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Dino-Software

T-REX
QUESTIONS & ANSWERS

What does T-REX do?

T-REX is the newest, most comprehensive catalog management, VSAM cluster, HSM, and TMC synchronization tool on the market. It helps you ensure the health of your catalogs, HSM migrated files, and TMC in five key areas: maintenance, diagnostics, reporting, backup and recovery, plus SMF management. This one tool, as a complement to IBM's Access Method Services, provides you with all of the utilities needed to simplify management of your catalogs and tape subsystem while providing the critical backup and recovery capabilities that are required to protect your data in the event of minor problems or major disasters. T-REX supports all VSAM clusters - KSDS, ESDS, RRDS, VRRDS, and LINEAR. T-REX provides the user with a facility to aid in the drive toward continuous availability with the capability to REORG a catalog while it is OPEN and optionally move it to a new volume.

T-REX includes an extensive collection of facilities that allow you to:

- REORG any catalog even if that catalog is OPEN and allocated to CAS on any number of shared systems.
- Move a catalog to another volume while that catalog is OPEN and allocated to CAS on any number of shared systems.
- Diagnose discrepancies between system catalogs and your TMC. Diagnostics can be run using your TMC as the source against your system catalogs and using your system catalogs as the source against your TMC.
- Rebuild and synchronize your BCS with your TMC entries. This is particularly useful in a DR setting to get the restored BCS completely in synch with the DR backup tapes shipped to the DR site.
- Utilize EXPORT and IMPORT commands capable of repairing many structural defects for ICF catalogs, VVDSs, and VSAM clusters.
- Identify data sets migrated by HSM but whose HSM control data set records are broken or missing. Identify which HSM migrated files cannot be recalled due to structural errors within HSM control files. Eight separate diagnostics are available to validate the integrity of the HSM BCDS, MCDS and OCDS control data sets.
- Use names, characteristics, attributes, or volume serial numbers as selection criteria to report on data set information.
- Perform catalog repair and recovery using a variety of methods allowing response to different types of failures.
- List, delete, or modify data within the catalog environment at the record or control interval level for both data or index components.
- Make use of SMF data to quickly recover using BCS or VVDS backup copies.
- Use diagnostic and repair facilities to detect and resolve inconsistencies in the catalog environment.
- T-REX provides powerful generic selection criteria to minimize the amount of effort required to manage and maintain your catalog environment.
- Analyze BCS and VVDS objects to determine optimum specifications (this feature is sold as a separate product by other vendors).

- Relabel DASD volumes containing catalogs, VSAM, and nonVSAM data sets. Catalog entries pointing to data sets on the volume are automatically updated. Multiple catalogs are processed concurrently as separate subtasks.
- Copy all or partial catalog entries from one BCS to another with full VVDS integrity.
- For disaster recovery scenarios, T-REX provides unmatched flexibility. Using the DRIMPORT (Disaster Recovery IMPORT) process, you can selectively restore entries to your catalogs. This process eliminates any need for time consuming catalog scrubbing utilities. However, should there ever be a need to scrub, T-REX provides the fastest scrubbing utility on the market today. Powerful subtasking capabilities allow T-REX to scrub numerous catalogs simultaneously without the need to generate IDCAMS control statements.

What are the primary challenges that T-REX addresses?

T-REX addresses seven primary challenges faced by data centers today, including:

1. The need to recover efficiently and quickly from catalog problems.
2. The need to maintain a healthy catalog environment in the face of changing business demands such as the ability to migrate to new technologies like 36 track tape devices.
3. The need to ensure your HSM migrated files can be recalled when needed. Identify those files with structural errors within the HSM control data sets.
4. The need to swiftly and cogently retrieve and report information about your catalog environment including the data managed in the catalog environment.
5. The need to monitor your catalog environment in a way that is effortless enough to promote comprehensive diagnostic practices.
6. The need to setup your DR environment as quickly as possible.
7. The drive toward continuous availability. Standalone time is no longer needed to reorganize a catalog or to move a catalog to a new volume.

What are the primary benefits of T-REX maintenance and diagnostic facilities?

