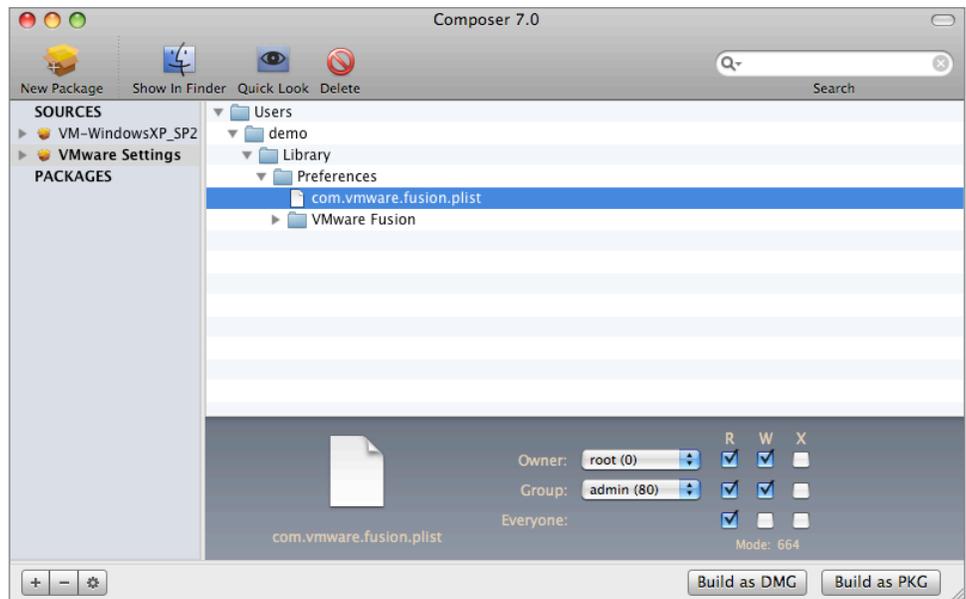


fig. 6

6. Verify the permissions on the settings files within Composer and click Build as DMG (see fig. 7).

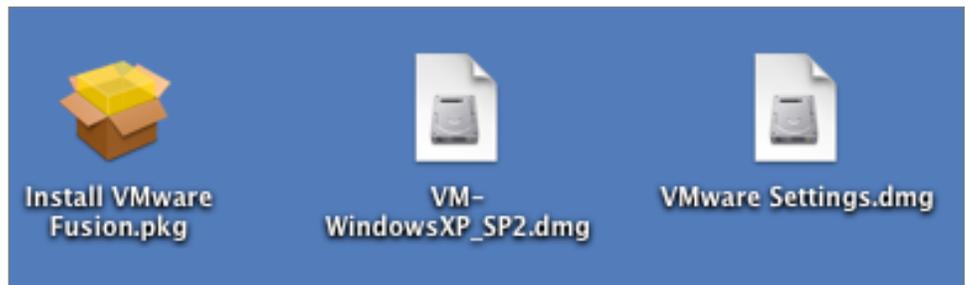


fig. 7

When you have finished creating these packages, drag them into Casper Admin to make them available for use within Casper. You will then need to set the package options to ensure proper installation order and to allow them to be later uninstalled.

Configure package options in Casper Admin:

1. Click "New Category" in Casper Admin and create a new category titled "VMware".

2. Drag the three VMware Fusion packages into this new category.

3. Click the VMware category and highlight all of the VMware Fusion packages (see fig. 8).

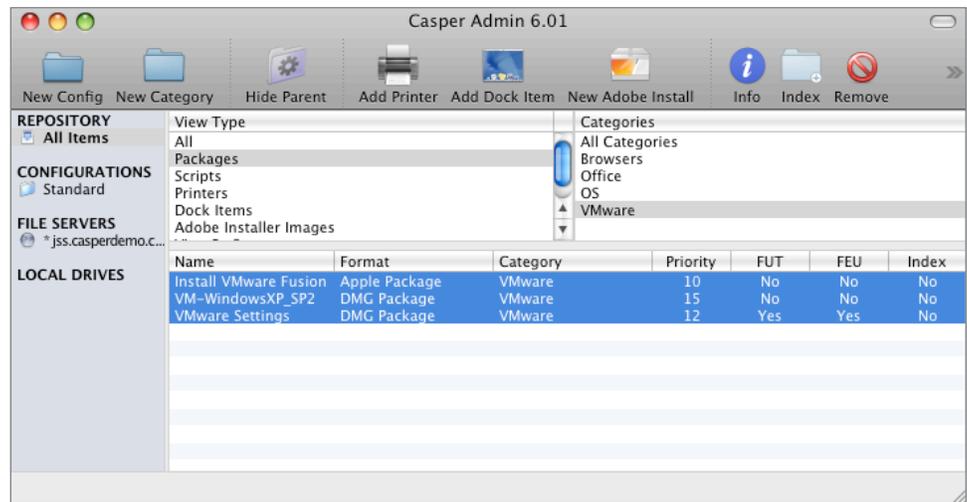


fig. 8

4. With the packages highlighted, select the Index icon at the top of the Casper Admin window and allow the process to complete.

5. Double-click the "Install VMware Fusion.pkg" in Casper Admin's package list and set the following options (see fig. 9):

- In the Options tab, set the priority to 10
- Click the checkbox to "Allow this package to be uninstalled by Casper or a Policy." Set the "Install Only if Processor is:" option to "x86"

6. Click OK to save the changes.

7. Double-click the "VMware Fusion Settings" package in Casper Admin's package list and set the following options (see fig. 10):

- In the Options tab, set the priority to 12. This ensures the settings file is installed after the VMware Fusion application.
- Click "Fill User Templates" and "Fill Existing User Home Directories"
- Click "Allow this package to be uninstalled by Casper or a Policy."
- Set the "Install Only if Processor is:" option to "x86"

