

AutoDBA[®]

Automated Oracle
Database Management



Features & Technology

AutoDBA® Features & Technology



Introduction

AutoDBA® is an innovative product that automates routine Oracle database maintenance and makes DBAs more efficient at the other tasks they perform. Supporting every version of Oracle since 7.3.4 and all major operating systems, AutoDBA is the most comprehensive Oracle utility on the market.

Automated Features

■ Storage (Tablespace) Management

AutoDBA automatically adds storage to tablespaces that need it by adding datafiles or extending existing datafiles. It uses a system-wide perspective, managing the available free space on shared devices across multiple database instances based on each tablespace's growth rate. It can handle raw partitions, locally managed tablespaces, custom datafile naming schemes, unique file size constraints, and many other peculiarities of your system. AutoDBA's tablespace management feature can also achieve longer-term goals such as load balancing and storage optimization.

■ Extent Management

AutoDBA manages the storage settings of objects in your database on a per-object basis. It can set the number of extents, the next extent size, the maximum extents setting, and other attributes based on an object's type, size, and rate of growth. AutoDBA allows you to define a storage management policy by creating specific rules, or use the pre-configured rules that come with the product. The extent management features allow optimum performance and storage utilization for tens of thousands of objects in a single database with almost zero effort.

■ Chaining and Fragmentation Repair

AutoDBA automatically fixes different types of fragmentation and chaining in databases. It can fix chained table rows (when a row smaller than an Oracle block size spans more than one block) to improve I/O rates. In doing so it smartly handles triggers, constraints, and foreign keys. AutoDBA can also coalesce free space in tablespaces, prevent fragmentation of segments within datafiles, and rebuild tables so that the rows are in primary key order in situations where it improves query speeds.

■ Automated Object Rebuilds

AutoDBA can automatically rebuild tables, indexes, rollback segments, and snapshots for a variety of reasons, such as performance or storage optimization. For example, indexes can be rebuilt to reclaim deleted space and improve B-tree structures. AutoDBA can handle bitmap indexes, function-based indexes, index-organized tables, partitioned tables, and many other object types. Of course, users can customize the reasons why rebuilds occur.

AutoDBA will also recompile triggers, functions, and other PL/SQL objects that have become invalid as the result of schema changes or recoveries from backups. AutoDBA can recompile multiple, interdependent objects, and will notify you if it is not able to successfully recompile an object.

■ Table and Index Analyzes

AutoDBA will regularly analyze tables and indexes to update the statistics used by Oracle's cost-based optimizer. The analyzes will occur more frequently for objects that have more update, insert, or delete activity. Users can customize whether statistics are refreshed or deleted, whether they are computed or estimated, whether or not histograms are calculated, and so on.

■ Pinning and Caching in Memory

AutoDBA will automatically cache tables in the Oracle buffer cache and pin triggers, functions, packages, etc. in the Oracle shared pool in order to improve database performance. AutoDBA makes a mathematically optimal determination of which objects to pin or cache based on the amount of memory allocated to these purposes, the size of the object, and the frequency and cost of reading them from disk.



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Oracle 7.3.4
and above.

ORACLE® PARTNER PROGRAM



Productivity Tools

In addition to automating basic maintenance, AutoDBA® contains features that make DBAs more productive at the other tasks they perform.

■ Monitoring

AutoDBA features a Live Monitor console that allows you to track key machine and database statistics and alerts from a single, real-time screen. You can customize the screen to show any additional enterprise information, such as the status of ERP processes or the success or failure of scheduled jobs. It also has screens that allow you to monitor real-time sessions, queries, locks, and deadlocks. In addition, you can view a "hot list" of future capacity problems that you should anticipate based on current extrapolations.



Database Health Monitoring

■ Notification

Any of the monitored system statistics can trigger email or pager notifications, subject to your preferences and thresholds. AutoDBA can notify you when any particular error number or text pattern appears in the Oracle alert log, or when problems are found in trace files.

Alerts can be sent to a searchable Activity Log, which also incorporates data from operating system logs, application logs, and the entire Oracle alert log.

Alerts can be formatted via templates for automatic reading by other tools.

The intelligent alert limiter prevents redundant notifications from being sent, and the custom monitoring interface allows you to create your own notification conditions and messages based on any situation across the enterprise.



Automatic Script Generation

■ Query Tuning Tools

AutoDBA provides tools that allow you to diagnose and solve query performance problems. You can see real-time reports of currently running queries, historical query archives, and explain plans. And starting in early 2003, AutoDBA will provide tuning recommendations based on query syntax and execution plans.

■ Performance Tuning Tools

AutoDBA contains several tools that allow you to improve the performance of your system.

Tuning recommendations suggest changes to database parameters and configurations, and are accompanied by literature references for further reading. Historical graphs display high-level information such as overall database health, or nitty-gritty details such as wait statistics, cache hit ratios, or the percentage of sorts that occur in memory versus on disk.

A load balance analysis can pin-point I/O hotspots and generate step-by-step instructions and scripts for optimizing I/O load across multiple devices.

■ Drill Down Database Details

Sort and filter lists of all disks, tables, indexes, rollback segments, etc. in your databases, and drill down to see comprehensive information and take action on individual objects.

■ Reporting Tools

AutoDBA contains more than 70 standard real-time reports covering users, security, auditing, replication, performance, object-specific DDL or source information, and more. Users can add their own custom reports, which are automatically formatted in convenient HTML tables with sort-by-column and other user-friendly features, and provide Web-based access to other staff.



Drill Down Database Detail

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Technology for Mission-Critical, Enterprise Environments

Automation with AutoDBA® is engineered to be safe, smart, and controllable – perfectly suited for mission-critical enterprise environments. The AutoDBA script-oriented approach is...

■ **Straightforward**

AutoDBA solves database problems by generating SQL or PL/SQL scripts, which allows DBAs to see AutoDBA's intended actions blow-by-blow. Scripts can be inspected, tested, and approved or disapproved. This script-oriented approach removes the mystery from what AutoDBA is going to do and how it is going to do it. It also accomplishes database maintenance using the language and tools that DBAs most often use themselves.

■ **Configurable**

Every type of automation has its own control panel that allows users to set preferences, rules, and thresholds for that particular maintenance action.

■ **Controllable**

Each type of automation can be set to a manual or automatic mode. That is, for each type of script that gets generated, DBAs can choose to approve scripts manually, one at a time or in groups, or to allow AutoDBA to execute scripts of that type as it sees fit.

■ **Robust**

AutoDBA perform safety checks when running a script to ensure that the last step was successful and the next step will succeed. It knows how to recover from errors in scripts, and it knows when scripts need to be regenerated or discarded – for example, if something has changed in the database since the script was generated.

■ **Non-intrusive**

AutoDBA only runs scripts during times set aside for it by DBAs (typically at night, in batch windows set up by the user). AutoDBA knows how to figure out if it has exclusive access to a database, and if it doesn't, it will only perform tasks that don't interfere with other users.

■ **Prioritized**

AutoDBA executes scripts based on their benefit to the database and how long they will take to run. This "bang-for-the-buck" approach ensures that your database resources are used efficiently during off-peak hours.

■ **Targeted**

For each type of automation, users can specify which parts of the database they want included or excluded from processing – so automation only happens for objects, schemas, instances, etc. that you care about, ignoring those that you want left alone.

■ **Informative**

Each script that gets generated is accompanied by a benefit analysis that describes the reasons AutoDBA generated the script.