T-REX allows you to perform regularly scheduled catalog maintenance quickly and easily, simplifying your day-to-day catalog management tasks. It gives you the ability to quickly and easily migrate to 36 track tape devices, scratch orphaned data set components, manage SMF data related to the ICF environment, and ensure your system catalogs are in sync with your TMC. With T-REX, BCS and VVDS reorganization is simple. Structural, logical, and relational problems in the catalog environment can be quickly identified and corrected before they affect system availability. T-REX's generic name and volser selection capabilities allow you to perform diagnostics and maintenance on multiple catalogs and VVDSs, thus eliminating the need to update job streams with explicit names in an effort to keep pace with changing environments.

What are the primary benefits of T-REX backup and recovery facilities?

Business resiliency: T-REX is the latest, most up-to-date tool available for the reliable backup and recovery of your catalog environment. T-REX gives you the flexibility to recover catalogs in several different ways according to what the situation dictates. Minor errors may only require backup and rebuild of the current contents of the catalog to repair the error. (Some utilities use the catalog index in the backup process, and these themselves can often cause the backup to fail). T-REX uses its EXPORT command to bypass any index and backup individual data components, resulting in the most reliable form of backup. In the most severe cases users may need to perform a forward recovery using SMF data and a previous backup copy.

24/7 processing: REORG while OPEN provides the user with a facility to reorganize a catalog without the need to pause online systems or halt batch processing. A catalog can be allocated and OPEN to CAS on any number of shared systems. T-REX ensures total data integrity during the REORG process. This same REORG process can be used to DELETE and REDEFINE your catalog while changing *ANY* attribute. Even the volser can be changed.

How does T-REX stack up against the competition?

T-REX comes from the original developers of Softworks' Catalog Solution® and Performance products. The developers are indisputably the most capable and experienced catalog management technicians on the planet, having at least 16 more years of hands-on product experience than DINO's closest competitor. Having designed and supported the former industry-standard product at their old company, DINO developers were not allowed to upgrade, rewrite or add new features without being able to demonstrate a significant additional Return-On-Investment to their corporate management. ("Why add features when you own the market and have no competition?") Accordingly, ideas for speed, efficiency, and new functionality were stifled and suppressed. The base product became loaded with an uncoordinated aggregation of minor functions designed to keep users paying maintenance for as long as possible. Accordingly, when DINO determined to release T-REX, the developers did not set out to remake an old product with all of its inherent architectural limitations, but an entirely new framework designed with today's new hardware and operating systems in mind.

New competitor companies (that DINO developers originally trained on this technology years before . . and who never had the benefit of actual user experience) followed this same, old-world stratagem. For example, none of the other available technologies were built to accommodate multi-tasking from the outset - and are thus far slower than T-REX. One vendor did retrofit multi-tasking to ONE function (backup), but all are faced with the same retrofit and aggregation problems that stem from trying to build on an old design. T-REX multi-tasked every major function (10+), including diagnostics, from inception several years ago.

Every major improvement in this field originated at DINO and was later adopted by others in the market. Feature after feature has systematically been copied to the extent that it became a tired joke at DINO that "if you want to see what is in our competitor's next release – look at our last one." Users need only look to the long list of features announced in prior DINO advertisements . . . to see them reappear as competitor features 6 - 9 months later! T-REX purposefully, and by design, also integrates the functionality of SIX (6) stand-alone, separately priced, competitor products. There is no additional charge for this functionality. No separate installations are required. Even the MAJOR mainframe software vendors use T-REX for their in-house needs, and they should know their business! T-REX has also replaced every major competitor in the market but has never itself been replaced.