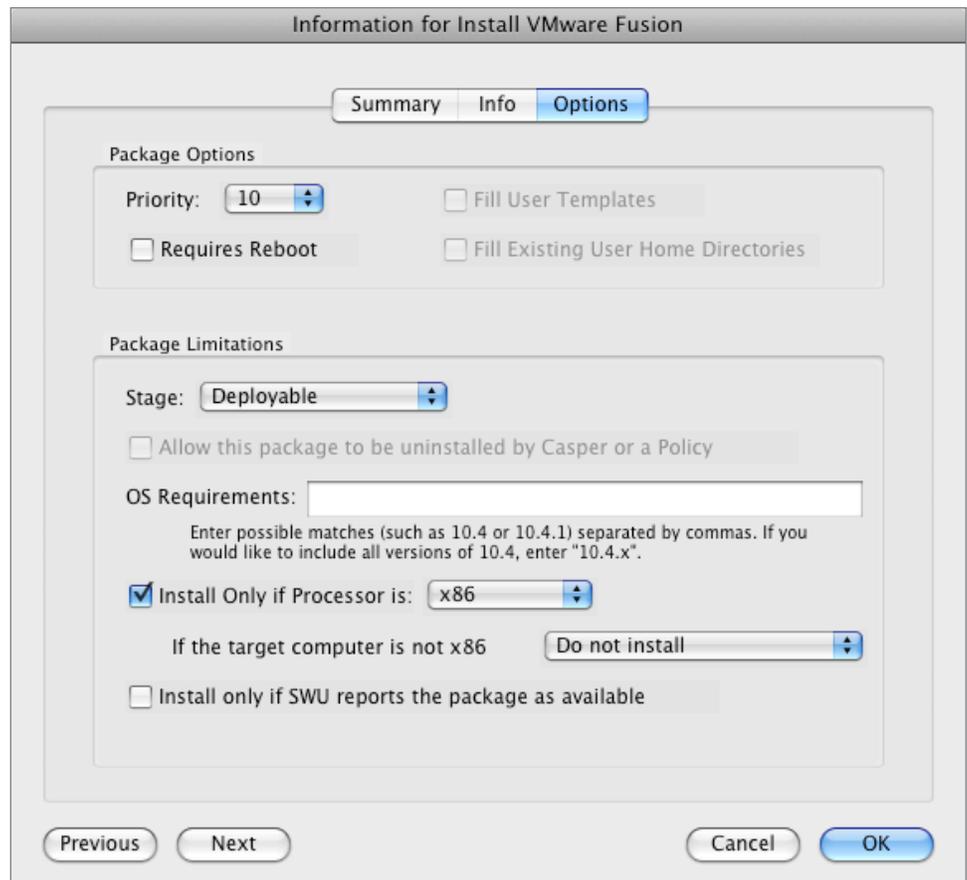


fig. 9

8. Click OK to save the changes.

9. Double-click the virtual machine package(s) in Casper Admin's package list and set the following options (see fig. 11):

- In the Options tab, set the priority to 15. This ensures the virtual machine is installed after the required components.
- Click "Allow this package to be uninstalled by Casper or a Policy."
- Set the "Install Only if Processor is:" option to "x86"

