Image Creation Techniques

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About Us

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Image Creation

Image Creation

- Set up your work environment

- Build your perfect box

- Clean up the model

- Create snapshot of model

- Prepare the image for deployment

- Test!

Set up your work environment

Set up your work environment

- Three disk partitions or volumes:

  - Model

  - Work

  - Test

Set up your work environment

- Three disk partitions or volumes:

  - Model - use this volume to build your ideal box

  - Work

  - Test

Set up your work environment

- Three disk partitions or volumes:

  - Model

  - Work - base OS with your imaging utilities. Make sure it has space for your image.

  - Test

Set up your work environment

- Three disk partitions or volumes:

  - Model

  - Work

  - Test - use this volume to restore and test your image

Build your perfect box

Build your perfect box

- Install OS onto model volume

- Create default local accounts

- Install applications

- Configure and customize

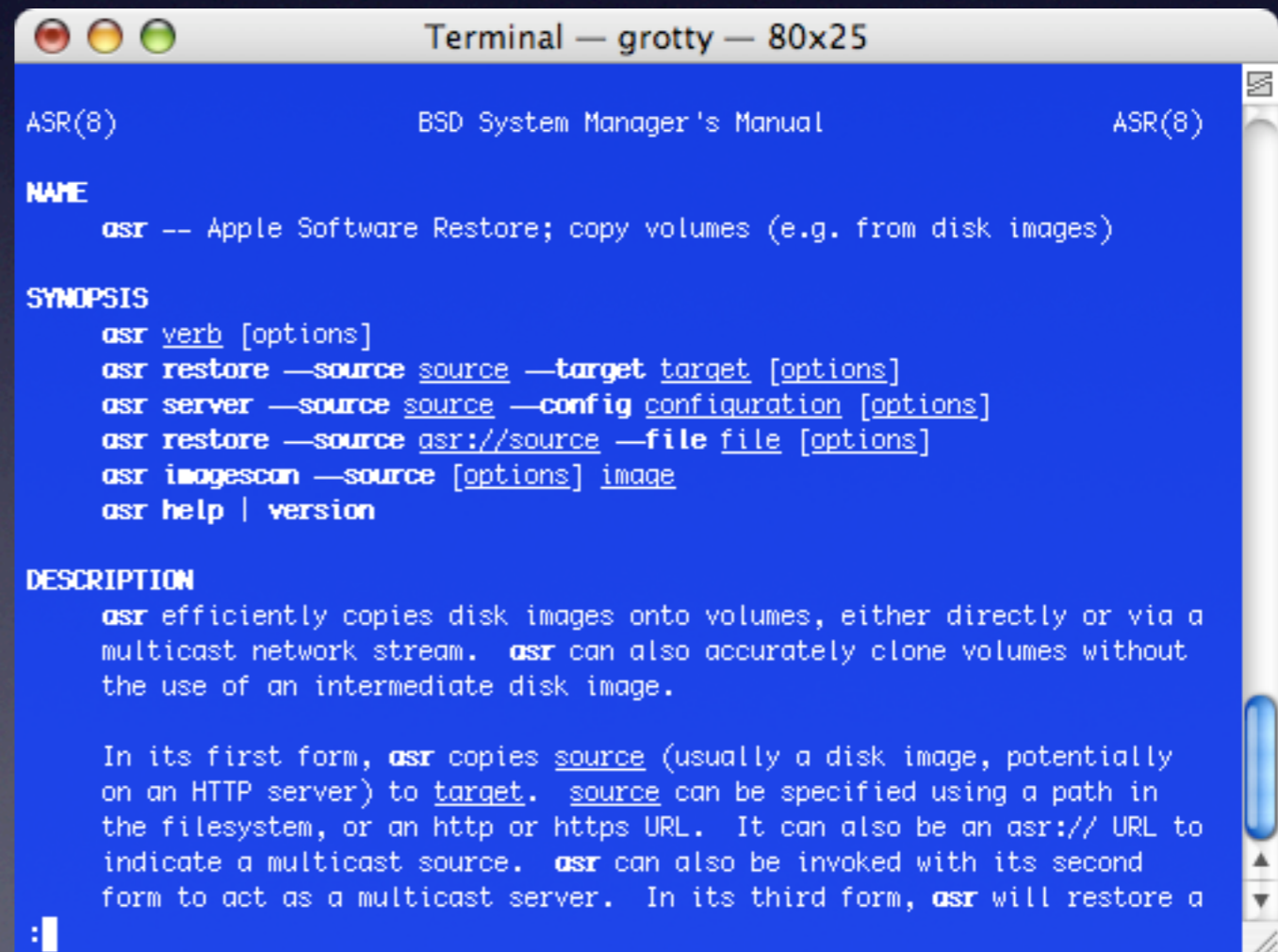# Clean up the model

Clean up the model

- Delete .lproj, cache files, swap, logs, etc.

- Remove any extra users

- Clean up default users' home dirs

- Don't forget to empty the trash!

- Cleanup might be easier booted from the Work volume

Clean up the model

- Read the "man" page for asr!

  - Open /Applications/Utilities/Terminal.app

  - % man asr

Clean up the model

- asr manual page recommends:

```
# Delete the database of volumes:
rm -rf /Volumes/<imagevol>/var/db/volinfo.database

# Delete the virtual memory swap files:
rm -rf /Volumes/<imagevol>/var/vm/swap*

