Max Buxton

Max has been a full time Macintosh consultant for over fifteen years.

He's been a certified member of the Apple Consultants Network since 2003.

He's been a peer, colleague and friend of Andy for much of that time, and joined the Call Andy! team in 2011.

Fun fact: Max is an avid motorcyclist and for ten years was a motorcycle safety instructor for the state of Massachusetts.



Time Machine Deep Dive, and Fitting it Into a Backup Strategy

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How Did We Get Here?

Time Machine Tidbits

- Introduced as part of Leopard
- Bootable Backups in Lion
  - Only to directly connected drive
- Local Snapshots in Lion
- Multiple volume support in Mountain Lion
- There's a command line tool:
  - Time Machine Utility

tmutil: the Overview

- man tmutil

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

NAME

     tmutil -- Time Machine utility

SYNOPSIS

     tmutil verb [options]

DESCRIPTION

     tmutil provides methods of controlling and interacting with Time Machine,
     as well as examining and manipulating Time Machine backups. Common abili-
     ties include restoring data from backups, editing exclusions, and compar-
     ing 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 under-
     stand this terminology to make effective use of tmutil and its manual.

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

     backup disk
```

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tmutil: verbs you want to know about

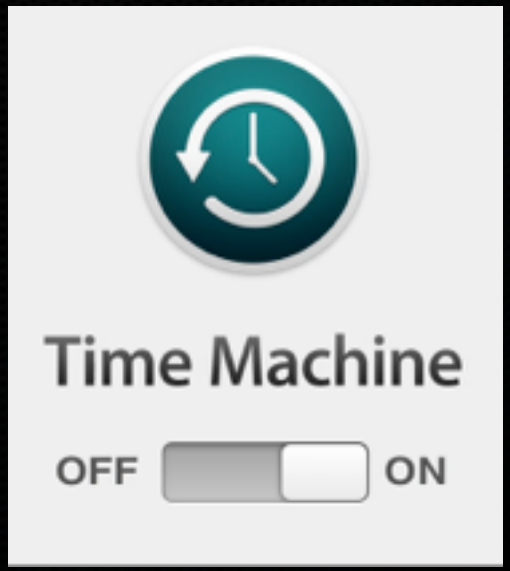
- setdestination
- startbackup
- restore
- destinationinfo
- compare
- inheritbackup
- associatedisk
- calculatedrift
- uniquesize
- disablelocal

Time Machine Utility

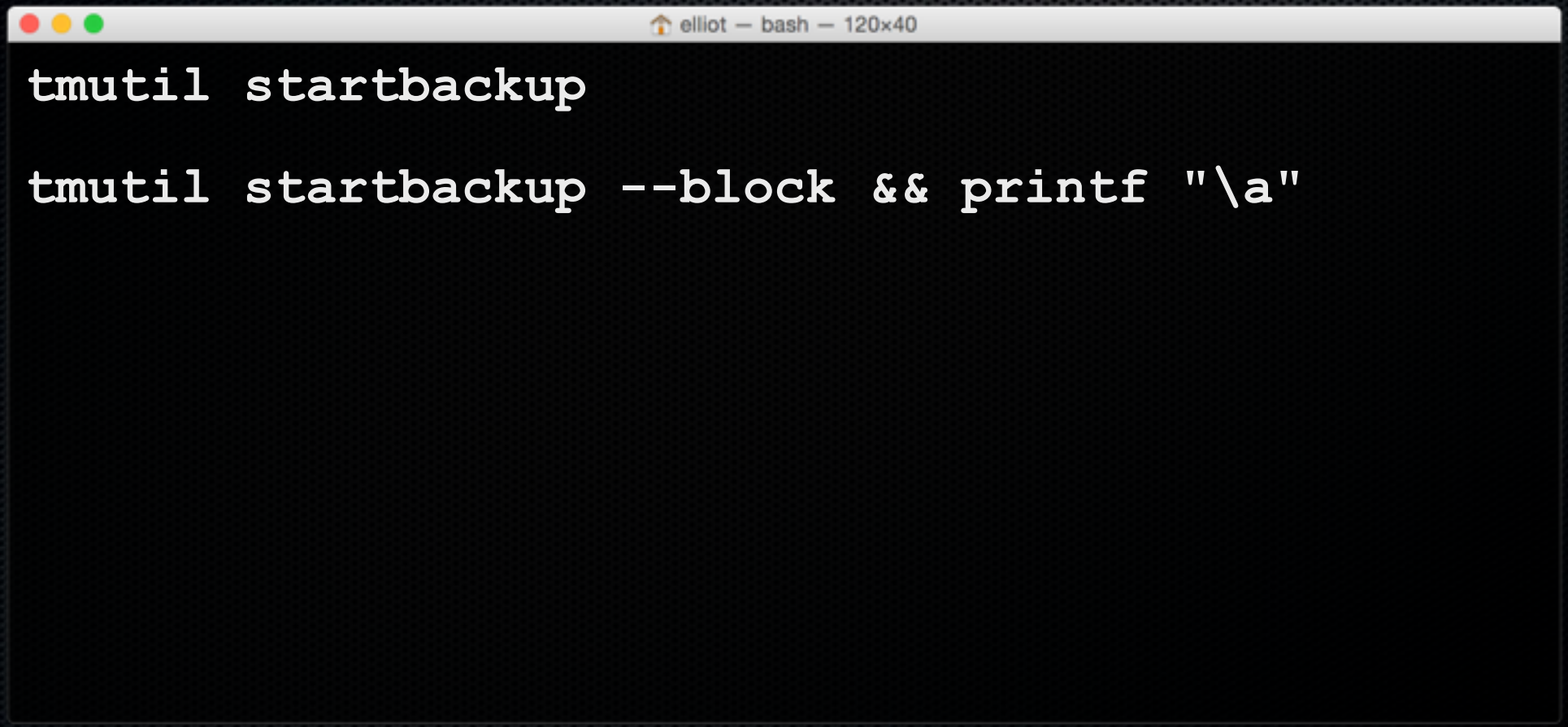
elliot — bash — 120×40