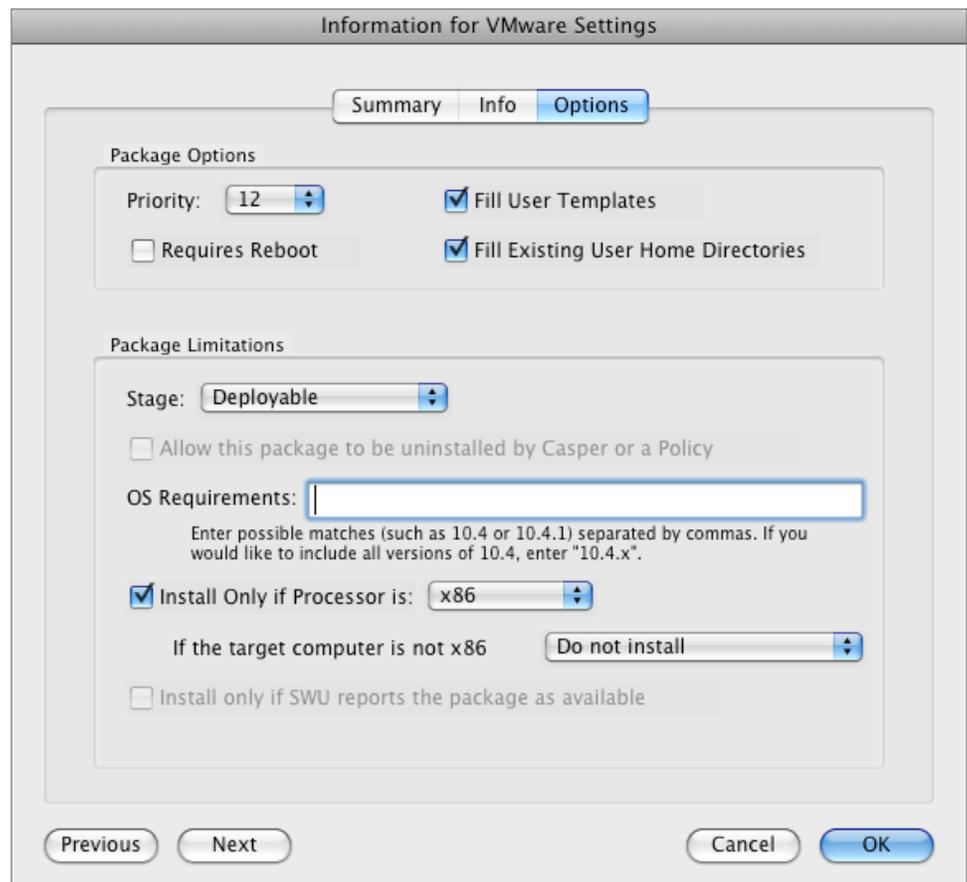


fig. 10

10. Click OK to save the changes.

11. From the File menu, choose Save and quit Casper Admin.

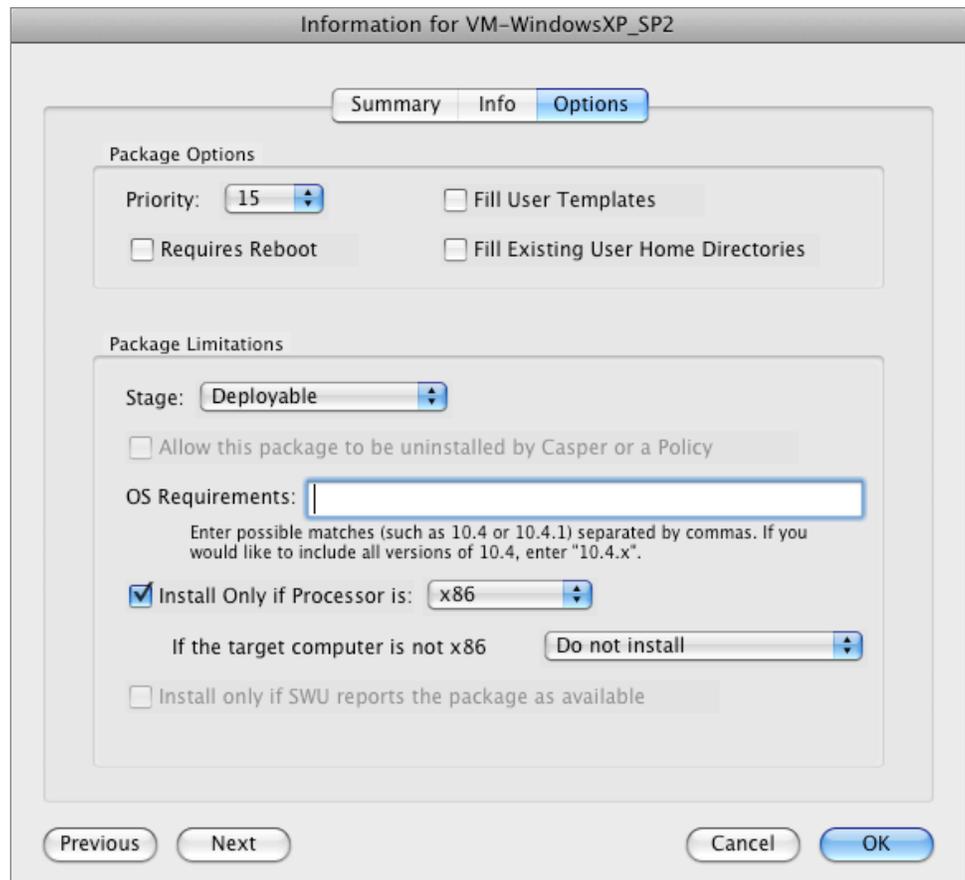


fig. 11

Deploying VMware Fusion

Once you have created the packages above, you can now easily deploy the VMware Fusion application, settings, and Virtual Machines to Macs on your network.

The Casper Suite offers four primary methods of distributing VMware Fusion to your managed Macs, all of which can be enabled at the same time:

- Using Casper Remote, when immediate deployments are required.
- Automatically via Casper's Policy Engine, which allows for unattended, automatic installation when clients appear on the network.
- During the imaging process, eliminating further steps to make a computer ready for a user.
- User-initiated via the Self Service application, allowing the user to install VMware Fusion or additional Virtual Machines when they need it.

Deploying VMware Fusion with Casper Remote

The Casper Remote application can be used to immediately deploy VMware Fusion and associated Virtual Machine(s) to you managed Macs. This method is best for an immediate deployment. However, it will overwrite any existing VMware Fusion installation and also requires the target system to be connected to the network.

1. Launch Casper Remote and authenticate to your JAMF Software Server (JSS).
2. In the Computers tab, select the target systems to which VMware Fusion will be deployed.
3. In the packages tab, select the VMware Fusion installer package, the VMware Fusion settings package, and the Virtual Machine you wish to deploy.
4. Ensure that the VMware Fusion settings package has the options selected to “Fill User Templates (FUT)” and “Full Existing User Home Directories (FEU)” (see fig. 12).

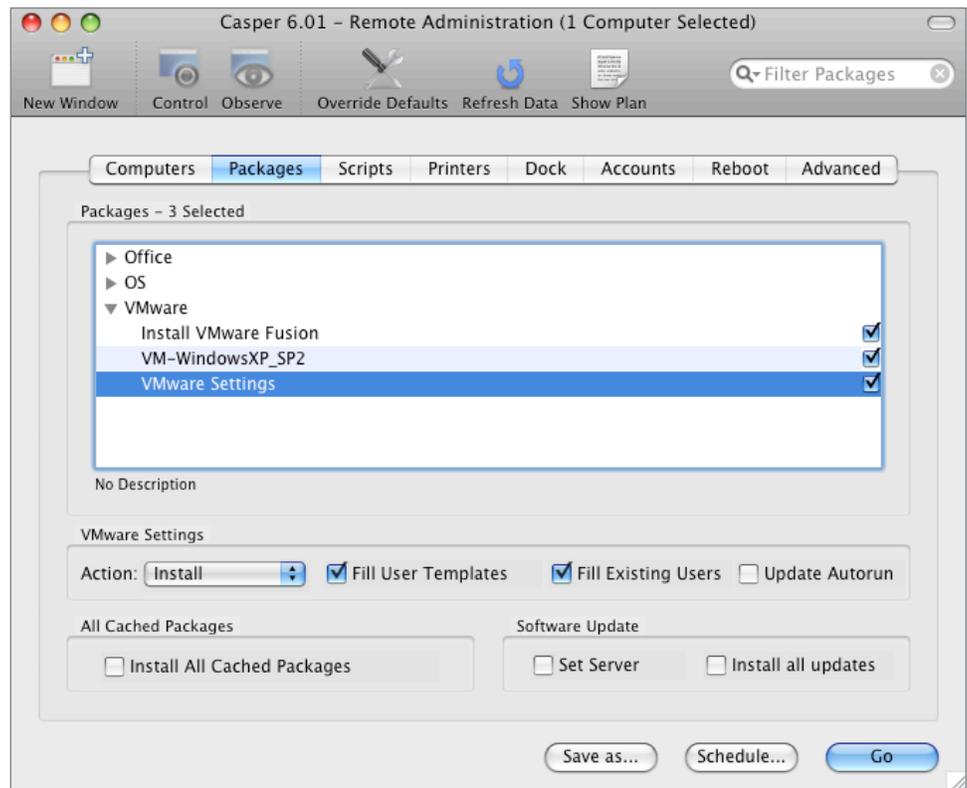


fig. 12

5. In the Advanced tab check “Update Inventory (Recon)”.
6. Click “Show plan” in the toolbar of the Casper Remote window and verify that the appropriate computers are selected.
7. Click Go to begin the installation.