# If it exists, delete the sleepimage file:
rm -rf /Volumes/<imagevol>/var/vm/sleepimage

# Delete the BootCache.playlist? (10.2 - 10.2.1 systems)
rm -rf /Volumes/<imagevol>/var/db/BootCache.playlist
```

Clean up the model

- asr manual page "Optional" cleanup items:

```
# Configure Restore Image to start up in setup assistant:
rm -rf /Volumes/<imagevol>/var/db/.AppleSetupDone


# If you want to be rid of the admin account you used to
# set up the machine:
nicl -raw /Volumes/<imagevol>/var/db/netinfo/local.nidb \
delete /users/<admin>
```

Clean up the model

- Consider capturing your final cleanup tasks as a script

- Ensure consistency!

```
#clean up global caches and temp data
rm -rf /Library/Caches/*
rm -rf /System/Library/Caches/*
rm -rf /Users/Shared/*
rm -f /private/etc/ssh_host*
```

Create snapshot of model

Create snapshot of model

What tool to use?

Disk Utility
asr
rsync
ditto
SuperDuper
Toast

SyncProX
Carbon Copy Cloner
NetRestore Helper
radmind
dd
...more?

Create snapshot of model

What tool to use?

Carbon Copy Cloner

- Was the tool of choice a few years ago
- No longer recommended for 10.4
- Apple's tools today do the job very well

Create snapshot of model

What tool to use?

NetRestore Helper

- Creates NetBoot-NetInstall images
- Creates deployment images
  Creates NTFS images for dual-boot
  Macs
  http://www.bombich.com/software/netrestore.html

Create snapshot of model

What tool to use?

radmind

- Not an imaging tool
  (manages filesystem item-by-item)
- Steep learning curve

  Powerful and flexible
  http://www.radmind.org

Create snapshot of model

What tool to use?

Disk Utility

- Builds ASR-restorable images
- Included with Mac OS X
- Recommended by 2 out of 2 presenters

