

Dual-Life[®]

True LTO Tape Erasure Third Party Verification as Performed by Kroll Ontrack[®]

"The Most Complete and Secure LTO Tape Service Available!"

The Question

Can LTO tape be erased for reuse, eliminating all possibility of data recovery?

Background

All organizations that use the popular LTO data tape format share the same risk, which is how to be certain data is erased 100% when redeploying existing tape, shopping for recycled LTO media or performing end of life data destruction. LTO media is laid out with 4 data bands positioned between 5 narrow servo bands. The servo bands are used to keep the head precisely aligned with the data tracks. Due to the use of these magnetic servo bands, data cannot be erased using bulk magnetic methods without also erasing the servo bands and permanently damaging the LTO tape.

When redeploying or responsibly disposing of LTO tape media, the challenge is how to fully erase the tape to remove all the existing data? It can take hours to perform a full write pass on LTO media and the Department of Defense specifically recommends doing a complete overwrite of the entire tape three times to ensure the data is fully masked. When faced with the task of processing hundreds or even thousands of LTO tapes for redeployment or disposal, the total time required could be weeks or months of costly operations staff and drive time. Commercial vendors who claim that they can securely "sanitize" or "eradicate" LTO media face this same challenge. If they actually performed a complete, full tape write pass on each LTO tape, the total time necessary would make the project unmanageable, and unprofitable. If they did so the recommended three times to ensure security, it would be virtually impossible to process a reasonable volume of tapes. The best that most commercial vendors can do is "reset" or "over write" a very short file at the beginning of the LTO tape blocking subsequent drive access to the tape. Some vendors may promise a "full overwrite", but may not be able to define that and due to practical constraints will not be able to execute the recommended three pass overwrite. The most a vendor can typically promise is a best effort process that is not a total erasure and is not totally secure.

Blind Test

Dual-Life Tape Company asked Kroll Ontrack to perform a simple 'blind' test using sample LTO tapes to validate its claim that 99.9% of the existing data remains on LTO tapes sanitized or eradicated by resetting or overwriting a small file and new end of data (EOD) mark. Although this process blocks data from view of standard tape drives the data is accessible and readable through forensic procedures. The premise of the test is very simple. If the claim that commercial vendors make about erasing LTO tapes is true, then given a sample tape, Kroll Ontrack should be unable to read any underlying data from eradicated or sanitized tapes. If Kroll Ontrack is able to access the data, then it proves overwriting a small portion of the tape is not a valid means of eliminating data on LTO tapes. And, there remains an enormous risk that sensitive data could fall into the wrong hands.

Dual-Life also provided sample LTO tapes that had been erased by its proprietary LTO Erasure Service that it claims is the only proven service that 100% erases LTO tapes and completely removes any risk of sensitive data ever being recovered. The Dual-Life Erasure process should keep the tape completely functional and able to be re-deployed like new tape. If Kroll Ontrack is able to access underlying data on the tapes erased by Dual-Life then the Dual-Life claims are false. If Kroll Ontrack cannot mount the tapes erased by Dual-Life, then the Dual-Life claims are also false because the tape is not re-useable.

Kroll Ontrack

Dual-Life commissioned Kroll Ontrack for the purpose of this testing. Kroll Ontrack is widely regarded as the expert in magnetic data recovery. Kroll Ontrack¹ provides technology-driven services and software to help legal, corporate and government entities as well as consumers manage, recover, search, analyze, produce and present data efficiently and cost-effectively. In addition to its award-winning suite of software, Kroll Ontrack provides data recovery, paper and electronic discovery, document review, computer forensics, secure information services, ESI and jury consulting, and trial presentation services.

Verification Test

Sample LTO 2 tapes were provided by Dual-Life for the testing. The validation began on or about February 17, 2010 and concluded on February 19, 2010. All testing was performed at the Kroll Ontrack facility in Eden Prairie Minnesota. No Dual Life personnel were present during the testing. The basic test was to provide four sample tapes to Kroll Ontrack. All four tapes contained existing data at the outset. Two were over written with a new end of data mark (EOD), one with a small file the other with 10,000 blocks of random data. The two remaining tapes were fully erased using Dual-Life's proprietary LTO erasure service. Kroll Ontrack would mount each tape and attempt to recover any existing data using its standard data recovery tools.

¹ For more information about Kroll Ontrack and its offerings please visit www.krollontrack.com

Test Results

The following table describes the pre-existing content of each tape and the results of the recovery performed by Kroll Ontrack. Keep in mind, the contents of each tape was unknown to Kroll Ontrack before and during the testing.

	EXISTING DATA	TEST RESULTS
TAPE SAMPLE A	Tape A was written and then completely erased by Dual-Life LTO Erasure Process and a new FID file was written.	Kroll Ontrack was <u>unable to retrieve any underlying data</u> . Kroll Ontrack was able to identify the tape history from its computer chip that the last 4 drives this tape was in 1) IBM 6810 192430, 2) IBM 6810 209545, 3) IBM (no serial), 4) IBM (no serial).
TAPE SAMPLE B	Tape B was written and then fully erased by Dual-Life LTO Erasure Process and no new FID file was written.	Kroll Ontrack was <u>unable to retrieve any underlying data</u> . The tape was ejected from all drives except the Certance LTO 3 device, but was unable to access any data. Kroll Ontrack was able to get the last 4 drives this tape was in. 1) HP HUL2 M00422, 2) HP HUL3 C01155, 3) HP HU10 6519Y, 4) Certance HX100MM.
TAPE SAMPLE C	Tape C was written and then partially over written with a small data file and a new End of File Mark was written.	Kroll Ontrack was <u>able to access the underlying data and identified it as a Tivoli backup. 180.8 GB of the backup data set was recovered</u> . Kroll Ontrack also accessed the last 4 drives this tape was in 1) HP HU10 52666K, 2) IBM 6810 280774, 3) IBM 6810 280774, 4) IBM 6810 017044.
TAPE SAMPLE D	Tape D was written and then partially over written with 10,000 blocks of random data and a new End of File Mark was written.	Kroll Ontrack found a pattern fill for about 10,000 blocks (assuming this was the over written data), and Kroll Ontrack was <u>able to access the underlying data that followed. The data recovered was identified as a NetVault backup, about 250 GB</u> . Also accessed were the last 4 drives 1) HP HU10 601LH5, 2) HP HU10 601LH5, 3) IBM 6810 192430, 4) IBM 6810 192430.

Conclusion

Both tapes A and B were erased by Dual-Life and Kroll Ontrack was unable to recovery any data from either tape. This validates Dual-Life's claim that its proprietary LTO Erase method offers 100% LTO data erasure. Tape A was fully erased and performed perfectly after the process and testing. Tape B did not have a FID file and thus would not mount, which is consistent with LTO behavior. If a tape can be identified as being used, then a FID file is expected and a mismatch tape should not be useable. Tape A is an example of how Dual-Life processes each LTO tape for 100% erasure.

Both tapes C and D were "sanitized" and/or "eradicated" by the standard methods employed by other commercial vendors and in both cases Kroll Ontrack was able to successfully recover data. This test is proof that overwriting the beginning of the tape and re-writing a new end of data (EOD) Mark does not guarantee that all data is safely removed from the tape. This test is proof that data still remains on the tape and it can be recovered. Be aware there is an enormous risk that data may fall into the wrong hands when LTO tape is sanitized using these inadequate methods.

This validates Dual-Life's claim that is it the only commercial vendor with the proven ability to offer 100% LTO erasure.

For further information about Dual-Life Tape Company and its proprietary service to erase LTO tapes, contact your local Dual-Life Sales Rep.

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