

# CA TSreorg™ for Distributed Databases

CA TSREORG™ FOR DISTRIBUTED DATABASES (CA TSREORG) RECOVERS WASTED SPACE AND IMPROVES PERFORMANCE OF SQL SERVER, ORACLE AND DB2 FOR LINUX, UNIX AND WINDOWS (LUW) DATABASES BY RESTRUCTURING OBJECTS THAT HAVE BECOME FRAGMENTED DUE TO DATA INSERTS, UPDATES AND DELETIONS.

## Overview

Business critical databases need routine restructuring to operate at optimal performance levels. Many times this requires downtime, which is not an option. As a result, more storage is allocated until a maintenance window can be found to reclaim it.

To maintain availability of the data supporting vital business applications, CA TSreorg provides you with the ability to restructure databases while applications continue to run.

## Benefits

Reduce time databases are unavailable to your business applications with high-speed offline and online database restructuring capabilities.

Reclaim space, improve performance of large databases automating maintenance that could not be performed by other methods because of its business impact.

Recognize and resolve problems upfront that would stop work from completing and have a safety net during restructuring with Failure Prediction and Recovery.

## The CA Advantage

CA TSreorg is unique in its ability to provide you with restructuring functionality for MS SQL Server, Oracle and DB2 LUW databases in one product.

CA TSreorg includes high-speed offline and online restructuring as well as scheduling capabilities.

Have centralized control over your databases from one browser-based management console, giving you access from virtually anywhere.

---

## Maintaining Optimal Performance

Business critical databases need routine restructuring to operate at optimal performance levels. As applications insert and update data within databases, objects become unorganized and indexes become stale. Without regular maintenance, contention increases, backups take longer and application response time erodes. With very large databases and complex ones such as those that support ERP applications, finding maintenance windows becomes difficult, increasing the risk of losing data.

CA understands that the slow speed of native restructuring or requirement for downtime may exceed your negotiated maintenance windows or delay processing into the next business day, which could negatively impact your business. To reduce data extraction impact and time, CA offers you CA TSreorg to simplify and automate the work involved in restructuring large databases. CA TSreorg has also been validated for use with SAP on Oracle databases.

### Reduce Management Complexity

Integrated within and accessible from the browser-based management console called the CA Database Command Center, CA TSreorg gives you a common look and feel across database vendors with a wizard driven functional approach. This is a benefit when you are unfamiliar with a particular database vendor's nuances, commands or complexities. You now have a common look and feel across your different RDBMS to shorten your learning curve, giving you the confidence to manage a larger number of databases with greater efficiency.

### Centralize and Automate Database Restructuring Work

CA TSreorg gives you the ability to automate restructuring MS SQL Server, Oracle and DB2 LUW databases on a regular basis, all from one console and common interface. Speed and efficiency of large databases is increased by regularly restructuring objects that have become unorganized. For even faster reorganization, the database restructuring process can take advantage of distributed multiprocessor environments. In addition to online and offline reorganization capabilities, you can use the advanced Failure Prediction and Recovery capabilities to prevent unexpected outages caused by failed restructuring attempts; human error, lack of space planning, or an unanticipated event such as a system restart.

