

How to Create a Yosemite Installer

Version 1.1

Introduction

This guide outlines the process to create a Yosemite installer on a USB memory stick for use on a legacy Mac Pro (1,1 and 2,1). OS X operating systems after Lion (10.7.x) are not compatible with legacy Mac Pro computers. OS X beyond Lion 64bit operating systems and require hardware that support 64bit architecture.

Legacy Mac Pro computers are 64bit architecture with the exception of the EFI system, which is only EFI32. By replacing the Apple provided boot loader (boot.efi) with a custom boot loader that supports EFI32 it is possible to install and successfully run Yosemite on a legacy Mac Pro. The custom boot.efi redirects the 64bit calls to the 32bit equivalents to allow OS X to boot. Once OS X has loaded, all other functionality behaves as expected.

Prerequisites

- OS X Yosemite (10.10.x) Installer
- Pacifist
- USB Memory Stick (at least 8GB) or HDD
- Modified boot.efi (32bit EFI)
- A Mac Pro 1,1 or Mac Pro 2,1 with upgraded video card such as a ATI Radeon HD 5770 or ATI Radeon HD 5870

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Method

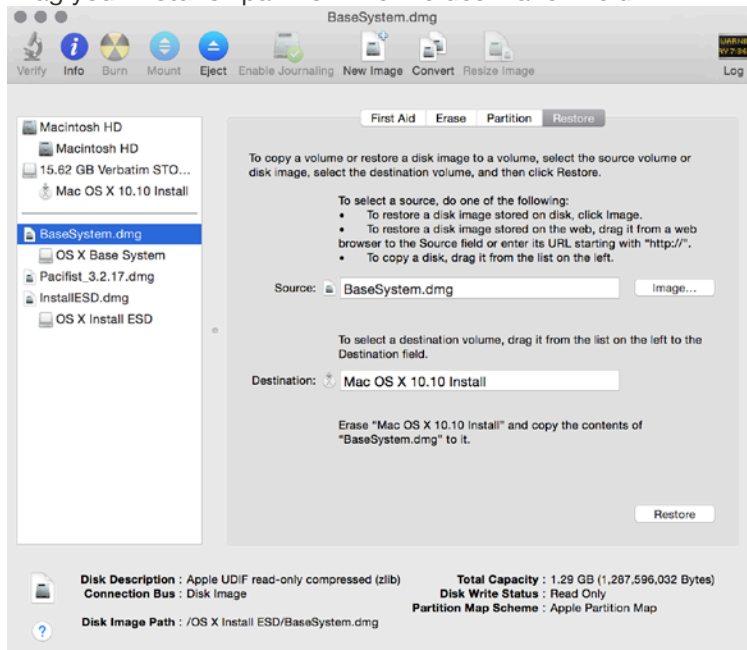
The following process will create install media that can be used to perform a clean installation on a legacy Mac Pro.

1. Mount InstallESD.dmg

1. Locate your 10.10 installer (default **/Applications/Install OS X Yosemite**).
2. Right-click on **Install OS X Yosemite** and chose 'show package contents'.
3. Navigate to **Contents** -> **SharedSupport**
4. Double click on **InstallESD.dmg** to mount it.
5. Open **Terminal** and navigate to the Mac OS Install ESD drive.
 - a. **cd /Volumes/Mac\ OS\ X\ Install\ ESD/**
 - b. mount the **BaseSystem.dmg** by **open BaseSystem.DMG** and hit enter.

2. Restore BaseSystem.dmg to USB Stick

1. Open **Disk utility**.
2. Click on **BaseSystem.dmg** on the left, then click **restore**,
3. Drag your **Installer** partition into the destination field.



4. Click **Restore**.

NOTE: You may need to rename your installer partition back to "Installer" as it may now be called OS X Base System.

3. Copy Install Packages

On the Installer partition (eg /Volumes/Installer)

1. Navigate to **System** -> **Installation**
2. Delete the **Packages** symlink
3. Create a folder called **Packages**
4. Copy the contents of **/Volumes/ OS X Install ESD/Packages** to **/Volumes/Installer/System/Installation/Packages**

This will copy the installation packages from the source installer to the new custom Installer.

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4. Modify the OSInstall.mpkg

The following process will modify the **OSInstall.mpkg** to add support for the legacy Mac Pros. Without this step, the installer will say the Mac Pro 1,1 and 2,1 are not supported hardware.