Deploying VMware Fusion with a Policy

Policies allow you to automatically install VMware Fusion along with a Virtual Machine onto a specific group of computers based on a certain trigger such as startup, login, or a particular timed event such as a known maintenance window.

1. Connect to the web interface of your JSS.
2. Click Management and choose Policies.
3. In the Policies window, click “Create New Policy...”
4. In the General tab, enter something like “Install VMware Fusion” as the Display Name and set the Category to “VMware Fusion”.
5. In the “Triggered by” drop down menu, choose the trigger you would like to begin the installation (“startup” is recommended).
6. In the “Execution Frequency” drop down menu, choose “Once Per Computer”.
7. Choose any days or time range where you do not want the installation process to occur (see fig. 13).

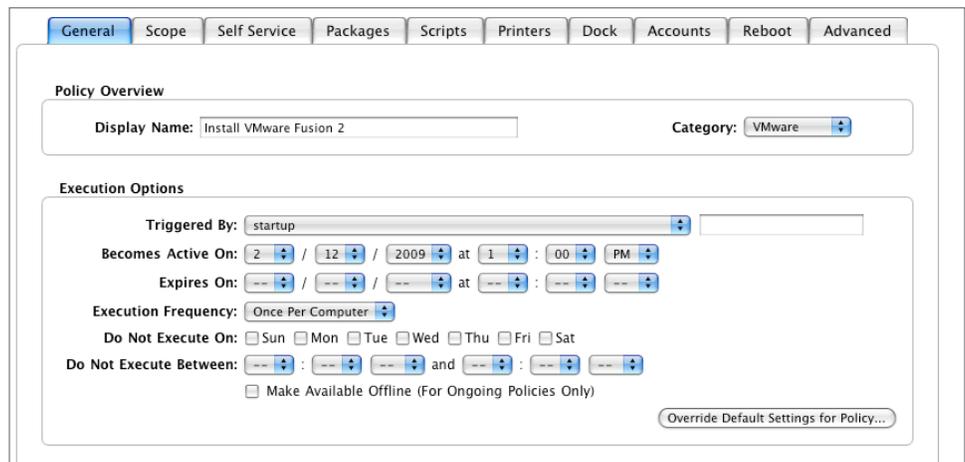


fig. 13

8. Click the Scope tab and choose which computers, groups, departments, or buildings will receive VMware Fusion. *It is highly recommended that in addition to a department or building you also scope the policy to a specific Smart Computer Group that is set to the minimum hardware requirements and disk space required for VMware Fusion. If necessary, limit the installation to a particular network segment. For example; you could exclude your wireless or VPN network segment to only allow the installation when the client system is physically plugged into the network.*
9. In the packages tab, click “Add Package” and choose the Install action for the VMware Fusion installation package, the settings file, and at least one Virtual Machine.
10. Click “Add Package(s)” to add the packages to the policy.
11. Ensure that the VMware Fusion settings package has the options selected to “Fill User Templates (FUT)” and “Full Existing User Home Directories (FEU)” (see fig. 14)

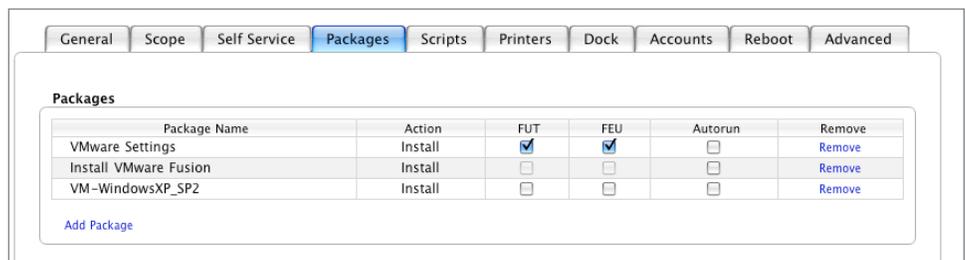


fig. 14

12. In the Advanced tab, check “Update Inventory (Recon)” (see fig. 15).



13. Click the Save Policy button at the bottom of the browser window.

When a client meeting the scope criteria (group membership, network segment, department, etc) checks in with the JSS on the specified trigger, it will automatically pull down the VMware Fusion packages and log the action to the JSS when the installation is complete.

Deploying VMware Fusion During the Imaging Process

VMware Fusion can be deployed when a Mac is imaged with Casper Imaging. However, the VMware Fusion installer can only be run when the computer is booted off the primary drive. To automate this process you will need to create a script to call a policy as soon as the computer reboots. This ensures VMware Fusion is installed on the correct drive and still allows the imaging process to be automated.

To create a script to trigger a policy at reboot:

1. In TextEdit, create a new file called “FirstBoot.sh” containing the following lines:

```
#!/bin/bash
```

```
#### This is a script to automatically run any policies triggered  
#### by the manual run action of “firstboot”, allowing you to  
#### install packages that require the Mac to be booted to the  
#### primary boot volume.
```

```
/usr/sbin/jamf policy -trigger firstboot
```

2. Save this file in plaintext and drag it into Casper Admin.
3. Double click on the script inside Casper Admin and click the Options tab.
4. Set the Priority drop down menu to "At Reboot" (see fig. 15).