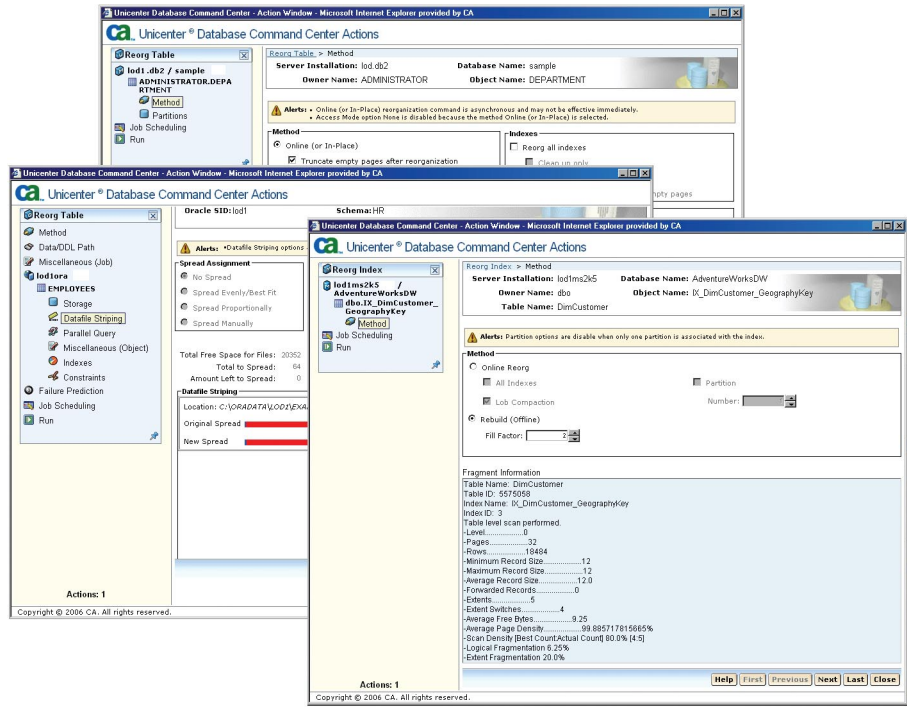
### Recover Wasted Storage

Although the price of storage continues to drop, the cost of storage management increases with each gigabyte added, administrators' that routinely reserve extra space and budget each year for more storage must now validate that current usage is optimized before any additional is approved. Even with the latest databases releases, frequent insert and delete activity requires routine maintenance to recover wasted storage. As databases grow, maintaining application service levels becomes difficult when using manual methods as they either require offline usage or they exceed maintenance windows. Unfortunately, fragmented databases can result in storage triggers increasing I/O that prematurely necessitates expensive CPU and storage array upgrades. CA TSreorg helps you recover wasted storage with little or no impact to application service levels.

FIGURE A

Perform restructuring of SQL Server, Oracle and DB2 Linux, UNIX, Windows databases from one central interface.

## CENTRALIZE DATABASE RESTRUCTURING



### How CA TSreorg Works

After installation and discovery of databases, you can access CA TSreorg from a browser, removing the need to dedicate a console. One common interface and wizard driven workflow make it easy to restructure a database, eliminating the need or reliance for you to perform custom coding or remember database vendor specific Structured Query Language (SQL), procedures or syntax.

You can utilize the built-in job scheduling capabilities to submit work, confident that processing will take place at the designated time, with successful completion or issues reported back to you. Common scheduling capability eliminates added work of figuring out and troubleshooting operating system platform schedulers (CRON, Windows) or database vendor scheduling.

With a common repository, you can share and load previously defined job parameters as well as schedule at a predetermined time. Work can be saved and reused, as well as shared with others to support process improvement and best practices initiatives.

The removal of structural fragmentation from tables, indexes and tablespaces can be automated, alleviating performance problems caused by disorganized data. Space used by dropped tables is recoalesced, data is reclustered, index trees are rebalanced, and the number of levels reduced.

Use Failure Prediction to automate environmental readiness review to eliminate the need for attended monitoring. Verify database, system, storage and other important parameters are in order so work is not stopped or have to be repeated. When setting up restructuring there are a number of functional key capabilities that you can also perform.

Should something happen during the restructuring process, CA TSreorg has capabilities to recover and resume operation. You'll quickly gain the confidence to see how CA TSreorg is the space management solution designed for your mission critical databases and quite different than just running a SQL script.

### **Supports Your Enterprise Management Integration Initiatives**

**COMMON COMPONENTS AND WORKFLOW** Restructuring and reorganizing databases is just one of the tasks performed by database administrators (DBAs). As database complexity increases and maintenance windows decrease, DBAs face new challenges in performing work necessary to maintain service availability without impacting the business. CA understands this challenge and provides you with products that tightly integrate and scale up so they can be used and shared across groups to create and support repeatable processes and help establish best practices.

