

# Time Machine Deep Dive

Fitting it into a backup strategy

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# What is Time Machine?

- Built-in automatic backup (once you turn it on and configure it)
- Can backup to DAS, Airport Time Capsule, or a server (or locally when those are not available)
- Runs hourly
- Uses hard links
- Works good (until it doesn't...)

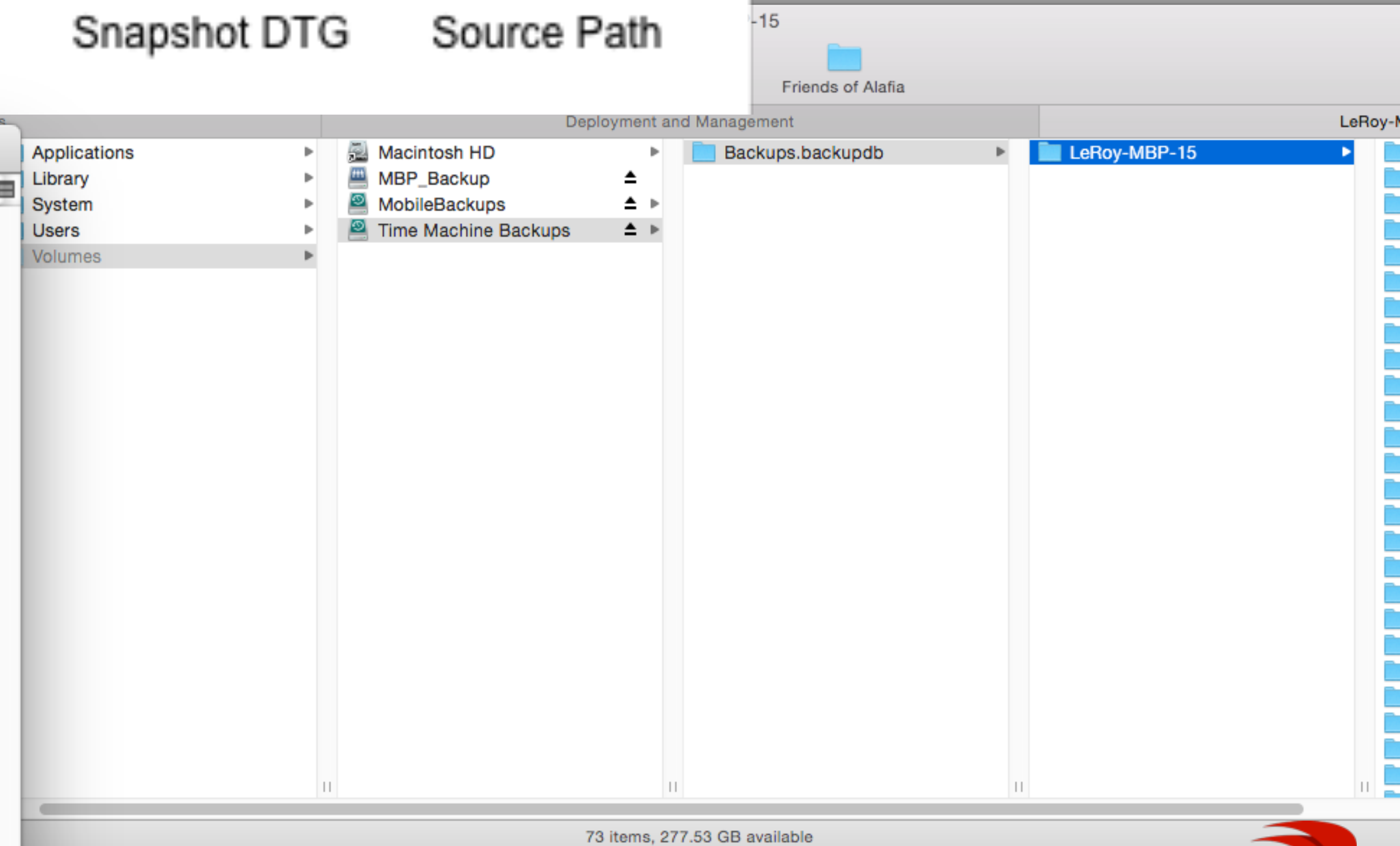


# Path to backup location

/Volumes/MBP\_Backup/Backups.backupdb/LeRoy-MBP-15/2015-04-23-125714/Macintosh HD/

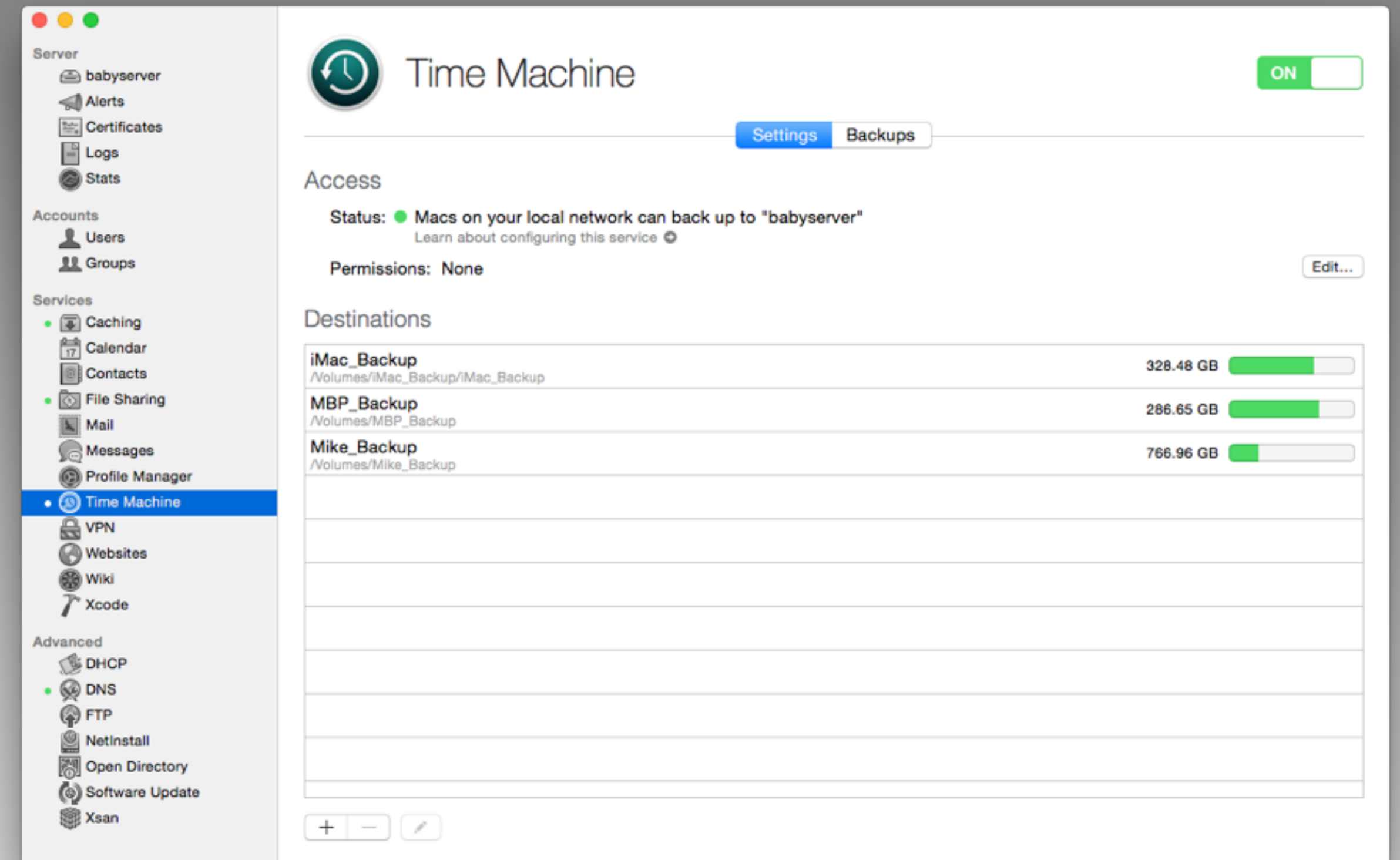


```
leroy
Last login: Thu Apr 16 19:18:51 on ttys000
new-host-2:~ leroy$ sudo -s
new-host-2:~ root# cd /Volumes/MBP_Backup
new-host-2:/Volumes/MBP_Backup root# ls
.DS_Store                .com.apple.timemachine.supported
.Spotlight-V100          .fseventsd
.Trashes                 LeRoy-MBP-15.sparsebundle
new-host-2:/Volumes/MBP_Backup root#
```



