

Proper Management of Macintosh Systems in Electronic Discovery

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Macintosh systems and related devices such as iPhones are increasingly finding their way into corporate environments. When an e-discovery request involves the Mac platform, standard practices may not be sufficient to handle the distinct differences in operating systems, hardware, software, file systems, and formats.

In order to ensure that each step of the e-discovery process is completed with accuracy, security and legal defensibility, special expertise must be employed. Although the general standards and techniques used in traditional e-discovery situations are clearly applicable to Macintosh environments, it is essential that additional resources be allocated to ensure that platform differences are adequately considered.

Legacy Challenges

In an ideal world, every business's IT network consists of modern technology. Unfortunately, real-world budget constraints and limited technical resources result in continued utilization of outdated hardware and software. Legacy archival and backup schemes further complicate the matter. These environments present challenges during the collection stage of the e-discovery process and require professionals to develop creative solutions. Since legacy systems are often rife with

proprietary hardware and software, the problems that they pose during a discovery request can test even seasoned collection professionals.

Prior to the introduction of Intel-based Macintosh computer systems, Macintosh computers used Motorola-based 68k and PowerPC processors whose architecture and components were very distinct from familiar Wintel environments. Corresponding differences in the platforms built around these processors diverged noticeably from x86 architecture.

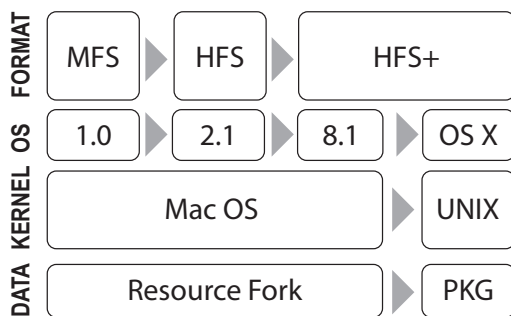
Starting with Unix-based OS X in the early 2000s and continuing with the adoption of Intel-based processors in 2006, the Mac has moved much closer to other platforms. However, since they continue to run a unique footprint of open and proprietary software, current Mac systems continue to pose unique challenges.

A Heavy Hand, Thinking Differently

One reason Apple enjoys such brand loyalty is the Mac's reputation for ease of use and reliability. That is due in no small part to Apple's tight control over its components, from chipsets, to the OS, to the ultimate closed consumer system: the approval-based App Store for iPhones, iPod Touch, and iPad.

Although these decisions serve to hide the seams in the user interface and promote consistency across component software, this tight control has created problems related to e-discovery. For example, it is rare that out-of-the-box e-discovery products will work in the Macintosh environment. Windows-based systems cannot read or write to an HFS-formatted partition. Additionally, there is no native read/write support on the Mac for NTFS-formatted volumes. The most basic fix to this problem is to port data to a FAT32 volume from a Mac side, which Macs can read (although the Mac OS and many applications cannot execute from FAT32 volumes). However, this is an imperfect solution. First, the limitations of the FAT architecture may not be

Fig. 1.1: Macintosh Format Evolution



suitable in a discovery environment where mass storage and high performance are necessary. Second, files copied to a FAT32 volume from the Mac OS exhibit truncated file names and altered metadata that make it difficult to preserve crucial attributes. Third, the way documents are associated with their respective applications is distinct from PCs. Instead of a filename extension, i.e., *.doc*, the Mac used, until recently, *creator codes* to bind these associations. (Systems not running the latest Mac OS, 10.6, including all non-Intel machines, still use this system.) Files transferred to a PC-formatted volume often lose their respective associations if the user left off the extension because it was unnecessary on the Mac. This can wreak havoc in a situation where hundreds or thousands of files must be identified and processed.

Preserving the Chain of Evidence

Due to the aforementioned distinctions between Macs and PCs, it is important that original data (and metadata) be preserved during collection. Where Macs are commonly found in corporate environments (such as advertising agencies), there are nearly always PCs as well. Logically, this means that e-discovery efforts involving Macs will usually involve PCs, too. During the processing and analysis phases, Mac evidence often must be folded into a larger PC-based effort. As a practical matter to avoid the risk of spoliation, this will involve batch conversions *originating on the Mac side* to formats that standard, PC-based e-discovery suites can handle. This is the best practice for preserving important metadata for conversion, while maintaining the original format in case it must be revisited. Of course, best practices also involve Mac-friendly write-blocking hardware during preservation and collection.

Conversion for Standard Processing

It's no stretch to say that a plurality of data handled in most e-discovery situations originates from the Microsoft Office suite.

On the average Mac, however, this is less common. Over the years, Apple has increasingly offered its own alternatives, notably, iWork as an alternative to MS Office, and the iLife suite of digital lifestyle software. The former is mostly seen in small business environments, though Office still reigns at all levels. Frequently used programs such as Apple's Safari web browser, and Apple Mail have their own system of caches and databases, which may be of importance in an e-discovery situation. iPhone data is also subject to increasing scrutiny, though the particulars of its storage system eclipse the scope of this article.

In practice, one of the largest chunks of data that e-discovery practitioners will encounter is a Microsoft Entourage database, the Mac version of Outlook's *.pst* file. Like its PC counterpart, it is a proprietary format, but also like the *.pst*, third-party programs can read and convert it to a format that can be handled by e-discovery software.

Another large domain of data encountered in Mac e-discovery is comprised of the many formats used by creative professionals. Fields such as advertising, web and graphic design, 3D rendering, audio and video editing and production are famously Mac-centric. File formats such as Quark, or Adobe's native Photoshop, Illustrator or InDesign will nearly always play a role when e-discovery involves creative Mac environments. Working with technical personnel with a background in these programs is duly important when dealing with these formats in situations of legal significance.

About Mac Legal Discovery

Founded by Zach Fried, an experienced Macintosh consultant and Paul Reinitz, Esq., an attorney licensed to practice in NY State, Mac Legal Discovery offers more than a dozen years of professional Mac expertise combined with a clear understanding of the complex legal issues involved in e-discovery.