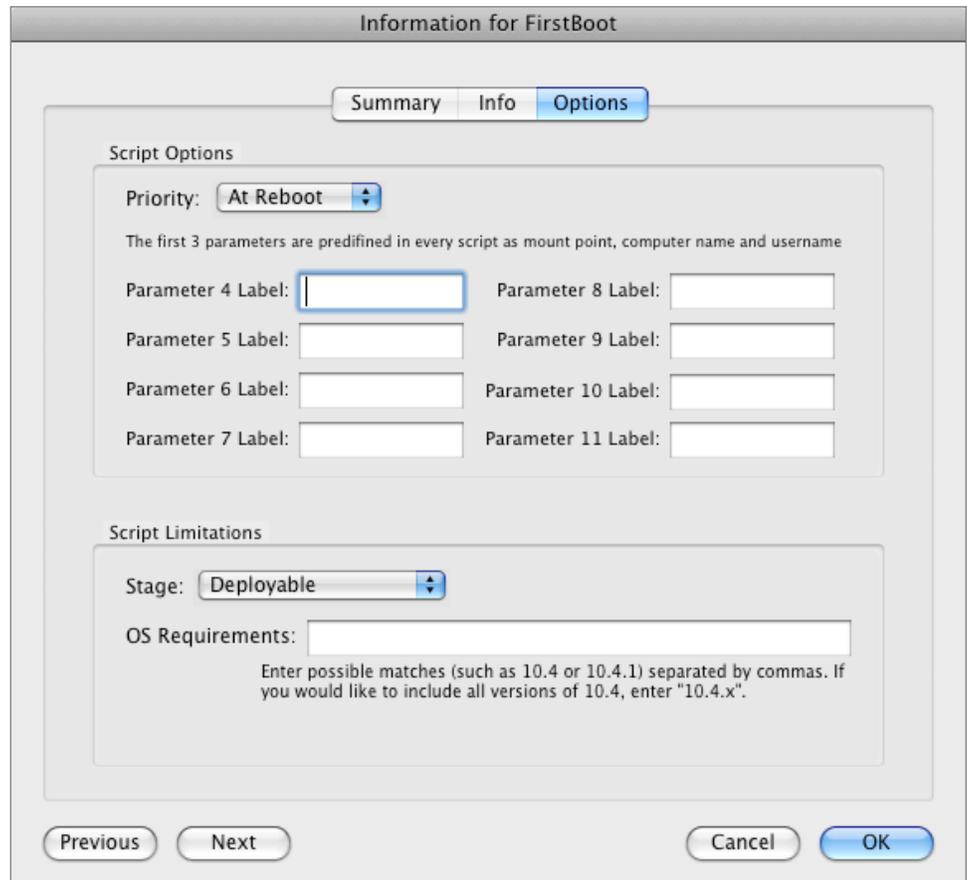


fig. 15

5. Click OK and save your changes in Casper Admin.

Next, create a policy similar to the one above with the following changes:

1. In the General tab, set the Triggered by: drop down menu to "other" and enter "firstboot" in the run action field.

- In the Execution Frequency drop down menu, choose "Ongoing" to allow the option to install VMware Fusion again if the computer is ever re-imaged.

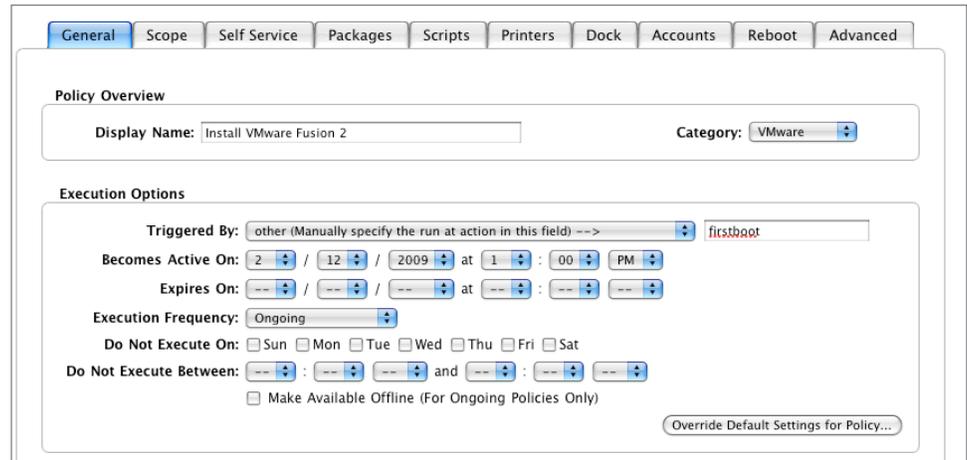


fig. 16

- In the Scope tab, you can choose "Assign to All Computers" as the deployment will be specified with a configuration in Casper Admin or at image time with Casper Imaging.

Finally, to deploy VMware Fusion when imaging you have two options:

- Drag the FirstBoot script into the desired configuration in Casper Admin so as to be automatically applied to any Mac imaged with that configuration.

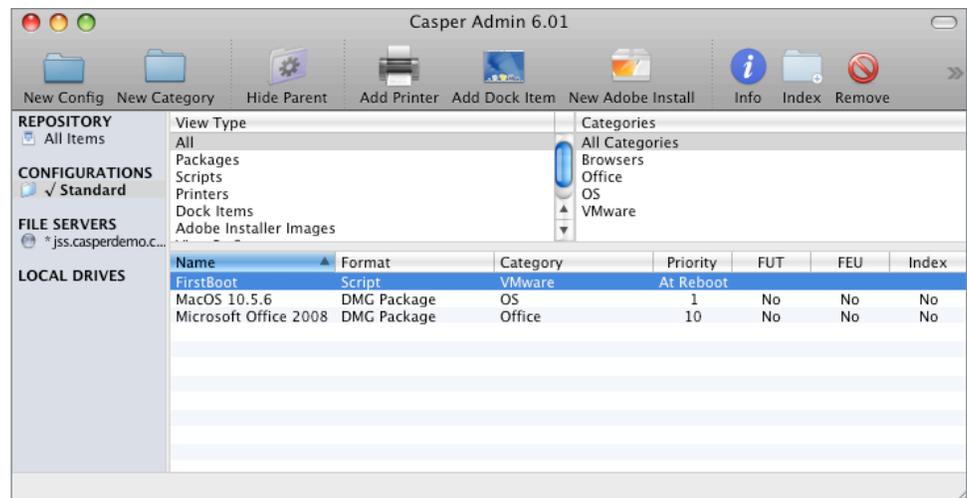


fig. 17

OR

2. When using the Casper Imaging application, click the Scripts tab and select the FirstBoot script. Ensure it is set to run At Reboot (see fig 18).