# Time Machine on OS X Server

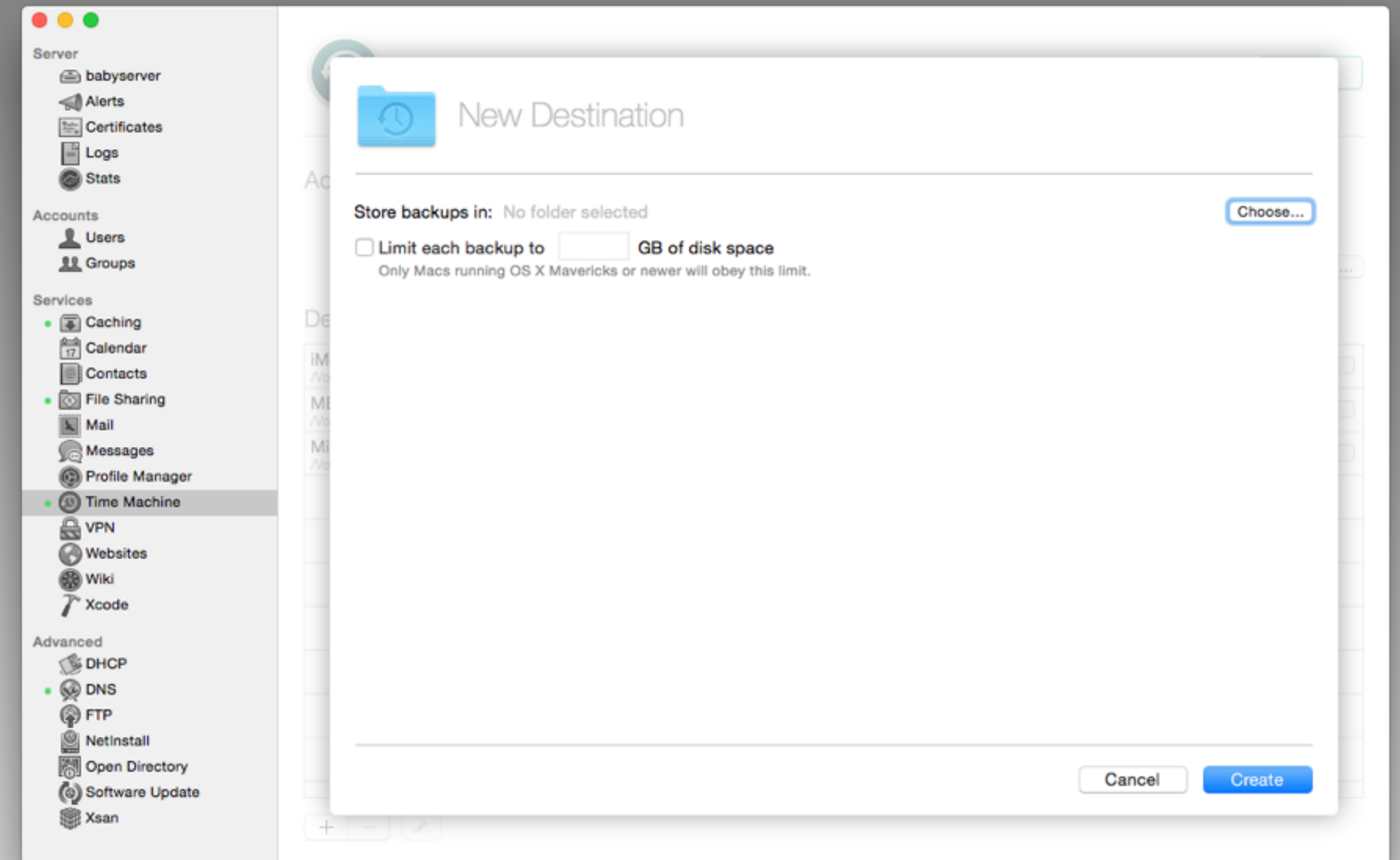
- One of the two best uses for an OS X Server anymore
- Caching Server is the other