```
sudo tmutil disable
Password:


sudo tmutil enable
Password:
```



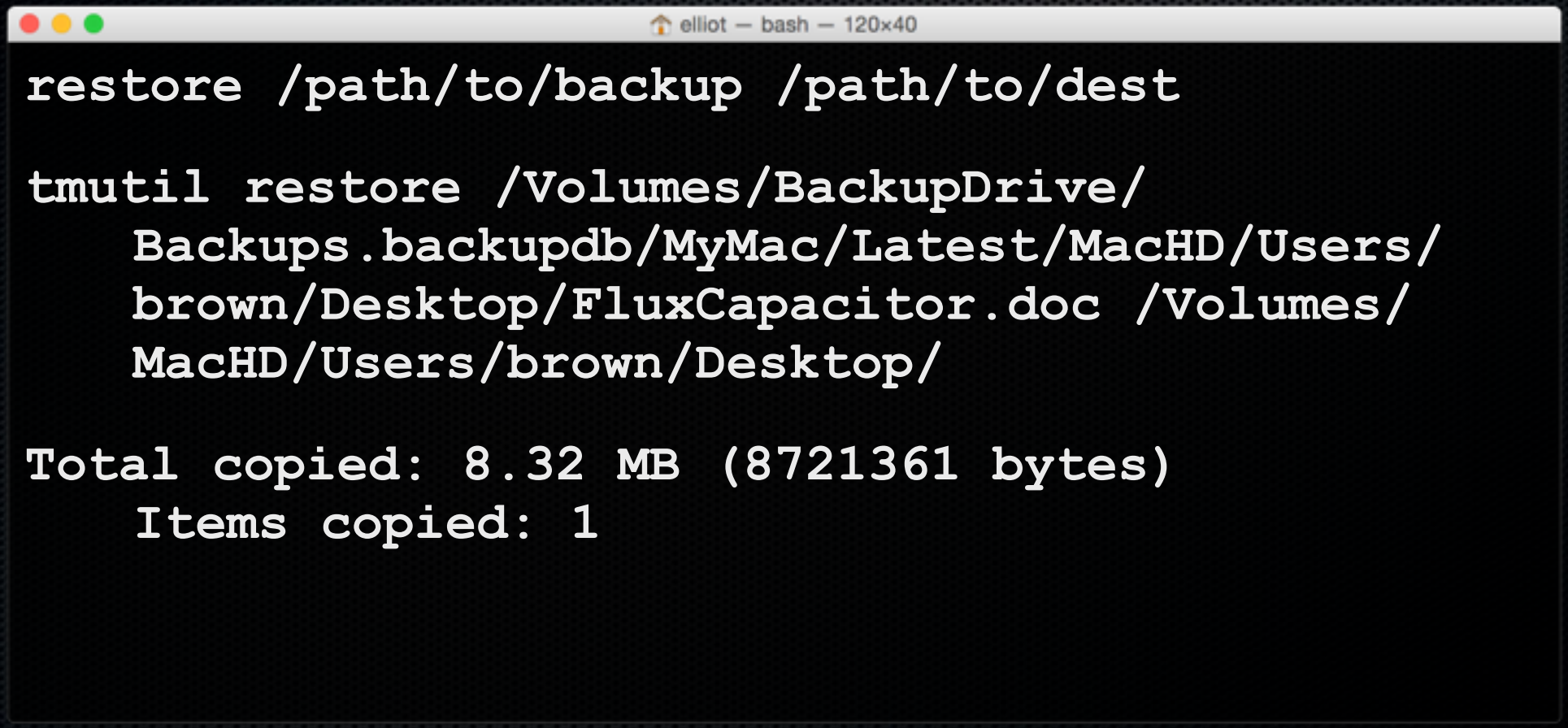
Time Machine Utility



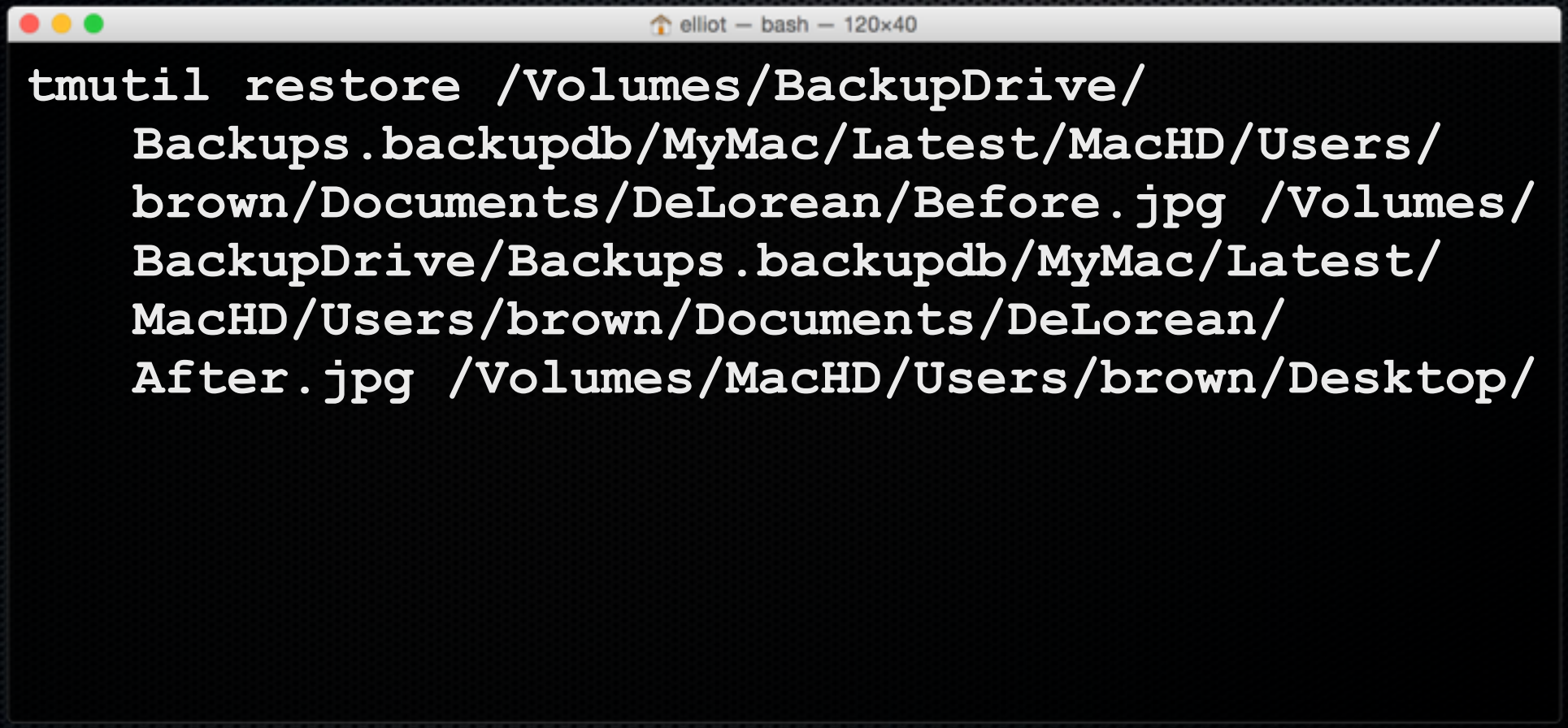
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Time Machine Utility