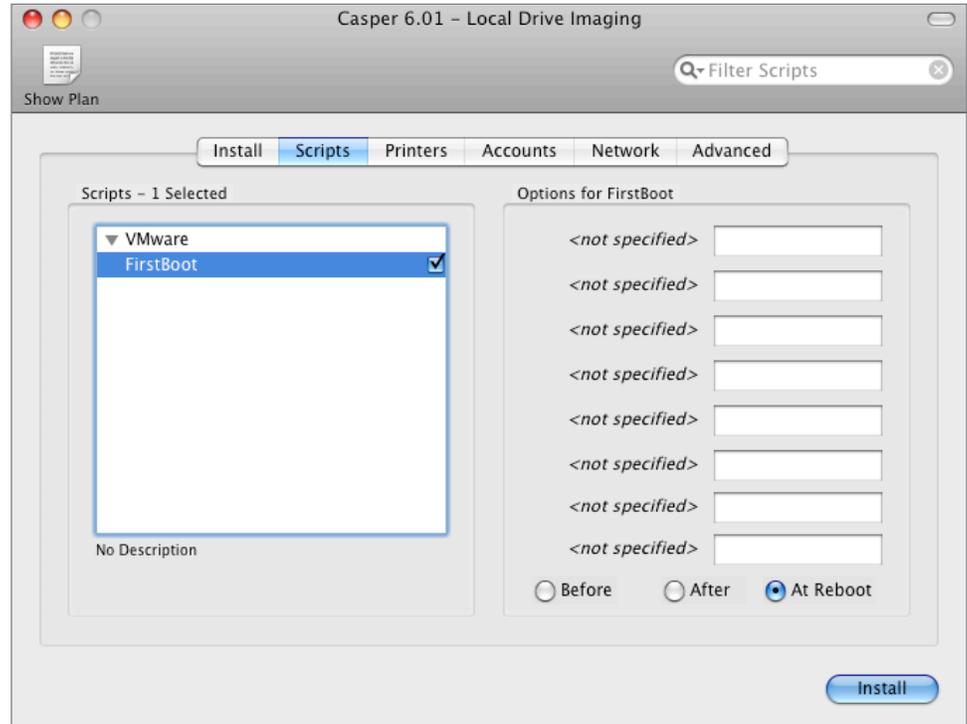


fig. 18

Deploying VMware Fusion with the Self Service Application

By configuring a policy to be triggered by Self Service, your users can install VMware Fusion and Virtual Machines on demand without assistance from IT. This offers the flexibility of also allowing the users to choose exactly when the installation will occur, as well as allowing them to reinstall a corrupt Virtual Machine or upgrade to a new one.

Create a Self Service policy for the VMware Fusion application:

1. Connect to the web interface of your JSS.

2. Click the Management tab and choose Policies.
3. Click "Create New Policy..."
4. In the General tab, enter something like "Install VMware Fusion" as the Display Name and set the Category to "VMware Fusion".
5. In the "Triggered by" drop down menu, choose "None (or Self Service Only)".
6. In the "Execution Frequency" drop down menu, choose "Once Per Computer".
7. Choose any days or time range when you do not want the installation process to occur (see fig. 19).

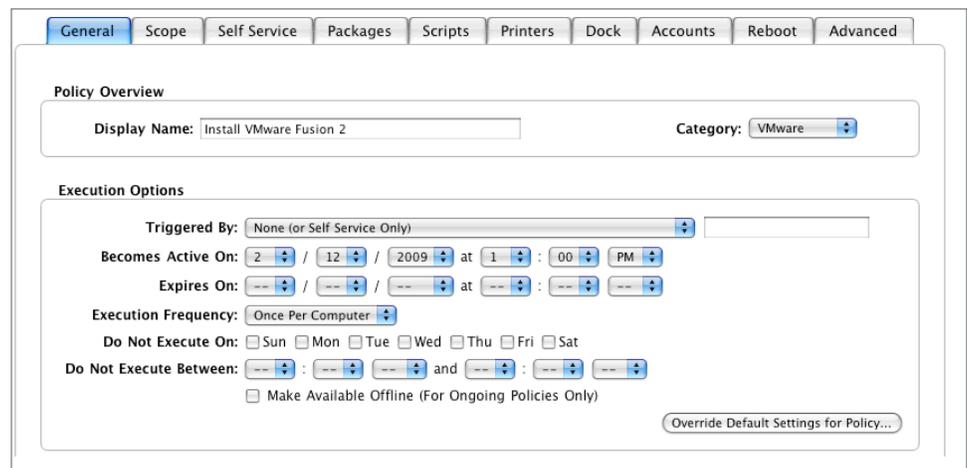


fig. 19

8. Click "Scope" and choose which computers, groups, departments, or buildings will receive VMware Fusion. *You will still want to make special note of the scoping options to ensure only appropriate computers are able to install the software.*
9. Click "Self Service" and choose Allow this Policy to be used for Self Service.
10. Enter a brief description of the VMware Fusion application along with the current version you are deploying.
11. Click "Choose File..." and locate an icon to represent VMware Fusion. This icon can be a PNG, JPEG, or ICNS file. (You can find the actual icon file in / Applications/VMware Fusion.app/Contents/Resources/fusion.icns) Upload the selected file and you will be returned to the Self Service tab.

