

Storage and Protecting Oneself: Backing up, Archiving and Restoring Data

Eric Ullman
Cofounder and Product Guy
Retrospect, Inc.

First things first...

Eric Ullman, MacTech Boot Camp Speaker
WAIVER OF LIABILITY AND HOLD HARMLESS AGREEMENT

1. In consideration for participating in MACTECH BOOT CAMP, LONG BEACH, CA and other valuable consideration, I hereby RELEASE, WAIVE, DISCHARGE AND COVENANT NOT TO SUE Eric Ullman or the officers, servants, agents, and employees of MacTech (hereinafter referred to as RELEASEES) from any and all liability, claims, demands, actions and causes of action whatsoever arising out of or related to any DATA LOSS, damage, or injury, including death, that may be sustained by me, or to any property belonging to me, WHETHER CAUSED BY THE NEGLIGENCE OF THE RELEASEES, or otherwise, while participating in such activity, or while in, on or upon the premises where the activity is being conducted or in transportation to and from said premises.
2. To the best of my knowledge, I can fully participate in this activity. I am fully aware of risks and hazards connected with the activity, including but not limited to the risks as noted herein, and I hereby elect to voluntarily participate in said activity, and to enter the above-named premises and engage in such activity knowing that the activity may be hazardous to me and my property. I VOLUNTARILY ASSUME FULL RESPONSIBILITY FOR ANY RISKS OF LOSS, PROPERTY DAMAGE OR PERSONAL INJURY, INCLUDING DEATH, that may be sustained by me, or any loss or damage to property owned by me, as a result of being engaged in such an activity, WHETHER CAUSED BY THE NEGLIGENCE OF RELEASEES or otherwise.
3. I further hereby AGREE TO INDEMNIFY AND HOLD HARMLESS THE RELEASEES from any loss, liability, damage or costs, including court costs and attorney's fees, that may incur due to my participation in said activity, WHETHER CAUSED BY NEGLIGENCE OF RELEASEES or otherwise.
4. It is my express intent that this Release and Hold Harmless Agreement shall bind the members of my family and spouse (if any), if I am alive, and my heirs, assigns and personal representative, if I am not alive, shall be deemed as a RELEASE, WAIVER, DISCHARGE AND COVENANT NOT TO SUE the above named RELEASEES. I hereby further agree that this Waiver of Liability and Hold Harmless Agreement shall be construed in accordance with the laws of the State of California.
5. I UNDERSTAND THAT NEITHER THE RELEASEES NOR THE WESTIN HOTEL WILL BE RESPONSIBLE FOR ANY MEDICAL COSTS ASSOCIATED WITH ANY DATA LOSS THAT I MAY SUSTAIN.
6. I also understand that I should and am urged by Releasees to obtain adequate health and accident insurance to cover any personal injury to myself which may be sustained during the activity or the transportation to and from said activity.
7. I also understand that I am responsible for any damage I cause to the facilities.

IN SIGNING THIS RELEASE, I ACKNOWLEDGE AND REPRESENT THAT I have read the foregoing Waiver of Liability and Hold Harmless Agreement, understand it and sign it voluntarily as my own free act and deed; no oral representations, statements or inducements, apart from the foregoing written agreement, have been made; I am at least eighteen (18) years of age and fully competent; and I execute this Release for full, adequate and complete consideration fully intending to be bound by same.

IN WITNESS WHEREOF, I have hereunto set my hand on this 27th day of November, 2012.

Participant



Who am I?

- Cofounder and product guy at Retrospect, Inc.
- 15 years in backup, storage, and sync
- 23 years in Mac technology, including time moonlighting as a consultant
- 2.5 years eating paleo/primal

Storage Hardware

- Centralizing data storage
 - Pros and cons
- Types of storage
 - Direct-Attached Storage (DAS)
 - FireWire, USB, eSATA, Thunderbolt, etc.
 - Network-Attached Storage (NAS)
 - NFS, CIFS, AFS, etc., typically Ethernet
 - Storage Area Network (SAN)
 - Fibre Channel, iSCSI, FCoE

“Cloud” storage

- Leverages the storage density, per-GB cost savings, and other benefits of a professionally maintained data center
- Service/application-specific or general-access?
- Fantastic supplement to local backups

What about RAID?

