# datto 

# Introducing the Mac Agent

## 7 reasons why Datto's Mac Backup Agent is essential to achieving the best data protection available for Mac servers and laptops

Apple computers, including Mac servers and MacBook laptops have become everyday staples of business IT. Despite this trend, Mac data protection options remain limited to Time Machine and third-party cloning tools, which all operate at the file level. Mac users deserve a better answer.

Datto believes Apple computers deserve the same class of protection and performance afforded to other laptops and enterprise servers. In June 2016, Datto introduced an industry first: a true block-level image backup solution for Apple computers. Note that this is not a clone synthesized from a file backup. To deliver this, Datto developed the Datto Mac Agent, which includes a custom low-level driver for OSX that operates and tracks changes at the device block level.

Here, we review why Datto data protection products, including the Mac Agent, provide the best data protection available for Apple computers.

## 1: Maximum data protection

Discovering a corrupted backup at the time of restore makes a bad situation into a disaster, but unfortunately many have experienced this. Time Machine is often used with disk drives as backup storage, which use simple file systems with limited integrity checks. Time Machine backups, like other 3rd party Mac backup solutions, are not quiesced, yielding unpredictable captures of open applications. Local-only backups mean that site loss remains a risk, which leads to even more risk as physical drives are rotated and transported off-site.

Maximum data protection starts with smart, consistent backups. With the Mac Agent, real point-in-time snapshots are facilitated for the protected volumes by redirecting writes starting when the backup is initiated, and flushing out to disk once it completes. The Mac Agent then leverages proven Datto backup storage technology such as ZFS' multiple levels of checksumming, and background integrity checks that detect and pro-actively repair "bit rot". RAID protection eliminates risk of on-site backup drive failure, while backups are automatically protected off-site in the Datto Cloud without transporting drives.

The Mac Agent image backups demanded the fastest backup times possible to make image backups from snapshots a reality. Faster backups make more frequent backups possible. No other Apple data protection option matches the RPO, protection, or consistency available with the Mac Agent and Datto solutions.

## 2: Long-term retention (archival)

Restoring data that might have been deleted accidentally months or years ago requires access to more than the last few recent backups. This requires guaranteed long-term retention if the backup solution is to also serve as an archival solution, especially when regulatory compliance is a consideration.

Time Machine has no backup retention controls. Backups are pruned to weekly and monthly retention, but they will be automatically deleted if room is needed for new backups. When a shared backup device is used (including Time Capsule), it is even less obvious when old backups are pruned.

The Mac Agent extends Datto SIRIS and ALTO retention controls to Mac users. Backups are kept for a guaranteed time period - even indefinitely via Datto's Infinite Cloud Retention. Stop rotating disk drives, and start letting the Datto Cloud provide the automatic off-site, and compliant, archival for Mac users.

## 3: Maximum storage efficiency

Until the Datto Mac Agent was introduced, all Mac backup solutions operated at the file level. Many leverage HFS+ metadata, which limits incremental backups to file-level granularity. Any change to a file (contents, name, or folder location) results in the entire file needing to be backed up, often uncompressed. Other backup solutions that are capable of sub-file updates may require investigating updated files for the changes at the time of backup, creating more disk IO and resources, and longer backup times.

The Mac Agent, with its ability to track block-level changes, only needs to backup actual changes at the sub-file level, and only updated metadata. Datto backup storage offers on-disk compression, and data is logically deduplicated across backups via Inverse Chain Technology.

The Datto Mac Agent is the most space efficient protection available for Mac, consuming over 75% less storage while providing substantially increased protection. See the example in Table 1, where the consumed backup storage for a single MacBook is compared between Time Machine to a USB drive, Time Machine to a Datto NAS share (better), and finally using the Mac Agent with any Datto backup appliance (physical, virtual, or imaged).

| | Apple Time Machine, using an external drive or Time Capsule | Apple Time Machine, backing up to a Datto NAS share | Mac Agent from Datto |
|---|---|---|---|
| Consumed backup storge, after 1st backup | 160GB | 124GB | 124GB |
| Consumed backup storage, after 10 days of daily backups, 2% daily change | 538GB | 368GB | 151GB |
| RAID protection (on-site / off-site) | NO / NO | YES / YES | YES / YES |
| Offsite protection | NO | YES w/ retention plan | YES w/ retention plan |
| Long-term archival | NO | NO | YES w/ retention plan |
| Point-in-Time backup consistency (snapshot) | NO | NO | YES |

**Table 1:** Comparing consumed backup storage for a single MacBook with 120 GB of data, plus a 40GB thick-provisioned VMware Fusion VM, which is 50% full and used daily. This is 160GB of data on the source MacBook, on a single partition. No file exclusions are configured.