- If you would like this policy to appear on the first page presented to the user when they launch the Self Service application, click the box next to “Feature this Policy on the Main Page”. Otherwise choose “Display” and/or “Featured” for the policy to appear in the VMware Fusion category inside the Self Service application (see fig. 20).



fig. 20

- In the Packages tab, click “Add Package” and choose the Install action for the VMware Fusion installation package and settings file.
- Click “Add Package(s)” to add the packages to the policy.
- Ensure that the VMware Fusion settings package has the options selected to “Fill User Templates (FUT)” and “Full Existing User Home Directories (FEU)” (see fig. 21)

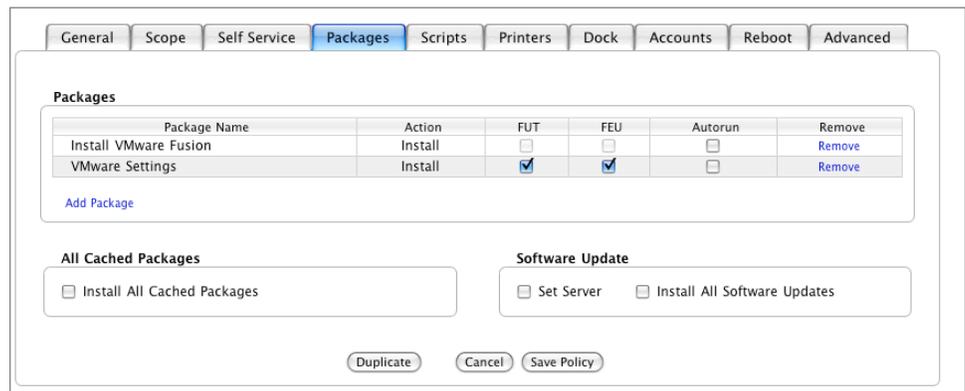
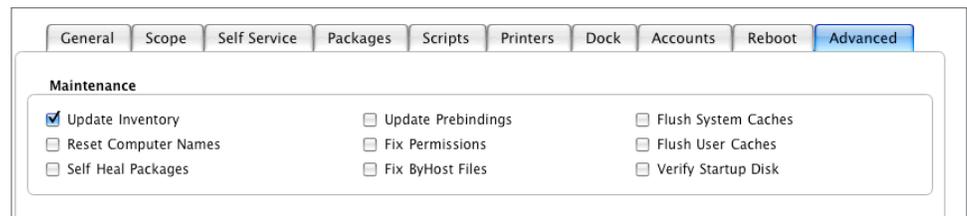


fig. 21

- In the Advanced tab, check the box next to “Update Inventory (Recon)” (see fig. 22).

fig. 22

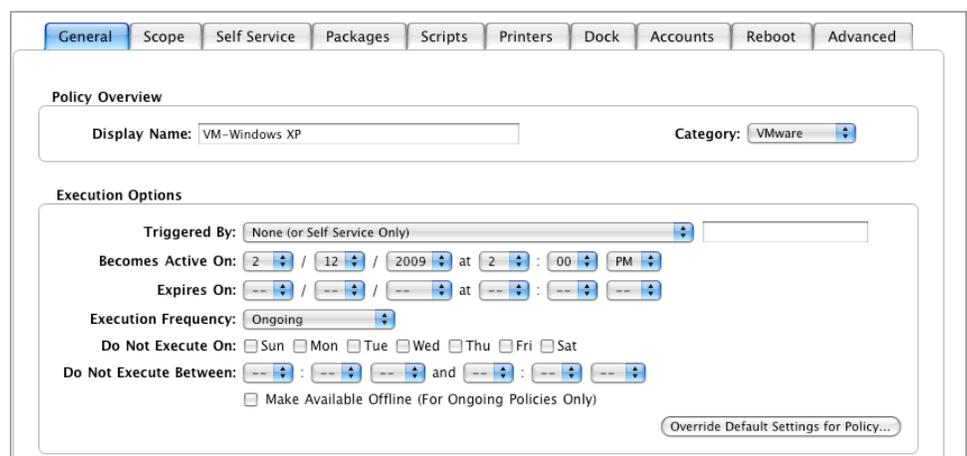


17. Click "Save Policy" at the bottom of the browser window.

Create a Self Service policy for a VMware Fusion Virtual Machine:

1. Connect to the web interface of your JSS.
2. Click "Management" and choose "Policies".
3. Click "Create New Policy..."
4. Click "General" and enter something like "VM-Windows XP" as the Display Name and set the Category to "VMware".
5. In the "Triggered by" drop down menu, choose "None (or Self Service Only)".
6. In the "Execution Frequency" drop down menu, choose "Ongoing" to allow users to reinstall the Virtual Machine if necessary.
7. Choose any days or time range when you do not want the installation process to occur (see fig. 23).

fig. 23



8. Click “Scope” tab and choose which computers, groups, departments, or buildings will receive the Virtual Machine. *You will still want to make special note of the scoping options to ensure only appropriate computers are able to install the software. If you are deploying a Virtual Machine that requires a specific version of VMware Fusion, be sure to consider that selection criteria in the Smart Computer Group along with available disk space. If you are introducing a new virtual machine to your environment, you can simply create a Smart Computer Group containing only those computers that have VMware Fusion already installed.*



9. Click Self Service and choose Allow this Policy to be used for Self Service.

10. Enter a brief description of the Virtual Machine you are deploying.

11. Click “Choose File...” and locate an icon to represent the virtual machine. This can be in the format of a PNG, JPEG, or ICNS file. Upload the selected file and you will be returned to the Self Service tab.

12. If you would like this policy to appear on the first page presented to the user when they launch the Self Service application, click the box next to “Feature this Policy on the Main Page”. Otherwise choose “Display” and/or “Featured” for the policy to appear in the VMware Fusion category inside the Self Service application (see fig. 25).