- Redundant Array of Independent (or Inexpensive) Disks
- RAID groups physical disks for performance and redundancy.
- RAID is not backup! RAID helps *avoid* disaster (more on this later).
- Be geek chic: Never say “RAID disk”

Why back up?



Backup is simple. Right?

- The 50,000-foot view:
 - Backup is copying files in case something happens to the originals.
- But down in the trenches:
 - It's *critical* that we look at protecting against data loss.
 - It's both more comprehensive and complex than just backup.

Know your terminology

- **Back up:** Make one or more copies of data in order to protect against loss.
- **Sync:** Make a container match another (unidirectional), or make them match each other (bidirectional).
- **Archive:** Store one or more copies of data as a historical archive (discovery, regulatory, reference).

Mixing it up

- Archival method of backup
 - Backup that is *additive*, i.e., changed files are stored *in addition to* previous versions
 - Backup that is non-destructive
- Examples of archival backup software
 - Time Machine
 - CrashPlan
 - Retrospect

Build services around backup

- Initial planning and implementation
 - Day-to-day management
 - Periodic maintenance and testing
 - Reassess as needed
-
- These each represent revenue generation opportunities for you!

Talking backup with clients

- Get people to think: “Really, how bad would it be if...?”
- Or: “It’s simple. Just don’t back up what you can afford to lose.”
- Clients that don’t backup will come back to bite you and jeopardize your relationship—perhaps with others.

Making the case for backups

- Avoid the customer stone-walling.
- There are plenty of inexpensive or free software solutions.
- Protect yourself and your business; have a “Hold Harmless” agreement as part of your contract.

Common customer objections

- High perceived cost
- “It impacts performance.”
- Privacy concerns
- Potential for and exposure from theft
- “I’ve never had a hard drive crash.”
- “Macs are better than PCs.”

Backups aren't typically "one size fits all"

- Not all data is created equal!
- Interview the customer; seek to understand the business function.
- Bootable copy vs. archival backup
- Should you back up everything?
- What about disaster recovery?

Plan for offsite storage!



Develop a backup strategy

- What needs to be protected?
- How frequently should backups run?
- What storage media will be used for onsite and offsite storage?
- Do we need an archive policy?
- Document what you implement *and recommended improvements.*

Special considerations

- Transactional systems (email, databases, etc.)
 - Best is built-in backup or archive option, and then back up the backup
 - What methods exist to avoid falling back to a crash-consistent restore?
- Windows and Linux systems or VMs
- Data that only resides in the cloud

Disaster Recovery

- **Basic:** Be able to boot and completely restore a system (bare-metal restore).
- **Comprehensive:** Ensure the continued operation of a business following a disaster. This is a different animal.
- Plan and avoid; *be able to recover.*

Implement now, improve later

- Don't get caught in analysis-paralysis.
- Put something in place ASAP.
- Agree on a plan for improvement and/or expansion.
- You're in good shape when you have multiple copies, with at least one copy stored offsite.

Common backup tools

- Mac-only apps
 - Time Machine
 - CCC or SuperDuper
- Cross-platform apps
 - CrashPlan
 - Retrospect
- Command-line tools
 - rsync, cp, ditto – *be aware of metadata issues*

Scripting resources

- Mac In The Shell: MacTech Magazine
- Lynda.com
- GitHub
- The great Google code-sharing database
- Training centers

A basic cp script

Example script:

```
#!/bin/bash
#cp-backup.sh
#Created by Sean Colins on
1-25-2011.#Copyright 2010 CoreQuick LLC. All
rights reserved.
#Here we are copying the documents folder to
the backup volume.
cp -Rp "/Users/sean/Documents" "/Volumes/
backup/Users/sean/Documents/"
```

Strategies for restores

- Teach the client.
 - What can they do, and when should they absolutely, no matter what, call you?
- Do it for them and show the results.
- Keep reports of successes and failures.
- Deal with failures immediately!

It really doesn't matter what you back up...

- It only matters what you can RESTORE.
- *This is the why...the goal.*
- Use this mantra to guide your decision-making process and recommendations to your clients.
- TEST, TEST, TEST!

Final thoughts

- It's not a question of *if*; it's a question of *when*!
- Protect yourself while protecting your clients. Remember, you are their trusted advisor and advocate.
- Don't allow your clients to be repeat DriveSavers customers.

Thank you.

Eric Ullman

eric.ullman@retrospect.com

 [@eullman](https://twitter.com/eullman)