Benefits:

- Manage major databases vendors from one common console and without having to install client software or license a designated PC
- Specific database vendor skills or customer coding skills are not required as one common interface with functional workflow eases setup and execution of tasks
- Save storage, hardware and eliminate end configuration management challenges of creating scripts or custom code using a common repository for unload processing and job reuse

**INTEGRATION WITH OTHER CA DATABASE MANAGEMENT SOLUTIONS** The CA TSreorg browser-based management console, called the CA Database Command Center (CA DCC) is the integration point to the other CA distributed database management solutions to further expand functionality. This includes accelerated data unloading with CA Fast Unload® for Distributed Databases to improve database efficiency and database performance management and monitoring with CA Insight™ Database Performance Monitor for Distributed Databases.

- High-speed data extraction reduces time database tables are unavailable to your business applications.
- Eliminate downtime with the ability to use multiple files output when there is not enough capacity on your disk for one large single file.
- Reduce or eliminate additional processing by choosing a format to speed reloading, reporting, or backup and recovery.
- Identify, diagnose and solve database performance issues before they impact business activities.
- 24 x 7 and long term historical database performance diagnostics and trending.
- Centrally monitor and manage the performance of database internals as well as CPU, memory, I/O and subsystem metrics.

---

## Key Capabilities

**CROSS PLATFORM DATABASE MANAGEMENT** Common display and in-context integration unifies and simplifies your management of different RDBMS and provides a consistent look and feel that helps you expand your skills to manage more databases. If you decide to add the additional database management capabilities for database restructuring and database performance monitoring and management, the new functionality is seamlessly enabled with the same in-context integration.

- **One Console, Consistent Look and Feel** View all managed databases on one display, perform work and review execution status without having to switch back and forth between tools or systems.
- **Guided Action and Execution** Wizard driven task execution hides database command and syntax complexity and generates the required code to accomplish the task. The code can be reviewed, edited, immediately executed or scheduled.
- **Unattended Reorganization** You can setup a job, save it and schedule it for later execution. For work that needs to be repeated often, you can even schedule it to automatically run on an interval basis.
- **Single Sign-On** Once databases are setup, sign-on information can be stored so that you don't have to keep entering your log in credentials every time you access a different database to perform work.
- **Advanced Management Features** Row ordering (clustering) of data, automatically coalesces tablespace after reorganization, perform sorting during reorganization, archive, move table to new tablespace and move indexes of the object to specified tablespace. Compact large object data types (LOBs) that are contained in a clustered index or underlying table.

**INCREASE AVAILABILITY** No matter the number of databases, size, or system they reside on, you can keep them up and operating at maximum efficiency. The CA TSreorg architecture was designed to handle large and complex multi-database environments so you can scale up and out without overburdening the servers.

- **High-speed Restructuring** CA TSreorg provides high-speed restructuring to reclaim space used by dropped tables, recluster data, rebalance index trees and reduce the number of index levels. Regularly scheduled, it enhances performance of databases by removing fragmentation and recovering wasted space. Concurrent Unload/Load method for tablespace reorganization additionally speeds reorganization.
- **Online Reorganization Capability** Reorganize objects while a database remains online. You can run automated or manually scheduled reorganization without needing to secure a long period of downtime to complete the work.
- **Multiprocessor Capability** User selective functionality takes advantage of multiprocessor environments exploiting multi-CPU, multi-I/O systems. Multiple processors are employed during the unload phase, and the data query is split among the various CPUs for faster data unloading.

**FAILURE PREDICTION AND RECOVERY** CA TSreorg performs pre-reorganization checks. If there is any potential for failure, it logs a message to prevent the reorganization process from taking place. It also has the capability to recover if an error does occur. Failure prediction automates object integrity, disk space and important parameters without lengthy analysis or code creation.