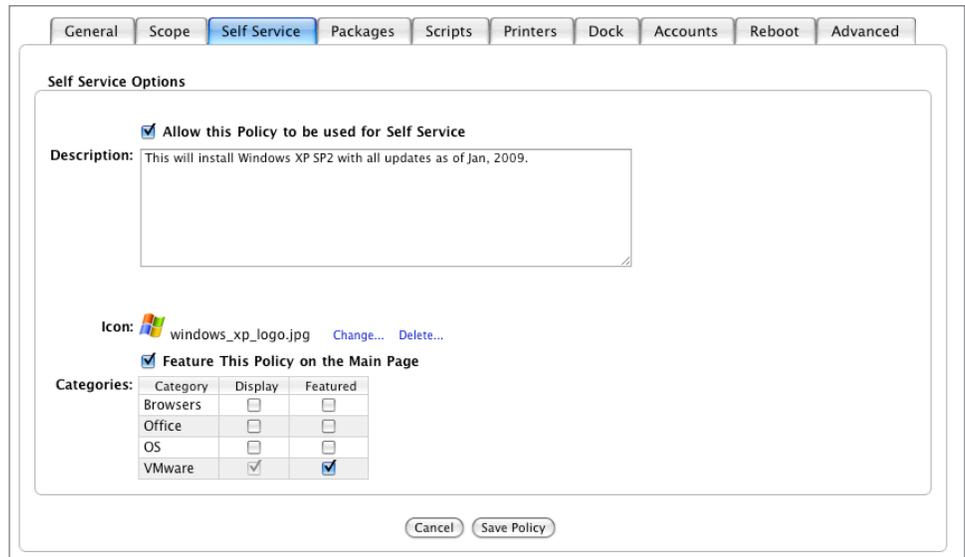


fig. 25

13. In the Packages tab, click “Add Package” and choose the Install action for the Virtual Machine.

14. Click “Add Package(s)” to add the packages to the policy (see fig. 26)

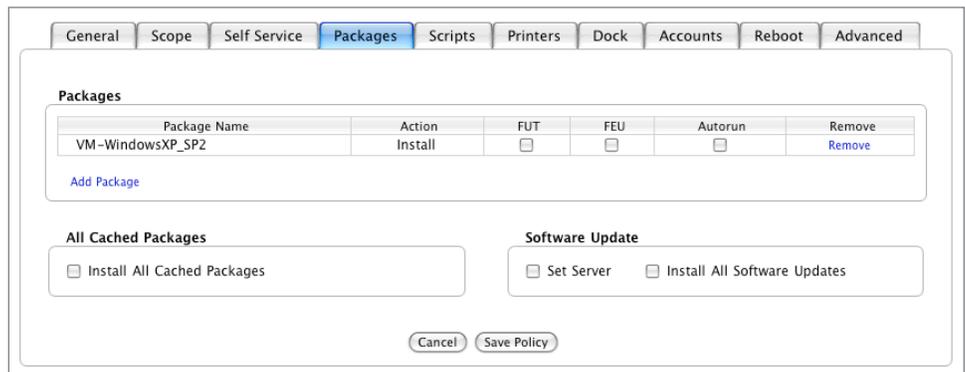


fig. 26

15. In the Advanced tab, check “Update Inventory (Recon)”.

16. To ensure this Virtual Machine is listed in the Virtual Machine Library once installed, enter the following command in the “Run Unix Command” field of the advanced tab (this assumes that the Virtual Machine is located at “/Users/Shared/VM/Windows XP Professional”) (see fig. 27):

```
defaults write com.vmware.fusion VMFavoritesListDefaults2
-array-add '{name = “Windows XP Professional”; path = “/
Users/Shared/VM/Windows XP Professional.vmwarevm”};}
```

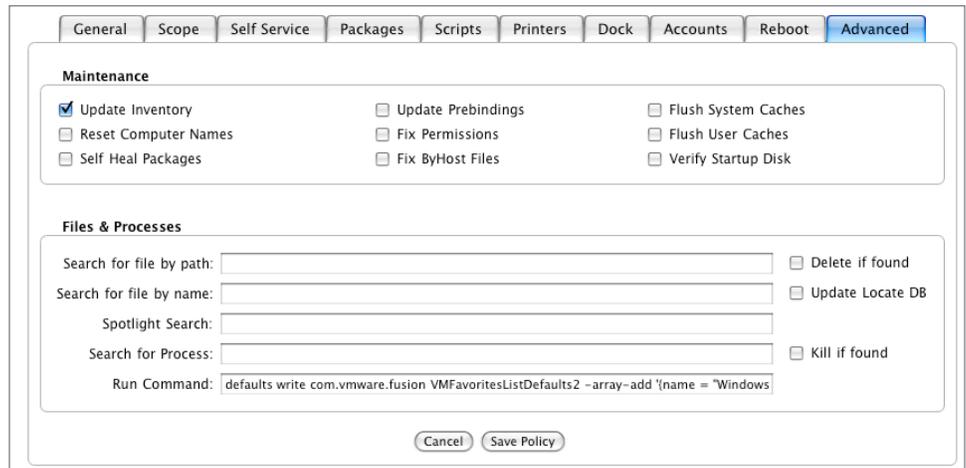


fig. 27

17. Click Save Policy at the bottom of the browser window.

When users launch the Self Service application, they will be presented with the VMware Fusion and Virtual Machine policies and can install them without local administrator rights to their computer (see fig. 28).

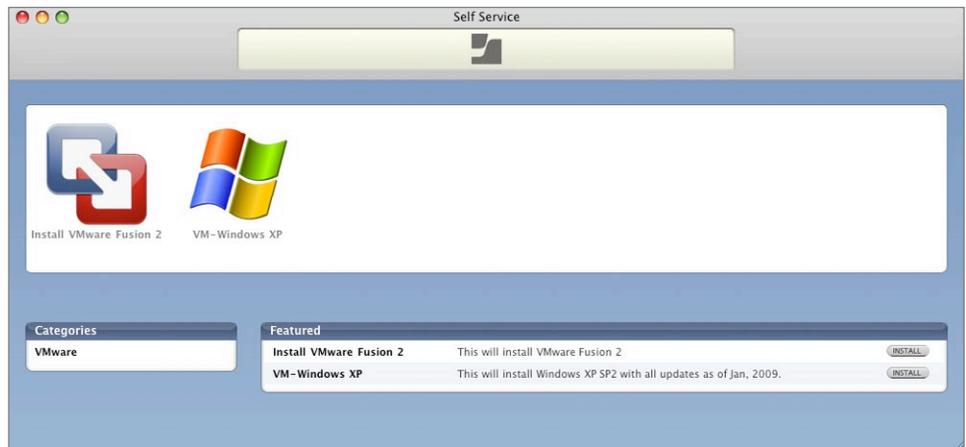


fig. 28