Deploying Mac OS X with NetInstall & NetRestore

By

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What is NetInstall?

- **a.k.a. Network Install. Introduced with Mac OS X Server 10.2**

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- **Method of network–booting and deploying custom Application/OS installer packages to clients.**

Why use NetInstall?

- **Automate Application or OS installs.**
  - Gets all machines to a standard configuration.
- **Includes tools to customize packages.**
  - Create your own package installers for individual apps or OS updates using PackageMaker.
- **Can help drastically cut down installation time for a large number of Macs.**
  - Helps lower total cost of ownership.

Using NetInstall

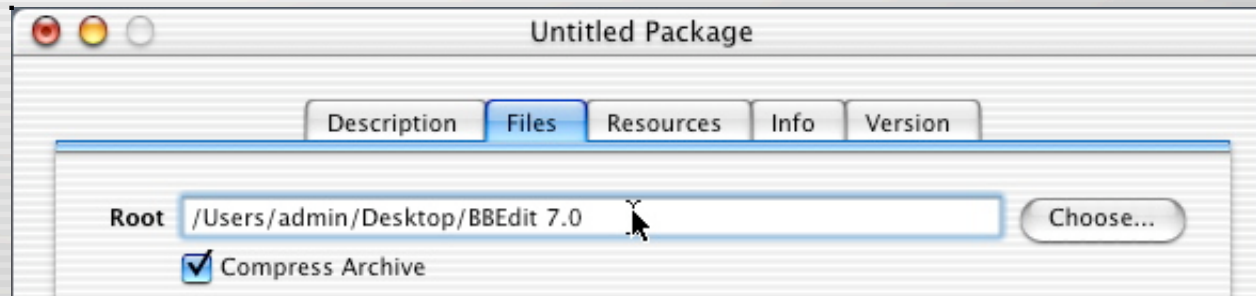- **Create a default NetInstall image with the Network Image Utility.**
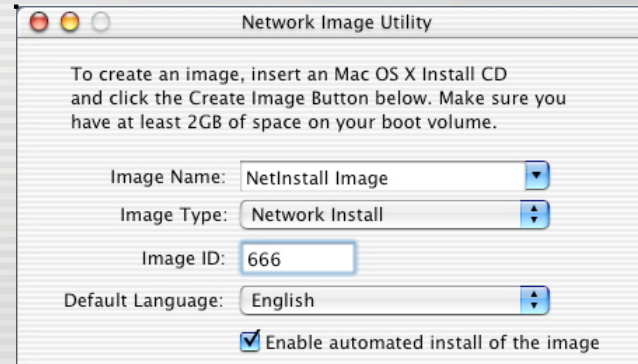
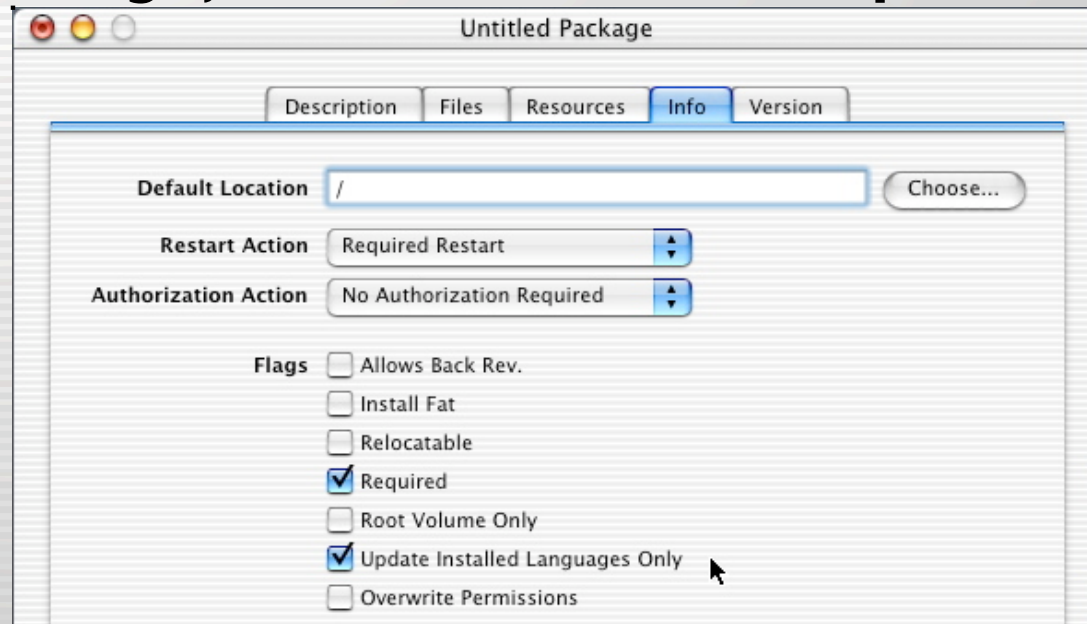- **Builds an image from a Mac OS X CD (Client or Server).**