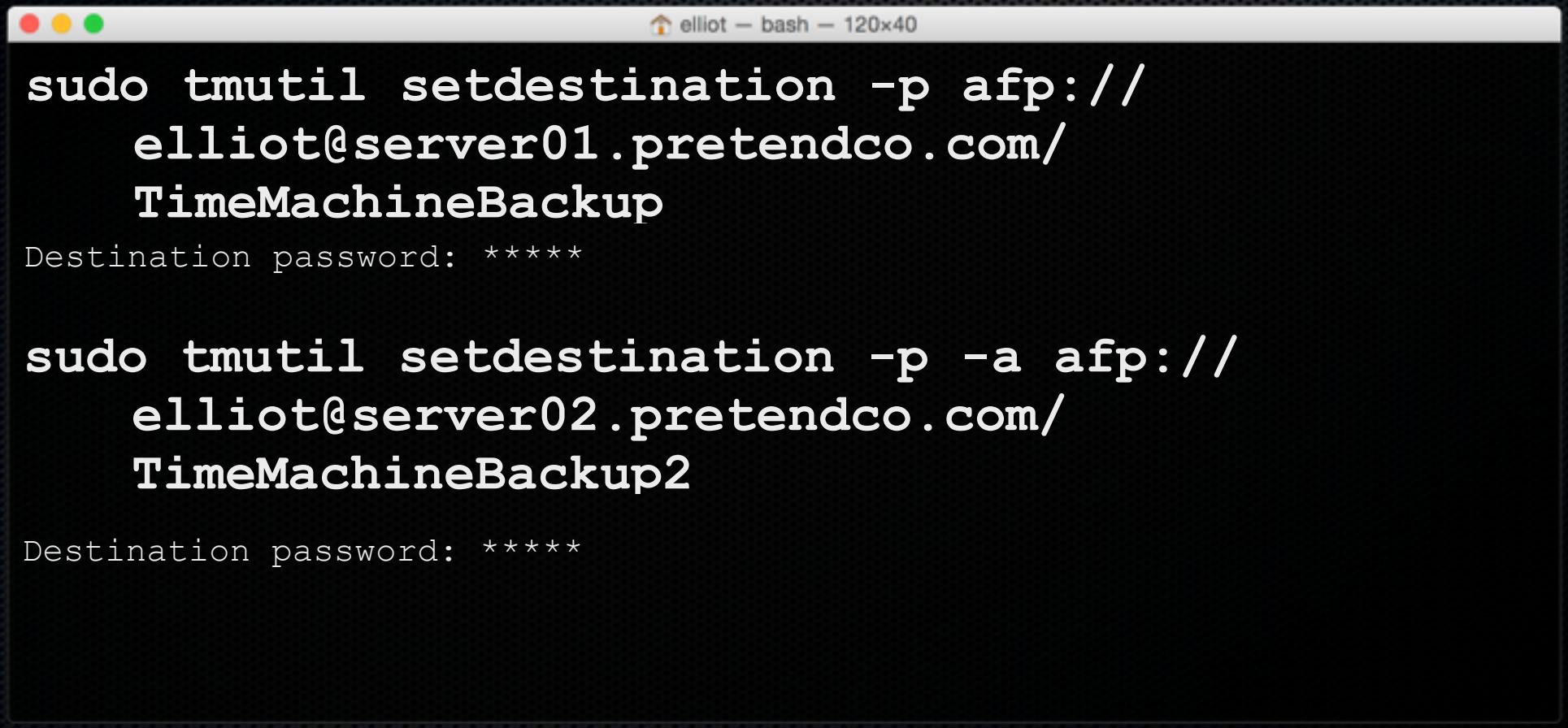
Time Machine Utility



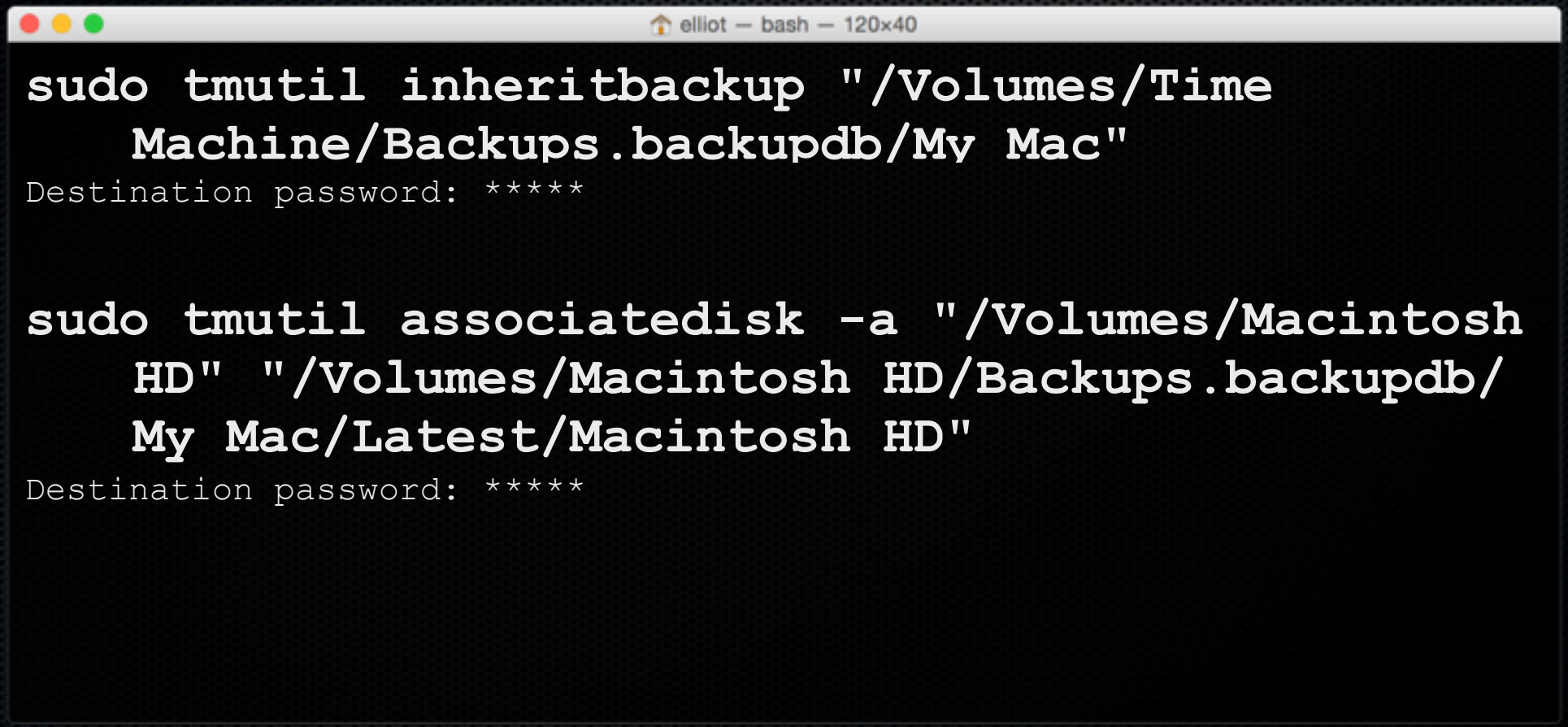
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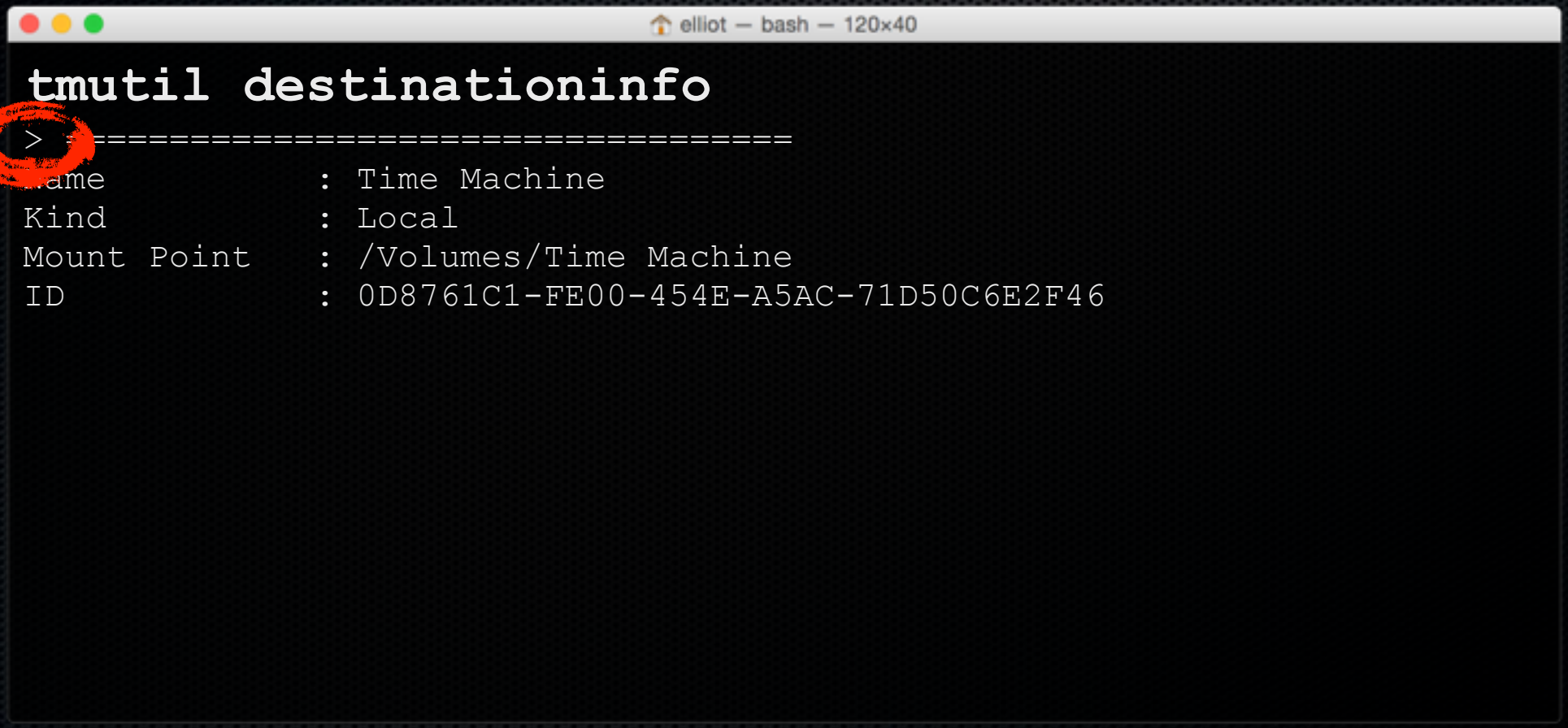
Time Machine Utility



Time Machine Utility



Time Machine Utility