/Applications/Utilities/Disk Utility.app

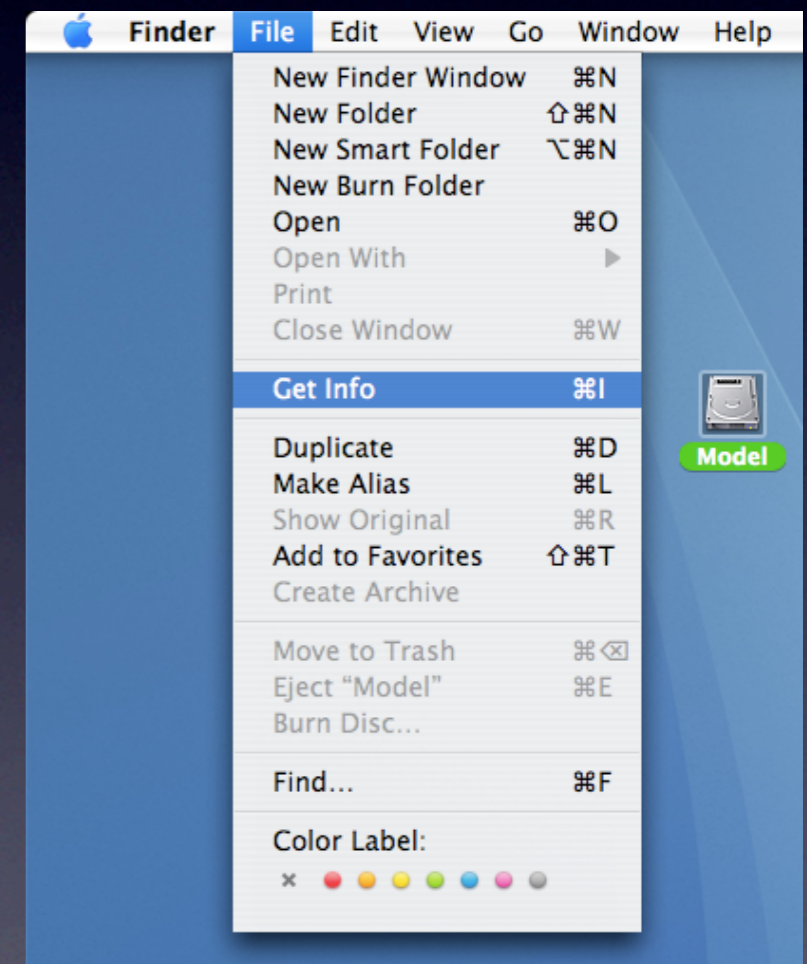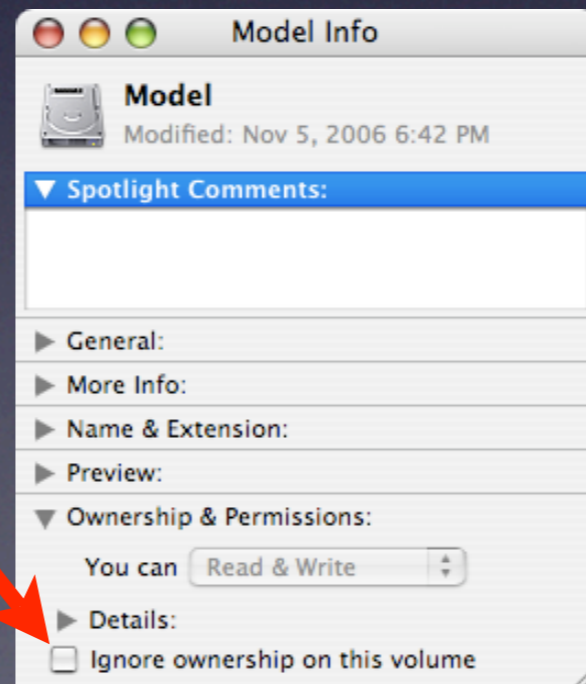...so let's use Disk Utility...