# Time Machine on OS X Server

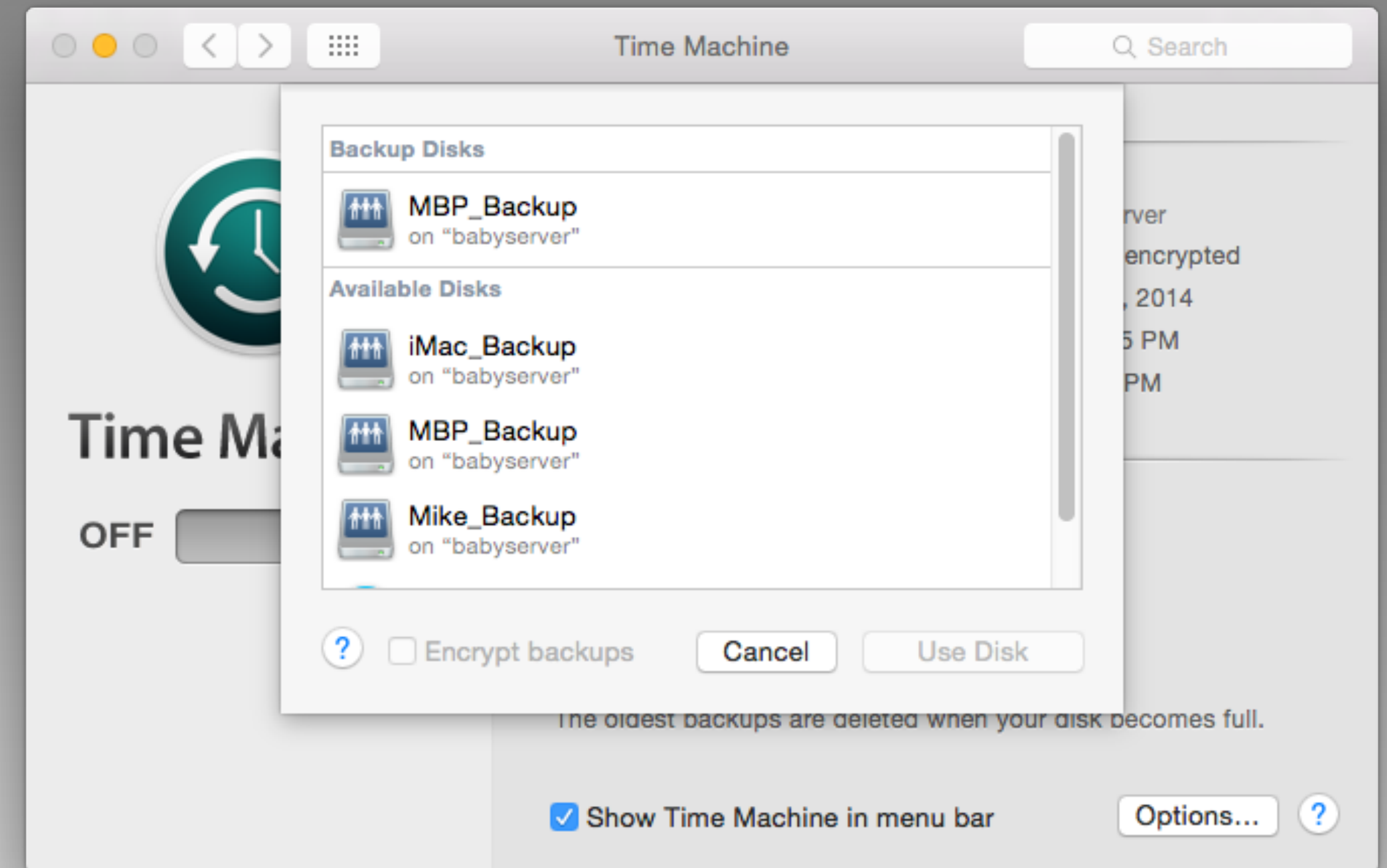
- You can easily set a new target location by clicking the “+” button
- You can also set a size limit on how big the backup can become\*

\* Only honored by 10.9+ clients



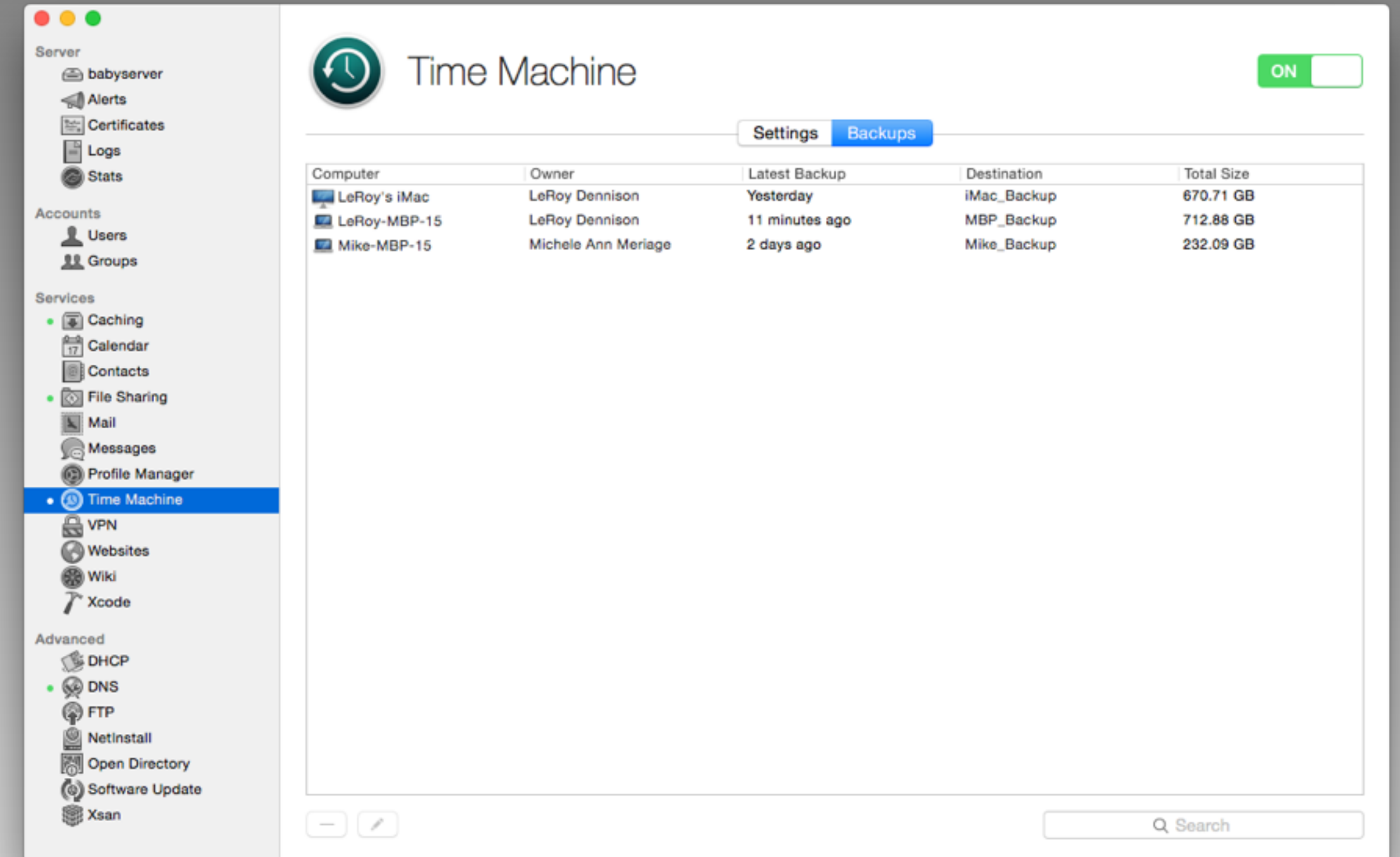
# Time Machine on OS X Server

On the client, go to TM prefs and select the TM target that you configured in Server