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Time Machine Utility

elliot — bash — 120×40

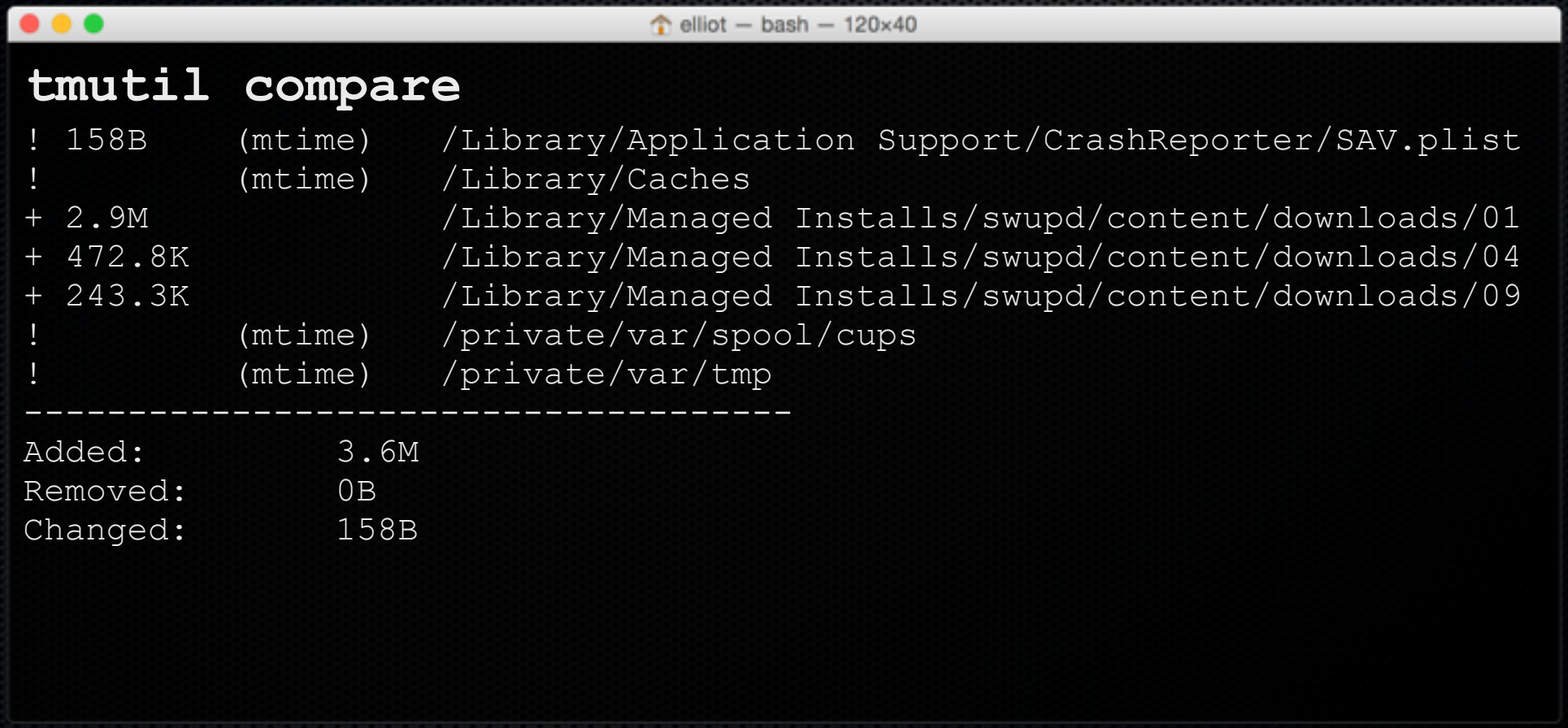
```
tmutil listbackups
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-20-000234
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-094104