Create snapshot of model

Make sure permissions are enabled

- Boot from your Work volume
- Select 'Model' volume in Finder
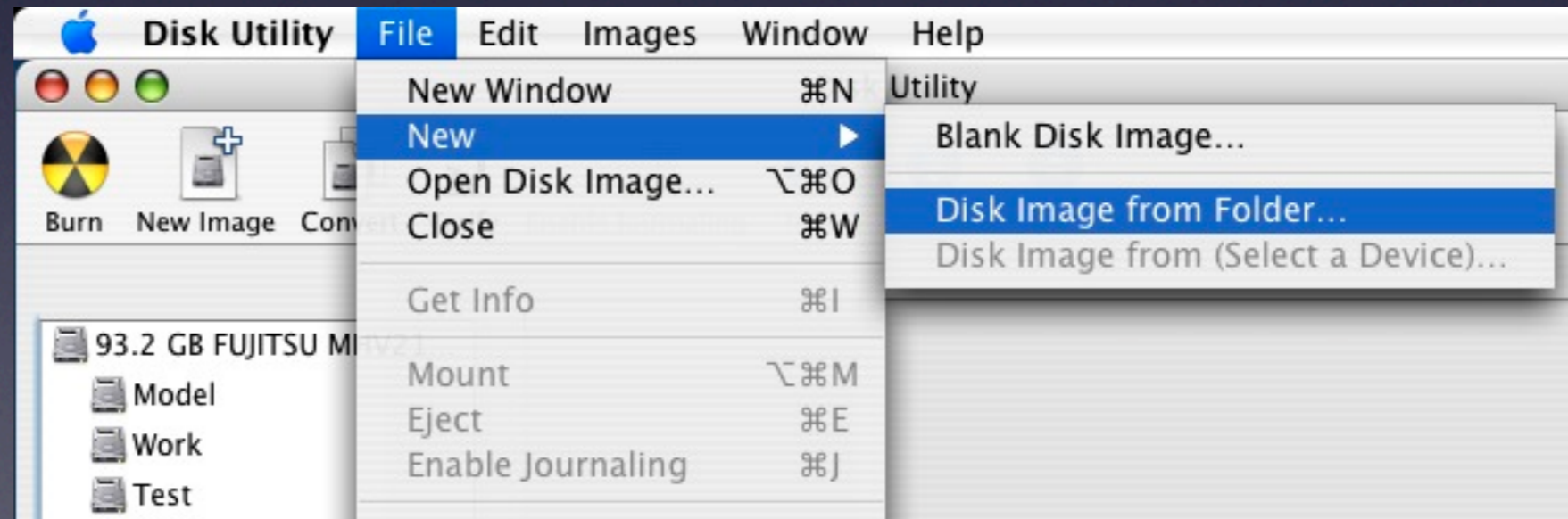- Get Info, "Ignore ownership..." should not be checked.