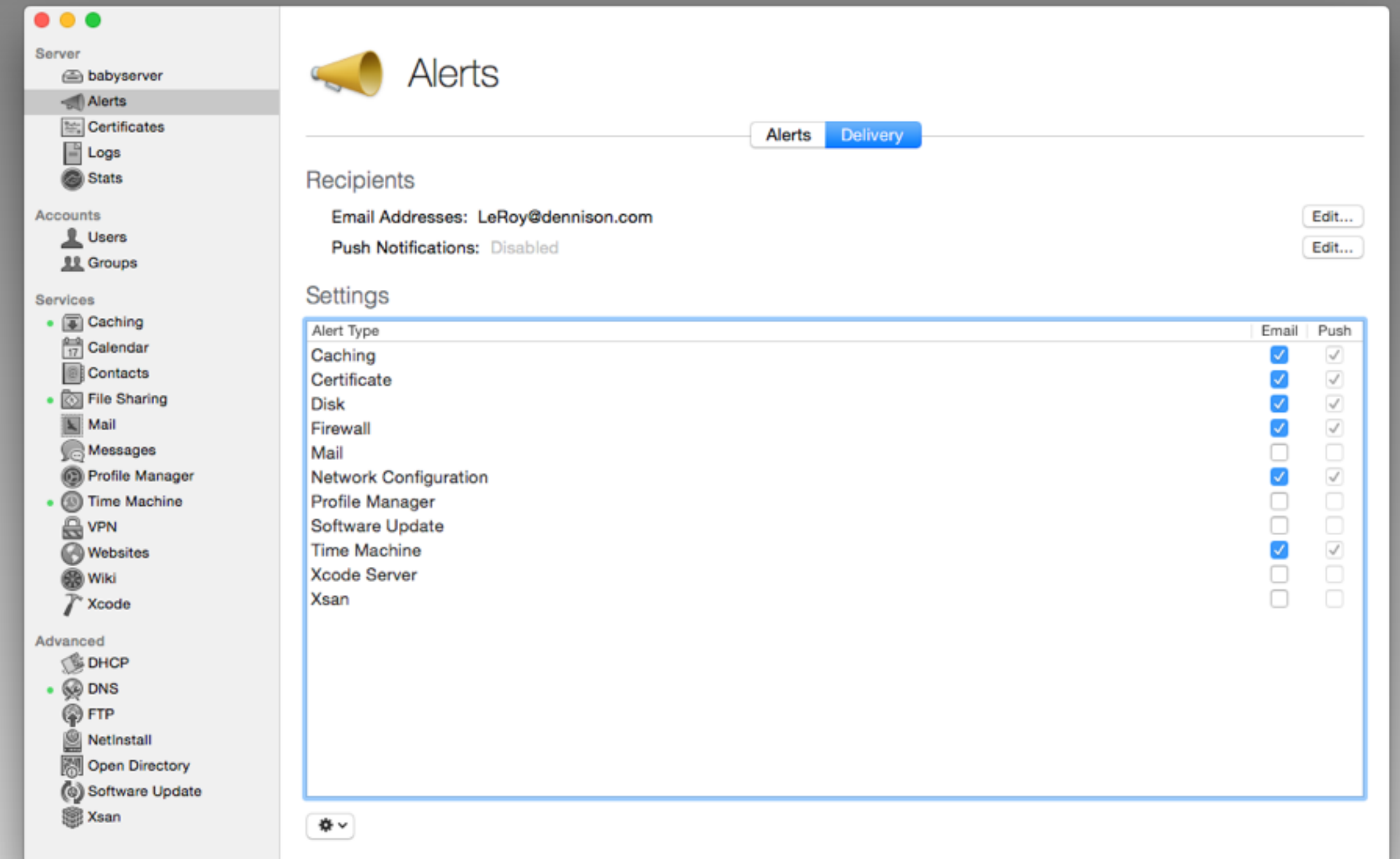
# Time Machine on OS X Server

On the Server, you can sort the Backups tab by any of the columns



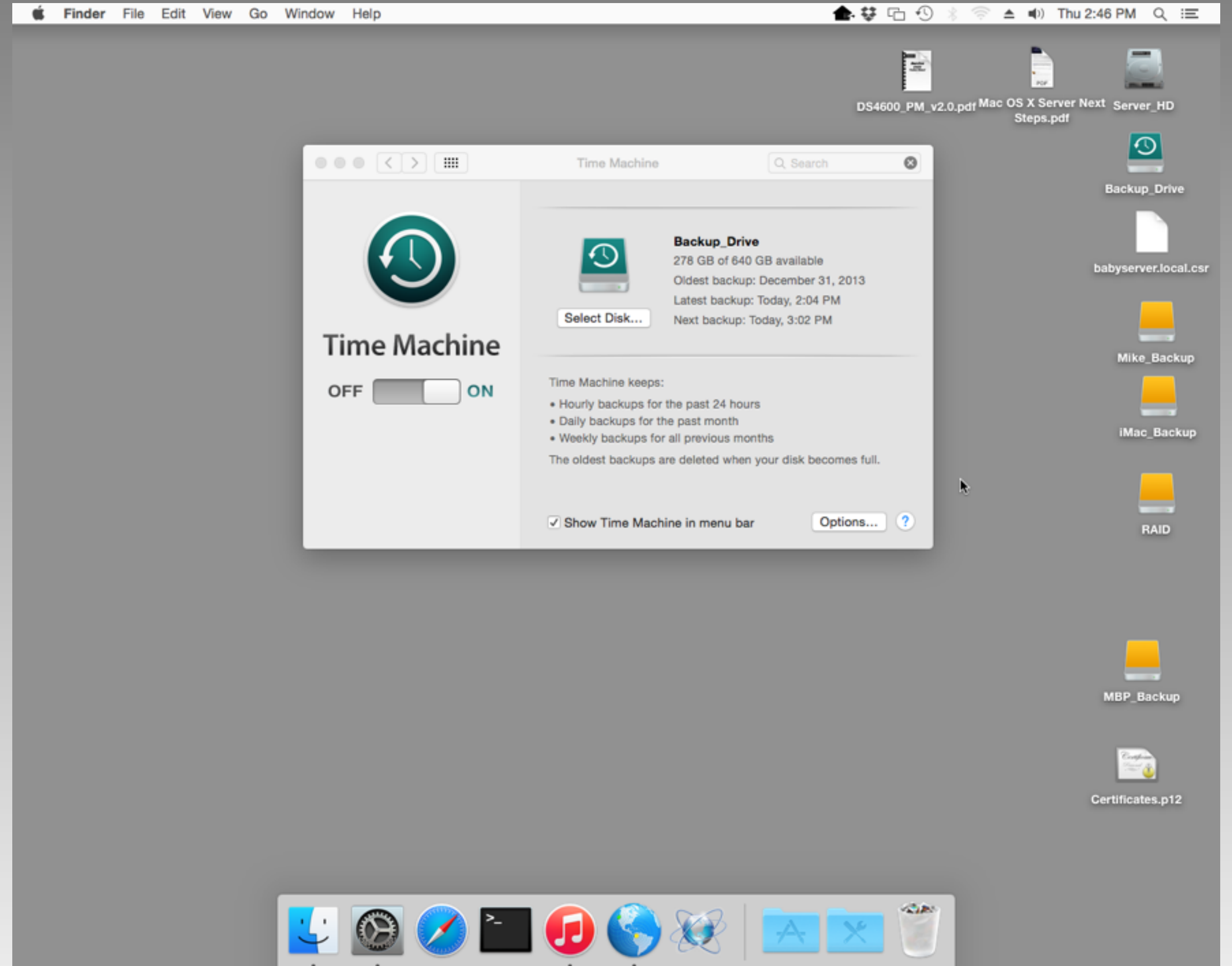
# Time Machine on OS X Server

Be sure to set up alerts for Time Machine !!!