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-112510
/Volumes/Time Machine/Backups.backupdb/My Mac/2015-02-23-131701
/Volumes/Time Machine/Backups.backupdb/My 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
```

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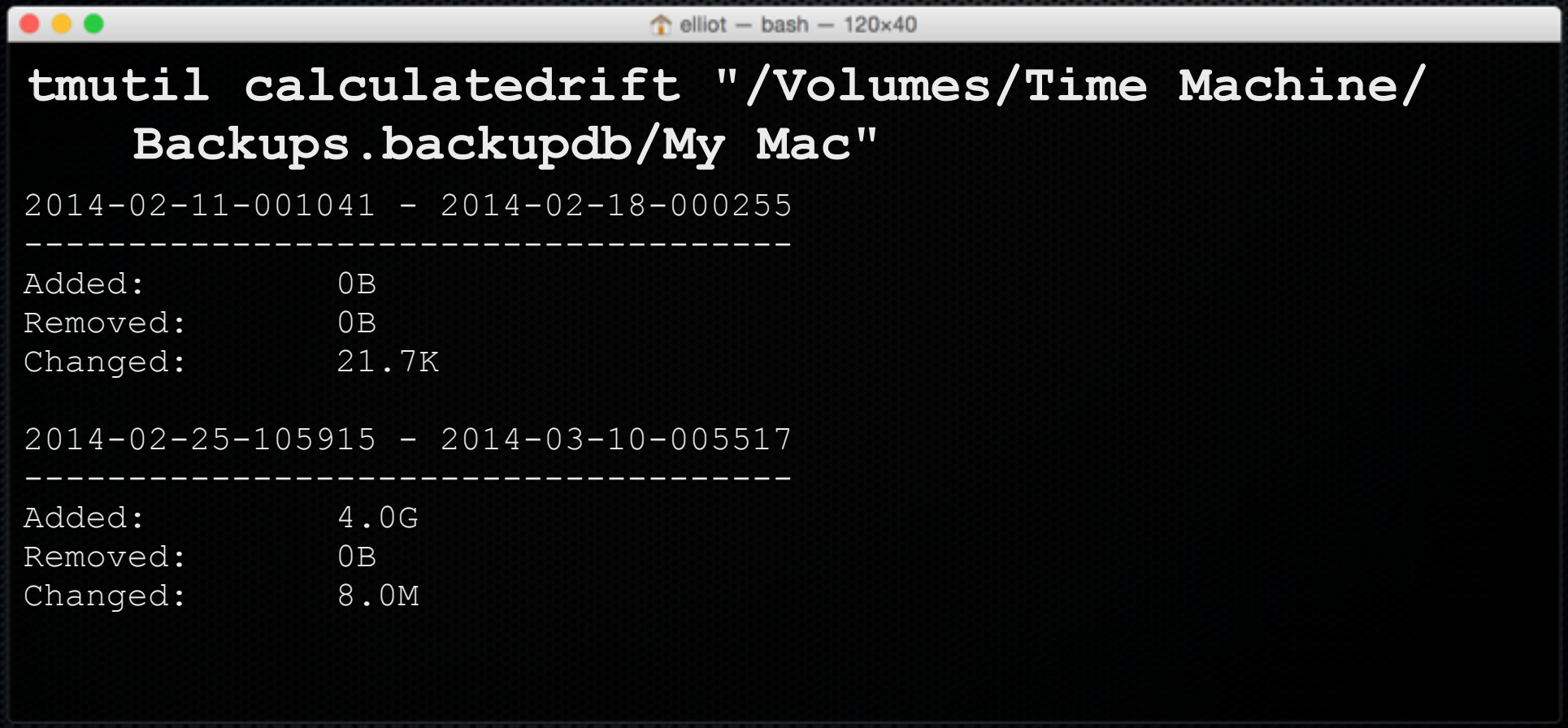