Using NetInstall

- **Unlock & mount the new image, then add your packages.**
  - **Use an existing package (i.e. MacOSX10.2.4.pkg)**
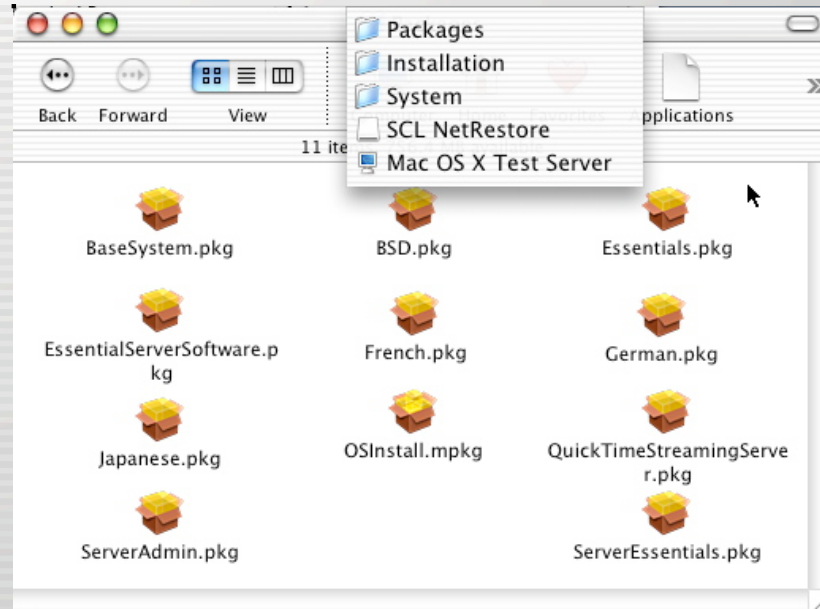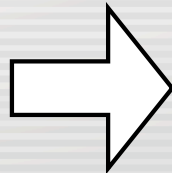 - **Create a custom package w/PackageMaker**

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Using NetInstall

- **Locate & organize all resources for your package, and choose desired options:**
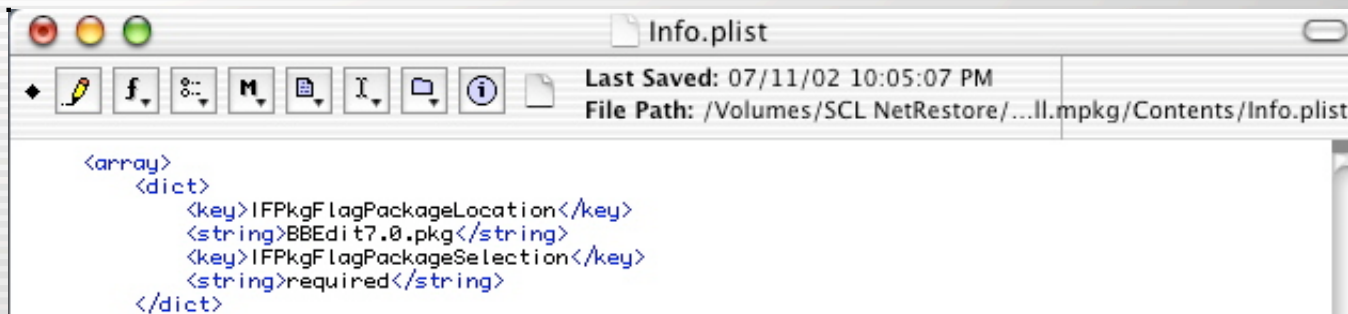
Using NetInstall

- **Save your package, and include it on your NetInstall image:**

Using NetInstall

- **Add your Package info to:**
  - **OSInstall.mpkg/Contents/Info.plist**

```
Info.plist

Last Saved: 07/11/02 10:05:07 PM
File Path: /Volumes/SCL NetRestore/...ll.mpkg/Contents/Info.plist

<array>
    <dict>
        <key>IFPkgFlagPackageLocation</key>
        <string>BBEdit7.0.pkg</string>
        <key>IFPkgFlagPackageSelection</key>
        <string>required</string>
    </dict>
```