# Time Machine on OS X Server

- You can configure your client machines to backup using Server.app
- But, to backup the Server itself, you have to set that up in System Preferences on the Server box

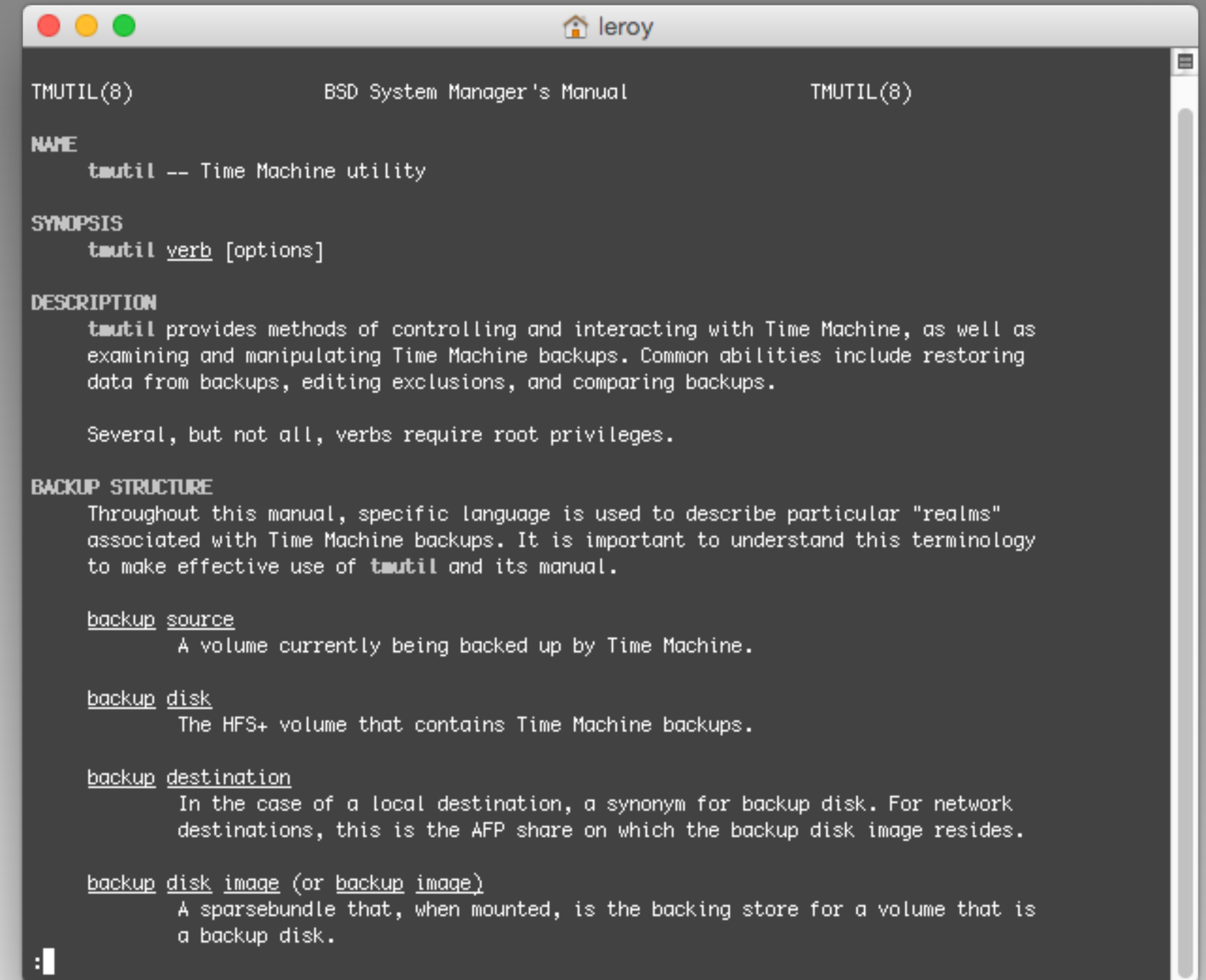


# The Time Machine Utility

## tmutil

# Time Machine Utility

- Command-line interface for configuring and controlling Time Machine.
- Very useful for broadcasting Time Machine commands to all your Macs.



```
TMUTIL(8) BSD System Manager's Manual TMUTIL(8)

NAME
  tutil -- Time Machine utility

SYNOPSIS
  tutil verb [options]

DESCRIPTION
  tutil provides methods of controlling and interacting with Time Machine, as well as
  examining and manipulating Time Machine backups. Common abilities include restoring
  data from backups, editing exclusions, and comparing backups.

  Several, but not all, verbs require root privileges.

BACKUP STRUCTURE
  Throughout this manual, specific language is used to describe particular "realms"
  associated with Time Machine backups. It is important to understand this terminology
  to make effective use of tutil and its manual.

  backup source
    A volume currently being backed up by Time Machine.

  backup disk
    The HFS+ volume that contains Time Machine backups.

  backup destination
    In the case of a local destination, a synonym for backup disk. For network
    destinations, this is the AFP share on which the backup disk image resides.

  backup disk image (or backup image)
    A sparsebundle that, when mounted, is the backing store for a volume that is
    a backup disk.
```

# Disable / Enable

elliot — bash — 120x40

```
sudo tmutil disable
```

Password:

```
sudo tmutil enable
```

Password:



## Time Machine

OFF ☐ ON

# Set Destination(s)

```
elliot — bash — 120x40

sudo tmtutil setdestination -p afp://
    elliot@server01.pretendco.com/TimeMachineBackup

Destination password: *****

sudo tmtutil setdestination -p -a afp://
    elliot@server02.pretendco.com/TimeMachineBackup2

Destination password: *****
```

# Inherit existing backup

```
elliot — bash — 120x40  
sudo tmutil inheritbackup "/Volumes/Time Machine/  
Backups.backupdb/My Mac"
```

Destination password: \*\*\*\*\*

```
sudo tmutil associatedisk -a "/Volumes/Macintosh HD" "  
Volumes/Macintosh HD/Backups.backupdb/My Mac/Latest/  
Macintosh HD"
```

Destination password: \*\*\*\*\*

# Get destination info

elliot — bash — 120x40

```
tmutil destinationinfo
```

```
=====
Name      : Time Machine
Kind      : Local
Mount Point : /Volumes/Time Machine
ID        : 0D8761C1-FE00-454E-A5AC-71D50C6E2F46
```

# List snapshots

```
elliot — bash — 120x40

tmutil listbackups

/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-20-000234
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-094104
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-112510
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-131701
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-144205
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-160345
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-172106
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-183606
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-193929
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-202115
```

```
tmutil latestbackup
```

```
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-202115
```