Time Machine Utility



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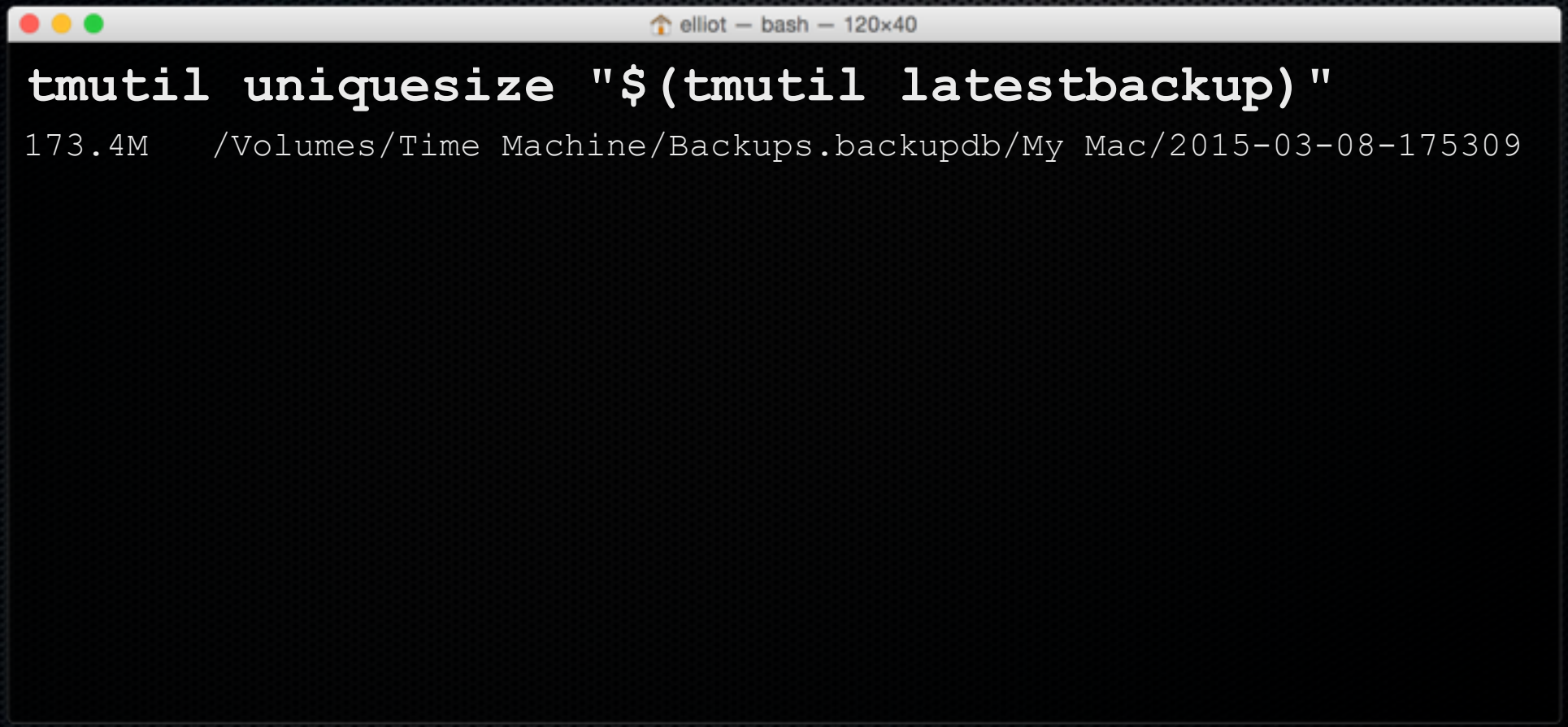
Time Machine Utility



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Time Machine Utility

elliot — bash — 120×40