Using NetInstall

- **Unmount and lock your disk image**
- **Enable your NetInstall image in Server Settings...**
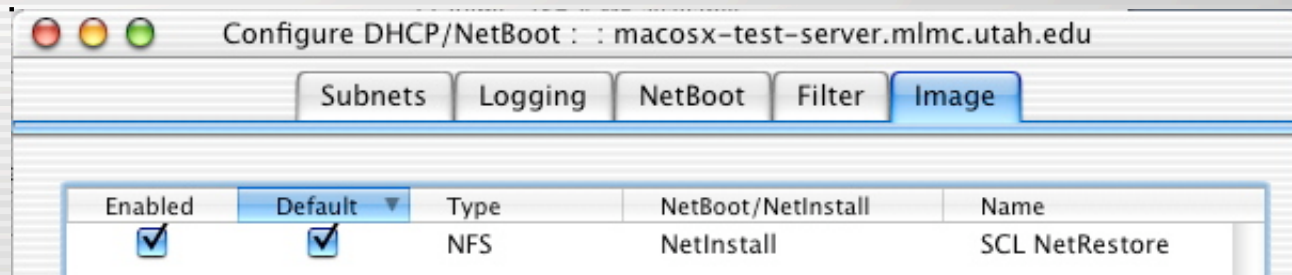
Test Your Image

- **On a client, select your NetInstall image in the Startup Disk prefpane.**

- **Make sure your custom package gets installed.**

What's NetInstall Missing?

- **Works well to get clients to a standard initial state, but NetInstall can't be scheduled to regularly update clients.**

- **Packages are a pain to create.**

- **Lacks 100% full automation.**

- **Perhaps more useful for installing updates in a staff environment than maintaining large labs.**
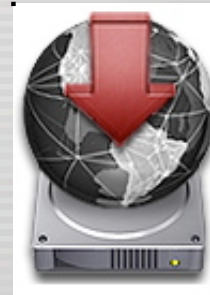
What is NetRestore?

- **GUI for command-line ASR's restore function, by Mike Bombich, creator of Carbon Copy Cloner.**

- **NetRestore**   **NetRestore Helper**

Advantages of NetRestore

- **Restores ASR images via local, AFP, or HTTP.**

- **GUI gives complete control over all command–line ASR functions.**

- **NetRestore Helper modifies NetInstall images to fully automate network–boot ASR restores.**

- **Deploys a complete client image, with all apps, modifications and OS updates, in about 10 minutes per machine.**

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Advantages of NetRestore

- **Supports post–action scripts.**

- **When finished restoring, sets the target disk as the startup disk then restarts.**

- **Easily configured with plists.**

- **Works with segmented ASR images, so no problem with 2 GB limit.**
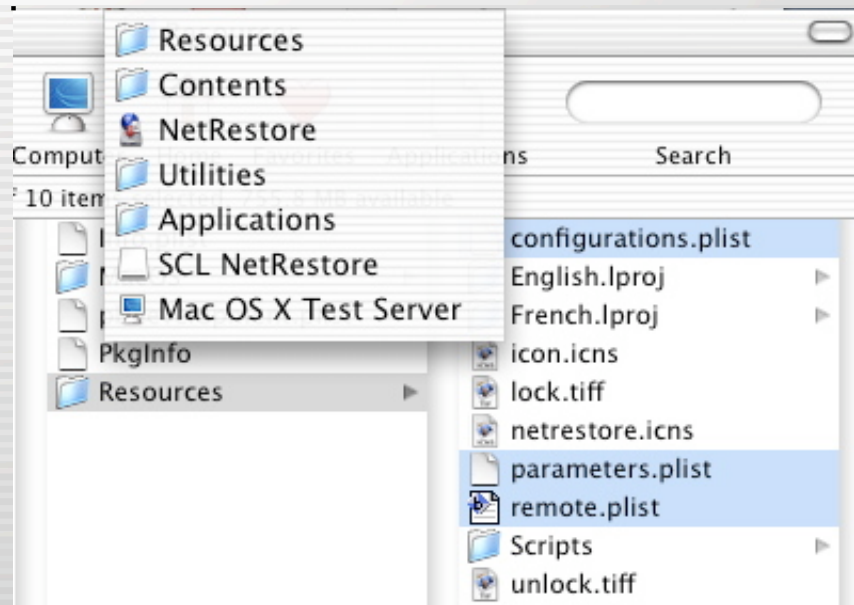
Using NetRestore