1. Copy the **OSInstall.mpkg** to your desktop
Copy your **/Volumes/Installer/System/Installation/Packages/OSInstall.mpkg** from your bootable USB drive to your desktop.
2. Extract the **OSInstall.mpkg** Contents
The following line will extract the contents of the **OSInstall.mpkg** package to a folder called **OSInstall**.

```
pkgutil --expand ./OSInstall.mpkg ./OSInstall
```

3. Modify **OSInstall.mpkg** Contents
Edit the **OSInstall/distribution** file using a text editor such as Text Edit or pico.

Close to the start is a section headed **var PlatformSupportValues** there is a list of board IDs in speech-marks and separated with commas. eg **"Mac-F42D88C8","Mac-F2218EA9","Mac-F42D86A9"**. You need to add your mac's board ID to it. Add the following board ID's to add support for both Mac Pro 1,1 and Mac Pro 2,1.

Mac-F4208DC8 and **Mac-F4208DA9**

HINT: The quotes must be " and not “ ” otherwise the file will not be read correctly when compiled.

Save the file and close.

4. Create the modified **OSInstall.mpkg** package
First you should remove the existing unmodified **OSInstall.mpkg** file on your desktop. After that you can create the new package by running the following commands:

```
pkgutil --flatten ./OSInstall ./OSInstall.mpkg
```

5. Replace the modified OSInstall.mpkg
Replace the **/Volumes/Installer/System/Installation/Packages/OSInstall.mpkg** with the modified one you have created on your desktop.

5. Modify InstallableMachines.plist

Edit the **/Volumes/Installer/System/Installation/Packages/InstallableMachines.plist** to add the Board ID for the Mac Pro 1,1 and Mac Pro 2,1.

Mac-F4208DC8 and **Mac-F4208DA9**

6. Modify PlatformSupport.plist

Edit the **/Volumes/Installer/System/Library/CoreServices/PlatformSupport.plist** to add the Board ID and Mac Model for the Mac Pro 1,1 and Mac Pro 2,1.

Mac-F4208DC8 and **Mac-F4208DA9**

MacPro1,1 and **MacPro2,1**

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7. Copy BaseSystem.dmg and BaseSystem.chunklist

Copy the **BaseSystem.dmg** and **BaseSystem.chunklist** from **/Volumes/OS X Install ESD** to the root of the **Installer** partition (eg **/Volumes/Installer/**).

```
cp /Volumes/OS\ X\ Install\ ESD/BaseSystem.dmg /Volumes/Installer
cp /Volumes/OS\ X\ Install\ ESD/BaseSystem.chunklist /Volumes/Installer
```

8. Add the Kernel to Installer

The following steps will extract the Kernel from the **InstallESD.dmg** and add it to the install media at **/Volumes/Installer/System/Library/Kernels/kernel**.

1. Using *Pacifist*, open **/Applications/Install OS X Yosemite.app/Contents/SharedSupport/InstallESD.dmg**
2. Navigate to **Contents of OSInstall.mpkg** -> **Contents of EssentialSystemsSoftware** -> **Contents of EssentialSystemSoftwareGroup** -> **Contents of Essentials.pkg**
3. Within **Essentials.pkg**, navigate to **System/Library/Kernels**
4. Extract the **kernel**
5. Copy the **kernel** to **/Volumes/Installer/System/Library/Kernels/kernel**.
NOTE: you will need to create the **/Volumes/Installer/System/Library/Kernels** folder.

9. Copy to modified boot.efi

The modified **boot.efi** needs to be replaced on the install media. The following assumes the modified **boot.efi** is in the current working directory and the install media is called **Installer** (**/Volumes/Installer/**).

```
chflags nouchg "/Volumes/Installer/System/Library/CoreServices/boot.efi"
cp ./boot.efi "/Volumes/Installer/System/Library/CoreServices/boot.efi"
cp ./boot.efi "/Volumes/Installer/usr/standalone/i386/boot.efi"
chown root:wheel "/Volumes/Installer/System/Library/CoreServices/boot.efi"
chflags uchg "/Volumes/Installer/System/Library/CoreServices/boot.efi"
chown root:wheel "/Volumes/Installer/usr/standalone/i386/boot.efi"
```

