

Affordable Archiving Technology

Ingesting and Indexing Legacy Media and Data

Industries, from law enforcement and attorneys to medical and education, have been storing vital information on secondary devices for decades. These secondary devices include microfiche, laserdisc, LTO tapes, DVDs, Blu-ray, VHS, thumb drives, hard drives and much more. The two main issues with these secondary devices are degradation and obsoletion. These devices are deteriorating (Image 1) due to their physical storage environment and are becoming harder to play back. The technology used to view the files is completely obsolete or on its way to becoming obsolete. (Try finding a VCR or buying a computer with a built-in DVD player, as examples.)

Dated archiving technology has been used for decades and it is now proving to be very difficult to find files in what has become a very large "junk drawer" of unstructured data. These "junk drawers" do not contain databases with the metadata to locate files, while some others may contain the once popular, "piece of paper"/Excel spreadsheet that contains the data that has been lost. The very scary but real threat of being unable to find and ensure evidence is obtainable and accessible, is when an audit or a retrial occurs. What would it take to find the evidence for that retrial right now? If it could even be found, can it be properly retrieved and played back or displayed? Unsure? The answer is migration to modern formats will maintaining the media and data. So, how do we migrate an archive?





There are several key factors that must be accounted for to ensure the integrity of each file and to maintain the chain of custody for admissibility in court. First, hashing the evidence files before doing anything with them and rehashing the files every step of the way is a complication many applications and Windows based processes do not handle correctly, leaving the agency exposed to future authentication challenges. The proper way to accomplish this is with a complete hashing process for every move of media and data. The files need to be hashed prior to replicating the file off the secondary device. Then, as the file is duplicated to a staging area, the hash is validated again. Once the metadata has been parsed from the file and folder names, or from the .xml/.json files, the metadata and original replicated files get transferred through an encrypted tunnel to the final storage location in the cloud or on premise. The last and final step is to run the hash one last time. If it passes the file is whole and complete and is still deemed the original file for admissibility in court. The metadata is sent to a database, and now you have a fully organized, structured, and searchable Digital Evidence Management System (DEMS) of your old archives.

A second critical issue to consider when migrating is the structure of the video file. Most old video capture systems created proprietary video. Migrating it requires a tool to be able to handle/playback the video file. This could be a codec library like DirectShow, or possibly a standard player like VLC, but most included an executable application to playback that proprietary video. The pain point lies within the new OS versions being incompatible with the old application provided to play the video, resulting in obsolete/useless technology.

The best way to address the issue as described above is a binary rewrap of the proprietary video to a standard wrapper (.mp4), while maintaining the original first instance evidence. The binary rewrap is not a transcode, so the process is extremely fast. This process has been accepted in court around the world as an original evidence file. The reason it is allowed is because at an individual frame level, each image will match the hash of the original video frame. This provides the benefit of both the video file being playable by any browser or video player and keeping the original for court purposes. Both files will be sent to the DEMS for long-term archival management.

Metadata mapping from the unstructured data to the new system is another area of concern in the migration process. Once the old system's metadata has been identified, the newly created fields need to be massaged to meet the new system's format. Some important considerations are things like the new system's metadata structure does not handle specific types of metadata (i.e., GPS, triggers), or it may have different field names and they need to be mapped from the old name. What do you do with the metadata that is not supported by the new destination systems? Use Data Migration specific tools!

Other concerns regarding a proper archive migration:

• Cost of storage, especially in the cloud.

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- The files are stored in a specific folder structure containing several subfolders along with needed supporting files that need to be parsed into Metadata for the index.
- Zipped up files complicate migration (Zipping Evidence Files: The Good, the Bad and the Ugly)
- The old software's APIs might only support placing the audit trails in a PDF, not into a structure that can be parsed.
- The new software platform does not support prepending the audit trails.
 - The new software platform does not support the old metadata structure.
 - For example, GPS information, trigger events such as a light bar or a weapon being drawn
- The new software platform does not support folder structures for complex evidence.
 - For example, 3D crime scene recreation, or Cell Phone or Computer HDD dumps

If anything described above is missed, dropped, can't be verified, or played back, then the risk of the evidence files being challenged in court is inevitable, causing a potential chain reaction in the legal system.

DWS offers software solutions that address data migration and archiving concerns. First, **Data-Central** is a logical software system that provides capabilities with other applications to integrate via the "Middleware Approach." It comes with defined capabilities such as communication protocols, data transformation, mapping, and connectivity. Standardizing end-point connectivity of Systems, Applications and Data Integrations are made easy with **Data-Central's** APIs; effectively acting as an extension of the existing software. Secondly, **Hybrid**, a public safety grade Digital Asset Management System (DAMS), can ingest, search, store, analyze, share, and report on most asset types required for archiving and offers multiple AI functions to automate the majority of the indexing challenge for metadata creation. As an open middleware platform, **DWS** will send the media and data to customer's existing backend solution. For example, if the customer has the AXON Unlimited Storage contract, **DWS** can send all of the content to the customer's E.com or Prosecutor Premier instance to manage.

You may be asking at this point, how do you address the physical handling of the secondary devices such as DVDs/Blu-rays, VHS tapes, thumb drives and more? The answers are a creative mix, depending on the specific devices. For example, for the DVDs and Blu-rays **DWS** works with <u>Rimage</u>. In the law enforcement industry, Rimage is known for having the industry's best digital publishing of evidence onto discs. **DWS** has created an ingestion process for the Rimage hardware to reverse the process and read the evidentiary files off the discs and bring the data back onto a server. This expedites the process by allowing the operator to mount hundreds of discs at a time on the spindles and let the **Data-Central** software run, while following the process described above to ensure the integrity and admissibility of the evidence in the future.



In the same manner, VHS tapes can be inserted back into a VCR and played back for review. Instead of the VCR playing this on a TV, the output of the VCR runs through a digital encoder to digitize the video and audio. This creates a standard .mp4 video file that **Data-Central** can grab, so the operator can add metadata (from the

labels) and send it to the cloud storage location or on-premise storage under **Hybrid**. The same process can be done with thumb drives.

If the agency requires temporary onsite personnel, to be compliant with the evidence handling process and to perform the tasks onsite, services can be provided as the project dictates. With numerous partners specializing in these services, and using **DWS** tools and **Hybrid** technology, the service partners can offer CJIS compliant, certified, and insured technicians to bid the work solving the critical challenge in archiving large volumes of content when many organizations are desperately understaffed and under resourced in today's unstable work environment.

Whether you want on-premise storage, cloud, cold storage or highly cost-effective, off-line storage, **DWS's** software creates the stress-free, cost-effective solution for migrating archives to a modern structured environment. **DWS** has the software and experience to deal with these issues properly and efficiently. If you are migrating soon and would like a demo or more information on this solution, please <u>CLICK HERE</u>.

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