Create snapshot of model

Disk Utility

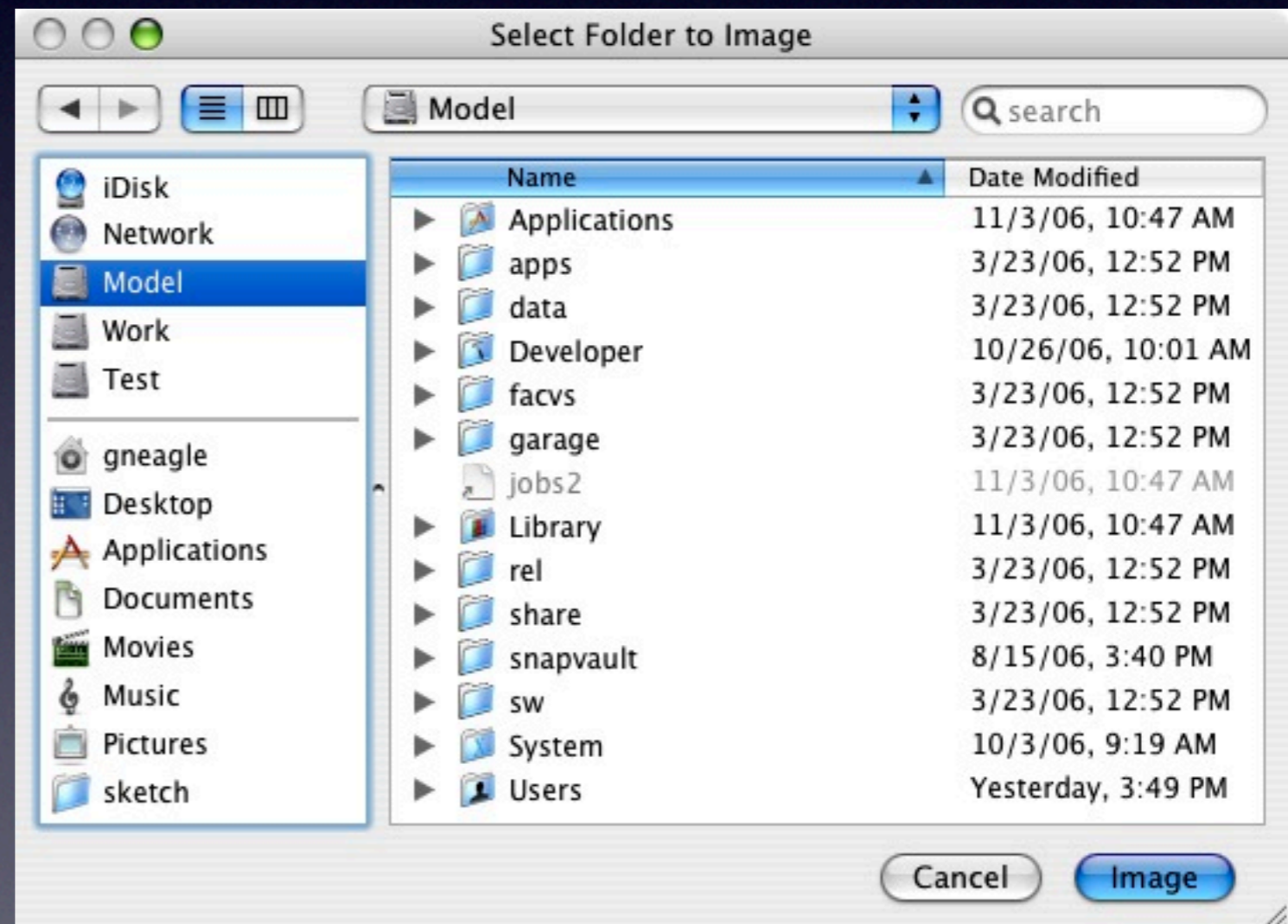- Turn off virus scanning
- File ➞ New ➞ Disk Image from Folder
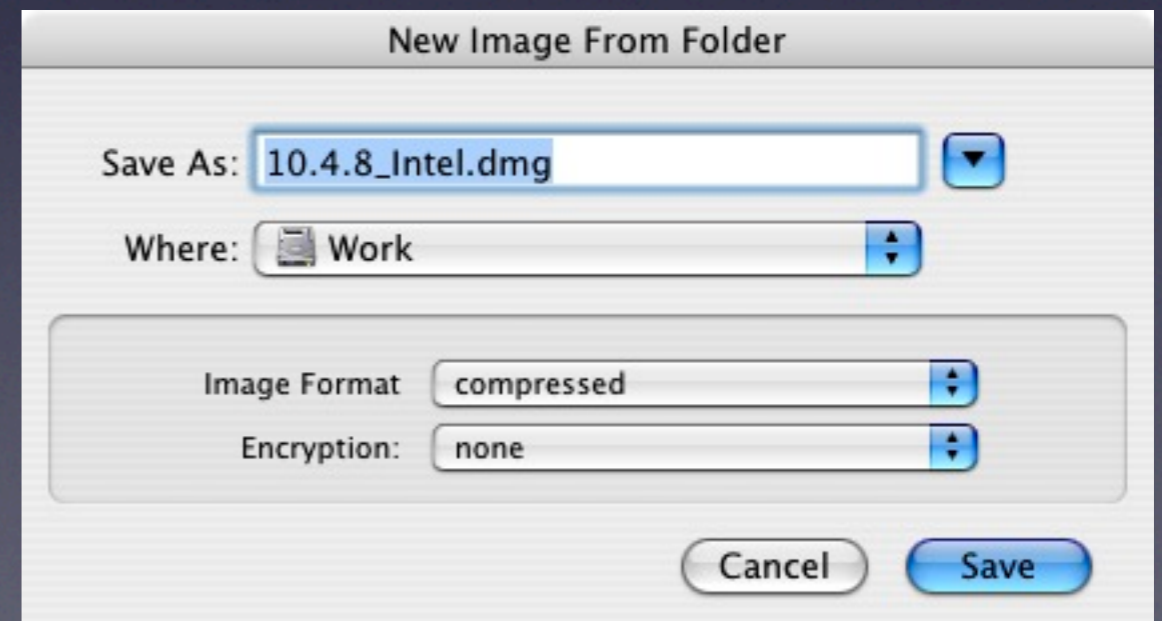
Create snapshot of model