# Compare snapshots

```
elliot — bash — 120x40

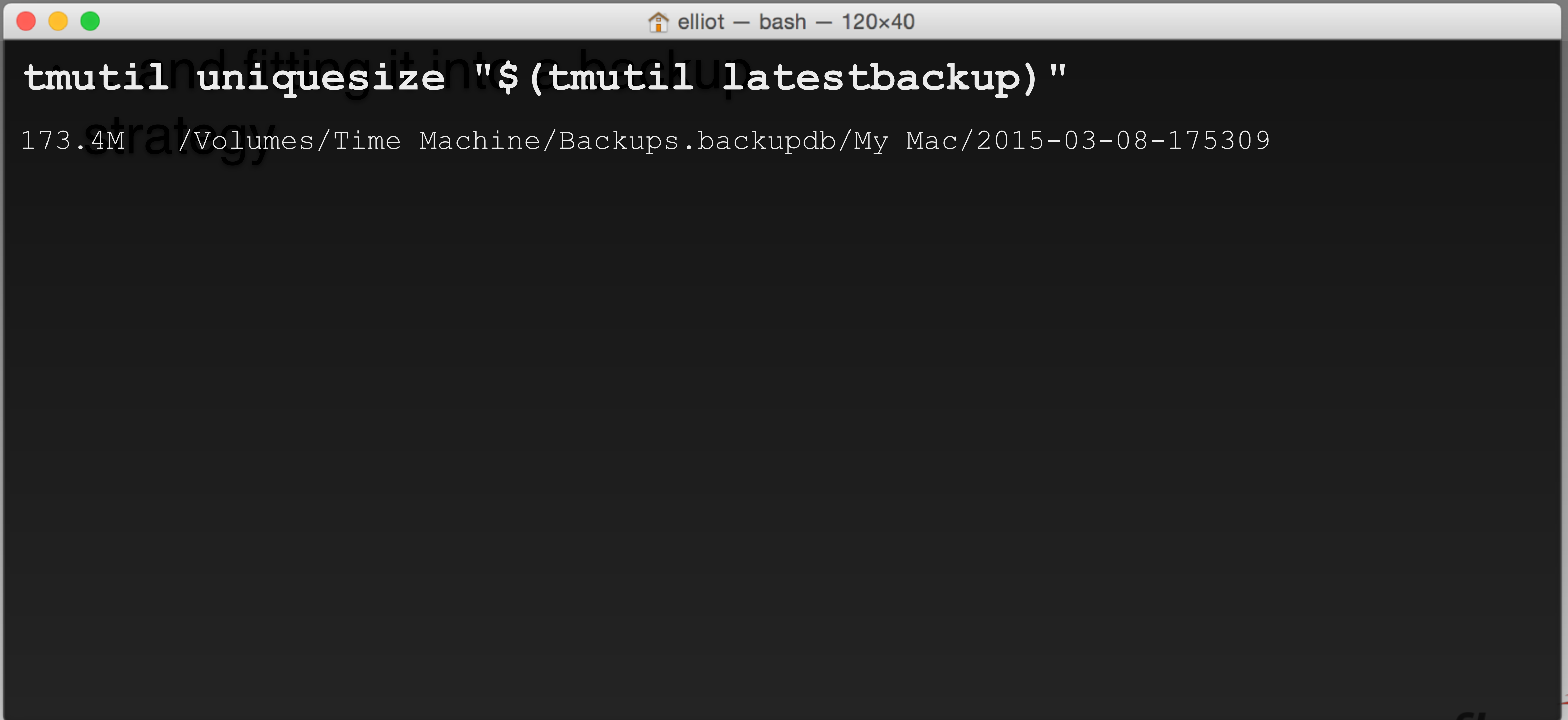
tmutil compare

! 158B (mtime) /Library/Application Support/CrashReporter/SAV.plist
! (mtime) /Library/Caches
+ 2.9M /Library/Managed Installs/swupd/content/downloads/01
+ 472.8K /Library/Managed Installs/swupd/content/downloads/04
+ 243.3K /Library/Managed Installs/swupd/content/downloads/09
! (mtime) /private/var/spool/cups
! (mtime) /private/var/tmp

-----

Added: 3.6M
Removed: 0B
Changed: 158B
```

# Calculate snapshot size



```
elliot — bash — 120x40  
tmutil unique size "$ (tmutil latestbackup) "  
173.4M /Volumes/Time Machine/Backups.backupdb/My Mac/2015-03-08-175309
```

# Local snapshots

elliot — bash — 120x40

```
sudo tmutil disablelocal  
strategy  
sudo tmutil enablelocal
```



# Exclusions

```
tmutil addexclusion /Users/elliott/Downloads
```

```
tmutil removeexclusion /Users/elliott/Downloads
```

```
tmutil isexcluded /Users/elliott/Desktop
```

```
[Included] /Users/elliott/Desktop
```

Exclude these items from backups:

/Users/Shared/DeployStudio	94 KB
/Users/Shared/munki_repo	180 MB
~/Documents/Virtual Machines.localized	84.21 GB



Estimated size of full backup: 375.51 GB

☐ Back up while on battery power

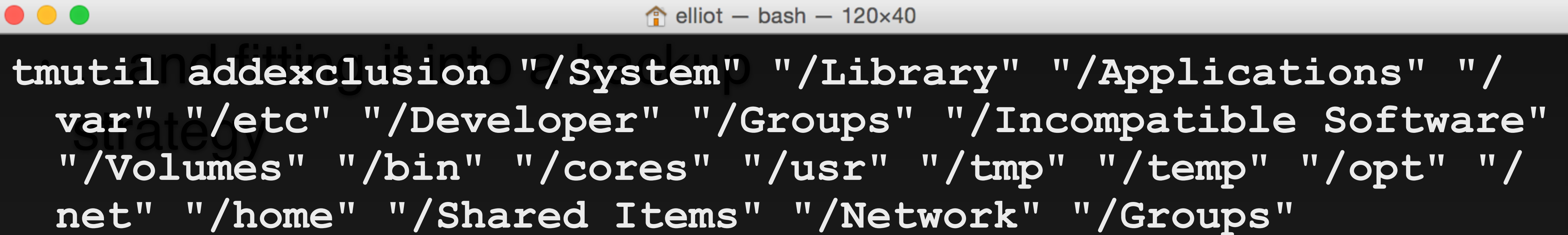
☒ Notify after old backups are deleted



Cancel

Save

# Excluding system files & apps



A terminal window with a title bar showing 'eliott — bash — 120x40'. The window contains a single line of text: 'tmutil addexclusion "/System" "/Library" "/Applications" "/var" "/etc" "/Developer" "/Groups" "/Incompatible Software" "/Volumes" "/bin" "/cores" "/usr" "/tmp" "/temp" "/opt" "/net" "/home" "/Shared Items" "/Network" "/Groups"'. The text is in a monospaced font and is white on a dark background.

```
tmutil addexclusion "/System" "/Library" "/Applications" "/  
var" "/etc" "/Developer" "/Groups" "/Incompatible Software"  
"/Volumes" "/bin" "/cores" "/usr" "/tmp" "/temp" "/opt" "/  
net" "/home" "/Shared Items" "/Network" "/Groups"
```

# Time Machine Utility

**PRO**

- ...and fitting it into a backup strategy

# List type of destination

PRO

```
tmutil destinationinfo | awk ' /Kind/{print $3} '
```

Local

# List all backups from a day

PRO

```
tmutil listbackups | grep "2014-12-30-"
```

```
/Volumes/Time Machine/Backups.backupdb/My Mac/2014-12-30-112510
/Volumes/Time Machine/Backups.backupdb/My Mac/2014-12-30-131701
/Volumes/Time Machine/Backups.backupdb/My Mac/2014-12-30-144205
/Volumes/Time Machine/Backups.backupdb/My Mac/2014-12-30-160345
/Volumes/Time Machine/Backups.backupdb/My Mac/2014-12-30-172106
/Volumes/Time Machine/Backups.backupdb/My Mac/2014-12-30-183606
/Volumes/Time Machine/Backups.backupdb/My Mac/2014-12-30-193929
/Volumes/Time Machine/Backups.backupdb/My Mac/2014-12-30-202115
```

# Delete one snapshot

PRO

```
elliot — bash — 120x40  
sudo.tmutil delete "$(tmutil machinedirectory) /  
2014-02-02-123411"
```

# Show drift averages

PRO

```
tmutil calculatedrift "$(tmutil machinedirectory) "  
| grep -A 4 "Drift Averages"
```

Drift Averages

```
-----  
Added:           1.4G  
Removed:         325.9M  
Changed:         468.6M
```