T-REX also offers these unique features and functions:

- Move catalogs to a new volume while OPEN and allocated to CAS on any number of connected systems.
- Remove attributes like IMBED/REPLICATE on your catalogs while catalog is OPEN and allocated to CAS on any number of connected systems.
- Ability to diagnose synchronization issues between your TMC and system catalogs. Supported Tape Management Systems include: CA1; Control-T; RMM; TLMS; ZARA.
- Rebuild and synchronize your BCS from your TMC entries.
- Provides the capability of VVDS backup and rebuild.
- Automatically fixes or generates control cards from its diagnostic routines that can fix the errors it detects.
- Performs high-speed device conversion at the catalog level rather than the entry level.
- Significantly increases the efficiency of your disaster recovery effort by removing the need for any catalog scrubbing procedures, dramatically reducing recovery time.
- Should catalog scrubbing be necessary, T-REX can perform it in lightning-quick speed. T-REX is the only product on the market to offer the ability to quickly scrub multiple catalogs simultaneously.
- Provides System Access Facility (SAF) security that allows you to restrict access to the most powerful T-REX functions to designated staff members.
- Provides flexible generic name and VOLSER specification capabilities.

What are T-REX's functions?

T-REX has many commands that complement IBM's Access Method Services (AMS). T-REX extends AMS to support VSAM clusters (KSDS, ESDS, RRDS, VRRDS, and LINEAR), BCSs, and VVDSs. T-REX's functions include:

- ANALYZE selects and prints detailed information for BCSs and VVDSs. Logical and physical information for BCSs are collected and displayed. Each record type found in the BCS is not only tallied and displayed, but the longest record is identified and the true average record size is displayed. All connected catalogs can be analyzed in one command. The output can then be sorted by numerous fields. Information for VVDSs includes catalogs within the VVCR/VVCN chain as well as space map details.
- AUDIT compares all tape entries within your user catalogs to the information within your TMC. The TMC is then searched to compare/validate the information between the TMC entry and the associated user catalog.
- AUDIT HSM controls data sets for structural errors and ensures HSM migrated file can be recalled.
- AUDIT DASD identifies, displays, and totals the size and number of uncataloged entries detected on DASD.
- DELETE removes records and control intervals from VSAM clusters and BCS and VVDS catalog components.
- DIAGNOSE dynamically invokes IBM's Access Method Services DIAGNOSE BCS to VVDS and/or VVDS to BCS facilities in a single or multitasking environment.
- DRIMPORT restores full or partial BCS components by key or record type. Generation data groups can be reinitialized and set to empty before utilizing another "data mover" to restore critical data sets at a disaster recovery site. BCS records can

be included/excluded by devicetype, DSN, recordtype, and volser. DRIMPORT can even select generations of a GDG by devicetype and volser. This enables the user to restore just their tape subsystem, for example.

- DUMP provides "logical" backup capabilities for VSAM clusters. Entries can be selected by full and/or generic DSN within single or multiple catalogs. Alternate indexes can be included by name or by association when the base cluster is dumped.
- EXAMINE dynamically invokes IBM's Access Method Services EXAMINE facilities for keyed VSAM data sets (KSDS and VRRDS) and a BCS in a single or multitasking environment.
- EXPORT takes a "raw dump" of VSAM data sets and the BCS and VVDS components of an ICF catalog. All VSAM data types are supported. Backups can be performed in a single or multitasking environment.
- ICFRU applies SMF updates to the backup of a BCS component of an Integrated Catalog Facility to recover a "back-leveled" catalog.
- IMPORT restores VSAM data sets and BCS and VVDS components of an ICF catalog in a single or multitasking environment.
- INTEGRITYCHECK checks and corrects discrepancies in the ICF catalog environment. Each diagnostic can be run in a single or multitasking mode.
- LISTCAT selects and displays catalog entries. It also contains powerful and flexible search logic and can be used to generate IDCAMS DEFINE, DELETE, or DELETE NOSCRATCH cards for each selected entry.
- LISTHSM to select BCDS, MCDS, and OCDS records based on descriptive keywords and record relationships. With one control statement you can select any record type and all of its related records, determine used entries that exist on an OCDS TTOC volume, and select entries that are related across different control data sets.
- MODIFY is used to change attributes in BCS and VVDS records. Special selection criteria exist to optimize VSAM data sets for sequential processing. This can speedup many of your batch processes.
- PRINT displays the contents of VSAM data sets and BCS and VVDS catalog components.
- REFORMAT changes the volume label on a DASD device, interfaces with the Catalog Address Space (CAS), and multitasks the modification of the "old" volume reference in all related catalogs to the "new" volser.
- REORG allows the user to quickly reorganize any catalog. Catalogs can be OPEN and allocated to CAS on any number of shared systems. No longer must online systems be paused to reorganize a catalog.
- REPORT command is used to gather and display catalog and/or DASD space information. VTOC space information, as well as information for volumes, data sets and catalogs can be selected. Output information may optionally be sorted to display the results in a custom format.
- REPRO moves or copies catalog records from one or more BCS to another.
- RESTORE is used to reload each selected VSAM data set. Alternate indexes and path relationship can automatically be established. Clusters can be renamed or have many of their physical characteristics modified when restored.