Disk Utility

Select Model volume

Create snapshot of model

Disk Utility

- Don't save your Model disk image on the Model volume!
- Set Image Format to "Compressed"

New Image From Folder

Save As: 10.4.8_Intel.dmg

Where: Work

Image Format compressed

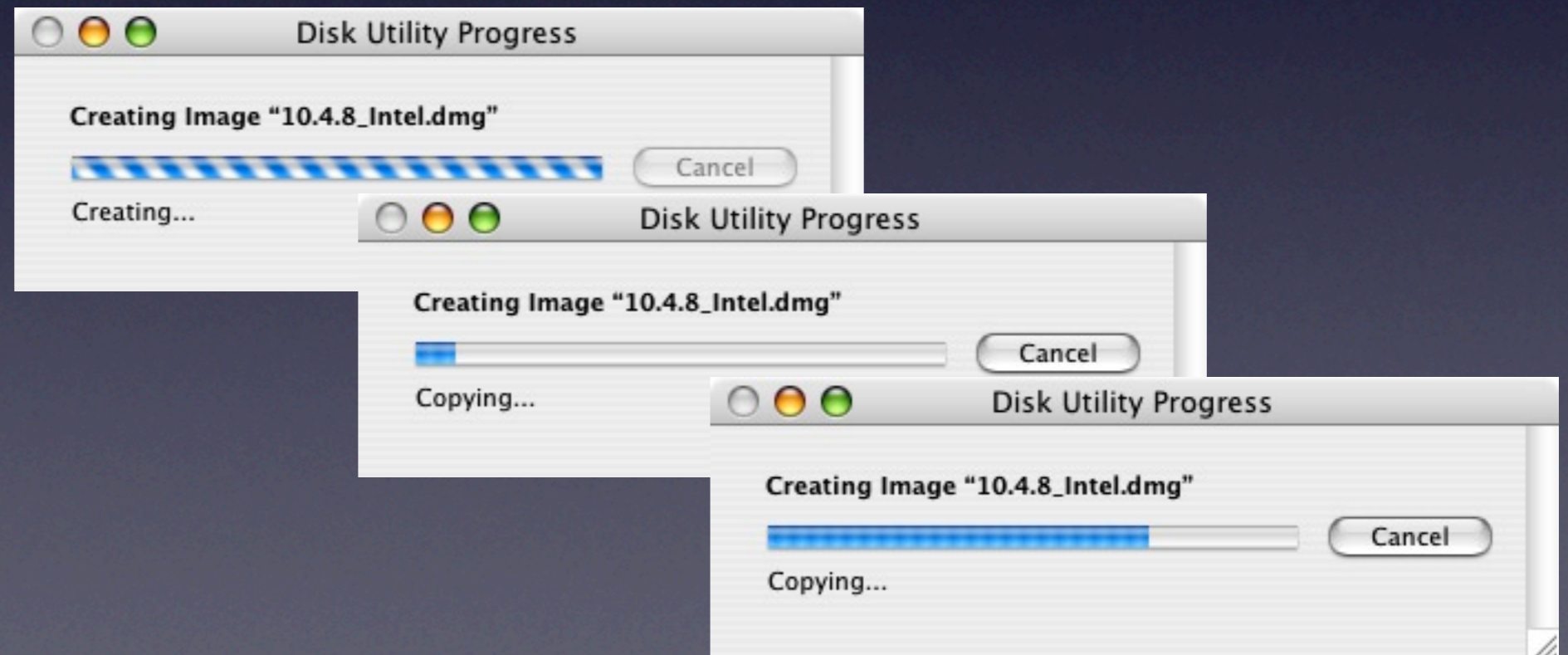Encryption: none

Cancel   Save

Create snapshot of model