- **Create an ASR image of your "Source Mac" (using CCC, etc. – see ASR documentation)**

- **Create a NetInstall image from the Mac OS X <u>Server</u> CD using the Network Image Utility, and use NetRestore Helper to modify it:**

Using NetRestore
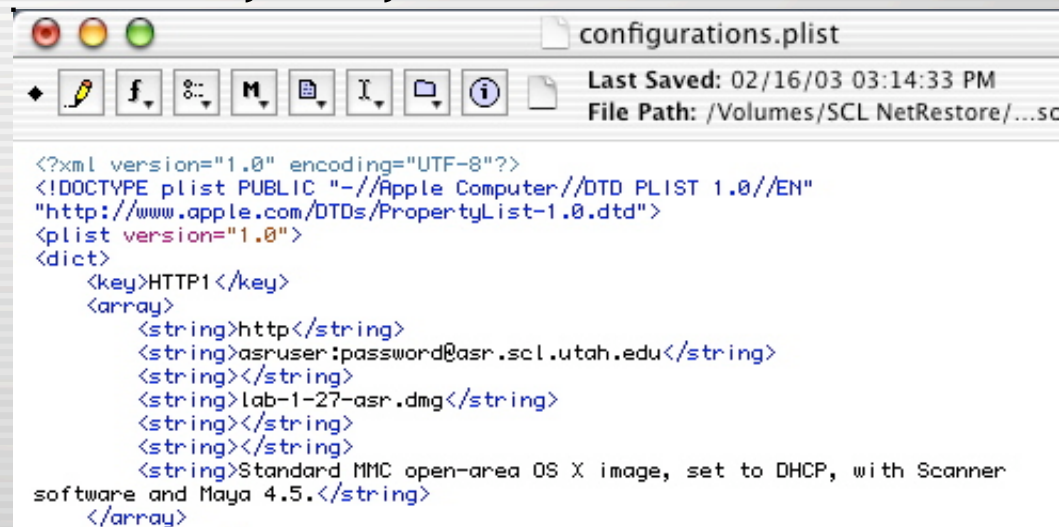
- **Modify the plists inside the NetRestore app on your NetInstall/NetRestore image**

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Using NetRestore

- **Modify configurations.plist to your settings.**

- **Allows for multiple configurations via local drive, AFP, or HTTP.**


```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple Computer//DTD PLIST 1.0//EN"
"http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
    <key>HTTP1</key>
    <array>
        <string>http</string>
        <string>asruser:password@asr.scl.utah.edu</string>
        <string></string>
        <string>lab-1-27-asr.dmg</string>
        <string></string>
        <string></string>
        <string>Standard MMC open-area OS X image, set to DHCP, with Scanner
software and Maya 4.5.</string>
    </array>
```
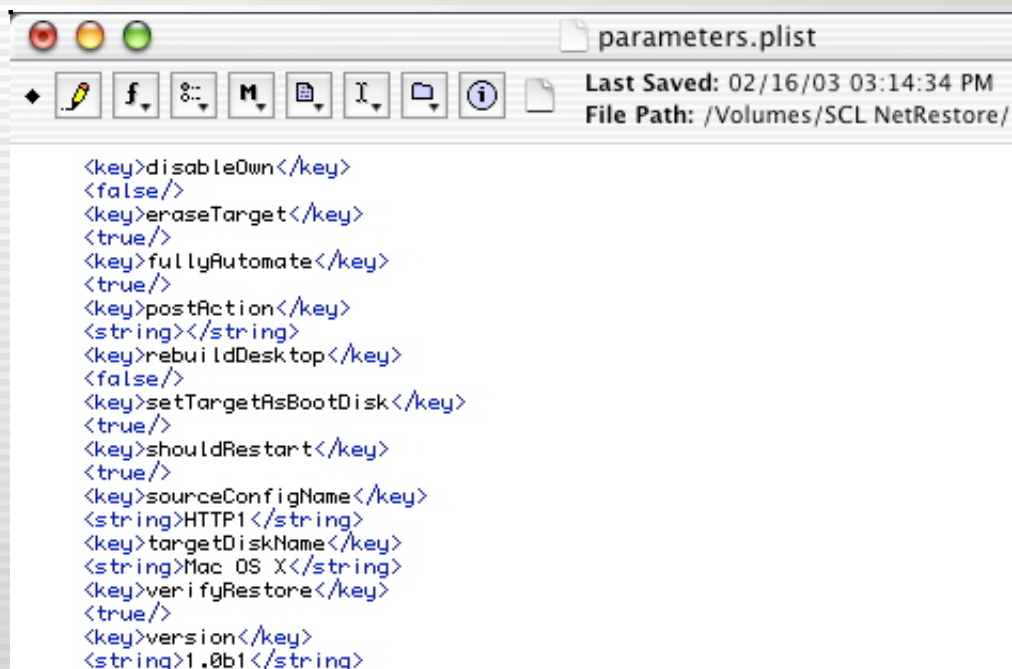
configurations.plist
Last Saved: 02/16/03 03:14:33 PM
File Path: /Volumes/SCL NetRestore/...sc