```
sudo tmutil disablelocal

sudo tmutil enablelocal
```



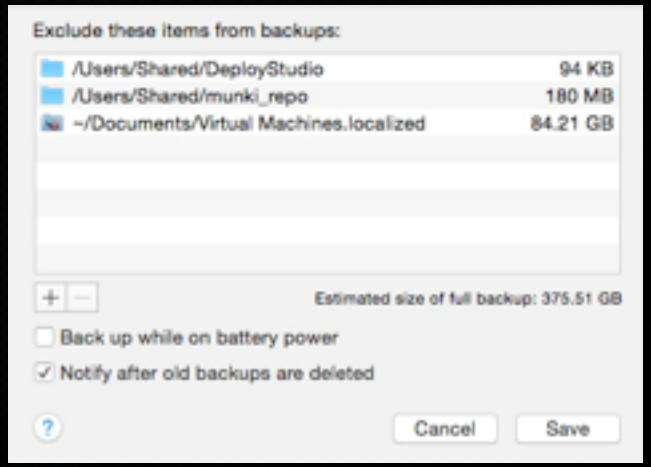
Time Machine Utility

elliot — bash — 120×40

```
tmutil addexclusion /Users/elliot/Downloads

tmutil removeexclusion /Users/elliot/Downloads

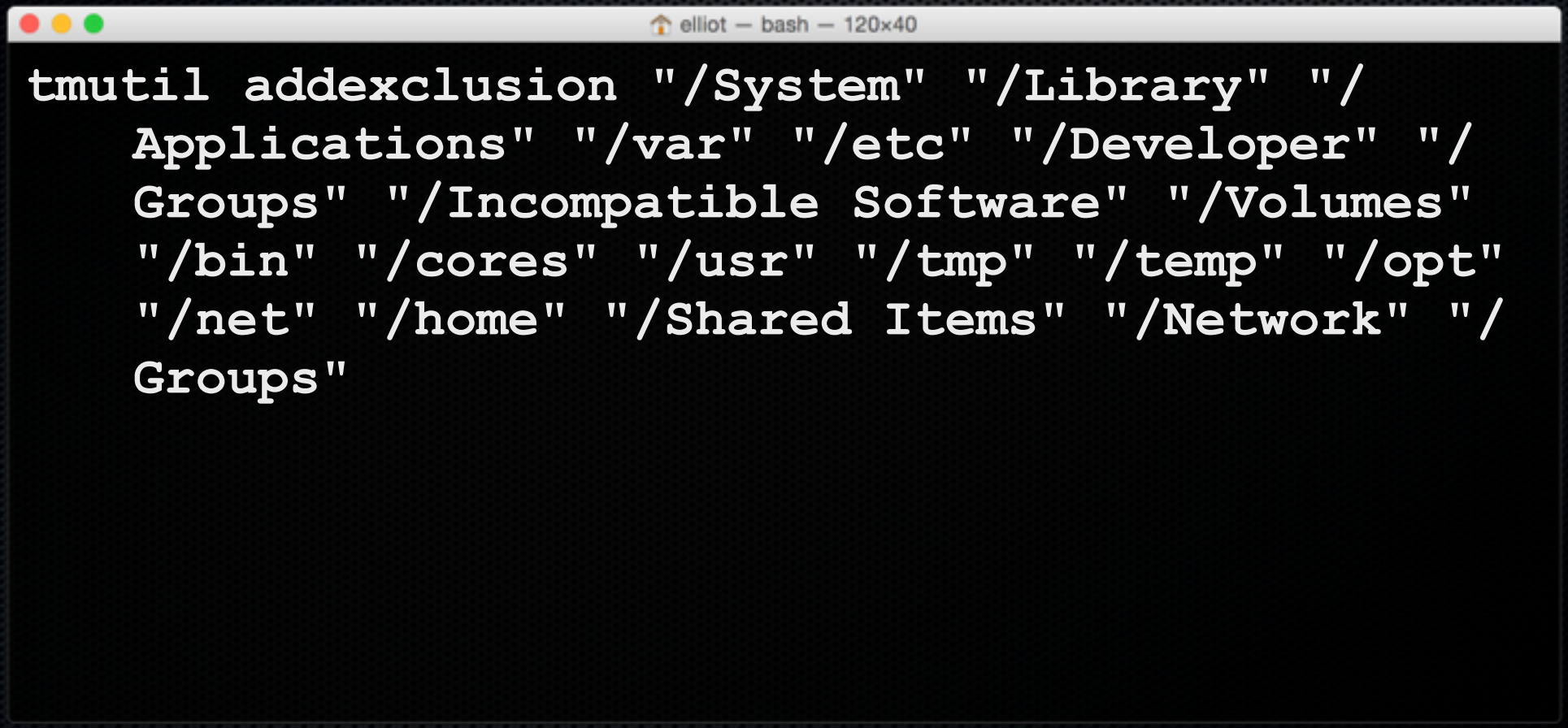
tmutil isexcluded /Users/elliot/Desktop
[Included]    /Users/elliot/Desktop
```



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Time Machine Utility

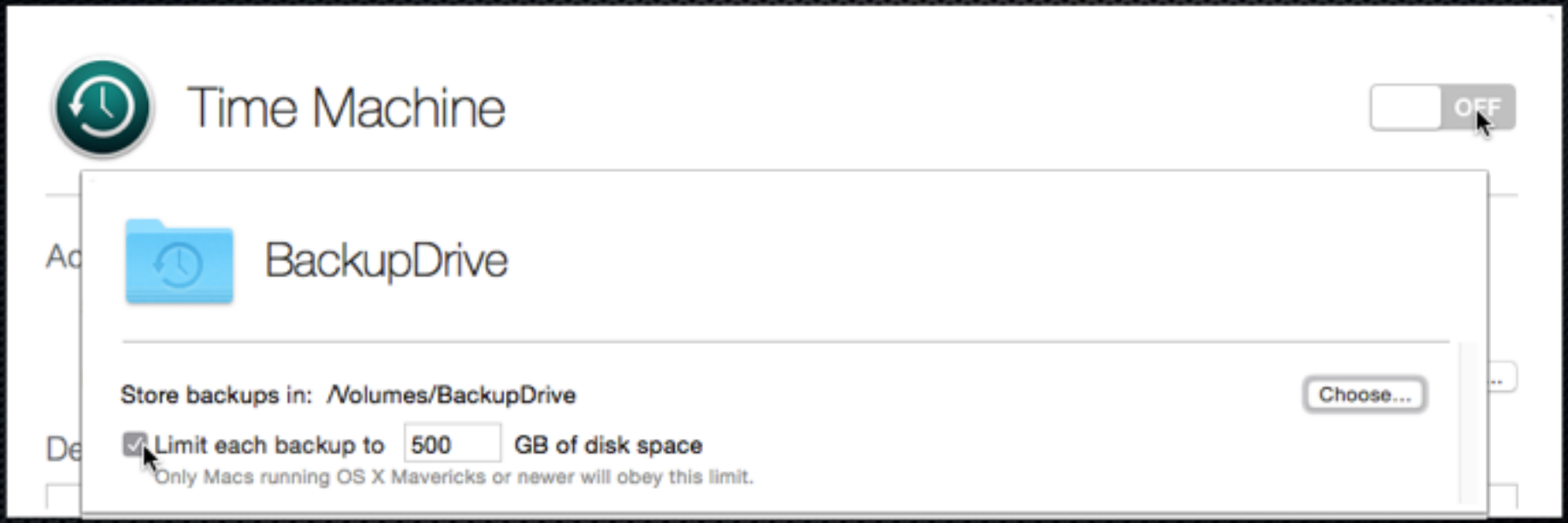


Using Time Machine to Backup Servers

- use `tmutil disablelocal`
- ServerBackup native backup service for OS X Server
  - takes part in the restoration of server services
  - look for OpenDirectoryMaster.sparseimage in /var/backups/
- Restoring OS X Server from a Time machine backup. See [HT202406]

OS X Server
Time Machine Service

- Enable Time Machine in just a few clicks

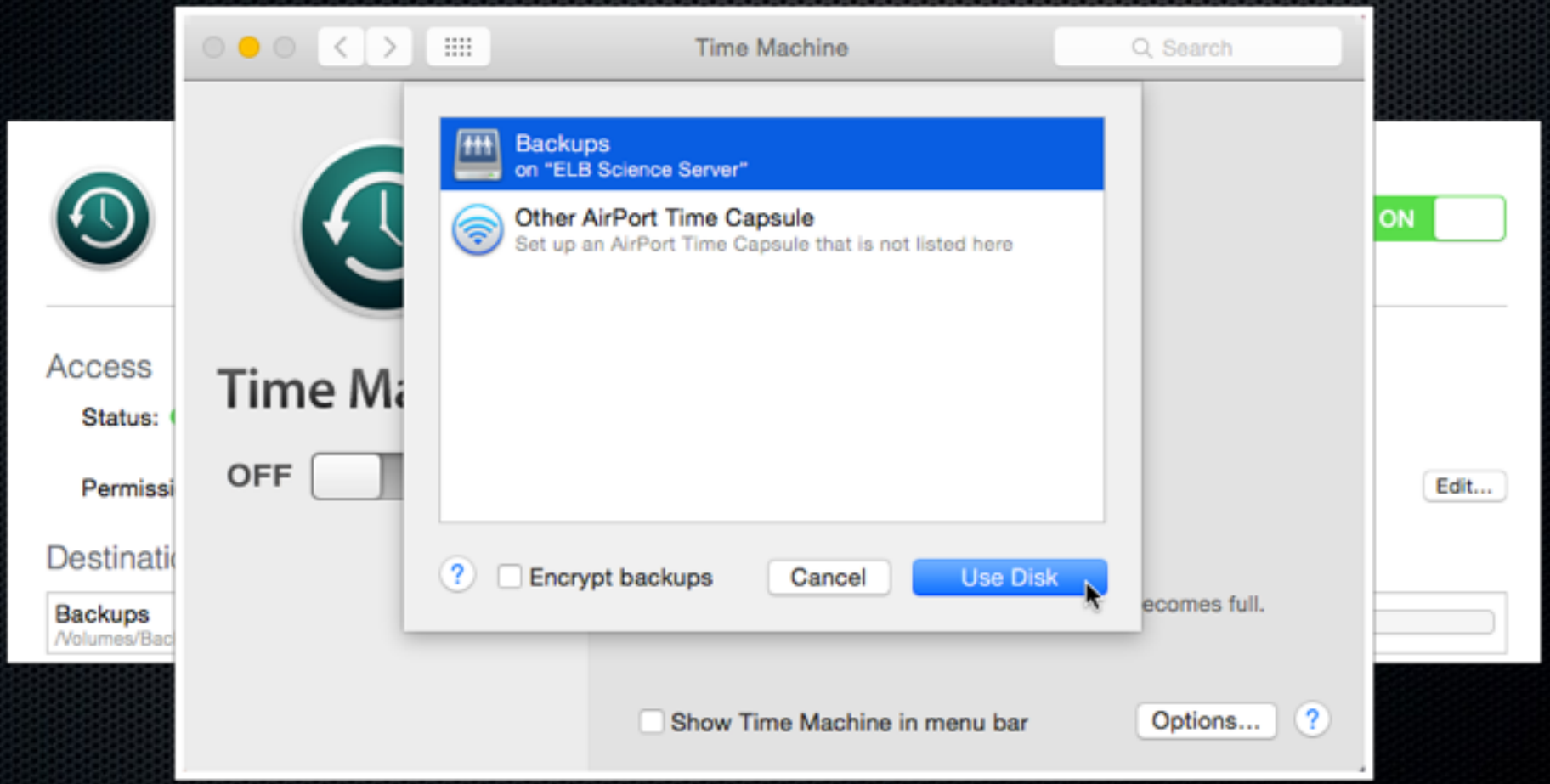


- Direct backups to different storage locations
- Set Space Restrictions (Mavericks and above only)

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OS X Server
Time Machine Service

- Time Machine is now a destination on the network

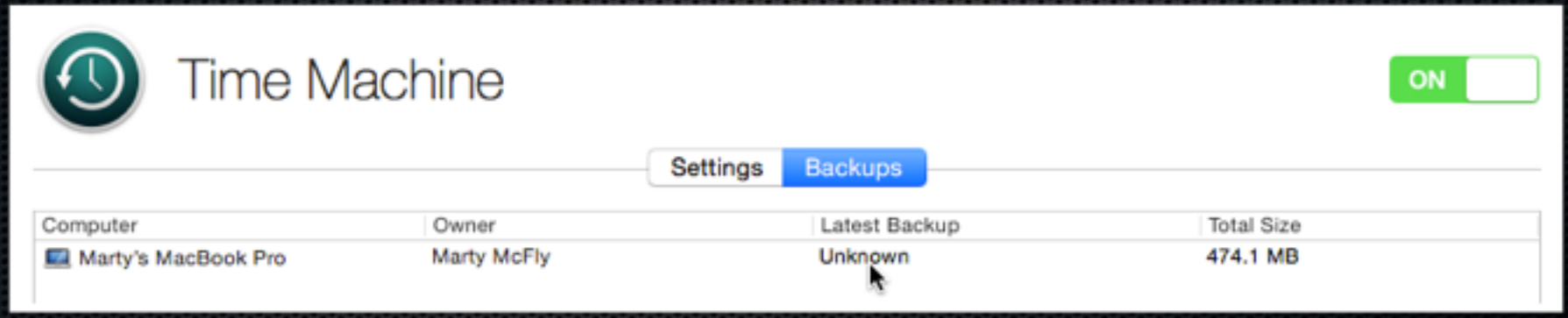


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OS X Server
Time Machine Service

- Track backups
- Push and email notification if a backup has not completed



Backup Best Practices

The 3-2-1 Rule

- 3 copies of each important file
- 2 different media (disk, cloud, etc..)
- 1 copy stored in another location

Is it ok to use Time Machine as the only solution?

Advantages

- Dead simple to configure
- Built-in to OS X
- Supported by Apple
- Simple restore interface
- Versioned
- Free

Limitations

- Doesn't always recover well from corruption and errors
- Central reporting is minimal, do-it-yourself
- Requires hardware (hard drive or network storage)
- No automatic offsite backup



Time Machine

Third Party Options

Advantages

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



Limitations