Disk Utility

- This can take a while. Go get some lunch.....
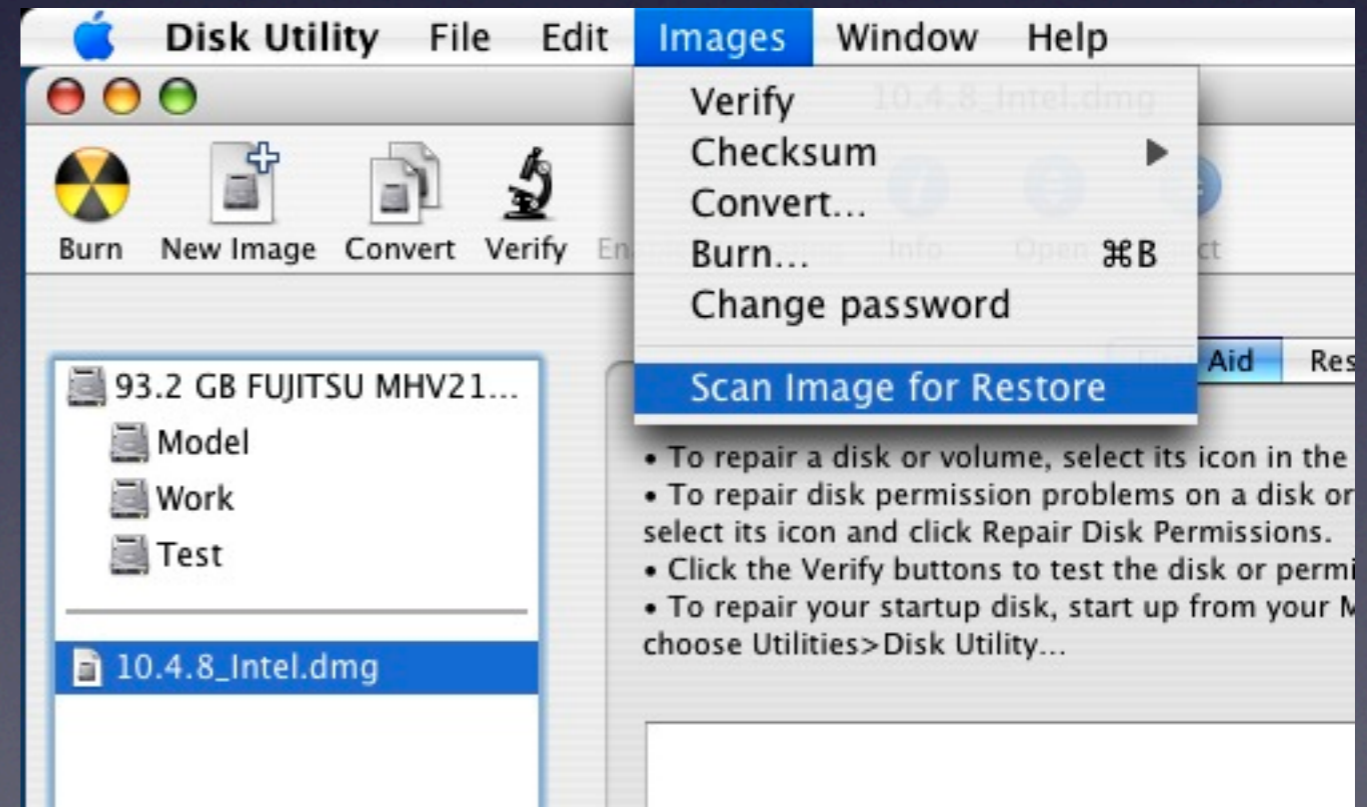
Prepare the image for deployment

Prepare the image for deployment

Disk Utility

- Scan the image for restore
- Adds checksums to image to verify restored data

Prepare the image for deployment

Disk Utility

- Ready to test!