Using NetRestore

- **Modify parameters.plist to your settings.**
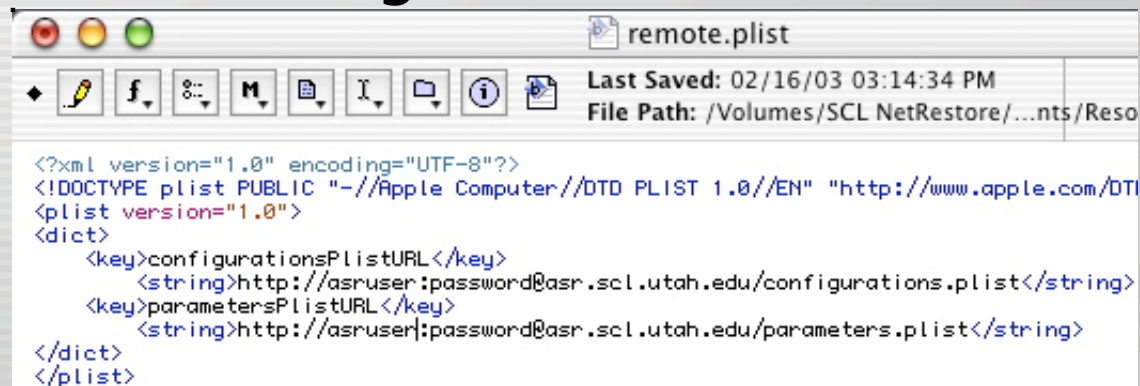

```
                                    parameters.plist
                        Last Saved: 02/16/03 03:14:34 PM
                        File Path: /Volumes/SCL NetRestore/

<key>disableOwn</key>
<false/>
<key>eraseTarget</key>
<true/>
<key>fullyAutomate</key>
<true/>
<key>postAction</key>
<string></string>
<key>rebuildDesktop</key>
<false/>
<key>setTargetAsBootDisk</key>
<true/>
<key>shouldRestart</key>
<true/>
<key>sourceConfigName</key>
<string>HTTP1</string>
<key>targetDiskName</key>
<string>Mac OS X</string>
<key>verifyRestore</key>
<true/>
<key>version</key>
<string>1.0b1</string>
```

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Using NetRestore

- **Modify remote.plist, if desired.**

- **Lets you keep configurations.plist and parameters.plist on a remote volume, so you don't need to keep editing your NetInstall image.**
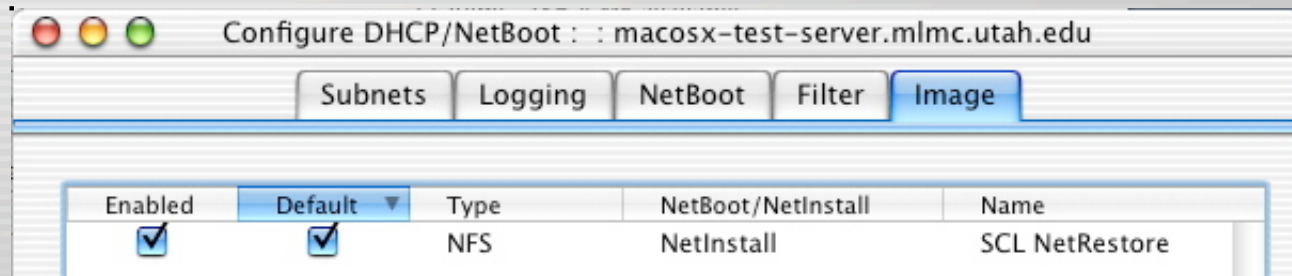
Using NetRestore

- **Copy your ASR image and plists to the locations you specified in the plists.**

