

## Introduction

StorageDNA's DNAevolution software has allowed you its customers to build an extensive active archive, as well as maximize your performance through many generations of LTO Technology. Now V4.5 DNAevolution with LTO-7the latest LTO technology is here to take your archives and workflows to the next level. DNAevolution V4.5 has, with numerous enhancements, features and implemented customer requests.

## Key Highlights Include

### **AUTOMATED DATA MANAGEMENT**

- With growing amounts of data, protecting and ensuring data integrity has become a major challenge. DNAevolution is designed to make the process of managing large quantities of data simple, requiring less administration, making work flows less error prone.

### **LTO MEDIA MIGRATION**

- LTFS migration tool that allows any LTFS tape to be automatically migrated to newer generation LTO tapes.

### **SMART DASHBOARD**

- A new alerts dashboard is designed to keep an administrator updated regarding any issues with tasks and/or hardware. This provides a single view to the entire system.

### **OTHER ENHANCEMENTS**

- Based on end-user requests and feedback, DNAevolution contains numerous additional enhancements.

## Automated Data Management

### **AUTO-VERIFICATION**

- With DNAevolution, one or more drives can be assigned to scheduled verification of tapes. Automated verification makes the process of ensuring data integrity on LTO simpler and less error prone.

Once scheduled, DNAevolution auto-verifies tapes using an assigned drive. Tapes are picked based on a filter that can be set by the administrator that allows specific tape serials to be included. This allows admins to setup verification jobs that match currently running archive jobs and tapes. Additionally, it allows multiple drives to be dedicated to perform verification in parallel across different sets of tapes for added efficiencies.

### **VERIFICATION W/ AUTO-CORRECTION, RE-COPY**

- Verification ensures data integrity by re-reading files from LTO and then comparing the calculated checksum against the source checksum. These verification jobs often uncover errors. These errors can include:
  - Files in catalog but not on tape
  - File checksum mismatch between catalog and tape
  - File size incorrect in catalog versus tape

- Normally, these errors have to be manually corrected by deleting catalog entries and recopying files. Previously the process of correcting errors would require StorageDNA support intervention.
- Now with DNAevolution, the process of detecting and fixing verification errors is automated. DNAevolution can detect any of the above errors and then perform a re-copy of the source media to LTO while making the appropriate changes to the catalog.
- All errors and corrections are reported to the dashboard.

### **TAPE POOLING**

- With DNAevolution, tape pooling functionality brings the ability to setup tape pools that jobs can automatically pull tapes from. Additionally, tape pools can be setup with tape serial-based filters for precise usage of LTO resources.
- Tape pools functionality eliminates incomplete jobs due to running out of tape capacity. With tape pooling, as long as there are free tapes in the assigned pool, tapes will be automatically used as needed.
- Tape pools is designed to enable a more “set-and-forget” approach to data archiving.

## **Smart Dashboard**

### **DATA PROCESSING ALERTS**

- A key element to effective data management is having relevant and up-to-date information. DNAevolution’s dashboard now includes key alerts related to events such as system startup, bulk formatting, tape full, verification, duplication and more. This allows an admin to stay informed about key events without having to manually dig through individual job events, alerts or logs.

### **SYSTEM WARNINGS/FAILURE ALERTS**

- The archive middleware is the place where admins discover failed data management tasks. Often these are not due to software issues, but instead caused by hardware including LTO drive/library related errors, source/target NAS/SAN issues etc.
- The purpose of DNAevolution’s System Warnings feature (also displayed in the dashboard) is to provide the administrator detailed information about not just the high-level cause of an issue, but also the hardware/system fault related to the issue.
- This allows the administrator to more effectively diagnose and fix problems.

## **LTO Media Migration**

Customers have built an extensive archives on LTO-5 and LTO-6 using older generation LTO tapes. With the each new generational release of LTO, many O-7 and the forth coming release of LTO-8 customers are looking for a way to migrate from LTO-5/6their content to LTO-7 latest generation tapes. V4.5 DNAevolution makes the process of migrating content on tapes automated and simple.

- Multiple migration processes can be setup. Each migration process needs 2 x LTO drives. The source drive must support the source media generation (LTO-5/6) and the target drive can be any newer generation LTO. Once setup, DNAevolution automates the process of copying the content.

- Tapes can be migrated at an archive or at a tape level. This allows admins to specify a current archive (and all its related tapes) for migration or perform a migration by specifying the tapes. In either case, DNAevolution creates a target archive that receives the catalog entries for the migrated data. The data itself is copied to the target LTO tape(s).
- The new archive, along with the new LTO tape(s) is a new fully functioning DNAevolution archive. The older catalog and tapes can be exported and stored for offsite disaster recovery.
- During migration, data is automatically compacted between older generation LTO to newer generation LTO tapes. This results in an efficient compacting of an archive to higher capacity LTO tapes.
- All migration activities are in turn reported to the dashboard.

## Other Enhancements

### WEB LTFSCK

- LTFSCK or filesystem checking a tape is a common task required when the tape does not mount due to a corruption (e.g. due to a power loss). In this case, admins can use the web UI-based LTFSCK feature to auto-correct the tape without requiring a StorageDNA support call to assist with this process.

### FORMAT W/ CATALOG REMOVAL

- Format now allows you to re-format tapes and automatically delete associated catalog entries as part of the format process. This allows users to more easily re-use tapes and to re-copy their files.

### WEB IMPORT

- Ability to import LTFS format tapes written with any 3rd party software. While this feature was available as a command line option, it is now available via DNAevolution's web interface.
- Import performs a basic catalog create and additionally creates a checksum as well. This provides an easy workflow for importing tapes into the central DNAevolution catalog.

### TAPE DISPLAY FILTER

- Admins have the ability to filter the tape view in the My Tapes tab by additional filters. This includes the following:
  - + Verified Tapes
  - + Client/Archive Manager
  - + Tape Generation
  - + Serial Name Filter
- This allows admins to quickly get a list of tapes without having to browse every tape in the tape list.

### NON-SDNA FILE STRUCTURE

- DNAevolution creates a special folder structure on LTO/LTFS tapes that allows more efficient tracking of files. However, there are times when end users require a folder structure that does not have the added DNAevolution format.
- Now, if the option is enabled, DNAevolution can create a non-SDNA directory structure on the tape in addition to the DNAevolution format. This enables both SDNA and non-SDNA to co-exist on the same tape.