- SCRUB is used to synchronize a BCS with its related data set entries. Catalog scrubbing may be performed as part of disaster recovery processing.
- TAPEAUDIT is used to gather and display information on uncataloged data sets residing on tape, tape data set catalog entries that no longer reside on tape, tape volumes stored in robotic/virtual tape libraries and in vault locations, and SMS managed tape data sets.
- TAPEREPORT generates the following reports for the tape environment – Tape Media Utilization, Tape Media Detail, Tape Media Status, and Bill Summary.
- ZAP updates records in VSAM clusters and BCS and VVDS catalog components.
- INFORMATIONONLY or SIMULATE allows users to see results before actually utilizing a particular function.

How does T-REX work?

T-REX is an MVS batch facility that provides flexible cluster, BCS, VVDS, and volume selection capabilities. ISPF panels are available and each command is supported through ISPF. T-REX can “single-thread” or multitask many of its commands so that much more work can be accomplished in a smaller window. If you have a vendor product that supports VSAM clusters and ICF catalogs, ask them if they “run under z/OS without any changes,” or do they support and use the 64 bit instruction set and the latest operating system features? The answer is likely “NO.” T-REX does not rely on old technology, journals, or temporary work files. It swiftly addresses critical VSAM and catalog tasks in the shortest amount of time with unprecedented integrity. T-REX is not just another catalog recovery product. It has superior catalog recovery functionality that surpasses any competitor. In addition T-REX has enhanced IDCAMS functionality that supports all types of VSAM clusters (KSDS, ESDS, LINEAR, RRDS, and VRRDS) and catalog components (BCS and VVDS).

Why is T-REX better than the competition?

T-REX provides:

1. REORG in place is one step, does not terminate from insufficient repair capability, and maintains absolute data integrity.
2. Full Object Support - Supports all types of clusters (KSDS, ESDS, LINEAR, RRDS, and VRRDS) and catalog components (BCS and VVDS).
3. Multitasking Backups and Other Functions - Why process a VSAM object (cluster, BCS, or VVDS) one entry at a time when you can simultaneously process many objects? Elapsed time is significantly reduced for all processes.
4. Move catalogs to a new volume while OPEN and allocated to CAS on any number of connected systems.
5. Remove attributes like IMBED/REPLICATE on your catalogs while catalog is OPEN and allocated to CAS on any number of connected systems.
6. While other vendors make the user specify how many subtasks to create, T-REX dynamically determines the optimal performance criteria. This removes the responsibility of the user knowing what value(s) are optimal. These values can change drastically depending upon the system you are running. As you change or upgrade systems, T-REX automatically adjusts.
7. Backup Integrity - Bypasses the index of keyed objects (KSDS, VRRDS, and BCS) to obtain a complete backup.