# Restore latest copy

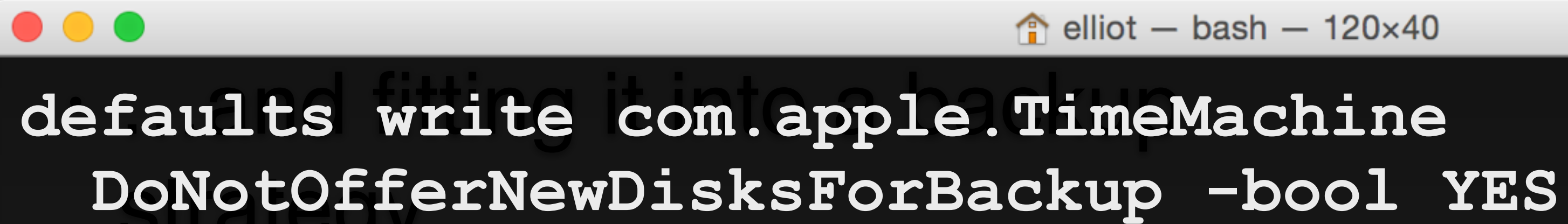
PRO

```
elliot — bash — 120x40
cd "$(tmutil latestbackup)/Macintosh HD/Users/elliot/
Library/"
sudo tmutil restore -v Safari/ StickiesDatabase /Users/
elliot/Desktop/
```

```
Copying file ./Bookmarks.plist ...
82215 bytes for ./Bookmarks.plist
[...]
Copying file ./UserNotificationPermissions.plist ...
Copying file ./WebFeedSources.plist ...
3179 bytes for ./UserNotificationPermissions.plist
2500 bytes for ./WebFeedSources.plist
Copying file . ...
5054 bytes for .
Total copied: 152.22 MB (159615521 bytes)
Items copied: 1477
```

# Other Relevant Commands

# Disabling TM prompt




A terminal window with a light gray title bar containing three colored window control buttons (red, yellow, green) on the left and a title text 'eliot — bash — 120x40' on the right. The main area of the terminal is dark gray with white text. The text shows a command being entered: 'defaults write com.apple.TimeMachine DoNotOfferNewDisksForBackup -bool YES'.

```
eliot — bash — 120x40
defaults write com.apple.TimeMachine
DoNotOfferNewDisksForBackup -bool YES
```

# Allow unpowered backups

```
defaults write /Library/Preferences/com.apple.TimeMachine  
RequiresACPower 0
```

Exclude these items from backups:

 /Users/Shared/DeployStudio	94 KB
 /Users/Shared/munki_repo	180 MB
 ~/Documents/Virtual Machines.localized	84.21 GB



Estimated size of full backup: 375.48 GB

☐ Back up while on battery power

☒ Notify after old backups are deleted



Cancel

Save

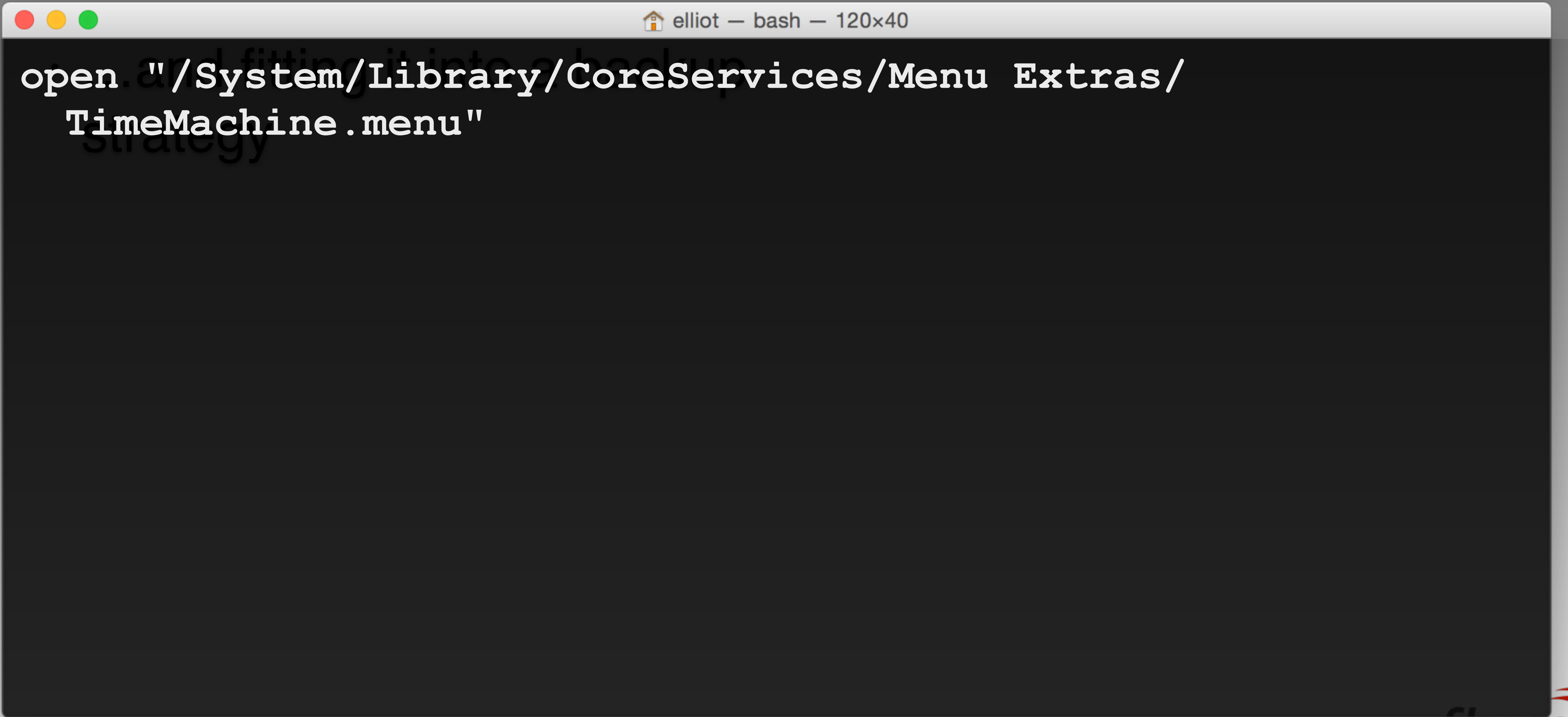
# Modify launch interval

```
elliot — bash — 120x40

sudo cp /System/Library/LaunchDaemons/com.apple.backupd-
auto.plist /System/Library/LaunchDaemons/com.apple.backupd-
auto.plist.original

sudo defaults write /System/Library/LaunchDaemons/
com.apple.backupd-auto.plist StartInterval 14400
```

# Launch TM menu bar item



A terminal window with a title bar containing three colored window control buttons (red, yellow, green) on the left and a title text "elliott — bash — 120x40" on the right. The terminal has a black background with white text. The text displayed is a command to open the Time Machine menu bar item.