- **Preflight Verification** Before starting, the space, database objects and environment are checked for any items that could impact successful completion of the restructuring, such as whether there is sufficient space for the operation, enough room on the disk to unload the data as well as many others.
- **Resume, Recover if Interrupted** Unlike scripts or database procedures, if a failure occurs, including ones external to the product, the exact place of interruption will be recorded. Log files can be accessed to trace and resolve the error and restart to finish the interrupted process. Built-in recovery eliminates lost time from complex recoveries whether an error during or interruption of the reorganization.

#### TARGET DATABASES AND ENVIRONMENTS (32/64 BIT)

DATABASES	INTEGRATION	HOST/SERVERS
<ul style="list-style-type: none"> <li>• Microsoft SQL Server</li> <li>• Oracle Database</li> <li>• IBM DB2 for Linux, UNIX, Windows</li> </ul>	<ul style="list-style-type: none"> <li>• CA Fast Unload for Distributed Databases</li> <li>• CA Insight Database Performance Monitor</li> </ul>	<ul style="list-style-type: none"> <li>• Microsoft Windows</li> <li>• UNIX               <ul style="list-style-type: none"> <li>- Sun Solaris</li> <li>- HP-UX (PA-RISC, Itanium)</li> <li>- IBM AIX</li> </ul> </li> <li>• Linux               <ul style="list-style-type: none"> <li>- Red Hat Linux</li> </ul> </li> </ul>

NOTE: Target representation in general, new certifications continue to be released. Please consult CA Support Online or your CA Sales Representative on your requirements.

## CA TSreorg Helps Improve Service Availability

Prior to the availability of technology capable of centrally managing databases from multiple vendors, you might have relied on manual or separate utilities for database restructuring. Faced with having 2 or 3 database vendors within your company, working between them has always been a challenge and it becomes even more difficult when databases grow larger but the time allotted to reorganize them has not.

Whether you have been faced with these challenges or others related to the reorganization or restructuring of databases, having the right tool for the job makes a difference and has many beneficial returns. Significant accomplishment in technology for central database management across vendors and platforms is now available to you using CA TSreorg.

**IMPROVE PERFORMANCE, REDUCE REORGANIZATION TIME** High-speed and online database restructuring capability reduces time databases are unavailable to your business applications. CA TSreorg provides automated reorganization of tablespaces, tables or indexes and provides features such as row ordering, disk striping, datatype modification, column shrinking, failure prediction and automated recovery.

**INDEPENDENCE FROM DATABASE OR SERVER PLATFORM** Only one console to access databases across the enterprise to accomplish reorganization work or schedule it. Only one interface needed to manage all databases, providing you with a consistent look and feel across database vendors and operating system platforms.

**INTEGRATION** Can be used standalone or integrated with other products for enhanced and expanded capabilities all within the same console.

In order for you to manage increasing database complexity, you need to counteract it with technology to complete work within set schedules as well as to minimize business impact. Consolidating operations and enabling best practices across the IT infrastructure with automation enables increased business capabilities as well as controls costs as your business needs change.

---

## The CA Advantage

To optimize the performance, reliability and efficiency of your overall IT environment, you need to tightly integrate the lifecycle, control and management of distinct functions such as operations, administration and service management, along with security and governance.

CA's vision for enabling this higher level of management control is Enterprise IT Management (EITM). EITM is a dynamic, secure approach that integrates and automates the management of information technology applications, databases, networks, security, storage and systems across departments and disciplines to maximize the full potential of each. CA's comprehensive portfolio of modular IT management solutions helps the enterprise unify, simplify and secure IT to better manage risk, costs and service, and ensure that IT meets the business needs of the enterprise.

---

## Next Steps

CA Database Management Solutions can integrate and automate management of distributed and mainframe databases across the enterprise to reduce your administrative costs as well as increase performance and strengthen your compliance capabilities.

---

To learn more about how CA Database Management can help your organization, visit us at [ca.com/databasemanagement](http://ca.com/databasemanagement)