10.4.8_Intel.dmg

Test!

Testing your image

Restore your image to your Test volume

- You can use Disk Utility

- or PSU Blast Image Config

- or NetRestore

- or command line "asr" !

Testing your image

Fixing minor image issues

- Whoops! I forgot something in my image. Do I have to start over?

- Maybe not...

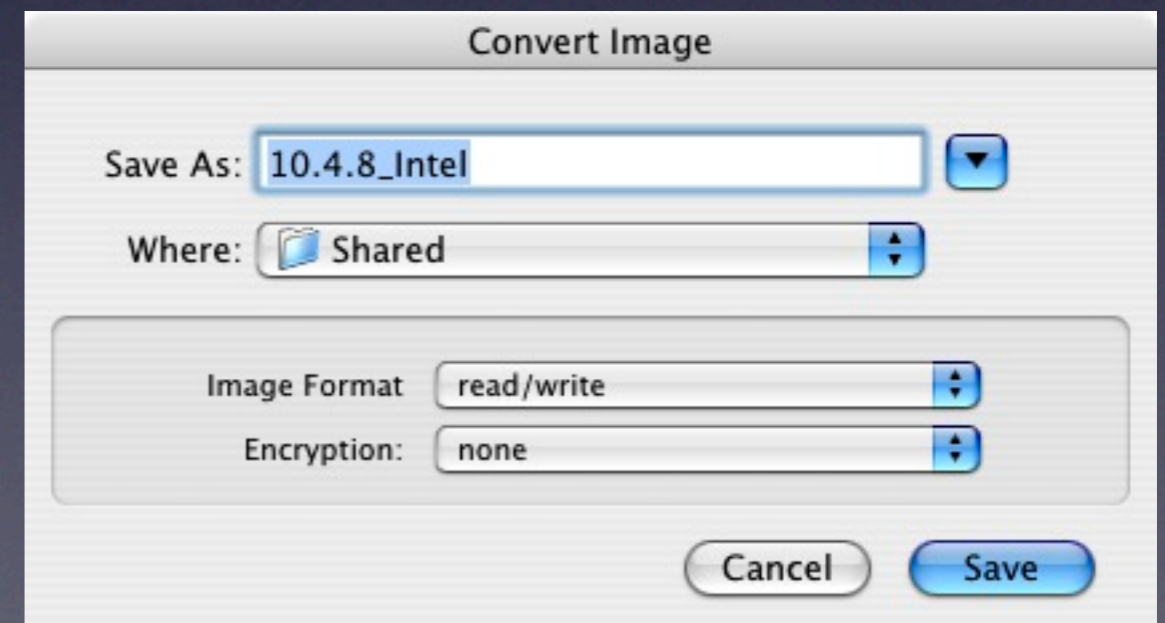- While testing, can save images as read-write and make simple mods

Testing your image

Fixing minor image issues

- Convert image to read-write
- Mount the image
- Make your changes
- Convert back to compressed
- Don't forget to rescan for restore

Convert Image

Save As: 10.4.8_Intel

Where: Shared

Image Format: read/write
Encryption: none

Cancel Save

Testing your image

Fixing bigger image issues

- Reboot from your Model volume
- Make your changes
- Clean up your model
- Create snapshot of model
- Test!

(does this sound familiar?)

Tips

- Keep images backed up! Save to one large external, mirrored FireWire HD, etc.

- Make images of clean OS X installs, saves time with new image creation.

- Compressed images will *restore* quicker than non-compressed images!

Q&A / Discussion

Continue the Learning . . .

- ***IT831**: Image Deployment Methodologies*
  - Thursday @ 1:00 pm - 2:30 pm
- ***IT841**: Maintaining Order - Effective Image Maintenance Techniques*
  - Thursday @ 3:30 pm - 5:00 pm