## 4: Maximum backup performance

As described above, Time Machine creates a large quantity of backup data, which is often written to a single hard drive (HDD). When this drive reaches capacity, Time Machine first prunes the oldest backups on that drive. That pruning task may take hours, decreasing backup frequency and increasing the RPO.

With the Mac Agent, low-level change block tracking means less data to write during the backup. Those writes are then accelerated with the high performance of Datto backup storage, utilizing both ZFS write coalescing and SSD flash acceleration. The processing power of the Datto solution enables (and offloads) inline data compression.

This combination of the Mac Agent with Datto storage delivers the best backup performance available for Mac. And with Inverse Chain Technology and intelligent retention plans, pruning is a fast lightweight operation that will never occur during a backup.

## 5: File restore, real image BMR, and cloning

With one backup solution from Datto, the Mac Agent enables worry-free recovery that can be either file-level, or a full bare metal recovery (BMR). Datto uses a consistent disk image as the recovery point for BMR (as opposed to a synthesized image), reducing restore times by more than 50%. If there is a site loss, file restores and image BMRs can be done directly and immediately from the Datto Cloud - a huge time and cost improvement over mailing back rotated drives from other sites.

With Datto, the image backups of Mac computers may be restored to dissimilar HW, which means Datto can also be leveraged as a cloning solution for large repetitive Mac deployments. With the Mac Agent installed in the image, the cloned systems (or BMR systems) continue to backup the moment they are restarted to eliminate protection gaps. A proper cloning strategy guarantees every Mac has the protection it deserves installed on the day it is deployed.

## 6: Protected Datto NAS shares

Time Machine, like other 3rd party Mac backup products, is generally limited to protecting local HFS+ formatted storage, such as the internal drive, SD cards, and USB-attached drives. NAS shares go unprotected, or require additional investments.

The Datto Mac Agent is also limited to HFS+, but when paired with a Datto SIRIS or ALTO, is part of a solution that provides resilient and protected Datto NAS shares available via CIFS, NFS, or AFP. Datto NAS shares are automatically and inherently protected, with Copy-on-Write snapshots in the Datto storage, ZFS checksums, and they replicate to the Datto Cloud for automatic off-site data protection. Datto NAS shares have all of the same ZFS flash-accelerated performance of Datto backup targets.

Only Datto offers a complete, unified, total data protection solution for Mac environments that includes NAS. A physical Datto BDR appliance or a Datto NAS can be used, as well as a SIRIS Virtual which can provision NAS shares from its storage pool.

## 7: Fleet management for MSPs

Most data protection solutions for Apple systems were designed for the consumer. Risk is high and compliance impossible when relying on individuals to backup their Mac laptops to local external drives. OSX Server does not help address this challenge, as backups are still scheduled and managed by each Apple computer.

Businesses demand centralized administration of backup schedules and backup storage. The Mac Agent is critical to delivering a business backup strategy for Macs that can leverage the proven fleet management, email alerting, and auditing already available from Datto. Local and remote backup is now available, for a fleet of hundreds with no need to rotate a single disk offsite.

Datto also helps with restores. End users can run their own restores: Simple restore interface/end-user driven, and it's easy to view side-by-side comparisons to discover what has changed between backups (because IT administrators often don't know what disappeared – or what it was named).

## Unified data protection platform for Windows, Mac, and Linux - Virtual and physical

With the Mac Agent from Datto, one backup solution unifies the best available data protection for Apple with the proven Datto data protection for all of the main OSs, in both virtual and physical infrastructures, agent-based and (for VMware ESX) agentless.

Datto engineering continues to lead and innovate. Contact Datto, or your MSP, to learn more today about how the Datto and the Mac Agent can help your IT efforts.

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