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

*and worth it

Third Party Options

Advantages

- Scalable
- Backs up to a local server, to cloud, or both
- Deduplication and compression
- LDAP integration
- Extensive reporting
- Relatively easy to deploy to your Mac fleet



Limitations

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

*and worth it

More Third Party Options

- Backblaze: Easy, inexpensive
- Acronis: Remote client speed
- Archiware for large archives
- Retrospect: Media types, legacy
- Consumer Cloud: Carbonite, Mozy
- Sync Utils: ChronoSync, Synchronize! X Plus
- Clones: dmg, SuperDuper, CopyCatX

Example Configurations



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Example Configurations



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Example Configurations







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Example Configurations



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Big Data Questions

- What do you do when you have 5, 10, or 25 TB of data?
- What are real, practical ways to get this much data backed up?
- What's the expectation for restore time?
  - 15 Mbs: 1 TB = 7 days
  - 100 Mbs: 1 TB = 23 hours
- What's the best ways to have multiple copies, and off site?



More Resources

- Time Machine
  - Transfer Time Machine backups to a new drive [HT202380]
  - Local Snapshots [HT202301]
  - Time Machine Troubleshooting [PH18850]
  - Krypted: Yosemite Server Time Machine Service
  - Pondini.org

- TimeMachine Tools/GUIs/etc.
  - Watchman Monitoring (reporting, set trigger time and frequency)
  - Time Machine Editor (schedule editor)
  - iScheduleTimeMachine (schedule editor & toolbar replacement)
  - TimeMachineScheduler (beta for Mavericks, no updates over a year)
  - BackupLoupe

- tmutil
  - Man Page
  - Krypted: Mass Deploying Time Machine

- OS X Server Essentials 10.10 by Arek Dreyer, Ben Greisler

- BackBlaze Best Drive Survey

Questions?



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