10. Customise the Volume Label and Icon

The following will customize the icon, volume label and description displayed on the boot screen.

```
# Rename drive
diskutil rename "Installer" "Mac OS X 10.10 Install"

# Give it the proper boot screen label and keep the folder from auto-opening
bless --folder "/Volumes/Mac OS X 10.10 Install" -label "Mac OS X 10.10 Install (MP11)"

# Add a drive icon (note: 1024x1024 icons don't appear in the boot screen on older macs)
cp "/Volumes/Mac OS X 10.10 Install/Install OS X Yosemite.app/Contents/Resources/InstallAssistant.icns" "/Volumes/Mac OS X 10.10 Install/.VolumeIcon.icns"

# Set some props to ensure the icon works
SetFile -c icnC "/Volumes/Mac OS X 10.10 Install/.VolumeIcon.icns"
SetFile -a C "/Volumes/Mac OS X 10.10 Install"
```

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11. Clean-up the Installer volume

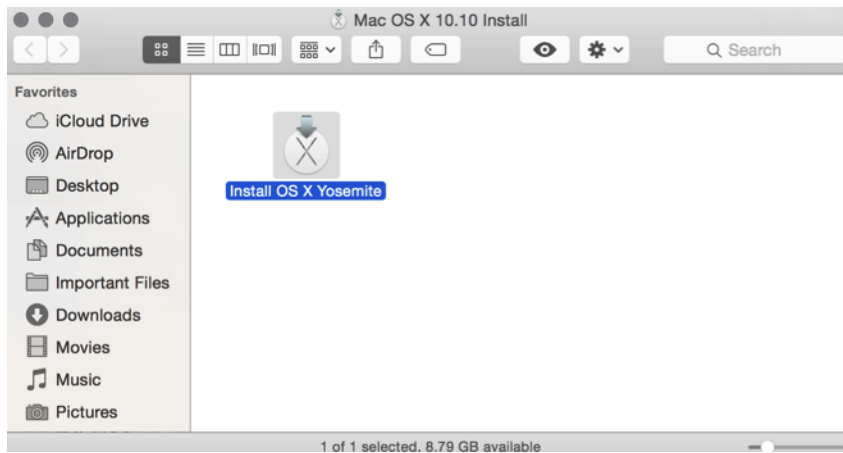
The following will hide the files and folders on the installer apart from the Install **OS X Yosemite** app.

Open **Terminal** and navigate to the Mac OS Install ESD drive (eg `cd /Volumes/Mac\ OS\ X\ 10.10\ Install`)

```
chflags hidden Applications/  
chflags hidden bin  
chflags hidden dev  
chflags hidden System/  
chflags hidden Library/  
chflags hidden Volumes/  
chflags hidden usr/  
chflags hidden private/  
chflags hidden sbin/
```

```
SetFile -P -a V var  
SetFile -P -a V tmp  
SetFile -P -a V etc
```

The only file that should now be visible is the **Install OS X Yosemite** app.



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Appendix A – bootefi_patch.sh

The following is a shell script that can be used to replace the boot.efi easily. It checks for the presence of a boot.efi and accepts one argument, the volume to patch.

```
#!/bin/sh
#####
#
# File: bootefi_patch.sh
# Last Modified: 20/10/2014
#
# This script will replace the boot.efi with a modified version that works with a
# Mac Pro 1.1 and Mac Pro 2.1
#####
#

if [ "$1" == "" ]; then
    echo ""
    echo BOOT.EFI Restore Utility
    echo -----
    echo This will replace the boot.efi on the specified volume with a modified
    echo version that will allow a Mac Pro 1.1 or Mac Pro 2.1 to run
    echo 'Mountain Lion (10.8) or Mavericks (10.9), or Yosemite (10.10) without the need for Chameleon.'
    echo ""
    echo usage: $0 volume
    echo example: $0 /Volume/Macintosh HD
    echo ""
    echo NOTE: this utility must be run as root or via sudo
    echo ""
else
    #Check if a valid OSX Volume was specified
    if [ -f "$1/System/Library/CoreServices/boot.efi" ]; then
        echo Restoring the boot.efi to volume $1.

        chflags nouchg "$1/System/Library/CoreServices/boot.efi"
        cp "$1/System/Library/CoreServices/boot.efi" "$1/System/Library/CoreServices/boot.efi.orig"
        cp ./boot.efi "$1/System/Library/CoreServices/boot.efi"
        cp ./boot.efi "$1/usr/standalone/i386/boot.efi"
        chown root:wheel "$1/System/Library/CoreServices/boot.efi"
        chflags uchg "$1/System/Library/CoreServices/boot.efi"
        chown root:wheel "$1/usr/standalone/i386/boot.efi"

        echo 'done.'

    else
        echo ERROR: the volume specified does not have a boot.efi.
        echo Please check the volume specified.
    fi
fi
```