8. Superior Diagnostics - We interrogate the entire scope in one pass (BCS, VVDS, and VTOC). There is no need to interrogate these objects separately. T-REX is the only product on the market to support multitasking when diagnosing your BCSs, VVDSs, and VTOC. Why diagnose one catalog at a time or one volume at a time when you can process 32+ simultaneously?
9. T-REX has also found and fixed problems that none of the other products could.
10. Multivolume Support - Full support for the recataloging of multi-volume VSAM and nonVSAM catalog entries.
11. AUTOFIX Capabilities - Provides the dynamic creation and removal of catalog entries to correct catalog discrepancies. Corrective control cards are generated if AUTOFIX is not requested.
12. Full Coupling Facility Support in a SYSPLEX Environment - T-REX honors and maintains VVDS integrity when updates are made to a VVDS that resides in the Coupling Facility. T-REX communicated directly with the coupling facility to ensure data integrity from Release 1. One other vendor belatedly retrofitted more than a year after DINO.
13. Backup Flexibility - You can backup an object (cluster, BCS, or VVDS) to an unlimited number of backup files with one pass of the object. You are not limited to one or two backup files.
14. Dynamic Cluster, BCS, and VVDS Redefinition - During IMPORT and DRIMPORT, objects can be dynamically redefined or replaced before they are populated with records. Object attributes can also be dynamically modified (data control interval size, index control interval size, maximum logical record length, and the +/- percentage adjustment of the current space allocation).
15. Disaster Recovery Support - Dynamically recreate and restore your catalog environment at a disaster recovery site with one command. You also have the option of redefining your catalog environment with the same or modified attributes without restoring catalog entries. GDG bases can optionally be restored as "empty." This allows you to quickly restore your established catalog structure and use another data mover (DF/DSS, FDR, etc.) to restore individual data sets. You also have the option of restoring selected catalog object types (VSAM, nonVSAM, GDG, UCAT, etc.) while maintaining object relationships. T-REX also provides the option of restoring catalog entries by volume and/or devicetype. For example, you can restore all entries defined to ‘TAPE.’ If you wish to utilize “scrubbing” to clean your catalogs, the T-REX multitasking SCRUB command can quickly synchronize catalogs with your DASD environment.
16. Object Modification - Supports VER/REP capabilities for all object types, cluster, BCS, and VVDS.
17. Attribute Modification - Quickly and easily modify or remove BCS names in VVDSs, change the device type and/or volume for BCS entries, and alter generation data group (GDG) attributes.
18. Enhanced LISTCAT - LISTCAT style format with "real world" selection capabilities.
19. 64 Bit Processing, DASD / VTOC reporting.
20. Auditing - T-REX can AUDIT your ICF catalog/TMC relationship. Supported TMCs are: RMM, CONTROL-T, CA1, TLMS, and ZARA.

21. Applications DUMP and RESTORE capabilities for VSAM clusters that provide backup, recovery and migration support. Related alternate index and paths are automatically selected and processed. Entries can be renamed or have many of their physical characteristics modified when restored.
22. Tape utilization – gathers and displays information detailing uncataloged data sets residing on tape; tape data set catalog entries no longer residing on tape; tape volumes stored in robotic/virtual tape libraries and in tape vault locations; and SMS managed tape data sets.
23. Tape reporting – includes reports detailing Tape Media Utilization, Tape Media Details, Tape Media Status, and Billing Summary information.

When should you consider implementing T-REX?

ICF catalogs are absolutely critical to successful data access. Today's ICF catalog environment is growing in size and complexity, and it is imperative that you have a comprehensive tool available for day-to-day catalog management and backup and recovery. Without T-REX, data is at risk, may not be accessible, or could be lost. If your MVS facility uses VSAM at all, T-REX is an integral product that should be a part of your data center's "required" tools. If your company is striving for continuous availability of your system, then the ability to reorganize your catalogs without pausing batch and online systems is also a requirement.

How much manpower is required to install and maintain T-REX?

Installation of T-REX is simple and requires no system hooks. The product is sent as an e-mail attachment and contains three installation files – "AMSELOAD", "AMSEISPF", and "AMSESAMP" – and a PDF version of the user's guide. The following five steps are required to install the product and usually only take 5 minutes to perform: (STEP 1) Copy the installation file from your PC to the mainframe; (STEP 2) XMIT all three installation files to unload them to PDS data sets; (STEP 3) Update the installation code table; (STEP 4) APF Authorize the load library; and (STEP 5) Review the manual and try some of the numerous sample jobs referenced in Appendix B and Appendix C of the user's guide.

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