- **Unmount and lock your NetInstall/ NetRestore image.**

- **Enable your modified NetInstall/NetRestore image in Server Settings.**

Test Your Image

- **On a client, select your NetInstall/ NetRestore image in the Startup Disk prefpane.**

- **If set to fully automate and no errors occur, NetRestore will begin restoring.**

- **If not set to fully automate, NetRestore will open and prompt you to select Source, Target, and settings.**
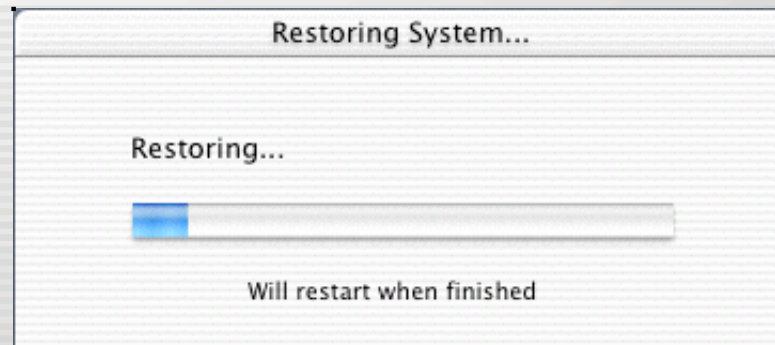
NetRestore in Action

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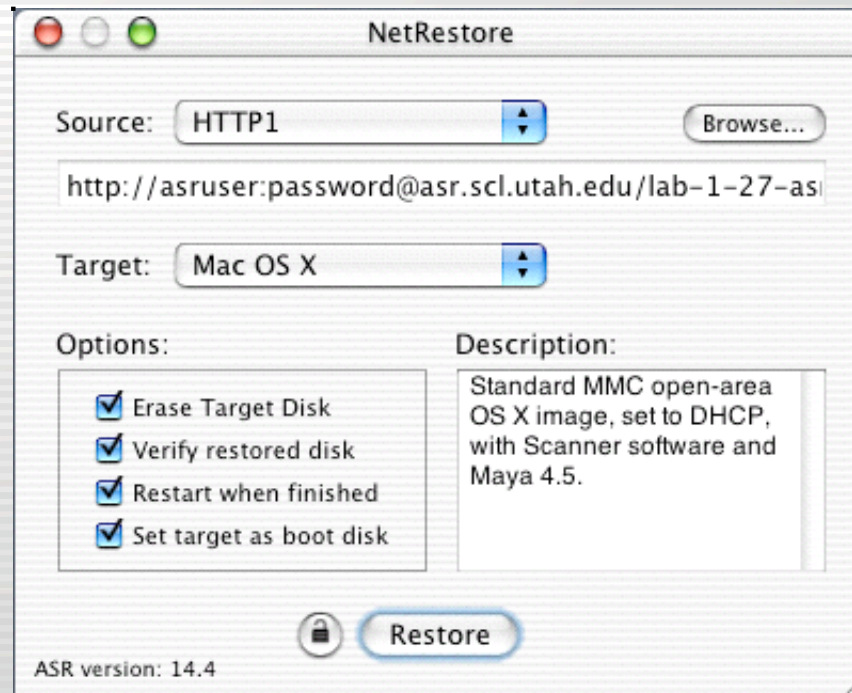
NetRestore in Action

- **A 2.4 GB ASR image (compressed & segmented) took 13 minutes to restore and verify via HTTP.**

After Restoring...

- **Our ASR image is set to try to run Radmind after restoring.**

- **Within 15 more minutes, a machine is brought fully up to date with software added since the ASR image was created.**

What's NetRestore Missing?

- **Nothing, really.**

- **But it would be cool if it could:**

  - **Set static IP on target disk.**

  - **Set open firmware password.**

  - **Create bootable NetRestore CDs to perform ASR restores on older Macs (B&W's and early iMacs).**

  - **Resolve the conflict with Iraq.**

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Things to consider

- **DHCP Server – Built–In or 3rd–party?**
  - **Mac OS X Server's DHCP server – why it sucks…**
  - **3rd–party options:**
    - **IPNetRouter or Vicomsoft DHCP Server (OS 9 only!)**
    - **Windows Server's DHCP console**
  - **Can't NetBoot B&W's and older iMacs w/o MOSXS**
- **ASR Image Security**
  - **If restoring via HTTP, ASR images aren't secure.**
  - **Set up secure "sites" or "realms" on your web server to restrict access.**

Q&A

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Demo…