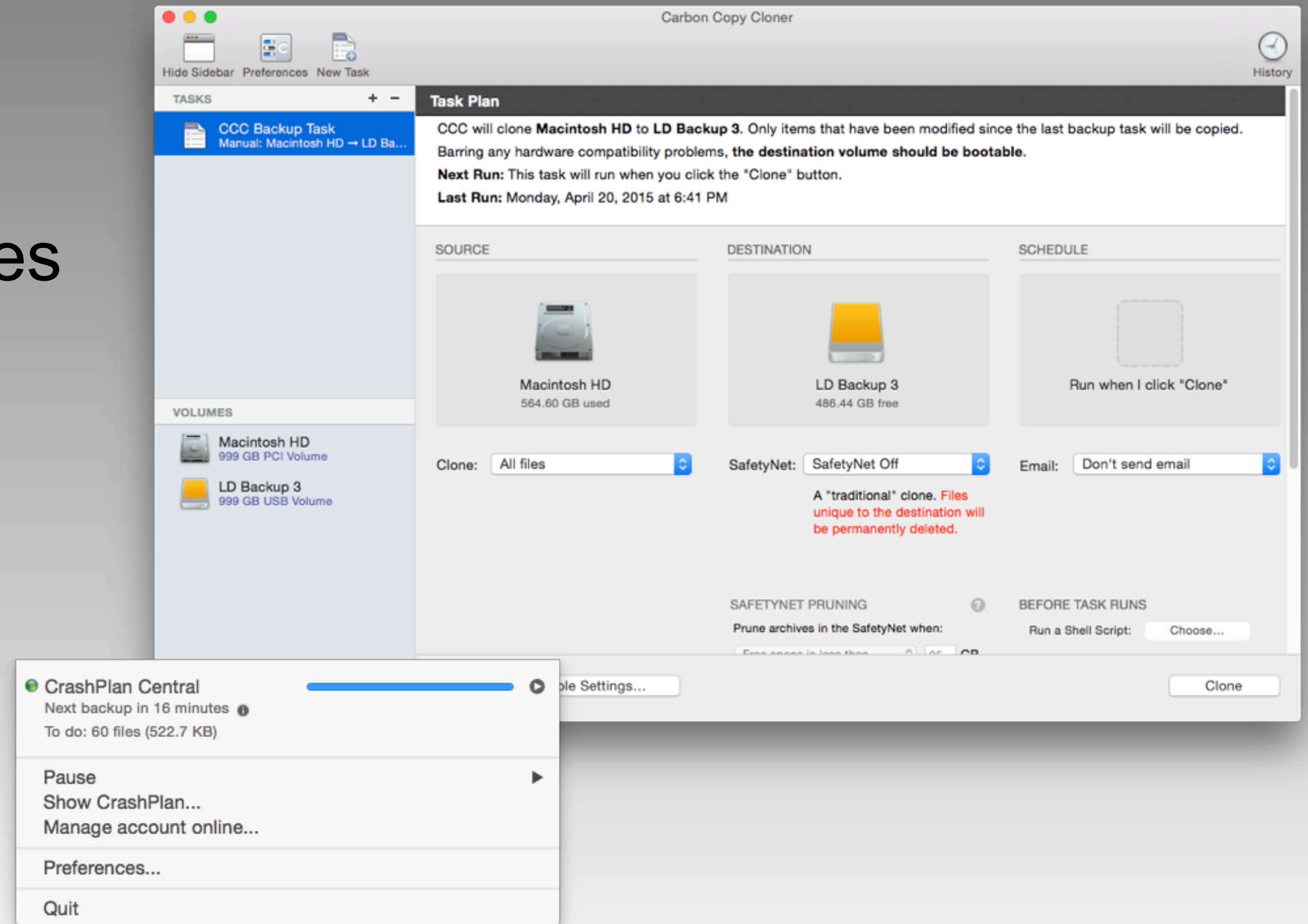
```
open. "/System/Library/CoreServices/Menu Extras/  
TimeMachine.menu"
```

# The Big Picture

Knowing when you have outgrown Time Machine

# The 3-2-1 rule for Backup

- At least 3 copies of anything you care about
- At least 2 different media types (disk, tape, cloud, etc.)
- At least 1 copy in an offsite location



# My favorites



Carbon Copy Cloner



Time Machine



CrashPlan



# Pros & Cons

- Pros:

- Simple to configure
- Built-in to OS X
- Supported by Apple
- Simple Restore interface
- Free !!!

- Cons:

- Doesn't always recover well from corruption/errors
- Reporting is minimal
- Requires hardware (drive or network storage)
- No automatic offsite backup



# Pros & Cons

- Pros:

- Creates bootable clones
- Minimizes downtime during disaster recovery
- Email reporting
- Very customizable

- Cons:

- Difficult to configure for offsite backup
- Great for servers, not so good for backing up endpoint Macs
- Costs more than free\*

\* but, well worth it !!!



# Pros & Cons

## • Pros:

- Scalable
- Backs up to a local server, remote server, cloud, or all three
- Deduplication, compression, and encryption
- LDAP integration
- Extensive reporting
- Not too hard to deploy

## • Cons:

- Great for endpoint Macs; not so good for backing up servers
- Costs more than free\*

\* but, like CCC, well worth it !!!

# More favorites



P5 Synchronize



P5 Backup



P5 Backup2Go



P5 Archive

Previously named PresSTORE

<http://www.archiware.com/>

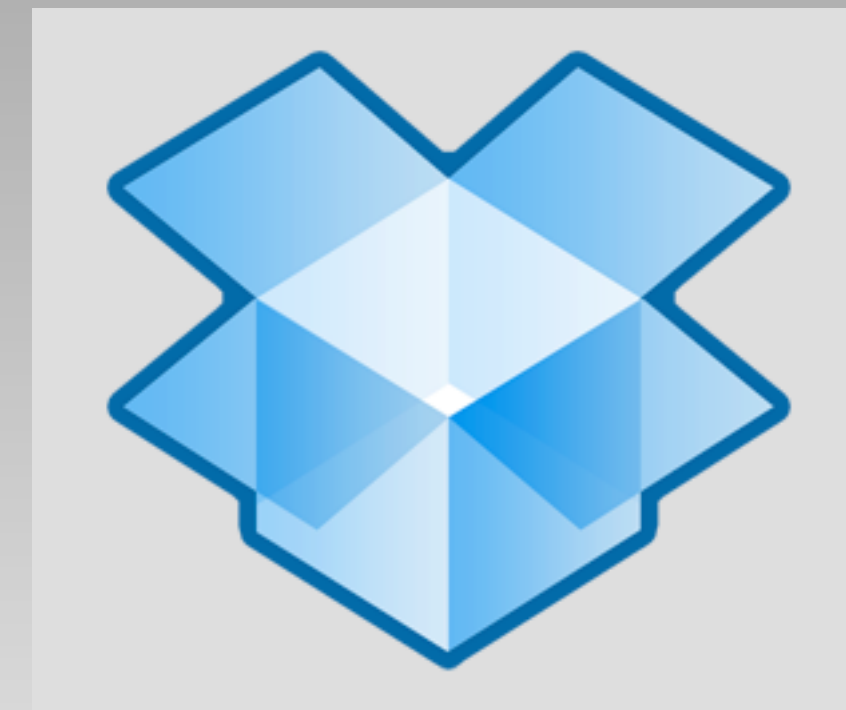
# Something to keep in mind

# != Backup

- RAID
- Sync



\*



\* DropBox for Business provide unlimited deletion recovery and unlimited version history